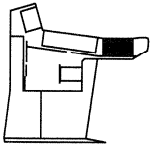
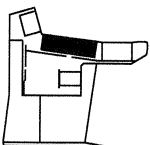
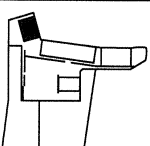
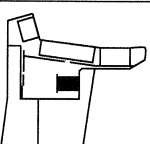
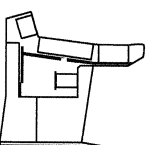


# Studer 980

## Mixing Console

	<p><b>1. General</b> List of all plug-in modules Layout and designations, dimensions Block diagram</p>
	<p><b>2. Operation</b> Alignment</p>
	<p><b>3. Plug-in units of the fader section (1.911..., 1.980...)</b> Fader-Units, Group Units, Master Units Central Control</p>
	<p><b>4. Plug-in units of the master section (1.912..., 1.980...)</b> Inputs, Groups, AUX Master-Units Talkback/Monitoring</p>
	<p><b>5. Plug-in units of the meter panel (1.913...)</b> Signalling Metering</p>
	<p><b>6. EU standard PCBs (1.914..., 1.915..., 1.916...)</b></p>
	<p><b>7. Connectors</b></p>
	<p><b>8. Wiring lists</b></p>
	<p><b>9. Bus Boards</b> Wiring diagrams</p>
	<p><b>10. 19" Rack-mount power supply</b></p>

## Operating and Service Instructions

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Subject to change

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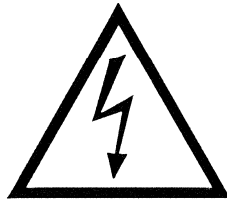
Studer is a registered trade mark of Studer Professional Audio GmbH, Regensdorf



To reduce the risk of electric shock, do not remove covers (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

Afin de prévenir un choc électrique, ne pas enlever les couvercles (où l'arrière) de l'appareil. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur.

Um die Gefahr eines elektrischen Schlages zu vermeiden, entfernen Sie keine Geräteabdeckungen (oder dessen Rückwand). Überlassen Sie Wartung und Reparatur qualifiziertem Fachpersonal.



This symbol is intended to alert the user to presence of uninsulated “dangerous voltage” within the apparatus that may be of sufficient magnitude to constitute a risk of electric shock to a person.

Ce symbole indique à l'utilisateur qu'il existe à l'intérieur de l'appareil des “tensions dangereuses”. Ces tensions élevées entraînent un risque de choc électrique en cas de contact.

Dieses Symbol deutet dem Anwender an, dass im Geräteinnern die Gefahr der Berührung von “gefährlicher Spannung” besteht. Die Grösse der Spannung kann zu einem elektrischen Schlag führen.



This symbol is intended to alert the user to the presence of important instructions for operating and maintenance in the enclosed documentation.

Ce symbole indique à l'utilisateur que la documentation jointe contient d'importantes instructions concernant le fonctionnement et la maintenance.

Dieses Symbol deutet dem Anwender an, dass die beigelegte Dokumentation wichtige Hinweise für Betrieb und Wartung enthält.

**CAUTION:**

Lithium battery. Danger of explosion by incorrect handling. Replace by battery of the same make and type only.

**ATTENTION:**

Pile au lithium. Danger d'explosion en cas de manipulation incorrecte. Ne remplacer que par un modèle de même type.

**ACHTUNG:**

Explosionsgefahr bei unsachgemäßem Auswechseln der Lithium-batterie. Nur durch den selben Typ ersetzen.

**ADVARSEL:**

Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig og som beskrevet i servicemanualen (DK).

**FIRST AID**

(in case of electric shock)

1. Separate the person as quickly as possible from the electric power source:
  - by switching off the equipment
  - or by unplugging or disconnecting the mains cable
  - pushing the person away from the power source by using dry insulating material (such as wood or plastic).
  - *After having sustained an electric shock, always consult a doctor.*

**WARNING!**

DO NOT TOUCH THE PERSON OR HIS CLOTHING BEFORE THE POWER IS TURNED OFF, OTHERWISE YOU STAND THE RISK OF SUSTAINING AN ELECTRIC SHOCK AS WELL!

2. If the person is unconscious:
  - check the pulse,
  - reanimate the person if respiration is poor,
  - lay the body down, turn it to one side, call for a doctor immediately.

**PREMIERS SECOURS**

(en cas d'électrocution)

1. Si la personne est dans l'impossibilité de se libérer:
  - Couper l'interrupteur principal
  - Couper le courant
  - Repousser la personne de l'appareil à l'aide d'un objet en matière non conductrice (matière plastique ou bois)
  - *Après une électrocution, toujours consulter un médecin.*

**ATTENTION!**

NE JAMAIS TOUCHER UNE PERSONNE QUI EST SOUS TENSION, SOUS PEINE DE SUBIR EGALEMENT UNE ELECTROCUTION.

2. En cas de perte de connaissance de la personne électrocutée:
  - Contrôler le pouls
  - Si nécessaire, pratiquer la respiration artificielle
  - Placer l'accidenté sur le flanc et consulter un médecin.

**ERSTE HILFE**

(bei Stromunfällen)


1. Bei einem Stromunfall die betroffene Person so rasch wie möglich vom Strom trennen:
  - Ausschalten des Gerätes
  - Ziehen oder Unterbrechen der Netzzuleitung
  - Betroffene Person mit isoliertem Material (Holz, Kunststoff) von der Gefahrenquelle wegstoßen
  - *Nach einem Stromunfall sollte immer ein Arzt aufgesucht werden.*

**ACHTUNG!**

EINE UNTER SPANNUNG STEHENDE PERSON DARF NICHT BERÜHRT WERDEN. SIE KÖNNEN DABEI SELBST ELEKTRISIERT WERDEN!

2. Bei Bewusstlosigkeit des Verunfallten:
  - Puls kontrollieren,
  - bei ausgesetzter Atmung künstlich beatmen,
  - Seitenlagerung des Verunfallten vornehmen und Arzt verständigen.

**Installation**

Vor der Installation des Gerätes müssen die hier aufgeführten und auch die weiter in dieser Anleitung mit  bezeichneten Hinweise gelesen und während der Installation und des Betriebes beachtet werden.

Untersuchen Sie das Gerät und sein Zubehör auf allfällige Transportschäden.


Ein Gerät, das mechanische Beschädigung aufweist oder in welches Flüssigkeit oder Gegenstände eingedrungen sind, darf nicht ans Netz angeschlossen oder muss sofort durch Ziehen des Netzsteckers vom Netz getrennt werden. Das Öffnen und Instandsetzen des Gerätes darf nur von Fachpersonal unter Einhaltung der geltenden Vorschriften durchgeführt werden.

Falls dem Gerät kein konfektioniertes Netzkabel beiliegt, muss dieses durch eine Fachperson unter Verwendung der mitgelieferten Kabel-Gerätedose IEC320/C13 oder IEC320/C19 und unter Berücksichtigung der einschlägigen, im jeweiligen Lande geltenden Bestimmungen angefertigt werden; siehe unten.

Vor Anschluss des Netzkabels an die Netzsteckdose muss überprüft werden, ob die Stromversorgungs- und Anschlusswerte des Gerätes (Netzspannung, Netzfrequenz) innerhalb der erlaubten Toleranzen liegen. Die im Gerät eingesetzten Sicherungen müssen den am Gerät angebrachten Angaben entsprechen.

Ein Gerät mit einem dreipoligen Gerätestecker (Gerät der Schutzklasse I) muss an eine dreipolige Netzsteckdose angeschlossen und somit das Gerätegehäuse mit dem Schutzleiter der Netzinstallation verbunden werden (Für Dänemark gelten Starkstrombestimmungen, Abschnitt 107).

**Installation**

Before you install the equipment, please read and adhere to the following recommendations and all sections of these instructions marked with  .

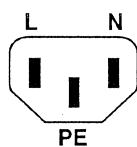
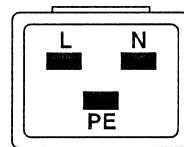
Check the equipment for any transport damage.

A unit that is mechanically damaged or which has been penetrated by liquids or foreign objects must not be connected to the AC power outlet or must be immediately disconnected by unplugging the power cable. Repairs must only be performed by trained personnel in accordance with the applicable regulations.

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country - see diagram below.

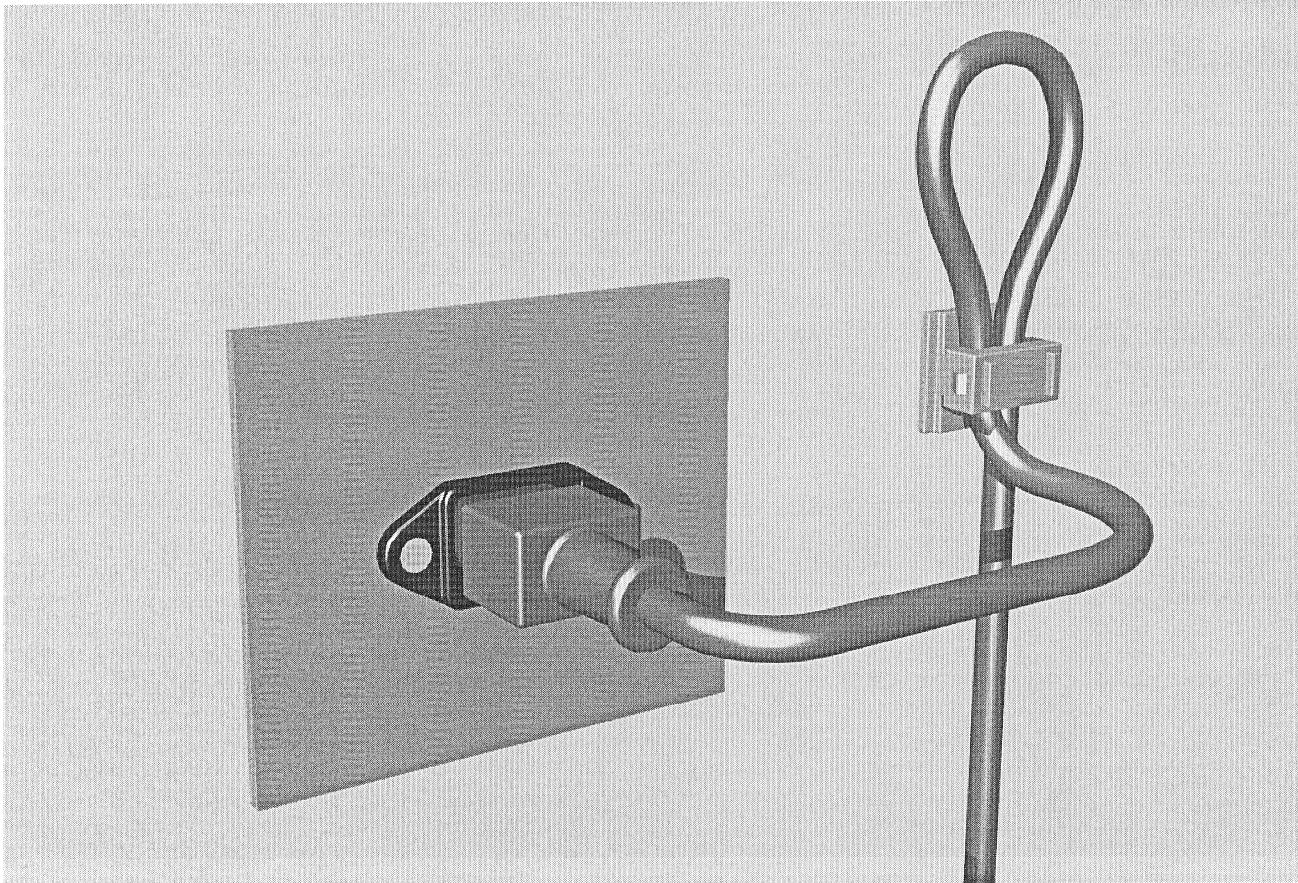
Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (equipment conforming to protection class I) must be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth conductor of the AC supply (for Denmark the Heavy Current Regulations, Section 107, are applicable).

 <p><b>IEC 320 / C13</b></p>	 <p><b>IEC 320 / C19</b></p>
Female plug (IEC320), view from contact side: L live; brown N neutral; blue PE protective earth; green and yellow	National American Standard: Black White green
Connecteur femelle (IEC320), vue de la face aux contacts: L phase; brun N neutre; bleu PE terre protective; vert et jaune	Standard national américain: Noir Blanc Vert
Ansicht auf Steckkontakte der Kabel-Gerätsteckdose (IEC320): L Phase; braun N Nulleiter; blau PE Schutzleiter; gelb/grün	USA-Standard: Schwarz Weiss grün

### Zugentlastung für den Netzanschluss

Zum Verankern von Steckverbindungen ohne mechanische Verriegelung (z.B. IEC-Kaltgerätedosen) empfehlen wir die folgende Anordnung:



### Mains connector strain relief

For anchoring connectors without a mechanical lock (e.g. IEC mains connectors), we recommend the following arrangement:

Vorgehen: Der mitgelieferte Kabelhalter ist selbstklebend. Bitte beachten Sie bei der Montage die folgenden Regeln:

1. Der Untergrund muss sauber, trocken und frei von Fett, Öl und anderen Verunreinigungen sein. Temperaturbereich für optimale Verklebung: 20...40° C.
2. Entfernen Sie die Schutzfolie auf der Rückseite des Kabelhalters und bringen sie ihn mit kräftigem Druck an der gewünschten Stelle an. Lassen sie ihn unbelastet so lange wie möglich ruhen – die maximale Klebekraft ist erst nach rund 24 Stunden erreicht.
3. Die Stabilität des Kabelhalters wird erhöht, wenn Sie ihn zusätzlich verschrauben. Zu diesem Zweck liegen ihm eine selbstschneidende Schraube sowie eine M4-Schraube mit Mutter bei.
4. Legen Sie das Kabel gemäss Figur in den Halter ein und pressen Sie die Klemme kräftig auf, bis das Kabel fixiert ist.

Procedure: The cable clamp shipped with your unit is auto-adhesive. If mounting, please follow the rules below:

1. The surface to be adhered to must be clean, dry, and free from grease, oil or other contaminants. Best application temperature range is 20...40° C.
2. Remove the plastic protective backing from the rear side of the clamp and apply it firmly to the surface at the desired position. Allow as much time as possible for curing. The bond continues to develop for as long as 24 hours.
3. For improved stability, the clamp can be fixed with a screw. For this purpose, a self-tapping screw and an M4 bolt and nut are included.
4. Place the cable into the clamp as shown in the illustration above and firmly press down the internal top cover until the cable is fixed.

## Lufttemperatur und Feuchtigkeit

### Allgemein

Die Betriebstauglichkeit des Gerätes oder Systems ist unter folgenden Umgebungsbedingungen gewährleistet:

*EN 60721-3-3, Set IE32, Wert 3K3.*

Diese Norm umfasst einen umfassenden Katalog von Parametern; die wichtigsten davon sind: Umgebungstemperatur +5...+40 °C; rel. Luftfeuchtigkeit 5...85% – d.h. weder Kondensation noch Eisbildung; abs. Luftfeuchtigkeit 1...25 g/m<sup>3</sup>; Temperatur-Änderungsrate < 0,5 °C/min. In den folgenden Abschnitten wird darauf näher eingegangen.

Unter den genannten Bedingungen startet und arbeitet das Gerät oder System problemlos. Ausserhalb dieser Spezifikationen möglicherweise auftretende Probleme sind in den folgenden Abschnitten beschrieben.

### Umgebungstemperatur

Geräte und Systeme von Studer sind allgemein für einen Umgebungstemperaturbereich (d.h. Temperatur der eintretenden Kühlluft) von +5...+40 °C ausgelegt. Bei Installation in einem Schrank muss der vorgesehene Luftdurchsatz und dadurch die Konvektionskühlung gewährleistet sein. Folgende Tatsachen sind dabei zu berücksichtigen:

1. Die zulässige Umgebungstemperatur für den Betrieb der Halbleiter-Bauelemente beträgt 0 °C bis +70 °C (commercial temperature range for operation).
2. Der Luftdurchsatz der Anlage muss gewährleisten, dass die austretende Kühlluft ständig kühler ist als 70 °C.
3. Die mittlere Erwärmung der Kühlluft soll 20 K betragen, die maximale Erwärmung an den heissen Komponenten darf somit um weitere 10 K höher liegen.
4. Zum Abführen einer Verlustleistung von 1 kW bei dieser zulässigen mittleren Erwärmung ist eine Luftmenge von 2,65 m<sup>3</sup>/min notwendig.

**Beispiel:** Für ein Rack mit einer Leistungsaufnahme  $P = 800\text{ W}$  ist eine Kühlluftmenge von  $0,8 * 2,65\text{ m}^3/\text{min}$  nötig, entsprechend  $2,12\text{ m}^3/\text{min}$ .

5. Soll die Kühlfunktion der Anlage (z.B. auch bei Lüfter-Ausfall oder Bestrahlung durch Spotlampen) überwacht werden, so ist die Temperatur der Abluft unmittelbar oberhalb der Einschübe an mehreren Stellen im Rack zu messen; die Ansprechtemperatur der Sensoren soll 65 bis 70 °C betragen.

### Reif und Tau

Das unversiegelte System (Steckerpartien, Halbleiteranschlüsse) verträgt zwar leichte Eisbildung (Reif). Mit blosssem Auge sichtbare Betauung führt jedoch bereits zu Funktionsstörungen. In der Praxis kann mit einem zuverlässigen Betrieb der Geräte bereits im Temperaturbereich ab -15 °C gerechnet werden, wenn für die Inbetriebnahme des kalten Systems die folgende allgemeine Regel beachtet wird:

Wird die Luft im System abgekühlt, so steigt ihre relative Feuchtigkeit an. Erreicht diese 100%, kommt es zu Niederschlag, meist in der Grenzschicht zwischen der Luft und einer kühleren Oberfläche, und somit zur Bildung von Eis oder Tau an empfindlichen Systemstellen (Kontakte, IC-Anschlüsse etc.). Ein störungsfreier Betrieb mit interner Betauung, unabhängig von der Temperatur, ist nicht gewährleistet.

## Air temperature and humidity

### General

Normal operation of the unit or system is warranted under the following ambient conditions defined by:

*EN 60721-3-3, set IE32, value 3K3.*

This standard consists of an extensive catalogue of parameters, the most important of which are: ambient temperature +5...+40 °C, relative humidity 5...85% – i.e. no formation of condensation or ice; absolute humidity 1...25 g/m<sup>3</sup>; rate of temperature change < 0,5 °C/min. These parameters are dealt with in the following paragraphs.

Under these conditions the unit or system starts and works without any problem. Beyond these specifications, possible problems are described in the following sections.

### Ambient temperature

Units and systems by Studer are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the intended air flow and herewith adequate cooling must be provided. The following facts must be considered:

1. The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
2. The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
3. Average heat increase of the cooling air shall be 20 K, allowing for an additional maximum 10 K increase at the hot components.
4. In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2,65 m<sup>3</sup>/min is required.

**Example:** A rack dissipating  $P = 800\text{ W}$  requires an air flow of  $0,8 * 2,65\text{ m}^3/\text{min}$  which corresponds to  $2,12\text{ m}^3/\text{min}$ .

5. If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the outgoing air temperature must be measured directly above the modules at several places within the rack. The trigger temperature of the sensors should be 65 to 70 °C.

### Frost and dew

The unsealed system parts (connector areas and semiconductor pins) allow for a minute formation of ice or frost. However, formation of dew visible with the naked eye will already lead to malfunctions. In practice, reliable operation can be expected in a temperature range above -15 °C, if the following general rule is considered for putting the cold system into operation:

If the air within the system is cooled down, the relative humidity rises. If it reaches 100%, condensation will arise, usually in the boundary layer between the air and a cooler surface, together with formation of ice or dew at sensitive areas of the system (contacts, IC pins, etc.). Once internal condensation occurs, troublefree operation cannot be guaranteed, independent of temperature.

Vor der Inbetriebnahme muss das System auf allfällige interne Betauung oder Eisbildung überprüft werden. Nur bei sehr leichter Eisbildung kann mit direkter Verdunstung (Sublimation) gerechnet werden; andernfalls muss das System im abgeschalteten Zustand gewärmt und getrocknet werden.

Das System ohne feststellbare interne Eisbildung oder Betauung soll möglichst homogen (und somit langsam) mit eigener Wärmeleistung aufgewärmt werden; die Lufttemperatur der Umgebung soll ständig etwas tiefer als diejenige der Systemluft sein.

Ist es unumgänglich, das abgekühlte System sofort in warmer Umgebungsluft zu betreiben, so muss diese entfeuchtet sein. Die absolute Luftfeuchtigkeit muss dabei so tief sein, dass die relative Feuchtigkeit, bezogen auf die kälteste Oberfläche im System, immer unterhalb 100% bleibt.

Es ist dafür zu sorgen, dass beim Abschalten des Systems die eingeschlossene Luft möglichst trocken ist (d.h. vor dem Abschalten im Winter den Raum mit kalter, trockener Luft belüften und feuchte Gegenstände, z.B. Kleider, entfernen).

Die Zusammenhänge sind im folgenden Klimatogramm ersichtlich. Zum kontrollierten Verfahren gehören Thermometer und Hygrometer sowie ein Thermometer innerhalb des Systems.

**Beispiel 1:** Ein Ü-Wagen mit einer Innentemperatur von 20 °C und 40% relativer Luftfeuchtigkeit wird am Abend abgeschaltet. Sinkt die Temperatur unter +5 °C, bildet sich Tau oder Eis.

**Beispiel 2:** Ein Ü-Wagen wird morgens mit 20 °C warmer Luft von 40% relativer Luftfeuchtigkeit aufgewärmt. Auf Teilen, die kälter als +5 °C sind, bildet sich Tau oder Eis.

Before putting into operation, the system must be checked for internal formation of condensation or ice. Only with a minute formation of ice, direct evaporation (sublimation) may be expected; otherwise the system must be heated and dried while switched off.

A system without visible internal formation of ice or condensation should be heated up with its own heat dissipation, as homogeneously (and subsequently as slow) as possible; the ambient temperature should then always be lower than the outgoing air.

If it is absolutely necessary to operate the system immediately within warm ambient air, this air must be dehydrated. In such a case, the absolute humidity must be so low that the relative humidity, related to the coldest system surface, always remains below 100%.

Ensure that the enclosed air is as dry as possible when powering off (i.e. before switching off in winter, aerate the room with cold, dry air, and remove humid objects as clothes from the room).

These relationships are visible from the following climatogram. For a controlled procedure, thermometer and hygrometer as well as a thermometer within the system will be required.

**Example 1:** An OB-van having an internal temperature of 20 °C and rel. humidity of 40% is switched off in the evening. If temperature falls below +5 °C, dew or ice will be forming.

**Example 2:** An OB-van is heated up in the morning with air of 20 °C and a rel. humidity of 40%. On all parts being cooler than +5 °C, dew or ice will be forming.

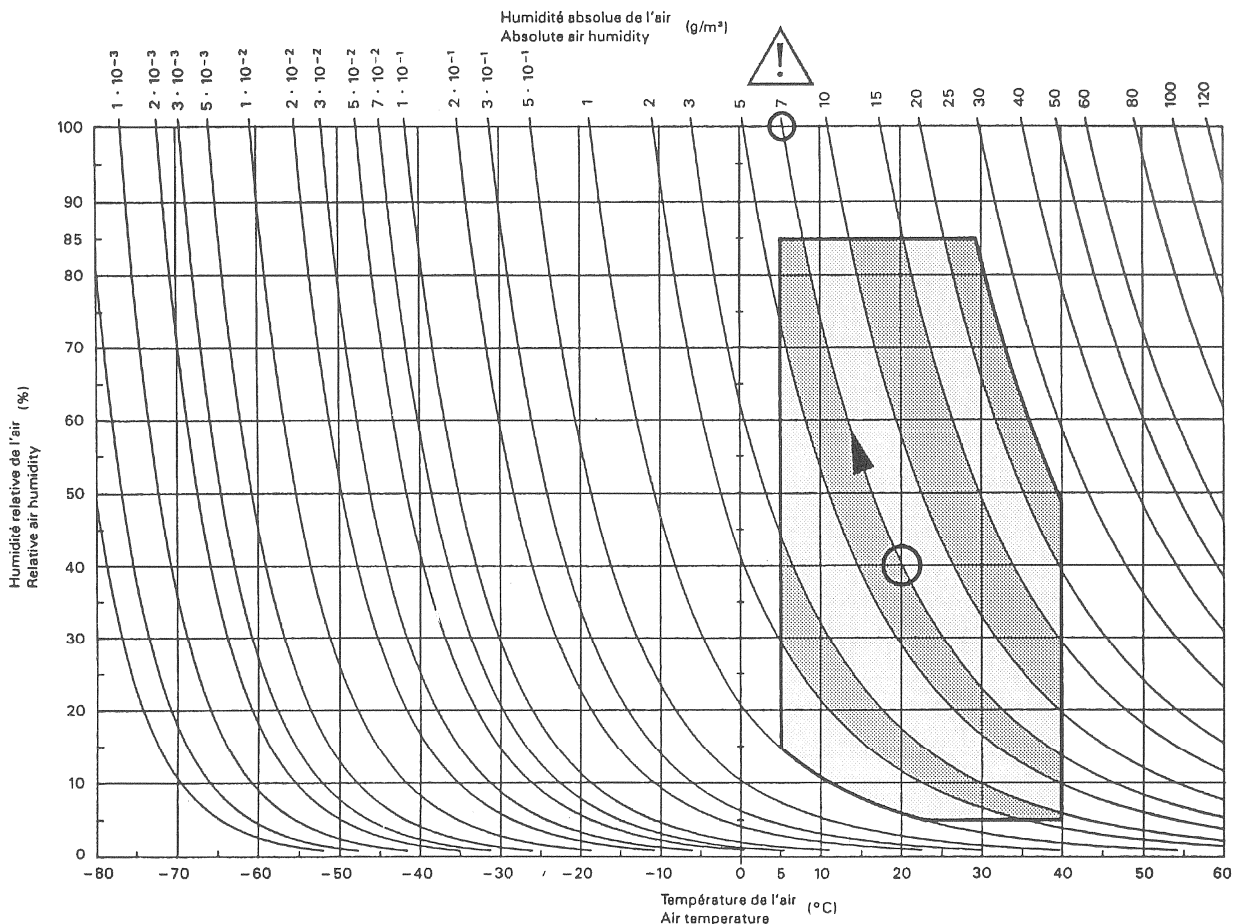


Figure B.3 – Climatogramme pour catégorie 3K3  
Climatogram for class 3K3



## Wartung und Reparatur

Durch Entfernen von Gehäuseteilen, Abschirmungen etc. werden stromführende Teile freigelegt. Deshalb müssen u.a. die folgenden Grundsätze beachtet werden: Eingriffe in das Gerät dürfen nur von Fachpersonal unter Einhaltung der geltenden Vorschriften vorgenommen werden.

Vor Entfernen von Gehäuseteilen muss das Gerät ausgeschaltet und vom Netz getrennt werden.

Bei geöffnetem, vom Netz getrenntem Gerät dürfen Teile mit gefährlichen Ladungen (z. B. Kondensatoren, Bildröhren) erst nach kontrollierter Entladung, heiße Bauteile (Leistungshalbleiter, Kühlkörper etc.) erst nach deren Abkühlen berührt werden.

Bei Wartungsarbeiten am geöffneten, unter Netzspannung stehenden Gerät dürfen blanke Schaltungs- teile und metallene Halbleitergehäuse weder direkt noch mit nichtisoliertem Werkzeug berührt werden.

Zusätzliche Gefahren bestehen bei unsachgemäßer Handhabung besonderer Komponenten:

- *Explosionsgefahr* bei Lithiumzellen, Elektrolyt-Kondensatoren und Leistungshalbleitern
- *Implosionsgefahr* bei evakuierten Anzeigeeinheiten
- *Strahlungsgefahr* bei Lasereinheiten (nichtionisierend), Bildröhren (ionisierend)
- *Verätzungsgefahr* bei Anzeigeeinheiten (LCD) und Komponenten mit flüssigem Elektrolyt.

*Solche Komponenten dürfen nur von ausgebildetem Fachpersonal mit den vorgeschriebenen Schutzmitteln (u.a. Schutzbrille, Handschuhe) gehandhabt werden.*

## Maintenance and Repair

The removal of housing parts, shields, etc. exposes energized parts. For this reason the following precautions should be observed:

Maintenance should only be performed by trained personnel in accordance with the applicable regulations.

The equipment should be switched off and disconnected from the AC power outlet before any housing parts are removed.

Even if the equipment is disconnected from the power, parts with hazardous charges (e.g. capacitors, picture tubes) must not be touched until they have been properly discharged. Touch hot components (power semiconductors, heat sinks, etc.) only when cooled off.

If maintenance is performed on a unit that is opened and switched on, no uninsulated circuit components and metallic semiconductor housings must be touched neither with your bare hands nor with uninsulated tools.

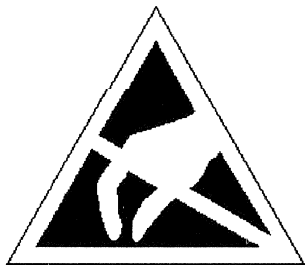
Certain components pose additional hazards:

- *Explosion hazard* from lithium batteries, electrolytic capacitors and power semiconductors
- *Implosion hazard* from evacuated display units
- *Radiation hazard* from laser units (non-ionizing), picture tubes (ionizing)
- *Caustic effect* of display units (LCD) and such components containig liquid electrolyte.

*Such components should only be handled by trained personnel who are properly protected (e.g. safety goggles, gloves).*

### Elektrostatische Entladung (ESD) bei Wartung und Reparatur

### Electrostatic Discharge (ESD) during Maintenance and Repair



**ATTENTION:**

Observe precautions for handling devices sensitive to electrostatic discharge!

**ATTENTION:**

Respecter les précautions d'usage concernant la manipulation de composants sensibles à l'électricité statique!

**ACHTUNG:**

Vorsichtsmassnahmen bei Handhabung elektrostatisch entladungsgefährdeter Bauelemente beachten!

Viele ICs und andere Halbleiter sind empfindlich gegen elektrostatische Entladung (ESD). Unfachgerechte Behandlung von Baugruppen mit solchen Komponenten bei Wartung und Reparatur kann deren Lebensdauer drastisch vermindern.

Bei der Handhabung der ESD-empfindlichen Komponenten sind u.a. folgende Regeln zu beachten:

- ESD-empfindliche Komponenten dürfen ausschliesslich in dafür bestimmten und bezeichneten Verpackungen gelagert und transportiert werden.
- Unverpackte, ESD-empfindliche Komponenten dürfen nur in dafür eingerichteten Schutzzonen (EPA, z.B. Gebiet für Feldservice, Reparatur- oder Serviceplatz) gehandhabt und nur von Personen berührt werden, die durch ein Handgelenkband mit Serienwiderstand mit dem Massepotential des Reparatur- oder Serviceplatzes verbunden sind. Das gewartete Gerät wie auch Werkzeug, Hilfsmittel, EPA-taugliche (elektrisch halbleitende) Arbeits-, Ablage- und Bodenmatten müssen ebenfalls mit diesem Potential verbunden sein.
- Die Anschlüsse der ESD-empfindlichen Komponenten dürfen unkontrolliert weder mit elektrostatisch aufladbaren (Gefahr von Spannungsdurchschlag), noch mit metallischen Oberflächen (Schockentladungsgefahr) in Berührung kommen.
- Um undefinierte transiente Beanspruchung der Komponenten und deren eventuelle Beschädigung durch unerlaubte Spannung oder Ausgleichsströme zu vermeiden, dürfen elektrische Verbindungen nur am abgeschalteten Gerät und nach dem Abbau allfälliger Kondensatorladungen hergestellt oder getrennt werden.

Many ICs and semiconductors are sensitive to electrostatic discharge (ESD). The life of components containing such elements can be drastically reduced by improper handling during maintenance and repair work.

Please observe the following rules when handling ESD sensitive components:

- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.
- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons who wear a wristlet that is connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced and all tools, aids, as well as electrically semiconducting work, storage and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable (voltage puncture) or metallic surfaces (discharge shock hazard).
- To prevent undefined transient stress of the components and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

**SMD-Bauelemente**

**SMD Components**

Der Austausch von SMD-Bauelementen ist ausschliesslich geübten Fachleuten vorbehalten. Für verwüstete Platinen können keine Ersatzansprüche geltend gemacht werden. Beispiele für korrekte und falsche SMD-Lötverbindungen in der Abbildung weiter unten.

SMDs should only be replaced by skilled specialists. No warranty claims will be accepted for circuit boards that have been ruined. Proper and improper SMD soldering joints are depicted below.

Bei Studer werden keine handelsüblichen SMD-Teile bewirtschaftet. Für Reparaturen sind die notwendigen Bauteile lokal zu beschaffen. Die Spezifikationen von Spezialbauteilen finden Sie in der Serviceanleitung.

Studer does not keep any commercially available SMDs in stock. For repair the corresponding devices should be purchased locally. The specifications of special components can be found in the service manual.

<p><b>Demontage/Dismounting</b></p>	
<p><b>Montage/Mounting</b></p>	<p><b>Beispiele/Examples</b></p>

## Störstrahlung und Störfestigkeit

Das Gerät entspricht den Schutzanforderungen auf dem Gebiet elektromagnetischer Phänomene, wie u.a. in den Richtlinien 89/336/EWG und FCC, Part 15, aufgeführt:

1. Vom Gerät erzeugte elektromagnetische Strahlung ist soweit begrenzt, dass bestimmungsgemässer Betrieb anderer Geräte und Systeme möglich ist.
2. Das Gerät weist eine angemessene Festigkeit gegen elektromagnetische Störungen auf, so dass sein bestimmungsgemässer Betrieb möglich ist.

Das Gerät wurde getestet und erfüllt die Bedingungen der im Kapitel „Technische Daten“ aufgeführten EMV-Standards. Die Limiten dieser Standards gewährleisten mit angemessener Wahrscheinlichkeit sowohl den Schutz der Umgebung wie auch entsprechende Störfestigkeit des Gerätes. Absolute Garantie, dass keine unerlaubte elektromagnetische Beeinträchtigung während des Betriebes entsteht, ist jedoch nicht gegeben.

Um die Wahrscheinlichkeit solcher Beeinträchtigung weitgehend auszuschliessen, sind u.a. folgende Massnahmen zu beachten:

- Installieren Sie das Gerät gemäss den Angaben in der Betriebsanleitung, und verwenden Sie das mitgelieferte Zubehör.
- Verwenden Sie im System und in der Umgebung, in denen das Gerät eingesetzt ist, nur Komponenten (Anlagen, Geräte), die ihrerseits die Anforderungen der obenerwähnten Standards erfüllen.
- Sehen Sie ein Erdungskonzept des Systems vor, das sowohl die Sicherheitsanforderungen (die Erdung der Geräte gemäss Schutzklasse I mit einem Schutzleiter muss gewährleistet sein), wie auch die EMV-Belange berücksichtigt. Bei der Entscheidung zwischen stern- oder flächenförmiger bzw. kombinierter Erdung sind Vor- und Nachteile gegeneinander abzuwägen.
- Benutzen Sie abgeschirmte Kabel, wo vorgesehen. Achten Sie auf einwandfreie, grossflächige, korrosionsbeständige Verbindung der Abschirmung zum entsprechenden Steckeranschluss und dessen Gehäuse. Beachten Sie, dass eine nur an einem Ende angeschlossene Kabelabschirmung als Sende- bzw. Empfangsantenne wirken kann (z.B. bei wirksamer Kabellänge von 5 m oberhalb von 10 MHz), und dass die Flanken digitaler Kommunikationssignale hochfrequente Aussendungen verursachen (z.B. LS- oder HC-Logik bis 30 MHz).
- Vermeiden Sie Bildung von Masseschleifen oder vermindern Sie deren unerwünschte Auswirkung, indem Sie deren Fläche möglichst klein halten und den darin fließenden Strom durch Einfügen einer Impedanz (z.B. Gleichtaktdrossel) reduzieren.

## Electromagnetic Compatibility

The equipment conforms to the protection requirements relevant to electromagnetic phenomena that are listed in the guidelines 89/336/EC and FCC, part 15.

1. The electromagnetic interference generated by the equipment is limited in such a way that other equipment and systems can be operated normally.
2. The equipment is adequately protected against electromagnetic interference so that it can operate correctly.

The unit has been tested and conforms to the EMC standards applicable to residential, commercial and light industry, as listed in the section „Technical Data“. The limits of these standards reasonably ensure protection of the environment and corresponding noise immunity of the equipment. However, it is not absolutely warranted that the equipment will not be adversely affected by electromagnetic interference during operation.

To minimize the probability of electromagnetic interference as far as possible, the following recommendations should be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the above EMC standards.
- Use a system grounding concept that satisfies the safety requirements (protection class I equipment must be connected with a protective ground conductor) that also takes into consideration the EMC requirements. When deciding between radial, surface or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.
- Use shielded cables where shielding is specified. The connection of the shield to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable shield connected only single-ended can act as a transmitting or receiving antenna (e.g. with an effective cable length of 5 m, the frequency is above 10 MHz) and that the edges of the digital communication signals cause high-frequency radiation (e.g. LS or HC logic up to 30 MHz).
- Avoid ground loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. common-mode rejection choke).

**Class A Equipment - FCC Notice**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residen-

tial area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

*Caution:*

*Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.*

**CE-Konformitätserklärung**

Der Hersteller,

Studer Professional Audio AG,  
CH-8105 Regensdorf,

erklärt in eigener Verantwortung, dass das Produkt

**Studer 980, Mischpult,  
(ab Serie-Nr. 8016),**

auf das sich diese Erklärung bezieht, entsprechend den Bestimmungen der EU-Richtlinien und Ergänzungen

- Elektromagnetische Verträglichkeit (EMV):  
89/336/EWG + 92/31/EWG + 93/68/EWG
- Niederspannung:  
73/23/EWG + 93/68/EWG

mit den folgenden Normen und normativen Dokumenten übereinstimmt:

- Sicherheit:  
Schutzklasse 1, EN 60065:1993, IEC 65:1985
- EMV:  
EN 50081-1:1992, EN50082-1:1992

Regensdorf, 12. April 1996



B. Hochstrasser, Geschäftsleiter



P. Fiala, Leiter QS

**CE Declaration of Conformity**

The manufacturer,

Studer Professional Audio AG,  
CH-8105 Regensdorf,

declares under his sole responsibility that the product

**Studer 980, Mixing Console,  
(on from serial No. 8016),**

to which this declaration relates, according to following regulations of EU directives and amendments

- Electromagnetic Compatibility (EMC):  
89/336/EEC + 92/31/EEC + 93/68/EEC
- Low Voltage (LVD):  
73/23/EEC + 93/68/EEC

is in conformity with the following standards or other normative documents:

- Safety:  
Class 1, EN 60065:1993, IEC 65:1985
- EMC:  
EN 50081-1:1992, EN50082-1:1992

Regensdorf, April 12, 1996



B. Hochstrasser, Managing director



P. Fiala, Manager QA

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## I GENERAL

### I.1 Utilization for the purpose intended



The Studer 980 mixing console is intended for professional use. It is presumed that the unit is operated only by trained personnel. Servicing is reserved to skilled technicians. The electrical connections may be connected only to the voltages and signals designated in this manual.

### I.2 First steps

#### I.2.1 Unpacking and inspection

Your new mixing console is shipped in a special packing which protects the units against mechanical shock during transit. Care should be exercised when unpacking so that the surfaces do not get marred. Verify that the content of the packing agrees with the items listed on the enclosed shipping list. Check the condition of the equipment for signs of shipping damage. If there should be any complaints you should immediately notify the forwarding agent and your nearest Studer distributor. Please retain the original packing material because it offers the best protection in case your equipment ever needs to be transported.

#### I.2.2 Installation



**Before any connection:** Check the line voltage setting of the power supply unit(s) before connecting to the mains. Two line voltage selectors are located on the front panel of the power supplies. For changing the line voltage setting the unit must be completely separated from the mains.



**Power connection:** The attached female IEC 320/C13 and IEC 320/C19 mains cable sockets have to be connected to appropriate mains cables by a trained technician, respecting your local regulations. Refer to the "Installation, Operation, and Waste Disposal" section at the beginning of this manual. Maintenance work inside the unit must be performed by a trained technician.



**Humidity:** Do not use the unit near any source of moisture or in excessively humid environments.



**Ventilation:** When installing the units in a rack or any other location, be sure that there is adequate ventilation. They should be situated so that their location or position does not interfere with its proper ventilation.

### I.2.3 Adjustments, repair



**Danger:** All internal adjustments as well as repair work on this product are to be performed by skilled technicians!



**Primary fuse:** For replacement of the primary fuse refer to section 2.10, Power Supply. Only skilled technicians are authorized to replace the fuse.

### I.2.4 Accessories, options

#### Accessories shipped with the 980 console:

(Set: order No. 1.980.086.00)

5	Circlips, 2.3 mm	Order No. 24.16.3023
5	Caps, bright grey, for button Ø 10 mm	Order No. 42.01.0250
5	Caps, dark grey, for button Ø 10 mm	Order No. 42.01.0251
2	Caps, red, for button Ø 10 mm	Order No. 42.01.0253
2	Caps, blue, for button Ø 10 mm	Order No. 42.01.0254
2	Caps, yellow, for button Ø 10 mm	Order No. 42.01.0255
2	Caps, green, for button Ø 10 mm	Order No. 42.01.0256
2	Caps, bright grey, for button Ø 15 mm	Order No. 42.01.0257
6	Fuses, T 2.0 A L 250 V (slow), 5 × 20 mm	Order No. 51.01.0120
2	Fuses, T 3.15 A L 250 V (slow), 5 × 20 mm	Order No. 51.01.0122
6	Fuses, T 5.0 A L 250 V (slow), 5 × 20 mm	Order No. 51.01.0124
2	Fuses, T 8.0 A L 250 V (slow), 5 × 20 mm	Order No. 51.01.0126
4	Fuses, T 10 A L 250 V (slow), 5 × 20 mm	Order No. 51.01.0127
4	Incandescent bulbs, 6 V/30 mA, T 1½	Order No. 51.02.0144
1	Hexagonal screwdriver, size 2	Order No. 98.00.2022
1	Hexagonal key, size 2	Order No. 98.00.2405
1	Hexagonal key, size 2.5	Order No. 98.00.2406
1	Hexagonal key, size 3	Order No. 98.00.2407
1	Socket key for M2 nuts	Order No. 1.010.003.26
5	Oval-head screws, M3×8	Order No. 1.010.022.21
2	Bus adapters, 2 × 32 pins, EU	Order No. 1.228.327.82
1	Bus adapter, 3 × 16 pins	Order No. 1.228.328.00
1	Bus adapter, 2 × 16 pins	Order No. 1.228.331.00
2	Fader coupling bridge, 25 mm	Order No. 1.911.000.06
2	Fader coupling bridge, 52 mm	Order No. 1.911.000.08
2	Fader knobs (P+G), red	Order No. 1.911.000.42
2	Fader knobs (P+G), yellow	Order No. 1.911.000.44
2	Fader knobs (P+G), green	Order No. 1.911.000.45
2	Fader knobs (P+G), blue	Order No. 1.911.000.46
2	Fader knobs (P+G), grey	Order No. 1.911.000.48
2	Fader knobs (P+G), white	Order No. 1.911.000.49
2	Module extractors	Order No. 1.912.000.06



### I.3 Technical specifications, console

- Conditions:
- Voltages in dBu are referred to  $0.775 V_{\text{RMS}}$ , without being tied to any load resistance.
- $$0 \text{ dBu} \triangleq 0.775 V_{\text{RMS}}$$
- Channel and master faders are set to 0 dB.
  - Outputs are terminated with  $600 \Omega$ .
  - External sources have an output impedance of  $\leq 200 \Omega$ .
  - Specifications are valid from 31.5 Hz to 16 kHz.
  - Levels are measured with a continuous sine wave (0 VU  $\triangleq$  6 dB below nominal level).

#### I.3.1 Levels

<b>Inputs</b>	<b>MIC:</b>	Sensitivity:	<b>-70 dBu...+20 dBu</b> , adjustable in 10 dB steps
		Fine adjust range:	<b>10 dB</b>
		Max. level:	<b>+24 dBu</b> , balanced
	<b>LINE:</b>	Sensitivity:	<b>+6 dBu</b> , adjustable $\pm 10$ dB
		Max. level:	<b>+24 dBu</b> , balanced
	<b>IN2:</b>	Sensitivity:	<b>+6 dBu</b> , adjustable $\pm 10$ dB
		Max. level:	<b>+24 dBu</b> , balanced
<b>Insert points</b>		Insert level:	<b>+6 dBu</b> , balanced
		Max. level:	<b>+24 dBu</b> , balanced
<b>Outputs</b>			<b>+6 dBu</b> (load $600 \Omega$ )
		Max. output level:	<b>+24 dBu</b> , balanced, for all outputs except:
		- Monitor:	<b>+22 dBu</b> (30 Hz: +18 dBu)
		- Studio Monitor:	<b>+22 dBu</b> (30 Hz: +18 dBu)
	- Headphones:	<b>+20 dBu</b> (without load, unbalanced)	
<b>Overload margin:</b>		Channel fader (PF):	<b>20 dB</b> (THD $\leq 1\%$ )
		Master fader (PF):	<b>20 dB</b> (THD $\leq 1\%$ )

#### I.3.2 Impedances, terminations

<b>Input impedances:</b>	<b>MIC:</b>	<b>&gt;1.5 k<math>\Omega</math></b> (Source: $\leq 200 \Omega$ , balanced, floating)
	<b>LINE:</b>	<b>&gt;10 k<math>\Omega</math></b> (Source: $\leq 200 \Omega$ , balanced, floating)
	<b>IN2, Insert:</b>	<b>&gt;10 k<math>\Omega</math></b> (Source: $\leq 200 \Omega$ , balanced)
<b>Output impedances:</b>	<b>Master:</b>	<b><math>\leq 50 \Omega</math></b> , balanced, floating (load: $\geq 200 \Omega$ )
	<b>Studio, Monitor:</b>	<b><math>\leq 50 \Omega</math></b> , balanced, floating (load: $\geq 600 \Omega$ )
	<b>AUX (with option 1.980.320):</b>	<b><math>\leq 50 \Omega</math></b> , balanced, floating (load: $\geq 200 \Omega$ )
	<b>AUX, GRP, Dir, Insert:</b>	<b><math>\leq 60 \Omega</math></b> , balanced (load: $\geq 600 \Omega$ )
	<b>Headphones:</b>	<b><math>\approx 135 \Omega</math></b> , unbal. (recommended load: $\geq 200 \Omega$ )

### I.3.3 Frequency response

	Filters/EQ off:	<b>+0/−1 dB</b> (31.5 Hz...16 kHz)
	MIC:	<b>≈6 Hz...50 kHz</b> (−3 dB)
	LINE:	<b>≈3 Hz...50 kHz</b> (−3 dB)
	IN2:	<b>≈3 Hz...50 kHz</b> (−3 dB)
<b>Filter:</b>	Bass cut, −3 dB point	<b>15...300 Hz</b> , adjustable; Bessel characteristics, 12 dB/oct.
<b>Equalizer:</b>	Treble control (HF), shelving:	<b>±15 dB</b> ; attack frequ. adjustable 700 Hz...15 kHz
	Treble control (HF), bell (Q ≈ 1.5 at max. boost):	<b>±15 dB</b> ; center frequ. adjustable 700 Hz...15 kHz
	Presence/absence filter (HMF), bell, constant-Q:	<b>±15 dB</b> ; center frequ. adjustable 400 Hz...7 kHz Q ≈ 2 ("narrow") Q ≈ 0.7 ("wide")
	Presence/absence filter (HLF), bell, constant-Q:	<b>±15 dB</b> ; center frequ. adjustable 120 Hz...2 kHz Q ≈ 2 ("narrow") Q ≈ 0.7 ("wide")
	Bass control (LF), shelving:	<b>±15 dB</b> ; attack frequ. adjustable 30 Hz...600 Hz
	Bass control (LF), bell (Q ≈ 1.5 at max. boost):	<b>±15 dB</b> ; center frequ. adjustable 30 Hz...600 Hz

### I.3.4 Noise

Noise voltages are measured with a true-RMS voltmeter and an equivalent noise bandwidth of 30 Hz...23 kHz.

<b>Microphone input:</b>	Noise figure, typ.	<b>F = 3 dB</b> (source impedance = 200 Ω)
<b>Signal-to-noise ratio:</b>	Master fader closed:	<b>≥101 dB</b>
	Master fader open:	<b>≥97 dB</b>
	1 channel, line, input and master faders 0 dB, unity gain:	
	Filters off:	<b>≥92 dB</b>
	Filters on (linear):	<b>≥88 dB</b>
	4 channels, line, input and master faders 0 dB, unity gain:	
	Filters off:	<b>≥87 dB</b>
	Filters on (linear):	<b>≥83 dB</b>
	16 channels, line, input and master faders 0 dB, unity gain:	
	Filters off:	<b>≥81 dB</b>
	Filters on (linear):	<b>≥77 dB</b>

**I.3.5 Distortion/crosstalk**

Distortion:  $\leq 0.1\%$  (Line level, inside frequency range)  
 Crosstalk:  $> 80\text{ dB}$  (Master-Master)

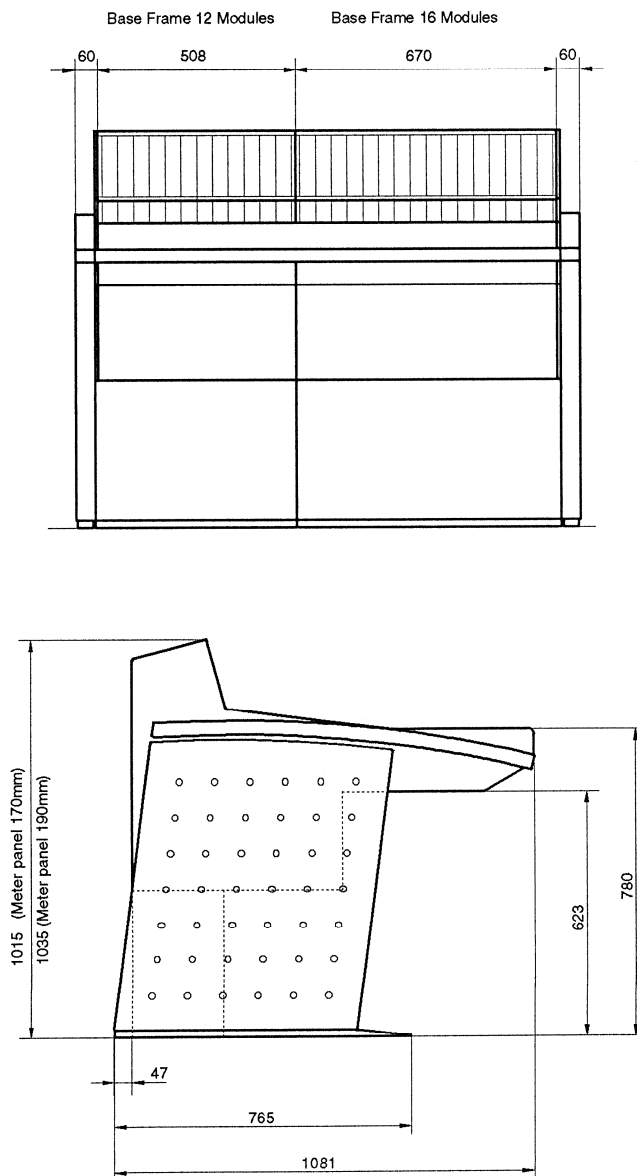
**I.3.6 Operating conditions**

Ambient temperature:  $+15\dots+40\text{ }^\circ\text{C}$   
 Rel. humidity: Class F (DIN 40040)

**I.3.7 Safety**

Safety standard: Protection class 1, EN 60065; 1993, IEC 65; 1985  
 EMC standard: EN 50081-1; 1992, EN 50082-1; 1992

**I.3.8 Dimensions**



**I.4 Specifications, power supply system****I.918.42X****I.4.1 Primary**

<b>Standby supply</b>	Voltage range		<b>100...240 V<sub>AC</sub> ±10 %</b>
	Line frequency		<b>50/60 Hz</b>
	Power consumption	Standby	<b>&lt;3 W</b>
		Operation ON	<b>&lt;5 W</b>
	Safety transformer		<b>short-circuit-proof</b>
	Insulation primary/secondary		<b>4 kV</b>
	Secondary fuse		<b>0.3 A (PTC)</b>
Voltage tolerance		<b>+10 %/-5 %</b>	
<b>Main supply</b>	Voltage range		<b>100...240 V<sub>AC</sub> +10/-5 %</b>
	Line frequency		<b>50/60 Hz</b>
	Voltage selector		<b>100, 120, 140, 200, 220, 240 V<sub>AC</sub></b>
	Power consumption	Single	<b>&lt;500 VA</b>
	Dual	<b>&lt;1000 VA</b>	
Primary fuse: according to label on front panel			
	100...140 V <sub>AC</sub>		<b>T 5 A L 250 V (slow), 5 × 20 mm</b>
	200...240 V <sub>AC</sub>		<b>T 3.15 A L 250 V (slow), 5 × 20 mm</b>
Inrush current limiter			<b>2.2 Ω (NTC)</b>
		$I_{\max(\text{ON})}$	<b>&lt;100 A</b>
Transformer insulation			<b>4 kV</b>
Transformer cut-off temperature			<b>approx. 120 °C</b>
Indirect power-on with relay			

**I.4.2 Safety features**

The power supply unit conforms to the requirements for equipment class I according to EN 60065 (IEC 65).

The primary side is designed with double insulation and withstands an AC test voltage of 4 kV<sub>RMS</sub>.

The outputs of the power supply are not connected to the power supply housing. This means that it is not hazardous to separate the connection between the housing and the studio ground for measurement purposes while the mixing console is connected to the AC power source.

**Detailed inspections on the power supply:**

- High voltage test (2.5 kV<sub>RMS</sub>; 50 Hz)
- Discharge current test
- Insulation test (500 V)
- Protective ground resistance test

### I.4.3 Secondary

#### General

Some of the generated reference voltages are used for several applications. The reference systems of the stabilizer circuit and monitoring circuit are completely separated.

#### Standby supply

Without standby voltage, operation of the equipment is not possible. The supply is implemented with discrete elements.

Output voltage	$U_{sb}$	<b>5 V <math>\pm</math> 5 %</b>
Maximum current	$I_{max}$	<b>80 mA</b>
Short-circuit current	$I_k$	<b>approx. 110 mA</b>
Overvoltage protection	$U_{max}$	<b>5.6 V</b>
Min. LED indication voltage	$U_{min}$	<b>&gt;4 V</b>
Shunt 1 $\Omega$	$U_{meas}$	<b>1 mV <math>\cong</math> 1 mA</b>

#### Auxiliary voltage on diagnostic connector pin 2:

	$U_{out}$	<b>5 V <math>\pm</math> 5 %</b>
	$R_i (R_{PTC})$	<b>50 <math>\Omega</math></b>
	$I_{max}$	<b>10 mA</b>

<b>Standby batteries:</b>	AM3 (alkaline)	<b>2 <math>\times</math> 1.5 V</b>
<b>Standby rechargeable batteries:</b>	according to option:	<b>3 <math>\times</math> UM1 size NiCd,</b> or <b>3 <math>\times</math> UM3 size NiCd</b>

Autonomy with disconnected power supply and fully charged batteries:

UM3 size: **2...3 days**

UM1 size: **2 weeks**

After the rechargeable batteries are discharged, the alkaline batteries in the power supply extend the autonomy for another 2 days.

## Phantom supply

Basic specification: **IEC 268-15A**  
 The factory setting for the phantom supply is 48 V.  
 As a special version, 12 V or 24 V are available. Such a conversion involves:

Transformer	→ Resolder jumpers
Electronics	→ Replug jumper
Mixing console (refer to section 2.16.1)	→ Replace phantom resistors

Fuse (F1) **T 2 A L 250 V (slow), 5 × 20 mm**

The phantom supply is adjustable with a trimmer potentiometer from the front panel.

Shunt 1  $\Omega$   $U_{\text{meas}}$  **1 mV  $\cong$  1 mA**

<b>+48 V phantom supply</b>	Output voltage	$U_{\text{out}}$	<b>+48 V</b>
	Cont. output current	$I_{\text{nom}}$	<b>&lt;0.5 A</b>
	Short-circuit current	$I_{\text{k}}$	<b>approx. 0.9 A</b>
	Fold back current	$I_{\text{fb}}$	<b>approx. 0.45 A</b>
	Overvoltage/cut-off point	$U_{\text{max}}$	<b>approx. +56 V</b>
	Overtemp./cut-off point	T	<b>approx. 120 °C</b>
	Undervoltage indication	$U_{\text{min}}$	<b>&lt; approx. 44 V</b>
	Ripple, BW 20 kHz	$U_{\text{r}}$	<b>&lt;1 mV at <math>I_{\text{nom}}</math></b>
The +48 V is integrated in the alarm system.			
<b>+24 V phantom supply</b>	Output voltage	$U_{\text{out}}$	<b>+24 V</b>
	Cont. output current	$I_{\text{nom}}$	<b>&lt;0.5 A</b>
	Short-circuit current	$I_{\text{k}}$	<b>approx. 1.0 A</b>
	Fold back current	$I_{\text{fb}}$	<b>approx. 0.8 A</b>
	Overvoltage/cut-off point	$U_{\text{max}}$	<b>approx. +27 V</b>
	Overtemp./cut-off point	T	<b>approx. 120 °C</b>
	Undervoltage indication	$U_{\text{min}}$	<b>&lt; approx. 20 V</b>
	Ripple, BW 20 kHz	$U_{\text{r}}$	<b>&lt;1 mV at <math>I_{\text{nom}}</math></b>
The +24 V is integrated in the alarm system.			
<b>+12 V phantom supply</b>	Output voltage	$U_{\text{out}}$	<b>+12 V</b>
	Cont. output current	$I_{\text{nom}}$	<b>&lt;0.5 A</b>
	Short-circuit current	$I_{\text{k}}$	<b>approx. 1.1 A</b>
	Fold back current	$I_{\text{fb}}$	<b>approx. 1 A</b>
	Overvoltage/cut-off point	$U_{\text{max}}$	<b>approx. +13.5 V</b>
	Overtemp./cut-off point	T	<b>approx. 120 °C</b>
	Undervoltage indication	$U_{\text{min}}$	<b>&lt; approx. 9 V</b>
	Ripple, BW 20 kHz	$U_{\text{r}}$	<b>&lt;1 mV at <math>I_{\text{nom}}</math></b>
The +12 V is integrated in the alarm system.			

## **$\pm 15$ V supply 1 and 2, regulated**

These supplies exist once in a single power supply (master or slave version), or twice in a dual power supply.

The two outputs supply 1 and supply 2 have a common input feeder.

**Fuses:**                       $-20$  V (F3)    **T 10 A L 250 V (slow), 5 × 20 mm**  
     $+20$  V (F4)    **T 10 A L 250 V (slow), 5 × 20 mm**

The availability of  $\pm 20$  V is signaled with 2 LEDs.

The  $\pm 20$  V input voltages are split into  $2 \times \pm 15$  V regulator systems with common ground.

### **Alarm/voltage deviation or short circuit**

A short circuit or an overvoltage on the output disconnects the corresponding transformer unit. This is signaled by the local ALARM LED (flashing). This status information is transmitted also to the central ON/ALARM LED. The local ALARM LED flashes also in case of undervoltage, but no ALARM is triggered.

**Alarm/temperature**    If the heat sink temperature rises above  $120$  °C, the corresponding transformer unit is switched off. This status is signaled by a local flashing LED. The status information is also transmitted to the central ON/ALARM LED.

**Reset**                      For resetting the alarm systems the power supply must be switched OFF and ON again.

**Supply 1, 2**                The 4 voltages behave in the same way and are described only once.

Controlled linear ramping up of the 4 output voltages:

$t_{ON}$     **approx. 4 s**

Maximum total output power    **180 W.**

The 4 voltages are adjusted in common with a trimmer potentiometer accessible from the front panel.

<b><math>\pm 15</math> V supply</b>	Output voltage	$U_{out}$	<b>15 V</b>
	Cont. output current	$I_{nom}$	<b>&lt;6 A</b> (Supply 2: $I_{out} = 0$ A)
	Short circuit current	$I_k$	<b>approx. 9 A</b>
	Fold back current	$I_{fb}$	<b>approx. 5 A</b>
	Overvoltage/cut-off point	$U_{max}$	<b>approx. 17 V</b>
	Overtemp./cut-off point	T	<b>approx. 120 °C</b>
	Undervoltage		<b>SUPPLY LED is off</b>
			<b>if <math>+U - (-U) &lt; 24</math> V</b>
	Ripple, BW 20 kHz	$U_r$	<b>&lt;0.25 mV at <math>I_{nom}</math></b>
	Shunt 10 m $\Omega$	$U_{meas}$	<b>1 mV <math>\pm</math> 0.1 A</b>

**Note:** Normally the output currents of supply 1 and 2 are selected for a ratio of approx. 1:1 (i.e., 3 A:3 A).

**+25 V supply, unregulated**

Voltage for supplying the switching regulators in the mixing console.	
Smoothing capacitor	20'000 $\mu$ F
Output voltage	$U_{out}$ <b>approx. 25 V</b>
Max. output current	$I_{max}$ <b>&lt;5 A</b>
Undervoltage: LED goes off	$U_{min}$ <b>&lt;20 V</b>
Shunt 10 m $\Omega$	$U_{meas}$ <b>1 mV <math>\pm</math> 0.1 A</b>
Fuse	(F5) <b>T 8 A L 250 V (slow), 5 <math>\times</math> 20 mm</b>

**-6 V/-24 V supply, regulated**

Output voltages	$U_{out}$ <b>-6 V, -24 V</b>
Voltage on smoothing cap.	$U_{max}$ <b>35 V</b>
Nominal current (depending on power dissipation)	$I_{nom}$ <b>1...2.5 A</b>
Short-circuit current	$I_k$ <b>approx. 3 A</b>
FB/switch-off	$I_{off}$ <b>0 A</b>
Overvoltage/cut-off point/crow bar:	<b>jumper-selectable</b>
Undervoltages turn LED off:	$U_{min}$ <b>jumper-selectable</b>
Ripple, BW 20 kHz	$U_r$ <b>&lt;30 mV at <math>I_{nom} = 1 A</math></b>
Shunt 10 m $\Omega$	$U_{meas}$ <b>1 mV <math>\pm</math> 0.1 A</b>

**General** After the protective circuit has responded the power supply must be switched OFF and ON.

Fuses (F7, F8) **T 2 A L 250 V (slow), 5  $\times$  20 mm**  
 These fuse ratings limit the output current to approx. 1.5 A. If the rating is for higher current the front panel is correspondingly engraved.

**1.4.4 Auxiliary circuits**

Fan Operating voltage **25 V...35 V<sub>AC</sub>**  
 Changeover "off/low" to "high": **temperature depending**

Operating modes

Fan speed at different settings of jumper J6:			
	A	B	OFF
Temp < Tvent	low	high	off
Temp > Tvent	high	high	high

Threshold adjustment with FAN trimmer potentiometer on the front panel.

If any point in the power supply exceeds 120  $^{\circ}$ C, "high" speed is always activated.

Power-on delay Adjustable with DELAY trimmer potentiometer on the front panel.  
 Range **t 50...150 ms**

Control electronics Technology **C-MOS**  
 Supply voltage **+5 V**  
 ON/OFF state of master switch **stored**  
 ON/OFF **remote controllable**



**I.4.5 General**

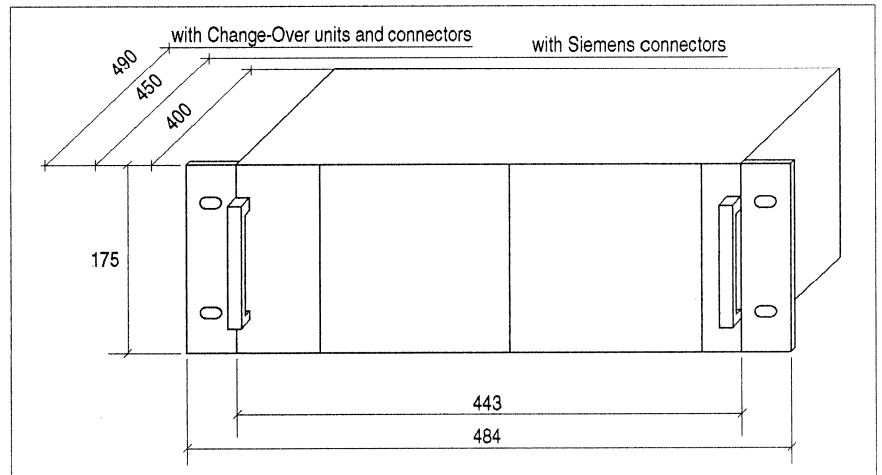
Storage temperature **-20 °C...+70 °C**  
 Ambient temperature: guaranteed **+10 °C...+40 °C**  
 function **-10 °C...+45 °C**

Electrostatic discharge without adverse effect on the function according to IEC 801-2: **8 kV (air discharge)**

Radio interference voltage on mains according to:  
**CISPR 11, class B, and**  
**DIN VDE 0871, class B, and**  
**FCC part 15 B, class B.**

**I.4.6 Mechanical**

**Dimensions**



To ensure adequate ventilation the power supply must remain open on all sides.

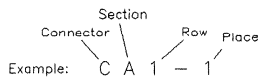
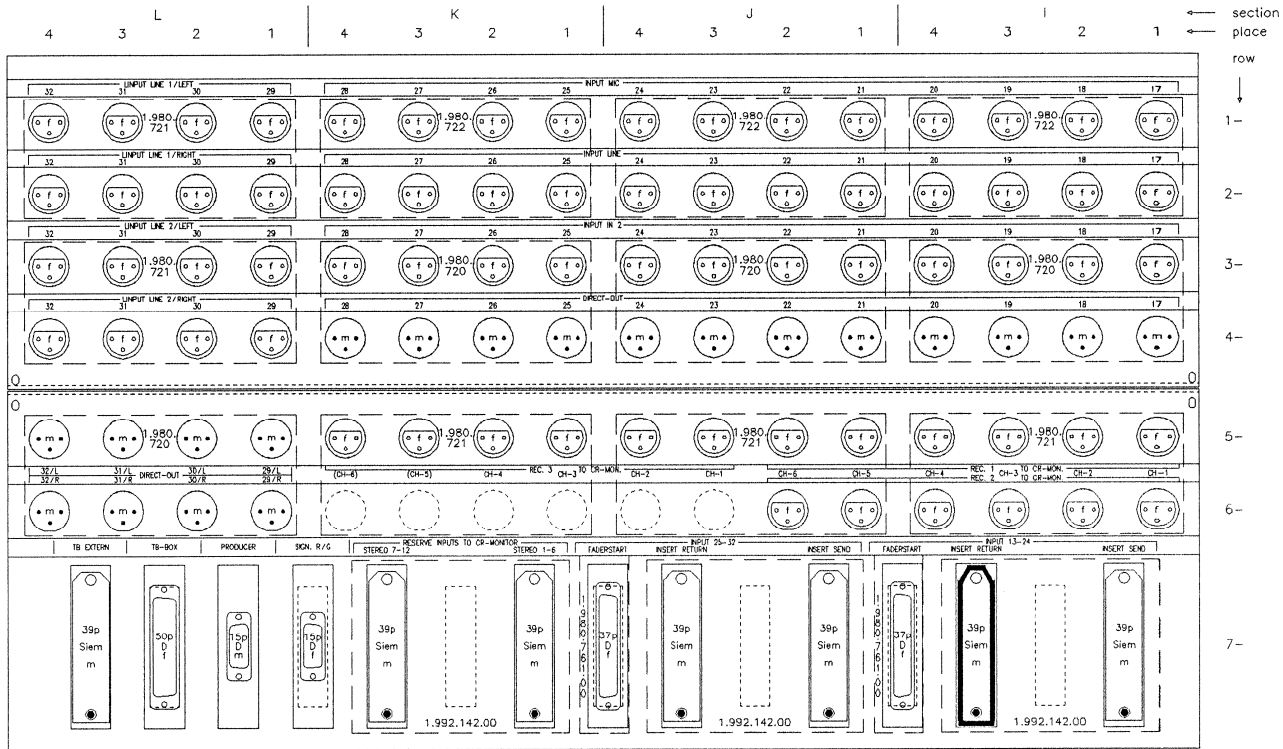
Operation on a closed surface will not give optimum results. Two accessories are available for this purpose:

- Feet, 4 pcs. (stand-off from floor approx. 12 mm) **Part No. 31.02.0209**
- Air baffle (can be placed on the floor) **Part No. 1.918.207.00**

<b>Weight</b>	1.918.420	Dual power supply/Master	<b>27.0 kg</b>
	1.918.421	Single power supply/Master	<b>18.8 kg</b>
	1.918.422	Dual power supply/Slave	<b>26.2 kg</b>
	1.918.423	Single power supply/Slave	<b>18.0 kg</b>

## 1.5 Connections, wiring

### 1.5.1 Backpanel



keys: ○ →  
● ←

○	○	○	○	○
STUDER REGENSDORF SWITZERLAND				HDTV / FILM CONSOLE
Connector-Panel Frame 3				Page 1 of 1

Example for a backpanel drawing of one frame; usually, for the inputs also Siemens connectors are used instead of XLRs.

#### Back panel connector

The connections on the rear of the console are clearly arranged and numbered. They are labelled with a number starting with a "C" (for "back panel connector") on principle.

#### Sections

Each of the particular frames of the console contains three or four groups of four modules, the *Sections*, being numbered from right to left if viewn from the rear of the console.

#### Places

Each Section contains four *Places* for the plug-in modules which are numbered (1...4) from right to left as well.

#### Rows

The connectors establish horizontal *Rows* which are numbered from top to bottom.

**Example:** The Siemens connector highlighted in the drawing above has the designation C17-3, according to the following table:

C	I	7-	3
		Place	
		Row	
		Section	
Connector on back panel			

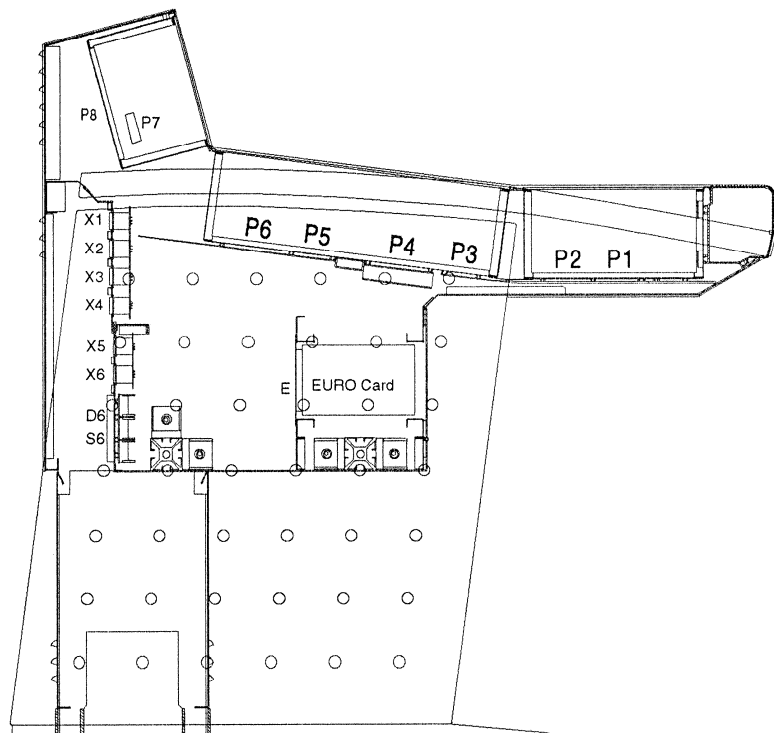
In the wiring list (see below) this connection can be found again:

CABLE KABEL	FROM/VON CONNECTOR STECKER	TO/NACH CONNECTOR STECKER	SIGNAL NAME SIGNAL NAME	FROM/VON	TO/NACH
165	CI7-3- 2 : 16	INPM5- 26 : 16	INSERT RET. INP. 17-20	S-CONNECTOR	BUS BOARD P6
166	CI7-3- 3 : 16	INPM6- 26 : 16	INSERT RET. INP. 21-24	S-CONNECTOR	BUS BOARD P6
167	CJ7-3- 1 : 16	INPM7- 26 : 16	INSERT RET. INP. 25-28	S-CONNECTOR	BUS BOARD P6
220	- 0 :	- 0 :			
221	FILM1- 2 : 1H2	CA4/J- 3 : 16	DIRECT OUT INP. 1-4	BUS BOARD P3	XLR-CONN.
222	FILM2- 2 : 1H2	CB4/J- 3 : 16	DIRECT OUT INP. 5-8	BUS BOARD P3	XLR-CONN.
223	FILM3- 2 : 1H2	CC4/J- 3 : 16	DIRECT OUT INP. 9-12	BUS BOARD P3	XLR-CONN.
224	FILM4- 2 : 1H2	CD4/J- 3 : 16	DIRECT OUT INP. 13-16	BUS BOARD P3	XLR-CONN.

Under "Cable No. 165" is indicated: CI7-3- 2 : 16. The "2" identifies the number of the flat cable, the "16" signifies the number of wires contained in this flat cable.

### 1.5.2 Internal wiring

The wiring inside the console is done as far as possible by (printed circuit) basis boards which the modules are plugged to. These multipin connectors are numbered P1...P6 from the front to the rear.



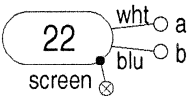
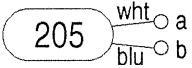
The basis PCBs are connected to the rear panel through flat cables or, where appropriate, through (shielded) stranded wires.

The basis PCBs are identified in the wiring lists by the following abbreviations:

Abbr.	Designation	Assembly No.
INPM, INPS	Input Mono/Stereo, IN/OUT connections digital bus boards)	1.980.712
INPG	Input Group	1.980.712
INPA	Aux Master Unit	1.980.712
AUB	Audio Basis Board	1.992.180/181/183
FILM, FILS	Fader Input Link Mono/Stereo, Input Fader IN/OUT Connection Bus Board	1.980.710/711
FILG	Fader Input Link Group	1.980.710/711
AUBV	Interconnection Audio Basis Board	1.992.182
IF	Interface Board for Uptown automation	1.980.730
FMON	Film Monitoring Basis Board	1.980.470
DISTR	Distribution Board	1.910.111.11
UPTN	Uptown Automation Board	
PFREL	Power Fail and Accu Board	
CENTU	Central Control Unit	1.980.820.20
PSP	Power Supply Converter Board	1.992.198
DYN	Dynamics Unit	1.992.165/166
EU	EU card rack	

### 1.5.3 Symbols

In the drawings of the basis PCBs and of the connectors the following symbols are used:

92	Audio cable No. 92
7	Signalling line No. 7
5	Supply line No. 5
151	Flat cable No. 151
	Audio cable No. 22, balanced, with screen
	Audio cable No. 205, balanced, screen not connected

## I.6 Survey of assemblies (by assembly numbers, in numerical order)

	Assembly No.	Designation	Section
•	1.910.302.00	Stop Watch Auto Start Interface	5
	1.910.503.00	Mains Transformer 2	10
	1.912.326.00	Talk Back/Studio Monitor Unit	4
	1.912.420.00	Control Room Monitor Unit	4
	1.912.460.00	AUX Monitor Selector Unit	4
	1.912.460.81	AUX Monitor Selector Unit	4
•	1.913.100.00	Correlator 4 CH, 30 LED (1U), master 1+2 and monitor output (switchable)	5
•	1.913.101.00	Peak Program Meter 1 CH, 30 LED	5
•	1.913.102.00	VU Meter 1 CH, 30 LED	5
•	1.913.103.00	Peak Program Meter 1 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.104.00	VU Meter 1 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.105.00	Peak Program Meter 2 CH, 30 LED	5
•	1.913.106.00	VU Meter 2 CH, 30 LED	5
•	1.913.107.00	Peak Program Meter 2 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.108.00	VU Meter 2 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.109.00	Correlator 2 CH, 30 LED	5
•	1.913.111.81	Dual Bargraph PPM with Gain Reduction Meter	5
•	1.913.112.81	Dual Bargraph VU Meter with Gain Reduction Meter	5
•	1.913.120.00	Talk Back Microphone	5
	1.913.142.00	Signalling/Indication Unit	5
	1.913.150.81	Audio Generator Unit	5
•	1.913.153.00	4-band param. EQ with high-pass and low pass filter	5
•	1.913.155.00	Compressor/Limiter/Noise Gate	5
•	1.913.157.00	High-pass and low pass filter	5
•	1.913.198.00	Input Selector 1 x 8 Stereo	5
	1.913.200.00	<i>PFL Loudspeaker (Schema fehlt noch im Manual!)</i>	5
•	1.913.210.00	Correlator 2 CH w. moving-coil instrument	5
•	1.913.211.00	Correlator 4 CH, switchable between 2 stereo inputs	5
•	1.913.220.00	Peak Program Meter	5
•	1.913.221.00	Peak Program Meter with Gain Reduction Meter	5
•	1.913.230.00	VU-Meter	5
•	1.913.231.00	VU Meter Unit w. limiter instrument	5
•	1.913.233.00	VU Meter Unit w. 2 small VU Meters	5
•	1.913.310.81	Stop Watch	5
•	1.913.321.00	Peak Program Meter 4 CH, 30 LED	5
•	1.913.322.00	VU Meter 4 CH, 30 LED	5
•	1.913.323.00	Peak Program Meter 4 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.324.00	VU Meter 4 CH, 30 LED, with Gain Reduction Meter	5
•	1.913.411.81	Bargraph 8 CH, PPM, with Gain Reduction Meter	5
•	1.913.412.81	Bargraph 8 CH, PPM, w. limiter instrument	5
•	1.913.421.00	Bargraph 4 CH, Stereo (990)	5

	Assembly No.	Designation	Section
•	1.914.500.00	MSC Motherboard small	6
•	1.914.501.00	Line Output amplifier	6
•	1.914.502.81	HL Input Amplifier floating w. transformer input (external mute facility)	6
•	1.914.503.00	Zero-Ohm Input Amplifier	6
•	1.914.504.81	HL Input Amplifier balanced, transformerless input (external mute facility)	6
•	1.914.505.00	Amplifier 3 W	6
•	1.914.506.81	Mic Preamp with transformer input (external mute facility)	6
•	1.914.507.81	Mic Preamp for Electret (external mute facility)	6
•	1.914.514.00	HL Input with transformer input and VCA control, unbalanced output	6
•	1.914.515.00	VCA with balanced inputs and outputs	6
•	1.914.518.81	VCA	6
•	1.914.519.81	Limiter Voltage Processor	6
•	1.914.520.00	Call Generator 1.9 kHz	6
•	1.914.521.81	Call Decoder 20...60 Hz	6
•	1.914.522.00	Call Decoder 1.9 kHz	6
•	1.914.523.00	Relay 2 x U (DPDT), 6 V	6
•	1.914.524.00	Relay 2 x U (DPDT), 24 V	6
•	1.914.525.00	Relay 2 x U (DPDT), 6 V, Low Noise	6
•	1.914.526.00	Relay 2 x U (DPDT), 24 V, Low Noise	6
•	1.914.528.00	VCA, 3 control inputs	6
•	1.914.529.00	Universal PCB (Breadboard)	6
•	1.914.530.00	Zero-Ohm Input Amplifier	6
•	1.914.531.00	HL Input with transformer (PFL Opt.)	6
•	1.914.532.00	Flip-Flop	6
•	1.914.533.00	90° Filter Board for Mono Summing	6
•	1.914.534.00	Dual Vox Detector	6
•	1.914.536.00	Telephone Transformer Unit	6
•	1.914.539.00	Mic Amplifier with Limiter	6
•	1.914.540.00	Fader VCA Control Voltage Interface	6
	1.915.106.00	Stabilizer 5/24 V	6
•	1.915.107.00	Phantom and 24 V Stabilizer	6
	1.915.108.00	Stabilizer 5/24 V, 5 A	6
•	1.915.109.00	Diodes/Power Alarm Board for redundant Power Supply	6
	1.915.111.81	Power Supply LED 3...6 V	6
	1.915.112.00	Power Alarm/Fail 4 Board	6
	1.915.304.00	Monitor Amplifier A	6
•	1.915.307.81	Distribution Amplifier (1 In, 6 Out)	6
•	1.915.308.81	Distribution Amplifier (1 In, 4 Out)	6
•	1.915.410.00	Power Amplifier 5 W	6
•	1.915.411.00	Power Amplifier 5 W, transformer input	6
•	1.915.412.00	Power Amplifier 5 W, w. Mute	6
•	1.915.413.00	Power Amplifier 5 W, transformer input, w. Mute	6

	Assembly No.	Designation	Section
•	1.915.414.00	Power Amplifier 5 W, w. VCA	6
•	1.915.415.00	Power Amplifier 5 W, transformer input, w. VCA	6
•	1.915.440.00	Power Amplifier 40 W/4 Ohm, transformerless input	6
•	1.915.441.00	Power Amplifier 40 W/4 Ohm, transformer input	6
	1.915.601.81	5/1 Switch A	6
	1.915.602.81	4/2 Switch A	6
•	1.915.603.81	Relay Board Signalling 9A	6
•	1.915.605.00	Relay Board 8/1A Mono	6
•	1.915.607.81	Bistable Relay Board 5/1A Mono	6
•	1.915.608.00	Bistable Relay Board 5/1A Stereo	6
•	1.915.700.00	Dual Limiter	6
•	1.915.760.81	Telephone Hybrid	6
•	1.915.762.81	Dual Relay Board for Telephone Hybrid	6
•	1.915.764.00	Telephone Hybrid w. Noise Gate	6
•	1.915.765.00	Current adjust for Hybrid Unit	6
	1.915.770.00	MSC Motherboard	6
•	1.915.904.81	Stereo Balancing Unit 2 CH	6
•	1.915.913.82	Power Alarm Unit	6
•	1.915.914.00	4 CH Balancing Unit, 6 dB, transformerless	6
•	1.915.915.00	4 CH Balancing Unit, 16 dB, transformerless	6
•	1.915.922.00	Dual Line Amplifier, low output impedance	6
•	1.915.924.00	Dual Balancing Unit w. Insert Switch	6
•	1.916.001.00	Studio Relays	6
•	1.916.002.00	Relay Unit 4 x 2 U (4 x DPDT)	6
•	1.916.010.00	Relay Unit 4 x 2 CO	6
•	1.917.110.00	32 CH Bus Selector	6
•	1.917.300.00	Monitor Mix Amplifier	6
•	1.917.305.00	Monitor Amplifier for multichannel monitoring	6
•	1.917.601.00	Monitor Relays 8 x 2/2	6
•	1.917.611.00	Signal I/O Interface	6
	1.918.075.00	Change-Over Board	10
	1.918.078.00	Ventilator	10
	1.918.079.00	NTC Sensor	10
	1.918.082.00	LED Board	10
	1.918.083.00	Rectifier/Capacitor Board	10
	1.918.084.00	±15 V Stabilizer Board	10
	1.918.085.00	Mains Selector Board	10
	1.918.086.00	Power Amp Rectifier Board	10
	1.918.087.81	Dual Stabilizer/Rectifier Board	10
	1.918.088.00	Phantom/±12 V Stabilizer Board	10
	1.918.089.00	Feed-Through Board	10
	1.918.420.00	Dual Power Supply/Master	10
•	1.918.421.00	Single Power Supply/Master	10
•	1.918.422.00	Dual Power Supply/Slave	10
•	1.918.423.00	Single Power Supply/Slave	10
	1.980.110.00	Fader Unit (Mono)	3

	Assembly No.	Designation	Section
	1.980.111.00	Fader Unit (Film/HDTV, Mono)	3
	1.980.120.00	Fader Unit (Stereo)	3
	1.980.130.00	Fader Unit (Mono, VCA)	3
	1.980.131.00	Fader Unit (Film/HDTV, Mono, VCA)	3
	1.980.140.00	Fader Unit (Stereo, VCA)	3
	1.980.150.00	Fader Unit (Mono, with motor fader)	3
	1.980.151.00	Fader Unit (Film/HDTV, Mono, with motor fader)	3
	1.980.160.00	Fader Unit (Stereo, with motor fader)	3
	1.980.180.00	Dual Master Unit	3
	1.980.181.00	Dual Master Unit with 1 Limiter Switch	3
	1.980.182.00	Dual Master Unit with 2 Limiter Switches	3
	1.980.183.00	Mono Master Unit	3
	1.980.184.00	Mono Master Unit with 1 Limiter Switch	3
	1.980.185.00	Mono Master Unit with Lim./Link Swith	3
	1.980.220.20	Mono Input Unit, with EQ, 8/4 Ch.	4
	1.980.221.20	Mono Input Unit, with EQ, 6/6 Ch.	4
	1.980.230.20	Mono Group Unit, without EQ, 4 Ch.	4
	1.980.231.20	Mono Group Unit, without EQ, 6 Ch.	4
	1.980.240.20	Stereo Input Unit, HL, with EQ, 8/4 Ch.	4
	1.980.241.20	Stereo Input Unit, HL, with EQ, 6/6 Ch.	4
	1.980.242.20	Stereo Input Unit, HL, without EQ, 8/4 Ch.	4
	1.980.243.20	Stereo Input Unit, HL, without EQ, 6/6 Ch.	4
	1.980.250.20	Stereo Input Unit, Universal, with EQ, 8/4 Ch.	4
	1.980.251.20	Stereo Input Unit, Universal, with EQ, 6/6 Ch.	4
	1.980.310.20	AUX Master Unit, transformerless	4
	1.980.320.20	AUX Master Unit, with transformers	4
	1.980.710.00	Input/Fader Connection Board 4A	9
	1.980.711.00	Input/Fader Connection Board 4A, VCA	9
	1.980.712.00	Input/Output Connection / Digital Bus Board	9
	1.980.720.00	XLR to Flat Cable Male Board	9
	1.980.721.81	XLR to Flat Cable Female Board	9
	1.980.761.00	3 x 16pin to 37pin D-Type Board	9
	1.980.763.00	AUX P5 Connection Board	9
	1.980.764.00	Address Select Board, 40 mm	9
	1.980.765.00	Address Select Board, 60 mm	9
	1.980.771.00	10pin Connection Board, 60 mm	9
	1.980.772.00	10pin Connection Board, 40 mm	9
	1.980.773.00	AUX Jumper Connection Board, 2 x 16pin	9
	1.980.820.21	Central Control Unit	3
	1.980.822.21	Central Control $\mu$ P Board	3
	1.980.829.00	Central Control Switch Board	3
•	1.990.510.00	Dynamics Unit	5
•	1.990.620.00	4 CH Bargraph Mono + Bus (990)	5
•	1.990.621.00	4 CH Bargraph Stereo + Bus (990)	5

• = Assemblies with the dot can be installed according to the individual console configuration. The corresponding diagrams are contained in the manual only if the assemblies are present in the console.



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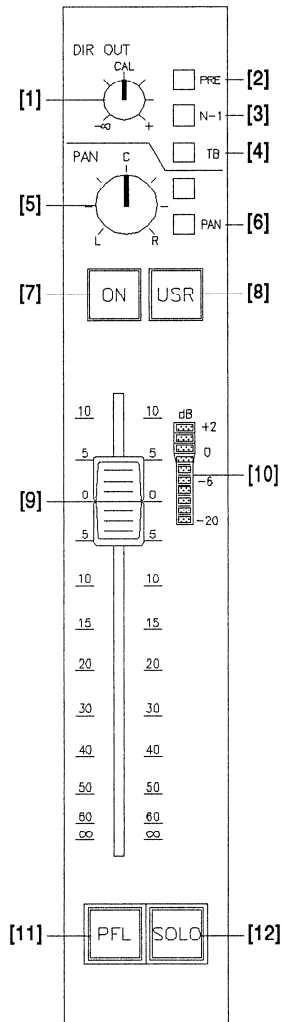
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**2.1 Fader units**

**2.1.1 Mono fader, broadcast version**

**1.980.110**



**[1] DIR OUT**  
Level setting for the (electronically balanced) direct output. Setting range:  $-\infty$  to +10 dBu.

**[2] PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.

**[3] N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.  
Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.

**[4] TB**  
"Talk back", momentary pushbutton for talking via the command microphone to the DIR OUT (direct output).

**[5] PAN (pot)**  
Panorama potentiometer, with detent in center position, for setting the mono source on the axis between the stereo speakers.

**[6] PAN (key)**  
Key for activating the PAN potentiometer.

**[7] ON**  
Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated  
Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).

**[8] USR**  
Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations this key activates the CHANNEL ASSIGN function (refer to "Central control unit (CCU)", section 2.3).

**[9] Fader**  
Linear fader with log characteristics (Penny + Giles).

**[10] LED bargraph**  
Level meter for monitoring the direct output. With the METER ON INPUT key on the input unit of the channel strip the level meter can be switched over to the selected input.  
VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).

**[11] PFL**  
Key for the pre-fader listening function. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.

**[12] SOLO**

Key for monitoring after the PAN potentiometer.

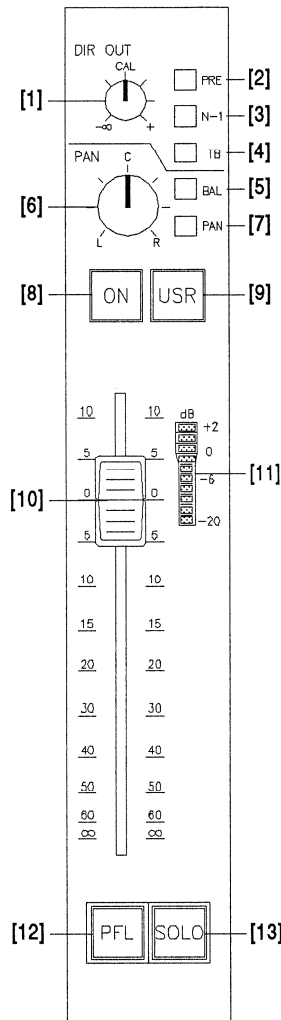
With the SOLO DESTR. key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console.

With the SOLO SAVE key on the central Function Control Unit (FCU) the SAVE function can be preselected. If SAVE is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the SOLO bus.

With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual SOLO keys can be selected.

2.1.2 Stereo fader, broadcast version

I.980.120



- [1] **DIR OUT**  
Level setting for the (electronically balanced) direct output. Setting range:  $-\infty$  to +10 dBu.
- [2] **PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.
- [3] **N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.  
Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.
- [4] **TB**  
"Talk back", momentary pushbutton for talking via the command microphone to the DIR OUT (direct output).
- [5] **BAL**  
Key to switch the PAN pot over to balance characteristics for correcting level differences between the right and the left channel.
- [6] **PAN (pot)**  
Panorama potentiometer, with detent in center position, for shifting the stereo image between the speakers. At the potentiometer's left-hand or right-hand stop the complete information of both input channels is retained, however in mono.
- [7] **PAN (key)**  
Key for activating the PAN potentiometer.
- [8] **ON**  
Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated.  
Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).
- [9] **USR**  
Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations this key activates the CHANNEL ASSIGN function (refer to "Central control unit (CCU)", section 2.3).
- [10] **Fader**  
Linear fader with log characteristics (Penny + Giles).
- [11] **LED bargraph**  
Level meter for monitoring the direct output. With the METER ON INPUT key on the input unit of the channel strip the level meter can be switched over to the selected input.  
VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).

**[12] PFL**

Key for the pre-fader listening function. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.

**[13] SOLO**

Key for monitoring after the PAN potentiometer.

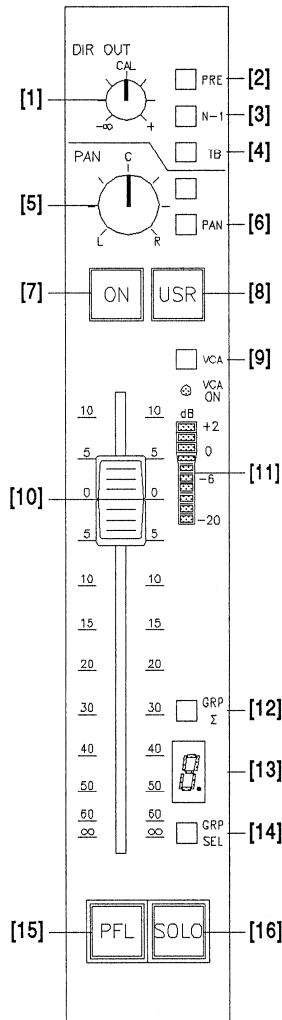
With the SOLO DESTR. key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console.

With the SOLO SAVE key on the central Function Control Unit (FCU) the SAVE function can be preselected. If SAVE is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the SOLO bus.

With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual SOLO keys can be selected.

2.1.3 Mono fader with VCA, broadcast version

I.980.130



- [1] **DIR OUT**  
Level setting for the (electronically balanced) direct output. Setting range:  $-\infty$  to +10 dBu.
- [2] **PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.
- [3] **N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.  
Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.
- [4] **TB**  
"Talk back", momentary pushbutton for talking via the command microphone to the DIR OUT (direct output).
- [5] **PAN (pot)**  
Panorama potentiometer, with detent in center position, for setting the mono source on the axis between the stereo speakers.
- [6] **PAN (key)**  
Key for activating the PAN potentiometer.
- [7] **ON**  
Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated.  
Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).

[8] **USR**  
Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations this key activates the CHANNEL ASSIGN function (refer to "Central control unit (CCU)", section 2.3).

[9] **VCA**  
Key for activating the VCA (Voltage Controlled Amplifier). The audio signal is routed through the VCA, the fader is used for setting the VCA control voltage. The VCA ON LED is illuminated as soon as the fader is opened.

[10] **Fader**  
Linear fader with log characteristics (Penny + Giles).

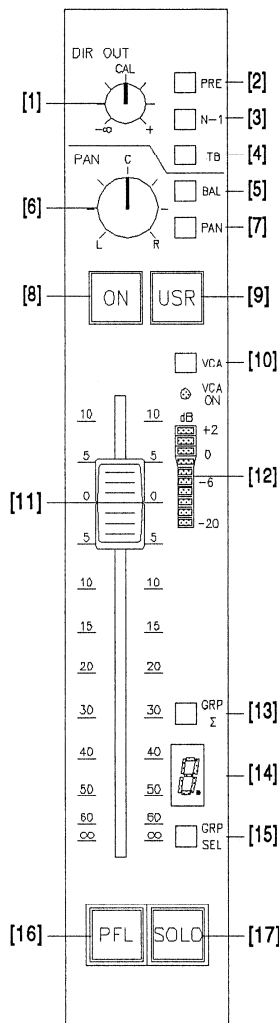
[11] **LED bargraph**  
Level meter for monitoring the direct output. With the METER ON INPUT key on the input unit of the channel strip the level meter can be switched over to the selected input.  
VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).

- [12] **GRP  $\Sigma$**  Key for defining the master of the corresponding VCA group (according to display [13]). If this key is illuminated the fader controls the VCAs of all channel strips of the VCA group.
- [13] **7-segment display** For VCA group indication. As soon as the input is linked to one or several others the right-hand decimal point is on in addition. This link requires that one of the inputs of the VCA group is designed as master (GRP  $\Sigma$  [12] is illuminated on the corresponding channel).
- [14] **GRP SEL** Key for selecting from 8 independent VCA groups (0...7). If the display [13] is dark, then no group is selected; the key is dark as well. VCA group No. 0 has a special function: It is used for links with one or several channels to the left of the current channel strip only; however, several VCA groups No. 0 can be defined on the same mixing console. So e.g. up to 12 independent dual-VCA groups can be configured on a 24-channel console.
- [15] **PFL** Key for the pre-fader listening function. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.
- [16] **SOLO** Key for monitoring after the PAN potentiometer. With the SOLO DESTR. key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console. With the SOLO SAVE key on the central Function Control Unit (FCU) the SAVE function can be preselected. If SAVE is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the SOLO bus. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual SOLO keys can be selected.



2.1.4 Stereo fader with VCA, broadcast version

I.980.140



- [1] **DIR OUT**  
Level setting for the (electronically balanced) direct output. Setting range:  $-\infty$  to +10 dBu.
- [2] **PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.
- [3] **N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.  
Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.
- [4] **TB**  
"Talk back", momentary pushbutton for talking via the command microphone to the DIR OUT (direct output).
- [5] **BAL**  
Key to switch the PAN pot over to balance characteristics for correcting level differences between the right and the left channel.
- [6] **PAN (pot)**  
Panorama potentiometer, with detent in center position, for shifting the stereo image between the speakers. At the potentiometer's left-hand or right-hand stop the complete information of both input channels is retained, however in mono.
- [7] **PAN (key)**  
Key for activating the PAN potentiometer.

[8] **ON**  
Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated.  
Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).

[9] **USR**  
Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations this key activates the CHANNEL ASSIGN function (refer to "Central control unit (CCU)", section 2.3).

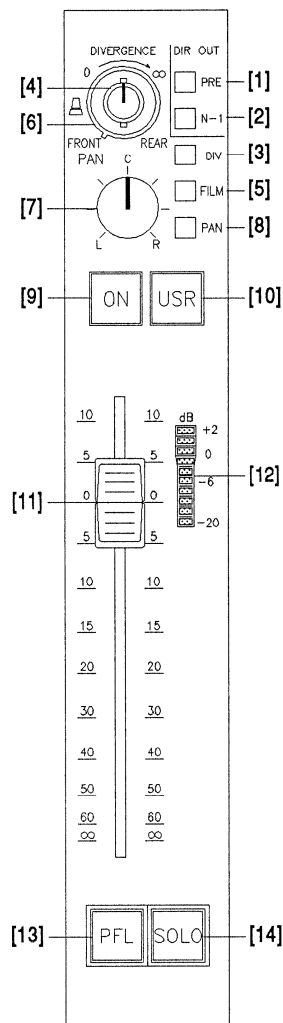
[10] **VCA**  
Key for activating the VCA (Voltage Controlled Amplifier). The audio signal is routed through the VCA, the fader is used for setting the VCA control voltage. The VCA ON LED is illuminated as soon as the fader is opened.

[11] **Fader**  
Linear fader with log characteristics (Penny + Giles).

- [12] **LED bargraph** Level meter for monitoring the direct output. With the **METER ON INPUT** key on the input unit of the channel strip the level meter can be switched over to the selected input. VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).
- [13] **GRP  $\Sigma$**  Key for defining the master of the corresponding VCA group (according to display [13]). If this key is illuminated the fader controls the VCAs of all channel strips of the VCA group.
- [14] **7-segment display** For VCA group indication. As soon as the input is linked to one or several others the right-hand decimal point is on in addition. This link requires that one of the inputs of the VCA group is designed as master (GRP  $\Sigma$  [12] is illuminated on the corresponding channel).
- [15] **GRP SEL** Key for selecting from 8 independent VCA groups (0...7). If the display [13] is dark, then no group is selected; the key is dark as well. VCA group No. 0 has a special function: It is used for links with one or several channels to the left of the current channel strip only; however, several VCA groups No. 0 can be defined on the same mixing console. So e.g. up to 12 independent dual-VCA groups can be configured on a 24-channel console.
- [16] **PFL** Key for the pre-fader listening function. With the **PFL MODE** key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.
- [17] **SOLO** Key for monitoring after the PAN potentiometer. With the **SOLO DESTR.** key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console. With the **SOLO SAVE** key on the central Function Control Unit (FCU) the **SAVE** function can be preselected. If **SAVE** is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the **SOLO** bus. With the **PFL MODE** key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual **SOLO** keys can be selected.

2.1.5 Mono fader, HDTV/film version

1.980.111



[1] **PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.

[2] **N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.

Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.

[3] **DIV**  
Key for activating the rotary knob DIVERGENCE [4].

[4] **DIVERGENCE**  
Potentiometer (small knob) for intentionally reducing the strict separation between the front channels (also refer to section 2.1.7).

[5] **FILM**  
Key for activating the rotary knob FRONT/REAR [6].

[6] **FRONT/REAR**  
Potentiometer (large knob) for distributing the audio signal to the front and rear channels (also refer to section 2.1.7).

[7] **PAN (pot)**  
Panorama potentiometer, with detent in center position, for setting the mono source on the axis between the stereo speakers; can be activated with the PAN key [8]. For the front channels the PAN pot's characteristics is depending on whether FILM [5] has been activated (also refer to section 2.1.7).

[8] **PAN (key)**  
Key for activating the PAN potentiometer.

[9] **ON**  
Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated. Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).

[10] **USR**  
Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations on the HDTV/film fader units, this key activates the DIR OUT direct output.

[11] **Fader**  
Linear fader with log characteristics (Penny + Giles).

[12] **LED bargraph**  
Level meter for monitoring the direct output. With the METER ON INPUT key on the input unit of the channel strip the level meter can be switched over to the selected input. VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).

**[13] PFL**

Key for the pre-fader listening function. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.

**[14] SOLO**

Key for monitoring after the PAN potentiometer.

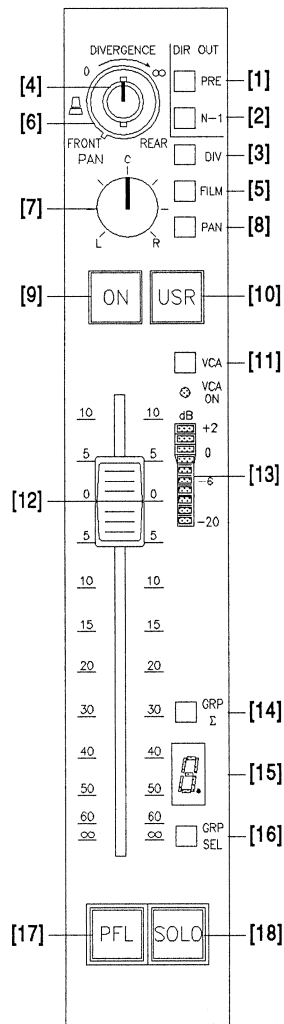
With the SOLO DESTR. key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console.

With the SOLO SAVE key on the central Function Control Unit (FCU) the SAVE function can be preselected. If SAVE is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the SOLO bus.

With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual SOLO keys can be selected.

2.1.6 Mono fader with VCA, HDTV/film version

I.980.131



- [1] **PRE**  
Key for tapping the DIR OUT (direct output) signal before (PRE is illuminated) or after the fader.
- [2] **N-1**  
Multiplex operation for the DIR OUT (direct output). In this operating mode all selected sources except the channel's own modulation are audible.  
Typical application: Direct transmissions or telephone recordings, if the concerned channel is used as a feedback channel to an outside commentator.
- [3] **DIV**  
Key for activating the rotary knob DIVERGENCE [4].
- [4] **DIVERGENCE**  
Potentiometer (small knob) for intentionally reducing the strict separation between the front channels (also refer to section 2.1.7).
- [5] **FILM**  
Key for activating the rotary knob FRONT/REAR [6].
- [6] **FRONT/REAR**  
Potentiometer (large knob) for distributing the audio signal to the front and rear channels (also refer to section 2.1.7).
- [7] **PAN (pot)**  
Panorama potentiometer, with detent in center position, for setting the mono source on the axis between the stereo speakers; can be activated with the PAN key [8]. For the front channels the PAN pot's characteristics is depending on whether FILM [5] has been activated (also refer to section 2.1.7).

[8] **PAN (key)**

Key for activating the PAN potentiometer.

[9] **ON**

Key for activating the channel. If only the lower part of the key is illuminated, the channel is active, but the fader is still closed. As soon as the fader is opened the whole key is illuminated.  
Inverse function is possible on request (MUTE, the channel is muted when the key is illuminated).

[10] **USR**

Key for activating an internal or external customer-specific function with acknowledgement. In standard configurations on the HDTV/film fader units, this key activates the DIR OUT direct output.

[11] **VCA**

Key for activating the VCA (Voltage Controlled Amplifier). The audio signal is routed through the VCA, the fader is used for setting the VCA control voltage. The VCA ON LED is illuminated as soon as the fader is opened.

[12] **Fader**

Linear fader with log characteristics (Penny + Giles).

- [13] LED bargraph** Level meter for monitoring the direct output. With the METER ON INPUT key on the input unit of the channel strip the level meter can be switched over to the selected input. VU or PPM characteristics can be selected with a jumper (refer to diagram Fader Main Board, 1.980.102; section 3).
- [14] GRP  $\Sigma$**  Key for defining the master of the corresponding VCA group (according to display [13]). If this key is illuminated the fader controls the VCAs of all channel strips of the VCA group.
- [15] 7-segment display** For VCA group indication. As soon as the input is linked to one or several others the right-hand decimal point is on in addition. This link requires that one of the inputs of the VCA group is designed as master (GRP  $\Sigma$  [12] is illuminated on the corresponding channel).
- [16] GRP SEL** Key for selecting from 8 independent VCA groups (0...7). If the display [13] is dark, then no group is selected; the key is dark as well. VCA group No. 0 has a special function: It is used for links with one or several channels to the left of the current channel strip only; however, several VCA groups No. 0 can be defined on the same mixing console. So e.g. up to 12 independent dual-VCA groups can be configured on a 24-channel console.
- [17] PFL** Key for the pre-fader listening function. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual PFL keys can be selected.
- [18] SOLO** Key for monitoring after the PAN potentiometer. With the SOLO DEST. key on the central Function Control Unit (FCU) switchover to "Solo destructive" (or "Solo in Place") is possible. This function is mostly used in recording or multi-format consoles; therefore it cannot be found in every console. With the SOLO SAVE key on the central Function Control Unit (FCU) the SAVE function can be preselected. If SAVE is selected on one channel the lower part of the key is illuminated; this channel cannot be switched to the SOLO bus. With the PFL MODE key on the central Function Control Unit (FCU), mutually releasing or latching function of the individual SOLO keys can be selected.

### 2.1.7 Signal distribution on HDTV/film fader units

Mixing consoles for film, video, and HDTV productions deviate in three significant places from a traditional broadcast console:

- Bus selection
- Output distribution of the mono audio signal to the busses, and
- Monitoring unit which must allow mono, stereo, four-, five-, and six-channel monitoring.

The following text is dealing with the second of the three points above.

The potentiometers DIVERGENCE and FRONT/REAR allow to distribute the mono signal at will to the up to six masters or groups.

**Mono** For mono outputs direct selection with the bus selector keys is possible.

**Stereo** For stereo distribution, the PAN key activates a panorama potentiometer (pan pot) with which the mono information can be placed to any desired spot between the two loudspeakers.

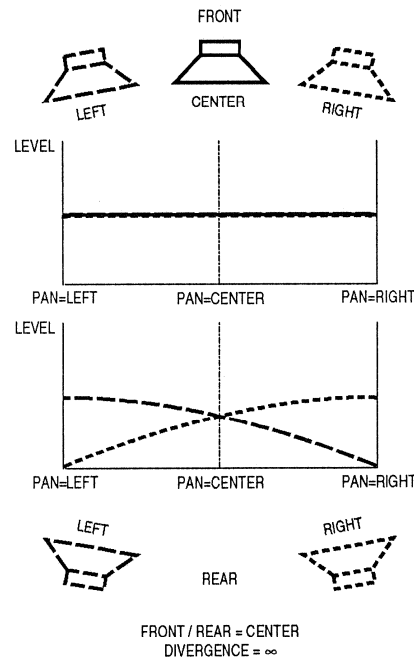
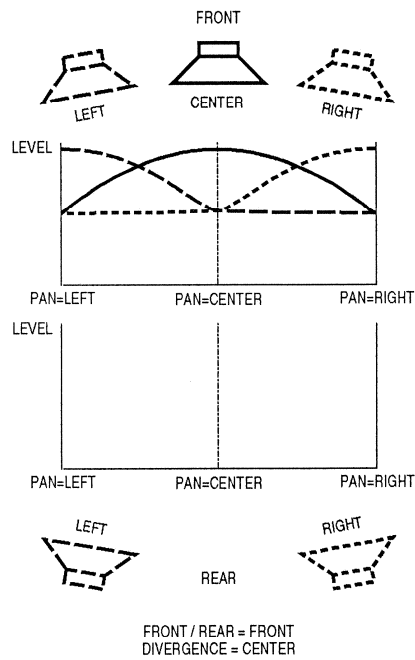
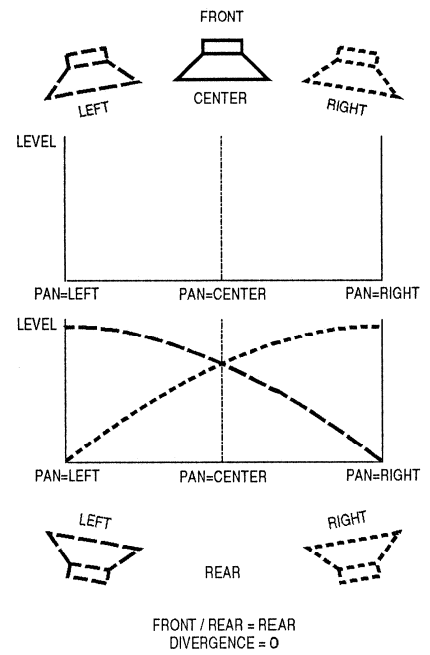
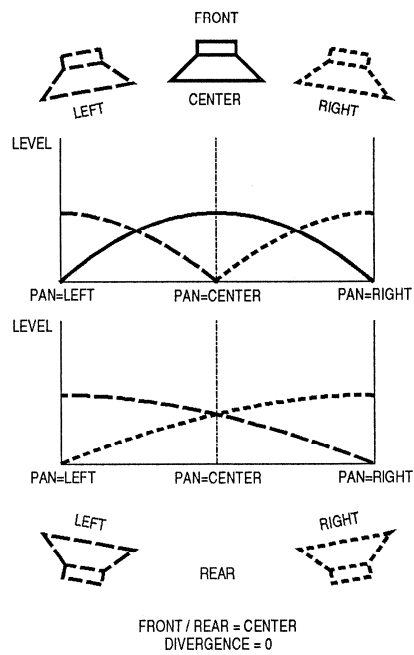
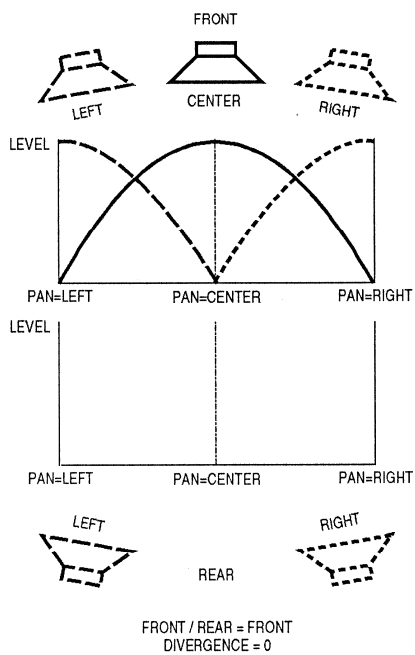
**4 to 6 channels** For the four- to six-channel formats an additional potentiometer is required which is responsible for the distribution to the front and rear loudspeakers. With this procedure, mono sources should be placed not only in a line in front of the listener, but to any desired spot in the listening room. This potentiometer (FRONT/REAR) is activated by the FILM key. In the Dolby Surround method the rear sound is limited to mono information which is radiated by one or several loudspeakers. In the TV 3-2 standard, however, also the rear information is transmitted separately for the left and right speaker. The panorama potentiometer must remain effective in this case.

All multichannel techniques for film and video contain an additional center channel which radiates the sound in a way that also for a non-ideally placed (i.e. out-of-center) listener the screen-related dialog is located near the picture.

When switching to FILM, the characteristics of the panorama potentiometer is changed in a way that the three front channels can be controlled with different levels depending on the potentiometer's position.

The DIVERGENCE potentiometer which is activated by the DIV key reduces the strict separation of the three front channels. Then, e.g. for center position of the PAN pot, a signal component is added not only to the center speaker but also (with somewhat reduced level) to the side speakers thus broadening the image of the point-type mono source for the non-ideally placed listener.

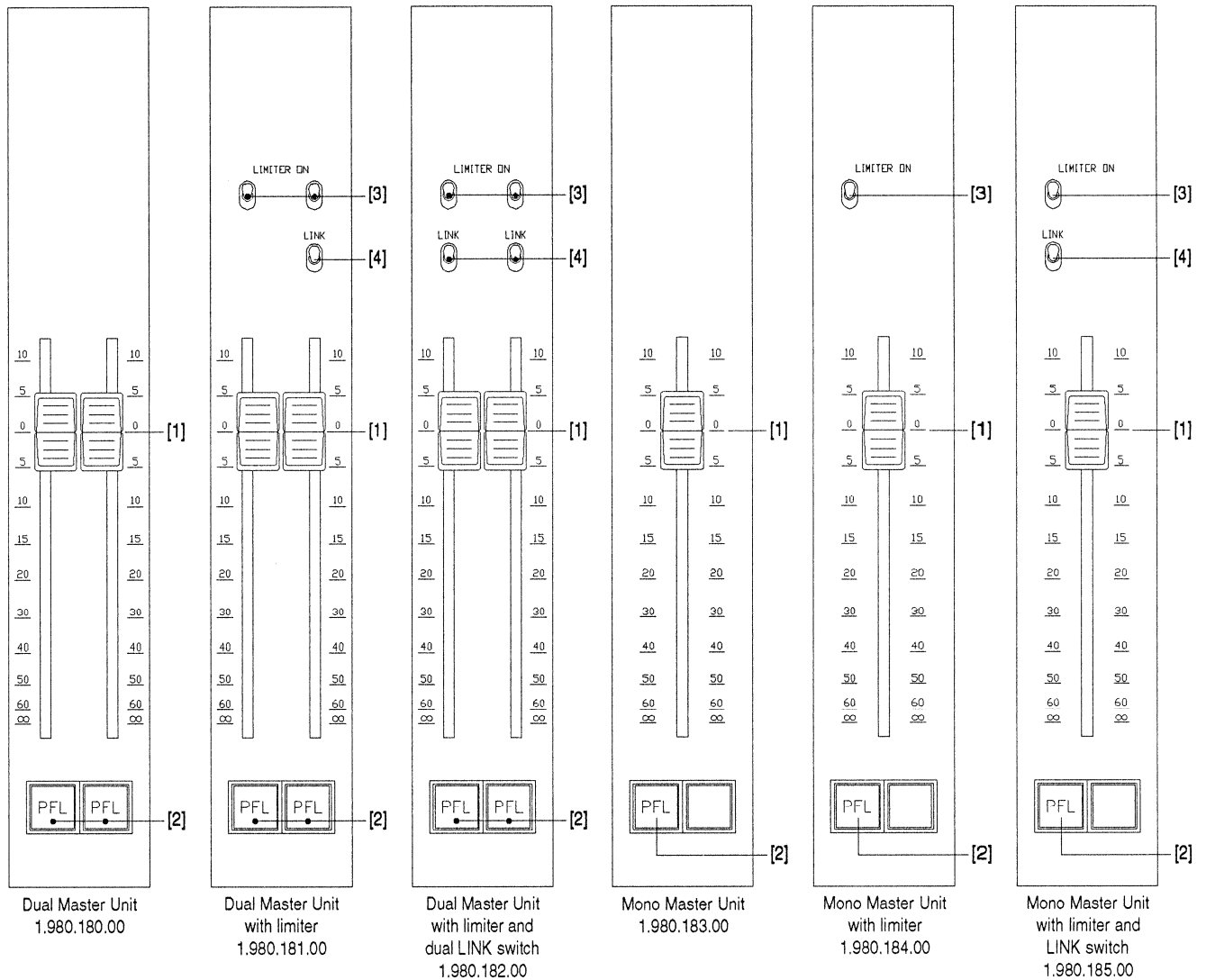
Please refer to the examples on the next page.





2.2 Master units

1.980.180.00...185.00



- [1] Fader Linear fader with log characteristics (Penny + Giles).
- [2] PFL Key for pre-fader listening function.
  - Option 3: PFL is always active, when the PFL key is pressed (default setting).
  - Option 4: PFL is active, if the PFL key is pressed and the fader is in its OFF position.
- [3] LIMITER ON Rocker switch for channel-wise activation of the limiter being installed in the EU card rack.
- [4] LINK
  - Dual Master** **1.980.181:** Rocker switch for coupling the two limiters in order to avoid floating of the sound source during stereo reproduction. **1.980.182:** The right-hand rocker switch is used for coupling the two limiters in order to avoid floating of the sound source during stereo reproduction. The left-hand rocker switch is used for coupling the limiter(s) with the one(s) of other Master units, provided their left-hand rocker switch is activated, too.
  - Mono Master** **1.980.185:** Rocker switch for coupling the limiter with the one(s) of other Master units, provided their (left-hand) rocker switch is activated, too.

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## 2.3 Central Control Unit (CCU)

---

### 2.3.1 General

---

The Central Control Unit allows to control all global console functions. The following functional blocks are included:

- Storing and recalling snapshots in/from the CCU memory.
- Creation and playback of snapshot sequences.
- Assigning input channels to group and master busses and (if the console is prepared for this purpose) to the multichannel bus.
- Storing and recalling snapshots and sequences to standard PCMCIA memory cards.

### 2.3.2 Operating concept

---

Operation of the CCU is menu oriented. A menu has to be selected by means of one of the menu control keys (function keys) to perform the desired function.

The lowest line of the LC display always indicates the menus to be selected in the next step. Routing there is performed by pressing one of the four function keys F1...F4 arranged below the display. This way it is possible to walk down the menu hierarchy step by step.

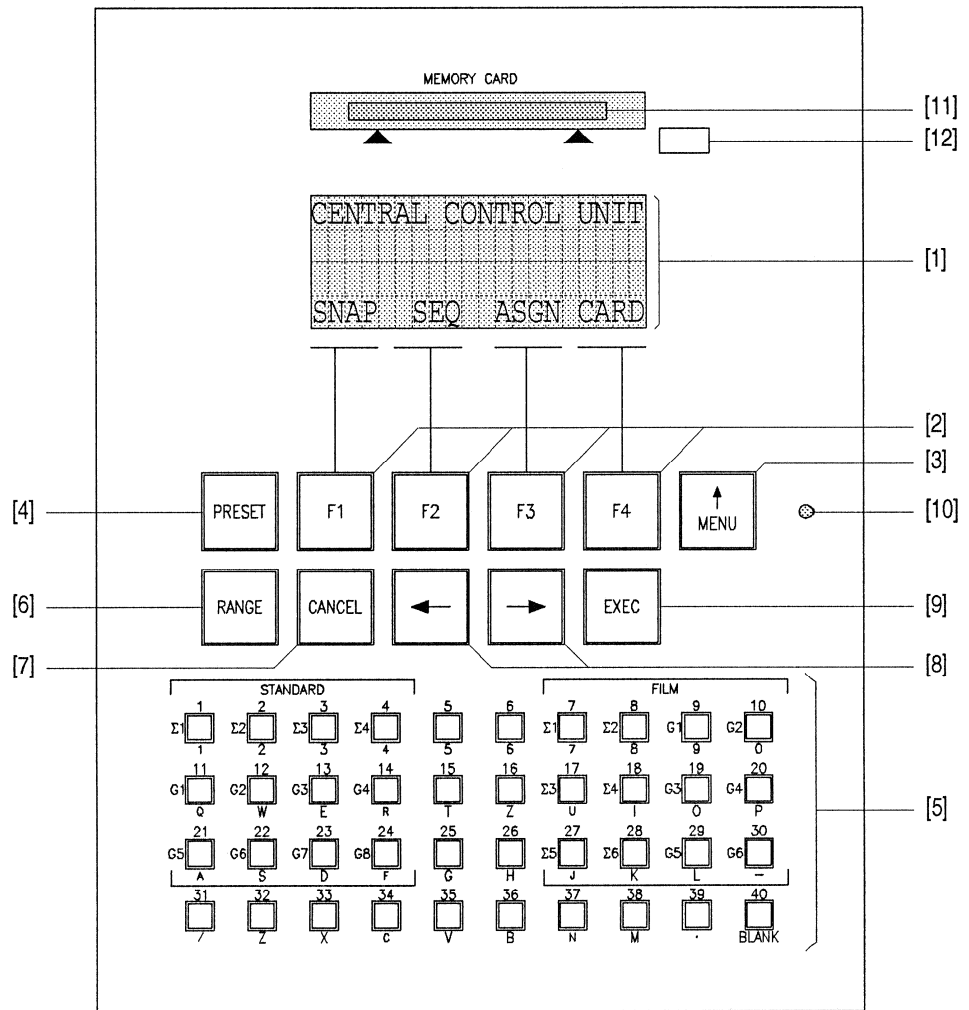
The **↑** MENU key is used to move upwards again through the hierarchy by one or two steps at once, depending on the current menu.

The PRESET menu is separated from this hierarchy. It is immediately accessed by pressing PRESET from any position. Pressing the **↑** MENU key leads back to the respective starting position.

In most cases for releasing a function first a selection with the alpha-numerical keyboard (selection keys) is required which has to be acknowledged by pressing EXEC.

Several seconds after power-on the CCU start menu appears in the display. Pressing then one of the four function keys selects one of the menus available.

**2.3.3 Synopsis, operating elements**



- [1] LC display
  - 1st line: Current menu
  - 2nd line: User information
  - 3rd line: Warnings and error messages
  - 4th line: Branching options
  
- [2] F1...F4
  - By selecting one of the four function keys selects one of the available menus.
  
- [3] ↑ MENU
  - Jump back to the superior menu level.
  
- [4] PRESET
  - Jump to the PRESET menu from any menu position; jump back to the last menu position by pressing ↑ MENU.
  
- [5] Selection keys
  - (Alpha-numerical keyboard)
  - Used for indication and selection of snapshots, sequences, sets, input channels, or busses as well as for entering alpha-numerical names, depending on the current menu.
  - If the key remains illuminated after being pressed, this indicates a valid selection.

- [6] **RANGE** Range selection.  
On large consoles this key is used in the ASSIGN menu to access (select) the input channels above No. 41.  
When entering names, this key is used to toggle between upper and lower case characters.
- [7] **CANCEL** Cancelling key.  
In most menus a selection is cancelled with this key.  
When entering names this key is used to clear the name buffer and reset the cursor.
- [8] **←, →** Cursor keys.  
When entering names these keys are used to move the cursor one position to the left/right.  
In the SEQUENCE PLAY and SEQUENCE EDIT menus these keys move to the last/next step.  
In the ASSIGN menu the input at the left/right next to the current input is selected.
- [9] **EXEC** Execute key.  
If a selection has been made the desired function is performed with EXEC.
- [10] **Contrast setting** The LCD contrast can be adjusted for the preferred viewing angle by using a small screwdriver (No. 00).
- [11] **MEMORY CARD** Slot for the PCMCIA memory card.
- [12] **Eject pushbutton** A PCMCIA memory card inserted in the slot must be released by using the eject pushbutton; otherwise the mechanical stability of the card and its fixture cannot be warranted.

### 2.3.4 Menu structure

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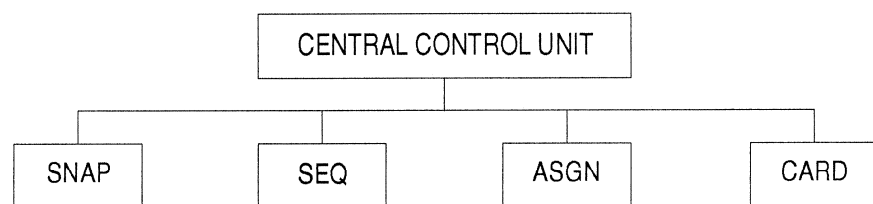
#### Start menu

---

After powering the console on, for a few seconds the following is displayed:

**CENTRAL CONTROL UNIT**  
**Mixing Console 980**  
**Vers 1.xx**  
**© STUDER P.A. AG**

after which the start menu appears:



#### PRESET menu

---

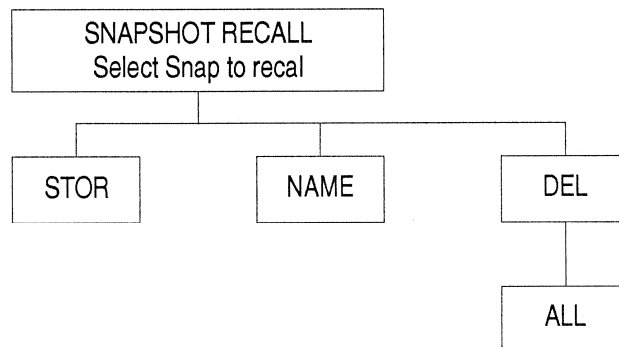
The PRESET menu is completely separated from the remaining menu control; it can be called up at any moment and in any console status by pressing the dedicated PRESET key; by pressing **↑ MENU**, the menu position having been active before is recalled immediately.

In the PRESET menu only presets can be recalled. Illuminated selection keys indicate the presets available. By pressing one of these keys followed by EXEC selects the console status according to the preset snapshot.

PRESET No. 1 contains *no* snapshot data but rather sends a general reset to all modules. Subsequently all modules are reset, re-initialized, and switched to the LINE or LINE 1 input, respectively.

## SNAPSHOT RECALL menu

---



**General:** Illuminated selection keys indicate presets available. Pressing one of the illuminated selection keys followed by EXEC recalls the corresponding snapshot.

### STORE

For storing a snapshot in the internal CCU memory: Pressing the function key labelled STOR, followed by one of the selection keys and EXEC. If one of the illuminated selection keys is used for this purpose, the snapshot already present will be overwritten; a warning message appears.

### NAME

A snapshot already stored can be given a name. For this purpose it has to be recalled by pressing one of the illuminated selection keys. After having pressed the function key labelled NAME the LCD indication changes to the current name which can simply be overwritten; CANCEL will clear the name buffer and place the cursor to its leftmost position. The selection keys are used now for entering alpha-numerical characters.

By using ← and → the cursor is moved in name entering mode, RANGE is used to toggle between lower and upper case characters.

The new name is accepted by pressing EXEC after which the SNAPSHOT NAME menu is reactivated.

If pressing ↑ MENU before EXEC has been pressed the name entering mode will be cancelled without performing any name change, and the SNAPSHOT NAME menu is reactivated.

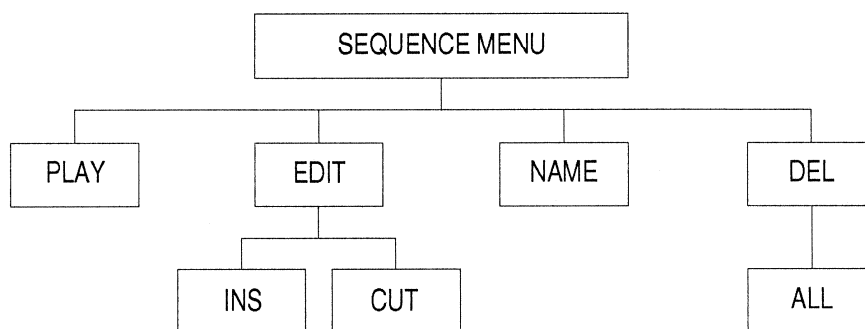
### DELeTe

For deleting a snapshot already stored. For this purpose the snapshot has to be selected with one of the illuminated selection keys and subsequently deleted with EXEC.

**Note:** It will be *not* verified if the snapshot concerned is part of a sequence!

### DELeTe ALL

For deleting all snapshots stored in the internal CCU memory. After having pressed the function keys labelled DEL and ALL press EXEC.

**SEQUENCE menu**

**General:** Sequences are representing just a series of snapshot numbers; i.e. only the snapshot number is stored instead of the actual snapshot within a sequence. Only when playing back the sequence the snapshot memory range is accessed.  
 Available snapshots are indicated by illuminated selection keys.  
 Up to 20 sequences are possible.  
 One sequence must contain at least one snapshot.

**PLAY** For playback select first a sequence, then press EXEC. The first snapshot of the current sequence will be transferred to the console; the LCD indicates the following snapshot or the end of the sequence (SequEnd). The next time EXEC is pressed, the displayed snapshot is transferred to the console, and again the following snapshot is indicated in the LCD. Each time EXEC is pressed the next step within the sequence is activated.

The cursor keys ← and → move to the last/next step within the sequence. For performing the selected step press EXEC.

**EDIT** After having pressed the function key labelled EDIT, a sequence already available or a new sequence must be selected with the selection keys. Afterwards the menu points INSert and CUT (in case of a new sequence, only INSert) will be released.

**EDIT INSert** The display indicates "Step#1 → SequEnd"; the console is ready for entering the first step. Illuminated selection keys indicate which snapshots can be selected. If one of them is pressed, this snapshot will be entered as step No. 1 in the new sequence. Afterwards "Step#2 → SequEnd" is displayed, the next snapshot can be selected.

If an additional step has to be entered into a sequence, use the ← and → cursor keys to move through the sequence. The new snapshot will be inserted at the position indicated; all following steps will be moved backwards by one position.

The editing buffer is a circular buffer; i.e. when the end of the sequence (SequEnd) is indicated, the next pressure on the cursor key → leads back to the first sequence step.

**EDIT CUT** All selection keys remain dark, they have no function in the CUT menu. The snapshot to be cut out of the sequence is selected with the cursor keys ← and →.

By pressing EXEC the snapshot indicated is cut out; all following snapshots move up, and the gap having emerged is filled.

**NAME**

A sequence already stored can be given a name. After having pressed the function key labelled NAME the LCD indication changes to the current name which can simply be overwritten; CANCEL will clear the name buffer and place the cursor to its leftmost position. The selection keys are used now for entering alpha-numerical characters.

By using ← and → the cursor is moved in name entering mode, RANGE is used to toggle between upper and lower case characters.

The new name is accepted by pressing EXEC after which the SEQUENCE PLAY menu is reactivated.

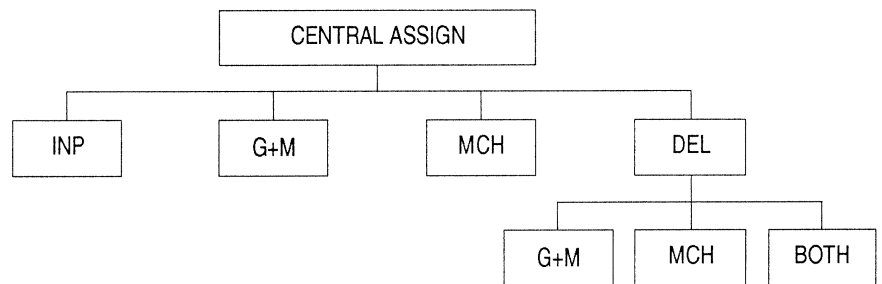
If pressing ↑ MENU before EXEC has been pressed the name entering mode will be cancelled without performing any name change, and the SEQUENCE NAME menu is reactivated.

**DElete**

To delete a sequence already available. After having pressed the function key labelled DEL, the sequence is recalled by one of the selection keys and subsequently deleted with EXEC.

**DElete ALL**

To delete all sequences available in the internal CCU memory. After having pressed the function keys labelled DEL and ALL press EXEC.

**CENTRAL ASSIGN menu**

**General:** The MCH (multichannel) menu point can be selected only if the console has been equipped with the corresponding multichannel option. In the INP menu point input channels are selected which are to be assigned to a bus. In the G+M (groups + masters) or MCH menu points the bus selection is performed, the final assignment is done by pressing EXEC.

The bus selection can be performed first, i.e. before the input channel selection in the INP menu point is made, as well. The final assignment is done by pressing EXEC.

Bus assignments for groups and masters can alternatively performed directly on the concerned input module, too.

**INPut**

In this menu point the selection keys are used to select one or several input channels.

If one of the selection keys should not be illuminated after having been pressed, the corresponding channel has been recognized as not available by the CCU. If a corresponding module is installed in the console nevertheless, it should be checked.

The first of the selected channels is always indicated in the LC display; all others are marked by an asterisk ("\*").

A selection is cancelled by pressing CANCEL.



If more than 40 input channels should be installed, the channel No. 41 and up can be reached by using the RANGE key.

**G+M**

Depending on the input module type the bus selection is performed by means of the left-hand or the right-hand groups of the yellow/green selection keys.

For multi-format consoles the right-hand group (6 masters, 6 groups), for broadcast consoles the left-hand group (4 masters, 8 groups) is used. The final assignment is done by pressing EXEC.

If already some input channels are selected, the current bus assignment of the first of the selected channels is indicated when pressing the function key labelled G+M.

**MCH**

Prerequisite for the multichannel bus selection: The console must be equipped with the multichannel option.

Multichannel bus selection is possible only with the CCU.

The multichannel bus selection is performed with the selection keys 1...32.

The final assignment is done by pressing EXEC.

If already some input channels are selected, the current bus assignment of the first of the selected channels is indicated when pressing the function key labelled MCH.

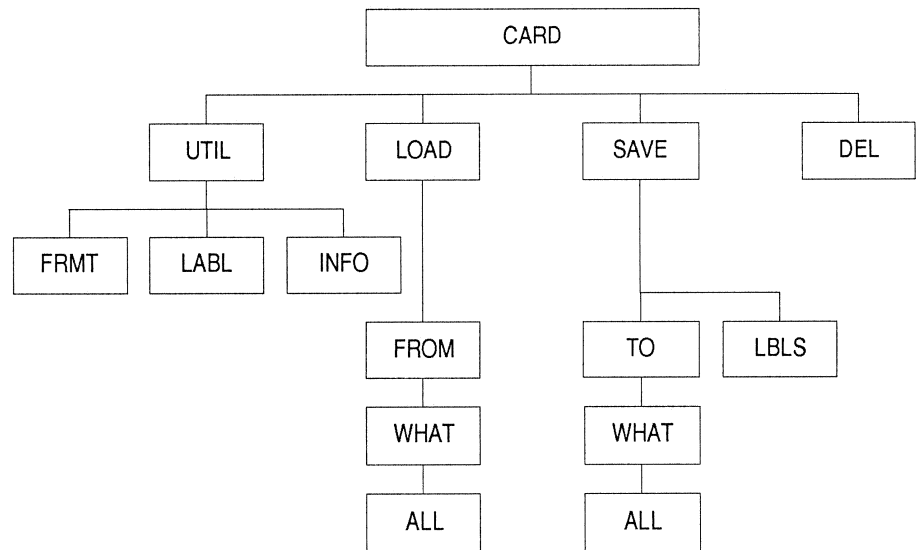
**DElete**

Deleting the bus assignment for the selected input channels.

DEL G+M only deletes the groups and masters bus assignments.

DEL MCH only deletes the multichannel bus assignments.

DEL BOTH deletes the groups and masters as well as the multichannel bus assignments.

**CARD menu**

**General:** For archiving purposes, snapshots and sequences can be stored and recalled on/from standard S-RAM PC memory cards (PCMCIA cards) with a storage capacity of up to 4 Mbyte. The data on a memory card are organized as follows:

- Up to 40 "sets" can be established.
- One set can contain up to 40 snapshots and 20 sequences.
- Sequences can be stored or recalled only together with their accompanying snapshots using the menu points SAVE ALL or LOAD ALL, respectively.

On high-capacity memory cards searching operations for sets and snapshots as well as storing and recalling can last several seconds.

The CCU only accepts memory cards formatted by its own system.

The system supports the MS-DOS file system.

**UTILities FRMT**

After having pressed the function keys labelled UTIL and FRMT and consecutively the EXEC key, the memory card inserted will be formatted, i.e. organized and provided with information in a way that the card can be written to and read from by the CCU.

**Note:** When formatting the memory card all data will completely be deleted.

**UTILities LABL**

For improved identification a label (a name) can be assigned to a memory card. Entering of a name is performed as described above under the NAME menu points. When formatting, this name will be definitively deleted, too.

**UTILities INFO**

When calling up this menu point, the following information on the memory card inserted is displayed after a short delay:

- Name
- Total storage capacity in kByte
- Occupied storage capacity in % (5% resolution).

**CARD LOAD**

In this menu point first the set has to be selected on the memory card from which the data are to be loaded.

Available sets on the memory card are indicated by illuminated selection keys.

If an available set has been selected, the next menu is selected with the function key labelled WHAT.

#### CARD LOAD WHAT

This menu point is accessed only from CARD LOAD.  
Illuminated selection keys indicate the snapshots available in the selected set.  
By pressing one of the illuminated selection keys followed by EXEC a snapshot is loaded from the memory card.  
By pressing the function key labelled ALL followed by EXEC the complete set including sequences and snapshots is loaded from the memory card.

#### CARD LOAD ALL

This menu point is accessed only from CARD LOAD.  
Illuminated selection keys indicate the snapshots available in the selected set.  
By pressing EXEC the complete set including sequences and snapshots is loaded from the memory card.  
After execution, a jump back to the start menu is performed.

#### CARD SAVE

In this menu point the set on the memory card is selected into which the data have to be stored.  
It is possible to select a new set or a set already available on the memory card.  
Sets already available on the memory card are indicated by illuminated selection keys.  
From this menu point it is possible to branch to the LBS menu point, where a name is assigned to the selected set.  
If a set has been selected which is already available, it is possible to branch to the next menu by pressing the function key labelled WHAT.

#### CARD SAVE WHAT

This menu is accessed only from CARD SAVE.  
Snapshots available in the internal CCU memory are indicated by illuminated selection keys.  
By pressing one of the illuminated selection keys followed by EXEC a snapshot is saved to the memory card.  
By pressing the function key labelled ALL followed by EXEC, all snapshots available in the internal CCU memory are saved to the previously selected set (CARD SAVE menu point) on the memory card.  
Snapshots already present in a set on the memory card *cannot* be overwritten.

#### CARD SAVE ALL

This menu is accessed only from CARD SAVE WHAT.  
Snapshots available in the internal CCU memory are indicated by illuminated selection keys.  
By pressing EXEC, all snapshots available in the internal CCU memory are saved to the previously selected set (CARD SAVE WHAT menu point) on the memory card.  
Should the selected set already be present on the memory card, it will be first deleted and then added again with the current data.  
After execution, a jump back to the CARD SAVE menu is performed.

**CARD SAVE LBL**

A label (i.e. a name) can be assigned to an already available set; in order to do this, press first the function keys **CARD**, **SAVE**, and **LBL**. Then select the set with one of the (illuminated) selection keys. The display now indicates the current label of the set. The selection keys can be used to enter alpha-numerical characters.

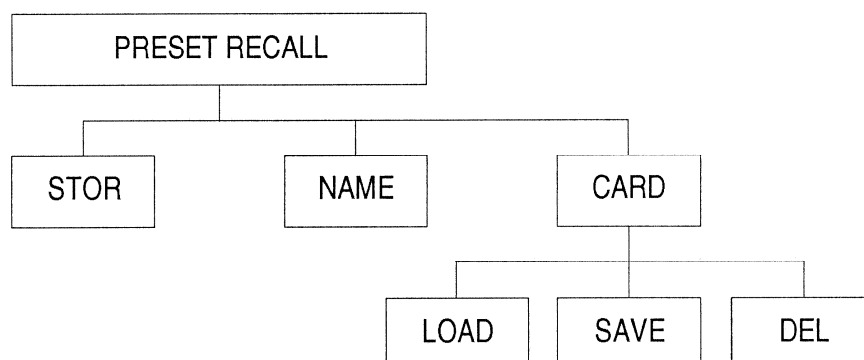
By pressing **EXEC** the new label is accepted after which a jump back to the **CARD SAVE** menu is performed.

The behaviour of the **LBL** menu is identical to the one of the **SNAPSHOT NAME** menu (refer to section **SNAPSHOT RECALL** menu).

**DElete**

All sets present on the memory card are indicated by illuminated selection keys.

By pressing one of the illuminated selection keys followed by **EXEC** the desired set is deleted from the memory card.

**For Chief Engineer Only**

**General:** The extended PRESET RECALL menu only appears if, from the start menu, "UNLOCK" is entered via the selection keys, followed by EXEC. The display indicates "Presets unlocked". When pressing the PRESET key for the next time, the PRESET RECALL menu appears in its extended form.

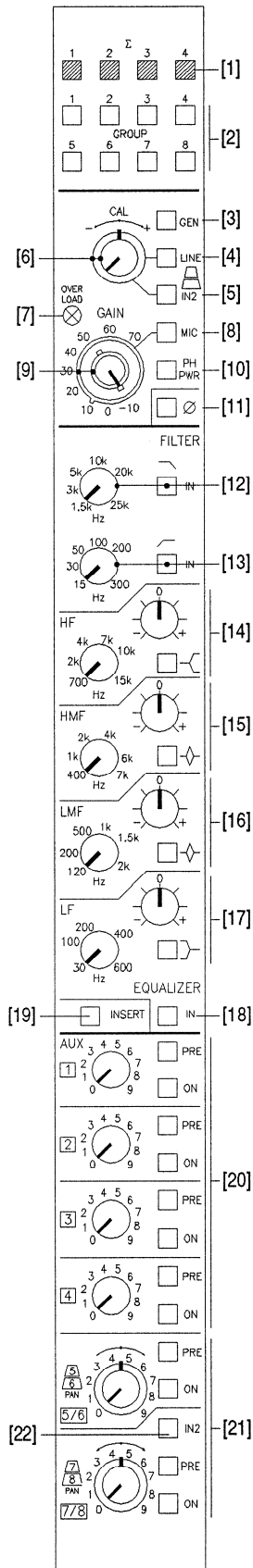
For locking, "LOCK" has to be entered from the start menu via the selection keys, followed by EXEC. Then the display indicates "Presets locked". After powering the console off, the PRESET RECALL menu is automatically locked without having to enter the LOCK command.

<b>STOR</b>	Operation is identical to the SNAPSHOT menu (refer to section SNAPSHOT RECALL menu).
<b>NAME</b>	Operation is identical to the SNAPSHOT menu (refer to section SNAPSHOT RECALL menu).
<b>CARD</b>	Presets are stored in an individual, particular set. When formatting the memory card, the stored presets are deleted as well.
<b>CARD LOAD</b>	When pressing the function keys labelled CARD and LOAD followed by EXEC, all presets from the memory card are stored to the internal CCU memory.
<b>CARD SAVE</b>	When pressing the function keys labelled CARD and SAVE followed by EXEC, all presets from the internal CCU memory are stored to the memory card.
<b>CARD DElete</b>	When pressing the function keys labelled CARD and DEL followed by EXEC, all presets from the memory card are deleted.



## 2.4 Input units

### 2.4.1 Mono input unit

I.980.220

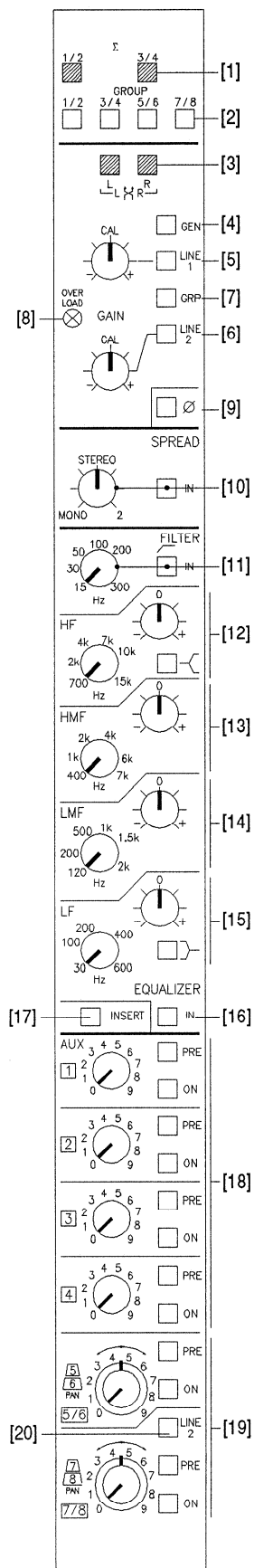


- [1]  $\Sigma$  1...4  
Key for assigning the audio signal to the MASTER busses.
- [2] **GROUP 1...8**  
Key for assigning the audio signal to the GROUP busses.
- [3] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [4] **LINE**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer [6].
- [5] **IN2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer [6].
- [6] **- CAL +**  
Gain setting for the LINE (knob) and IN2 (ring) inputs. Detent in CAL center position; the gain can be varied for  $\pm 10$  dB with respect to the CAL position.
- [7] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [8] **MIC**  
Key for selecting the transformer-balanced microphone input.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [9] **GAIN**  
Gain adjustment of the MIC input. The gain can be set in steps of 10 dB with the GAIN ring from -10 to +70 dBu; additional fine adjustment with the GAIN knob from 0 to +10 dB.
- [10] **PH PWR**  
Key for switching the phantom power to the microphone input lines. Factory setting: 48 V, switchable to 24 V or 12 V by means of solder bridges in the power supply (refer to "Aligning the power supply", section 2.16).
- [11]  $\emptyset$   
Phase reverse switch, effective for all inputs of the input unit in common.

- [12] FILTER  IN Individually selectable low-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency can be set with rotary knob between 1.5 kHz and 25 kHz.
- [13] FILTER  IN Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [14] HF Parametric constant-Q equalizer ( $Q = 0.7$ ), can be switched over to treble control (key is illuminated). Boost/cut up to  $\pm 15$  dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [15] HMF Parametric constant-Q equalizer,  $Q$ s of 0.7 (wide) and of 2 (narrow, key is illuminated) are selectable. Boost/cut up to  $\pm 15$  dB, center frequency adjustable between 400 Hz and 7 kHz.
- [16] HLF Parametric equalizer as HMF [15], but center frequency adjustable between 120 Hz and 2 kHz.
- [17] LF Parametric equalizer/bass control as HF [14], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [18] EQUALIZER IN Key for inserting (key illuminated) or bypassing the equalizer [14]...[17].
- [19] INSERT Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201; section 4).
- [20] AUX 1...4 Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [21] AUX 5/6, 7/8 Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).  
**Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.  
**Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [22] IN2 The input unit's IN2 line input is mixed to the AUX bus 7/8; this way an independent mix of the IN2 signals (e.g. monitor mix) can be realized.


2.4.2 Stereo high level input unit (HL) with EQ

I.980.240



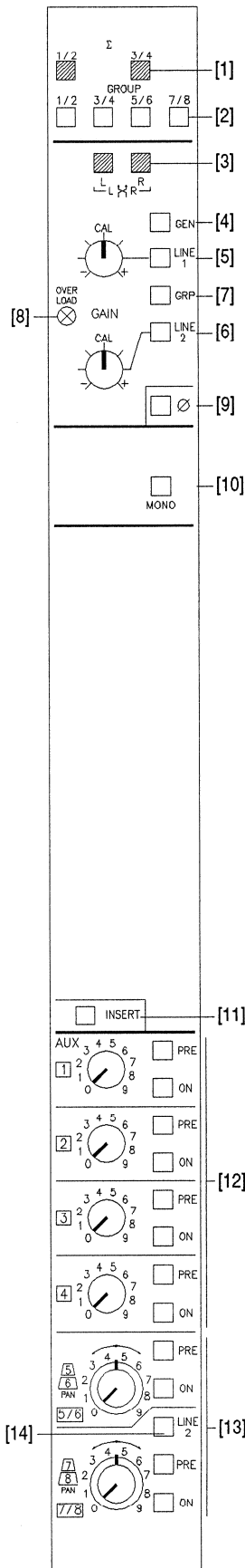
- [1]  $\Sigma$  1/2, 3/4  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP 1/2...7/8**  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L  $\times$  R**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE 1**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **LINE 2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [7] **GRP**  
This key is operative only if the input unit is used as a stereo group; in normal operation the key has no function.
- [8] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [9]  $\emptyset$   
Phase inversion key; the phase of the right channels of all inputs is shifted by 180° (key is illuminated).
- [10] **SPREAD**  
Stereo width setting. The width of a stereo signal can be continuously adjusted between mono and twice the normal width if the key is illuminated. If the potentiometer is in its STEREO center position (detent), the width corresponds to a normal stereo signal.



- [11] FILTER  IN Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [12] HF Parametric constant-Q equalizer ( $Q = 0.7$ ), can be switched over to treble control (key is illuminated). Boost/cut up to  $\pm 15$  dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [13] HMF Parametric constant-Q equalizer ( $Q = 0.7$ ). Boost/cut up to  $\pm 15$  dB, center frequency adjustable between 400 Hz and 7 kHz.
- [14] HLF Parametric equalizer as HMF [13], but center frequency adjustable between 120 Hz and 2 kHz.
- [15] LF Parametric equalizer/bass control as HF [12], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [16] EQUALIZER IN Key for inserting (key illuminated) or bypassing the equalizer [12]...[15].
- [17] INSERT Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [18] AUX 1...4 Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [19] AUX 5/6, 7/8 Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).
- Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [20] LINE 2 The LINE 2 line input is mixed to the AUX bus 7/8; this way an independent mix of the LINE 2 signals (e.g. monitor mix) can be realized.

2.4.3 Stereo high level input unit (HL) without EQ

I.980.242

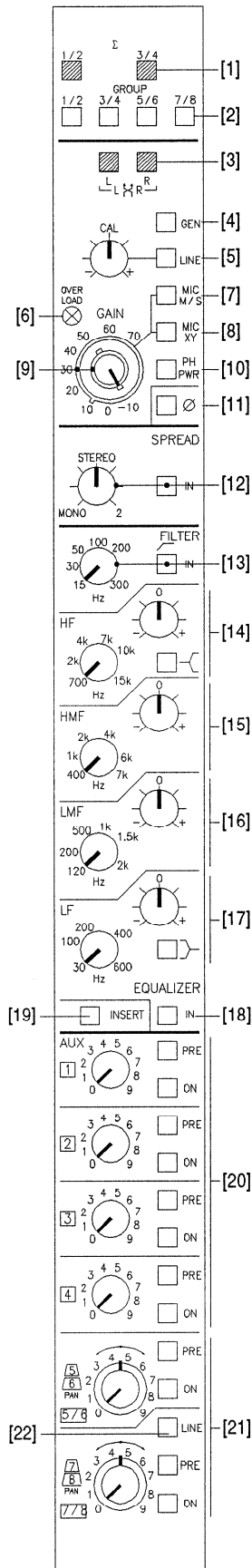


- [1]  $\Sigma$  1/2, 3/4  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP 1/2...7/8**  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L R**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE 1**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **LINE 2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [7] **GRP**  
This key is operative only if the input unit is used as a stereo group; in normal operation the key has no function.
- [8] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [9] **Ø**  
Phase inversion key; the phase of the right channels of all inputs is shifted by 180° (key is illuminated).
- [10] **MONO**  
If the key is illuminated, the left and right channel will be added to a mono signal and routed to both outputs.


- [11] **INSERT** Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [12] **AUX 1...4** Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [13] **AUX 5/6, 7/8** Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).
- Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [14] **LINE 2** The LINE 2 line input is mixed to the AUX bus 7/8; this way an independent mix of the LINE 2 signals (e.g. monitor mix) can be realized.

2.4.4 Stereo universal input unit with EQ

I.980.250



- [1]  $\Sigma$  1/2, 3/4  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP 1/2...7/8**  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L ~~R~~**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [7] **MIC M/S**  
Key for selecting the transformer-balanced microphone input for M/S microphone arrangements; the M/S decoding matrix is active.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [8] **MIC XY**  
Key for selecting the transformer-balanced microphone input for standard microphone arrangements.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [9] **GAIN**  
Gain adjustment of the MIC input. The gain can be set in steps of 10 dB with the GAIN ring from -10 to +70 dBu; additional fine adjustment with the GAIN knob from 0 to +10 dB.

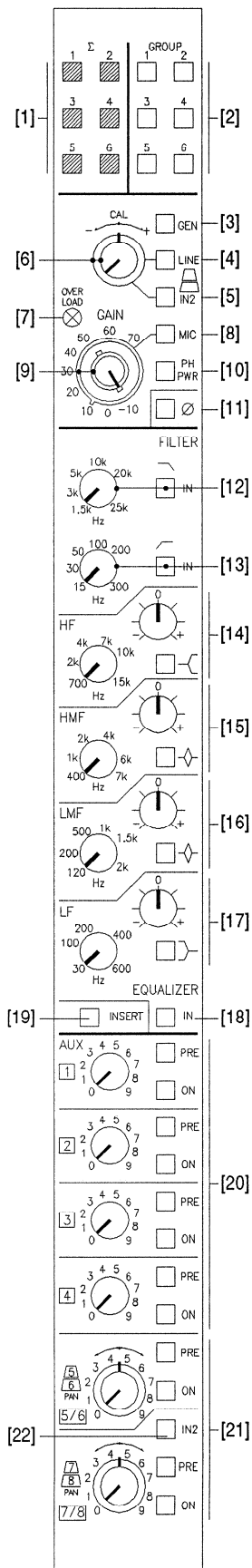
- [10] PH PWR Key for switching the phantom power to the microphone input lines. Factory setting: 48 V, switchable to 24 V or 12 V by means of solder bridges in the power supply (see "Aligning the power supply", 2.16).
- [11] Ø Phase reverse switch, effective for all inputs of the input unit in common.
- [12] SPREAD Stereo width setting. The width of a stereo signal can be continuously adjusted between mono and twice the normal width if the key is illuminated. If the potentiometer is in its STEREO center position (detent), the width corresponds to a normal stereo signal.
- [13] FILTER  IN Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [14] HF Parametric constant-Q equalizer (Q = 0.7), can be switched over to treble control (key is illuminated). Boost/cut up to ±15 dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [15] HMF Parametric constant-Q equalizer (Q = 0.7). Boost/cut up to ±15 dB, center frequency adjustable between 400 Hz and 7 kHz.
- [16] HLF Parametric equalizer as HMF [15], but center frequency adjustable between 120 Hz and 2 kHz.
- [17] LF Parametric equalizer/bass control as HF [14], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [18] EQUALIZER IN Key for inserting (key illuminated) or bypassing the equalizer [14]...[17].
- [19] INSERT Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [20] AUX 1...4 Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [21] AUX 5/6, 7/8 Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).
- Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.

**[22] LINE**



The LINE input is mixed to the AUX bus 7/8; this way an independent mix of the LINE signals (e.g. monitor mix) can be realized.

## 2.4.5 Mono film/HDTV input unit

I.980.221



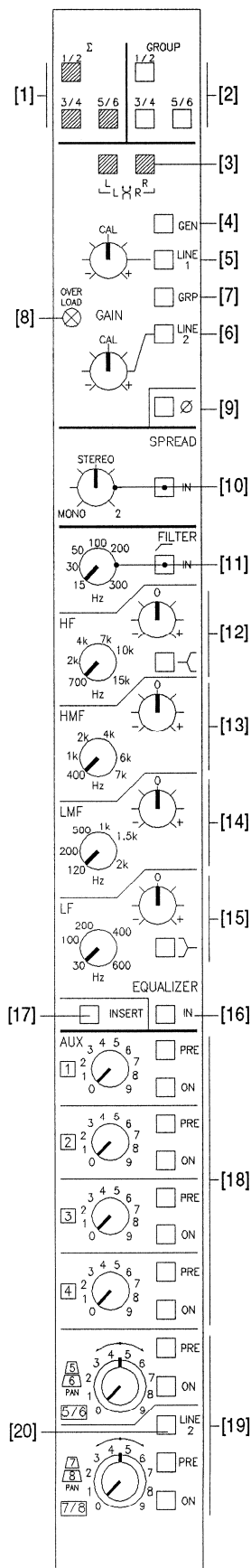
- [1]  $\Sigma$  1...6  
Key for assigning the audio signal to the MASTER busses.
- [2] **GROUP 1...6**  
Key for assigning the audio signal to the GROUP busses.
- [3] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [4] **LINE**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer [6].
- [5] **IN2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer [6].
- [6] **- CAL +**  
Gain setting for the LINE (knob) and IN2 (ring) inputs. Detent in CAL center position; the gain can be varied for  $\pm 10$  dB with respect to the CAL position.
- [7] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [8] **MIC**  
Key for selecting the transformer-balanced microphone input.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [9] **GAIN**  
Gain adjustment of the MIC input. The gain can be set in steps of 10 dB with the GAIN ring from -10 to +70 dBu; additional fine adjustment with the GAIN knob from 0 to +10 dB.
- [10] **PH PWR**  
Key for switching the phantom power to the microphone input lines. Factory setting: 48 V, switchable to 24 V or 12 V by means of solder bridges in the power supply (refer to "Aligning the power supply", section 2.16).
- [11]  $\emptyset$   
Phase reverse switch, effective for all inputs of the input unit in common.

- [12] FILTER  IN Individually selectable low-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency can be set with rotary knob between 1.5 kHz and 25 kHz.
- [13] FILTER  IN Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [14] HF Parametric constant-Q equalizer ( $Q = 0.7$ ), can be switched over to treble control (key is illuminated). Boost/cut up to  $\pm 15$  dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [15] HMF Parametric constant-Q equalizer,  $Q$ s of 0.7 (wide) and of 2 (narrow, key is illuminated) are selectable. Boost/cut up to  $\pm 15$  dB, center frequency adjustable between 400 Hz and 7 kHz.
- [16] HLF Parametric equalizer as HMF [15], but center frequency adjustable between 120 Hz and 2 kHz.
- [17] LF Parametric equalizer/bass control as HF [14], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [18] EQUALIZER IN Key for inserting (key illuminated) or bypassing the equalizer [14]...[17].
- [19] INSERT Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [20] AUX 1...4 Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [21] AUX 5/6, 7/8 Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).  
**Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.  
**Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [22] IN2 The input unit's IN2 line input is mixed to the AUX bus 7/8; this way an independent mix of the IN2 signals (e.g. monitor mix) can be realized.




**2.4.6 Stereo high level film/HDTV input unit (HL) with EQ**

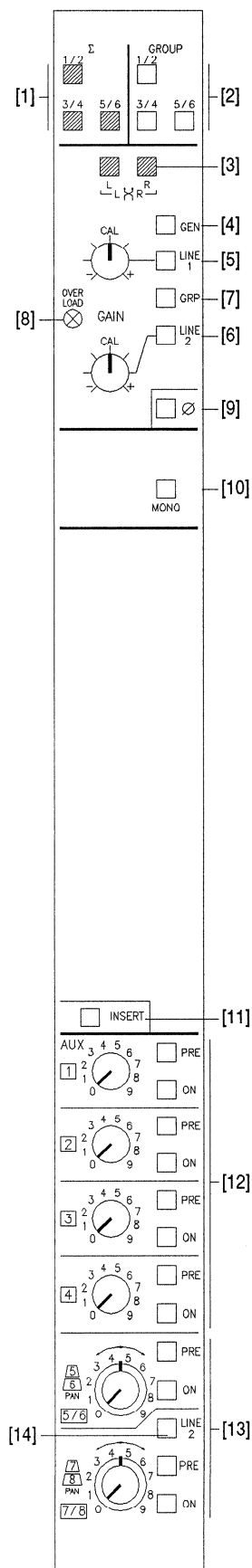
**I.980.24 I**



- [1]  $\Sigma$  1/2...5/6  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP 1/2...5/6**  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L  $\times$  R**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE 1**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **LINE 2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [7] **GRP**  
This key is operative only if the input unit is used as a stereo group; in normal operation the key has no function.
- [8] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [9]  $\emptyset$   
Phase inversion key; the phase of the right channels of all inputs is shifted by 180° (key is illuminated).
- [10] **SPREAD**  
Stereo width setting. The width of a stereo signal can be continuously adjusted between mono and twice the normal width if the key is illuminated. If the potentiometer is in its STEREO center position (detent), the width corresponds to a normal stereo signal.

- [11] **FILTER**  **IN** Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [12] **HF** Parametric constant-Q equalizer ( $Q = 0.7$ ), can be switched over to treble control (key is illuminated). Boost/cut up to  $\pm 15$  dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [13] **HMF** Parametric constant-Q equalizer ( $Q = 0.7$ ). Boost/cut up to  $\pm 15$  dB, center frequency adjustable between 400 Hz and 7 kHz.
- [14] **HLF** Parametric equalizer as HMF [13], but center frequency adjustable between 120 Hz and 2 kHz.
- [15] **LF** Parametric equalizer/bass control as HF [12], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [16] **EQUALIZER IN** Key for inserting (key illuminated) or bypassing the equalizer [12]...[15].
- [17] **INSERT** Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [18] **AUX 1...4** Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [19] **AUX 5/6, 7/8** Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).  
**Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.  
**Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [20] **LINE 2** The LINE 2 line input is mixed to the AUX bus 7/8; this way an independent mix of the LINE 2 signals (e.g. monitor mix) can be realized.

## 2.4.7 Stereo high level film/HDTV input unit (HL) without EQ I.980.243

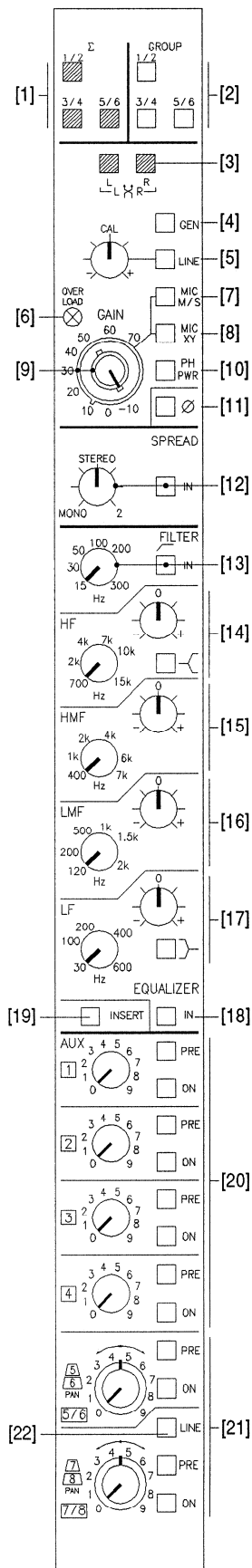


- [1]  $\Sigma$  1/2...5/6  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP 1/2...5/6**  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L X R**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE 1**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **LINE 2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [7] **GRP**  
This key is operative only if the input unit is used as a stereo group; in normal operation the key has no function.
- [8] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [9] **Ø**  
Phase inversion key; the phase of the right channels of all inputs is shifted by 180° (key is illuminated).
- [10] **MONO**  
If the key is illuminated, the left and right channel will be added to a mono signal and routed to both outputs.


- [11] **INSERT** Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [12] **AUX 1...4** Mono outputs to the auxiliary busses 1...4. If **ON** is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If **PRE** is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [13] **AUX 5/6, 7/8** Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the **2CH** key on the **AUX MASTER UNIT**).
- Mono:** If **ON** is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If **PRE** is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- Stereo:** If **ON** is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If **PRE** is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [14] **LINE 2** The **LINE 2** line input is mixed to the AUX bus 7/8; this way an independent mix of the **LINE 2** signals (e.g. monitor mix) can be realized.

## 2.4.8 Stereo universal film/HDTV input unit with EQ

I.980.25 I



- [1]  $\Sigma$  1/2...5/6  
Key for assigning the input signals to the stereo MASTER busses.
- [2] **GROUP** 1/2...5/6  
Key for assigning the input signals to the stereo GROUP busses.
- [3] **L, R, L  $\times$  R**  
Channel selector.  
**L, R dark:** Normal operation, left and right channel in stereo mode.  
**L illuminated:** Left input channel is switched to both output channels with level matching.  
**R illuminated:** Right input channel is switched to both output channels with level matching.  
**L and R illuminated:** Stereo operation, however both input channels are swapped and connected to the output channels.
- [4] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [5] **LINE**  
Key for selecting the transformer-balanced line input (electronically balanced line input optional).  
Gain setting with potentiometer next to the key; detent in 0 dB center position. Gain setting range:  $\pm 10$  dB.
- [6] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to indicate any undesired clipping of the signal.
- [7] **MIC M/S**  
Key for selecting the transformer-balanced microphone input for M/S microphone arrangements; the M/S decoding matrix is active.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [8] **MIC XY**  
Key for selecting the transformer-balanced microphone input for standard microphone arrangements.  
Coarse gain setting with the GAIN ring, fine adjustment with the GAIN knob.
- [9] **GAIN**  
Gain adjustment of the MIC input. The gain can be set in steps of 10 dB with the GAIN ring from  $-10$  to  $+70$  dBu; additional fine adjustment with the GAIN knob from 0 to  $+10$  dB.

- [10] PH PWR Key for switching the phantom power to the microphone input lines. Factory setting: 48 V, switchable to 24 V or 12 V by means of solder bridges in the power supply (see "Aligning the power supply", 2.16).
- [11] Ø Phase reverse switch, effective for all inputs of the input unit in common.
- [12] SPREAD Stereo width setting. The width of a stereo signal can be continuously adjusted between mono and twice the normal width if the key is illuminated. If the potentiometer is in its STEREO center position (detent), the width corresponds to a normal stereo signal.
- [13] FILTER  IN Individually selectable high-pass filter, Bessel characteristics. Slope 12 dB/octave. Cut-off frequency adjustable with rotary knob between 15 Hz and 300 Hz.
- [14] HF Parametric constant-Q equalizer ( $Q = 0.7$ ), can be switched over to treble control (key is illuminated). Boost/cut up to  $\pm 15$  dB, center/turnover frequency adjustable between 700 Hz and 15 kHz.
- [15] HMF Parametric constant-Q equalizer ( $Q = 0.7$ ). Boost/cut up to  $\pm 15$  dB, center frequency adjustable between 400 Hz and 7 kHz.
- [16] HLF Parametric equalizer as HMF [15], but center frequency adjustable between 120 Hz and 2 kHz.
- [17] LF Parametric equalizer/bass control as HF [14], but center/turnover frequency adjustable between 30 Hz and 600 Hz.
- [18] EQUALIZER IN Key for inserting (key illuminated) or bypassing the equalizer [14]...[17].
- [19] INSERT Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [20] AUX 1...4 Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [21] AUX 5/6, 7/8 Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).
- Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.

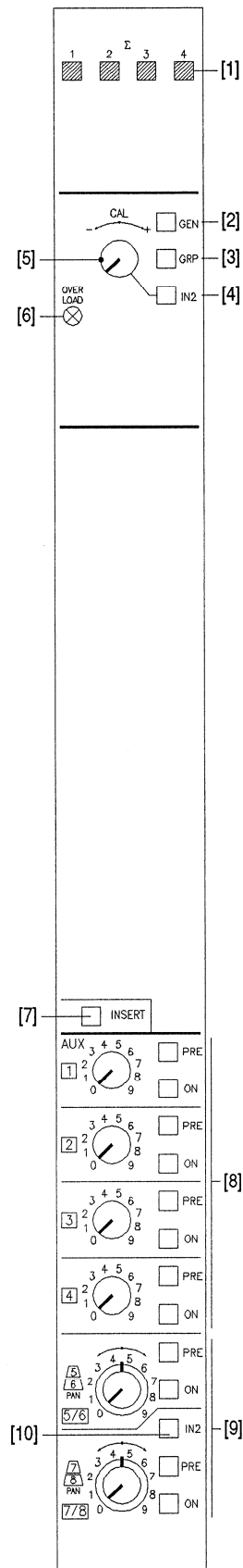
**[22] LINE**

The LINE input is mixed to the AUX bus 7/8; this way an independent mix of the LINE signals (e.g. monitor mix) can be realized.

2.5 Group units

2.5.1 Mono group unit, broadcast version

I.980.230



- [1] **Σ 1...4**  
Key for assigning the audio signal to the MASTER busses.
- [2] **GEN**  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [3] **GRP**  
Key for group take-over, if the input is used as a group.
- [4] **IN2**  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer [5].
- [5] **- CAL +**  
Gain setting for the IN2 input. Detent in CAL center position; the gain can be varied for ±10 dB with respect to the CAL position.
- [6] **OVERLOAD**  
From all critical points within the channel the signal is routed to the overload indicator in order to avoid undesired clipping of the signal.
- [7] **INSERT**  
Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [8] **AUX 1...4**  
Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [9] **AUX 5/6, 7/8**  
Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).  
**Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.  
**Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.

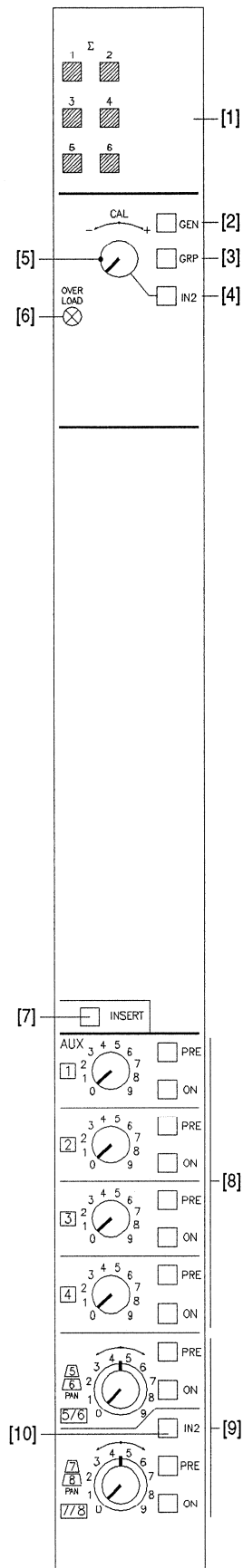


**[10] IN2**

The IN2 line input of this group is mixed to the AUX bus 7/8; this way an independent mix of the IN2 signals (e.g. monitor mix) can be realized.

2.5.2 Mono group unit, HDTV/film version

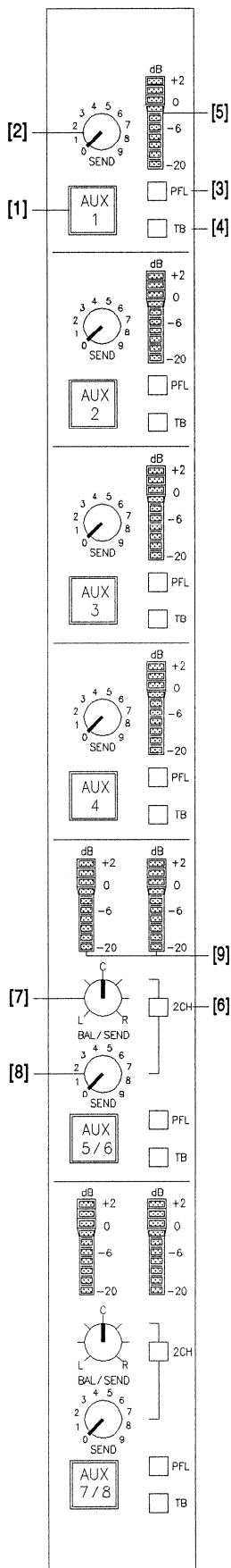
I.980.23 I



- [1]  $\Sigma$  1...6  
Key for assigning the audio signal to the MASTER busses.
- [2] GEN  
Key for selecting the electronically balanced generator input with fixed input sensitivity. (Generator standard output level: +6 dBu).
- [3] GRP  
Key for group take-over, if the input is used as a group.
- [4] IN2  
Key for selecting the electronically balanced line input (transformer-balanced line input optional).  
Gain setting with potentiometer [5].
- [5] - CAL +  
Gain setting for the IN2 input. Detent in CAL center position; the gain can be varied for  $\pm 10$  dB with respect to the CAL position.
- [6] OVERLOAD  
From all critical points within the channel the signal is routed to the overload indicator in order to avoid undesired clipping of the signal.
- [7] INSERT  
Electronically balanced insert point, either before or after the equalizer (selectable with a jumper, refer to circuit diagram Input Main and Side Board 1.980.201, section 4).
- [8] AUX 1...4  
Mono outputs to the auxiliary busses 1...4. If ON is pressed (key is illuminated), the input signal can be mixed to the desired AUX bus with the potentiometer.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [9] AUX 5/6, 7/8  
Outputs to the auxiliary busses 5/6 and 7/8, either as two mono channels or one stereo channel (this selection is performed centrally with the 2CH key on the AUX MASTER UNIT).  
**Mono:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5 and 7 with the knobs, and to the AUX busses 6 and 8 with the rings of the concentric potentiometers.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.  
**Stereo:** If ON is pressed (key is illuminated), the input signal can be mixed to the AUX busses 5/6 and 7/8 with the knobs of the concentric potentiometers; the rings of the potentiometers are used as pan pots.  
If PRE is pressed in addition (key is illuminated), the pre-fader signal is mixed to the AUX bus.
- [10] IN2  
The IN2 line input is mixed to the AUX bus 7/8; this way an independent mix of the IN2 signals (e.g. monitor mix) can be realized.

2.6 AUX MASTER unit

I.980.3 I0/320

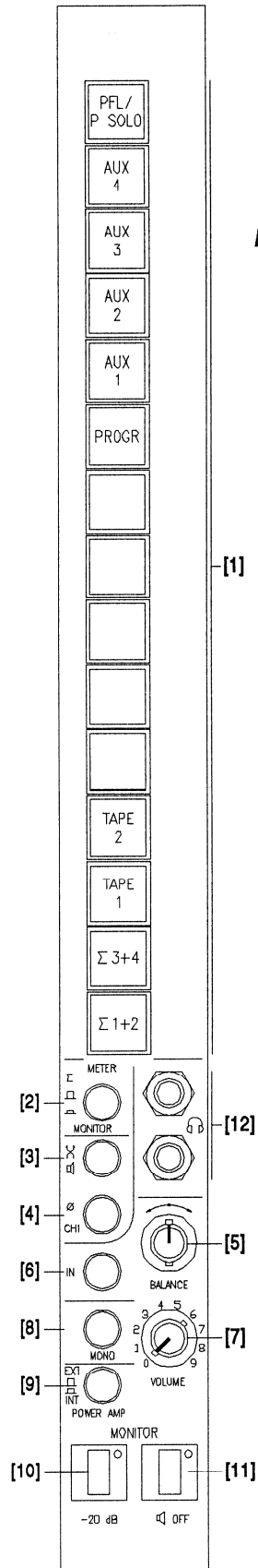




- [1] **AUX 1...4, 5/6, 7/8**  
Keys for activating the AUX channels.
- [2] **SEND**  
Potentiometer for setting the AUX output level. Max. additional gain: Line level +15 dB.
- [3] **PFL**  
Key for activating the Pre-Fader Listening monitoring function – listening before the SEND level control. If the jumper JP4 (P31/32) is inserted on AUX MASTER units with serial No. 8017 and up, the PFL keys are mutually releasing, in common with the PFL keys on the input and group units (refer to diagram AUX Master Main Board, section 4).
- [4] **TB**  
Momentary key for talk-back to the corresponding AUX channel via the command microphone. If the jumper JP3 is inserted on AUX MASTER units with serial No. 8017 and up, then “TB TO ALL” on the central Function Control Unit (FCU) is also active for the AUX MASTER unit(s) (refer to diagram AUX Master Main Board, section 4).
- [5] **LED bargraph**  
Level meters for monitoring the AUX level of the channels 1...4. VU or PPM characteristics depending on the console version; selectable for all bargraphs of the AUX MASTER unit with jumper JP1 (i.e. connect P37/38 for PPM; refer to diagram AUX Master Main Board, section 4).
- [6] **2CH**  
Key to select two-channel mode (i.e. two separate channels, key is illuminated) or stereo mode for the AUX outputs 5/6 and 7/8.
- [7] **BAL/SEND**  
Potentiometer for balance setting in stereo mode (compensation of level differences); in two-channel mode (key 2CH [6] is illuminated) for level setting of the channels 5 or 7, respectively.
- [8] **SEND**  
Potentiometer, for setting the level of the channels 5/6 or 7/8 in stereo mode; in two-channel mode (key 2CH [6] is illuminated) for level setting of the channels 6 or 8, respectively.
- [9] **LED bargraphs**  
Dual level meter for monitoring the AUX level of the channels 5/6 and 7/8. VU or PPM characteristics depending on the console version; selectable for all bargraphs of the AUX MASTER unit with jumper JP1 (i.e. connect P37/38 for PPM; refer to diagram AUX Master Main Board, section 4).

2.7 Control room monitoring

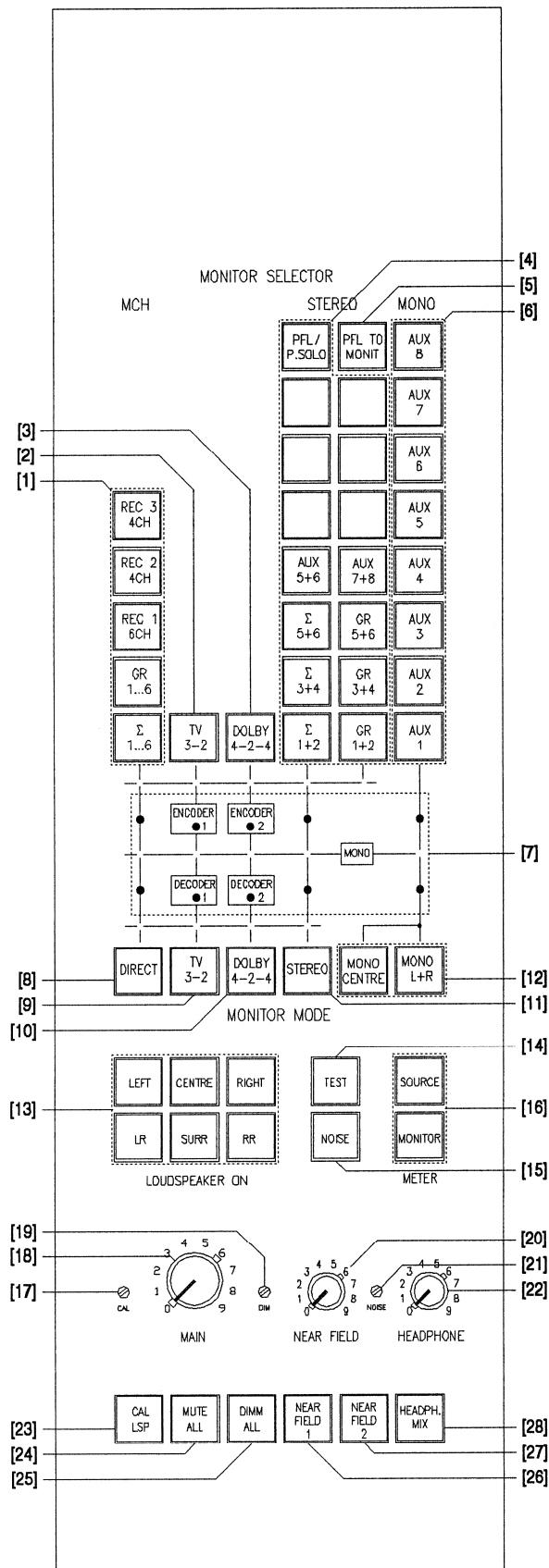
2.7.1 CR Monitor unit

I.912.420



- [1] **Source selector**  
Mutually releasing pushbuttons for selecting from 15 different sources.
- [2] **METER**  
Switchover for the level meters.  
Σ: Key released; level meters 1 and 2 are connected to the Master outputs Σ 1 and Σ 2.  
**MONITOR:** Key pressed; level meters 1 and 2 are connected to the CR Monitor outputs.
- [3]   
Key for swapping the left- and right-hand CR Monitor outputs.
- [4] **CH1**  
Key for changing the phase of the left CR Monitor channel (i.e. inversion of channel 1).
- [5] **BALANCE**  
Potentiometer for compensating level differences caused by the control room acoustics or by the monitor speakers; activated with key IN [6].
- [6] **IN**  
Key for activating the potentiometer BALANCE [5].
- [7] **VOLUME**  
Potentiometer for setting the monitoring level. For optimum stereo tracking the pot controls two VCAs.
- [8] **MONO**  
Key for adding the two monitor channels to a mono signal for compatibility checks; the combined signal is fed to both monitor outputs.
- [9] **POWER AMP**  
Key for selecting the monitoring amplifier.  
**EXT:** Key released; external power amp or active monitor speakers.  
**INT:** Key pressed; internal power amp for passive monitor speakers.
- [10] **MONITOR -20 dB**  
Key for attenuating the monitoring level by 20 dB.
- [11] **MONITOR OFF**  
Key for muting the monitor output.
- [12]   
Two headphones outputs, 6.3 mm jack sockets. Output impedance 200 Ω.

**2.7.2 HDTV/Film monitor**



- [1] **MCH**  
Mutually releasing keys to activate the multi-channel inputs REC 1...3 (external) or Σ 1...6 and GR 1...6 (internal). The external sources REC 1...3 may be four- or six-channel (jumper-selectable, refer to diagram HDTV/Film Monitor, section 4), and the corresponding monitor speaker outputs will be switched on.
- [2] **TV 3-2**  
Key for activating the external 5-channel TV 3-2 input.
- [3] **DOLBY 4-2-4**  
Key for activating the external 4-channel Dolby 4-2-4 input.
- [4] **STEREO**  
Mutually releasing keys for selecting the internal or external STEREO sources.
- [5] **PFL TO MONIT**  
Latching key for activating the PFL TO MONITOR function. When this key is pressed and one or more of the PFL/P. SOLO keys on the console is pressed, the selected monitoring source is disabled and the PFL/P. SOLO is routed to the monitor system instead.
- [6] **MONO**  
Mutually releasing keys for selecting the MONO sources AUX 1...8.
- [7] **Signal path display**  
Graphical display of the selected signal path. The display informs on the use and position of the encoder/decoder and its insertion point.
- [8] **MONITOR MODE DIRECT**  
Direct monitoring without any encoder or decoder inserted in the signal path. The channels required for the particular application must be selected with the LOUDSPEAKER ON keys [13].
- [9] **MONITOR MODE TV 3-2**  
Five-channel monitoring via the left, right, and center front speakers and the left and right rear speakers (CH 1, 2, 3, 5, 6).

- [10] **MONITOR MODE DOLBY 4-2-4** Four-channel monitoring via the left, right, and center front speakers and the surround speaker(s) (CH 1...4).
- [11] **MONITOR MODE STEREO** Two-channel monitoring via the left and right front speakers (CH 1 and 2).
- [12] **MONITOR MODE MONO** For checking the mono compatibility, the monitor mode can be switched to MONO CENTRE or MONO L+R. When using MONO CENTRE mode, the mono mix of the selected stereo channel is reproduced by the front centre loudspeaker only (i.e. CH 3). When using MONO L+R mode, the mono signal is reproduced by both the left and right front speakers (CH 1 and 2).

- [13] **LOUDSPEAKER ON** Loudspeaker selector keys for switching the desired channels to the monitor outputs.  
According to the current standards, the source-to-monitor channel assignment is as follows:

TV 3-2	Source	Speaker	Dolby 4-2-4	Source	Speaker
	CH 1	front left		CH 1	front left
	CH 2	front right		CH 2	front right
	CH 3	front centre		CH 3	front centre
	CH 4	-----		CH 4	surround
	CH 5	rear left		CH 5	-----
	CH 6	rear right		CH 6	-----

- [14] **TEST** Key for routing the test generator to the selected monitor outputs.
- [15] **NOISE** For simulating ambient noise, white noise from the test generator can be added to the monitor signal using this key. The noise level can be adjusted with the NOISE trimmer potentiometer [2 1].
- [16] **METER SOURCE/MONITOR** The level meters can monitor the signal at the monitor input (SOURCE key), or at the monitor output, before the volume control VCA (MONITOR key).
- [17] **CAL preset trimmer pot** Trimmer potentiometer for setting the calibrated level (active if CAL LSP [23] is pressed). The calibrated level is identical for the MAIN and the NEAR FIELD outputs.
- [18] **MAIN** Rotary knob for level control of all main monitor outputs. If none of the NEAR FIELD keys [26], [27] is pressed, the main monitor outputs are active.
- [19] **DIM preset trimmer** Trimmer potentiometer for setting the dimmed level. The attenuation is identical for the MAIN and the NEAR FIELD outputs.
- [20] **NEAR FIELD** Rotary knob for level control of all near-field outputs (refer to NEAR FIELD 1 [26] and NEAR FIELD 2 [27]).

- [21] NOISE** Preset trimmer potentiometer for setting the white noise level (simulation of additional ambient noise; refer to NOISE key [15]).
- [22] HEADPHONE** Rotary knob for headphones level control.  
Two headphones outputs are available which can also be used together with a set of surround headphones. They are located in the last frame (far right) underneath the hand rest.  
Channels 1 and 2 are connected to the left and right channels of the HEADPHONE 1 output. If HEADPH. MIX [28] is selected, the centre channel (CH 3) is mixed to both channels of the HEADPHONE 1 output.  
Channels 5 and 6 are connected to the left and right channels of the HEADPHONE 2 output. If HEADPH. MIX [28] is selected, the surround channel (CH 4) is mixed to both channels of the HEADPHONE 2 output.
- [23] CAL LSP** Key for activating the calibrated level. If active, the level having been preset with the CAL trimmer potentiometer [17] is routed to the selected monitor outputs.
- [24] MUTE ALL** Key for muting the selected monitor outputs.
- [25] DIMM ALL** Key for attenuating the selected monitor outputs by an amount preset with the DIM trimmer potentiometer [19].  
The DIMM ALL function is also active (key is illuminated) if a talkback function is activated (e.g. talkback to a direct output, from talkback box, or to studio, etc.).
- [26] NEAR FIELD 1** Key for routing the monitor output signals to a second group of loudspeakers. The channel 5 and 6 outputs (left and right rear) may alternatively be connected to a third pair of loudspeakers, provided the internal jumpers have been set accordingly. They will then reproduce the channels 1 and 2 (left and right front) if selected with NEAR FIELD 2 [27].  
If none of the NEAR FIELD 1 or NEAR FIELD 2 [27] keys is pressed, the monitor output signals are automatically routed to the main monitor loudspeakers.
- [27] NEAR FIELD 2** Key for routing the channels 1 and 2 (left and right front) to a third pair of loudspeakers connected to the NEAR FIELD 1 right and left rear outputs, provided the internal jumpers have been set accordingly. Refer to NEAR FIELD 1 [26].  
If none of the NEAR FIELD 1 [26] or NEAR FIELD 2 keys is pressed, the monitor output signals are automatically routed to the main monitor loudspeakers.
- [28] HEADPH. MIX** The channels 1 and 2 (right and left front) are connected to the left and right channels of the HEADPHONE 1 output socket. If HEADPH. MIX is selected, the centre front channel (CH 3) is mixed to both channels of the HEADPHONE 1 output socket.  
The channels 5 and 6 (right and left rear) are connected to the left and right channels of the HEADPHONE 2 output socket. If HEADPH. MIX

is selected, the surround channel (CH 4) is mixed to both channels of the HEADPHONE 2 output socket. In this way, a surround headphone set can be connected to both HEADPHONE 1 and 2 outputs.

**Monitoring examples**

**Stereo source:**

The desired stereo source can be selected via the monitor selection keyboard. The monitor mode then automatically switches to STEREO, and the left and right front loudspeakers are activated.

For checking the mono compatibility, the monitor mode can be switched to MONO CENTRE or MONO L+R. When using the MONO CENTRE mode, the mono mixed signal of the selected stereo channel is routed to the front centre loudspeaker. When using the MONO L+R mode, the signal is routed to the left and right front loudspeakers.

When using a coded Dolby 4-2-4 signal, the DOLBY 4-2-4 monitor mode allows for a 4-channel decoded reproduction.

**Multi-channel source:**

If one of the multi-channel sources is selected and the DIRECT monitor mode key is pressed, all four or six channels (jumper-selectable, refer to diagram HDTV/Film Monitor, section 4) are switched to the loudspeakers in the sequence according to the table below:

TV 3-2	Source	Speaker	Dolby 4-2-4	Source	Speaker
	CH 1	front left		CH 1	front left
	CH 2	front right		CH 2	front right
	CH 3	front centre		CH 3	front centre
	CH 4	-----		CH 4	surround
	CH 5	rear left		CH 5	-----
	CH 6	rear right		CH 6	-----

Unused channels can be switched off by pressing the appropriate LOUDSPEAKER ON key.

When selecting the TV 3-2 monitor mode, the source channels 1, 2, 3, 5, and 6 are routed to the monitor loudspeaker outputs without any changes. In addition, channel 4 is mixed to the channels 5 and 6.

When selecting the DOLBY 4-2-4 monitor mode, the source channels 1, 2, 3, and 4 are routed to the monitor loudspeaker outputs without any changes. In addition, the channels 5 and 6 are mixed to channel 4.

In STEREO monitor mode, the channels 1 and 2 are routed to the loudspeakers 1 and 2; the channels 3 and 4 are summed and mixed to both outputs 1 and 2; channel 5 is mixed to channel 1, and channel 6 is mixed to channel 2.



In MONO monitor mode, the abovementioned stereo signal is mixed to a mono signal and routed to the left and right front loudspeakers or to the center front loudspeaker, depending on the selection of MONO L+R or MONO CENTRE modes.

**Dolby 4-2-4:**

If the DOLBY 4-2-4 monitor mode is enabled and the DIRECT monitor mode key is pressed, the unprocessed input signal of the Dolby encoder can be monitored. The monitor speaker outputs 1, 2, 3, and 4 are active, i.e. left, centre, and right front, as well as surround.

When selecting the STEREO monitor mode, the coded Dolby signal can be monitored via the monitor speakers 1 and 2 (left and right front). Thus, the signal compatibility to reproduction equipment without surround decoder can be checked.

In the MONO CENTRE and MONO L+R monitor modes, the coded signal is mixed to a mono signal and routed to the loudspeakers 3 (centre front), or 1 and 2 (left and right front), respectively.

When selecting the DOLBY 4-2-4 monitor mode, the signal runs through the complete encoder/decoder path. At the loudspeakers 1, 2, 3, and 4 (left, centre, right front, and surround) the final result of a Dolby Surround production can be monitored.

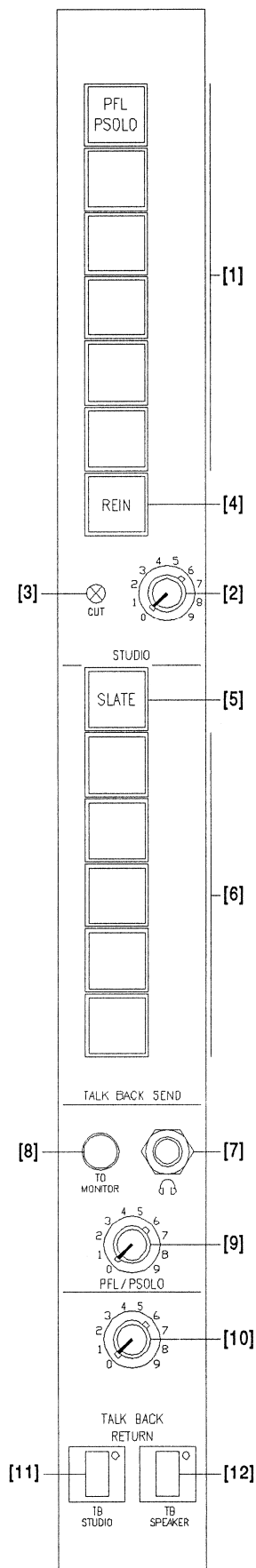
When selecting TV 3-2 monitor mode, the decoded Dolby Surround signal is routed to the front loudspeakers 1, 2 and 3; the surround channel 4 is routed to both TV rear channels (5 and 6).

**TV 3-2:**

The use and the sort of the TV 3-2 encoder and decoder are not finally defined yet, therefore the final attachment can not yet be done. Nevertheless, all inputs and outputs are provided to connect this equipment. All the necessary switching and configuration commands can be added later with a software update.

2.8 Studio Monitor/Talkback unit

I.912.326




Studio Monitor

- [1] **Source selector**  
Mutually releasing pushbuttons for the selection from 6 different sources to be fed to the studio.
- [2] **STUDIO**  
Studio volume control; the volume can also be controlled with an external control signal thanks to the use of a VCA.
- [3] **CUT**  
If microphone faders are opened, the studio monitors are muted, and CUT is illuminated. The separate headphones output remains active. If playback via the studio monitors should be desired, the muting function can be cancelled with the latching pushbutton REIN [4].
- [4] **REIN**  
Latching pushbutton to cancel the muting of the studio monitors (if a microphone fader is opened).

Talkback SEND

- [5] **SLATE**  
Momentary pushbutton to connect the talk back signal to the master busses.
- [6] **Communication keys**  
Five additional momentary pushbuttons for communication to talk back stations. The answering signal is reproduced by the TB/PFL speaker.

PFL/P.SOLO

- [7]   
Headphones output, 6.3 mm Jack socket, output impedance 200 Ω. For pre-fader listening (PFL) or monitoring after the PAN potentiometer (P.SOLO). If a headphone is plugged in, the built-in PFL speaker is disabled.
- [8] **TO MONITOR**  
As soon as one or more PFL or P.SOLO buttons are pressed, the monitor signal is automatically disabled, and the selected PFL or P.SOLO signal is connected to the monitor speakers. In this way it is possible to monitor any group of input channels with the true stereo balance as adjusted with the PAN potentiometer. A recording or broadcast in progress will not be affected.
- [9] **PFL/P.SOLO**  
Volume control for the PFL speaker or the PFL/P.SOLO headphones.

**Talkback RETURN****[10] TALK BACK RETURN**

Volume control for the talk back signal from the external talk back station.

**[11] TB STUDIO**

Momentary pushbutton for talk back via the talk back microphone and the studio monitor speakers.

**[12] TB SPEAKER**

Momentary pushbutton for talk back via the talk back microphone and an external talk back station (e.g. in the announcer's or in the conductor's desk).

## 2.9 Signalling

The 980 mixing console is equipped with two signalling circuits:

- An optical studio signalling circuit, and
- a fader start system for remote control of reproduction equipment.

### Studio signalling

The studio signalling system consists of a signalling field with:

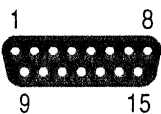
- Indication for "STUDIO ON" (red light),
- Indication for "READY" (green light),
- Return command for "ON AIR",
- CALL key for optical connection between speaker and control room.

**Control logic:** The READY and STUDIO ON signals can be enabled individually by separate non-locking switches. The STUDIO ON signal is only connected through if the following criteria are satisfied on at least one of the input units:

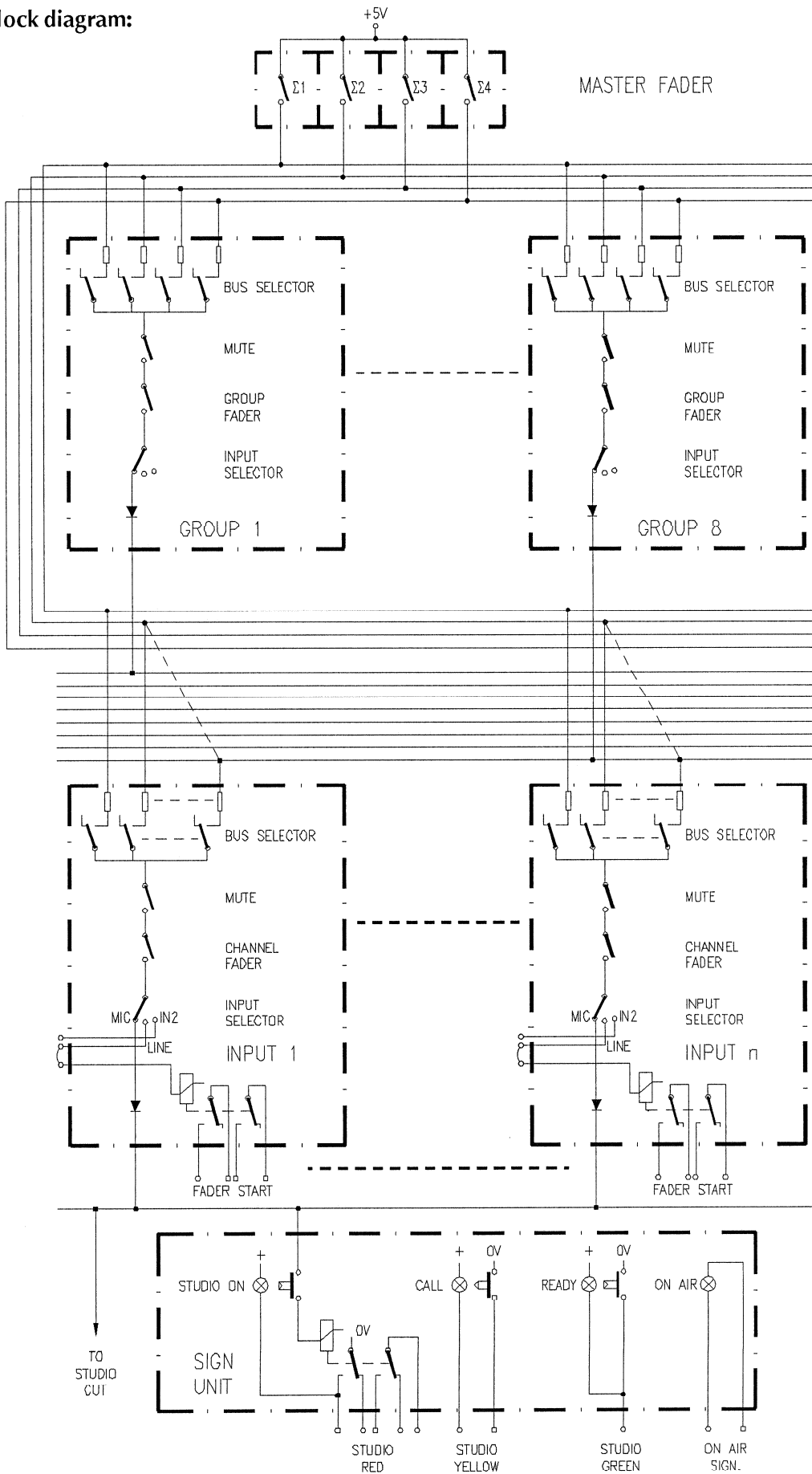
- Input selector must be switched to MIC,
- MIC CUT must be disabled,
- MUTE must be disabled,
- Input fader must be open,
- At least one of the MASTERS must be selected (bus selection), and
- At least one of the MASTER faders must be open.

The relay contacts for the signalling circuit are wired to the 15-pin Sub-D connector "SIGNALLING STUDIO" (female) in the connector panel. The signalling block diagram shows the individual design of the studio signalling system; the position of the "SIGNALLING STUDIO" connector is given there, too.

The studio signalling system is operated with  $-24 V_{DC}$ . The built-in supply can deliver up to 500 mA.

	Pin	Signal	Function
	1	B-ON AIR	Lamp ON AIR
	2	B-ON AIR	Lamp ON AIR
	3	S+B READY	Switch + lamp READY
	4	S-STUDIO ON n.o.	Switch STUDIO ON, norm. open contact
	5	S-STUDIO ON n.c.	Switch STUDIO ON, norm. closed contact
	6	S-CALL	Switch CALL
	7	B-CALL	Lamp CALL
	8	0V SIGN.	Signalling ground
	9	S-STUDIO ON 0	Switch STUDIO ON, center
	10	S-STUDIO ON n.c.	Switch STUDIO ON, norm. closed contact
	11	S-STUDIO ON n.o.	Switch STUDIO ON, norm. open contact
	12	not used	
	13	not used	
	14	not used	
	15	-24V SIGN.	Supply -24 VDC, 0.5 A max.

Signalling block diagram:



**Fader start signalling:**

Two separate relay contacts are available per channel for audio playback units. Depending on the position of the input selector, the playback unit for the LINE or the IN2 input is controlled individually.

**Control logic:** A remote signal is switched-through only if the following conditions are met:

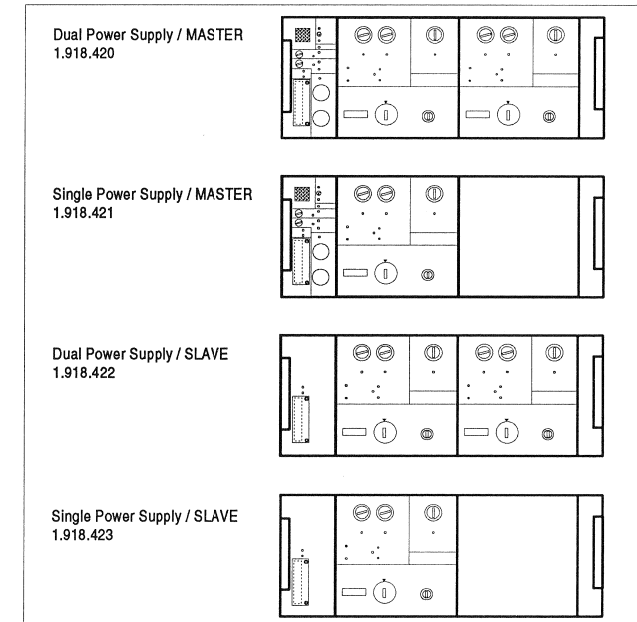
- INPUT SEL to "LINE", if the line input is connected to the relay, or INPUT SEL to "IN2", if the IN2 input is connected to the relay,
- MUTE must be disabled,
- The input fader must be open,
- At least one of the MASTERS must be selected (bus selection), and
- At least one of the MASTER faders must be open.

## 2.10 Power supply, system start

### 2.10.1 Supply concept

- Primary power circuits**
- Power transformer block:  
The power transformer block is switched on and off with its power switch. It is equipped with an RF filter and an overcurrent trip. The line voltage selector and the primary fuse (F6) are located on the front.
  - Standby supply block:  
A separate block supplies the standby voltage. It feeds the numerous memory modules of the console control when the power supply block is switched off. The standby supply block can be connected to any primary voltage of 100...240 V<sub>AC</sub> without adjustment. It is unswitched and should be connected permanently to the AC power source. Switching off the main power to the entire audio control room should not affect the AC power source of the standby supply.  
*The standby voltage must be available for switching on the power transformer block!*
- Mains connections**
- 3-pronged appliance inlet IEC 320/C20 (250 V/16 A) for the power transformer block.
  - 3-pronged appliance inlet IEC 320/C14 (250 V/10 A) for the standby supply block.
- Secondary power circuits**
- The power transformer block unit produces the following voltages:  
±15 V<sub>DC</sub> regulated,  
48 V<sub>DC</sub> regulated (phantom supply; the phantom supply voltage can also be factory set to 12 or 24 V<sub>DC</sub>),  
+25 V<sub>DC</sub> for supplying the voltage converters in the console,  
-6 V<sub>DC</sub>,  
-24 V<sub>DC</sub>.
  - The standby voltage is +5 V<sub>DC</sub> regulated. It is used for preserving the memory data of the mixing console control, and for supplying the alarm and control circuits of the power supply unit.  
If the standby voltage fails, the memories are supplied by rechargeable batteries, and, for a short period, by two batteries in the power supply unit, if the former should be discharged.
  - The voltage converters in the console (EU standard PCB 1.915.111) generate the following voltages from the +25 V<sub>DC</sub>:  
+5 V<sub>DC</sub> regulated, for the logic circuits and the control system,  
approx. +4 V<sub>DC</sub> for the LED supply, and  
-24 V<sub>DC</sub> for signalling.

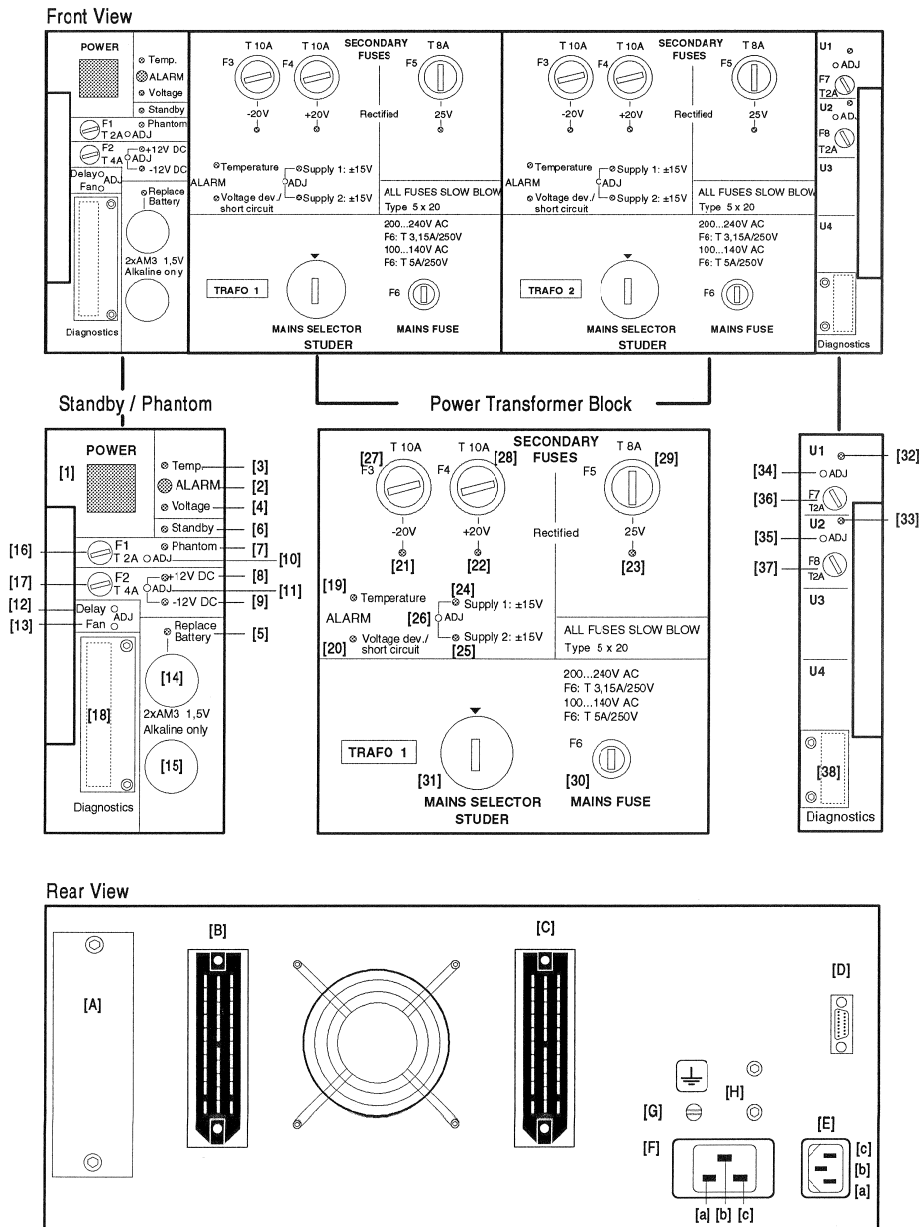
- Modular system**
- Several power supply versions are available with which the different power requirements of the various mixing consoles can be satisfied. Each power supply can be equipped with one or two transformers for the AC power supply. On the left-hand side there is room for the standby power supply and the monitoring logic. On the far right there is a small space for up to two additional regulated voltages. For each console at least one MASTER unit is used. If the mixing console draws more power, additional SLAVE units are configured which are coupled to the master unit via a control line. The number of EU-standard converter boards in the mixing console can be matched to the required power.



The four basic versions of the modular power supply concept.

- Backup supply unit**
- If maximum reliability is required, a second power supply unit can be connected and operated in parallel. If a fault occurs in the active unit, the backup unit is automatically activated without significant voltage drop. The reliability of the converters can be enhanced in the same manner. The alarm system monitors the power supply as well as the backup units.

2.10.2 Operator controls



[1] POWER

Switches the power on and off. The POWER button indicates the operating state (On/Off) of the power supply unit: on or flashing: ON / dark: OFF. When the button is flashing the mixing console can be switched on with the STUDIO MASTER switch (see 2.10.3). In the event of an alarm the POWER key flashes alternatingly with the large ALARM LED [2]. In battery standby mode this key remains dark.

[2] ALARM

If any fault exists in the power supply itself, this LED flashes slowly (2 Hz). During normal operation this LED remains dark (see 2.10.4).

[3] Temp.

This LED flashes if the temperature of the  $\pm 12$  V, +5 V standby, or phantom supply heat sinks exceeds 120 °C.

[4] Voltage

This LED flashes if an overvoltage occurs on the phantom or the  $\pm 12$  V supply.

[5] Replace Battery

If the battery voltage drops too low, this LED starts to flash signalling that the batteries should be replaced.

[6] Standby

Function indicator of the standby power supply. This LED is on when the +5 V are available.

[7] Phantom

Function indicator of the phantom power supply. Depending on the factory setting, the phantom voltage is +12, +24, or +48 V (default: +48 V).

[8] +12 V<sub>DC</sub>

Not used.

[9] -12 V<sub>DC</sub>

Not used.

[10] ADJ (Phantom)

Trimmer potentiometer for fine-adjusting the phantom voltage (12/24/48 V); changeover in the power supply unit by jumper settings and solder straps on the transformer, and by replacing resistors on the connection PCB, refer to 2.16.1.

[11] ADJ ( $\pm 12$  V<sub>DC</sub>)

Not used.

[12] Delay

Trimmer potentiometer for adjusting the power-on delay, refer to 2.16.1.

[13] Fan

Trimmer potentiometer for adjusting the temperature at which the ventilator switches to maximum power, refer to 2.16.1.

[14,15] Batteries

Two 1.5 V/AM3 alkaline batteries preserve the memory content of the mixing console control in the event of a standby power failure. The battery condition is monitored and the low condition is signalled by LED [5]. Use alkaline batteries only! In case of standby power failure the data are protected for 2 days.

[16] F1

Fuse for the phantom supply (T 2 A L 250 V (slow)).



[17] F2

Fuse for the +12 V supply (T 4 A L 250 V (slow)).


[18] Diagnostics

Behind this cover plate there is a 40-pin connector for plugging in the diagnose board 1.918.080 (see 2.10.6).



[19] Temperature		This LED flashes if the temperature of the heat sink or the transformer exceeds 120 °C.
[20] Voltage dev./short circuit		This LED flashes if there is an overvoltage or short circuit in one of the $\pm 15$ V supplies.
[21] -20 V		This LED is on as long as the -20 V supply (unregulated) is available (the -15 V are generated from this voltage).
[22] +20 V		This LED is on as long as the +20 V supply (unregulated) is available (the +15 V are generated from this voltage).
[23] 25 V		This LED is on as long as the 25 V supply for the converters is available (without load this voltage can rise up to 30 V).
[24] Supply 1: $\pm 15$ V		This LED is on as long as the first $\pm 15$ V supply is available.
[25] Supply 2: $\pm 15$ V		This LED is on as long as the second $\pm 15$ V supply is available.
[26] ADJ.		Trimmer potentiometer for adjusting the first and second $\pm 15$ V supply voltages simultaneously.
[27] F3		Secondary fuse for the first and second -15 V supplies (T 10 A L 250 V (slow)).
[28] F4		Secondary fuse for the first and second +15 V supplies (T 10 A L 250 V (slow)).
[29] F5		Secondary fuse for the 25 V supply (T 8 A L 250 V (slow)).
[30] MAINS FUSE, F6		Primary fuse for a transformer block. The fuse rating must be matched to the line voltage as indicated above the fuse holder.
[31] MAINS SELECTOR		Line voltage selector. Before changing the selector setting, the unit must be completely separated from the mains!
[32] U1		This LED is on as long as the -24 V FET supply is available.
[33] U2		This LED is on as long as the -6 V supply is available.
[34] U1 ADJ		Trimmer potentiometer for adjusting the -24 V FET supply voltage.
[35] U2 ADJ		Trimmer potentiometer for adjusting the -6 V supply voltage.
[36] F7		Fuse for the -24 V FET supply voltage (T 2 A L 250 V (slow)).
[37] F8		Fuse for the -6 V supply voltage (T 2 A L 250 V (slow)).
[38] Diagnostics		Behind this cover there is a 16-pin connector for plugging in the diagnose board 1.918.080 . The voltages and currents related to U1 and U2 can then be measured on the diagnose board (see 2.10.6).

**Connector panel (rear):**

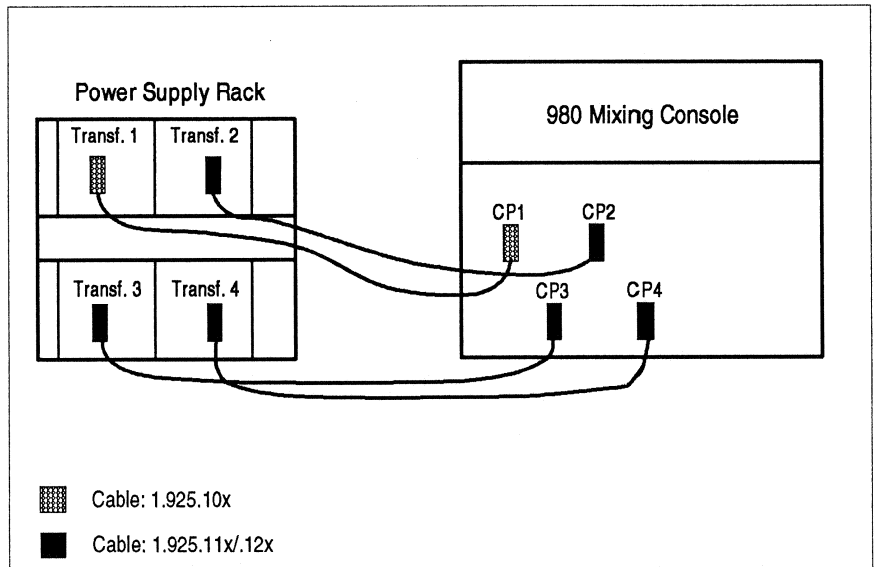
- [A] Spare opening.
- [B] 30-pin connector (IEC 130.6) with secondary voltages.
- [C] 30-pin connector (IEC 130.6) with secondary voltages.
- [D] 15-pin Sub-D-type connector for control lines.
- [E] 3-pronged appliance inlet IEC 320/C14 (250 V/10 A) for the standby supply block (see 2.10.3).  
[a] Live  
[b] Protective ground  
[c] Neutral
- [F] 3-pronged appliance inlet IEC 320/C20 (250 V/16 A) for the power transformer block (see 2.10.3).  
[a] Live  
[b] Protective ground  
[c] Neutral
- [G] Ground terminal with clamping screw.
- [H]  Internal protective ground to the power supply. These screws must never be unfastened! Use terminal [G] for the studio ground.

**2.10.3 Supply connections**

**Configurations:**

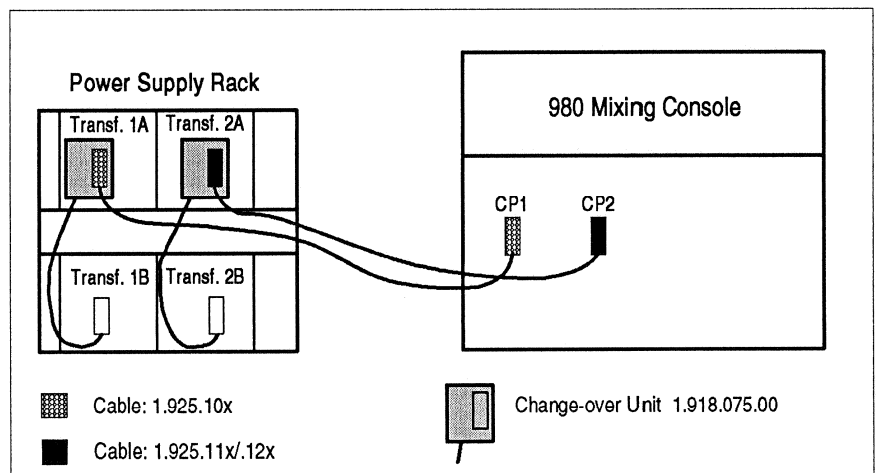
- The cabling arrangement depends on which of the possible configurations is selected:
1. Each transformer block is directly connected to the console.
  2. Double supply with Change-Over Units.

**Direct connection:**



Each transformer block is directly connected to a large console

**Double supply:**



Redundant supply with automatic change-over

**Ground connection:**

The wiring of the studio ground depends on the specific customer requirements.

**AC power connections:**



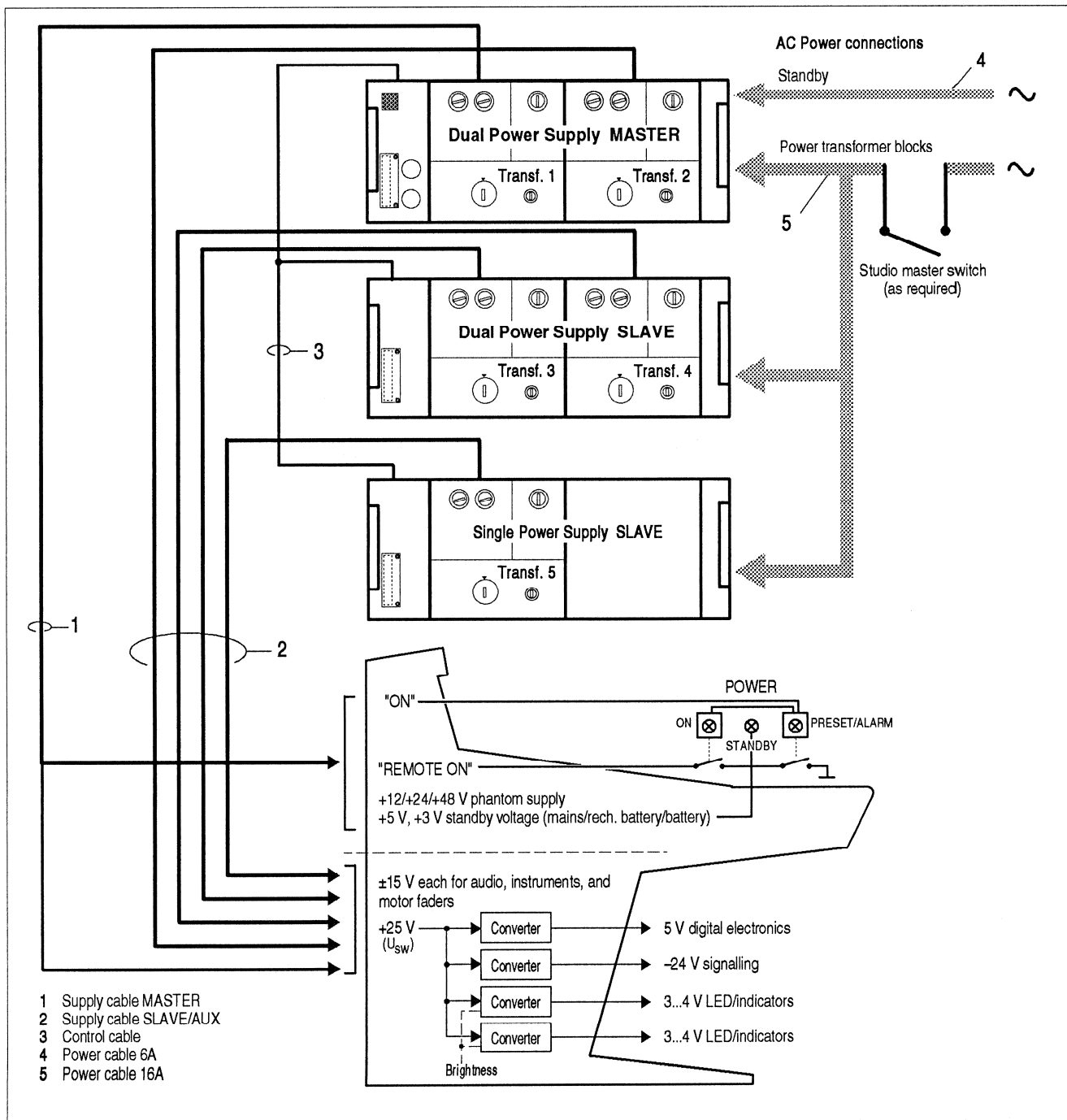
Before connecting the power transformer block's appliance inlet [F] (IEC 320/C20) to the mains, make sure that the line voltage selector setting and the fuse rating are correct. The line voltage selector [31] and the fuse F6 [30] are accessible from the front. The primary fuse F6 should be rated as follows:

- 100...140 V<sub>AC</sub>: T 5.0 A L 250 V (slow blow)
- 200...240 V<sub>AC</sub>: T 3.15 A L 250 V (slow blow)

The standby supply block's appliance inlet [E] (IEC 320/C14) should be connected permanently to the AC power source. It can be connected to any 100...240 V<sub>AC</sub> outlet without adjustment. Protection is provided on the secondary side by a PTC resistor (0.3A).

**Cabling:**

The secondary voltages are taken individually from each transformer through a multi-conductor cable to the console. The individual power supply units are interconnected by a control cable. The following diagram illustrates the cabling for a large system. Please note the different primary connection of the standby and the main power blocks.



**Cables**

- Mains cables:**
- 16 A:** 3 × 2.5 mm<sup>2</sup>; SEV type 12 connector; 3m **Order No. 10.223.001.13**  
3 × 2.5 mm<sup>2</sup>; without connector; 3m **Order No. 10.223.001.03**
  - 6 A:** 3 × 0.75 mm<sup>2</sup>; SEV type 12 connector; 2.5m **Order No. 10.223.001.11**  
3 × 0.75 mm<sup>2</sup>; without connector; 2.5m **Order No. 10.223.001.01**

**Connection cables:** For connecting the power supplies to the console, two different connecting cables are used.

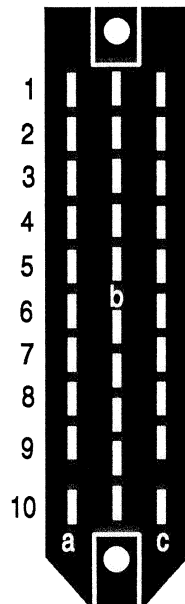
**Master cable:** Connection from the master power supply transformer block 1 to the mixing console. In addition to the ±15 V, this cable carries the phantom and standby voltages as well as control lines.  
**Order No. 1.925.10x.00**

**Slave/AUX cable:** This cable is used for connecting each additional transformer block to the console.  
**Order No. 1.925.12x.00**

The cable length is indicated by one digit in the part number. For the cables described above, the wildcard "x" is to be substituted by a digit 0...9 indicating the length according to the table below:

Value "x"	0	1	2	3	4	5	6	7	8	9
Length (in m)	1	1.5	2.5	5	7.5	10	12.5	15	17.5	20.0

**Pin assignments:**



Master connecting cable 1.925.10x	
Pin	Signal
1 a	LED ON
2 a	Remote ON
4 a	n.c.
10 a	-Usw
1 b	+5 V St.By
2 b	Phantom
3 b	n.c.
4 b	n.c.
5 c	0 V (Audio)
6 c	+15 V II
7 c	-15 V II
8 c	-15 V I
9 c	+15 V I
10 c	+Usw

Slave/Aux connecting cable 1.925.12x	
Pin	Signal
8 a	-15 V I
9 a	+15 V I
10 a	-Usw
8 b	0 V (Gnd)
1 c	0 V (-6 V)
2 c	-6 V
3 c	0 V (-24 V FET)
4 c	-24 V FET
5 c	0 V (Audio)
6 c	+15 V II
7 c	-15 V II
8 c	-15 V I
9 c	+15 V I
10 c	+Usw

**Note:** Cables of the same type can be connected in series to form an extension.

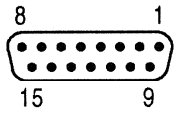
**Control cable:**

15-pin Sub-D-type cable for interconnecting the power supply units.  
This cable is manufactured according to the customer's specs.

**Pin assignment:**

Pin	Signal
1	Remote ON
2	0 V *
3	U Stand by
4	5 V *
5	¬ Rest ON *
6	n.c.
7	n.c.
8	n.c.
9	¬ ON
10	BLINK *
11	ON
12	¬ ALARM *
13	n.c.
14	n.c.
15	n.c.


---

\* connected to all supply units in parallel

## 2.10.4 Function monitoring and alarm system

<b>General</b>	Comprehensive automatic checks have been provided to ensure utmost reliability in the power supply. The LEDs signal the correct operation of the monitored functions. A networked alarm system reports system faults to the master power supply and to the mixing console.
<b>Networking</b>	<p>With the networked alarm system it is possible to diagnose a fault in:</p> <ul style="list-style-type: none"> <li>• Master unit(s)</li> <li>• Slave unit(s)</li> <li>• Standby supply block(s)</li> <li>• Standby batteries</li> <li>• Backup power supply unit(s)</li> </ul> <p><i>Alarm: flashing frequency 2 Hz</i></p> <ul style="list-style-type: none"> <li>• Converters (in the console)</li> <li>• Backup converters (console)</li> </ul> <p><i>Alarm: flashing frequency 5 Hz</i></p>
<b>Pilot lamps</b>	When the equipment functions correctly, all yellow LEDs should be on. They turn dark as soon as the measured output voltages are outside the corresponding tolerance range. In this way the function can be monitored also visually.
<b>Fault indication</b>	Only red LEDs are used for fault indication. They provide information on the nature of the fault and identify the affected transformer block.
<b>Function monitoring</b>	Self-diagnosis of the power supply is achieved by monitoring and displaying its functions. The values of the following parameters are monitored and will trigger an alarm if they leave the tolerance band.
<b>Temperature</b>	<p>If the temperature of a transformer or a heat sink exceeds 120 °C, the affected transformer block switches off. The following indicators are activated:</p> <ul style="list-style-type: none"> <li>• The POWER button [1] and the ALARM LED [2] flash slowly (2 Hz).</li> <li>• The corresponding red LED Temp. [3] or Temperature [19] flashes.</li> </ul>
<b>Undervoltage</b>	<p>If an undervoltage occurs on an output, the corresponding LED switches off.</p> <ul style="list-style-type: none"> <li>• The POWER button [1] and the ALARM LED [2] flash slowly (2 Hz).</li> <li>• The yellow LED of the corresponding voltage is off.</li> </ul>
<b>Overvoltage</b>	<p>If an overvoltage is present on an output, the monitoring system switches the corresponding transformer block off.</p> <ul style="list-style-type: none"> <li>• The POWER button [1] and the ALARM LED [2] flash slowly (2 Hz).</li> <li>• The corresponding red LED Voltage [4] or Voltage dev./short circuit [20] flashes.</li> </ul>
<b>Short circuit</b>	<p>(secondary)</p> <p>If the short circuit on one of the <math>\pm 15</math> V outputs exceeds about one second, the corresponding transformer block is switched off.</p> <ul style="list-style-type: none"> <li>• The POWER button [1] and the ALARM LED [2] flash slowly (2 Hz).</li> <li>• The corresponding red LED Voltage dev./short circuit [20] flashes.</li> </ul>

**Alarm system**

The alarm system basically fulfills two functions:

1. Signalling of missing or low voltages by flashing LEDs.
2. Powering off the affected transformer block if there is a possibility that the electronics of the power supply unit or the mixing console could suffer damage. This is the case under the following conditions:
  - Power transformer temperature exceeds 120 °C
  - Heat sink temperature exceeds 120 °C
  - Short circuit on a  $\pm 15$  V output
  - Overvoltage on a  $\pm 15$  V output
  - Overvoltage on the output of the phantom supply

**Notes:** If the left-hand transformer block of the MASTER power supply switches off, all associated slave transformers will also be switched off. The master supply provides e.g. the phantom supply. Continued operation would generally make little sense.

If the function monitoring has switched off a transformer block, *the power supply must be switched off and on again after the fault has been remedied*. It does not automatically power on after the fault has been cleared!

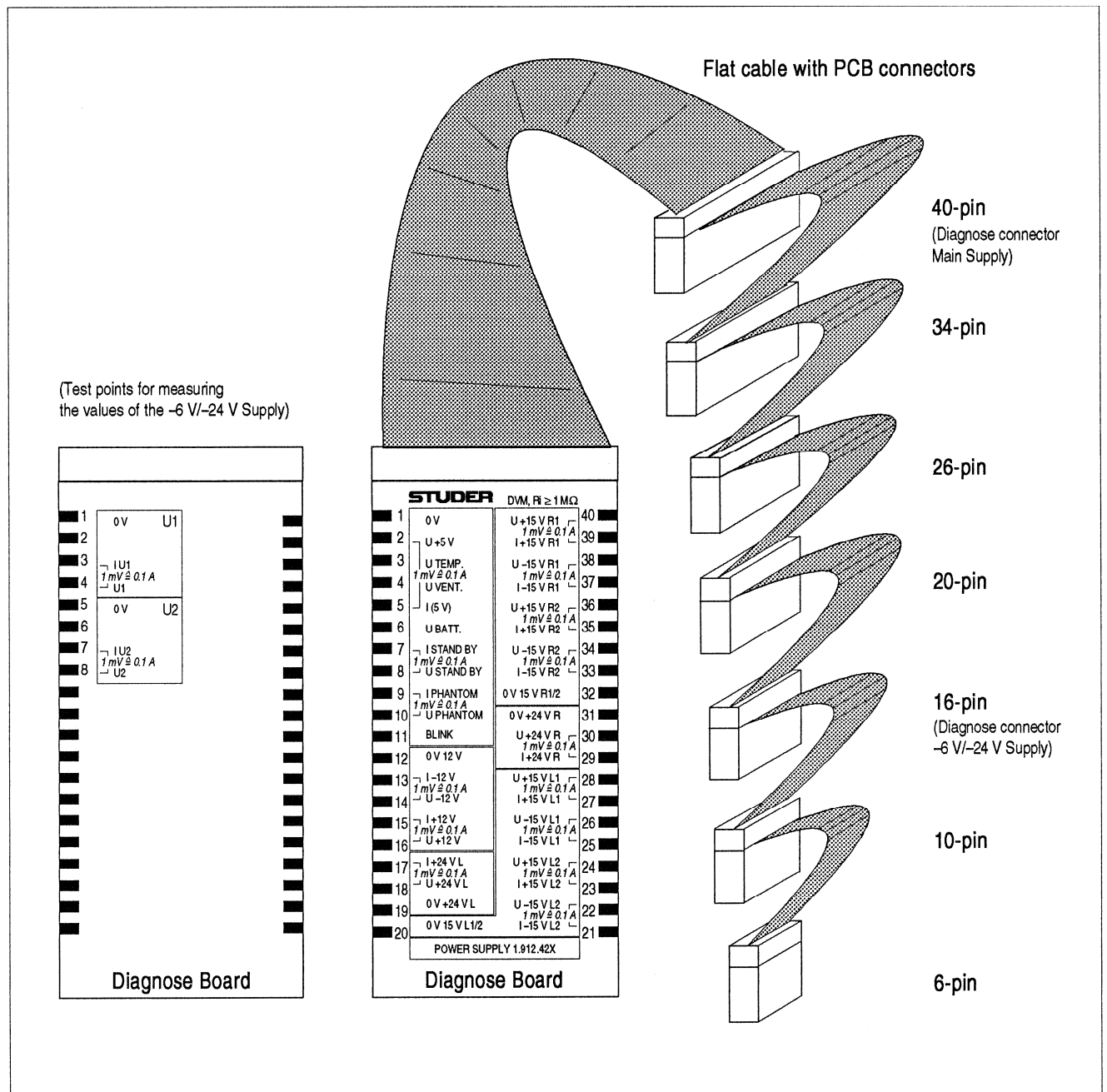
**Power-on:** Flashing of any LEDs for a few seconds after power-on is normal because the voltage is built up slowly, therefore undervoltage is initially signalled initially.

**Additional alarms:** The POWER ALARM/FAIL 4 Board installed in the EU card rack monitors the outputs of the 5 V converters as well as the  $-6$  V and the  $-24$  V FET voltages. Over- and undervoltage conditions will be indicated by flashing LEDs as well.



### 2.10.6 Diagnose connector

The principal voltages and currents are terminated on a 40-pin diagnose connector. The *Diagnose Board 1.918.080* is available as an accessory on which these variables can be conveniently measured. 6-pin to 40-pin card edge connectors are mounted on the cascade type cable harness so that the latter can be used universally. When this cable is connected to a circuit board, the signals can be easily tapped on the numbered measuring pins.



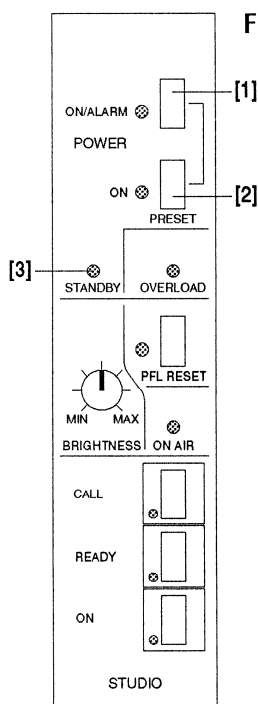
**Notes:** The test points are de-coupled inside the power supply via 1 kΩ resistors (short-circuit protection).  
 For auxiliary purposes the +5 V can be tapped between pins 1 and 2 (max. current: 10 mA).  
 Use a voltmeter with  $R_i \geq 1 \text{ M}\Omega$

## 2.10.7 System start

### Power-on

The standby supply block is permanently connected to the mains. It supplies the voltage with which the power transformer block is switched on and off.

The power supply can be switched on either from the master power supply or from the mixing console.



**From console:**

The keys and indicators of the power supply are located on the Sign./ Indication Unit on the display panel. The ON/ALARM and PRESET keys must be pressed simultaneously for switching the system on or off.

**[1] ON/ALARM**

Key to be used together with the PRESET key.

The LED next to this key indicates that the mixing console is energized. As an alarm indicator it signals a fault in one of the power supply units by flashing slowly (2 Hz). Rapid flashing (5 Hz) signals a fault in one of the EU-size converter boards in the mixing console.

**[2] PRESET**

Key to be used together with the ON/ALARM key.

In normal operation, the ON LED next to this key is illuminated.

**[3] STANDBY**

This yellow LED indicates that the standby supply block functions correctly.

**At the power supply:**

The power supply can be switched on or off with the POWER key of the master power supply.

**With studio master switch:**

The power supply can also be switched on and off with a studio master switch. The on/off state remains stored.

Switching states of the POWER key on the power supply unit:

Power supply	Studio master switch	
	ON	OFF
ON	illuminated	flashing
OFF	dark	dark

### Power-on delay

In a system with multiple power supply units, a power inrush overload could occur when power is switched on. To prevent this, a power-on delay circuit has been installed (refer to section 2.16).

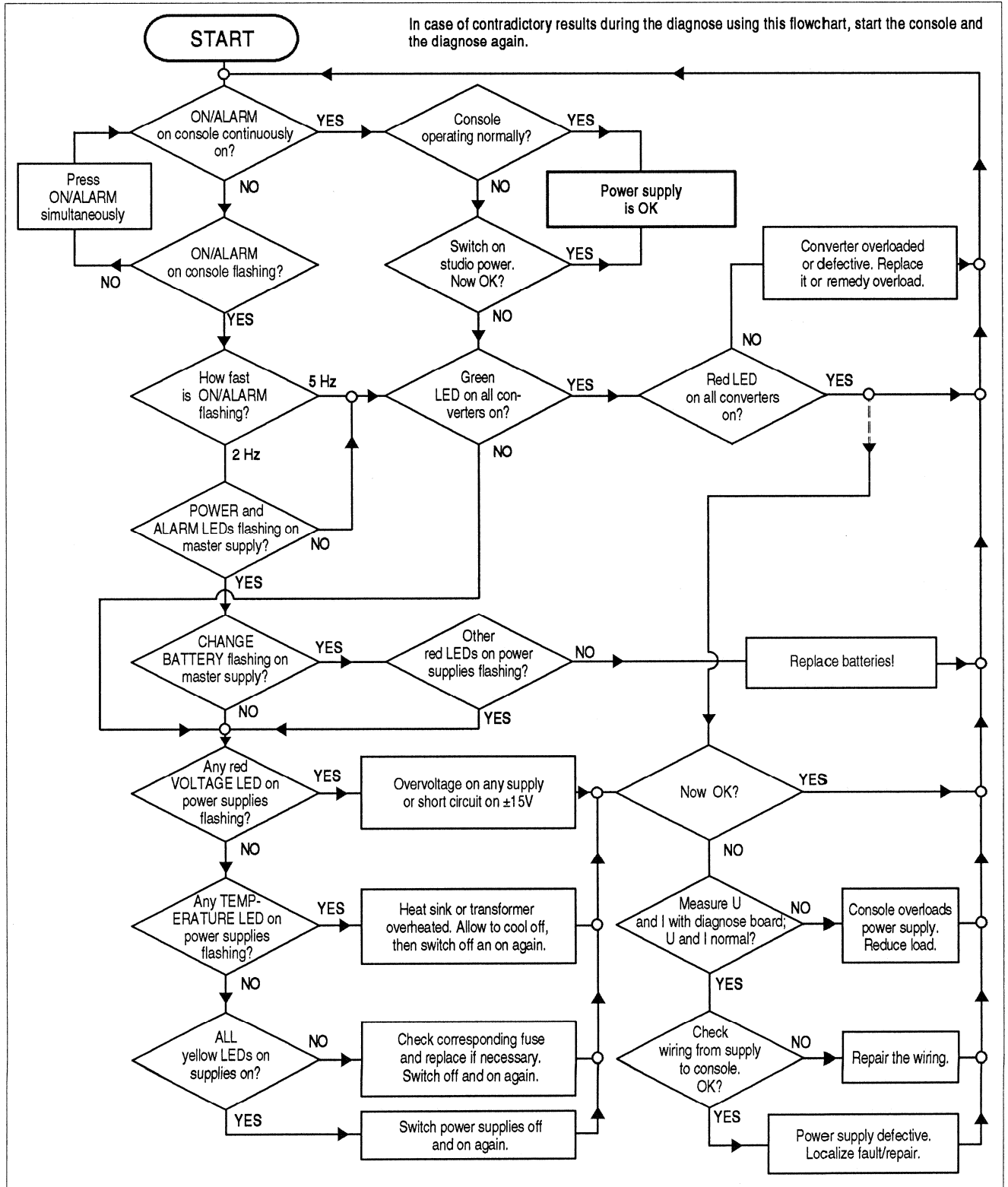
### Power-on after alarm

The power relays switch the supply voltages of the transformers and are integrated into the alarm system: If a malfunction occurs, the power transformer block is switched off if damage to the equipment could occur. *After the fault has been remedied the mixing console must be switched off and on again.*

Dual power supply with changeover unit

If a dual power supply is used, the master and the backup master supplies must be in the same state (ON or OFF). If this is not the case one system is always disabled. POWER-ON at the console controls both master supplies simultaneously.

2.10.8 Troubleshooting in alarm state

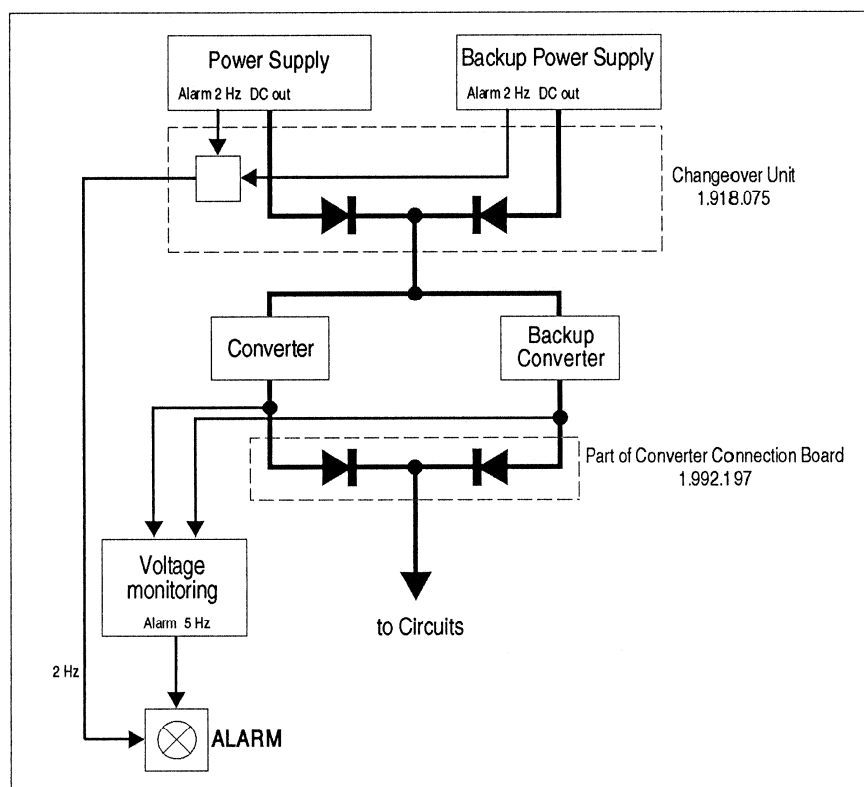


### 2.10.9 Dual supply with change-over mode

#### General

In applications where maximum reliability is required, possible defects in the power supply should also be taken into consideration. By installing redundant components it is possible to compensate the failure of one unit without causing an equipment malfunction. Two different configurations are possible:

- Spare circuit boards are installed for all EU standard converter PCBs.
- The entire power-pack system as well as the converter boards are redundant.



Dual power supply with redundant power-packs and converter boards. The alarm system also monitors the correct function of the backup units.

#### Converter change-over

A redundant board is installed for each converter board. These two boards are interconnected on a bus via diodes in such a way that, if one of the boards fails, its function is taken over by the other board without interruption. The output voltages are monitored on a separate module. If a failure should occur, an alarm is signalled by flashing of the ON/ALARM LED (5 Hz).

Retrofitting with backup converters is very difficult because the wiring of the complete power supply system must be changed.

**Power supply change-over** The entire power supply including master and slave equipment exists twice. The output voltages of each pair of main and backup supply are wired to the mixing console via change-over units. If a supply voltage fails, this change-over unit switches automatically to the backup transformer without interruption. The change-over unit is plugged into the 30-pin socket of the transformer block (see 2.10.3).  
Retrofitting with plug-in change-over units is possible without difficulty.

Required materials:

- For each power supply: A backup unit of the same type
- For each existing supply cable: 1 change-over unit 1.918.075 .

**Alarm system, change-over mode** The alarm system is designed for simultaneous monitoring of the power supply and the backup system. Even if the backup power supplies are not under load, all variables captured by the alarm system are monitored. The availability of the backup system is always monitored *as long as both power supplies are switched on*.

## 2.1.1 Alignment, general information

- The mixing console should be aligned only when it has reached its operating temperature.
- For measuring the levels on the line outputs they must not be loaded with less than 10 k $\Omega$ .
- Work should be performed in the indicated sequence only, because several of the steps are prerequisites for subsequent steps.
- All fixing screws of the modules must be firmly tightened. Solid ground connections and the specified EMC values are only achievable if all modules are correctly inserted and fastened.



### 2.1.1.1 Level definitions

**Level specification:** The nominal level specified in *dBu* is based on a fixed voltage as reference level:

$$0 \text{ dBu} \cong 0,775 \text{ V}_{\text{rms}}$$

**Nominal level in dBu:**

**Nominal level = level at full amplitude**

The nominal level corresponds to the level at full amplitude. The terms nominal level, studio level, and line level are used as synonyms. The nominal level is used as the 0 dB value for all relative level specifications.

**Output level:**

**0 dB PPM = nominal level**  
**0 VU = nominal level minus 6 dB\***

\* 6 dB corresponds to a commonly used lead of the VU indicator.

**PPM consoles** Peak Program Meters as quasi-peak-indicating instruments indicate the level of a sine wave as RMS value. A signal with nominal level results in an indication of 0 dB.

**VU consoles** For a continuous tone, a VU instrument indicates a value that is too high by the amount of the lead. For a 0 VU reading the level of the test signal must be reduced by the lead value.  
 VU consoles are frequently set to a nominal value of +10 dBu, i.e., with a 6 dB lead of the VU meter a level of +4 dBu is indicated as 0 VU.

### 2.11.2 Voltage level ↔ Decibel

U1/U2	μV ----- dBu				U1/U2	μV ----- dBu			
	mV ----- dBu					mV ----- dBu			
	V ----- dBu					V ----- dBu			
1.00	0.775	0	-60	-120	31.6	24.5	+30	-30	-90
1.12	0.869	+1	-59	-119	35.5	27.5	+31	-29	-89
1.26	0.975	+2	-58	-118	39.8	30.8	+32	-28	-88
1.41	1.09	+3	-57	-117	44.7	34.6	+33	-27	-87
1.59	1.23	+4	-56	-116	50.1	38.8	+34	-26	-86
1.78	1.38	+5	-55	-115	56.2	43.6	+35	-25	-85
2.00	1.55	+6	-54	-114	63.1	48.9	+36	-24	-84
2.24	1.73	+7	-53	-113	70.8	54.8	+37	-23	-83
2.51	1.95	+8	-52	-112	79.4	61.5	+38	-22	-82
2.82	2.18	+9	-51	-111	89.1	69.0	+39	-21	-81
3.16	2.45	+10	-50	-110	100	77.5	+40	-20	-80
3.55	2.75	+11	-49	-109	112	86.9	+41	-19	-79
3.98	3.08	+12	-48	-108	126	97.5	+42	-18	-78
4.47	3.46	+13	-47	-107	141	109	+43	-17	-77
5.01	3.88	+14	-46	-106	159	123	+44	-16	-76
5.62	4.36	+15	-45	-105	178	138	+45	-15	-75
6.31	4.89	+16	-44	-104	200	155	+46	-14	-74
7.08	5.48	+17	-43	-103	224	173	+47	-13	-73
7.94	6.15	+18	-42	-102	251	195	+48	-12	-72
8.91	6.90	+19	-41	-101	282	218	+49	-11	-71
10.0	7.75	+20	-40	-100	316	245	+50	-10	-70
11.2	8.69	+21	-39	-99	355	275	+51	-9	-69
12.6	9.75	+22	-38	-98	398	308	+52	-8	-68
14.1	10.9	+23	-37	-97	447	346	+53	-7	-67
15.9	12.3	+24	-36	-96	501	388	+54	-6	-66
17.8	13.8	+25	-35	-95	562	436	+55	-5	-65
20.0	15.5	+26	-34	-94	631	489	+56	-4	-64
22.4	17.3	+27	-33	-93	708	548	+57	-3	-63
25.1	19.5	+28	-32	-92	794	615	+58	-2	-62
28.2	21.8	+29	-31	-91	891	690	+59	-1	-61
31.6	24.5	+30	-30	-90	1000	775	60	0	-60

### 2.11.3 Alignment necessity

Every mixing console leaving the factory comes with an alignment protocol containing the data of the final inspection, as:

- Alignment to customer-specific nominal level
- Frequency response, harmonic distortion, signal-to-noise ratio, noise voltage, and crosstalk attenuation.

Aligning the console is required after changing the operating conditions (nominal level) or after modifications to the console. The only measure to be performed regularly is demagnetizing the input transformers (see 2.11.8).

**Note:** New (spare) modules are factory-aligned to a nominal level of +6 dBu and can be installed in the console without further measures.

### 2.11.4 Electrostatically sensitive components („ESE“)



Many materials of today's working environment are possible sources of static electricity. Under certain conditions persons or objects can be charged to very high voltages – and according to Murphy's Law, these conditions are always met. When discharged, pulses of substantial peak power can occur. If this energy even partly finds its way into an electronic component, the latter can be damaged or destroyed.

#### Handling „ESE“ assemblies

Correct handling of electronic assemblies is a very important factor in the area of equipment maintenance; some simple guidelines must be followed:

1. Discharge your body by touching ground potential before touching any electronic assembly.
2. Shake hands with your partner before handing him over an electronic assembly.
3. Only touch a PCB at its edges (or its front panel, if any).
4. Switch off power before removing or inserting an assembly.
5. Stocking and transporting of „ESE“ assemblies must be performed only in special packaging material designed for this purpose.
6. Work only with tools suited and tested for „ESE“ components.
7. Always wear the grounding wrist-strap when working on electronic assemblies.
8. Keep Styrofoam, PVC foils, plastic bags and similar materials far away from „ESE“ assemblies.



**Use of a grounded protection mat („ESE“ mat) is strongly recommended** (refer to the next paragraph).



### 2.11.5 Required test equipment and tools

- Audio frequency generator with balanced output, output impedance  $\leq 200 \Omega$  or (if no balanced output is available): additional balancing transformer – also refer to 2.11.7)
- Audio frequency voltmeter with balanced input, input impedance  $\geq 10 \text{ k}\Omega$  or (if no balanced input is available): additional balancing transformer – also refer to 2.11.7)
- DC voltmeter,  $R_i \geq 20 \text{ k}\Omega/\text{V}$
- Distortion analyzer
- Two-channel oscilloscope
- Alignment screwdriver, size 2
- Bus adapters for connecting detached modules to the bus; minimum requirement:



- 1 Bus adapter, 2 × 16-pin Order No. 1.228.331.00
- 1 Bus adapter, 2 × 32-pin Order No. 1.228.327.82
- 1 Bus adapter, 3 × 16-pin Order No. 1.228.328.00
- 2 Module extractors Order No. 1.912.000.06 (1 pce.)

- Note:** Bus adapters and module extractors are contained in the accessories set, order no. 1.980.086.00; refer to section 1.2.4 .
- „ESE“ protection set (mat 60 × 70 cm, grounding wrist strap, grounding cable) Order No. 20.020.001.44
  - Solid insulating mat (e.g. rubber or cardboard), size approx. 25 × 40 cm, as a rest for detached modules which are connected to the bus and are placed onto the operating surface of the console.

### 2.11.6 Measurement basics

**Temperature:** Aligning the console should only be performed when it has reached operating temperature (approx. 15 min after powering on).

**Load:** All outputs and insert points are to be measured without load – i.e. the input impedance of the AF voltmeter must be 10 k $\Omega$  at least.

**Test signal:** Sine wave, approx. 1 kHz.

**Level reference:** **All indications in the following instructions are referred to a nominal level of +6 dBu.**

Other nominal levels require changed indications according to the table below:

**Level overview:**

Nominal level	Line outputs	Indication 0 VU @ (6 dB lead)	Indication 0 dB @ (PPM)
+6 dBu	+6 dBu	+0 dBu	+6 dBu
+10 dBu	+10 dBu	+4 dBu	+10 dBu
+15 dBu	+15 dBu	+9 dBu	+15 dBu

**Insert levels:** The level of the balanced insert points is equal to the nominal level.

**2.11.7 Measuring set-up**

**Inserting/removing modules:**

The modules to be aligned must be removed from the console and connected to the bus via bus adapters.



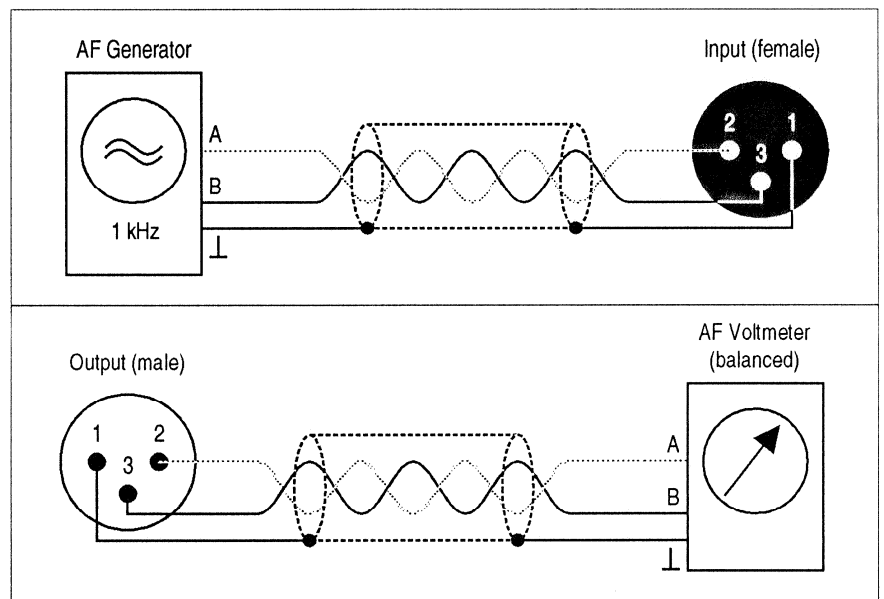
*The 0 Ω bus amplifiers are sensitive to voltage peaks occurring during hot patching.*

For protection of the console and its periphery, the following modules may be inserted or removed only after switching the console off:

VCA Fader, Master Fader, Group Fader, Aux Master Unit, Studio Monitor, CR Monitor.

**Balanced test equipment:**

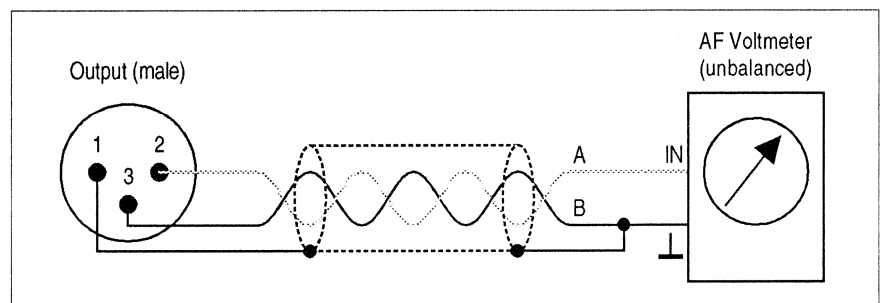
Principally the AF voltmeter must have a balanced input, the AF generator must have a balanced output.



Connection of the AF generator with a balanced line. Measurements with the AF voltmeter are performed without load ( $R_i \geq 10 \text{ k}\Omega$ )

**Unbalanced test equipment:**

If the input of the AF voltmeter is unbalanced, it has to be connected via a balancing transformer. Should this not be feasible, the following method can be used as a makeshift:



The „cold“ b-line (pin 3) is connected to the audio ground (pin 1) and constitutes an unbalanced ground point.

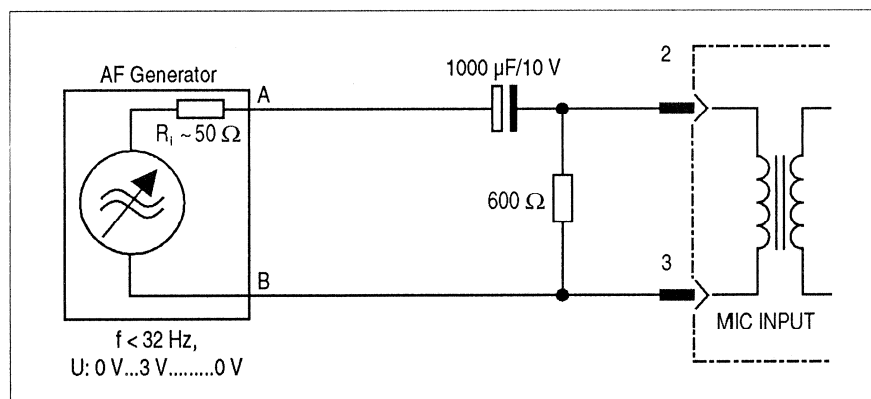
*This set-up cannot be used for high-level measurements (in electronically balanced outputs clipping can occur).*

### 2.11.8 Demagnetizing the input transformers

- Prohibited connection of unbalanced input sources or unintentional shorting of the a/b audio lines of the microphone inputs to chassis when phantom supply is active can drive the input transformers into saturation and cause permanent magnetization (remanence). This manifests itself in the form of significantly higher harmonic distortion and microphonic noise: Light mechanical action on the mixing console, as tapping, causes an audible modulation via the outputs even when the microphone inputs are not active.
- Remanence can also accumulate over extended operating periods.
- All microphone inputs should, therefore, be demagnetized periodically *and prior to calibration*.

#### Procedure:

- *Switch the console off.*
- Feed a frequency of  $< 32$  Hz to one microphone input after the other.
- Increase the generator level from 0 V to about 3 V.
- Continuously reduce the level *very slowly* to 0 V.



Capacitor ( $1000 \mu\text{F}/10 \text{ V}$ ) blocks any DC component  
Resistor ( $600 \Omega$ ) is used for discharging the capacitor

## 2.12 Aligning the Fader units

For alignment, the fader unit concerned must be removed from the console and connected to it via bus adapters.



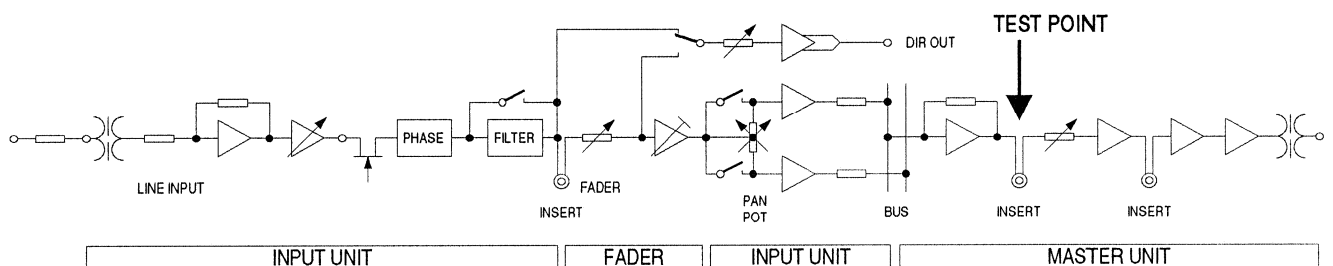
**Always switch the console off before connecting and disconnecting the modules to avoid damaging the modules.**

During the alignment any filters, equalizers, balance and pan pots must be switched off.

All settings are performed on the faders only.

### 2.12.1 Input Fader Mono/Stereo

**1.980.110/111/120**



- Feed test signal with nominal level (1 kHz, typ. +6 or +10 dBu) at the LINE input.
- Set the line gain potentiometer on the Input Unit to center position (CAL), switch filters off.
- Remove the Input Fader unit from the console and reconnect it via the bus adapter.

#### Fader:

- Set the fader to its **0 dB position**.
- Select a Master Unit on the Input Unit, connect the AF voltmeter to the PF INSERT SEND of the selected Master (corresponds to the level after the input fader; „Test Point“ in the diagram above).

**Fader Unit Mono:** Set the level with trimmer potentiometer **RA5** to **+6 dBu**.

**Fader Unit Stereo:** Set the level with trimmer potentiometers **RA5** (left/channel 1) and **RA6** (right/channel 2) to **+6 dBu**.

#### Level meter:

The display characteristics can be selected from VU and PPM and therefore be matched to the characteristics of the main metering. Switchover with jumper **JP1** (not inserted: VU setting).

*For PPM characteristics (jumper JP1 inserted):*

- Press METER ON IN on the Central Switch Panel; button is illuminated.
- With the input fader, set the voltage at the **PF Insert** of the Master Unit to **+6 dBu**.

**Fader Unit Mono:** Set the indication with trimmer potentiometer **RA4** to **0 dB**.

**Fader Unit Stereo:** Set the indication with trimmer potentiometers **RA4** (left/channel 1) and **RA3** (right/channel 2) to **0 dB**.

*For VU characteristics (jumper JP1 not inserted):*

- Press **METER ON IN** on the Central Switch Panel; button is illuminated.
- Setting for **studio level +10 dBu**. For a 0 VU indication at this studio level, the level amounts to +4 dBu; i.e. the lead is 6 dB.
- With the input fader, set the voltage at the PF Insert of the Master Unit to **+4 dBu**.

**Fader Unit Mono:** Set the indication with trimmer potentiometer **RA4** to **0 dB**.

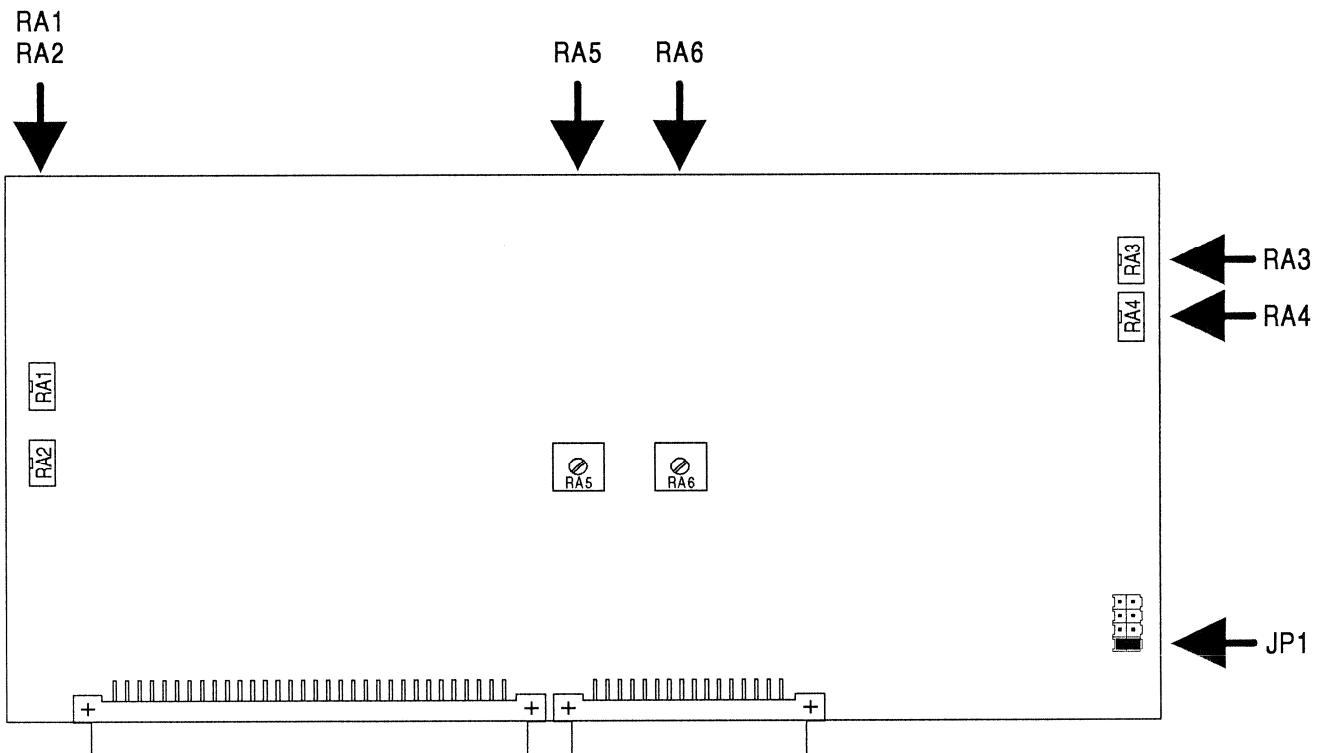
**Fader Unit Stereo:** Set the indication with trimmer potentiometers **RA4** (left/channel 1) and **RA3** (right/channel 2) to **0 dB**.

#### Direct Output:

- Set the **DIR OUT** potentiometer to its center position („CAL“) (except for Mono Film/HDTV versions).
- Set the fader to its **0 dB position**.
- Connect the AF voltmeter to the **DIRECT OUTPUT**.

**Fader Unit Mono:** Set the level with trimmer potentiometer **RA1** to **+6 dBu**.

**Fader Unit Stereo:** Set the level with trimmer potentiometers **RA1** (left/channel 1) and **RA2** (right/channel 2) to **+6 dBu**.



Alignment elements on Fader Units Mono/Stereo

**2.12.2 VCA fader, mono****I.980.130**

- Feed test signal with nominal level at the LINE input.
- Set the line gain potentiometer on the Input Unit to center position (CAL), switch filters off.
- Select a Master Unit on the Input Unit, connect the AF voltmeter to the PF INSERT SEND of the selected Master (corresponds to the level after the input fader).

**Coarse adjustment:**

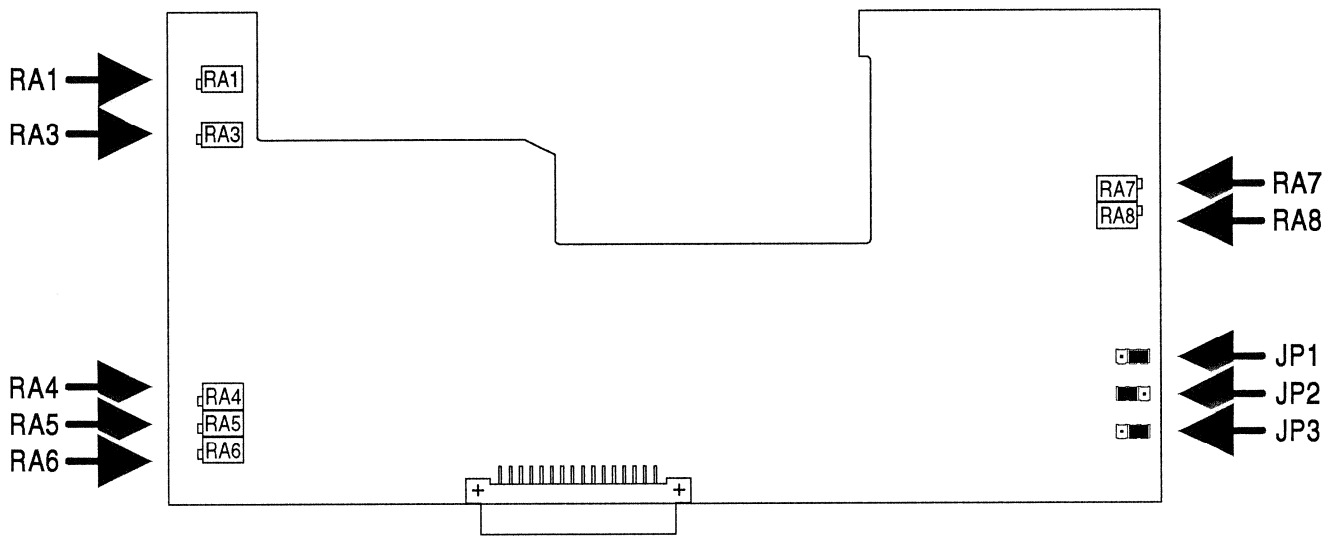
- Switch VCA on (VCA LED is on).
- Set the mark on the fader knob to the center of „-∞“ on the fader scale.
- Adjust **RA6** so that the VCA ON LED just goes off at this point.
- Set fader to +10 dB (top position).
- Measure DC voltage with DC voltmeter between **IC1**, **Pin7** and **Pin1** (ground).
- Set to **0.00 V** with **RA5**.
- Set fader to 0 dB.
- Connect distortion analyzer to PF INSERT SEND.
- Adjust for minimum distortion with **RA3** (typ. **-83 dB**, or 0.007 %, respectively).
- Switch VCA off (VCA LED is dark).
- Set the output level with the normal fader and the AF voltmeter to nominal level -30 dB.
- Switch VCA on (VCA LED is on).
- Adjust the output level with **RA4** to the same AF voltmeter reading as before.
- Switch VCA off (VCA LED is dark).
- Set the output level with the normal fader and the AF voltmeter to nominal level.
- Switch VCA on (VCA LED is on).
- Adjust the output level with **RA1** to nominal level.

**Fine adjustment:**

- Switch VCA off (VCA LED is dark) and set the output level with the normal fader and the AF voltmeter to nominal level -30 dB.
- Switch VCA on (VCA LED is on) and adjust the output level with **RA4** to the same AF voltmeter reading as before.
- Switch VCA off (VCA LED is dark) and set the output level with the normal fader and the AF voltmeter to nominal level.
- Switch VCA on (VCA LED is on) and adjust the output level with **RA1** to nominal level.
- *The four steps above are mutually interdependent. Therefore, they are to be repeated until the following accuracies are met:*  
**0 dB: ±0.1 dB**  
**-30 dB: ±0.3 dB.**

**VCA ON LED check:**

- LED is on at approx. -50 dB
- LED goes off at approx. -55 dB.



### External VCA control:

#### General:

The internal VCA can be controlled by a control voltage applied to the EXT. VCA CONTROL INPUT. For using the internal VCA with different control systems the input sensitivity of the control input must be adjustable to different control levels.

The EXT. VCA CONTROL INPUT is a 50-pin D-Sub socket. The control inputs are balanced differential inputs, each of the two control lines per input can be connected to audio ground (0 VA, pins 18...33). The pins 1...16 are labeled with „-VDC“, the pins 34...49 with „+VDC“.

**Range:** Attenuation >100 dB  
Gain 10 dB.  
The VCA used allows gain settings of >10 dB; however, correct functioning cannot be warranted; therefor this option is not recommended.

**Standard setting:** 0 V  $\cong$  0 dB gain, gain control slope 20 dB/V.  
0 V<sub>DC</sub> between -VDC and +VDC means 0 dB gain;  
-5 V<sub>DC</sub> at +VDC, 0 V<sub>DC</sub> at -VDC means 100 dB attenuation.

**Ranges:** Gain/attenuation at 0 dB:  $\pm 15$  dB  
Gain control slope:  $\pm 7$  dB/V ...  $\pm 25$  dB/V

#### Jumpers (refer to the diagram above):

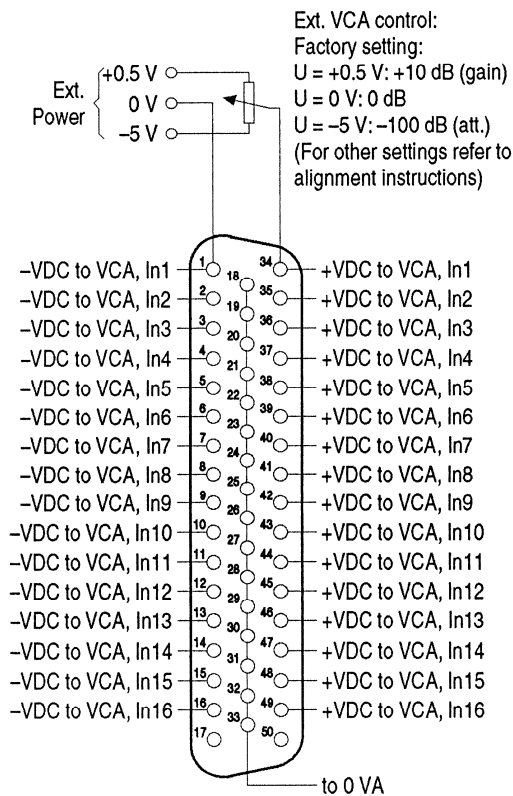
- JP1** Position P11/P12: With the VCA ENABLE button (on the Function Control Unit, FCU) switchover between fader control and external control input.  
\*) Position P12/P13: VCA is always connected; external control input is connected with the VCA ENABLE button on the FCU.
- JP2** \*) Position P14/P15: ENABLE BUS on the FCU switches over between fader control and external control input.  
Position P15/P16: USER key is used for the switchover.

**JP3** Position P17/P18: Fader start relay is activated by the fader *and* the external control input.

\*) Position P18/P19: Fader start relay is activated by the fader only.

\*) *Factory settings (default; same settings as indicated in the diagram above).*

**Standard pin assignment EXT. VCA CONTROL INPUT (50-pin Sub-D connector, female):**

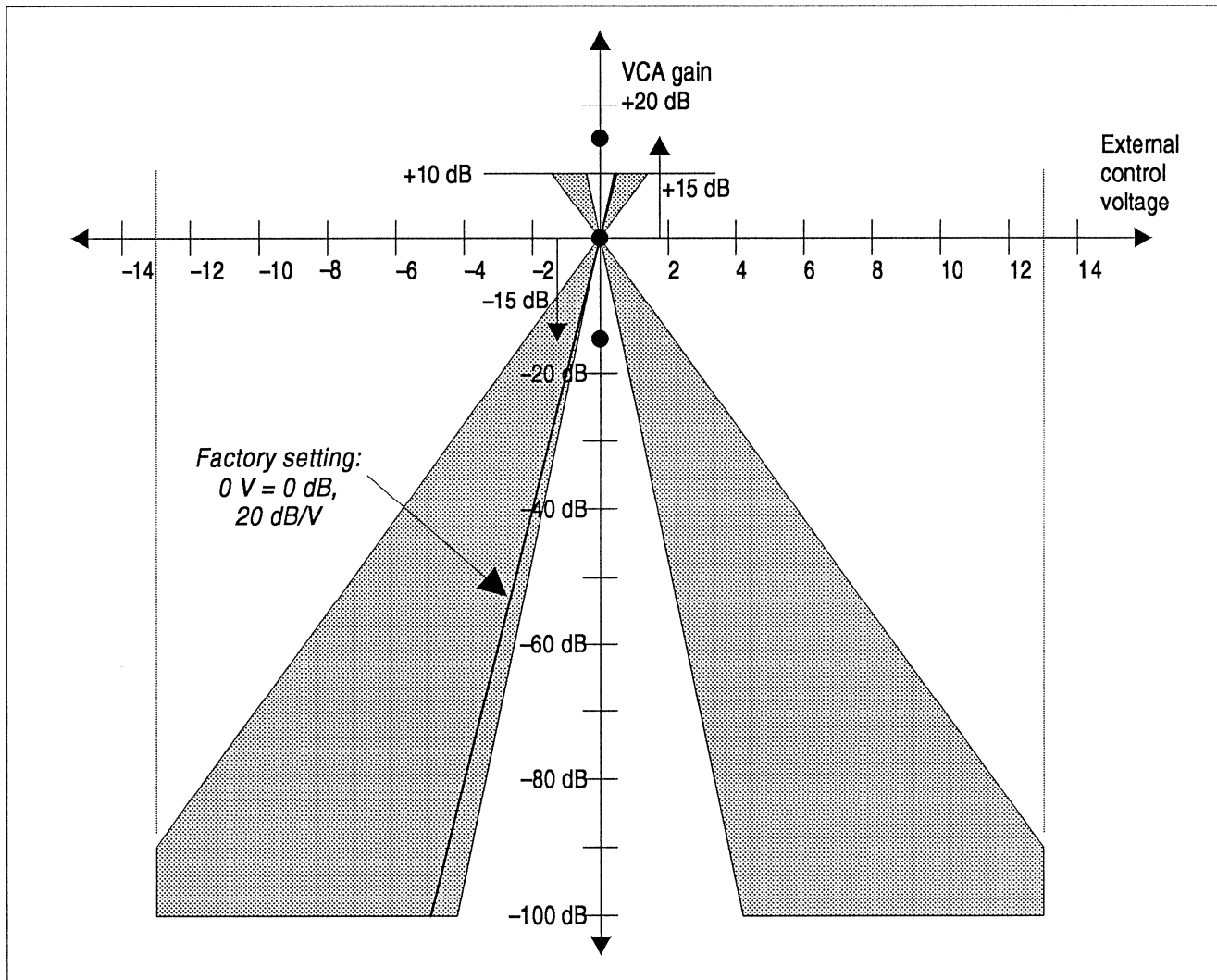


Pin	Function	Pin	Function
1	-VDC to VCA / input 1	26	0 VA (ground)
2	-VDC to VCA / input 2	27	0 VA (ground)
3	-VDC to VCA / input 3	28	0 VA (ground)
4	-VDC to VCA / input 4	29	0 VA (ground)
5	-VDC to VCA / input 5	30	0 VA (ground)
6	-VDC to VCA / input 6	31	0 VA (ground)
7	-VDC to VCA / input 7	32	0 VA (ground)
8	-VDC to VCA / input 8	33	0 VA (ground)
9	-VDC to VCA / input 9	34	+VDC to VCA / input 1
10	-VDC to VCA / input 10	35	+VDC to VCA / input 2
11	-VDC to VCA / input 11	36	+VDC to VCA / input 3
12	-VDC to VCA / input 12	37	+VDC to VCA / input 4
13	-VDC to VCA / input 13	38	+VDC to VCA / input 5
14	-VDC to VCA / input 14	39	+VDC to VCA / input 6
15	-VDC to VCA / input 15	40	+VDC to VCA / input 7
16	-VDC to VCA / input 16	41	+VDC to VCA / input 8
17	n.c.	42	+VDC to VCA / input 9
18	0 VA (ground)	43	+VDC to VCA / input 10
19	0 VA (ground)	44	+VDC to VCA / input 11
20	0 VA (ground)	45	+VDC to VCA / input 12
21	0 VA (ground)	46	+VDC to VCA / input 13
22	0 VA (ground)	47	+VDC to VCA / input 14
23	0 VA (ground)	48	+VDC to VCA / input 15
24	0 VA (ground)	49	+VDC to VCA / input 16
25	0 VA (ground)	50	n.c.

**Settings:**

- Connect 0 V to the corresponding pins of the EXT. VCA CONTROL INPUT (or shorten the pins).
- Feed nominal level/1 kHz at the corresponding LINE input.
- Connect AF voltmeter to PF INSERT SEND of the Master Unit.
- Activate VCA.
- Set fader knob to its 0 dB position.
- Select external control with VCA ENABLE button on the FCU (button is illuminated). The output level must not change; else, adjust with **RA8**.
- Connect a known voltage (e.g. 1.00 V) with the desired polarity to the desired pins of the EXT. VCA CONTROL INPUT.
- Adjust the desired gain control slope (e.g. 20 dB attenuation) with **RA7**.

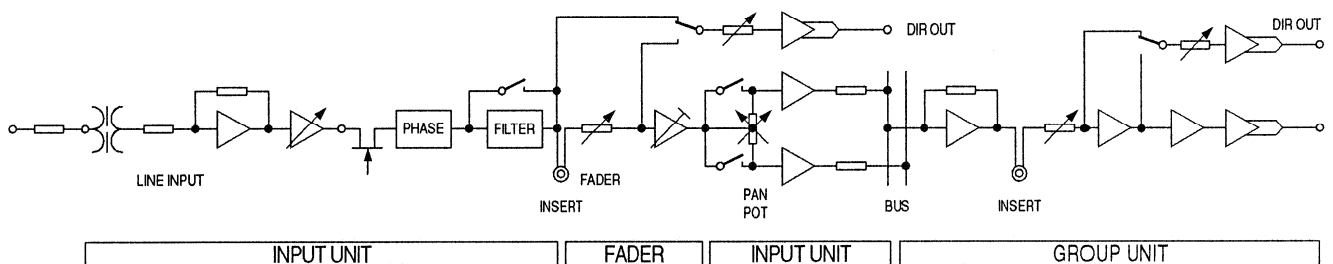




**Optional fader control:** An external fader is operated with, say, 10 V<sub>DC</sub>. 0 V<sub>DC</sub> corresponds to 10 dB gain, 10 V<sub>DC</sub> corresponds to maximum attenuation. Since 0 dB gain is at approx. 0.91 V<sub>DC</sub>, this level shift has to be compensated with RA8.

## 2.12.3 Group Fader

I.980.110/111/120



- Feed test signal with nominal level (1 kHz, typ. +6 or +10 dBu) into a correctly aligned LINE input.
- Set the line gain potentiometer on the Input Unit to center position (CAL), switch filters off.
- Remove the group fader unit from the console and reconnect it via the bus adapters.

## Fader:

- Set the input and group faders to their **0 dB positions**.
- Select GRP on the Group Unit.
- Select the desired group on the input unit, connect the AF voltmeter to its output.

**Group Fader Unit Mono:** Set the level with trimmer potentiometer **RA5** to **+6 dBu**.

**Group Fader Unit Stereo:** Set the level with trimmer potentiometers **RA5** (left/channel 1) and **RA6** (right/channel 2) to **+6 dBu**.

## Level meter:

The display characteristics can be selected from VU and PPM and therefore be matched to the characteristics of the main metering. Switchover with jumper **JP1** (not inserted: VU setting).

*For PPM characteristics (jumper JP1 inserted):*

- Press METER ON IN on the Central Switch Panel; button is illuminated.
- With the group fader, set the voltage at the GROUP OUTPUT to **+6 dBu**.

**Group Fader Unit Mono:** Set the indication with trimmer potentiometer **RA4** to **0 dB**.

**Group Fader Unit Stereo:** Set the indication with trimmer potentiometers **RA4** (left/channel 1) and **RA3** (right/channel 2) to **0 dB**.

*For VU characteristics (jumper JP1 not inserted):*

- Press METER ON IN on the Central Switch Panel; button is illuminated.
- Setting for **studio level +10 dBu**. For a 0 VU indication at this studio level, the level amounts to +4 dBu; i.e. the lead is 6 dB.
- With the group fader, set the voltage at the GROUP OUTPUT to **+4 dBu**.

**Group Fader Unit Mono:** Set the indication with trimmer potentiometer **RA4** to **0 dB**.

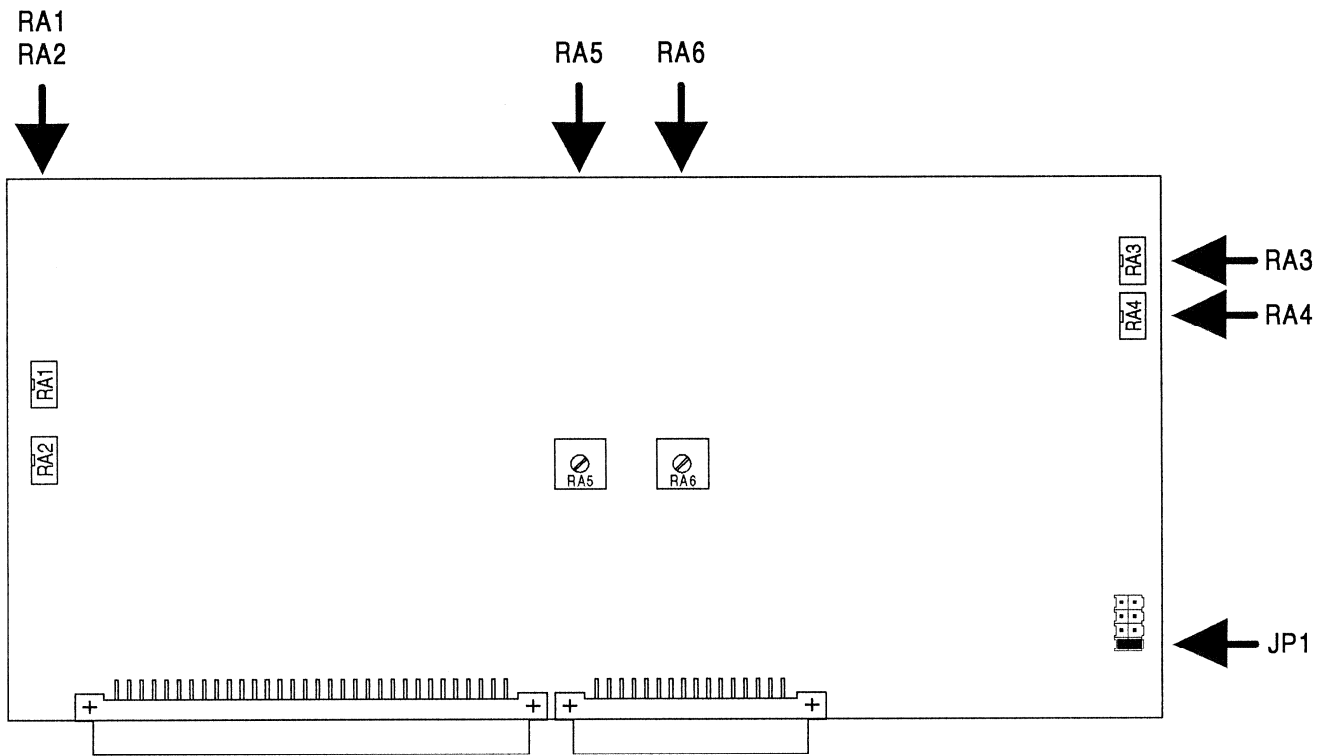
**Group Fader Unit Stereo:** Set the indication with trimmer potentiometers **RA4** (left/channel 1) and **RA3** (right/channel 2) to **0 dB**.

## Direct Output:

- Set the DIR OUT potentiometer to its center position („CAL“) (except for Mono Film/HDTV versions).
- Set the fader to its **0 dB position**.
- Connect the AF voltmeter to the DIRECT OUTPUT.

**Group Fader Unit Mono:** Set the level with trimmer potentiometer **RA1** to **+6 dBu**.

**Group Fader Unit Stereo:** Set the level with trimmer potentiometers **RA1** (left/channel 1) and **RA2** (right/channel 2) to **+6 dBu**.



Alignment elements on Group Fader Units Mono/Stereo

### 2.12.4 Master Fader (Master Unit)

**I.980.180**

**Note:** For Mono Master Units, the test points and alignment elements for the left channel/channel 1 are to be used.

#### CAUTION



*When connecting a Dual Master Unit to the console with bus adapters, make sure not to cross the two flat cables – else the unit will be damaged!*

#### AF Insert level:

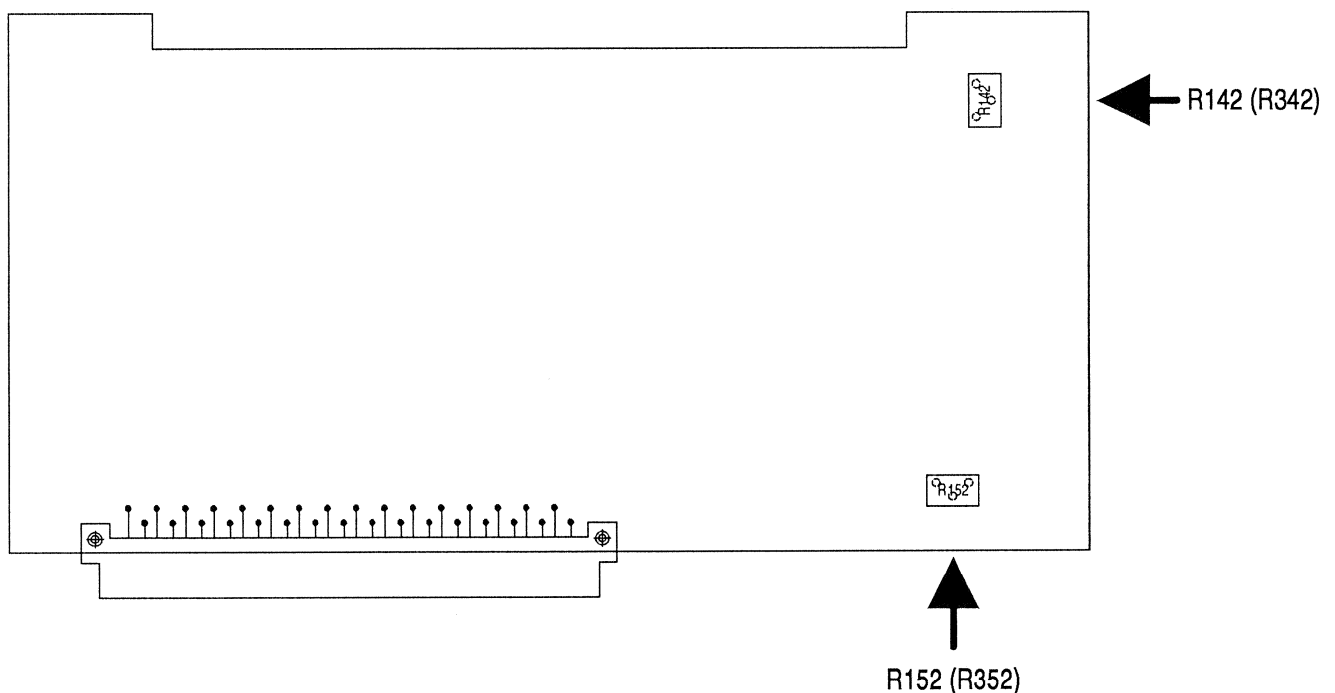
- Feed in test signal with nominal level via a correctly aligned line input; select the desired Master.
- Set the input and master faders to their **0 dB positions**.
- Connect the AF voltmeter to pins 3 and 16 (GND) (left/channel 1) or to pins 30 and 17 (GND) (right/channel 2) of the bus adapters' eurocard connectors.
- Set the level with trimmer potentiometers **R142** (left/channel 1) and **R342** (right/channel 2) to **0 dBu**.

#### Master Outputs:

- Feed in test signal with nominal level via a correctly aligned line input.
- Set the input fader to its **0 dB position**.
- Select the corresponding Master (Bus Selector), set the master fader to its **0 dB position**.
- Connect the AF voltmeter to the Master Output.
- Set the level with trimmer potentiometers **R152** (left/channel 1) and **R352** (right/channel 2) to **+6 dBu**.
- Then select the next Master Channel on the Input Unit, make settings as above. Align all Master Faders in the same way as mentioned above.

#### Distortion alignment:

A distortion alignment is not necessary, for the output stages are distortion compensated.



Alignment elements on Master Unit (right channel/channel 2 in parantheses)

### 2.12.5 AUX Master Units

The N-1 attenuation is aligned in the AUX Master unit as follows:

- Feed test signal with nominal level (1 kHz, typ. +6 or +10 dBu) via a correctly aligned LINE input.
- Set the line gain potentiometer on the Input Unit to center position (CAL), switch filters off.
- Connect the AF voltmeter to the DIRECT OUTPUT of the current input channel.
- Set the DIR OUT potentiometer of this input to center position (on HDTV/Film fader units press the DIR OUT key).
- Remove the AUX Master unit from the console and reconnect it via the bus adapter.
- Set the input fader to its **0 dB position**.
- Press the N-1 key.
- Adjust the output signal **to minimum** with trimmer potentiometer **RA17** on the AUX Master unit (typical attenuation: 50 dB).

#### Level meter:

The display characteristics can be selected from VU and PPM and therefore be matched to the characteristics of the main metering. Switchover with jumper **JP1** (not inserted: VU setting).

#### PPM:

For PPM characteristics (jumper JP1 inserted):

##### PPM, AUX 1...4:

- Press one of the AUX ON 1...4 keys on the input unit.
- Set the corresponding AUX 1...4 potentiometer on the input unit to maximum (i.e. to its clockwise stop).
- Set the level of the corresponding output (AUX SEND 1...4) with the corresponding potentiometer SEND 1...4 on the AUX Master unit to +6 dBu.
- Adjust level meters to **0 dB**: For AUX 1 with trimmer potentiometer **RA9**, for AUX 2 with **RA10**, for AUX 3 with **RA11**, for AUX 4 with **RA12**.

##### PPM, AUX 5...8:

- On the AUX Master unit at AUX 5/6 and AUX 7/8, press the 2CH keys in order to configure the AUX paths as two separated mono paths each.
- Press one of the AUX ON 5/6 and 7/8 keys on the input unit.
- Set one of the concentric potentiometers AUX 5/6 and 7/8 on the input unit to maximum (i.e. to its clockwise stop).
- Set the level of the corresponding output (AUX SEND 5...8) with the corresponding potentiometer SEND 5...8 on the AUX Master unit to +6 dBu.
- Adjust level meters to **0 dB**: For AUX 5 with trimmer potentiometer **RA13**, for AUX 6 with **RA14**, for AUX 7 with **RA15**, for AUX 8 with **RA16**.

VU:

For VU characteristics (jumper JP1 not inserted):

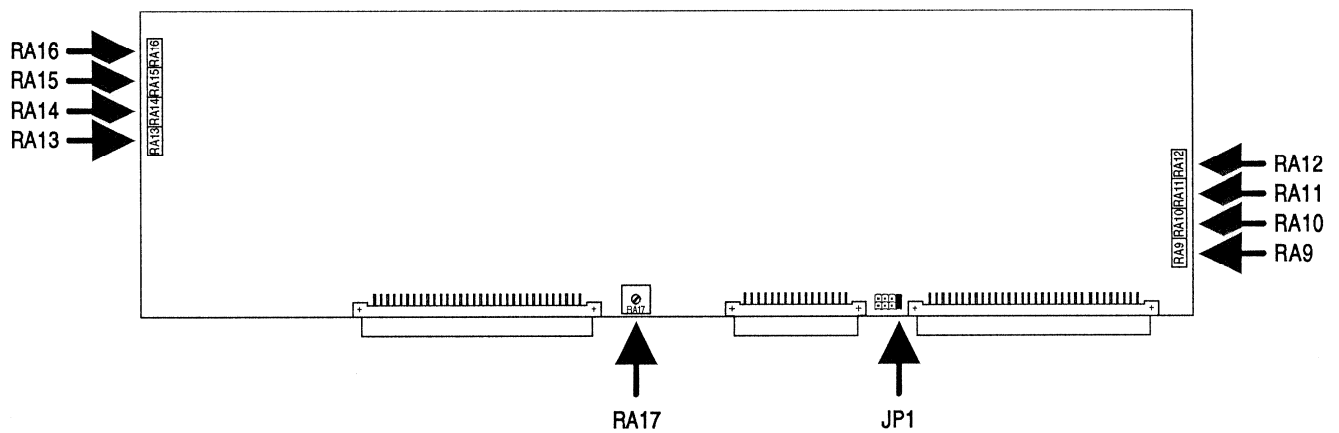
Example for studio level +10 dBu (i.e. for 0 VU indication the level is +4 dBu, the lead is therefore 6 dB)

VU, AUX 1...4:

- Press one of the AUX ON 1...4 keys on the input unit.
- Set the corresponding AUX 1...4 potentiometer on the input unit to maximum (i.e. to its clockwise stop).
- Set the level of the corresponding output (AUX SEND 1...4) with the corresponding potentiometer SEND 1...4 on the AUX Master unit to +4 dBu.
- Adjust level meters to **0 dB**: For AUX 1 with trimmer potentiometer **RA9**, for AUX 2 with **RA10**, for AUX 3 with **RA11**, for AUX 4 with **RA12**.

VU, AUX 5...8:

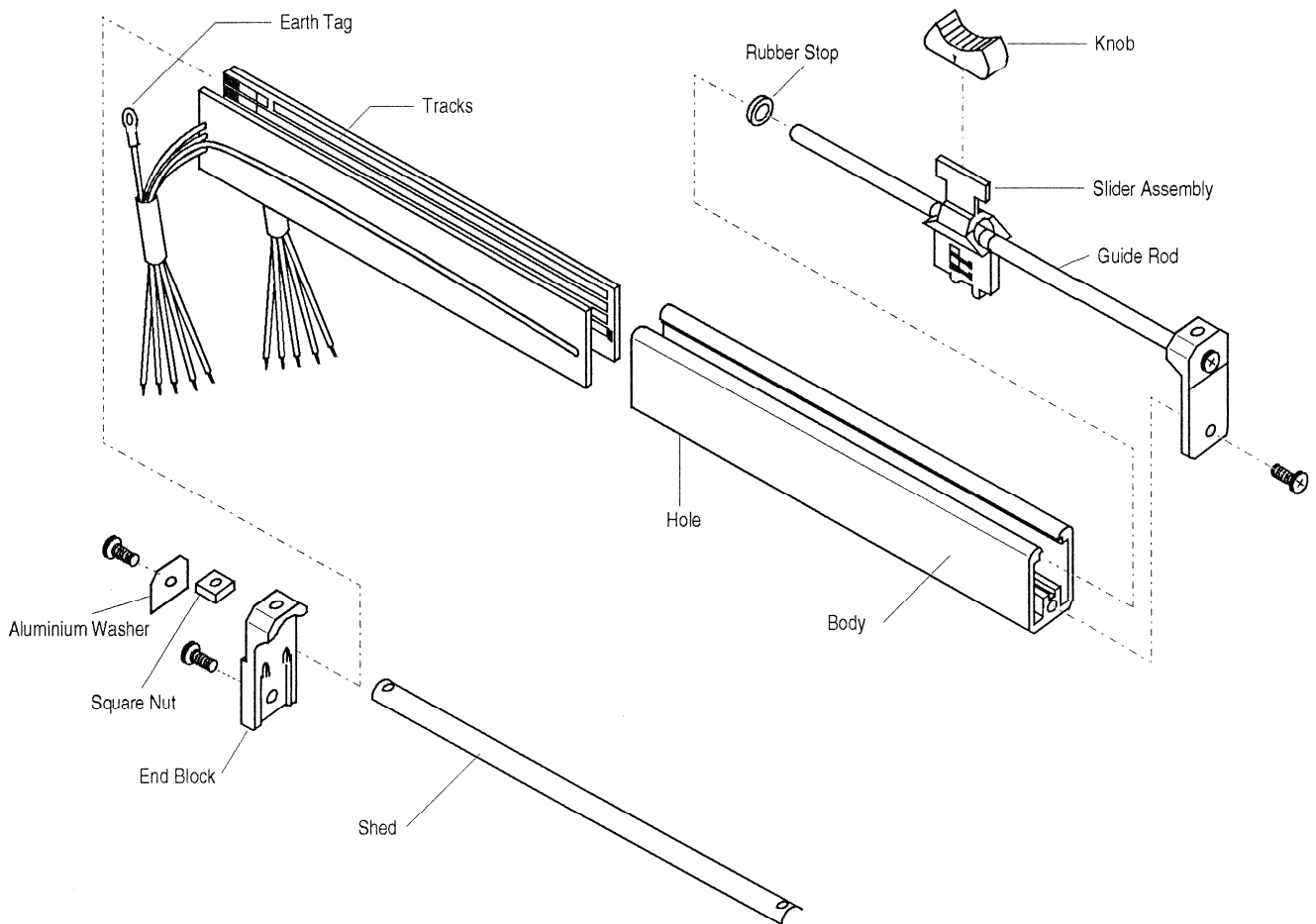
- On the AUX Master unit at AUX 5/6 and AUX 7/8, press the 2CH keys in order to configure the AUX paths as two separated mono paths each.
- Press one of the AUX ON 5/6 and 7/8 keys on the input unit.
- Set the corresponding concentric potentiometers AUX 5/6 and 7/8 on the input unit to maximum (i.e. to its clockwise stop).
- Set the level of the corresponding output (AUX SEND 5...8) with the corresponding potentiometer SEND 5...8 on the AUX Master unit to +6 dBu.
- Adjust level meters to **0 dB**: For AUX 5 with trimmer potentiometer **RA13**, for AUX 6 with **RA14**, for AUX 7 with **RA15**, for AUX 8 with **RA16**.



## 2.13 Care of the faders

### Required auxiliary materials:

Phillips screwdriver No. 0  
 Lint-free cloth  
 Cotton buds  
 Silicone oil (Baysilon M300)  
 PTFE dry film aerosol (e.g. Kontakt-Chemie "Kontaflon" or Cramolin "Sprayflon")



### 2.13.1 Disassembly

#### Removing an end block:

- Remove the two screws from the appropriate end block.
- Remove the aluminium washer and the square fixing nut.

#### Removing the slider assembly:

- To remove the slider assembly first remove the end block (as described above) *from the non-wire end* of the fader.
- Slide the shed away from the end block opposite to the one just removed, through the slider assembly, and remove it.
- Remove the rubber stop from the free end of the guide rod.
- Carefully pull the slider assembly along the guide rod and remove. If the slider is to be reinstalled ensure that the wipers are not damaged (see below).

**Removing a track:**

- Remove the slider assembly as described above.
- Remove the remaining end block by removing only the bottom screw from the end block, the earth tag assembly will come free.
- Pull the end block free of the body, note the guide rod should still be attached to the end block.
- Carefully remove the appropriate track(s) from the body by gently pulling them by their wires. If the tracks are tight in the body then carefully push them out from the opposite end.

**Note:** If the track(s) have been touched they will have to be cleaned prior to reinstalling (see below).

**2.13.2 Deterioration in operating feel****Guide rod lubrication:**

- Remove the upper screw from one end of the fader and remove the aluminium washer and the square fixing nut.
- Pull the shed through the semi-circular slot in the end block and remove it.
- Place the slider in mid stroke and place one drop of silicone oil to each side of the slider.
- Move the slider assembly back and forth on the guide rod to distribute the oil evenly; remove any visible excess oil using a cloth or tissue.
- Replace the shed in the semi-circular slot and push through until the shed locates in the opposite end block.
- Replace the square fixing nut and the aluminium washer, replace and tighten the screw.

**Cleaning the guide rod:**

- Remove the upper screw from one end of the fader and remove the aluminium washer and the square fixing nut.
- Pull the shed through the semi-circular slot in the end block and remove it.
- Slide the slider towards the second end block.
- Remove the rubber stop from the free end of the guide rod, pull the end block with attached guide rod from the fader body (the slider assembly remains inserted inside the body).
- Apply a small amount of silicone oil to a cotton bud and clean the rod thoroughly, removing all traces of dirt.
- Re-insert the guide rod into the slider assembly, attach the rubber stop to the free guide rod end and insert the guide rod completely.
- Insert the bottom screw of the second end block.
- Lubricate the guide rod and assemble the fader as described above.

**Cleaning the track:**

- Remove the track as described above, clean off any debris using a lint-free cloth, and rub firmly down the length of the track until all traces are gone. If the deposits on the track are difficult to remove, the track should be washed in warm water; if required, brush gently using a soft brush.
- The track should then be thoroughly dried using a cloth and a hot air dryer. When the track is completely dry it should be rubbed with the lint-free cloth to remove any marks.
- Agitate the PTFE aerosol by shaking the can.
- Hold the can such that the nozzle is 150 to 200 mm away from the track and spray the lubricant over the track surface in one sweep (2 to 3 seconds).



- Allow the solvent to evaporate, the track will appear white when dry.
- Polish lightly with a lint-free cloth until the surface is shiny. Inspect to ensure that all areas have been polished; areas having a dull appearance require further polishing.
- Reinstall the track as described below.

**Cleaning the guide channel:**

- Remove the slider assembly and the track as described above.
- Press a cotton bud firmly into the guide slot at one end of the body and slowly slide it towards the opposite end of the body.
- Remove the cotton bud and repeat again using its opposite end.
- Reinstall the track and the slider assembly as described below.

**2.13.3 Reassembly**

---

**Reinstalling a track:**

- Lay the wires across the back of the track such that the wires exit at the appropriate end of the track, i.e. at the same side as the largest number of wire/track terminals.
- Position the non-wire end of the track at the edge of the slot in the body such that the holes in the base of the body are nearest to the track. The active portion of the track should be facing inwards, and the law track at the base of the body.
- The non-wire end of the track can now be pushed in.
- Repeat for track 2 where necessary.

**Reinstalling a slider assembly:**

- Press an end block onto the body at the hole end.
- Place the earth tag onto the lower hole of the end block and secure with a screw.
- Place the square fixing nut into the end block and the aluminium washer in position.
- Place a rubber stop on the guide rod at one end and mount this end to the end block with a screw.
- Slide the slider assembly onto the open end of the guide rod such that it locates in the slot, and the free end of the wipers are the last part of the wipers to enter.
- Place a rubber stop on the remaining end of the guide rod.
- Press the end block onto the body such that it locates the guide rod.
- Place a screw into the bottom hole and tighten it.
- Lubricate the guide rod as described above.
- Slide the shed through the end block's semi circular slot, through the slider and into the opposite end block.
- Position the square fixing nut and the aluminium washer, and secure with a screw.

## 2.14 Alignment Control Room Monitor

**I.912.420**

To start the alignment, no key on the CR Monitor unit must be pressed.

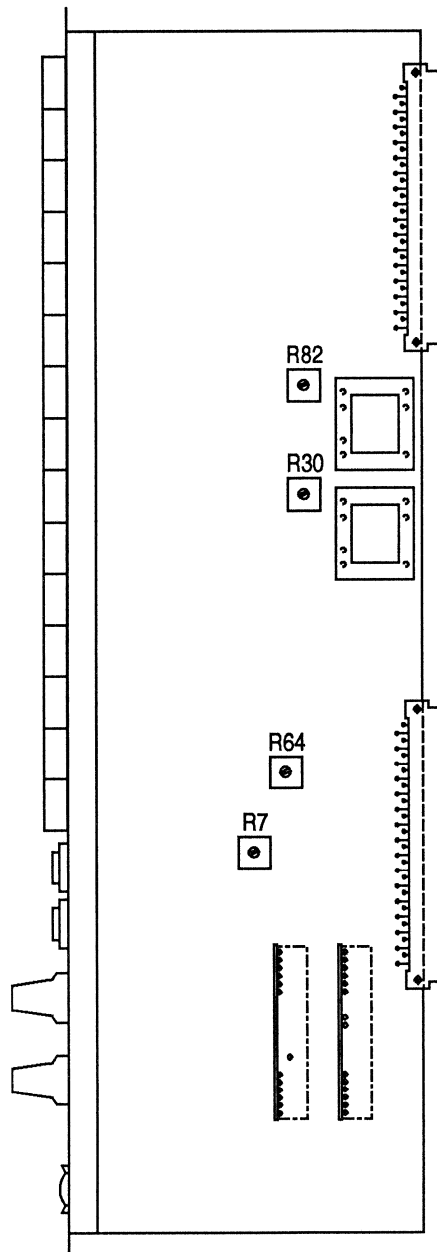
- Feed test signal at nominal level to the EXTERNAL 1 input (left or right).
- Select the input EXT 1 input on the CR Monitor unit.
- Turn the MONITOR VOLUME potentiometer fully clockwise.
- Make sure that BALANCE is switched off (BALANCE IN key released).

### Headphones level:

- Connect audio voltmeter without load to one of the 6.3 mm TRS headphone sockets (Tip = left, Ring = right, Sleeve = ground).
- Adjust level with **R7** (left) and **R64** (right) to **+20 dBu** (7.75 V).

### CR Monitor:

- Connect voltmeter with no load to the CR MONITOR output (left or right).
- Adjust the output level with **R30** (left) and **R82** (right) to **+16 dBu**.



Alignment elements of the CR Monitor unit.

**2.15 Alignment Studio Monitor/Talk Back unit****I.912.326**

The Control Room Monitor unit must have been correctly aligned before the alignment of the Studio Monitor unit.

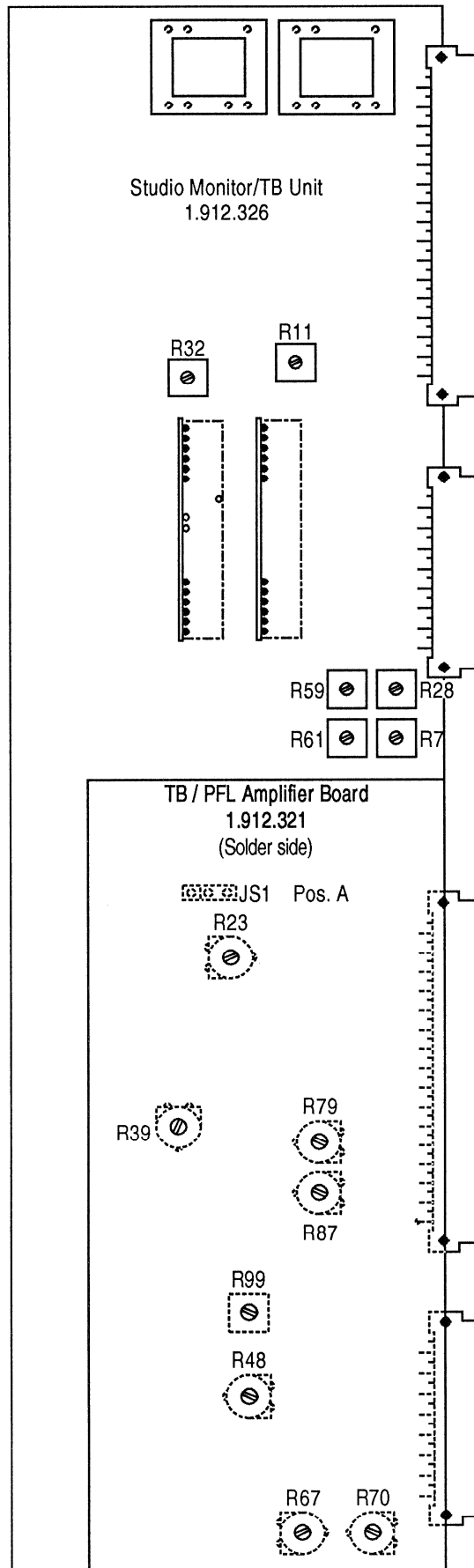
- PFL level:**
- Feed test signal at nominal level to the LINE input (gain: CAL) of the input unit #1.
  - Press PFL key on this input unit.
  - Turn the MONITOR VOLUME potentiometer of the CR Monitor unit fully clockwise.
  - Press the PFL/P.SOLO TO MONITOR key on the Studio Monitor unit. The PFL/P.SOLO potentiometer has no effect on the CR MONITOR output level.
- PFL/P.SOLO monitor:**
- Connect the voltmeter with no load to the CR MONITOR output.
  - Adjust with **R67** (left) and **R70** (right) to **+16 dBu**.
- PFL/P.SOLO headphones:**
- Turn the PFL/P.SOLO potentiometer fully clockwise.
  - Connect voltmeter with no load to the PFL/P.SOLO headphones socket (Tip = left, Ring = right, Sleeve = ground)
  - Adjust with **R79** (left) and **R87** (right) to **+20 dBu**.

**Notes:** The Studio Monitor is muted as soon as a microphone is on. In this case the CUT LED is on. Muting can be released with the RE-IN key. The TB STUDIO and TB SPEAKER keys attenuate the studio output level by 20 dB and must therefore not be activated.

- Studio Monitor:**
- Feed test signal at nominal level to one of the PROGR. monitor inputs and press the corresponding source selector key.
  - Turn the STUDIO potentiometer fully clockwise.
  - Connect voltmeter with no load to the STUDIO output (left or right).
  - Adjust with **R11** (left) and **R32** (right) to **+16 dBu**.

- Headphones studio:**
- This adjustment affects the Studio Monitor signal level to the studio headphones (e.g. connected to TB box).
- Feed test signal at nominal level to one of the PROGR. monitor inputs and press the corresponding source selector key.
  - Connect voltmeter with no load to the TB box output (D-type) or to the headphones socket on the TB box, turn the VOLUME potentiometer fully clockwise (Tip = left, Ring = right, Sleeve = ground).
  - Adjust with **R7** (left) and **R28** (right) to **+20 dBu**.

*(Refer to drawing on next page)*



Alignment elements of the Studio Monitor and Talk Back unit 1.912.326

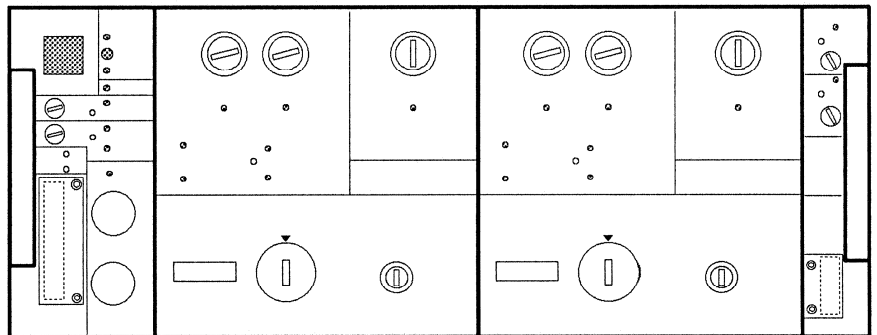
**2.16 Alignment of the power supply**

This alignment instructions apply to all power supply types:

- Dual power supply/Master 1.918.420
- Single power supply/Master 1.918.421
- Dual power supply/Slave 1.918.422
- Single power supply/Slave 1.918.423

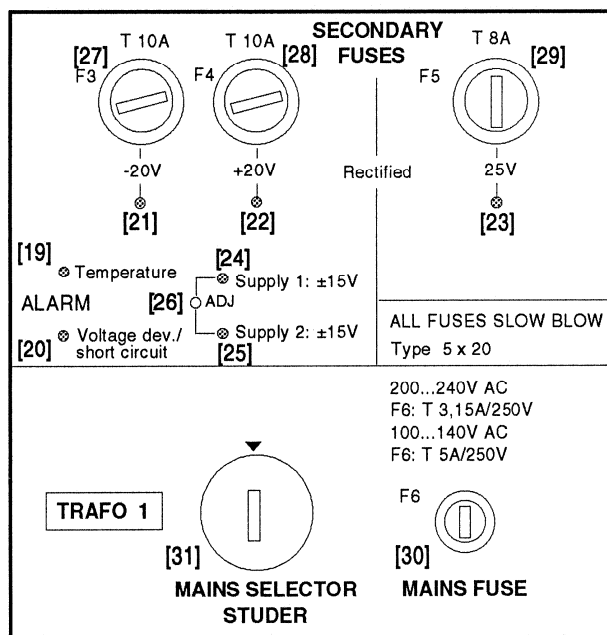
**2.16.1 Dual power supply/Master**

**1.918.420**

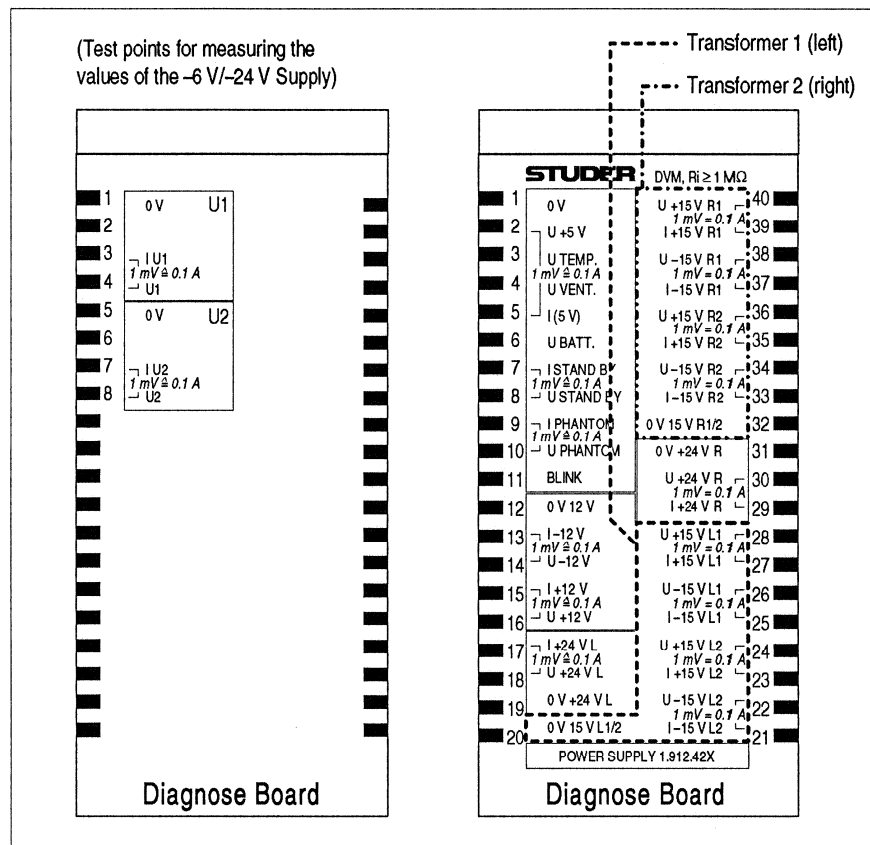


**±15 V I/II transformer block 1 (left)**

- Switch the power supply ON.
- Connect the diagnose board to the large connector labeled Diagnostics.
- Measure the +15 V (L1) on the diagnose board.  
0 V: pin 20 / +15 V: pin 28.
- With trimmer potentiometer ADJ [26] adjust the left-hand transformer block to **+15.6 V**.



The corresponding voltages -15 V of L1 or ±15 V of L2 are automatically set by the tracking, that is, for each transformer block the adjustment of only one voltage is required.



Diagnose board 1.918.080.00

**±15 V I/II transformer block 2 (right)**

Both transformer blocks are identical. All voltages of both units can be measured on the diagnose board.

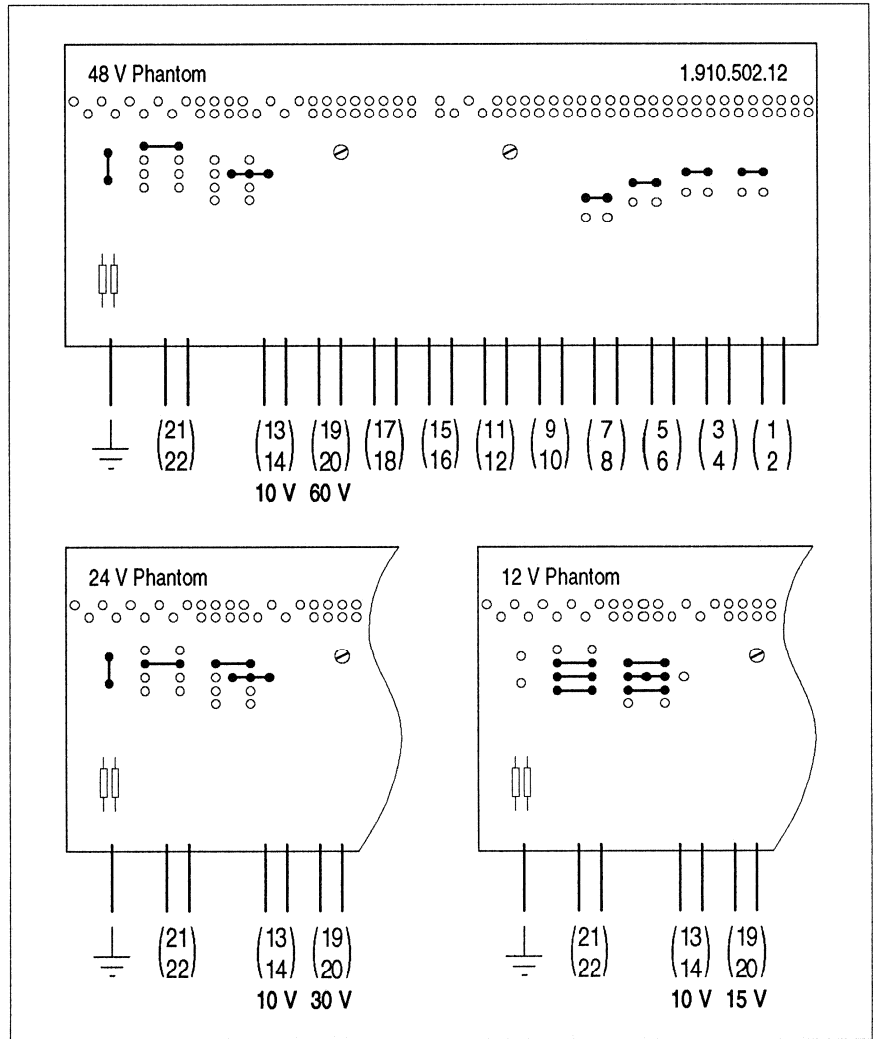
- Measure the +15 V (R1) on the diagnose board.  
0 V: pin 32 / +15 V: pin 40
- With trimmer potentiometer ADJ [26] adjust the right-hand transformer block to **+15.6 V**.

**Phantom supply**

The phantom supply is specified by the customer and is either +48 V, +24 V, or +12 V. For this purpose the soldering straps on the transformer 1.910.503 can be changed according to the figure on the opposite page. In addition, the setting of jumper J7 on the Phantom/Stand-by/±12 V board 1.918.088 must be matched (see figure in the Fan adjustment section).

When changing the phantom supply voltage, also the phantom resistors on the Connection PCB 1.980.712 must be adapted accordingly. These resistors are partially hidden below the connectors P9 (uppermost connectors for the input units). On Mono units two resistors per channel must be adapted, and on Stereo units four resistors.

Phantom supply	R1...R8, R11...R18	Tolerance
48 V	6.8 kΩ	0.1 %
24 V	4.3 kΩ	0.1 %
12 V	680Ω	0.1 %



**Alignment:**

- Measure the phantom supply voltage on the Diagnose Board.  
0 V: pin 1 / UPHANTOM: Pin 10
- Adjust with trimmer potentiometer ADJ [10] to **+12.2 V**, or **+24.2 V**, or **+48.2 V**, as desired.

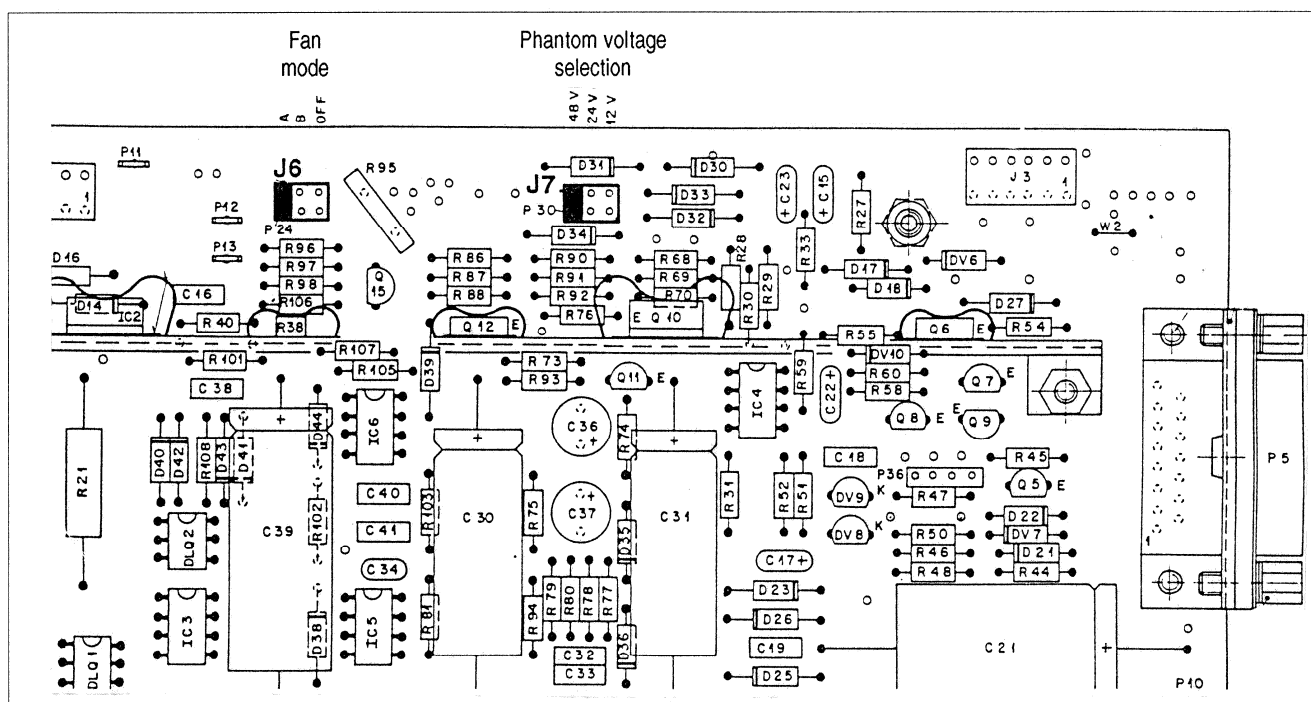
**Fan adjustment**

The fan operates at two speeds. If the temperature threshold is exceeded it switches automatically to the maximum speed. Below this temperature it is possible to define with a jumper whether the fan should turn at maximum speed, reduced speed, or not at all.

**Jumper settings**

On the Phantom/Standby/±12 V Board 1.918.088 and on the Feed Through Board 1.918.089, the jumpers J6 define the fan power below the temperature threshold  $T_{vent}$ . The jumper J7 is used for phantom voltage selection as described in the preceding paragraph.

Fan speed at different settings of jumper J6:			
	A	B	OFF
Temp < T <sub>vent</sub>	low	high	off
Temp > T <sub>vent</sub>	high	high	high



Phantom/Standby/±12 V Board 1.918.088, Feed Through Board 1.918.089: Jumper settings for fan operating mode and phantom supply voltage setting

- Factory settings:** J6 (fan mode) in position A (i.e. low speed for low temperature, high speed for high temperature)  
 J7 (phantom power) according to customer's specification.

**Setting the threshold  $U_{vent}$ :** Connect the diagnose board (1.918.080) to the Diagnostics [18] connector.  $U_{temp}$  and  $U_{vent}$  correlate with the temperature as follows:

$U_{temp}, U_{vent}$	Temperature
1.0 V	40 °C
1.5 V	55 °C
2.0 V	65 °C
2.5 V	80 °C
3.0 V	95 °C
3.5 V	120 °C

The voltage  $U_{temp}$  represents the highest value of the various temperature sensors: transformer 1; transformer 2; heatsink 1; heatsink 2; heatsink standby/phantom.

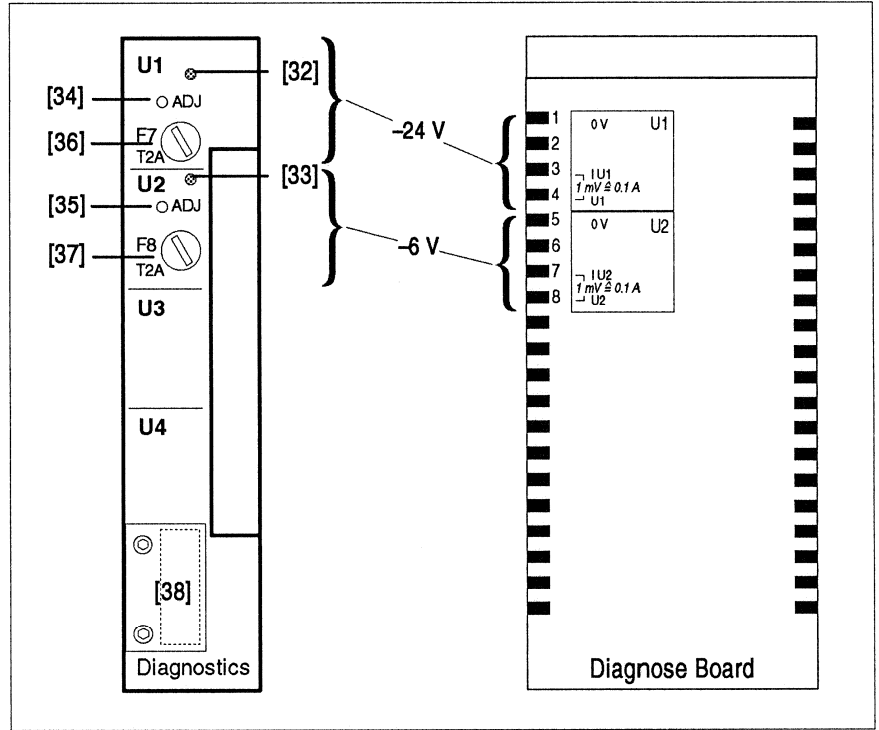
- Measure  $U_{vent}$  and set the switching threshold voltage according to the desired temperature with trimmer potentiometer FAN [13]. The fan is switched to full speed as soon as  $U_{temp}$  exceeds  $U_{vent}$ .
- Repeat this adjustment for all power supplies including slave and standby units.

**Factory setting:**  $U_{vent} = 3.5$  V, corresponding to 120 °C.



**Dual stabilizer -6/-24 V**

The Stabilizer Board 1.918.087.81 is used for regulating the -6 V and -24 V voltages. These voltages can be measured at the 16-pin Diagnostics connector [38] by using the Diagnose Board.



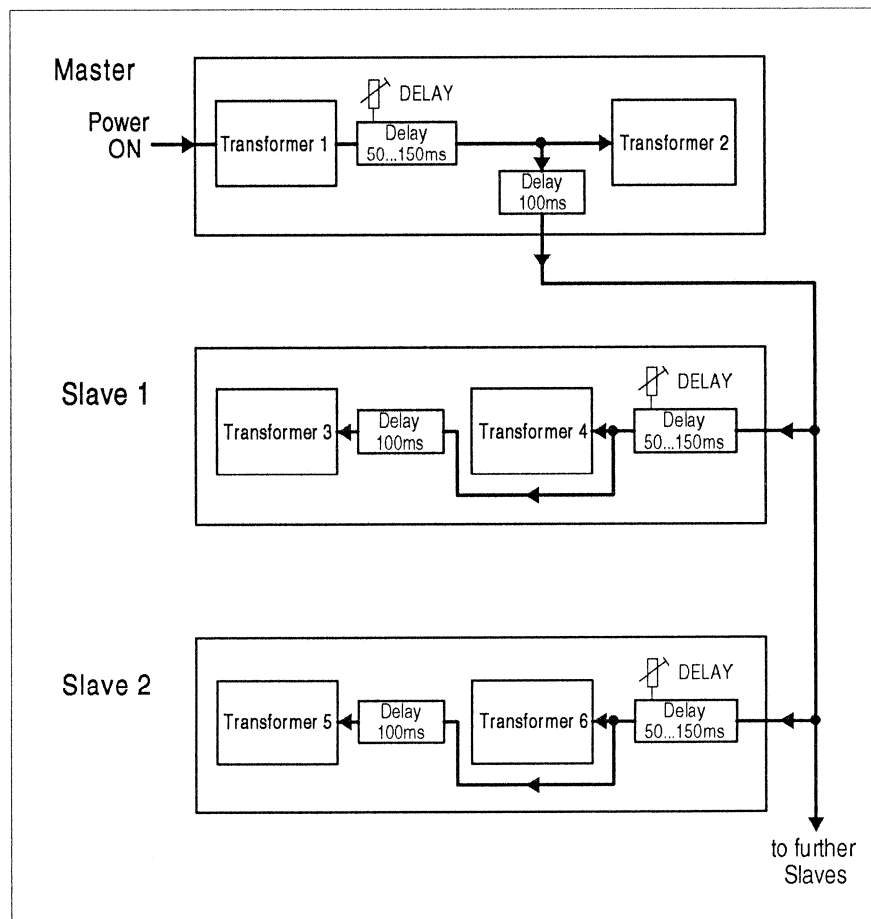
- Alignment:** Measure the voltages on the Diagnose Board.
- 0 V: pin 1 / -24V: pin 4; adjust with trimmer potentiometer ADJ [34] to **-24.0 V**.
  - 0 V: pin 5 / -6V: pin 8; adjust with trimmer potentiometer ADJ [35] to **-6.0 V**.

## Power-on delay

In a system with more than one power supply, the power-on delay prevents an overload when the mixing console is switched on. Between two transformers within the same housing the switch-on is delayed by approx. 100 ms. For transmitting the power-on pulse to the equipment input, a variable delay element (DELAY [12]) is available. The exact conditions are illustrated in the figure below.

An additional protection is provided by limiting the secondary inrush current by NTC elements.

- The delay times can be set "by ear". The power-on clicks of the individual transformers should be heard at regular intervals.
- Perform this adjustment on all power supplies. On slave power supplies the left-hand front panel section is blank, but the FAN and DELAY trimmer potentiometers are arranged at the same positions as on master power supplies.



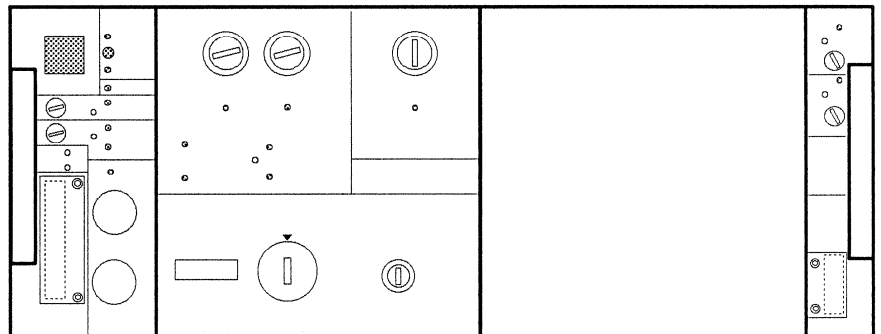
**2.16.2 Dual standby power supply/Master****I.918.420**

This alignment is only required if a dual supply with a standby power supply unit exists.

Perform the same adjustments as described in section 2.16.1. Of course, the diagnose board must be connected to the standby power supply. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by 0.2 V.

This setting ensures that only one of the units is loaded. The standby power supply operates in no-load mode and can assume the supply function immediately when this should be required.

**2.16.3 Single power supply/Master****I.918.421**

This power supply is used in smaller consoles with lower power requirements.

The adjustments are the same as for the Dual power supply/Master as described in section 2.16.1.

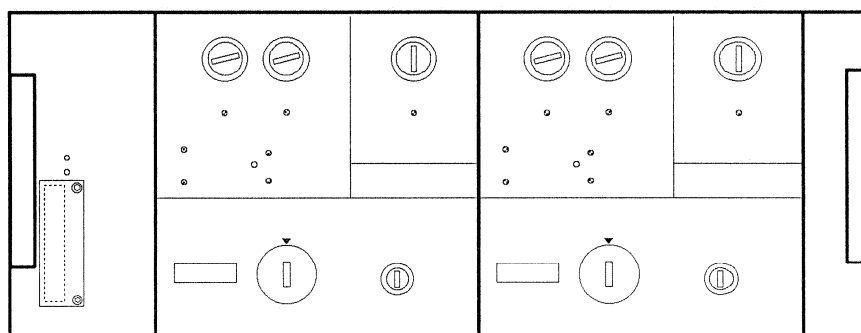
**2.16.4 Single standby power supply/Master****I.918.421**

This alignment is only required if a dual supply with a standby power supply unit exists.

Perform the same adjustments as described in section 2.16.1. Of course, the diagnose board must be connected to the standby power supply. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by 0.2 V.

This setting ensures that only one of the units is loaded. The standby power supply operates in no-load mode and can assume the supply function immediately when this should be required.

**2.16.5 Dual power supply/Slave****I.918.422**

Slave power supplies increase the capacity of the power supply. In contrast to the master there is no standby/phantom unit.

**Alignment:** The alignment procedure follows the instructions in section 2.16.1. The fan and the switch-on delay are adjusted as described there. The corresponding holes through which the trimmer potentiometers are accessible are located in the blank front panel.

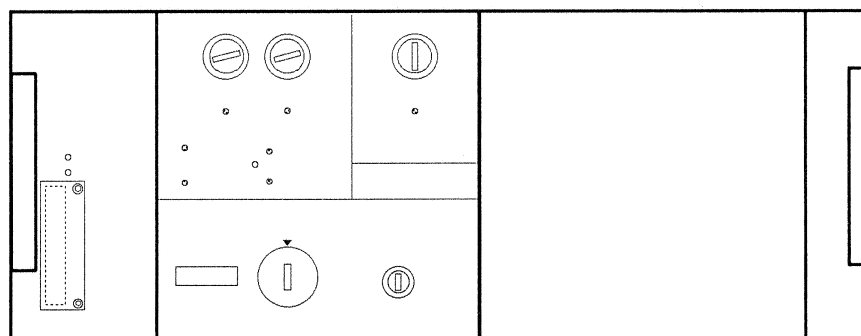
**2.16.6 Dual standby power supply/Slave****I.918.422**

This alignment is only required if a dual supply with a standby power supply unit exists.

Perform the same adjustments as described in section 2.16.1. Of course, the diagnose board must be connected to the standby power supply. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by 0.2 V.

This setting ensures that only one of the units is loaded. The standby power supply operates in no-load mode and can assume the supply function immediately when this should be required.

**2.16.7 Single power supply/Slave****I.918.423**

Slave power supplies increase the capacity of the power supply. In contrast to the master there is no standby/phantom unit.

**Alignment:** The alignment procedure follows the instructions in section 2.16.1. The fan and the switch-on delay are adjusted as described there. The corresponding holes through which the trimmer potentiometers are accessible are located in the blank front panel.

**2.16.8 Single standby power supply/Slave****I.918.423**

This alignment is only required if a dual supply with a standby power supply unit exists.

Perform the same adjustments as described in section 2.16.1. Of course, the diagnose board must be connected to the standby power supply. The basic difference applicable to standby units is:

All voltages of the standby power supply must be set lower by 0.2 V.
--

This setting ensures that only one of the units is loaded. The standby power supply operates in no-load mode and can assume the supply function immediately when this should be required.

### 2.16.9 Dual supply with standby system/change-over

#### General

If maximum reliability is required, possible defects in the power supplies should be taken into consideration. By installing standby units it is possible to bridge a power supply failure without interference with normal operation. Two versions are feasible:

- Redundant cards are installed for all power converters in EU card format.
- The entire power supply system as well as the power converter cards are redundant.

#### Power supply changeover

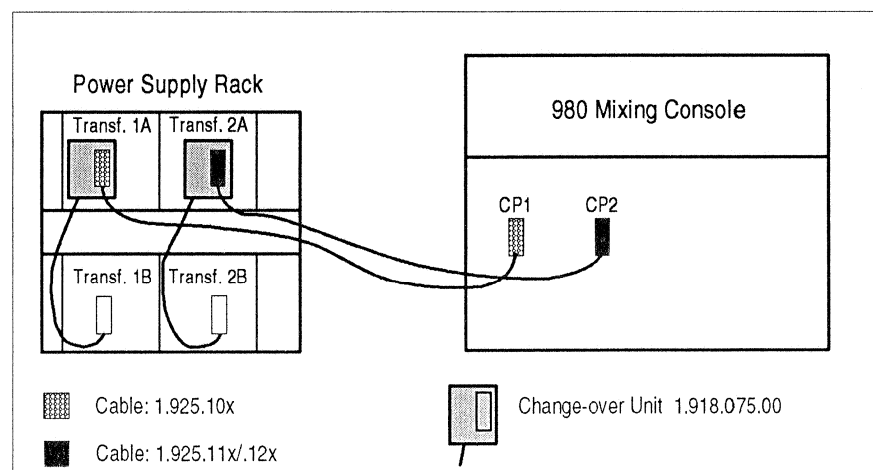
Two complete power supply complexes comprising master and slave units exist. The output voltage of each pair consisting of a main unit and standby unit are connected to the mixing console via change-over units. In the event of a supply voltage failure this change-over unit switches to the standby transformer without any interference. The change-over unit can be conveniently plugged into the 30-pin socket of the transformer block.

Required material:

- For each power supply unit one standby unit of the same type
- For each existing supply cable 1 Change-over unit 1.918.075

#### Example

In this simple example a dual master main power supply and a dual master standby power supply are connected via two change-over units. A control line (not shown in the figure) interconnects the two units into a system with networked alarm and function monitoring. The entire power supply system is redundant. The Change-Over unit 1.918.075.00 connects each transformer to its standby transformer and connects the higher of the two voltages to the mixing console.



## 2.17 Alignment of the DC/DC converters

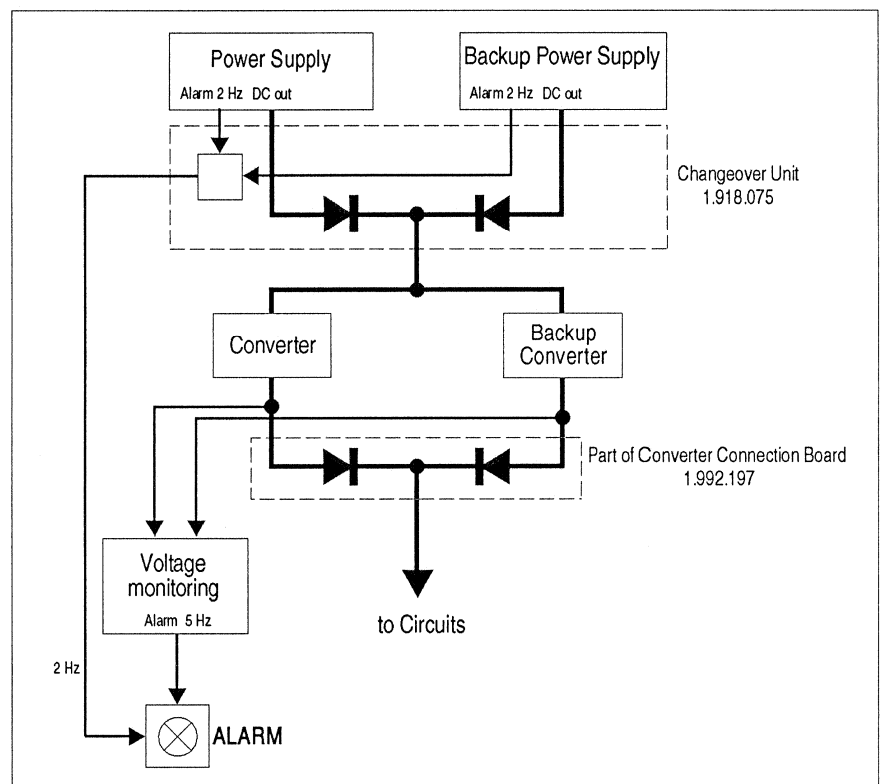
### 1.915.111

The DC/DC converter boards installed in the EU card rack of the console (power supply 3...6 V 1.915.111.81) convert the unregulated 25 V to:

- +5 V (supply of the logical circuits)
- $U_{LED}$  (adjustable LED supply)

As in the case of the power supplies a standby power converter with change-over can be installed for each converter.

**Special case:** For a redundant power supply with at least one redundant power converter a "Diodes/Power Alarm 2 Board" is also installed.



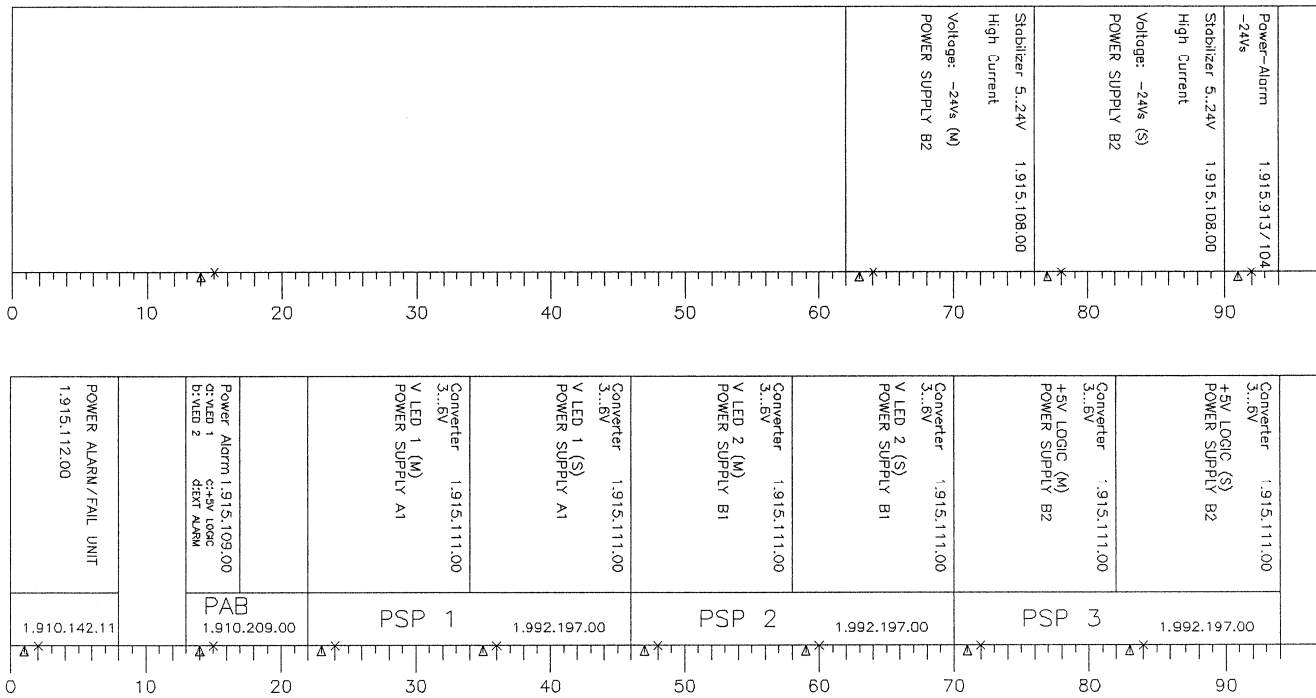
Dual supply with standby units for power supply and converter boards. The alarm system monitors also the correct functioning of the standby unit.

For implementing the comprehensive alarm indications, the regulated output voltages of up to 8 converters are connected to a "Diodes/Power Alarm 2 Board" 1.915.109.

This board is only configured for consoles with standby converters (EU card rack).

The assignment of the converters to their loads is documented in the manual of the specific console. The main board is labeled as "a" or ".1", the standby board with "b" or ".2".

Example from a specific console manual with standby converters:



On consoles without standby supply the alignment is the same as for “main boards” (as described below), and the adjustments to the “standby boards” are not applicable.

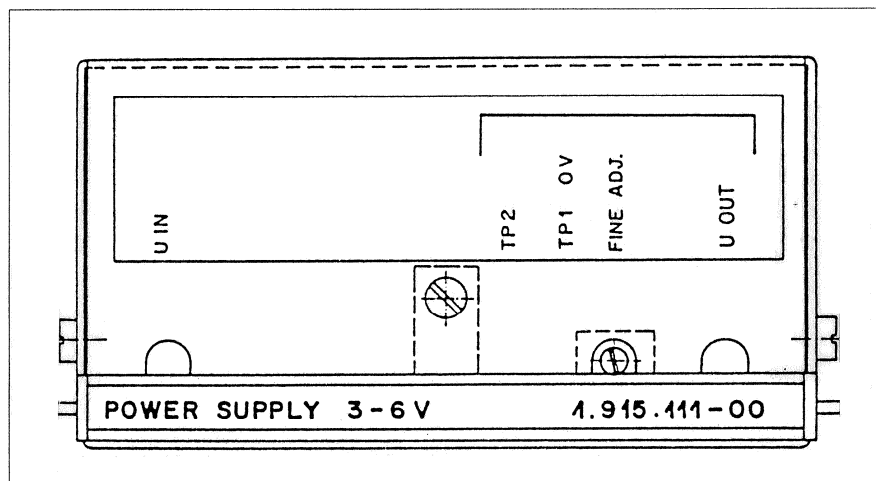
**2.17.1 Alignment of +5 V Logic**

**Main boards**

- Connect a digital multimeter ( $R_i \geq 1 \text{ M}\Omega$ ) to the converter's **TP1** (0 V) and **TP2** (+U).
- Align to **+5.6 V** with **R45** (“FINE ADJ”).
- Repeat the procedure for all 5 V converters.

**Standby boards**

- Align the standby converters to a voltage that is lower by **0.2V** (i.e. to **5.4V**).
- Repeat the procedure for all +5V logic standby converters.



DC/DC converter 3...6 V (1.915.111)



### 2.17.2 Alignment of $V_{LED}$ for consoles without standby supply

---

**Required tools:** Digital multimeter ( $R_i \geq 1 \text{ M}\Omega$ )  
Diagnose board 1.918.080

- Alignment:** (also refer to the drawing in section 2.17.1)
- Turn the BRIGHTNESS potentiometer on the Sign./Indication Unit to the minimum, i.e. the counterclockwise stop.
  - Connect the digital multimeter to the 1st converter ( $V_{LED} 1$ ) between test point TP1 (0 V) and TP2 ( $V_{LED}$ ).
  - Adjust  $V_{LED}$  with trimmer potentiometer **FINE ADJ** (R45) to **+2.8 V**.
  - Repeat this procedure on all existing converters for the LED supply (the number of existing converters depends on the size of the mixing console and can consequently vary).

### 2.17.3 Alignment of $V_{LED}$ for consoles with standby supply

---

**Required tools:** Digital multimeter ( $R_i \geq 1 \text{ M}\Omega$ )  
Diagnose board 1.918.080

- Alignment:** (also refer to the drawing in section 2.17.1)
- *Switch the console OFF.*
  - Connect the Diagnose board to P2 (16-pin connector) of the Diodes/Power Alarm 2 Board (1.915.109; refer to section 2.17.4).
  - Switch the console ON again.
  - Turn the BRIGHTNESS potentiometer on the Sign./Indication Unit to the minimum, i.e. the counterclockwise stop.
  - Turn the trimmer potentiometer **FINE ADJ** (R45) on all  $V_{LED}$  converters to the maximum, i.e. the clockwise stop.
  - Connect the digital multimeter to pin 1 (0V) and pin 5 (A1) of the Diagnose board.
  - Adjust  $V_{LED} 1.1$  of the first main converter ("a") with its trimmer potentiometer **FINE ADJ** (R45) to **+2.9 V**.
  - Connect the digital multimeter to pin 1 (0V) and pin 6 (A2) of the Diagnose board.
  - Adjust  $V_{LED} 1.2$  of the first standby converter ("b") with its trimmer potentiometer **FINE ADJ** (R45) to **+2.7 V**.
  - Repeat the procedure for all other converter pairs. Main boards (\*.1) are to be aligned to +2.9 V, standby boards (\*.2) to +2.7 V.

The pin assignment of P2 on the Diodes/Power Alarm 2 Board is shown in the figure in section 2.17.4.

The correlation of the different converters to the positions A1...D2 on the alarm board is shown in the drawing of the EU card rack as well as in the wiring list of the power supply (refer to section 2.17.4).

**2.17.4 Diodes/Power Alarm 2 Board**

**1.915.109.00**

This board exists only in consoles with dual supply and standby converters. It monitors the regulated voltages of up to eight DC/DC converters. If one of them should fail, this alarm board causes flashing (approx. 5 Hz) of the ON/ALARM LED on the Sign./Indication Unit.

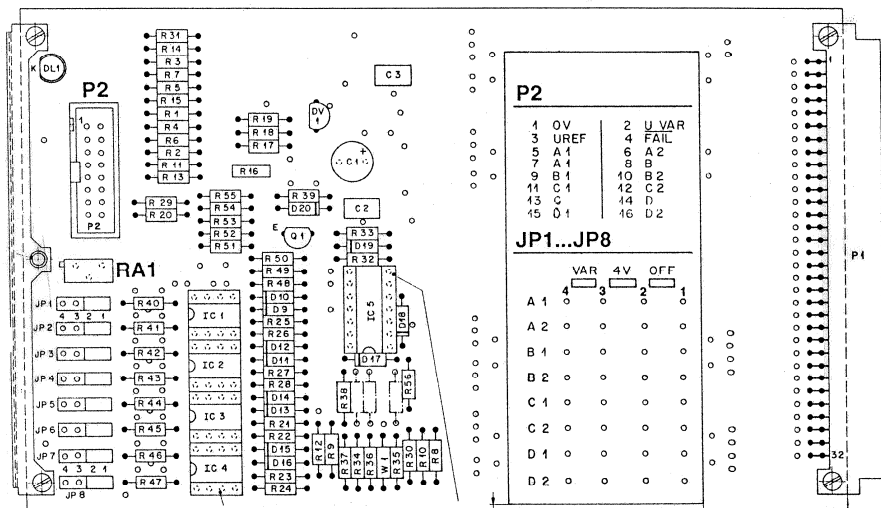
The jumpers JP1...JP8 set the voltage to which the converters are adjusted:

Position 4/3: VAR, for  $V_{LED}$

Position 3/2: 4 V, for all other voltages

Position 2/1: OFF, for an unused input

The pin assignment of connector P2 to the voltages A1...D2 is specified in the figure below.



CABLE KABEL	WIRE DRAHT	--FROM/VON-- CONNECTOR PIN STECKER KONT	--TO/NACH-- CONNECTOR PIN STECKER KONT	Q mm2	VOLTAGE	SIGNAL NAME SIGNAL NAME	FROM VON	TO NACH
< 11 >	GRN	PSP 1 1 : VLED	PAB 1 0 : UA1	0.1	VLED	VLED1.1 TO PWR ALARM	EUROBOARD	EUROBOARD
< 12 >	GRN	PSP 1 2 : VLED	PAB 1 0 : UA2	0.1	VLED	VLED1.2 TO PWR ALARM	EUROBOARD	EUROBOARD
< 13 >	GRN	PSP 2 1 : VLED	PAB 1 0 : UB1	0.1	VLED	VLED2.1 TO PWR ALARM	EUROBOARD	EUROBOARD
< 14 >	GRN	PSP 2 2 : VLED	PAB 1 0 : UB2	0.1	VLED	VLED2.2 TO PWR ALARM	EUROBOARD	EUROBOARD
< 15 >	GRN	PSP 3 1 : VLED	PAB 2 0 : UA1	0.1	VLED	VLED3.1 TO PWR ALARM	EUROBOARD	EUROBOARD

FROM column		TO column	
PSP1.1	Conn. board of converter 1.1	PAB1	Conn. board of alarm board 1
PSP1.2	Conn. board of converter 1.2 etc.	PAB2	Conn. board of alarm board 2
		U A1	Voltage A1 of an alarm board
		U A2	Voltage A2 of an alarm board etc.

Extract from the wiring list of a console with 2 alarm boards.

**Example:**  $V_{LED} 3.1 \rightarrow UA1$ : On position A1 of the alarm board the (variable)  $V_{LED}$  voltage is monitored. Jumper JP1 must consequently be set to VAR.  
 $V_{LED} 3.2 \rightarrow UA2$ : On position A2 of the alarm board the (variable)  $V_{LED}$  voltage is monitored. Jumper JP2 must consequently be set to VAR.

**Note:** Jumpers JP1 ...JP8 on the alarm board are factory set according to these specifications.

### Setting the alarm threshold

After all converters have been aligned the alarm threshold for the  $V_{LED}$  voltage must be set:

- *Switch the console OFF.*
- Connect the Diagnose board to P2 (16-pin connector) of the Diodes/Power Alarm 2 Board (1.915.109).
- Switch the console ON again.
- Turn the BRIGHTNESS potentiometer on the Sign./Indication Unit to the minimum, i.e. the counterclockwise stop.
- Connect the digital multimeter to pin 1 (0 V) and pin 2 (U VAR) of the Diagnose board.
- Turn the multiturn potentiometer RA1 until the LED DL1 is continuously on.
- The digital multimeter reading is e.g. +2.0 V.
- With RA1 adjust to 100 mV below the measured voltage.  
(Example: +2.0 V – 0.1 V = +1.9 V)

### Checking the alarm threshold

- Turn the BRIGHTNESS potentiometer on the Sign./Indication Unit to the maximum, i.e. the clockwise stop.
- LED **DL1** on the alarm board **should not flash**.
- Pull out each converter individually:
  - LED **DL1** on the alarm board **should flash** (approx. 5 Hz)
  - The **ON/ALARM** LED on the Sign./Indication Unit **should flash**
  - *Switch the console OFF*
  - Reinsert the converter
  - Switch the console ON again: **No alarm should be indicated**.
- Repeat the test with the other converters until all of them are checked.

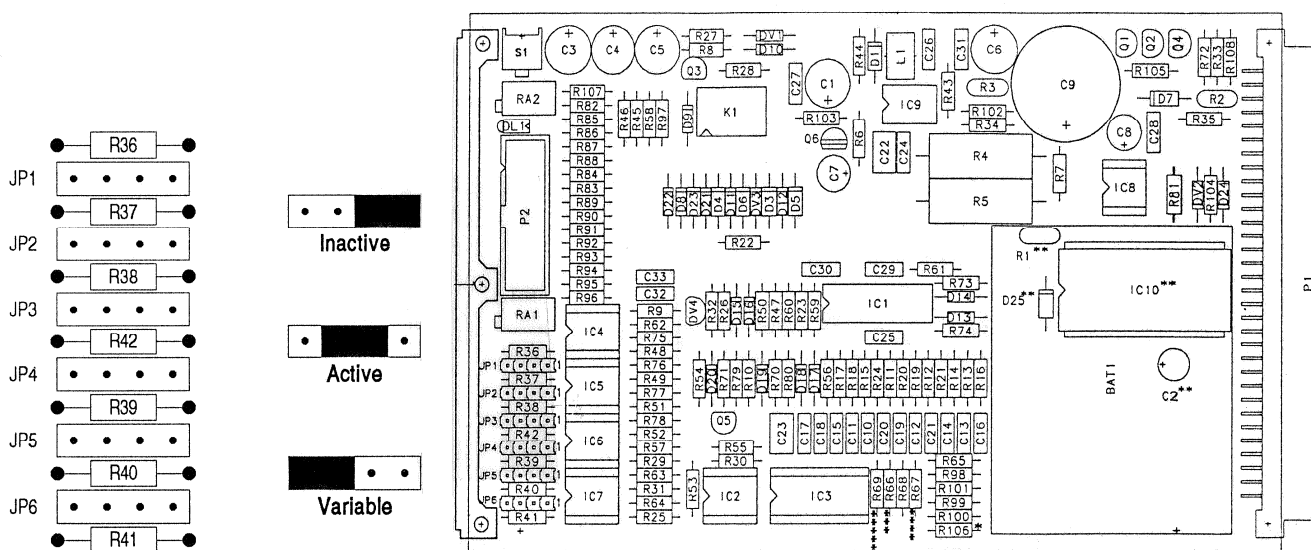
## 2.17.5 Power Alarm/Fail 4 Board

1.915.112.00

This board has been introduced in consoles with serial No. 8017 and later. It is used for monitoring the output voltages of all the converters installed in the console (+5 V logic, +24 V, VLED) as well as the additional, regulated -6 V and -24 V FET voltages delivered from the Stabilizer Board 1.918.087.00 in the power supply unit(s).

A failure of one of these voltages will be indicated by fast flashing (approx. 5 Hz) of the ON/ALARM LED on the Sign./Indication Unit.

**Jumpers:** The various voltages to be monitored can be set to active, inactive, or (for  $V_{LED}$ ) with variable threshold by means of the jumpers JP1...JP6.



**Alignment  $V_{LED}$ :** For adjusting the  $V_{LED}$  threshold, all converters must have been aligned correctly according to sections 2.17.1...2.17.3.

- Switch the console OFF.
- Connect the Diagnose board to P2 (16-pin connector) of the Power Alarm/Fail 4 Board (1.915.112).
- Switch the console ON again.
- Turn the BRIGHTNESS potentiometer on the Sign./Indication Unit to the minimum, i.e. the counterclockwise stop.
- Connect the digital multimeter to pin 7 (0 V) and pin 1 (U VAR) of the Diagnose board.
- Turn the multimeter potentiometer **RA1** until the LED DL1 is **continuously on**.
- The digital multimeter reading is e.g. +2.8 V.
- With **RA1** adjust to **200...300 mV below the measured voltage**. (Example: +2.8 V - 0.2...0.3 V = +2.5...2.6 V)

- Alignment DC/DC converter:** For consoles equipped with built-in rechargeable battery or operating from a car battery, the standby DC/DC converter has to be aligned in addition.
- Separate the console completely from the mains.
  - Remove the Power Alarm/Fail 4 Board and reconnect it via the bus adapter 1.228.327.82 (contained in the accessories set, refer to 1.2.4).
  - Connect the digital multimeter to pin 4a (+U<sub>SB</sub>) and pin 28a (0 V) of P1 on the Power Alarm/Fail 4 Board.
  - Align the DC/DC converter output voltage with the multiturn potentiometer **RA2** to **+5 VDC**.

## Schemata / Circuit Diagrams

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Wegweiser durch den Schema-Dschungel  
How to find your way through the diagrams jungle

### Fader Units

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#### Structure lists and block diagrams:

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Fader Unit (Mono) .....	1.980.110.00
Block Diagram Mono Fader Unit .....	1.980.110.00
Fader Unit (Film/HDTV, Mono) .....	1.980.111.00
Block Diagram HDTV Fader Unit .....	1.980.111.00
Fader Unit (Stereo) .....	1.980.120.00
Block Diagram Stereo Fader .....	1.980.120.00
Fader Unit (Mono, VCA) .....	1.980.130.00
Block Diagram VCA Fader Unit .....	1.980.130.00
Fader Unit (Mono, Film/HDTV, VCA) .....	1.980.131.00
Block Diagram HDTV VCA Fader Unit .....	1.980.131.00
Fader Unit (Stereo, VCA) .....	1.980.140.00
Block Diagram Stereo Fader with VCA .....	1.980.140.00
Fader Unit (Mono, w. motor fader) .....	1.980.150.00
Block Diagram Motor Fader Unit Mono .....	1.980.150.00
Fader Unit (Mono, Film/HDTV, w. motor fader) .....	1.980.151.00
Block Diagram HDTV Motor Fader Unit .....	1.980.151.00
Fader Unit (Stereo, w. motor fader) .....	1.980.160.00
Block Diagram Motor Fader Unit Stereo .....	1.980.160.00

#### Circuit diagrams and component layouts:

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Fader Main Board .....	1.980.102.81
Fader Switch Board .....	1.980.109.00
Fader Film Pan Pot Board .....	1.980.117.00
Fader VCA Side Board (Mono) (IC2 and IC4 not used) .....	1.980.133.00
Fader VCA Side Board (Stereo) .....	1.980.143.00
3 Pot 12.5 mm Board .....	1.990.298.00

## Parts lists:

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Fader Switch Board .....	1.980.109.70
Fader Pan Pot Board (Film) .....	1.980.117.00
Fader Side Board (Mono, VCA) .....	1.980.133.00
Fader Side Board (Stereo, VCA) .....	1.980.143.00
Fader Main Board (Mono) .....	1.980.190.00
Fader Main Board (Mono, VCA) .....	1.980.191.00
Fader Main Board (Stereo) .....	1.980.192.00
Fader Main Board (Stereo, VCA) .....	1.980.193.00
Fader Main Board (Mono, Film) .....	1.980.194.00
Fader Main Board (Mono, Film, VCA) .....	1.980.195.00
Fader Switch Board (VCA) .....	1.980.198.00
Fader Switch Board (Univ.) .....	1.980.199.00

## Pin Assignments:

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<b>P1A</b>	<b>VCA FADER UNIT to INPUT/FADER CONNECTION BOARD</b>	
	Valid for:	
-	Fader Side Board Mono .....	1.980.133.00
-	Fader Side Board Stereo .....	1.980.143.00
<b>P1B</b>	<b>VCA FADER UNIT to INPUT/FADER CONNECTION BOARD</b>	
	Valid for:	
-	VCA Fader, Mono .....	1.980.130.00
-	VCA Fader, Mono, Film/HDTV .....	1.980.131.00
-	VCA Fader, Stereo .....	1.980.140.00
<b>P2B</b>	<b>FADER UNIT to INPUT/FADER CONNECTION BOARD</b>	
	Valid for: All Fader Units	
<b>P2C1</b>	<b>20-pin flat cable connection FADER SWITCH BOARD (P1) to FADER MAIN BOARD (P11)</b>	
	Valid for: All Fader Units	
<b>P2C2</b>	<b>16-pin direct connection FADER SWITCH BOARD (P2) to FADER MAIN BOARD (P12)</b>	
	Valid for: All Fader Units	
<b>P2C3</b>	<b>16-pin flat cable connection FADER SWITCH BOARD (P3) to FADER VCA SIDE BOARD (P3)</b>	
	Valid for: VCA Fader Units only	

**Master Units**

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**Structure lists and block diagrams:**

---

Dual Master Unit .....	1.980.180.00
Block Diagram Dual Master Unit .....	1.980.180.00
Dual Master Unit with 1 Limiter Switch .....	1.980.181.00
Block Diagram Dual Master Unit with 1 Limiter Switch .....	1.980.181.00
Dual Master Unit with 2 Limiter Switches .....	1.980.182.00
Block Diagram Dual Master Unit with 2 Limiter Switches .....	1.980.182.00
Mono Master Unit .....	1.980.183.00
Block Diagram Mono Master Unit .....	1.980.183.00
Mono Master Unit with 1 Limiter Switch .....	1.980.184.00
Block Diagram Mono Master Unit with 1 Limiter Switch .....	1.980.184.00
Mono Master Unit with Limiter + Link Switches .....	1.980.185.00
Block Diagram Mono Master Unit with Limiter + Link Switches ..	1.980.185.00

**Circuits diagrams and component layouts:**

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Dual Master Unit .....	1.980.180.00
Master Board .....	1.980.187.00
Master Board CH2 .....	1.980.188.00
Master Switch Board .....	1.980.189.00

**Parts lists:**

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Dual Master Unit .....	1.980.180.00
Dual Master Unit with 1 Limiter Switch .....	1.980.181.00
Dual Master Unit with 2 Limiter Switches .....	1.980.182.00
Mono Master Unit .....	1.980.183.00
Mono Master Unit with 1 Limiter Switch .....	1.980.184.00
Mono Master Unit with Limiter + Link Switches .....	1.980.185.00
Master Board CH1 .....	1.980.187.00
Master Board CH2 .....	1.980.188.00
Master Switch Board .....	1.980.189.00



**Central Control**

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**Circuit diagrams, component layouts, and parts lists:**

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Central Control Unit .....	1.980.820.21
consisting of:	
Central Control $\mu$ P Board .....	1.980.822.22
Central Control Switch Board .....	1.980.829.00

## Wegweiser durch den Schema-Dschungel

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Wenn Sie als Kind mit LEGO®-Bausteinen gespielt haben, dann wird es Ihnen nicht schwerfallen, das modulare System, nach dem die Einschübe des 980er-Mischpultes zusammengestellt werden, zu verstehen.

Wäre dieser Schemateil in der üblichen Weise (Schema, Bestückungsplan, Stückliste für jeden einzelnen Einschub) aufgebaut worden, dann wäre diese Anleitung mindestens doppelt so dick und viel komplexer geworden.

Für jeden Einschub wurde deshalb eine Strukturliste kreiert, auf die unmittelbar das Blockschema des betreffenden Einschubes folgt. Am Anfang jedes der Schema-Kapitel, die nach dem neuen System aufgebaut sind, sind die entsprechenden Strukturlisten angeordnet. Diese Strukturlisten dienen als Wegweiser, die Sie durch die Sammlung der Schema-, Bestückungsplan- und Stücklisten-«Bausteine» führen.

### Schauen wir zwei Beispiele mit der Mono Fader Unit (Bestell-Nr. 1.980.110.00) an.

#### Assemblies structure:

Die «Assemblies structure»-Liste gibt an, aus welchen Unterbaugruppen jeder Einschub besteht. In unserem Fall sind dies das *Mono Main Board 1.980.190.00*, das *Universal Switch Board 1.980.199.00*, und zwei kleine Baugruppen mit Potentiometern.

1. Das *Mono Main Board 1.980.190.00* ist auf dem *Fader Main PCB* bestückt (d.h. der «nackten» gedruckten Schaltung, identifiziert durch die letzten zwei Stellen der Bauteil-Nr. mit .11, .12, etc.; in unserem Fall also Bauteil-Nr. 1.980.102.11).
2. Das *Switch Board* ist auf dem *Switch PCB* bestückt (d.h. der «nackten» gedruckten Schaltung, identifiziert durch die letzten zwei Stellen der Bauteil-Nr. mit .11, .12, etc.; in unserem Fall also Bauteil-Nr. 1.980.109.11).

Auf dieser gedruckten Schaltung ist eine Anzahl von Standard-Bauelementen bestückt, die für jede der Versionen der Switch Board-Baugruppe verwendet werden; dies ergibt die Baugruppe mit der Nummer 1.980.109.70.

Diese Baugruppe ist in dieser Form nicht funktionsfähig und wird, abhängig von der gewünschten Einschub-Version, durch zusätzliche Komponenten ergänzt; in unserem Fall ergibt sich daraus das *Universal Switch Board*, Bestell-Nr. 1.980.199.00.

#### Circuit diagrams:

1. Das Schaltschema des *Main Board 1.980.102.00* besteht aus vier Seiten. Von der vierten Seite existieren drei verschiedene Versionen (4a, b, c), die je nach der Version des Fader-Einschubes verwendet werden. Für unser Beispiel mit dem *Mono Main Board 1.980.190.00* sind gemäss dem Abschnitt «Circuit diagrams» die Schemaseiten 1, 2, 3 und 4a anzuwenden.
2. Das allgemeine Schaltschema des *Fader Switch Board* finden Sie, gemäss dem Abschnitt «Circuit diagrams», unter der Nummer 1.980.109.00. Beachten Sie bitte, dass nicht alle Bauteile des Schemas für jede Einschubversion gebraucht werden (z.B. entweder DL3, oder DL4 und DL5). Die für eine bestimmte Version notwendigen Komponenten entnehmen Sie bitte der entsprechenden Stückliste.

#### Layout drawings:

1. Den allgemeinen Bestückungsplan des *Mono Main Board* finden Sie unmittelbar nach dessen Schema unter der Nummer 1.980.102.00, wie unter «Component layout drawings» angegeben. Beachten Sie bitte, dass nicht alle Bauteile des Schemas für jede Einschubversion gebraucht werden. Die für eine bestimmte Version notwendigen Komponenten entnehmen Sie bitte der entsprechenden Stückliste.
2. Den allgemeinen Bestückungsplan des *Fader Switch Board* finden Sie unmittelbar nach dessen Schema unter der Nummer 1.980.109.00, wie unter «Component layout drawings» angegeben. Beachten Sie bitte, dass nicht alle Bauteile des Schemas für jede Einschubversion gebraucht werden (z.B. entweder DL3, oder DL4 und DL5). Die für eine bestimmte Version notwendigen Komponenten entnehmen Sie bitte der entsprechenden Stückliste.

#### Parts lists:

1. Für die Baugruppe *Fader Main Board (Mono) 1.980.190.00* gilt die Stückliste *Fader Main Board (Mono) 1.980.190.00*, wie unter «Parts lists» angegeben.
2. Für die Baugruppe *Fader Switch Board (Univ.)* sind zwei verschiedene Stücklisten notwendig (*Fader Switch Board 1.980.109.70* und *Fader Switch Board (Univ.) 1.980.199.00*), wie unter «Parts lists» angegeben. Wie weiter oben bereits erwähnt, enthält die Stückliste ...70 allgemeine Bauteile für verschiedene Baugruppen; die Stückliste 1.980.199.00 enthält alle zusätzlichen Teile, die die Baugruppe ....70 zum gewünschten Einschub *Fader Switch Board (Univ.) 1.980.199.00* machen.

## How to find your way through the diagrams jungle

If you ever played with LEGO® building blocks as a child, it will be very easy for you to understand the modular system according to which the 980 mixing console's modules are assembled.

If the diagrams sections would have been edited in the conventional way (i.e. an schematic diagram, a component layout drawing, as well as a parts list for every individual module), this manual would have been at least twice as thick as it is now – and much more complex.

For every module there has been created a so-called structure list, immediately followed by a block diagram of the module concerned. The structure lists can be found at the beginning of every section dealing with modules composed according to the new system. These structure lists can be used as signposts indicating your way through the collection of schematic diagrams, component layout drawings, and parts lists “building blocks”.

### Let's have two examples with the Mono Fader Unit, part No. 1.980.110.00

#### Assemblies structure:

The “Assemblies structure” list indicates which sub-modules a module consists of. In our case, there is a *Mono Main Board 1.980.190.00*, a *Universal Switch Board 1.980.199.00*, and two small boards carrying different potentiometers.

1. The *Mono Main Board 1.980.190.00* is assembled using the *Fader Main PCB* (i.e. the “empty” printed circuit board, identified by the two last digits of the part No. being .11, .12, etc.; in our case, its part No. *1.980.102.11*).
2. The *Switch Board* is assembled using the *Switch PCB* (i.e. the “empty” printed circuit board, identified by the two last digits of the part No. being .11, .12, etc.; in our case, its part No. is *1.980.109.11*).

On this PCB there is a number of standard components being used for all versions of the Switch Board module, establishing a module identified by the part No. *1.980.109.70*. This module, together with additional components which are varying from one module to the next, establishes the *Universal Switch Board*, part No. *1.980.199.00*.

#### Circuit diagrams:

1. The circuit diagram of the *Main Board 1.980.102.00* consists of 4 pages; of the 4th page, however, there exist 3 different versions (4a, b, c) which are used depending on the desired fader module version. The version to be applied to a particular unit is indicated in the “Circuit diagrams” section. For our *Mono Main Board 1.980.190.00* example, the following diagram pages apply: *1, 2, 3, and 4a*, as indicated in the “Circuit diagrams” section.
2. The general circuit diagram of the *Fader Switch Board* can be found under the number *1.980.109.00*, as indicated in the “Circuit diagrams” section. Please note that not all the components indicated in the diagram are used for the same module (e.g. either DL3, or DL4 and DL5). The components used for a particular module version are indicated in the corresponding parts list.

#### Layout drawings:

1. The general component layout drawing of the *Mono Main Board* unit can be found immediately after its circuit diagram pages under the number *1.980.102.00*, as indicated in the “Component layout drawings” section. Please note that not all the components indicated in the drawing are used for the same module. The components used for a particular version of the module are indicated in the corresponding parts list.
2. The general component layout drawing of the *Fader Switch Board* unit can be found immediately after its circuit diagram under the same number *1.980.109.00*, as indicated in the “Component layout drawings” section. Please note that not all the components indicated in the drawing are used for the same module (e.g. DL3, or DL4 and DL5). The components used for a particular version of the module are indicated in the corresponding parts list.

#### Parts list(s):

1. For the *Fader Main Board (Mono) 1.980.190.00* the parts list *Fader Main Board (Mono) 1.980.190.00* applies, according to the “Parts lists” section.
2. For the *Fader Switch Board (Univ.)* module, you need two different parts lists (*Fader Switch Board 1.980.109.70*, and *Fader Switch Board (Univ.) 1.980.199.00*), as indicated in the “Parts lists” section. As mentioned above, the *...70* list contains the general parts for several different modules; the *1.980.199.00* parts list contains the additional parts used to convert the *....70* module to our particular *Fader Switch Board (Univ.) 1.980.199.00*.

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**FADER UNITS**

**Fader Unit (Mono)****1.980.110.00****Assemblies structure**

<b>Fader Main Board (Mono)</b>	1.980.190.00
<b>Fader Main PCB</b>	1.980.102.11
<b>Fader Switch Board (Univ.)</b>	1.980.199.00
<b>Fader Switch Board</b>	1.980.109.70
<b>Fader Switch PCB</b>	1.980.109.11
<b>Fader Dir Pot Board</b>	1.980.105.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Pan Pot Board</b>	1.980.106.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11

**Block diagram**

<b>Mono Fader Unit</b>	1.980.110.00
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**Circuit diagrams**

<b>Fader Main Board</b>	1.980.102.81, <i>pages 1; 2; 3; 4a</i>
<b>Fader Switch Board</b>	1.980.109.00
<b>Fader Dir Pot Board</b>	on 1.980.102.81, <i>page 3</i> (assembly 1.980.105.00)
<b>Fader Pan Pot Board</b>	on 1.980.102.81, <i>page 4a</i> (assembly 1.980.106.00)
<b>3 Pot 12.5 mm Board</b>	1.990.298.00

**Component layout drawings**

<b>Fader Main Board</b>	1.980.102.81
<b>Fader Switch Board</b>	1.980.109.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.00

**Parts lists**

<b>Fader Switch Board</b>	1.980.109.70 (general parts only)
<b>Fader Main Board (Mono)</b>	1.980.190.00
<b>Fader Switch Board (Univ.)</b>	1.980.199.00

**Connector pin assignments**

P2B, P2C1, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

## Options with PFL fader mute

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### Input Units

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**Normal operation:**

PFL and APL are independent of fader and mute.

**Option 1, PFL audio mute:**

PFL is depending on fader and mute. No effect on APL. The PFL LED remains on. PFL audio is muted. The PFL signalization is switched off (PFL to monitor). No other parameters as master signalization or input selection have an effect. The possibility of mutually unlatching remains.

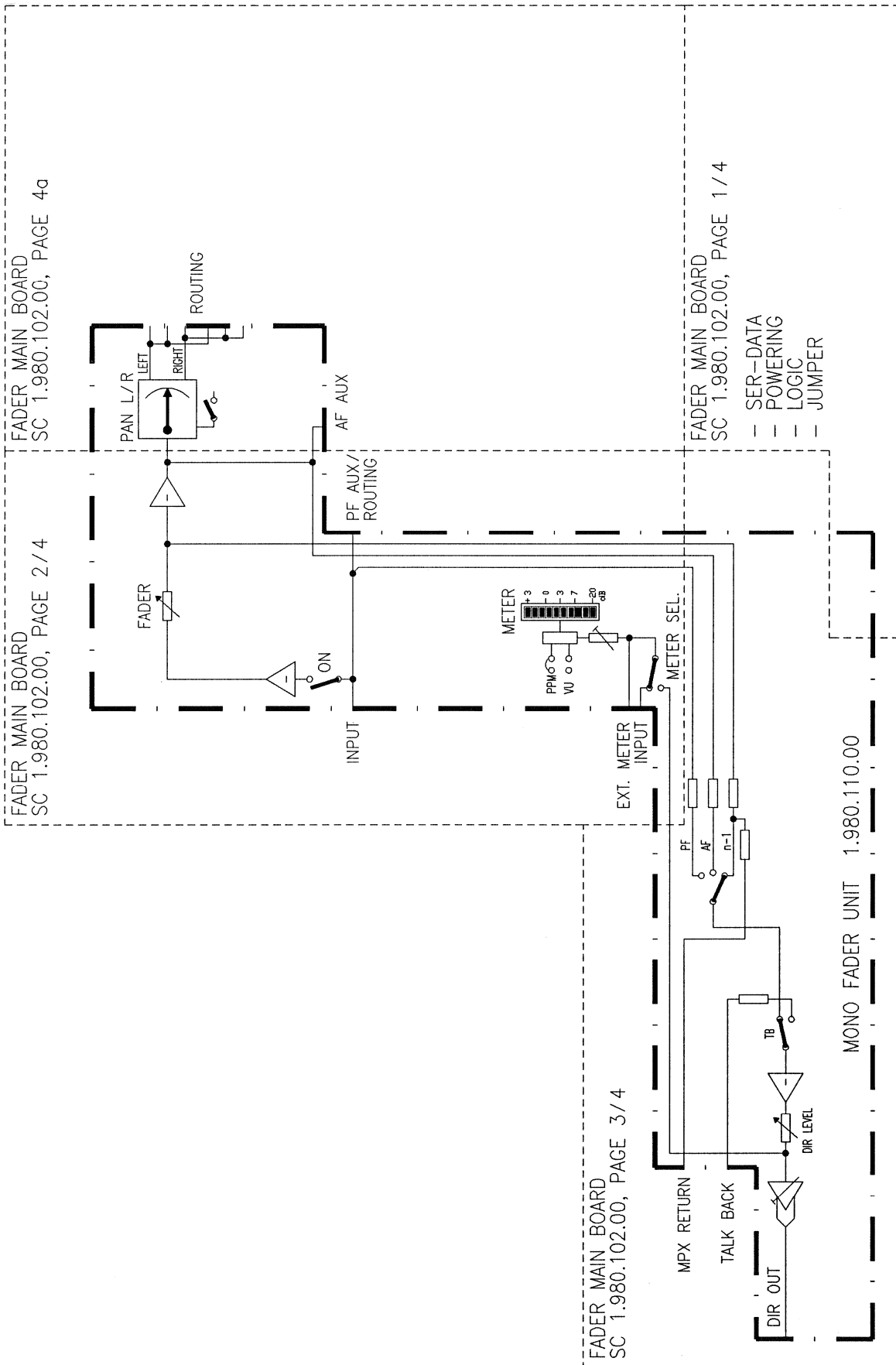
Fixed wiring. TP8 of the input unit is connected to 0 V with a stranded wire.

**Option 2, PFL with fader start reset:**

PFL is depending on the fader and mute. No effect on APL. When opening the fader or the mute switch, the PFL switch is reset. No other parameters as master signalization or input selection have an effect. The possibility of mutually unlatching remains.

Not frequently used; fixed wiring. TP7 is connected to ground by a printed conductor; for installing option 2, this conductor must be interrupted, and TP7 must be connected to +5 Vcc by a stranded wire.

BLOCK DIAGRAM  
MONO FADER UNIT 1.980.110.00



**Fader Unit (Film/HDTV, Mono)****1.980.111.00****Assemblies structure**

Fader Main Board (Mono, Film/HDTV)	1.980.194.00
Fader Main PCB	1.980.102.11
Fader Switch Board (Univ.)	1.980.199.00
Fader Switch Board	1.980.109.70
Fader Switch PCB	1.980.109.11
Fader Film Div Pot Board	1.980.115.00
3 Pot 12.5 mm PCB	1.990.298.11
Fader Film Pan Pot Board	1.980.117.00
Fader Film Pan PCB	1.980.107.11

**Block diagram**

HDTV Fader Unit	1.980.111.00
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**Circuit diagrams**

Fader Main Board	1.980.102.81, <i>pages 1; 2; 3; 4c</i>
Fader Switch Board	1.980.109.00
Fader Film Div Pot Board	on 1.980.102.81, <i>page 4c</i> (assembly 1.980.115.00)
Fader Film Pan Pot Board	1.980.117.00 as well as on 1.980.102.81, <i>page 4c</i>
3 Pot 12.5 mm Board	1.990.298.00

**Component layout drawings**

Fader Main Board	1.980.102.81
Fader Switch Board	1.980.109.00
Fader Film Pan Pot Board	1.980.117.00

**Parts lists**

Fader Switch Board	1.980.109.70 (general parts only)
Fader Main Board (Mono, Film)	1.980.194.00
Fader Switch Board (Univ.)	1.980.199.00
Fader Film Pan Pot Board	1.980.117.00

**Connector pin assignments**

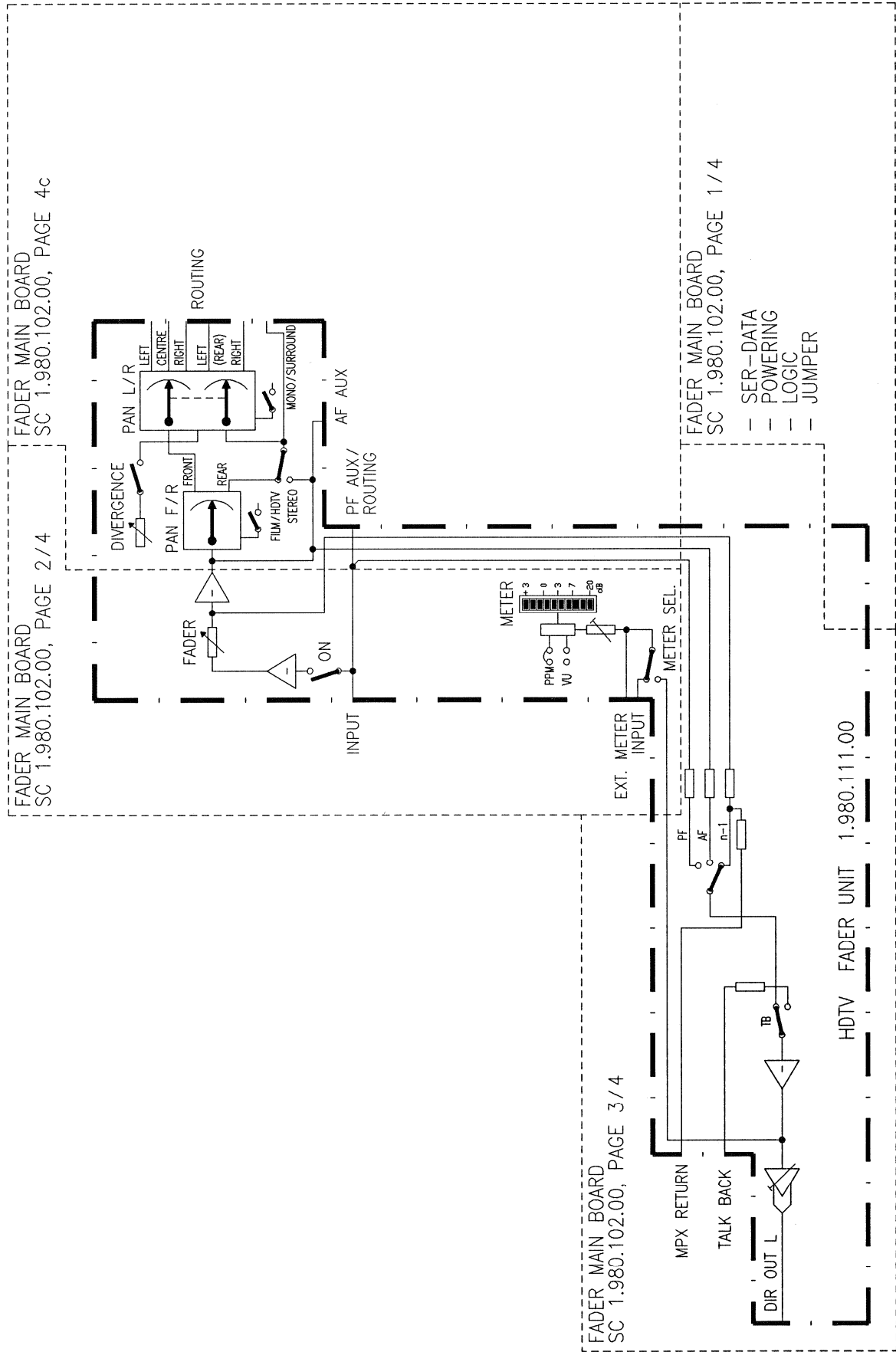
P2B, P2C1, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	Level potentiometer not used.
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>FILM:</b>	any particular options
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.



BLOCK DIAGRAM  
HDTV FADER UNIT 1.980.111.00



**Fader Unit (Stereo)****1.980.120.00****Assemblies structure**

<b>Fader Main Board (Stereo)</b>	1.980.192.00
<b>Fader Main PCB</b>	1.980.102.11
<b>Fader Switch Board (Univ.)</b>	1.980.199.00
<b>Fader Switch Board</b>	1.980.109.70
<b>Fader Switch PCB</b>	1.980.109.11
<b>Fader Dir Stereo Pot Board</b>	1.980.125.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Bal Pot Board</b>	1.980.126.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11

**Block diagrams**

<b>Stereo Fader Unit</b>	1.980.120.00
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**Circuit diagrams**

<b>Fader Main Board</b>	1.980.102.81, <i>pages 1; 2; 3; 4b</i>
<b>Fader Switch Board</b>	1.980.109.00
<b>Fader Dir Stereo Pot Board</b>	on 1.980.102.81, <i>page 3</i> (assembly 1.980.125.00)
<b>Fader Bal Pot Board</b>	on 1.980.102.81, <i>page 4b</i> (assembly 1.980.126.00)
<b>3 Pot 12.5 mm Board</b>	1.990.298.00

**Component layout drawings**

<b>Fader Main Board</b>	1.980.102.81
<b>Fader Switch Board</b>	1.980.109.00
<b>3 Pot 12.5 mm Board</b>	1.990.298.00

**Parts lists**

<b>Fader Switch Board</b>	1.980.109.70 (general parts only)
<b>Fader Main Board (Stereo)</b>	1.980.192.00
<b>Fader Switch Board (Univ.)</b>	1.980.199.00

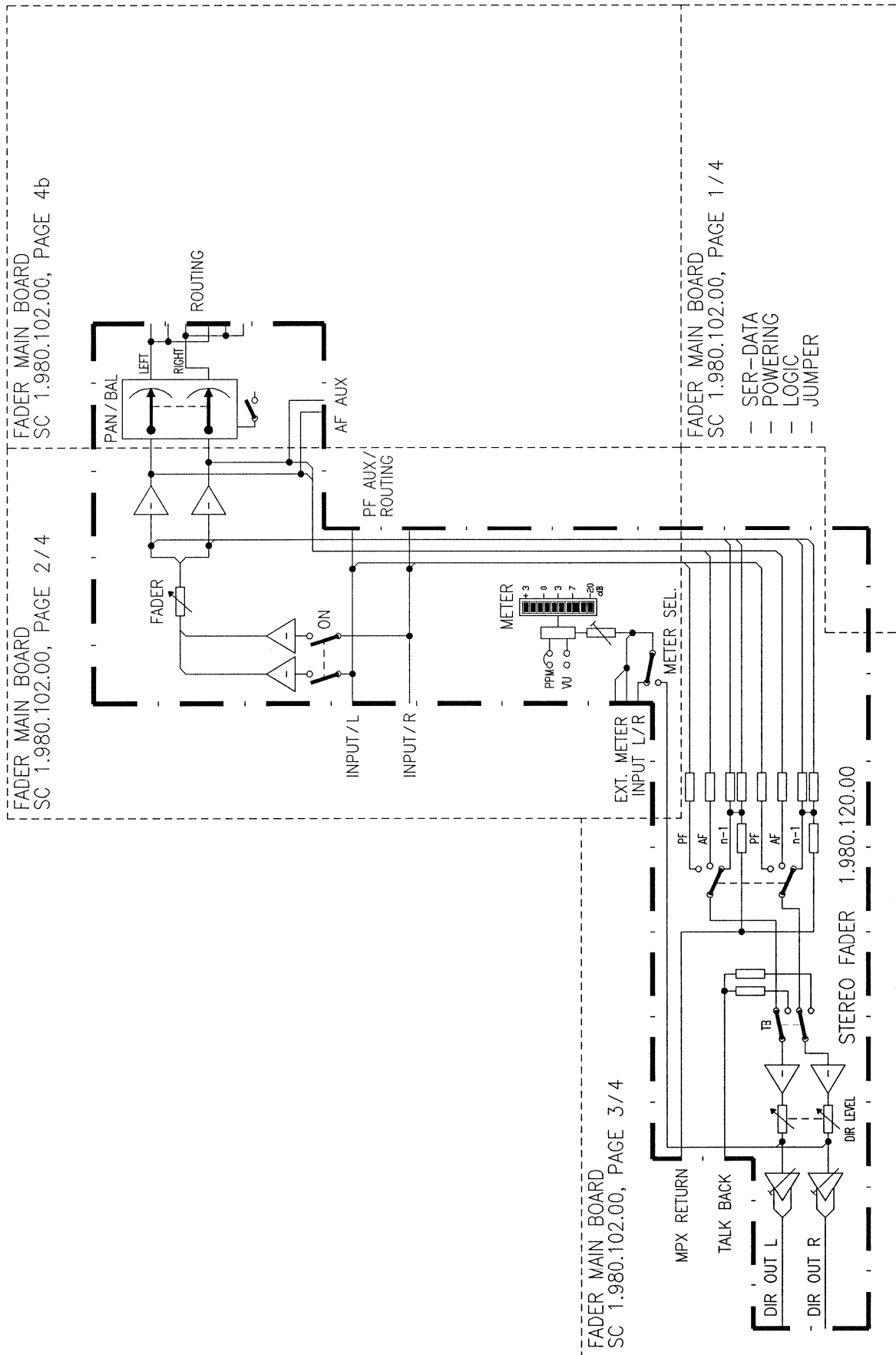
**Connector pin assignments**

P2B, P2C, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

**BLOCK DIAGRAM**  
**STEREO FADER 1.980.120.00**



**Fader Unit (Mono, VCA)****1.980.130.00****Assemblies structure**

<b>Fader Main Board (Mono, VCA)</b>	1.980.191.00
<b>Fader Main PCB</b>	1.980.102.11
<b>Fader Switch Board (VCA)</b>	1.980.198.00
<b>Fader Switch Board</b>	1.980.109.70
<b>Fader Switch PCB</b>	1.980.109.11
<b>Fader Dir Pot Board</b>	1.980.105.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Pan Pot Board</b>	1.980.106.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Side Board (Mono, VCA)</b>	1.980.133.00
<b>Fader Side PCB (VCA)</b>	1.980.103.11

**Block diagram**

<b>VCA Fader Unit</b>	1.980.130.00
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**Circuit diagrams**

<b>Fader Main Board</b>	1.980.102.81, <i>pages 1; 2; 3; 4a</i>
<b>Fader Switch Board</b>	1.980.109.00
<b>Fader Dir Pot Board</b>	on 1.980.102.81, <i>page 3</i> (assembly 1.980.105.00)
<b>Fader Pan Pot Board</b>	on 1.980.102.81, <i>page 4a</i> (assembly 1.980.106.00)
<b>3 Pot 12.5 mm Board</b>	1.990.298.00
<b>Fader Side Board (Stereo, VCA)</b>	1.980.133.00 <b>Note:</b> Same diagram as stereo version; IC2, 4 not used.

**Component layout drawings**

<b>Fader Main Board</b>	1.980.102.81
<b>Fader Switch Board</b>	1.980.109.00
<b>3 Pot 12.5 mm Board</b>	1.990.298.00
<b>Fader Side Board (Stereo, VCA)</b>	1.980.133.00 <b>Note:</b> Same diagram as stereo version; IC2, 4 not used.

**Parts lists**

<b>Fader Switch Board</b>	1.980.109.70 (general parts only)
<b>Fader Main Board (Mono, VCA)</b>	1.980.191.00
<b>Fader Switch Board (VCA)</b>	1.980.198.00
<b>Fader Side Board (Mono, VCA)</b>	1.980.133.00

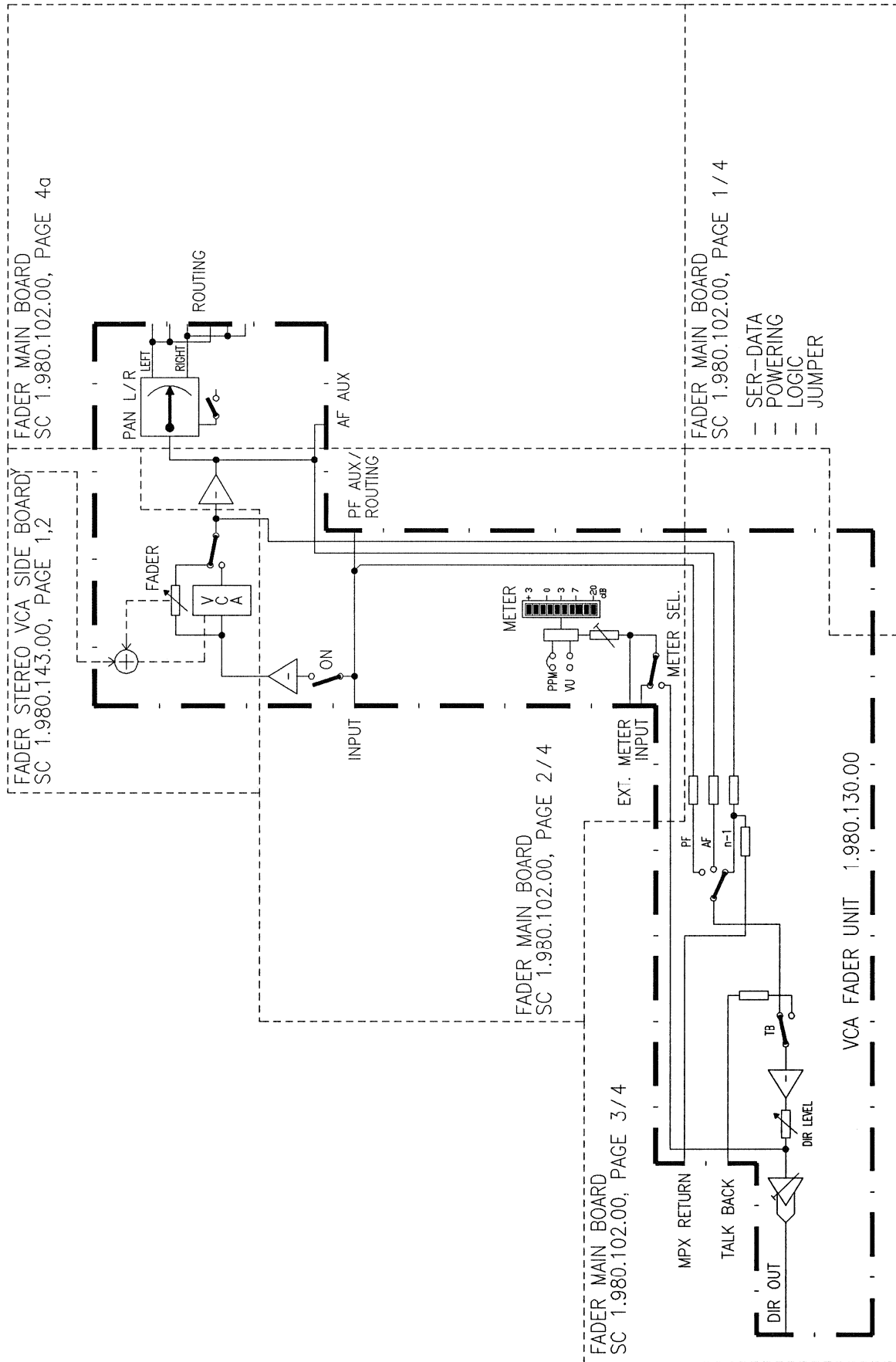
**Connector pin assignments**

<b>FADER UNIT</b>	P1B, P2B, P2C1, P2C2
<b>VCA UNIT</b>	P1A

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

**BLOCK DIAGRAM**  
**VCA FADER UNIT 1.980.130.00**



**Fader Unit (Mono, Film/HDTV, VCA)****1.980.131.00****Assemblies structure**

Fader Main Board (Mono, Film/HDTV, VCA)	1.980.195.00
Fader Main PCB	1.980.102.11
Fader Switch VCA Board	1.980.198.00
Fader Switch Board	1.980.109.70
Fader Switch PCB	1.980.109.11
Fader Film Div Pot Board	1.980.115.00
3 Pot 12.5 mm PCB	1.990.298.11
Fader Film Pan Pot Board	1.980.117.00
Fader Film Pan PCB	1.980.107.11
Fader Side Board (Mono, VCA)	1.980.133.00
Fader VCA Side PCB	1.980.103.11

**Block diagram**

HDTV VCA Fader Unit	1.980.131.00
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**Circuit diagrams**

Fader Main Board	1.980.102.81, <i>pages 1; 2; 3; 4c</i>
Fader Switch Board	1.980.109.00
Fader Film Div Pot Board	on 1.980.102.81, <i>page 4c</i> (assembly 1.980.115.00)
Fader Film Pan Pot Board	1.980.117.00 as well as on 1.980.102.81, <i>page 4c</i>
3 Pot 12.5 mm Board	1.990.298.00
Fader Side Board (Stereo, VCA)	1.980.143.00 <b>Note:</b> Same diagram as stereo version; IC2, 4 not used.

**Component layout drawings**

Fader Main Board	1.980.102.81
Fader Switch Board	1.980.109.00
Fader Film Pan Pot Board	1.980.117.00
3 Pot 12.5 mm Board	1.990.298.00
Fader Side Board (Stereo, VCA)	1.980.143.00 <b>Note:</b> Same diagram as stereo version; IC2, 4 not used.

**Parts lists**

Fader Switch Board	1.980.109.70 (general parts only)
Fader Film Pan Pot Board	1.980.117.00
Fader Main Board (Mono, Film/HDTV, VCA)	1.980.195.00
Fader Switch Board (VCA)	1.980.198.00
Fader Side Board (Mono, VCA)	1.980.133.00

**Connector pin assignments**

FADER UNIT	P1B, P2B, P2C1, P2C2
VCA UNIT	P1A

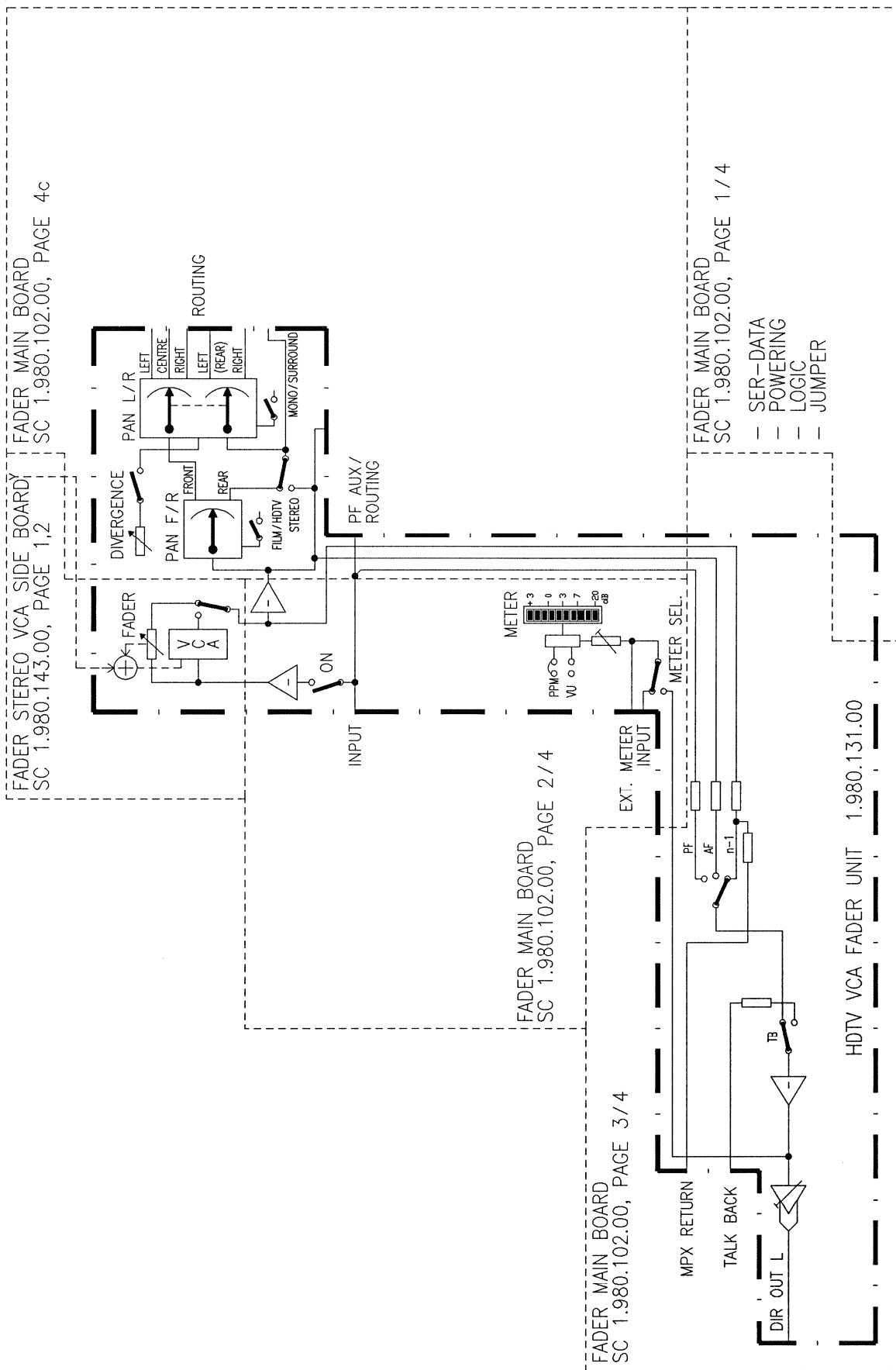
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**Comments**

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<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	Level potentiometer not used.
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>FILM:</b>	any particular options
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

BLOCK DIAGRAM  
HDTV VCA FADER UNIT 1.980.131.00





**Fader Unit (Stereo, VCA)****1.980.140.00****Assemblies structure**

<b>Fader Main Board (Stereo, VCA)</b>	1.980.193.00
<b>Fader Main PCB</b>	1.980.102.11
<b>Fader Switch Board (VCA)</b>	1.980.198.00
<b>Fader Switch Board</b>	1.980.109.70
<b>Fader Switch PCB</b>	1.980.109.11
<b>Fader Dir Pot Board (Stereo)</b>	1.980.125.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Bal Pot Board</b>	1.980.126.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Side Board (Stereo, VCA)</b>	1.980.143.00
<b>Fader Side PCB (VCA)</b>	1.980.103.11

**Block diagram**

<b>Stereo Fader with VCA</b>	1.980.140.00
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**Circuit diagrams**

<b>Fader Main Board</b>	1.980.102.81, <i>pages 1; 2; 3; 4b</i>
<b>Fader Switch Board</b>	1.980.109.00
<b>Fader Dir Stereo Pot Board</b>	on 1.980.102.81, <i>page 3</i> (assembly 1.980.125.00)
<b>Fader Bal Pot Board</b>	on 1.980.102.81, <i>page 4b</i> (assembly 1.980.126.00)
<b>3 Pot 12.5 mm Board</b>	1.990.298.00
<b>Fader VCA Side Board</b>	1.980.143.00

**Component layout drawings**

<b>Fader Main Board</b>	1.980.102.81
<b>Fader Switch Board</b>	1.980.109.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.00
<b>Fader Side Board (Stereo, VCA)</b>	1.980.143.00

**Parts lists**

<b>Fader Switch Board</b>	1.980.109.70 (general parts only)
<b>Fader Main Board (Stereo, VCA)</b>	1.980.193.00
<b>Fader Switch Board (VCA)</b>	1.980.198.00
<b>Fader Side Board (Stereo, VCA)</b>	1.980.143.00

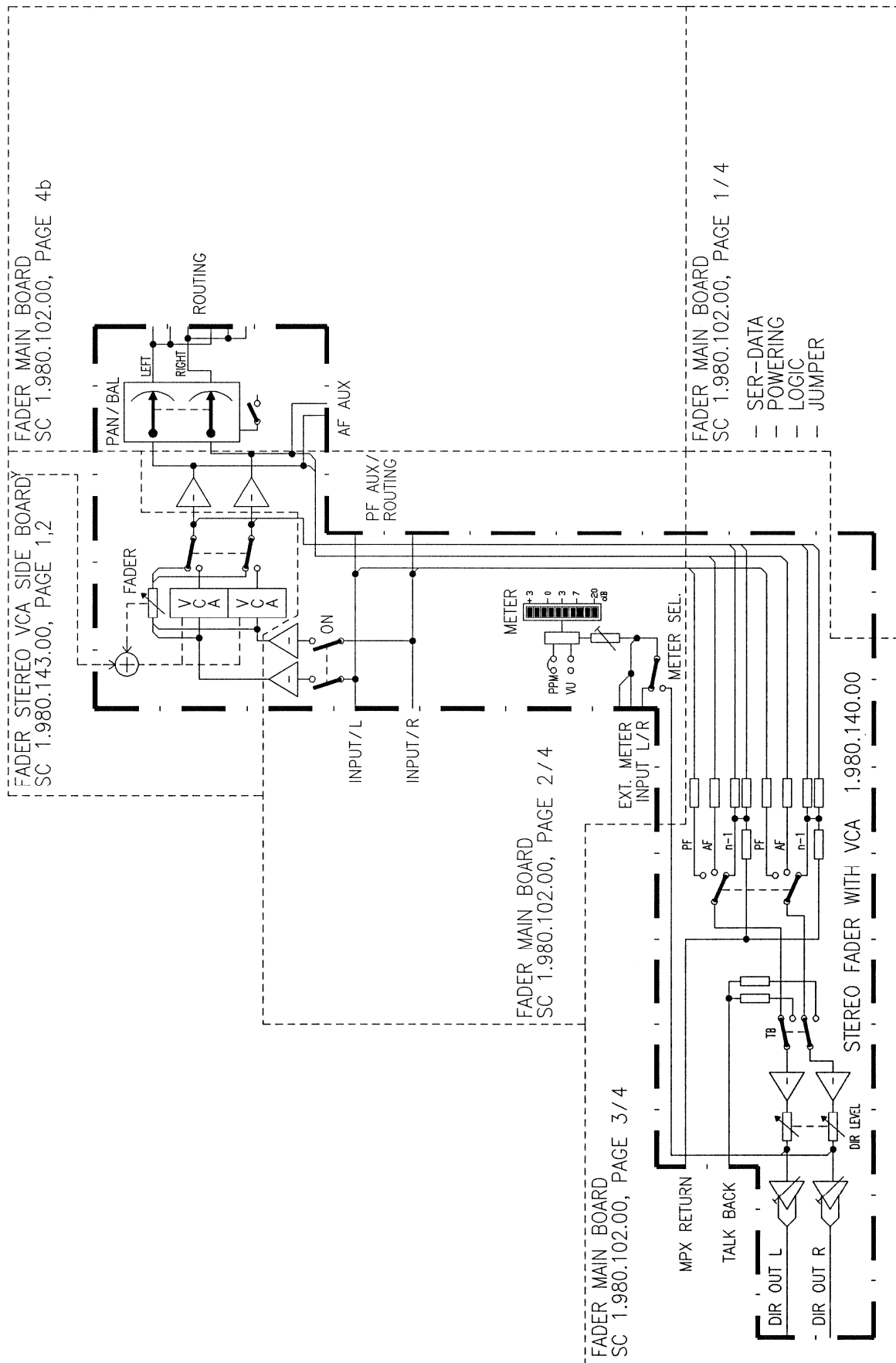
**Connector pin assignments**

<b>FADER UNIT</b>	P1B, P2B, P2C1, P2C2
<b>VCA UNIT</b>	P1A

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

**BLOCK DIAGRAM**  
**STEREO FADER WITH VCA 1.980.140.00**



**Fader Unit (Mono, w. motor fader)****1.980.150.00****Assemblies structure**

Fader Main Board (Mono)	1.980.190.00
Fader Main PCB	1.980.102.11
Fader Switch Board (Univ.)	1.980.199.00
Fader Switch Board	1.980.109.70
Fader Switch PCB	1.980.109.11
Fader Dir Pot Board	1.980.105.00
3 Pot 12.5 mm PCB	1.990.298.11
Fader Pan Pot Board	1.980.106.00
3 Pot 12.5 mm PCB	1.990.298.11

**Block diagram**

Motor fader Unit mono	1.980.150.00
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**Circuit diagrams**

Fader Main Board	1.980.102.81, <i>pages 1; 2; 3; 4a</i>
Fader Switch Board	1.980.109.00
Fader Dir Pot Board	on 1.980.102.81, <i>page 3</i> (assembly 1.980.105.00)
Fader Pan Pot Board	on 1.980.102.81, <i>page 4a</i> (assembly 1.980.106.00)
3 Pot 12.5 mm	1.990.298.00

**Component layout drawings**

Fader Main Board	1.980.102.81
Fader Switch Board	1.980.109.00
3 Pot 12.5 mm	1.990.298.00

**Parts lists**

Fader Switch Board	1.980.109.70 (general parts only)
Fader Main Board (Mono)	1.980.190.00
Fader Switch Board (Univ.)	1.980.199.00

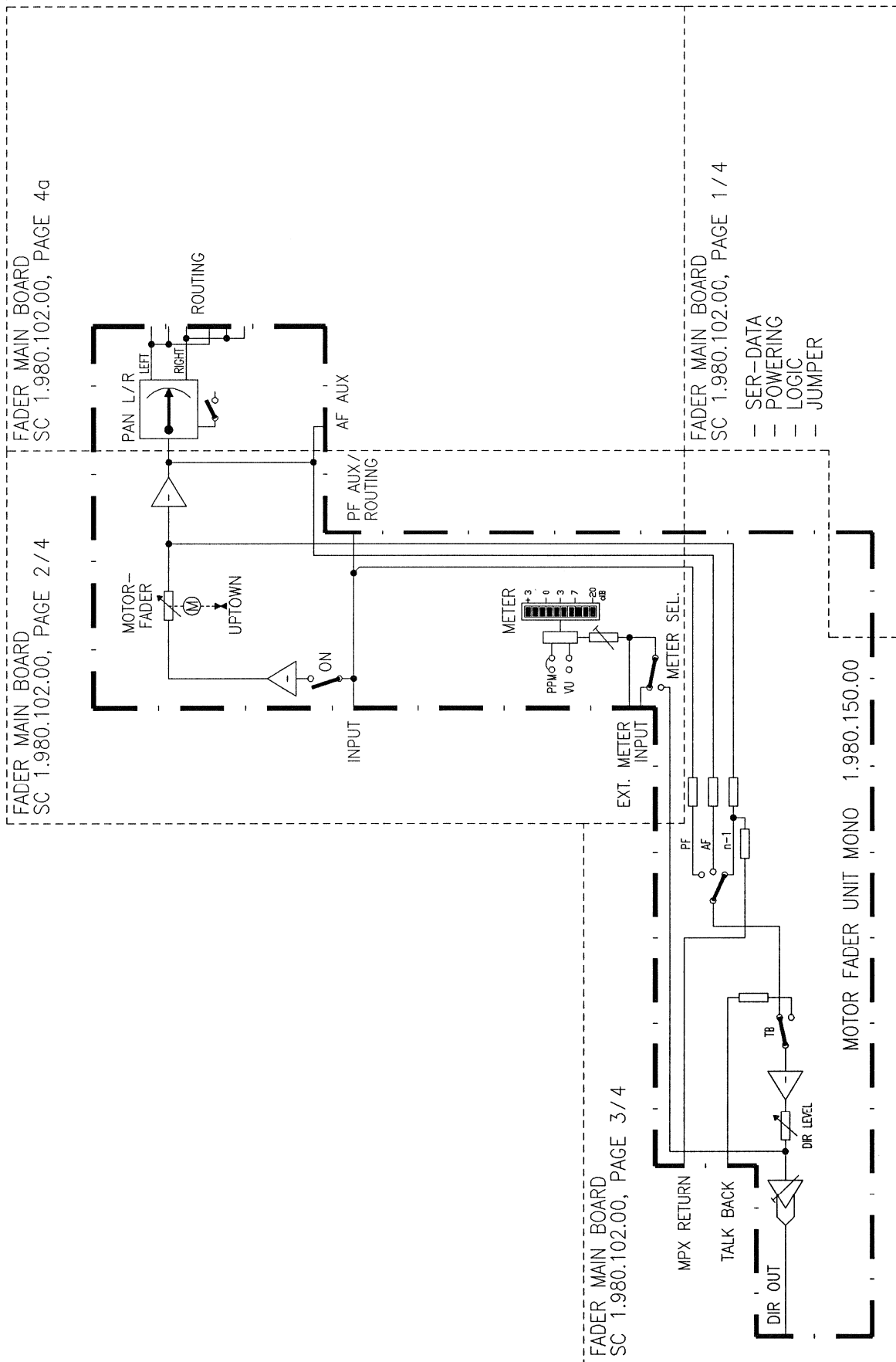
**Connector pin assignments**

P2B, P2C1, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

**BLOCK DIAGRAM**  
**MOTOR FADER UNIT MONO 1.980.150.00**



**Fader Unit (Mono, Film/HDTV, w. motor fader)****1.980.151.00****Assemblies structure**

Fader Main Board (Mono, Film/HDTV)	1.980.194.00
Fader Main PCB	1.980.102.11
Fader Switch Board (Univ.)	1.980.199.00
Fader Switch Board	1.980.109.70
Fader Switch PCB	1.980.109.11
Fader Film Div Pot Board	1.980.115.00
3 Pot 12.5 mm PCB	1.990.298.11
Fader Film Pan Pot Board	1.980.117.00
Fader Film Pan PCB	1.980.107.11
Fader Side Board (Mono, VCA)	1.980.133.00
Fader VCA Side PCB	1.980.103.11

**Block diagram**

HDTV Motor Fader Unit	1.980.151.00
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**Circuit diagrams**

Fader Main Board	1.980.102.81, <i>pages 1; 2; 3; 4c</i>
Fader Switch Board	1.980.109.00
Fader Film Div Pot Board	on 1.980.102.81, <i>page 4c</i> (assembly 1.980.115.00)
Fader Film Pan Pot Board	1.980.117.00 as well as on 1.980.102.81, <i>page 4c</i>
3 Pot 12.5 mm	1.990.298.00

**Component layout drawings**

Fader Main Board	1.980.102.81
Fader Switch Board	1.980.109.00
Fader Film Pan Pot Board	1.980.117.00

**Parts lists**

Fader Switch Board	1.980.109.70 (general parts only)
Fader Main Board (Mono, Film/HDTV)	1.980.194.00
Fader Switch Board (Univ.)	1.980.199.00
Fader Film Pan Pot Board	1.980.117.00

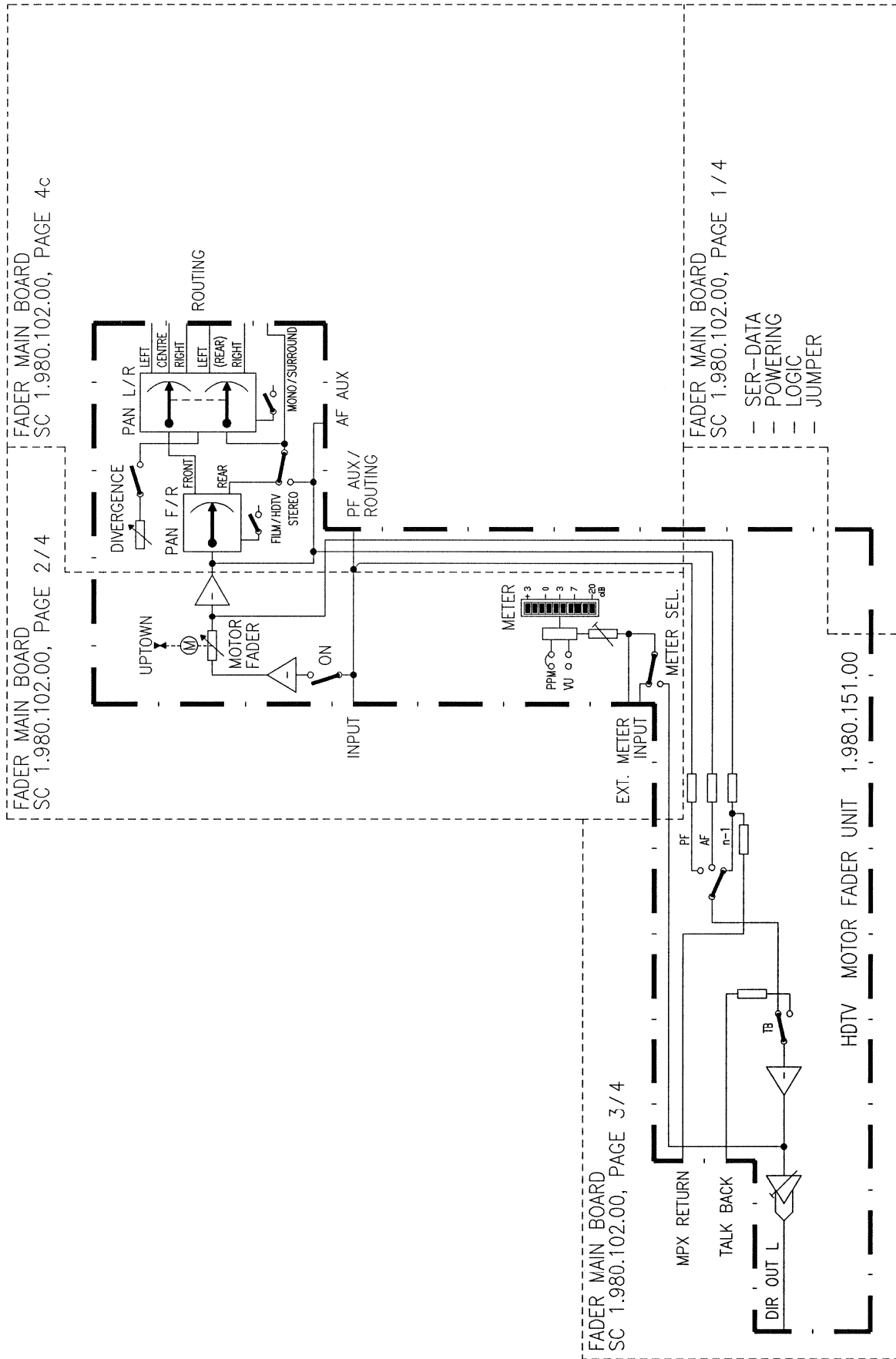
**Connector pin assignments**

P2B, P2C1, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Meter:</b>	OPTION MCH. Input Right re-wired to IN2
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	Level potentiometer not used.
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>DIR OUT:</b>	OPTION MCH instead of MPX
<b>FILM:</b>	any particular options
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

**BLOCK DIAGRAM**  
**HDTV MOTOR FADER UNIT 1.980.151.00**



**Fader Unit (Stereo, w. motor fader)****1.980.160.00****Assemblies structure**

<b>Fader Main Board (Stereo)</b>	1.980.192.00
<b>Fader Main PCB</b>	1.980.102.11
<b>Fader Switch Board (Univ.)</b>	1.980.199.00
<b>Fader Switch Board</b>	1.980.109.70
<b>Fader Switch PCB</b>	1.980.109.11
<b>Fader Dir Pot Board (Stereo)</b>	1.980.125.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11
<b>Fader Bal Pot Board</b>	1.980.126.00
<b>3 Pot 12.5 mm PCB</b>	1.990.298.11

**Block diagram**

<b>Motor Fader Unit Stereo</b>	1.980.160.00
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**Circuit diagrams**

<b>Fader Main Board</b>	1.980.102.81, <i>pages 1; 2; 3; 4b</i>
<b>Fader Switch Board</b>	1.980.109.00
<b>3 Pot 12.5 mm Board</b>	1.990.298.00

**Component layout drawings**

<b>Fader Main Board</b>	1.980.102.81
<b>Fader Switch Board</b>	1.980.109.00
<b>Fader Dir Stereo Pot Board</b>	on 1.980.102.81, <i>page 3</i> (assembly 1.980.125.00)
<b>Fader Bal Pot Board</b>	on 1.980.102.81, <i>page 4b</i> (assembly 1.980.126.00)
<b>3 Pot 12.5 mm Board</b>	1.990.298.00

**Parts lists**

<b>Fader Switch Board</b>	1.980.109.70 (general parts only)
<b>Fader Main Board (Stereo)</b>	1.980.192.00
<b>Fader Switch Board (Univ.)</b>	1.980.199.00

**Connector pin assignments**

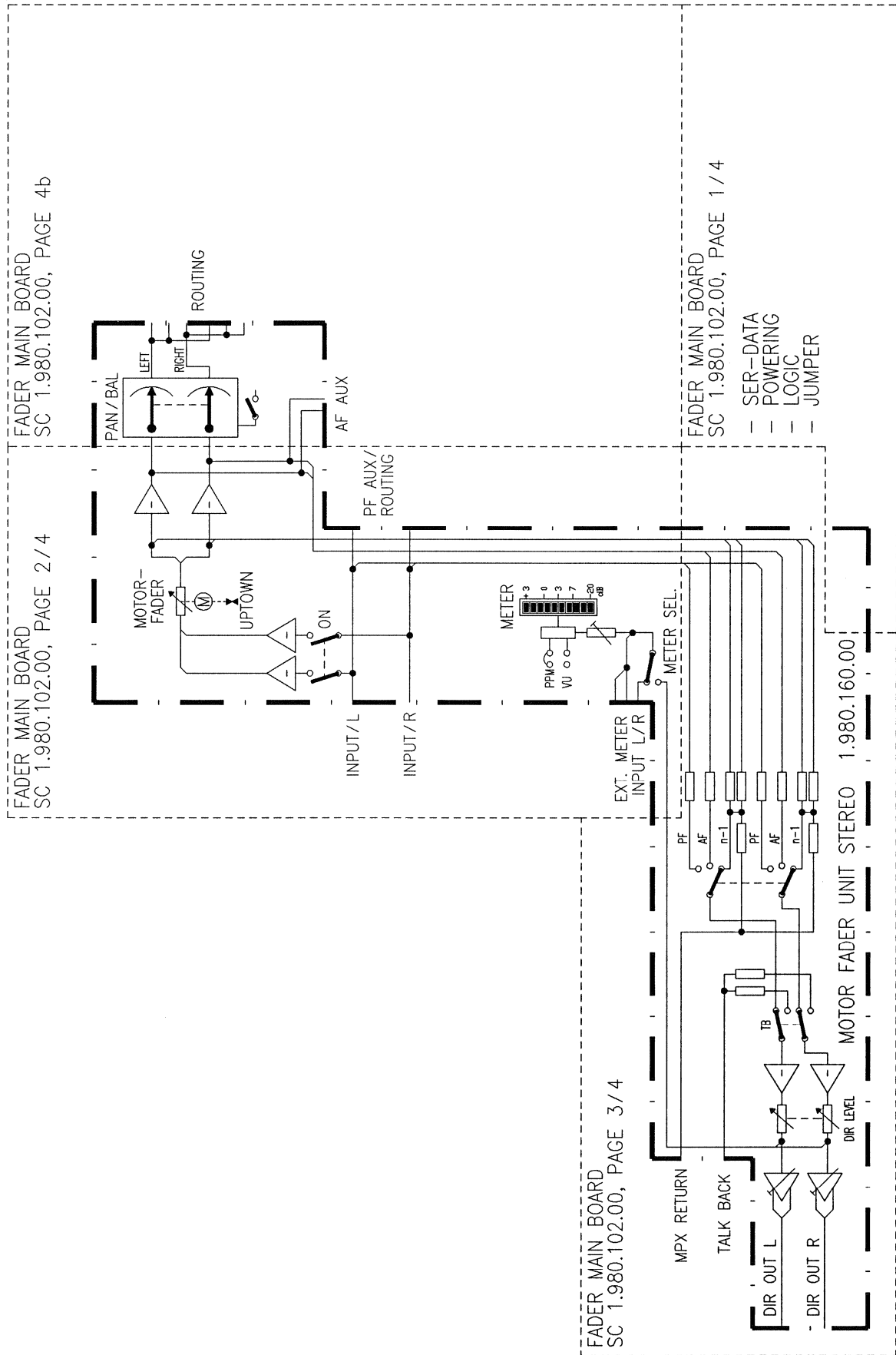
P2B, P2C, P2C2

**Comments**

<b>Meter:</b>	VU or PPM characteristics selectable with jumper, or centrally via VAR bus.
<b>Talkback:</b>	OPTION USER = TB
<b>DIR OUT:</b>	OPTION USER = DIR OUT ON/OFF
<b>USER:</b>	Normally used for CH SEL/CCU. This function is omitted if the USER key is used for another purpose.

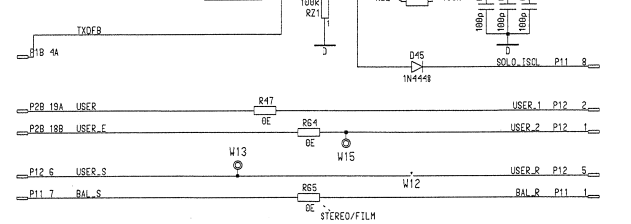
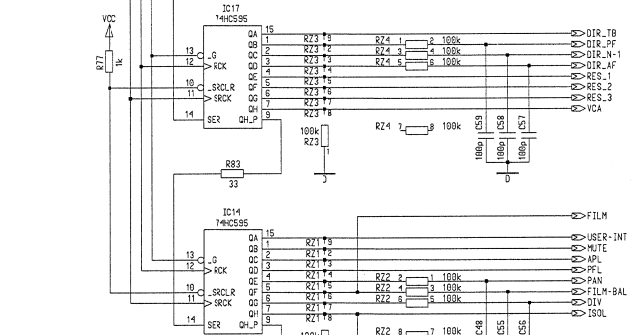
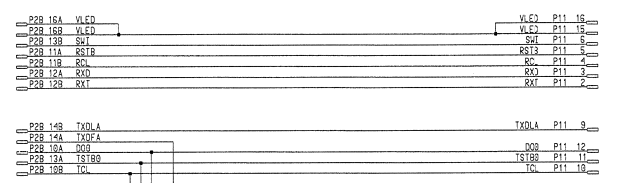
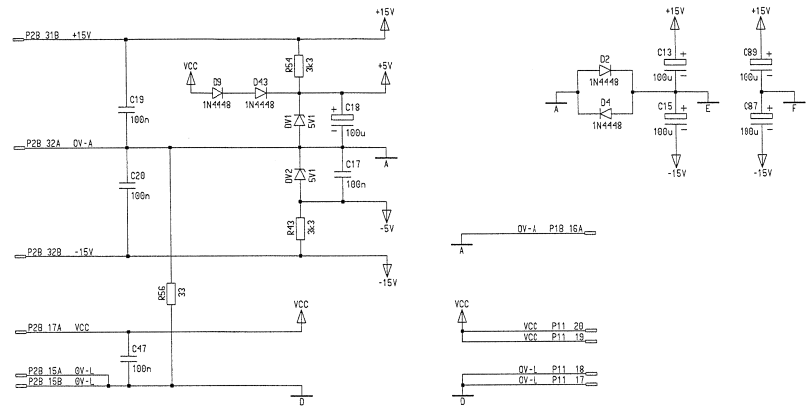
BLOCK DIAGRAM

MOTOR FADER UNIT STEREO 1.980.160.00

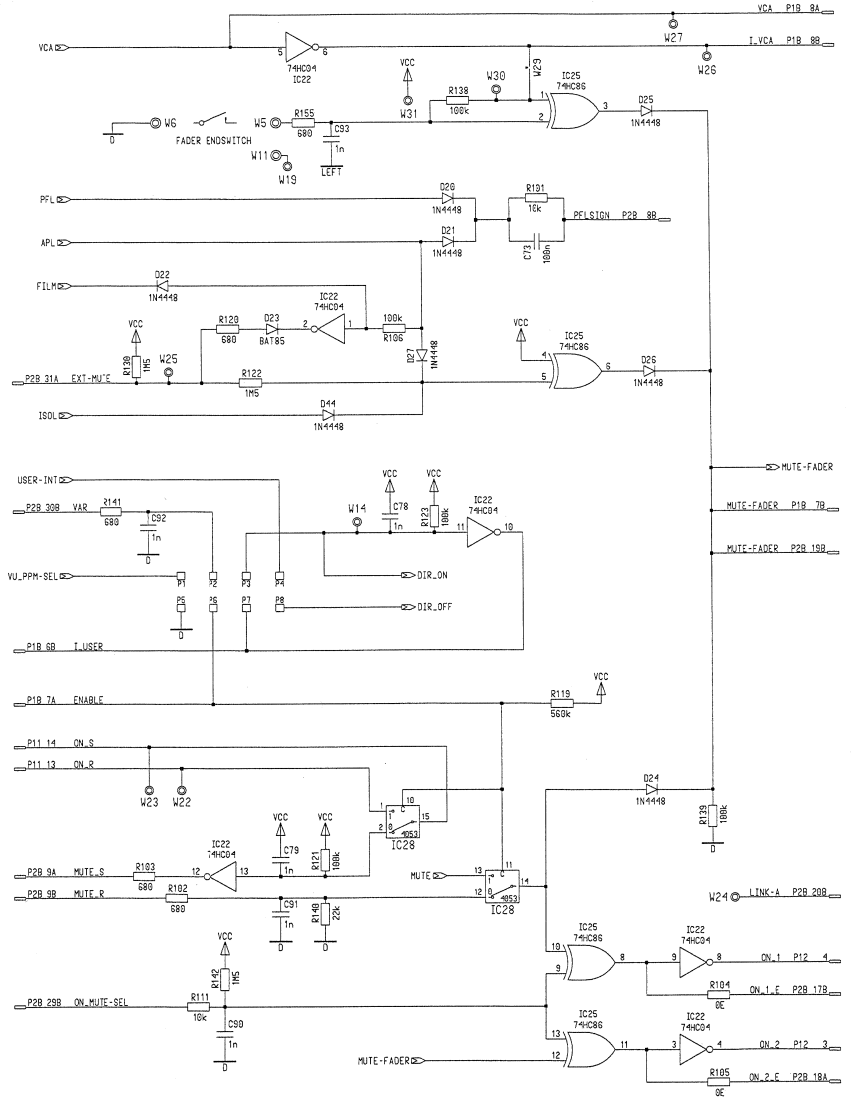




FADER MAIN BOARD 1.980.102.81

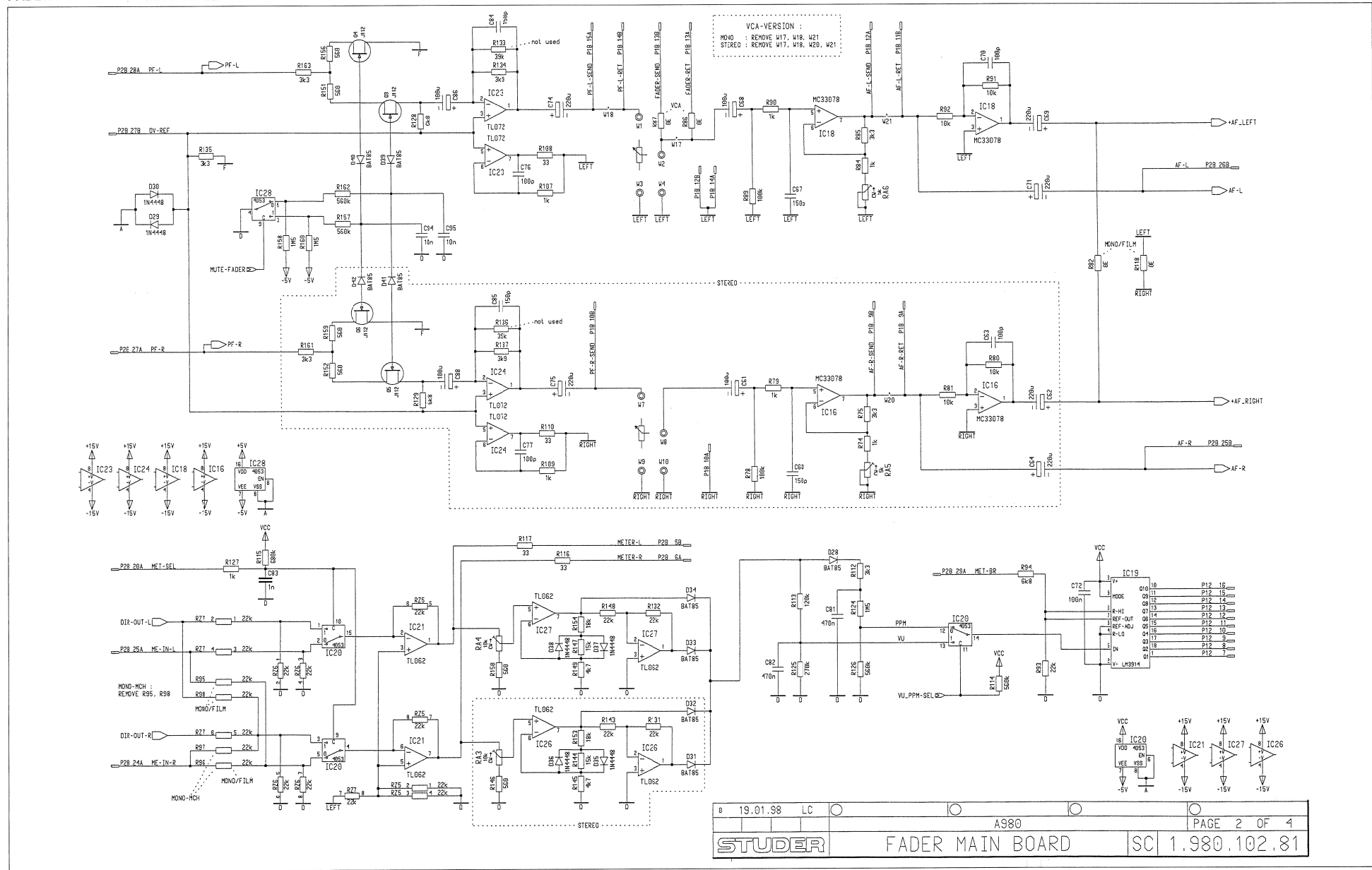


MONO/STEREO  
  PPM  
  FILM  
  PPM  
  USER = DIR\_OUT ON/OFF



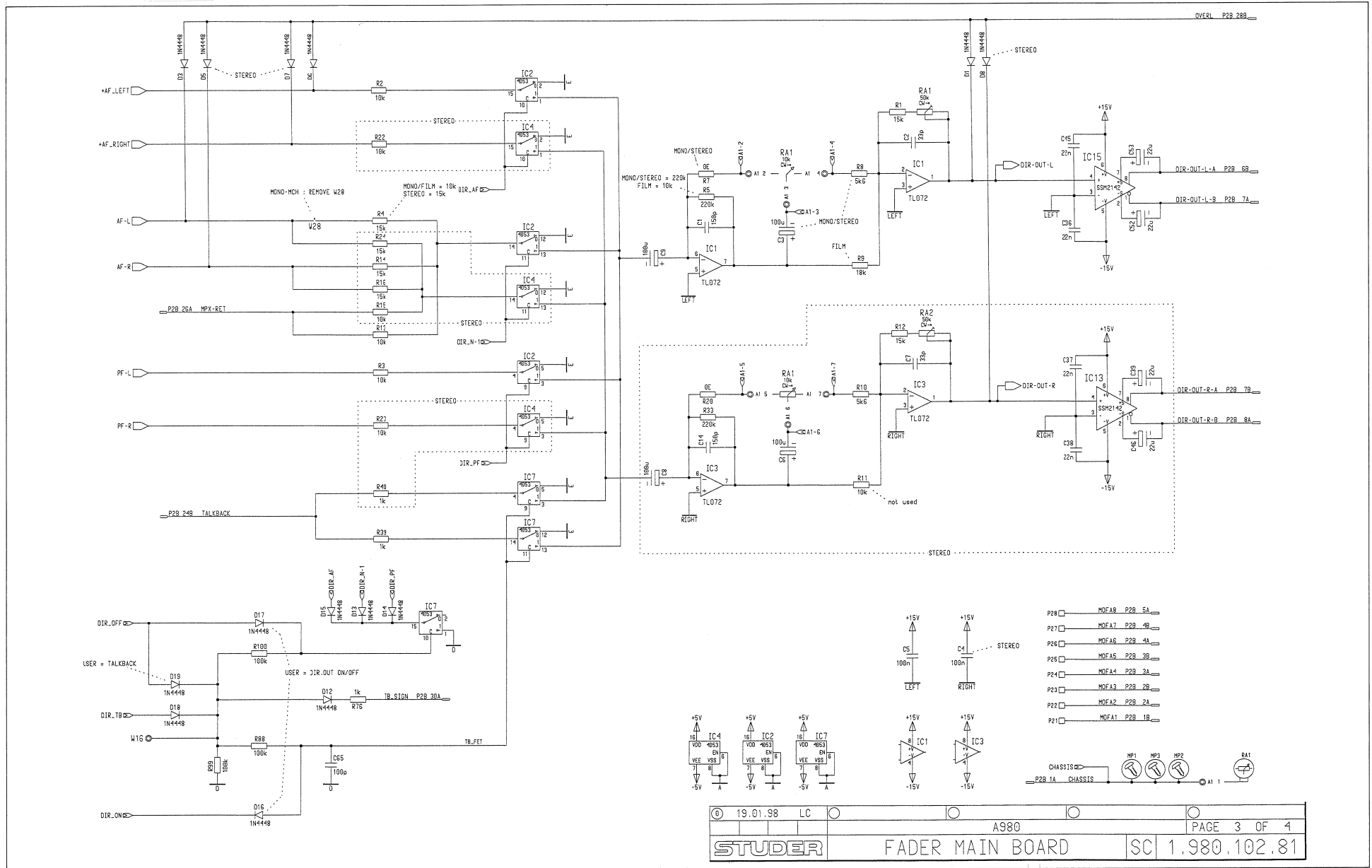


FADER MAIN BOARD 1.980.102.81



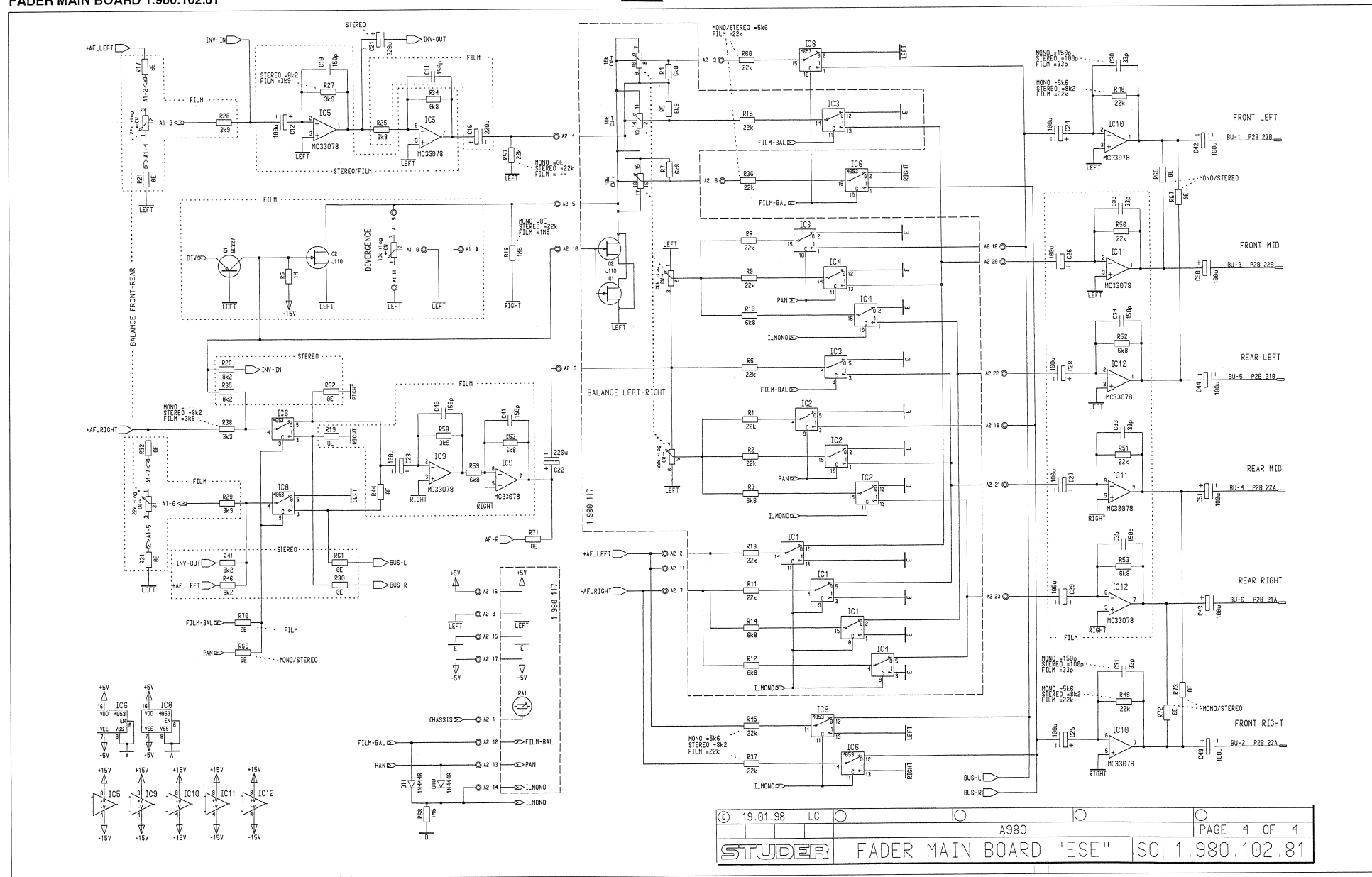


FADER MAIN BOARD 1.980.102.81

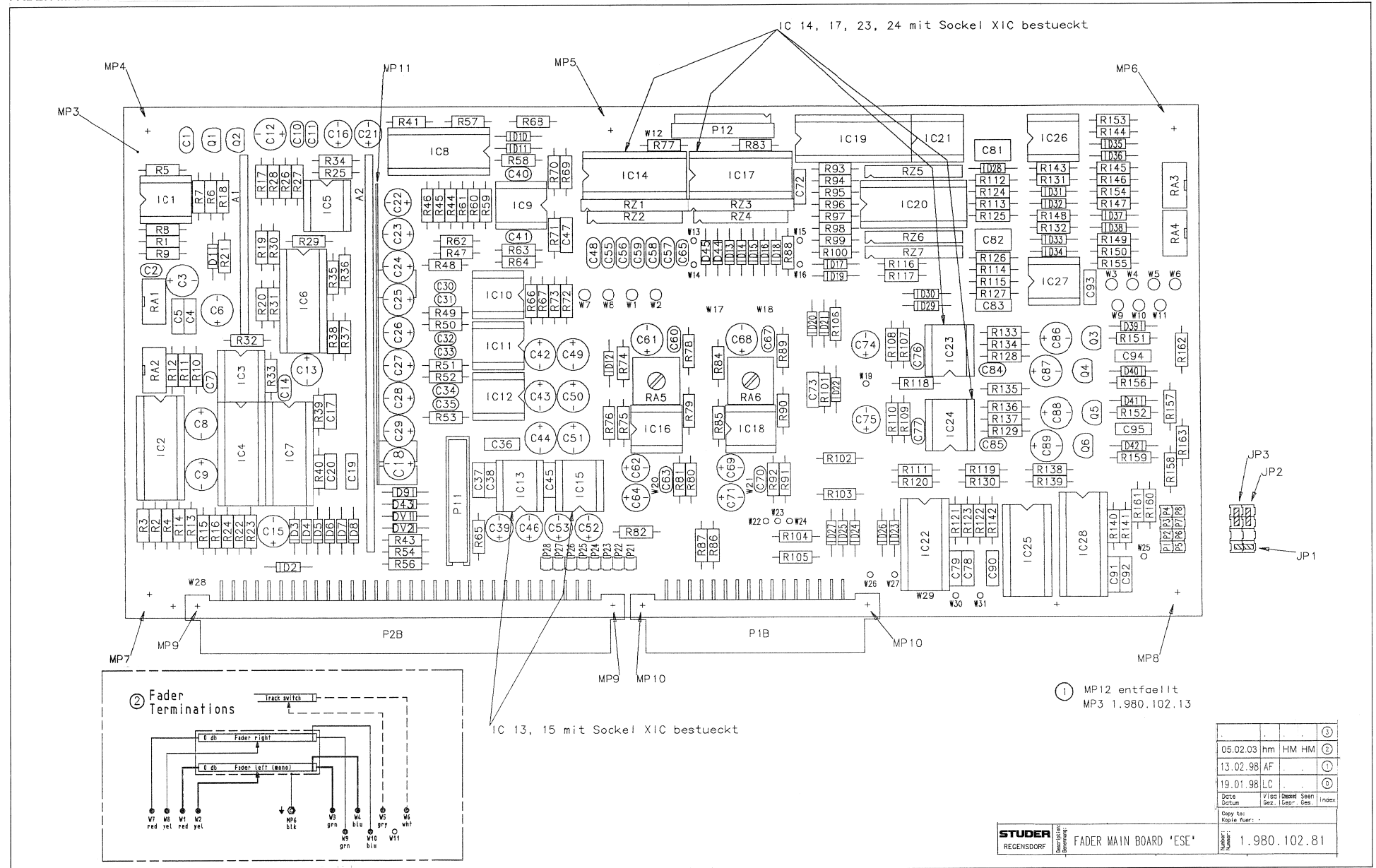




FADER MAIN BOARD 1.980.102.81



FADER MAIN BOARD 1.980.102.81



① MP12 entfaellt  
MP3 1.980.102.13

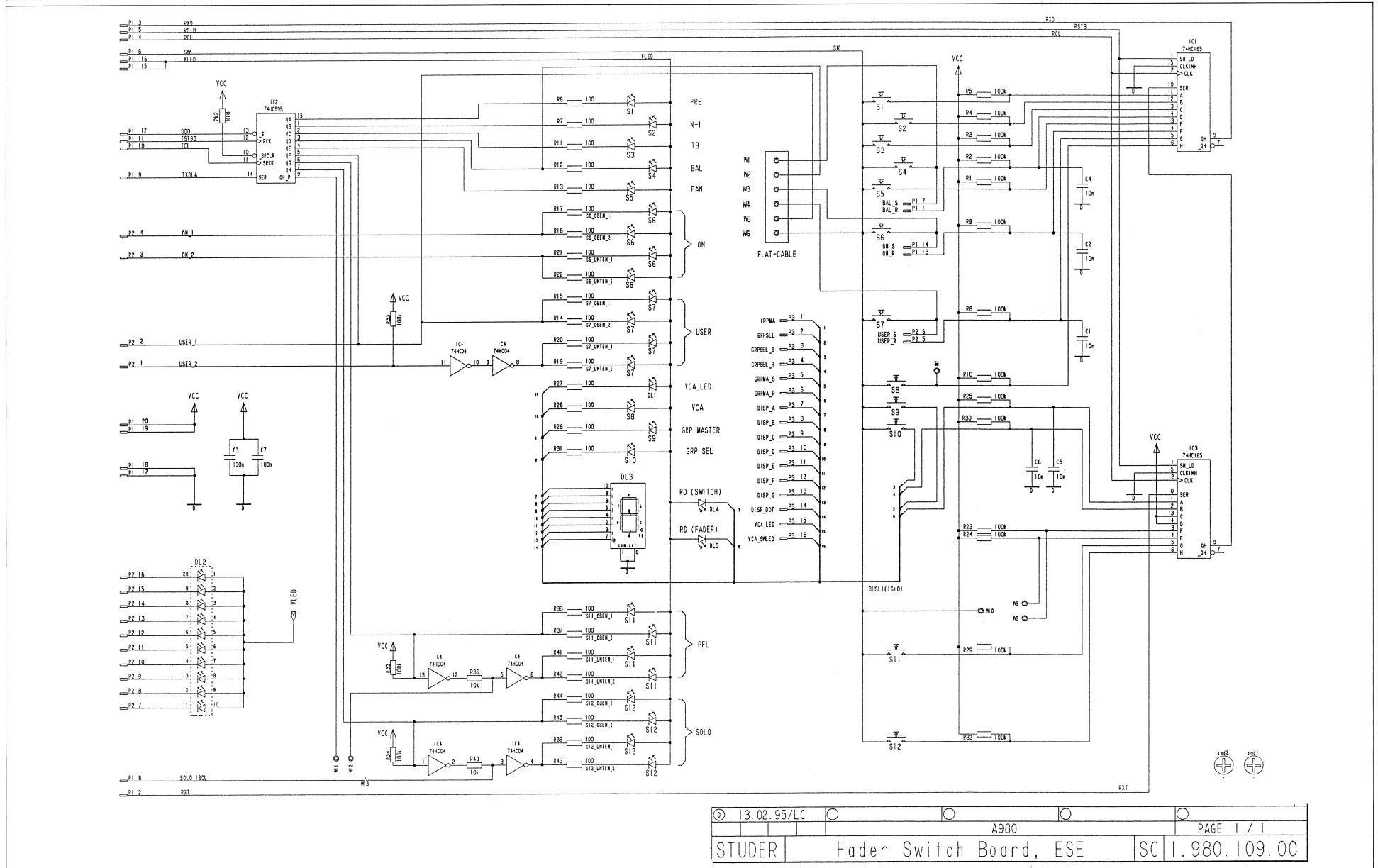
IC 13, 15 mit Sockel XIC bestueckt

IC 14, 17, 23, 24 mit Sockel XIC bestueckt

				①
05.02.03	hm	HM	HM	②
13.02.98	AF			③
19.01.98	LC			④
Date Datum	Via Gez.	Desig I. Ges.	Seen Ges.	Index



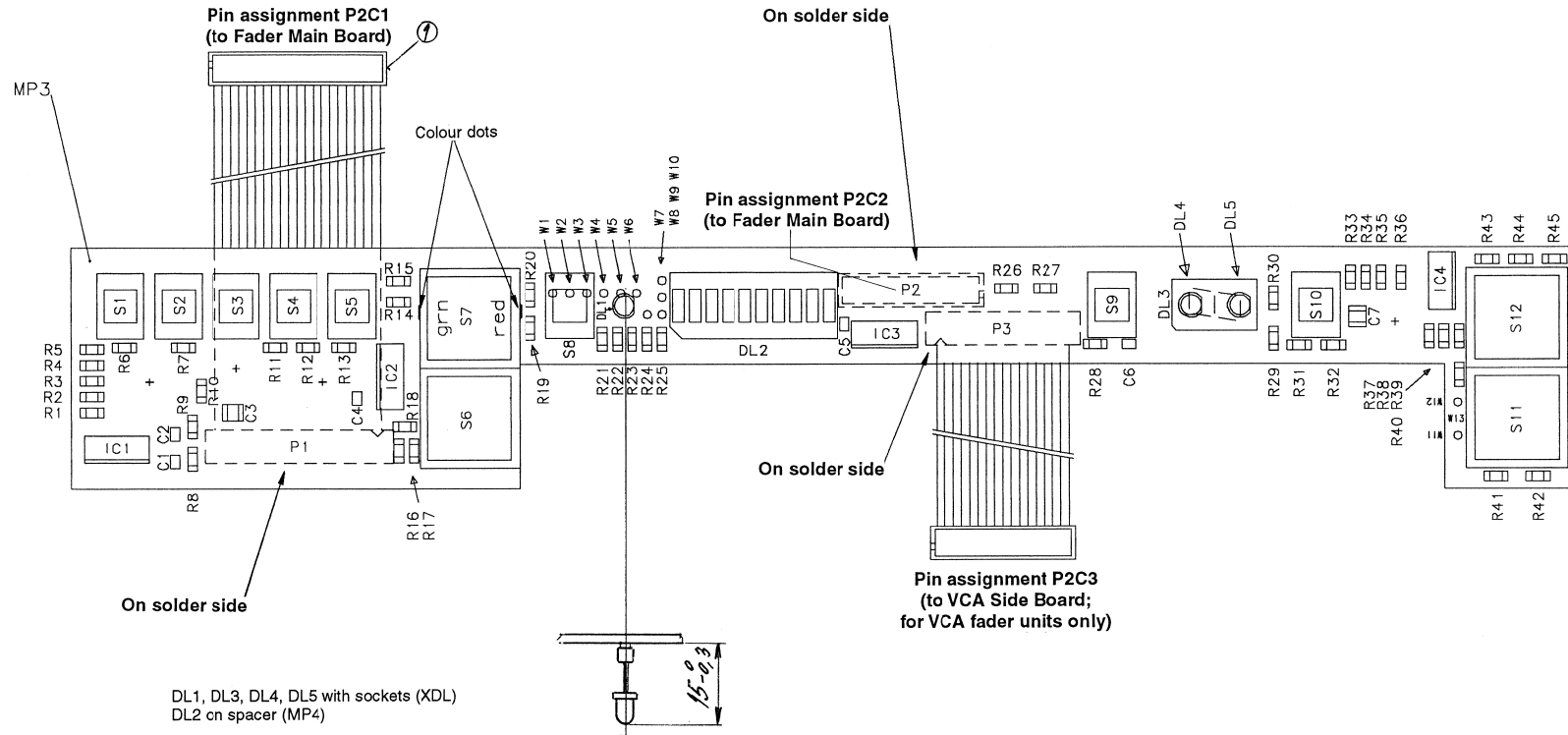
FADER SWITCH BOARD 1.980.109.00



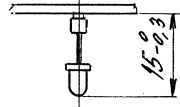
13.02.95/LC	A980	PAGE 1 / 1
STUDER	Fader Switch Board, ESE	SC 1.980.109.00



FADER SWITCH BOARD 1.980.109.00



DL1, DL3, DL4, DL5 with sockets (XDL)  
DL2 on spacer (MP4)

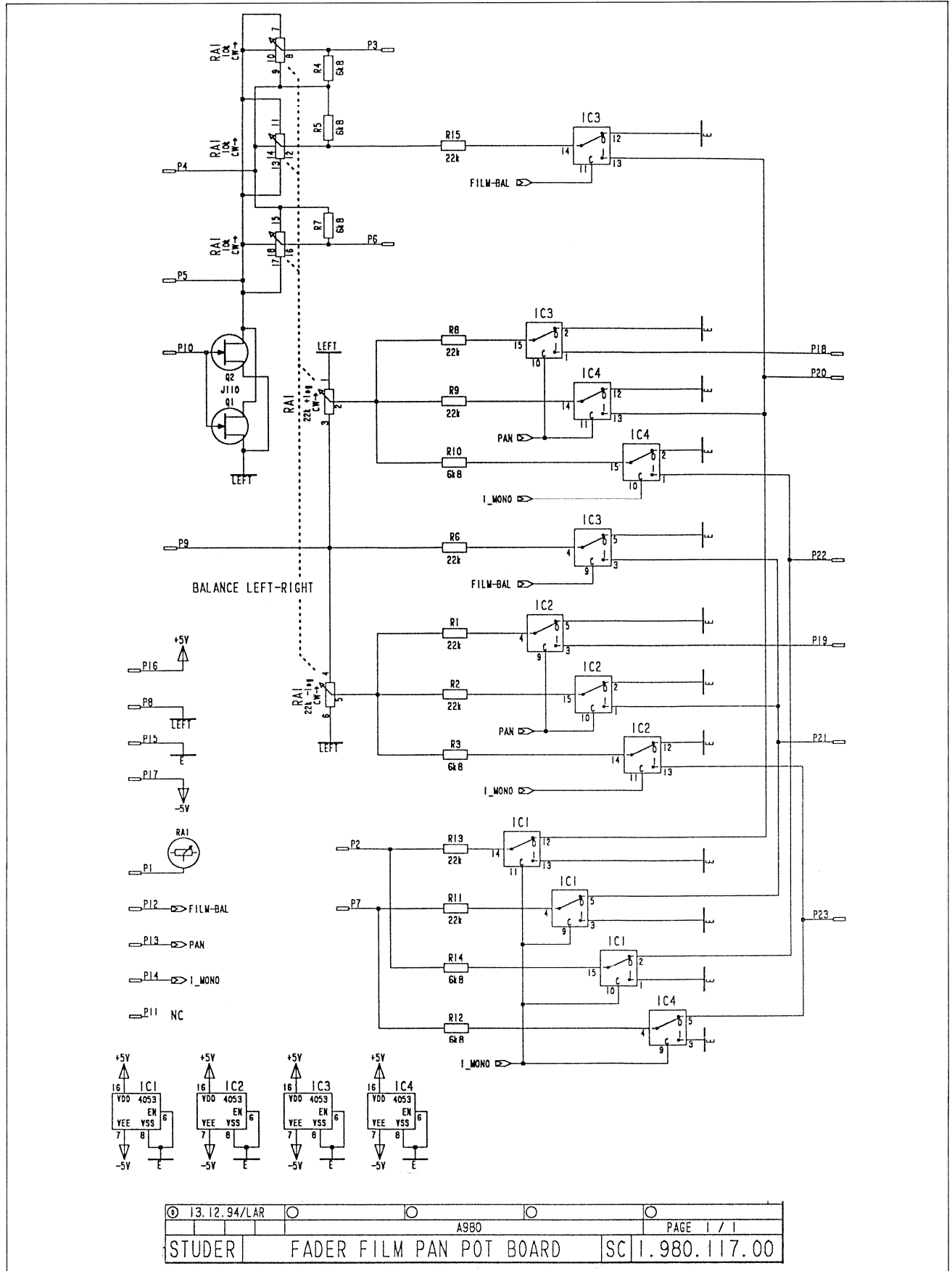


Estation	Modifikation					
Angabe	Anmerkung					
Date	21.12.95	LC	/	/	/	/
Vis	16.02.95	LC	/	/	/	/
Seit						
Leg						
Seit						
Leg						
Index						

STUDER REGENSDORF Fader Switch Board, ESE  
 Number: 1.980.109.00



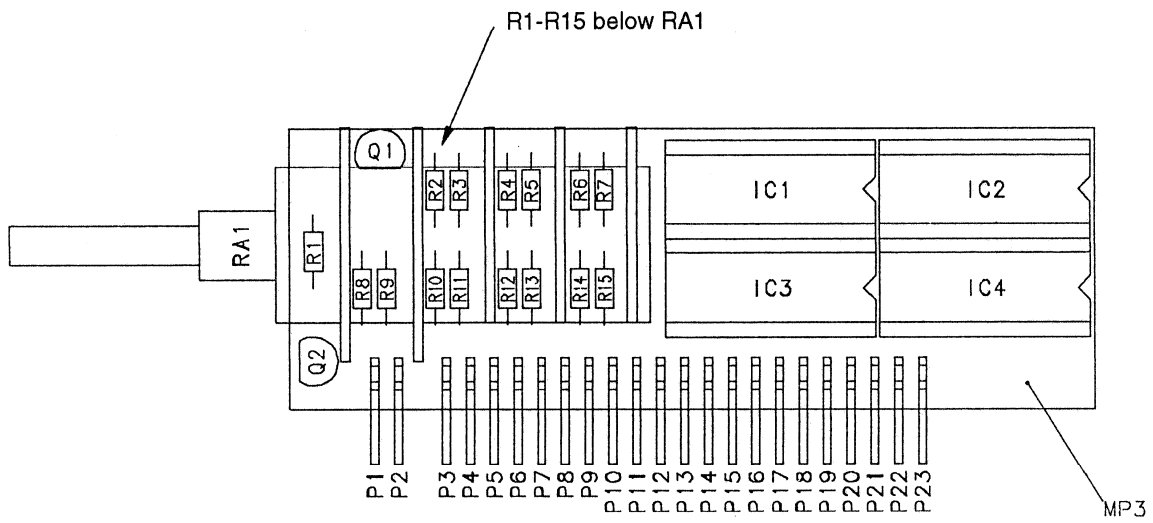
FADER FILM PAN POT BOARD 1.980.117.00





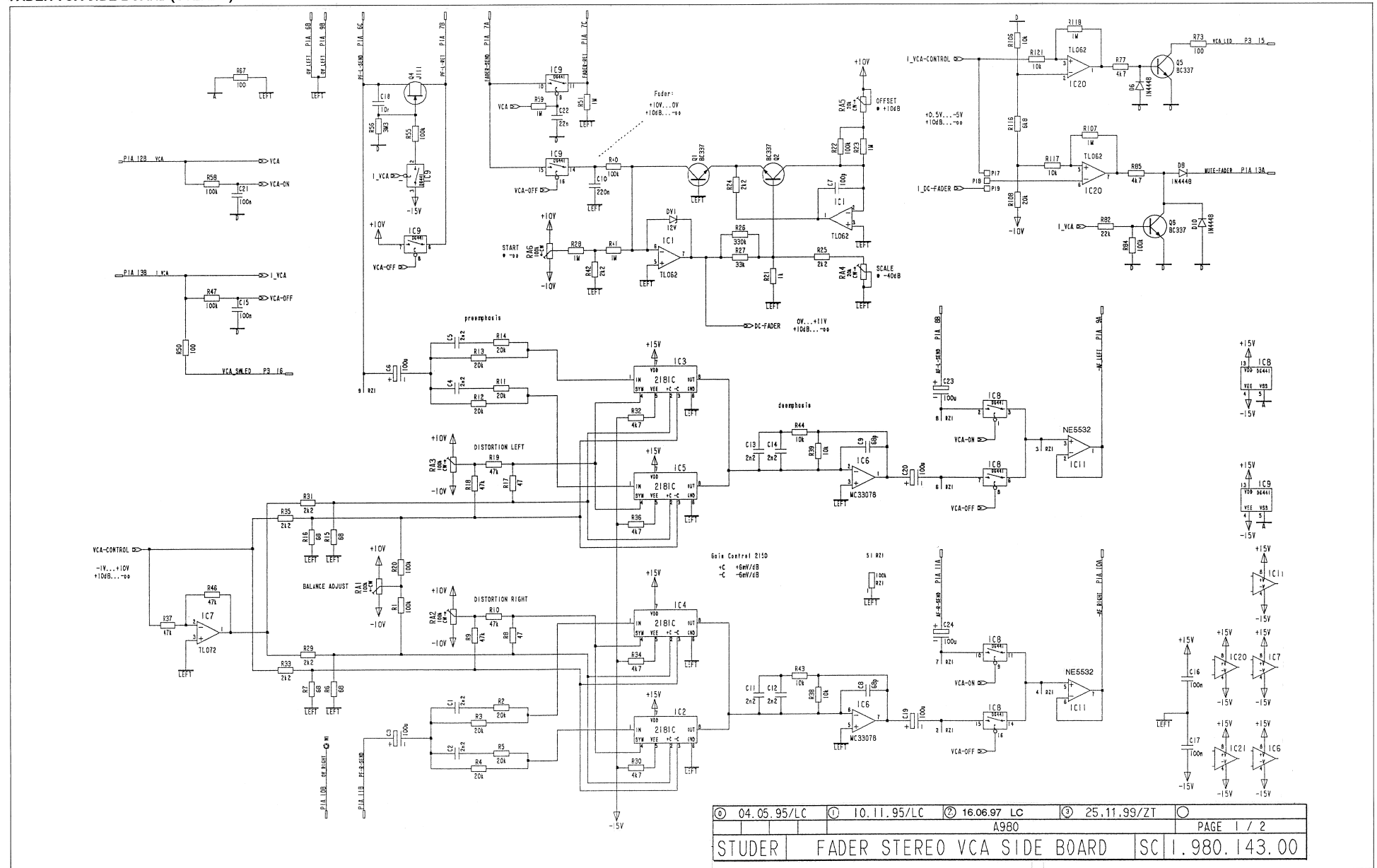


FADER FILM PAN POT BOARD 1.980.117.00

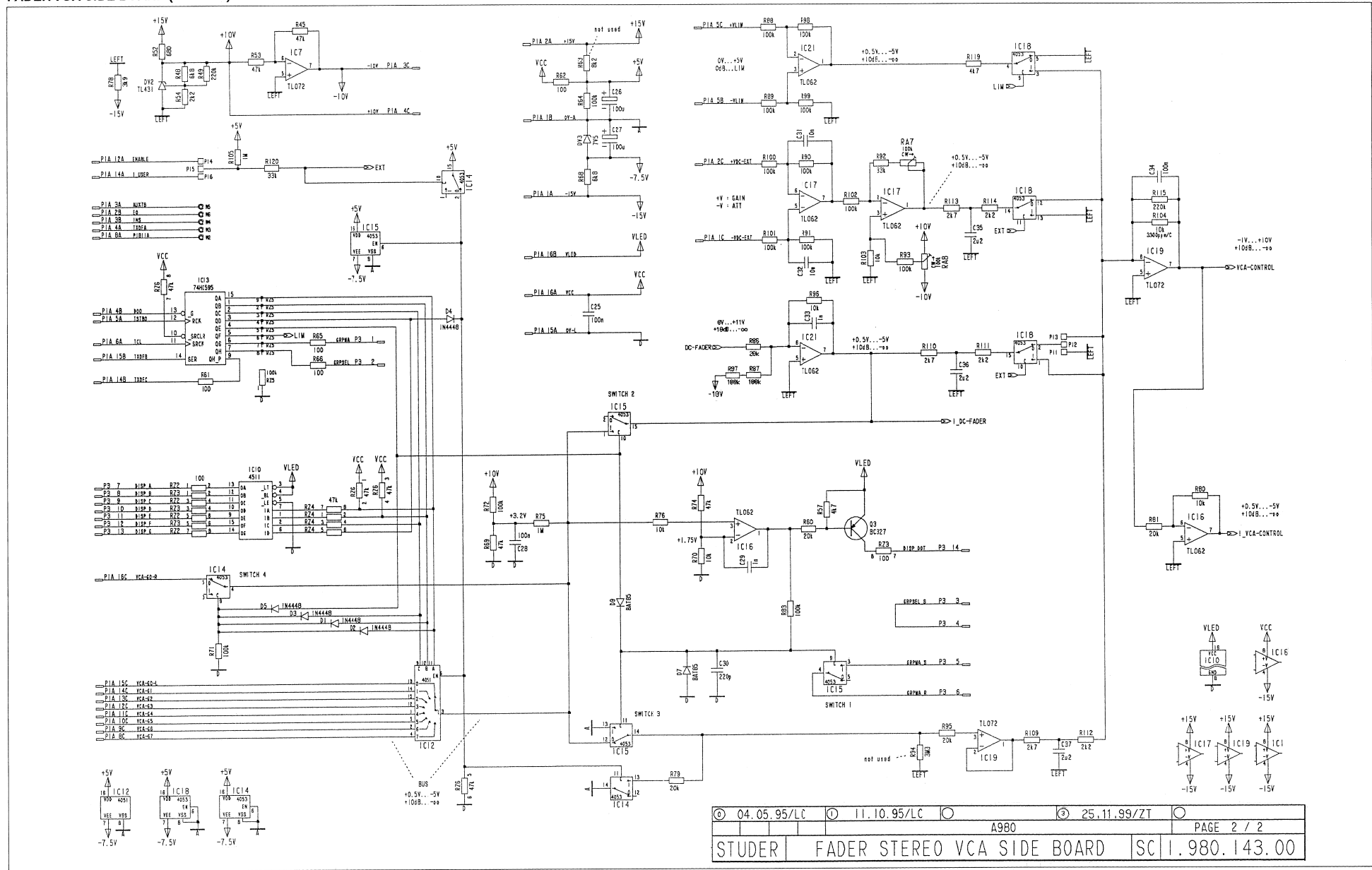


<b>STUDER</b> REGENSDORF	Description: FADER FILM PAN POT BOARD, ESE	Edition					Modification		
		Number:	Date:	Visa	Checked	Seen	Number:	Date:	Index
Number: 1.980.117-00		20.02.95	LC	.	.	.	.	3	
Copy to:								2	
Kopie fuer:								1	
								0	

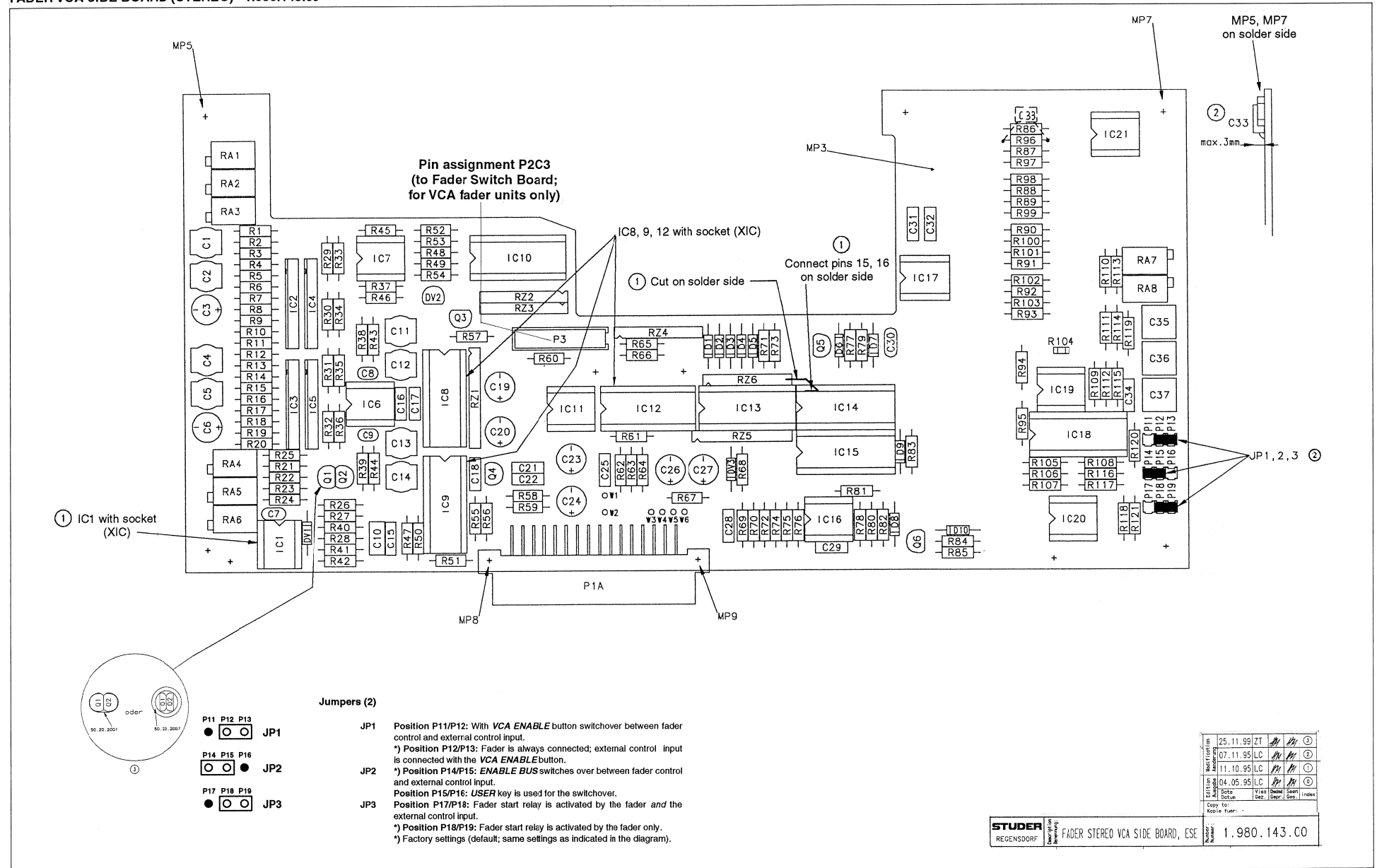
FADER VCA SIDE BOARD (MONO) 1.980.133.00 (IC2 and IC4 not used)  
FADER VCA SIDE BOARD (STEREO) 1.980.143.00



FADER VCA SIDE BOARD (MONO) 1.980.133.00 (IC2 and IC4 not used)  
FADER VCA SIDE BOARD (STEREO) 1.980.143.00

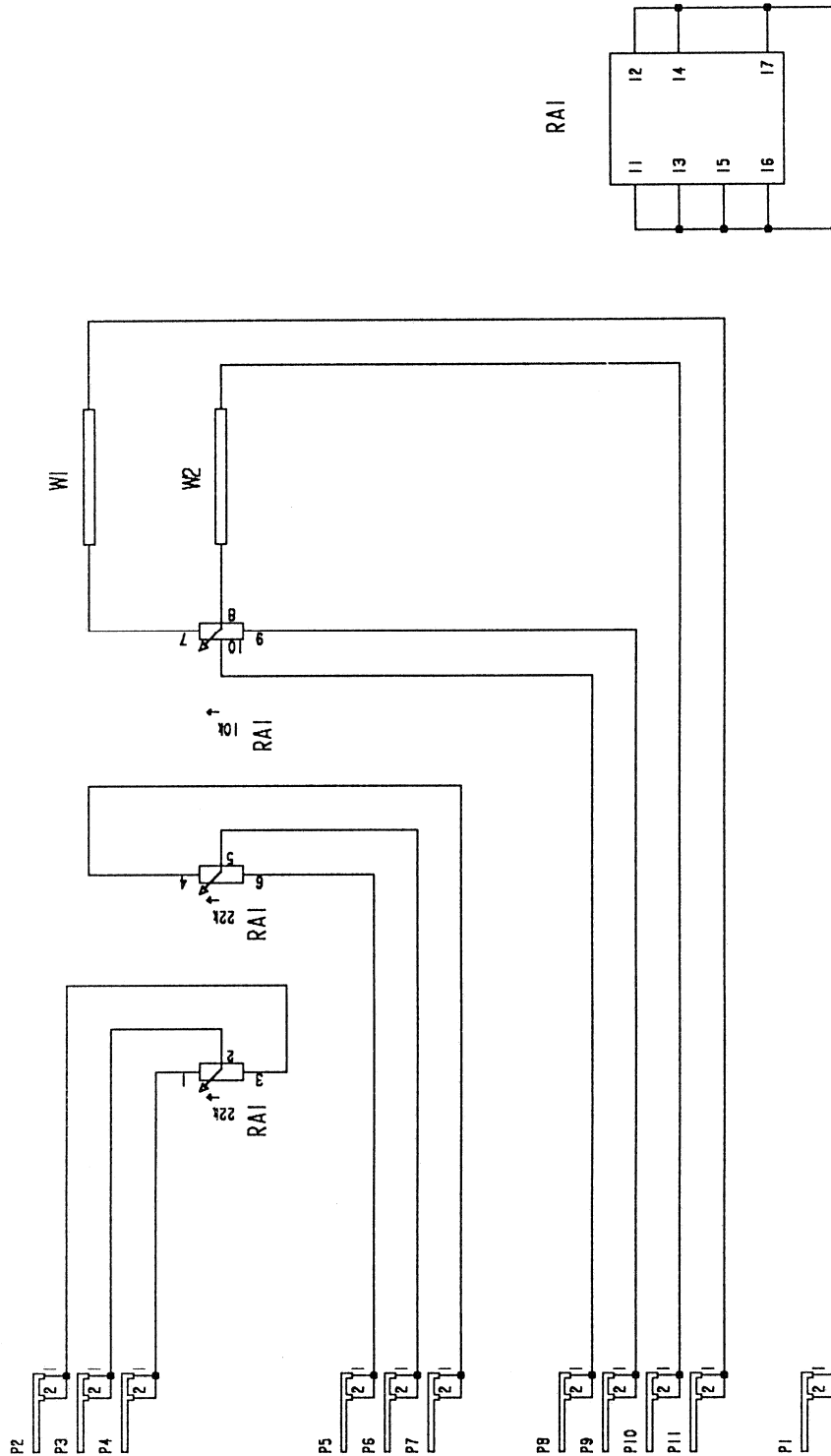


FADER VCA SIDE BOARD (MONO) 1.980.133.00 (IC2 and IC4 not used)  
 FADER VCA SIDE BOARD (STEREO) 1.980.143.00



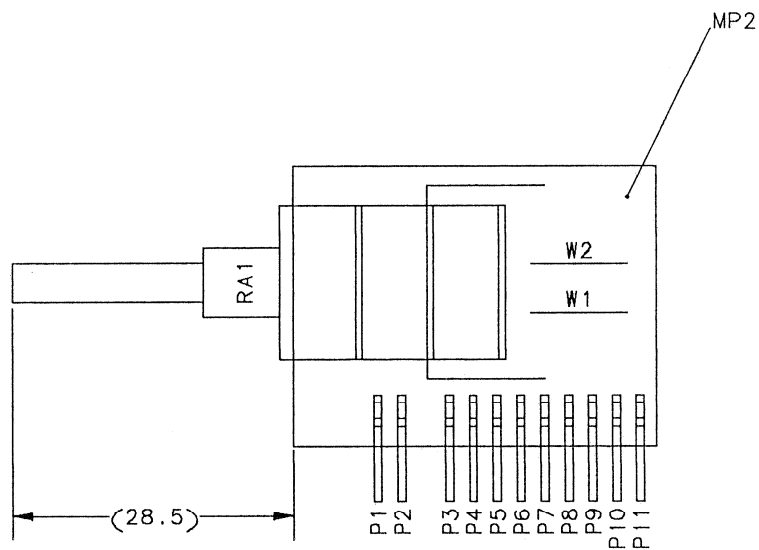
3 POT 12.5 mm BOARD 1.990.298.00

Several versions are possible:  
Divergence / CAL Mono / PAN Mono / PAN Stereo



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STUDER	3 POT 12.5mm	SC 1.990.298.00

3 POT 12.5 mm BOARD 1.990.298.00



**STUDER**  
REGENSDORF

3 POT 12.5mm BOARD

Modification Änderung	.	.	.	.	③
	.	.	.	.	②
	.	.	.	.	①
Edition Ausgabe	20.02.95	LC	.	.	④
Date Datum		Visa Gee.	Declar Gepr.	Seen Gee.	Index
Copy to: Kopie fuer:	.				
Number: Nummer:	1.990.298.00				

**FADER SWITCH BOARD 1.980.109.70**  
(part of 1.980.198.00 and 1.980.199.00)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.1103		10n	C 10 N , 10% , X7R , CER
0	C 2	59.60.1103		10n	C 10 N , 10% , X7R , CER
0	C 3	59.60.1104		100n	C 100 N , 10% , X7R , CER
0	C 4	59.60.1103		10n	C 10 N , 10% , X7R , CER
0	C 5	59.60.1103		10n	C 10 N , 10% , X7R , CER
0	C 6	59.60.1103		10n	C 10 N , 10% , X7R , CER
0	C 7	59.60.1104		100n	C 100 N , 10% , X7R , CER
0	IC 1	50.62.1165		74HC165	IC .. 74 HC 165 . ,A
0	IC 2	50.62.1595		74HC595	IC .. 74 HC 595 . ,A
0	IC 3	50.62.1165		74HC165	IC .. 74 HC 165 . ,A
0	IC 4	50.62.1004		74HC 04	IC .. 74 HC 04 . ,A
0	MP 1	1.980.109.04			NR-ETIKETTE 5 * 20
0	MP 2	43.01.0108		Label	ESE-WARNSCHILD
0	MP 3	1.980.109.12			FADER SWITCH PCB //I
0	R 1	57.60.1104		100K	MF, 1%, 0204, E24
0	R 2	57.60.1104		100K	MF, 1%, 0204, E24
0	R 3	57.60.1104		100K	MF, 1%, 0204, E24
0	R 4	57.60.1104		100K	MF, 1%, 0204, E24
0	R 5	57.60.1104		100K	MF, 1%, 0204, E24
0	R 6	57.60.1101		100R	MF, 1%, 0204, E24
0	R 7	57.60.1101		100R	MF, 1%, 0204, E24
0	R 8	57.60.1104		100K	MF, 1%, 0204, E24
0	R 9	57.60.1104		100K	MF, 1%, 0204, E24
0	R 10	57.60.1104		100K	MF, 1%, 0204, E24
0	R 11	57.60.1101		100R	MF, 1%, 0204, E24
0	R 12	57.60.1101		100R	MF, 1%, 0204, E24
0	R 13	57.60.1101		100R	MF, 1%, 0204, E24
0	R 14	57.60.1101		100R	MF, 1%, 0204, E24
0	R 15	57.60.1101		100R	MF, 1%, 0204, E24
0	R 16	57.60.1101		100R	MF, 1%, 0204, E24
0	R 17	57.60.1101		100R	MF, 1%, 0204, E24
0	R 18	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 19	57.60.1101		100R	MF, 1%, 0204, E24
0	R 20	57.60.1101		100R	MF, 1%, 0204, E24
0	R 21	57.60.1101		100R	MF, 1%, 0204, E24
0	R 22	57.60.1101		100R	MF, 1%, 0204, E24
0	R 23	57.60.1104		100K	MF, 1%, 0204, E24
0	R 24	57.60.1104		100K	MF, 1%, 0204, E24
0	R 25	57.60.1104		100K	MF, 1%, 0204, E24
0	R 26	57.60.1101		100R	MF, 1%, 0204, E24
0	R 27	57.60.1101		100R	MF, 1%, 0204, E24
0	R 28	57.60.1101		100R	MF, 1%, 0204, E24
0	R 29	57.60.1104		100K	MF, 1%, 0204, E24
0	R 30	57.60.1104		100K	MF, 1%, 0204, E24
0	R 31	57.60.1101		100R	MF, 1%, 0204, E24
0	R 32	57.60.1104		100K	MF, 1%, 0204, E24
0	R 33	57.60.1104		100K	MF, 1%, 0204, E24
0	R 34	57.60.1104		100K	MF, 1%, 0204, E24
0	R 35	57.60.1104		100K	MF, 1%, 0204, E24
0	R 36	57.60.1103		10K	MF, 1%, 0204, E24
0	R 37	57.60.1101		100R	MF, 1%, 0204, E24
0	R 38	57.60.1101		100R	MF, 1%, 0204, E24
0	R 39	57.60.1101		100R	MF, 1%, 0204, E24
0	R 40	57.60.1103		10K	MF, 1%, 0204, E24
0	R 41	57.60.1101		100R	MF, 1%, 0204, E24
0	R 42	57.60.1101		100R	MF, 1%, 0204, E24
0	R 43	57.60.1101		100R	MF, 1%, 0204, E24
0	R 44	57.60.1101		100R	MF, 1%, 0204, E24
0	R 45	57.60.1101		100R	MF, 1%, 0204, E24

End of List

Comments



## FADER PAN POT BOARD (FILM) 1.980.117.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	IC 1	50.07.0015	4053B	IC .. 4053 .. ,A
0	IC 2	50.07.0015	4053B	IC .. 4053 .. ,A
0	IC 3	50.07.0015	4053B	IC .. 4053 .. ,A
0	IC 4	50.07.0015	4053B	IC .. 4053 .. ,A
0	MP 1	1.980.117.04	1 pce	NR.-ETIKETTE 5 * 20
0	MP 2	43.01.0108	1 pce	ESE-WARNSCHILD
0	MP 3	1.980.107.12	1 pce	FADER FILM PAN PCB //A
0	P 1	54.01.0221	2 pcs	12-P P LEISTE 12 POL CIS WINKEL
0	Q 1	50.03.1130	J-110	J 110
0	Q 2	50.03.1130	J-110	J 110
0	R 1	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 2	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 3	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 4	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 5	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 6	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 7	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 8	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 9	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 10	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 11	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 12	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 13	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	R 14	57.10.1682	6k8	R 6.8 K , 1% , 0204 , MF
0	R 15	57.10.1223	22k	R 22 K , 1% , 0204 , MF
0	RA 1	1.010.056.58	Pot	POT 22K +L; 22K -L; 10K; 2X5K;

End of List

Comments





FADER SIDE BOARD (MONO, VCA) 1.980.133.00

Idx	Pos.	Part No.	Qty.	Type/Val.	Description	Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1222		2n2	PP, 1%, 160V	0	MP 5	1.010.011.22		MP	NIETMUTTER SW 6 M 3 *1.5
0	C 2	59.05.1222		2n2	PP, 1%, 160V	2	MP 6	00.00.0000		not used	not used
0	C 3	59.22.3101		100u	EL 10V 20% RM5	0	MP 7	1.010.011.22		MP	NIETMUTTER SW 6 M 3 *1.5
0	C 4	59.05.1222		2n2	PP, 1%, 160V	0	MP 8	28.99.0110			ROHRNIETE D 2.5*0.15* 9
0	C 5	59.05.1222		2n2	PP, 1%, 160V	0	MP 9	28.99.0119			ROHRNIETE D 2.5*0.15* 9
0	C 6	59.22.3101		100u	EL 10V 20% RM5	4	MP 10	43.10.0110		A	Revisions-Etikette 5mm h/blau
0	C 7	59.34.4101		100p	CER 63V, 5%, N750	0	P 1	54.11.2261		48p	EU-CK 3*16p, löt
0	C 8	59.34.4680		68p	CER 63V, 5%, N750	0	P 3	54.14.5516		16p	PCB-Buchse gerade
0	C 9	59.34.4680		68p	CER 63V, 5%, N750	0	P 11	54.01.0020		1p	Pin 0.63*0.63
0	C 10	59.06.0224		220n	PETP, 63V, 10%, RM5	0	P 12	54.01.0020		1p	Pin 0.63*0.63
0	C 11	59.05.1222		2n2	PP, 1%, 160V	0	P 13	54.01.0020		1p	Pin 0.63*0.63
0	C 12	59.05.1222		2n2	PP, 1%, 160V	0	P 14	54.01.0020		1p	Pin 0.63*0.63
0	C 13	59.05.1222		2n2	PP, 1%, 160V	0	P 15	54.01.0020		1p	Pin 0.63*0.63
0	C 14	59.05.1222		2n2	PP, 1%, 160V	0	P 16	54.01.0020		1p	Pin 0.63*0.63
0	C 15	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 17	54.01.0020		1p	Pin 0.63*0.63
0	C 16	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 18	54.01.0020		1p	Pin 0.63*0.63
0	C 17	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 19	54.01.0020		1p	Pin 0.63*0.63
0	C 18	59.06.0103		10n	PETP, 63V, 10%, RM5	0	Q 1	50.03.0516		ZTX450sel	NPN, 1000mA, special selection
0	C 19	59.22.3101		100u	EL 10V 20% RM5	0	Q 2	50.03.0516		ZTX450sel	NPN, 1000mA, special selection
0	C 20	59.22.3101		100u	EL 10V 20% RM5	0	Q 3	50.03.0351		BC327-25	PNP, 800mA
0	C 21	59.06.0104		100n	PETP, 63V, 10%, RM5	0	Q 4	50.03.0216		J111	J 111
0	C 22	59.06.0223		22n	PETP, 63V, 10%, RM5	0	Q 5	50.03.0340		BC337-25	800mA, 45V, NPN
0	C 23	59.22.3101		100u	EL 10V 20% RM5	0	Q 6	50.03.0340		BC337-25	800mA, 45V, NPN
0	C 24	59.22.3101		100u	EL 10V 20% RM5	0	R 1	57.11.3104		100k	MF, 1%, 0207
0	C 25	59.06.0104		100n	PETP, 63V, 10%, RM5	0	R 2	57.11.3203		20k	MF, 1%, 0207
0	C 26	59.22.3101		100u	EL 10V 20% RM5	0	R 3	57.11.3203		20k	MF, 1%, 0207
0	C 27	59.22.3101		100u	EL 10V 20% RM5	0	R 4	57.11.3203		20k	MF, 1%, 0207
0	C 28	59.06.0104		100n	PETP, 63V, 10%, RM5	0	R 5	57.11.3203		20k	MF, 1%, 0207
0	C 29	59.06.0102		1n0	PETP, 63V, 10%, RM5	0	R 6	57.11.3680		68R	MF, 1%, 0207
0	C 30	59.34.4221		220p	CER 63V, 5%, N750	0	R 7	57.11.3680		68R	MF, 1%, 0207
0	C 31	59.06.0103		10n	PETP, 63V, 10%, RM5	0	R 8	57.11.3470		47R	MF, 1%, 0207
0	C 32	59.06.0103		10n	PETP, 63V, 10%, RM5	0	R 9	57.11.3473		47k	MF, 1%, 0207
0	C 33	59.06.0102		1n0	PETP, 63V, 10%, RM5	0	R 10	57.11.3473		47k	MF, 1%, 0207
0	C 34	59.06.0104		100n	PETP, 63V, 10%, RM5	0	R 11	57.11.3203		20k	MF, 1%, 0207
0	C 35	59.06.0225		2u2	PETP, 50V, 10%, RM5	0	R 12	57.11.3203		20k	MF, 1%, 0207
0	C 36	59.06.0225		2u2	PETP, 50V, 10%, RM5	0	R 13	57.11.3203		20k	MF, 1%, 0207
0	C 37	59.06.0225		2u2	PETP, 50V, 10%, RM5	0	R 14	57.11.3203		20k	MF, 1%, 0207
0	D 1	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 15	57.11.3680		68R	MF, 1%, 0207
0	D 2	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 16	57.11.3680		68R	MF, 1%, 0207
0	D 3	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 17	57.11.3470		47R	MF, 1%, 0207
0	D 4	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 18	57.11.3473		47k	MF, 1%, 0207
0	D 5	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 19	57.11.3473		47k	MF, 1%, 0207
0	D 6	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 20	57.11.3104		100k	MF, 1%, 0207
0	D 7	50.04.0127		BAT85	200mA, Schottky	0	R 21	57.11.3102		1k0	MF, 1%, 0207
0	D 8	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 22	57.11.3104		100k	MF, 1%, 0207
0	D 9	50.04.0127		BAT85	200mA, Schottky	0	R 23	57.11.3105		1M0	MF, 1%, 0207
0	D 10	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 24	57.11.3222		2k2	MF, 1%, 0207
0	DV 1	50.04.1117		12V	Zener, 5%, 0.5W, DO-35	0	R 25	57.11.3222		2k2	MF, 1%, 0207
0	DV 2	50.10.0106		TL431	Shunt regulator	0	R 26	57.11.3334		330k	MF, 1%, 0207
0	DV 3	50.04.1103		7V5	Zener, 5%, 0.5W, DO-35	0	R 27	57.11.3333		33k	MF, 1%, 0207
0	IC 1	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 28	57.11.3105		1M0	MF, 1%, 0207
0	IC 3	50.11.0140		THAT2181C	IC VCA THAT 2181C	0	R 29	57.11.3222		2k2	MF, 1%, 0207
0	IC 5	50.11.0140		THAT2181C	IC VCA THAT 2181C	0	R 30	57.11.3472		4k7	MF, 1%, 0207
0	IC 6	50.09.0117		MC33078	IC MC 33078 P	0	R 31	57.11.3222		2k2	MF, 1%, 0207
4	IC 7	50.09.0121		TL072B	IC TL 072 BCP ,A	0	R 32	57.11.3472		4k7	MF, 1%, 0207
0	IC 8	50.19.0300		DG441	4*SPST analog switch	0	R 33	57.11.3222		2k2	MF, 1%, 0207
0	IC 9	50.19.0300		DG441	4*SPST analog switch	0	R 34	57.11.3472		4k7	MF, 1%, 0207
0	IC 10	50.07.0511		4511	BCD to 7-seg latch/dec/driver	0	R 35	57.11.3222		2k2	MF, 1%, 0207
3	IC 11	50.09.0105		NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 36	57.11.3472		4k7	MF, 1%, 0207
0	IC 12	50.07.0051		4051	8ch analog Mux/Demux	0	R 37	57.11.3473		47k	MF, 1%, 0207
0	IC 13	50.17.1595		74HC595	IC ... 74 HC 595 , ,A	0	R 38	57.11.3103		10k	MF, 1%, 0207
0	IC 14	50.07.0015		4053	Tripple 2ch analog mux/demux	0	R 39	57.11.3103		10k	MF, 1%, 0207
0	IC 15	50.07.0015		4053	Tripple 2ch analog mux/demux	0	R 40	57.11.3104		100k	MF, 1%, 0207
0	IC 16	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 41	57.11.3105		1M0	MF, 1%, 0207
0	IC 17	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 42	57.11.3222		2k2	MF, 1%, 0207
0	IC 18	50.07.0015		4053	Tripple 2ch analog mux/demux	0	R 43	57.11.3103		10k	MF, 1%, 0207
4	IC 19	50.09.0121		TL072B	IC TL 072 BCP ,A	0	R 44	57.11.3103		10k	MF, 1%, 0207
0	IC 20	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 45	57.11.3473		47k	MF, 1%, 0207
0	IC 21	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 46	57.11.3473		47k	MF, 1%, 0207
0	JP 1	54.01.0021		Jumper	0.63 * 0.63mm	0	R 47	57.11.3104		100k	MF, 1%, 0207
0	JP 2	54.01.0021		Jumper	0.63 * 0.63mm	0	R 48	57.11.3682		6k8	MF, 1%, 0207
0	JP 3	54.01.0021		Jumper	0.63 * 0.63mm	0	R 49	57.11.3224		220k	MF, 1%, 0207
0	MP 1	1.980.133.04			NR.-ETIKETTE 5 * 20	0	R 50	57.11.3101		100R	MF, 1%, 0207
0	MP 2	43.01.0108		Label	ESE-WARNSCHILD	0	R 51	57.11.3105		1M0	MF, 1%, 0207
0	MP 3	1.980.103.12			FADER VCA SIDE PCB //	0	R 52	57.11.3681		680R	MF, 1%, 0207
4	MP 4	not used		not used	not used	0	R 53	57.11.3473		47k	MF, 1%, 0207
						0	R 54	57.11.3222		2k2	MF, 1%, 0207



## FADER SIDE BOARD (MONO, VCA) 1.980.133.00

Idx	Pos.	Part No.	Qty.	Type/Val.	Description	Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 55	57.11.3104		100k	MF, 1%, 0207	0	RZ 5	57.88.4104		100k	8*R Resistor-Netw 2% SIP9
0	R 56	57.11.5335		3M3	MF, 5%, 0207	0	RZ 6	57.88.2473		47k	4*R Resistor-Netw 2% SIP9
0	R 57	57.11.3472		4k7	MF, 1%, 0207	1	XIC 1	53.03.0168		8p	DIL 0.3", löt, gerade
0	R 58	57.11.3104		100k	MF, 1%, 0207	0	XIC 8	53.03.0168		16p	DIL 0.3", löt, gerade
0	R 59	57.11.3105		1M0	MF, 1%, 0207	0	XIC 9	53.03.0168		16p	DIL 0.3", löt, gerade
0	R 60	57.11.3203		20k	MF, 1%, 0207	0	XIC 12	53.03.0168		16p	DIL 0.3", löt, gerade
0	R 61	57.11.3101		100R	MF, 1%, 0207						
0	R 62	57.11.3101		100R	MF, 1%, 0207						
0	R 64	57.11.3104		100k	MF, 1%, 0207						
0	R 65	57.11.3101		100R	MF, 1%, 0207						
0	R 66	57.11.3101		100R	MF, 1%, 0207						
0	R 67	57.11.3101		100R	MF, 1%, 0207						
0	R 68	57.11.3682		6k8	MF, 1%, 0207						
0	R 69	57.11.3473		47k	MF, 1%, 0207						
0	R 70	57.11.3103		10k	MF, 1%, 0207						
0	R 71	57.11.3104		100k	MF, 1%, 0207						
0	R 72	57.11.3104		100k	MF, 1%, 0207						
0	R 73	57.11.3101		100R	MF, 1%, 0207						
0	R 74	57.11.3473		47k	MF, 1%, 0207						
0	R 75	57.11.3105		1M0	MF, 1%, 0207						
0	R 76	57.11.3103		10k	MF, 1%, 0207						
0	R 77	57.11.3472		4k7	MF, 1%, 0207						
0	R 78	57.11.3392		3k9	MF, 1%, 0207						
0	R 79	57.11.3203		20k	MF, 1%, 0207						
0	R 80	57.11.3103		10k	MF, 1%, 0207						
0	R 81	57.11.3203		20k	MF, 1%, 0207						
0	R 82	57.11.3223		22k	MF, 1%, 0207						
0	R 83	57.11.3104		100k	MF, 1%, 0207						
0	R 84	57.11.3104		100k	MF, 1%, 0207						
0	R 85	57.11.3472		4k7	MF, 1%, 0207						
0	R 86	57.11.3203		20k	MF, 1%, 0207						
0	R 87	57.11.3104		100k	MF, 1%, 0207						
0	R 88	57.11.3104		100k	MF, 1%, 0207						
0	R 89	57.11.3104		100k	MF, 1%, 0207						
0	R 90	57.11.3104		100k	MF, 1%, 0207						
0	R 91	57.11.3104		100k	MF, 1%, 0207						
0	R 92	57.11.3333		33k	MF, 1%, 0207						
0	R 93	57.11.3104		100k	MF, 1%, 0207						
0	R 95	57.11.3203		20k	MF, 1%, 0207						
0	R 96	57.11.3103		10k	MF, 1%, 0207						
4	R 97	57.11.3104		100k	MF, 1%, 0207						
0	R 98	57.11.3104		100k	MF, 1%, 0207						
0	R 99	57.11.3104		100k	MF, 1%, 0207						
0	R 100	57.11.3104		100k	MF, 1%, 0207						
0	R 101	57.11.3104		100k	MF, 1%, 0207						
0	R 102	57.11.3104		100k	MF, 1%, 0207						
0	R 103	57.11.3103		10k	MF, 1%, 0207						
0	R 104	57.89.8301		10k	PTC, 1%, +3300 PPM						
0	R 105	57.11.3105		1M0	MF, 1%, 0207						
0	R 106	57.11.3103		10k	MF, 1%, 0207						
0	R 107	57.11.3105		1M0	MF, 1%, 0207						
0	R 108	57.11.3203		20k	MF, 1%, 0207						
0	R 109	57.11.3272		2k7	MF, 1%, 0207						
0	R 110	57.11.3272		2k7	MF, 1%, 0207						
0	R 111	57.11.3222		2k2	MF, 1%, 0207						
0	R 112	57.11.3222		2k2	MF, 1%, 0207						
0	R 113	57.11.3272		2k7	MF, 1%, 0207						
0	R 114	57.11.3222		2k2	MF, 1%, 0207						
0	R 115	57.11.3224		220k	MF, 1%, 0207						
0	R 116	57.11.3682		6k8	MF, 1%, 0207						
0	R 117	57.11.3103		10k	MF, 1%, 0207						
0	R 118	57.11.3105		1M0	MF, 1%, 0207						
0	R 119	57.11.3472		4k7	MF, 1%, 0207						
0	R 120	57.11.3333		33k	MF, 1%, 0207						
0	R 121	57.11.3103		10k	MF, 1%, 0207						
0	RA 1	58.05.0104		100k	10%, 0.5W, Cermet						
0	RA 3	58.05.0104		100k	10%, 0.5W, Cermet						
0	RA 4	58.05.0203		20k	10%, 0.5W, Cermet						
0	RA 5	58.05.0203		20k	10%, 0.5W, Cermet						
0	RA 6	58.05.0104		100k	10%, 0.5W, Cermet						
0	RA 7	58.05.0104		100k	10%, 0.5W, Cermet						
0	RA 8	58.05.0104		100k	10%, 0.5W, Cermet						
0	RZ 1	57.88.4104		100k	8*R Resistor-Netw 2% SIP9						
0	RZ 2	57.88.2101		100R	4*R Resistor-Netw 2% SIP9						
0	RZ 3	57.88.2101		100R	4*R Resistor-Netw 2% SIP9						
0	RZ 4	57.88.2473		47k	4*R Resistor-Netw 2% SIP9						

End of List

Comments

11.10.1995 (01) improvement P&G law.  
6.11.1995 (02) mech. overlapping  
16.06.1997 (03) IC11 50.09.0101 changed to 50.09.0105  
25.11.1999 (04) IC7 and IC19 50.09.0101 changed to 50.09.0121  
R97 57.11.3114 changed to 57.11.3104



FADER SIDE BOARD (STEREO, VCA) 1.980.143.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1222	2n2	PP, 1%, 160V	0	MP 3	1.980.103.12		FADER VCA SIDE PCB //A
0	C 2	59.05.1222	2n2	PP, 1%, 160V	4	MP 4	not used	not used	not used
0	C 3	59.22.3101	100u	EL 10V 20% RM5	0	MP 5	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 4	59.05.1222	2n2	PP, 1%, 160V	2	MP 6	00.00.0000	not used	not used
0	C 5	59.05.1222	2n2	PP, 1%, 160V	0	MP 7	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 6	59.22.3101	100u	EL 10V 20% RM5	0	MP 8	28.99.0119		ROHRNIETE D 2.5*0.15* 9
0	C 7	59.34.4101	100p	CER 63V, 5%, N750	0	MP 9	28.99.0119		ROHRNIETE D 2.5*0.15* 9
0	C 8	59.34.4680	68p	CER 63V, 5%, N750	4	MP 10	43.10.0110	A	Revisions-Etikette 5mm h/blau
0	C 9	59.34.4680	68p	CER 63V, 5%, N750	0	P 1	54.11.2261	48p	EU-CK 3*16p, lot
0	C 10	59.06.0224	220n	PETP, 63V, 10%, RM5	0	P 3	54.14.5516	16p	PCB-Buchse gerade
0	C 11	59.05.1222	2n2	PP, 1%, 160V	0	P 11	54.01.0020	1p	Pin 0.63*0.63
0	C 12	59.05.1222	2n2	PP, 1%, 160V	0	P 12	54.01.0020	1p	Pin 0.63*0.63
0	C 13	59.05.1222	2n2	PP, 1%, 160V	0	P 13	54.01.0020	1p	Pin 0.63*0.63
0	C 14	59.05.1222	2n2	PP, 1%, 160V	0	P 14	54.01.0020	1p	Pin 0.63*0.63
0	C 15	59.06.0104	100n	PETP, 63V, 10%, RM5	0	P 15	54.01.0020	1p	Pin 0.63*0.63
0	C 16	59.06.0104	100n	PETP, 63V, 10%, RM5	0	P 16	54.01.0020	1p	Pin 0.63*0.63
0	C 17	59.06.0104	100n	PETP, 63V, 10%, RM5	0	P 17	54.01.0020	1p	Pin 0.63*0.63
0	C 18	59.06.0103	10n	PETP, 63V, 10%, RM5	0	P 18	54.01.0020	1p	Pin 0.63*0.63
0	C 19	59.22.3101	100u	EL 10V 20% RM5	0	P 19	54.01.0020	1p	Pin 0.63*0.63
0	C 20	59.22.3101	100u	EL 10V 20% RM5	0	Q 1	50.03.0516	ZTX450sel	NPN, 1000mA, special selection
0	C 21	59.06.0104	100n	PETP, 63V, 10%, RM5	0	Q 2	50.03.0516	ZTX450sel	NPN, 1000mA, special selection
0	C 22	59.06.0223	22n	PETP, 63V, 10%, RM5	0	Q 3	50.03.0351	BC327-25	PNP, 800mA
0	C 23	59.22.3101	100u	EL 10V 20% RM5	0	Q 4	50.03.0216	J111	J 111
0	C 24	59.22.3101	100u	EL 10V 20% RM5	0	Q 5	50.03.0340	BC337-25	800mA, 45V, NPN
0	C 25	59.06.0104	100n	PETP, 63V, 10%, RM5	0	Q 6	50.03.0340	BC337-25	800mA, 45V, NPN
0	C 26	59.22.3101	100u	EL 10V 20% RM5	0	R 1	57.11.3104	100k	MF, 1%, 0207
0	C 27	59.22.3101	100u	EL 10V 20% RM5	0	R 2	57.11.3203	20k	MF, 1%, 0207
0	C 28	59.06.0104	100n	PETP, 63V, 10%, RM5	0	R 3	57.11.3203	20k	MF, 1%, 0207
0	C 29	59.06.0102	1n0	PETP, 63V, 10%, RM5	0	R 4	57.11.3203	20k	MF, 1%, 0207
0	C 30	59.34.4221	220p	CER 63V, 5%, N750	0	R 5	57.11.3203	20k	MF, 1%, 0207
0	C 31	59.06.0103	10n	PETP, 63V, 10%, RM5	0	R 6	57.11.3680	68R	MF, 1%, 0207
0	C 32	59.06.0103	10n	PETP, 63V, 10%, RM5	0	R 7	57.11.3680	68R	MF, 1%, 0207
0	C 33	59.06.0102	1n0	PETP, 63V, 10%, RM5	0	R 8	57.11.3470	47R	MF, 1%, 0207
0	C 34	59.06.0104	100n	PETP, 63V, 10%, RM5	0	R 9	57.11.3473	47k	MF, 1%, 0207
0	C 35	59.06.0225	2u2	PETP, 50V, 10%, RM5	0	R 10	57.11.3473	47k	MF, 1%, 0207
0	C 36	59.06.0225	2u2	PETP, 50V, 10%, RM5	0	R 11	57.11.3203	20k	MF, 1%, 0207
0	C 37	59.06.0225	2u2	PETP, 50V, 10%, RM5	0	R 12	57.11.3203	20k	MF, 1%, 0207
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 13	57.11.3203	20k	MF, 1%, 0207
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 14	57.11.3203	20k	MF, 1%, 0207
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 15	57.11.3680	68R	MF, 1%, 0207
0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 16	57.11.3680	68R	MF, 1%, 0207
0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 17	57.11.3470	47R	MF, 1%, 0207
0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 18	57.11.3473	47k	MF, 1%, 0207
0	D 7	50.04.0127	BAT85	200mA, Schottky	0	R 19	57.11.3473	47k	MF, 1%, 0207
0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 20	57.11.3104	100k	MF, 1%, 0207
0	D 9	50.04.0127	BAT85	200mA, Schottky	0	R 21	57.11.3102	1k0	MF, 1%, 0207
0	D 10	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 22	57.11.3104	100k	MF, 1%, 0207
0	DV 1	50.04.1117	12V	Zener, 5%, 0.5W, DO-35	0	R 23	57.11.3105	1M0	MF, 1%, 0207
0	DV 2	50.10.0106	TL431	Shunt regulator	0	R 24	57.11.3222	2k2	MF, 1%, 0207
0	DV 3	50.04.1103	7V5	Zener, 5%, 0.5W, DO-35	0	R 25	57.11.3222	2k2	MF, 1%, 0207
0	IC 1	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 26	57.11.3334	330k	MF, 1%, 0207
0	IC 2	50.11.0140	THAT2181C	IC VCA THAT 2181C	0	R 27	57.11.3333	33k	MF, 1%, 0207
0	IC 3	50.11.0140	THAT2181C	IC VCA THAT 2181C	0	R 28	57.11.3105	1M0	MF, 1%, 0207
0	IC 4	50.11.0140	THAT2181C	IC VCA THAT 2181C	0	R 29	57.11.3222	2k2	MF, 1%, 0207
0	IC 5	50.11.0140	THAT2181C	IC VCA THAT 2181C	0	R 30	57.11.3472	4k7	MF, 1%, 0207
0	IC 6	50.09.0117	MC33078	IC MC 33078 P	0	R 31	57.11.3222	2k2	MF, 1%, 0207
4	IC 7	50.09.0121	TL072B	IC TL 072 BCP ,A	0	R 32	57.11.3472	4k7	MF, 1%, 0207
0	IC 8	50.19.0300	DG441	4*SPST analog switch	0	R 33	57.11.3222	2k2	MF, 1%, 0207
0	IC 9	50.19.0300	DG441	4*SPST analog switch	0	R 34	57.11.3472	4k7	MF, 1%, 0207
0	IC 10	50.07.0511	4511	BCD to 7-seg latch/dec/driver	0	R 35	57.11.3222	2k2	MF, 1%, 0207
3	IC 11	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 36	57.11.3472	4k7	MF, 1%, 0207
0	IC 12	50.07.0051	4051	8ch analog Mux/Demux	0	R 37	57.11.3473	47k	MF, 1%, 0207
0	IC 13	50.17.1595	74HC595	IC ... 74 HC 595 ,, ,A	0	R 38	57.11.3103	10k	MF, 1%, 0207
0	IC 14	50.07.0015	4053	Tripple 2ch analog mux/demux	0	R 39	57.11.3103	10k	MF, 1%, 0207
0	IC 15	50.07.0015	4053	Tripple 2ch analog mux/demux	0	R 40	57.11.3104	100k	MF, 1%, 0207
0	IC 16	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 41	57.11.3105	1M0	MF, 1%, 0207
0	IC 17	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 42	57.11.3222	2k2	MF, 1%, 0207
0	IC 18	50.07.0015	4053	Tripple 2ch analog mux/demux	0	R 43	57.11.3103	10k	MF, 1%, 0207
4	IC 19	50.09.0121	TL072B	IC TL 072 BCP ,A	0	R 44	57.11.3103	10k	MF, 1%, 0207
0	IC 20	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 45	57.11.3473	47k	MF, 1%, 0207
0	IC 21	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 46	57.11.3473	47k	MF, 1%, 0207
0	JP 1	54.01.0021	Jumper	0.63 * 0.63mm	0	R 47	57.11.3104	100k	MF, 1%, 0207
0	JP 2	54.01.0021	Jumper	0.63 * 0.63mm	0	R 48	57.11.3682	6k8	MF, 1%, 0207
0	JP 3	54.01.0021	Jumper	0.63 * 0.63mm	0	R 49	57.11.3224	220k	MF, 1%, 0207
0	MP 1	1.980.143.04		NR.-ETIKETTE 5 * 20	0	R 50	57.11.3101	100R	MF, 1%, 0207
0	MP 2	43.01.0108	Label	ESE-WARNSCHILD	0	R 51	57.11.3105	1M0	MF, 1%, 0207
					0	R 52	57.11.3681	680R	MF, 1%, 0207



## FADER SIDE BOARD (STEREO, VCA) 1.980.143.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 53	57.11.3473	47k	MF, 1%, 0207	0	RZ 2	57.88.2101	100R	4*R Resistor-Netw 2% SIP9
0	R 54	57.11.3222	2k2	MF, 1%, 0207	0	RZ 3	57.88.2101	100R	4*R Resistor-Netw 2% SIP9
0	R 55	57.11.3104	100k	MF, 1%, 0207	0	RZ 4	57.88.2473	47k	4*R Resistor-Netw 2% SIP9
0	R 56	57.11.5335	3M3	MF, 5%, 0207	0	RZ 5	57.88.4104	100k	8*R Resistor-Netw 2% SIP9
0	R 57	57.11.3472	4k7	MF, 1%, 0207	0	RZ 6	57.88.2473	47k	4*R Resistor-Netw 2% SIP9
0	R 58	57.11.3104	100k	MF, 1%, 0207	1	XIC 1	53.03.0166	8p	DIL 0.3", löt, gerade
0	R 59	57.11.3105	1M0	MF, 1%, 0207	0	XIC 8	53.03.0168	16p	DIL 0.3", löt, gerade
0	R 60	57.11.3203	20k	MF, 1%, 0207	0	XIC 9	53.03.0168	16p	DIL 0.3", löt, gerade
0	R 61	57.11.3101	100R	MF, 1%, 0207	0	XIC 12	53.03.0168	16p	DIL 0.3", löt, gerade
0	R 62	57.11.3101	100R	MF, 1%, 0207					
0	R 64	57.11.3104	100k	MF, 1%, 0207					
0	R 65	57.11.3101	100R	MF, 1%, 0207					
0	R 66	57.11.3101	100R	MF, 1%, 0207					
0	R 67	57.11.3101	100R	MF, 1%, 0207					
0	R 68	57.11.3682	6k8	MF, 1%, 0207					
0	R 69	57.11.3473	47k	MF, 1%, 0207					
0	R 70	57.11.3103	10k	MF, 1%, 0207					
0	R 71	57.11.3104	100k	MF, 1%, 0207					
0	R 72	57.11.3104	100k	MF, 1%, 0207					
0	R 73	57.11.3101	100R	MF, 1%, 0207					
0	R 74	57.11.3473	47k	MF, 1%, 0207					
0	R 75	57.11.3105	1M0	MF, 1%, 0207					
0	R 76	57.11.3103	10k	MF, 1%, 0207					
0	R 77	57.11.3472	4k7	MF, 1%, 0207					
0	R 78	57.11.3392	3k9	MF, 1%, 0207					
0	R 79	57.11.3203	20k	MF, 1%, 0207					
0	R 80	57.11.3103	10k	MF, 1%, 0207					
0	R 81	57.11.3203	20k	MF, 1%, 0207					
0	R 82	57.11.3223	22k	MF, 1%, 0207					
0	R 83	57.11.3104	100k	MF, 1%, 0207					
0	R 84	57.11.3104	100k	MF, 1%, 0207					
0	R 85	57.11.3472	4k7	MF, 1%, 0207					
0	R 86	57.11.3203	20k	MF, 1%, 0207					
0	R 87	57.11.3104	100k	MF, 1%, 0207					
0	R 88	57.11.3104	100k	MF, 1%, 0207					
0	R 89	57.11.3104	100k	MF, 1%, 0207					
0	R 90	57.11.3104	100k	MF, 1%, 0207					
0	R 91	57.11.3104	100k	MF, 1%, 0207					
0	R 92	57.11.3333	33k	MF, 1%, 0207					
0	R 93	57.11.3104	100k	MF, 1%, 0207					
0	R 95	57.11.3203	20k	MF, 1%, 0207					
0	R 96	57.11.3103	10k	MF, 1%, 0207					
4	R 97	57.11.3104	100k	MF, 1%, 0207					
0	R 98	57.11.3104	100k	MF, 1%, 0207					
0	R 99	57.11.3104	100k	MF, 1%, 0207					
0	R 100	57.11.3104	100k	MF, 1%, 0207					
0	R 101	57.11.3104	100k	MF, 1%, 0207					
0	R 102	57.11.3104	100k	MF, 1%, 0207					
0	R 103	57.11.3103	10k	MF, 1%, 0207					
0	R 104	57.69.8301	10k	PTC, 1%, +3300 PPM					
0	R 105	57.11.3105	1M0	MF, 1%, 0207					
0	R 106	57.11.3103	10k	MF, 1%, 0207					
0	R 107	57.11.3105	1M0	MF, 1%, 0207					
0	R 108	57.11.3203	20k	MF, 1%, 0207					
0	R 109	57.11.3272	2k7	MF, 1%, 0207					
0	R 110	57.11.3272	2k7	MF, 1%, 0207					
0	R 111	57.11.3222	2k2	MF, 1%, 0207					
0	R 112	57.11.3222	2k2	MF, 1%, 0207					
0	R 113	57.11.3272	2k7	MF, 1%, 0207					
0	R 114	57.11.3222	2k2	MF, 1%, 0207					
0	R 115	57.11.3224	220k	MF, 1%, 0207					
0	R 116	57.11.3682	6k8	MF, 1%, 0207					
0	R 117	57.11.3103	10k	MF, 1%, 0207					
0	R 118	57.11.3105	1M0	MF, 1%, 0207					
0	R 119	57.11.3472	4k7	MF, 1%, 0207					
0	R 120	57.11.3333	33k	MF, 1%, 0207					
0	R 121	57.11.3103	10k	MF, 1%, 0207					
0	RA 1	58.05.0104	100k	10%, 0.5W, Cermet					
0	RA 2	58.05.0104	100k	10%, 0.5W, Cermet					
0	RA 3	58.05.0104	100k	10%, 0.5W, Cermet					
0	RA 4	58.05.0203	20k	10%, 0.5W, Cermet					
0	RA 5	58.05.0203	20k	10%, 0.5W, Cermet					
0	RA 6	58.05.0104	100k	10%, 0.5W, Cermet					
0	RA 7	58.05.0104	100k	10%, 0.5W, Cermet					
0	RA 8	58.05.0104	100k	10%, 0.5W, Cermet					
0	RZ 1	57.88.4104	100k	8*R Resistor-Netw 2% SIP9					

End of List

Comments

11.10.1995 (01) improvement P&G law.  
 6.11.1995 (02) mech. overlapping  
 16.06.1997 (03) IC11 50.09.0101 changed to 50.09.0105  
 25.11.1999 (04) IC7 and IC19 50.09.0101 changed to 50.09.0121  
 R97 57.11.3114 changed to 57.11.3104

FADER MAIN BOARD (MONO) 1.980.190.81  
 FADER MAIN BOARD (MONO,VCA) 1.980.191.81 (refer to end of list)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	A 1	1.980.105.00			FADER DIR POT BOARD	0	D 39	50.04.0127		BAT85	200mA, Schottky
0	A 2	1.980.106.00			FADER PAN POT BOARD	0	D 40	50.04.0127		BAT85	200mA, Schottky
						0	D 43	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 1	59.34.4151	150p		CER 63V, 5%, N750	0	DV 1	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 2	59.34.2330	33p		CER 63V, 5%, N150	0	DV 2	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 3	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 1	50.09.0101		TL072	IC TL 072 CN ,A
0	C 5	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 2	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 9	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 6	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 13	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 7	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 15	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 8	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 17	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 10	50.09.0117		MC33078	IC MC 33078 P
0	C 18	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 14	50.17.1595		74HC595	IC ... 74 HC 595 .. ,A
0	C 19	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 15	50.09.0124		2142	IC SSM 2142 P
0	C 20	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 17	50.17.1595		74HC595	IC ... 74 HC 595 .. ,A
0	C 24	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 18	50.09.0117		MC33078	IC MC 33078 P
0	C 25	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 19	50.11.0119		LM3914	IC LM 3914 N,
0	C 30	59.34.4151	150p		CER 63V, 5%, N750	0	IC 20	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 31	59.34.4151	150p		CER 63V, 5%, N750	0	IC 21	50.09.0119		TL062	IC TL 062 ACP ,A
0	C 36	59.06.0223	22n		PETP, 63V, 10%, RM5	0	IC 22	50.17.1004		74HC04	IC ... 74 HC 04 .. ,A
0	C 42	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 23	50.09.0101		TL072	IC TL 072 CN ,A
0	C 43	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 25	50.17.1086		74HC86	IC ... 74 HC 86 .. ,A
0	C 44	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 27	50.09.0119		TL062	IC TL 062 ACP ,A
0	C 45	59.06.0223	22n		PETP, 63V, 10%, RM5	0	IC 28	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 47	59.06.0104	100n		PETP, 63V, 10%, RM5	0	JP 1	54.01.0021		Jumper	0.63 * 0.63mm
0	C 48	59.34.2101	100p		CER 63V, 5%, N150	0	MP 1	1.980.190.04	mp		NR.-ETIKETTE 5 * 20
0	C 49	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 2	43.01.0108	mp	Label	ESE-WARNschild
0	C 50	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 3	1.980.102.12	mp		FADER MAIN PCB //
0	C 51	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 4	1.010.011.22	1 pce	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 52	59.22.5220	22u		EL 25V, 20%, RM5	0	MP 5	1.010.011.22	1 pce	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 53	59.22.5220	22u		EL 25V, 20%, RM5	0	MP 6	1.010.011.22	1 pce	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 55	59.34.2101	100p		CER 63V, 5%, N150	0	MP 7	1.010.063.22	1 pce	3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 56	59.34.2101	100p		CER 63V, 5%, N150	0	MP 8	1.010.063.22	1 pce	3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 57	59.34.2101	100p		CER 63V, 5%, N150	0	MP 9	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 58	59.34.2101	100p		CER 63V, 5%, N150	0	MP 10	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 59	59.34.2101	100p		CER 63V, 5%, N150	0	MP 11	1.980.109.01			Isolation Potmeter
0	C 65	59.34.4101	100p		CER 63V, 5%, N750	0	MP 12	1.010.108.64	1 pce		WIRE WRAP DRAHT D .255 L= 80
0	C 67	59.34.4151	150p		CER 63V, 5%, N750	0	P 1	54.01.0020		1p	Pin 0.63*0.63
0	C 68	59.22.4002	100uF		EL 16V, 20%, RM5	0	P 2	54.01.0020		1p	Pin 0.63*0.63
0	C 69	59.22.3003	220u		EL 10V, 20%, RM5	0	P 3	54.01.0020		1p	Pin 0.63*0.63
0	C 70	59.34.4101	100p		CER 63V, 5%, N750	0	P 4	54.01.0020		1p	Pin 0.63*0.63
0	C 71	59.22.3003	220u		EL 10V, 20%, RM5	0	P 5	54.01.0020		1p	Pin 0.63*0.63
0	C 72	59.06.0104	100n		PETP, 63V, 10%, RM5	0	P 6	54.01.0020		1p	Pin 0.63*0.63
0	C 73	59.06.0104	100n		PETP, 63V, 10%, RM5	0	P 7	54.01.0020		1p	Pin 0.63*0.63
0	C 74	59.22.3003	220u		EL 10V, 20%, RM5	0	P 8	54.01.0020		1p	Pin 0.63*0.63
0	C 76	59.34.4101	100p		CER 63V, 5%, N750	0	P 11	54.14.5520		20p	PCB-Buchse gerade
0	C 78	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	P 12	54.14.5536		16p	PCB-Buchse winkel
0	C 79	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	PB 2	54.11.2004		64-P	P EU-B 2 * 32
0	C 81	59.06.0474	470n		PETP, 63V, 10%, RM5	0	Q 3	50.03.0350		J-112	J-112
0	C 82	59.06.0474	470n		PETP, 63V, 10%, RM5	0	Q 4	50.03.0350		J-112	J-112
0	C 83	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	R 1	57.11.3153		15k	MF, 1%, 0207
0	C 84	59.34.4151	150p		CER 63V, 5%, N750	0	R 2	57.11.3103		10k	MF, 1%, 0207
0	C 86	59.22.4002	100uF		EL 16V, 20%, RM5	0	R 3	57.11.3103		10k	MF, 1%, 0207
0	C 87	59.22.4002	100uF		EL 16V, 20%, RM5	0	R 4	57.11.3103		10k	MF, 1%, 0207
0	C 89	59.22.4002	100uF		EL 16V, 20%, RM5	0	R 5	57.11.3224		220k	MF, 1%, 0207
0	C 90	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	R 7	57.11.3000		0R0	MF, 0207
0	C 91	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	R 8	57.11.3562		5k6	MF, 1%, 0207
0	C 92	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	R 13	57.11.3103		10k	MF, 1%, 0207
0	C 93	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	R 18	57.11.3000		0R0	MF, 0207
0	C 94	59.06.0103	10n		PETP, 63V, 10%, RM5	0	R 36	57.11.3562		5k6	MF, 1%, 0207
0	C 95	59.06.0103	10n		PETP, 63V, 10%, RM5	0	R 37	57.11.3562		5k6	MF, 1%, 0207
0	D 1	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 39	57.11.3102		1k0	MF, 1%, 0207
0	D 2	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 43	57.11.3332		3k3	MF, 1%, 0207
0	D 3	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 45	57.11.3562		5k6	MF, 1%, 0207
0	D 4	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 47	57.11.3000		0R0	MF, 0207
0	D 6	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 48	57.11.3562		5k6	MF, 1%, 0207
0	D 9	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 49	57.11.3562		5k6	MF, 1%, 0207
0	D 10	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 54	57.11.3332		3k3	MF, 1%, 0207
0	D 11	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 56	57.11.3330		33R	MF, 1%, 0207
0	D 12	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 57	57.11.3000		0R0	MF, 0207
0	D 13	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 60	57.11.3562		5k6	MF, 1%, 0207
0	D 14	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 64	57.11.3000		0R0	MF, 0207
0	D 15	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 66	57.11.3000		0R0	MF, 0207
0	D 18	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 67	57.11.3000		0R0	MF, 0207
0	D 20	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 68	57.11.5155		1M5	MF, 5%, 0207
0	D 21	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 69	57.11.3000		0R0	MF, 0207
0	D 24	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 72	57.11.3000		0R0	MF, 0207
0	D 25	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 73	57.11.3000		0R0	MF, 0207
0	D 26	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35	0	R 76	57.11.3102		1k0	MF, 1%, 0207
0	D 28	50.04.0127	BAT85		200mA, Schottky						
0	D 29	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35						
0	D 30	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35						
0	D 33	50.04.0127	BAT85		200mA, Schottky						
0	D 34	50.04.0127	BAT85		200mA, Schottky						
0	D 37	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35						
0	D 38	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35						

## FADER MAIN BOARD (MONO) 1.980.190.81

## FADER MAIN BOARD (MONO, VCA) 1.980.191.81 (refer to end of list)



lrx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 77	57.11.3102	1k0	MF, 1%, 0207	
0	R 82	57.11.3000	0R0	MF, 0207	
0	R 83	57.11.3330	33R	MF, 1%, 0207	
0	R 84	57.11.3102	1k0	MF, 1%, 0207	
0	R 85	57.11.3332	3k3	MF, 1%, 0207	
0	R 88	57.11.3104	100k	MF, 1%, 0207	
0	R 89	57.11.3104	100k	MF, 1%, 0207	
0	R 90	57.11.3102	1k0	MF, 1%, 0207	
0	R 91	57.11.3103	10k	MF, 1%, 0207	
0	R 92	57.11.3103	10k	MF, 1%, 0207	
0	R 93	57.11.3223	22k	MF, 1%, 0207	
0	R 94	57.11.3682	6k8	MF, 1%, 0207	
0	R 95	57.11.3223	22k	MF, 1%, 0207	
0	R 98	57.11.3223	22k	MF, 1%, 0207	
0	R 99	57.11.3104	100k	MF, 1%, 0207	
0	R 100	57.11.3104	100k	MF, 1%, 0207	
0	R 101	57.11.3103	10k	MF, 1%, 0207	
0	R 102	57.11.3681	680R	MF, 1%, 0207	
0	R 103	57.11.3681	680R	MF, 1%, 0207	
0	R 104	57.11.3000	0R0	MF, 0207	
0	R 105	57.11.3000	0R0	MF, 0207	
0	R 106	57.11.3104	100k	MF, 1%, 0207	
0	R 107	57.11.3102	1k0	MF, 1%, 0207	
0	R 108	57.11.3330	33R	MF, 1%, 0207	
0	R 111	57.11.3103	10k	MF, 1%, 0207	
0	R 112	57.11.3332	3k3	MF, 1%, 0207	
0	R 113	57.11.3124	120k	MF, 1%, 0207	
0	R 114	57.11.3564	560k	MF, 1%, 0207	
0	R 115	57.11.3684	680k	MF, 1%, 0207	
0	R 116	57.11.3330	33R	MF, 1%, 0207	
0	R 117	57.11.3330	33R	MF, 1%, 0207	
0	R 118	57.11.3000	0R0	MF, 0207	
0	R 119	57.11.3564	560k	MF, 1%, 0207	
0	R 121	57.11.3104	100k	MF, 1%, 0207	
0	R 122	57.11.5155	1M5	MF, 5%, 0207	
0	R 123	57.11.3104	100k	MF, 1%, 0207	
0	R 124	57.11.5155	1M5	MF, 5%, 0207	
0	R 125	57.11.3274	270k	MF, 1%, 0207	
0	R 126	57.11.3564	560k	MF, 1%, 0207	
0	R 127	57.11.3102	1k0	MF, 1%, 0207	
0	R 128	57.11.3682	6k8	MF, 1%, 0207	
0	R 130	57.11.5155	1M5	MF, 5%, 0207	
0	R 132	57.11.3223	22k	MF, 1%, 0207	
0	R 134	57.11.3392	3k9	MF, 1%, 0207	
0	R 135	57.11.3332	3k3	MF, 1%, 0207	
0	R 138	57.11.3104	100k	MF, 1%, 0207	
0	R 139	57.11.3104	100k	MF, 1%, 0207	
0	R 140	57.11.3223	22k	MF, 1%, 0207	
0	R 141	57.11.3681	680R	MF, 1%, 0207	
0	R 142	57.11.5155	1M5	MF, 5%, 0207	
0	R 147	57.11.3153	15k	MF, 1%, 0207	
0	R 148	57.11.3223	22k	MF, 1%, 0207	
0	R 149	57.11.3472	4k7	MF, 1%, 0207	
0	R 150	57.11.3561	560R	MF, 1%, 0207	
0	R 151	57.11.3561	560R	MF, 1%, 0207	
0	R 154	57.11.3183	18k	MF, 1%, 0207	
0	R 155	57.11.3681	680R	MF, 1%, 0207	
0	R 156	57.11.3561	560R	MF, 1%, 0207	
0	R 157	57.11.3564	560k	MF, 1%, 0207	
0	R 158	57.11.5155	1M5	MF, 5%, 0207	
0	R 160	57.11.5155	1M5	MF, 5%, 0207	
0	R 162	57.11.3564	560k	MF, 1%, 0207	
0	R 163	57.11.3332	3k3	MF, 1%, 0207	
0	RA 1	58.01.9503	50k	Cermet, 10%, 0.5W, vertical	
0	RA 2	not used	50k	Cermet, 10%, 0.5W, vertical	
0	RA 4	58.01.9103	10k	Cermet, 10%, 0.5W, vertical	
0	RA 6	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal	
0	RZ 1	57.88.4104	8*100k	2%, SIP 9	
0	RZ 2	57.88.2104	4*100k	2%, SIP 8	
0	RZ 3	57.88.4104	8*100k	2%, SIP 9	
0	RZ 4	57.88.2104	4*100k	2%, SIP 8	
0	RZ 5	57.88.2223	4*22k	2%, SIP 8	
0	RZ 6	57.88.2223	4*22k	2%, SIP 8	
0	RZ 7	57.88.2223	4*22k	2%, SIP 8	
0	XIC 14	53.03.0168	16p	DIL 0.3", lötl, gerade	
0	XIC 15	53.03.0166	8p	DIL 0.3", lötl, gerade	
0	XIC 17	53.03.0168	16p	DIL 0.3", lötl, gerade	
0	XIC 23	53.03.0166	8p	DIL 0.3", lötl, gerade	

**Parts with different values for 1.980.191.81:**

- BOARD 1.980.190.81  
 - MP...1 1.980.191.04 LABEL  
 - MP10 28.99.0119 Rohrniete  
 - P.....1B 54.11.2013 32-P P-EU-BK 2\*16P  
 - R.....88 57.11.3000 0 0-OHM  
 - R.....87 57.11.3000 0 0-OHM

End of List

FADER MAIN BOARD (STEREO) 1.980.192.81  
 FADER MAIN BOARD (STEREO, VCA) 1.980.193.81 (refer to end of list)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	A 1	1.980.125.00			FADER DIR STEREO POT BOARD	0	D 4	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	A 2	1.980.126.00			FADER BAL POT BOARD	0	D 5	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 1	59.34.4151	150p		CER 63V, 5%, N750	0	D 6	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 2	59.34.2330	33p		CER 63V, 5%, N150	0	D 7	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 3	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 8	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 4	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 9	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 5	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 10	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 6	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 11	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 7	59.34.2330	33p		CER 63V, 5%, N150	0	D 12	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 8	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 13	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 9	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 14	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 10	59.34.4151	150p		CER 63V, 5%, N750	0	D 15	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 12	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 18	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 13	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 20	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 14	59.34.4151	150p		CER 63V, 5%, N750	0	D 21	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 15	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 23	50.04.0127		BAT85	200mA, Schottky
0	C 17	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 24	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 18	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 25	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 19	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 26	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 20	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 27	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 21	59.22.3003	220u		EL 10V, 20%, RM5	0	D 28	50.04.0127		BAT85	200mA, Schottky
0	C 22	59.22.3003	220u		EL 10V, 20%, RM5	0	D 29	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 24	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 30	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 25	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 31	50.04.0127		BAT85	200mA, Schottky
0	C 30	59.34.2101	100p		CER 63V, 5%, N150	0	D 32	50.04.0127		BAT85	200mA, Schottky
0	C 31	59.34.2101	100p		CER 63V, 5%, N150	0	D 33	50.04.0127		BAT85	200mA, Schottky
0	C 36	59.06.0223	22n		PETP, 63V, 10%, RM5	0	D 34	50.04.0127		BAT85	200mA, Schottky
0	C 37	59.06.0223	22n		PETP, 63V, 10%, RM5	0	D 35	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 38	59.06.0223	22n		PETP, 63V, 10%, RM5	0	D 36	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 39	59.22.5220	22u		EL 25V, 20%, RM5	0	D 37	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 42	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 38	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 43	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 39	50.04.0127		BAT85	200mA, Schottky
0	C 44	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 40	50.04.0127		BAT85	200mA, Schottky
0	C 45	59.06.0223	22n		PETP, 63V, 10%, RM5	0	D 41	50.04.0127		BAT85	200mA, Schottky
0	C 46	59.22.5220	22u		EL 25V, 20%, RM5	0	D 42	50.04.0127		BAT85	200mA, Schottky
0	C 47	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 43	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 48	59.34.2101	100p		CER 63V, 5%, N150	0	D 44	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 49	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 45	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 50	59.22.4002	100uF		EL 16V, 20%, RM5	0	DV 1	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 51	59.22.4002	100uF		EL 16V, 20%, RM5	0	DV 2	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 52	59.22.5220	22u		EL 25V, 20%, RM5	0	IC 1	50.09.0101		TL072	IC TL 072 CN ,A
0	C 53	59.22.5220	22u		EL 25V, 20%, RM5	0	IC 2	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 55	59.34.2101	100p		CER 63V, 5%, N150	0	IC 3	50.09.0101		TL072	IC TL 072 CN ,A
0	C 56	59.34.2101	100p		CER 63V, 5%, N150	0	IC 4	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 57	59.34.2101	100p		CER 63V, 5%, N150	0	IC 5	50.09.0117		MC33078	IC MC 33078 P
0	C 58	59.34.2101	100p		CER 63V, 5%, N150	0	IC 6	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 60	59.34.4151	150p		CER 63V, 5%, N750	0	IC 7	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 61	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 8	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 62	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 10	50.09.0117		MC33078	IC MC 33078 P
0	C 63	59.34.4101	100p		CER 63V, 5%, N750	0	IC 13	50.09.0124		2142	IC SSM 2142 P
0	C 64	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 14	50.17.1595		74HC595	IC ... 74 HC 595 .. ,A
0	C 65	59.34.4101	100p		CER 63V, 5%, N750	0	IC 15	50.09.0124		2142	IC SSM 2142 P
0	C 67	59.34.4151	150p		CER 63V, 5%, N750	0	IC 16	50.09.0117		MC33078	IC MC 33078 P
0	C 68	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 17	50.17.1595		74HC595	IC ... 74 HC 595 .. ,A
0	C 69	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 18	50.09.0117		MC33078	IC MC 33078 P
0	C 70	59.34.4101	100p		CER 63V, 5%, N750	0	IC 19	50.11.0119		LM3914	IC LM 3914 N, ,A
0	C 71	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 20	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 72	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 21	50.09.0119		TL062	IC TL 062 ACP ,A
0	C 73	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 22	50.17.1004		74HC04	IC ... 74 HC 04 .. ,A
0	C 74	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 23	50.09.0101		TL072	IC TL 072 CN ,A
0	C 75	59.22.3003	220u		EL 10V, 20%, RM5	0	IC 24	50.09.0101		TL072	IC TL 072 CN ,A
0	C 76	59.34.4101	100p		CER 63V, 5%, N750	0	IC 25	50.17.1086		74HC86	IC ... 74 HC 86 .. ,A
0	C 77	59.34.4101	100p		CER 63V, 5%, N750	0	IC 26	50.09.0119		TL062	IC TL 062 ACP ,A
0	C 78	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	IC 27	50.09.0119		TL062	IC TL 062 ACP ,A
0	C 79	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	IC 28	50.07.0015		4053B	IC ... 4053 .. ,A
0	C 81	59.06.0474	470n		PETP, 63V, 10%, RM5	0	JP 1	54.01.0021		Jumper	0.63 * 0.63mm
0	C 82	59.06.0474	470n		PETP, 63V, 10%, RM5	0	MP 1	1.980.192.04	mp		NR.-ETIKETTE 5 * 20
0	C 83	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 2	43.01.0108	mp	Label	ESE-WARNSCHILD
0	C 84	59.34.4151	150p		CER 63V, 5%, N750	0	MP 3	1.980.102.12	mp		FADER MAIN PCB
0	C 85	59.34.4151	150p		CER 63V, 5%, N750	0	MP 4	1.010.011.22		MP	NIETMUTTER SW6 M 3 *1.5
0	C 86	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 5	1.010.011.22		MP	NIETMUTTER SW6 M 3 *1.5
0	C 87	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 6	1.010.011.22		MP	NIETMUTTER SW6 M 3 *1.5
0	C 88	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 7	1.010.063.22		3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 89	59.22.4002	100uF		EL 16V, 20%, RM5	0	MP 8	1.010.063.22		3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 90	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 9	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 91	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 10	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 92	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 11	1.980.109.01			Isolation Potmeter
0	C 93	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 12	1.010.108.64	1 pce		WIRE WRAP DRAHT D .255 L= 80
0	C 94	59.06.0103	10n		PETP, 63V, 10%, RM5	0	P 1	54.01.0020		1p	Pin 0.63*0.63
0	C 95	59.06.0103	10n		PETP, 63V, 10%, RM5	0	P 2	54.01.0020		1p	Pin 0.63*0.63

FADER MAIN BOARD (STEREO) 1.980.192.81  
 FADER MAIN BOARD (STEREO, VCA) 1.980.193.81 (refer to end of list)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	P 3	54.01.0020	1p		Pin 0.63*0.63	0	R 96	57.11.3223	22k		MF, 1%, 0207
0	P 4	54.01.0020	1p		Pin 0.63*0.63	0	R 99	57.11.3104	100k		MF, 1%, 0207
0	P 5	54.01.0020	1p		Pin 0.63*0.63	0	R 100	57.11.3104	100k		MF, 1%, 0207
0	P 6	54.01.0020	1p		Pin 0.63*0.63	0	R 101	57.11.3103	10k		MF, 1%, 0207
0	P 7	54.01.0020	1p		Pin 0.63*0.63	0	R 102	57.11.3681	680R		MF, 1%, 0207
0	P 8	54.01.0020	1p		Pin 0.63*0.63	0	R 103	57.11.3681	680R		MF, 1%, 0207
0	P 11	54.14.5520	20p		PCB-Buchse gerade	0	R 104	57.11.3000	0R0		MF, 0207
0	P 12	54.14.5536	16p		PCB-Buchse winkel	0	R 105	57.11.3000	0R0		MF, 0207
0	PB 2	54.11.2004	64-P		P EU-B 2 * 32	0	R 106	57.11.3104	100k		MF, 1%, 0207
0	Q 3	50.03.0350	J-112		J-112	0	R 107	57.11.3102	1k0		MF, 1%, 0207
0	Q 4	50.03.0350	J-112		J-112	0	R 108	57.11.3330	33R		MF, 1%, 0207
0	Q 5	50.03.0350	J-112		J-112	0	R 109	57.11.3102	1k0		MF, 1%, 0207
0	Q 6	50.03.0350	J-112		J-112	0	R 110	57.11.3330	33R		MF, 1%, 0207
0	R 1	57.11.3153	15k		MF, 1%, 0207	0	R 111	57.11.3103	10k		MF, 1%, 0207
0	R 2	57.11.3103	10k		MF, 1%, 0207	0	R 112	57.11.3332	3k3		MF, 1%, 0207
0	R 3	57.11.3103	10k		MF, 1%, 0207	0	R 113	57.11.3124	120k		MF, 1%, 0207
0	R 4	57.11.3153	15k		MF, 1%, 0207	0	R 114	57.11.3564	560k		MF, 1%, 0207
0	R 5	57.11.3224	220k		MF, 1%, 0207	0	R 115	57.11.3684	680k		MF, 1%, 0207
0	R 7	57.11.3000	0R0		MF, 0207	0	R 116	57.11.3330	33R		MF, 1%, 0207
0	R 8	57.11.3562	5k6		MF, 1%, 0207	0	R 117	57.11.3330	33R		MF, 1%, 0207
0	R 10	57.11.3562	5k6		MF, 1%, 0207	0	R 119	57.11.3564	560k		MF, 1%, 0207
0	R 12	57.11.3153	15k		MF, 1%, 0207	0	R 120	57.11.3681	680R		MF, 1%, 0207
0	R 13	57.11.3103	10k		MF, 1%, 0207	0	R 121	57.11.3104	100k		MF, 1%, 0207
0	R 14	57.11.3153	15k		MF, 1%, 0207	0	R 122	57.11.5155	1M5		MF, 5%, 0207
0	R 15	57.11.3103	10k		MF, 1%, 0207	0	R 123	57.11.3104	100k		MF, 1%, 0207
0	R 16	57.11.3153	15k		MF, 1%, 0207	0	R 124	57.11.5155	1M5		MF, 5%, 0207
0	R 18	57.11.3223	22k		MF, 1%, 0207	0	R 125	57.11.3274	270k		MF, 1%, 0207
0	R 20	57.11.3000	0R0		MF, 0207	0	R 126	57.11.3564	560k		MF, 1%, 0207
0	R 22	57.11.3103	10k		MF, 1%, 0207	0	R 127	57.11.3102	1k0		MF, 1%, 0207
0	R 23	57.11.3103	10k		MF, 1%, 0207	0	R 128	57.11.3682	6k8		MF, 1%, 0207
0	R 24	57.11.3153	15k		MF, 1%, 0207	0	R 129	57.11.3682	6k8		MF, 1%, 0207
0	R 26	57.11.3822	8k2		MF, 1%, 0207	0	R 130	57.11.5155	1M5		MF, 5%, 0207
0	R 27	57.11.3822	8k2		MF, 1%, 0207	0	R 131	57.11.3223	22k		MF, 1%, 0207
0	R 30	57.11.3000	0R0		MF, 0207	0	R 132	57.11.3223	22k		MF, 1%, 0207
0	R 33	57.11.3224	220k		MF, 1%, 0207	0	R 134	57.11.3392	3k9		MF, 1%, 0207
0	R 34	57.11.3682	6k8		MF, 1%, 0207	0	R 135	57.11.3332	3k3		MF, 1%, 0207
0	R 35	57.11.3822	8k2		MF, 1%, 0207	0	R 137	57.11.3392	3k9		MF, 1%, 0207
0	R 36	57.11.3562	5k6		MF, 1%, 0207	0	R 138	57.11.3104	100k		MF, 1%, 0207
0	R 37	57.11.3822	8k2		MF, 1%, 0207	0	R 139	57.11.3104	100k		MF, 1%, 0207
0	R 38	57.11.3822	8k2		MF, 1%, 0207	0	R 140	57.11.3223	22k		MF, 1%, 0207
0	R 39	57.11.3102	1k0		MF, 1%, 0207	0	R 141	57.11.3681	680R		MF, 1%, 0207
0	R 40	57.11.3102	1k0		MF, 1%, 0207	0	R 142	57.11.5155	1M5		MF, 5%, 0207
0	R 41	57.11.3822	8k2		MF, 1%, 0207	0	R 143	57.11.3223	22k		MF, 1%, 0207
0	R 43	57.11.3332	3k3		MF, 1%, 0207	0	R 144	57.11.3153	15k		MF, 1%, 0207
0	R 45	57.11.3822	8k2		MF, 1%, 0207	0	R 145	57.11.3472	4k7		MF, 1%, 0207
0	R 46	57.11.3822	8k2		MF, 1%, 0207	0	R 146	57.11.3561	560R		MF, 1%, 0207
0	R 47	57.11.3000	0R0		MF, 0207	0	R 147	57.11.3153	15k		MF, 1%, 0207
0	R 48	57.11.3822	8k2		MF, 1%, 0207	0	R 148	57.11.3223	22k		MF, 1%, 0207
0	R 49	57.11.3822	8k2		MF, 1%, 0207	0	R 149	57.11.3472	4k7		MF, 1%, 0207
0	R 54	57.11.3332	3k3		MF, 1%, 0207	0	R 150	57.11.3561	560R		MF, 1%, 0207
0	R 56	57.11.3330	33R		MF, 1%, 0207	0	R 151	57.11.3561	560R		MF, 1%, 0207
0	R 57	57.11.3223	22k		MF, 1%, 0207	0	R 152	57.11.3561	560R		MF, 1%, 0207
0	R 60	57.11.3562	5k6		MF, 1%, 0207	0	R 153	57.11.3183	18k		MF, 1%, 0207
0	R 61	57.11.3000	0R0		MF, 0207	0	R 154	57.11.3183	18k		MF, 1%, 0207
0	R 62	57.11.3000	0R0		MF, 0207	0	R 155	57.11.3681	680R		MF, 1%, 0207
0	R 64	57.11.3000	0R0		MF, 0207	0	R 156	57.11.3561	560R		MF, 1%, 0207
0	R 65	57.11.3000	0R0		MF, 0207	0	R 157	57.11.3564	560k		MF, 1%, 0207
0	R 66	57.11.3000	0R0		MF, 0207	0	R 158	57.11.5155	1M5		MF, 5%, 0207
0	R 67	57.11.3000	0R0		MF, 0207	0	R 159	57.11.3561	560R		MF, 1%, 0207
0	R 68	57.11.5155	1M5		MF, 5%, 0207	0	R 160	57.11.5155	1M5		MF, 5%, 0207
0	R 69	57.11.3000	0R0		MF, 0207	0	R 161	57.11.3332	3k3		MF, 1%, 0207
0	R 71	57.11.3000	0R0		MF, 0207	0	R 162	57.11.3564	560k		MF, 1%, 0207
0	R 72	57.11.3000	0R0		MF, 0207	0	R 163	57.11.3332	3k3		MF, 1%, 0207
0	R 73	57.11.3000	0R0		MF, 0207	0	RA 1	58.01.9503	50k		Cermet, 10%, 0.5W, vertical
0	R 74	57.11.3102	1k0		MF, 1%, 0207	0	RA 2	58.01.9503	50k		Cermet, 10%, 0.5W, vertical
0	R 75	57.11.3332	3k3		MF, 1%, 0207	0	RA 3	58.01.9103	10k		Cermet, 10%, 0.5W, vertical
0	R 76	57.11.3102	1k0		MF, 1%, 0207	0	RA 4	58.01.9103	10k		Cermet, 10%, 0.5W, vertical
0	R 77	57.11.3102	1k0		MF, 1%, 0207	0	RA 5	58.01.8502	5k		Cermet, 10%, 0.5W, horizontal
0	R 78	57.11.3104	100k		MF, 1%, 0207	0	RA 6	58.01.8502	5k		Cermet, 10%, 0.5W, horizontal
0	R 79	57.11.3102	1k0		MF, 1%, 0207	0	RZ 1	57.88.4104	8*100k		2%, SIP 9
0	R 80	57.11.3103	10k		MF, 1%, 0207	0	RZ 2	57.88.2104	4*100k		2%, SIP 8
0	R 81	57.11.3103	10k		MF, 1%, 0207						
0	R 83	57.11.3330	33R		MF, 1%, 0207						
0	R 84	57.11.3102	1k0		MF, 1%, 0207						
0	R 85	57.11.3332	3k3		MF, 1%, 0207						
0	R 88	57.11.3104	100k		MF, 1%, 0207						
0	R 89	57.11.3104	100k		MF, 1%, 0207						
0	R 90	57.11.3102	1k0		MF, 1%, 0207						
0	R 91	57.11.3103	10k		MF, 1%, 0207						
0	R 92	57.11.3103	10k		MF, 1%, 0207						
0	R 93	57.11.3223	22k		MF, 1%, 0207						
0	R 94	57.11.3682	6k8		MF, 1%, 0207						



FADER MAIN BOARD (STEREO) 1.980.192.81

FADER MAIN BOARD (STEREO, VCA) 1.980.193.81 (refer to end of list)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	RZ 3	57.88.4104		8*100k	2%, SIP 9
0	RZ 4	57.88.2104		4*100k	2%, SIP 8
0	RZ 5	57.88.2223		4*22k	2%, SIP 8
0	RZ 6	57.88.2223		4*22k	2%, SIP 8
0	RZ 7	57.88.2223		4*22k	2%, SIP 8
0	XIC 13	53.03.0166		8p	DIL 0.3", lötl, gerade
0	XIC 14	53.03.0166		16p	DIL 0.3", lötl, gerade
0	XIC 15	53.03.0166		8p	DIL 0.3", lötl, gerade
0	XIC 17	53.03.0166		16p	DIL 0.3", lötl, gerade
0	XIC 23	53.03.0166		8p	DIL 0.3", lötl, gerade
0	XIC 24	53.03.0166		8p	DIL 0.3", lötl, gerade

----- End of List -----

**Parts with different values for 1.980.193.81:**

- BOARD 1.980.192.81  
 - MP.....1 1.980.193.04 LABEL  
 - MP10 28.99.01119 Rohrniete  
 - P.....1B 54.11.2013 32-P P-EU-BK 2\*16P  
 - R.....86 57.11.3000 0 0-OHM  
 - R.....87 57.11.3000 0 0-OHM

FADER MAIN BOARD (MONO, FILM) 1.980.194.81  
 FADER MAIN BOARD (MONO, FILM, VCA) 1.980.195.81 (refer to end of list)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	A 1	1.980.115.00			FADER FILM DIV POT BOARD	0	D 14	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	A 2	1.980.117.00			FADER FILM PAN POT BOARD	0	D 15	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 1	59.34.4151	150p		CER 63V, 5%, N750	0	D 16	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 2	59.34.2330	33p		CFR 63V, 5%, N150	0	D 17	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 5	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 18	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 9	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 20	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 10	59.34.4151	150p		CER 63V, 5%, N750	0	D 21	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 11	59.34.4151	150p		CER 63V, 5%, N750	0	D 22	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 12	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 23	50.04.0127		BAT85	200mA, Schottky
0	C 13	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 24	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 15	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 25	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 16	59.22.3003	220u		EL 10V, 20%, RM5	0	D 26	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 17	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 27	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 18	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 28	50.04.0127		BAT85	200mA, Schottky
0	C 19	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 29	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 20	59.06.0104	100n		PETP, 63V, 10%, RM5	0	D 30	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 22	59.22.3003	220u		EL 10V, 20%, RM5	0	D 33	50.04.0127		BAT85	200mA, Schottky
0	C 23	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 34	50.04.0127		BAT85	200mA, Schottky
0	C 24	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 37	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 25	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 38	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 26	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 39	50.04.0127		BAT85	200mA, Schottky
0	C 27	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 40	50.04.0127		BAT85	200mA, Schottky
0	C 28	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 43	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 29	59.22.4002	100uF		EL 16V, 20%, RM5	0	D 44	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 30	59.34.2330	33p		CER 63V, 5%, N150	0	D 45	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 31	59.34.2330	33p		CER 63V, 5%, N150	0	DV 1	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 32	59.34.2330	33p		CER 63V, 5%, N150	0	DV 2	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35
0	C 33	59.34.2330	33p		CER 63V, 5%, N150	0	IC 1	50.09.0101		TL072	IC TL 072 CN
0	C 34	59.34.4151	150p		CER 63V, 5%, N750	0	IC 2	50.07.0015		4053B	IC .. 4053 ..
0	C 35	59.34.4151	150p		CER 63V, 5%, N750	0	IC 5	50.09.0117		MC33078	IC MC 33078 P
0	C 36	59.06.0223	22n		PETP, 63V, 10%, RM5	0	IC 6	50.07.0015		4053B	IC .. 4053 ..
0	C 40	59.34.4151	150p		CER 63V, 5%, N750	0	IC 7	50.07.0015		4053B	IC .. 4053 ..
0	C 41	59.34.4151	150p		CER 63V, 5%, N750	0	IC 8	50.07.0015		4053B	IC .. 4053 ..
0	C 42	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 9	50.09.0117		MC33078	IC MC 33078 P
0	C 43	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 10	50.09.0117		MC33078	IC MC 33078 P
0	C 44	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 11	50.09.0117		MC33078	IC MC 33078 P
0	C 45	59.06.0223	22n		PETP, 63V, 10%, RM5	0	IC 12	50.09.0117		MC33078	IC MC 33078 P
0	C 47	59.06.0104	100n		PETP, 63V, 10%, RM5	0	IC 14	50.17.1595		74HC595	IC ... 74 HC 595 ..
0	C 48	59.34.2101	100p		CER 63V, 5%, N150	0	IC 15	50.09.0124		2142	IC SSM 2142 P
0	C 49	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 17	50.17.1595		74HC595	IC ... 74 HC 595 ..
0	C 50	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 18	50.09.0117		MC33078	IC MC 33078 P
0	C 51	59.22.4002	100uF		EL 16V, 20%, RM5	0	IC 19	50.11.0119		LM3914	IC LM 3914 N,
0	C 52	59.22.5220	22u		EL 25V, 20%, RM5	0	IC 20	50.07.0015		4053B	IC .. 4053 ..
0	C 53	59.22.5220	22u		EL 25V, 20%, RM5	0	IC 21	50.09.0119		TL062	IC TL 062 ACP
0	C 55	59.34.2101	100p		CER 63V, 5%, N150	0	IC 22	50.17.1004		74HC04	IC ... 74 HC 04 ..
0	C 56	59.34.2101	100p		CER 63V, 5%, N150	0	IC 23	50.09.0101		TL072	IC TL 072 CN
0	C 57	59.34.2101	100p		CER 63V, 5%, N150	0	IC 25	50.17.1086		74HC86	IC ... 74 HC 86 ..
0	C 58	59.34.2101	100p		CER 63V, 5%, N150	0	IC 27	50.09.0119		TL062	IC TL 062 ACP
0	C 59	59.34.2101	100p		CER 63V, 5%, N150	0	IC 28	50.07.0015		4053B	IC .. 4053 ..
0	C 65	59.34.4101	100p		CER 63V, 5%, N750	0	JP 1	54.01.0021		Jumper	0.63 * 0.63mm
0	C 67	59.34.4151	150p		CER 63V, 5%, N750	0	JP 2	54.01.0021		Jumper	0.63 * 0.63mm
0	C 68	59.22.4002	100uF		EL 16V, 20%, RM5	0	JP 3	54.01.0021		Jumper	0.63 * 0.63mm
0	C 69	59.22.3003	220u		EL 10V, 20%, RM5	0	MP 1	1.980.194.04	mp	NR-ETIKETTE 5 * 20	
0	C 70	59.34.4101	100p		CER 63V, 5%, N750	0	MP 2	43.01.0108	mp	Label	ESE-WARNSCHILD
0	C 71	59.22.3003	220u		EL 10V, 20%, RM5	0	MP 3	1.980.102.12	mp		FADER MAIN PCB
0	C 72	59.06.0104	100n		PETP, 63V, 10%, RM5	0	MP 4	1.010.011.22		MP	NIETMUTTER SW 6 M 3 *1.5
0	C 73	59.06.0104	100n		PETP, 63V, 10%, RM5	0	MP 5	1.010.011.22		MP	NIETMUTTER SW 6 M 3 *1.5
0	C 74	59.22.3003	220u		EL 10V, 20%, RM5	0	MP 6	1.010.011.22		MP	NIETMUTTER SW 6 M 3 *1.5
0	C 76	59.34.4101	100p		CER 63V, 5%, N750	0	MP 7	1.010.063.22		3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 78	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 8	1.010.063.22		3*11	NIETMUTTER, M3*11, GEWL. 10.3
0	C 79	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 9	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 81	59.06.0474	470n		PETP, 63V, 10%, RM5	0	MP 10	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0	C 82	59.06.0474	470n		PETP, 63V, 10%, RM5	0	MP 11	1.980.109.01			Isolation Potmeter
0	C 83	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	MP 12	1.010.108.64	1 pce		WIRE WRAP DRAHT D.255 L= 80
0	C 84	59.34.4151	150p		CER 63V, 5%, N750	0	P 1	54.01.0020		1p	Pin 0.63*0.63
0	C 86	59.22.4002	100uF		EL 16V, 20%, RM5	0	P 2	54.01.0020		1p	Pin 0.63*0.63
0	C 87	59.22.4002	100uF		EL 16V, 20%, RM5	0	P 3	54.01.0020		1p	Pin 0.63*0.63
0	C 89	59.22.4002	100uF		EL 16V, 20%, RM5	0	P 4	54.01.0020		1p	Pin 0.63*0.63
0	C 90	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	P 5	54.01.0020		1p	Pin 0.63*0.63
0	C 91	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	P 6	54.01.0020		1p	Pin 0.63*0.63
0	C 92	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	P 7	54.01.0020		1p	Pin 0.63*0.63
0	C 93	59.06.0102	1n0		PETP, 63V, 10%, RM5	0	P 8	54.01.0020		1p	Pin 0.63*0.63
0	C 94	59.06.0103	10n		PETP, 63V, 10%, RM5	0	P 11	54.14.5520		20p	PCB-Buchse gerade
0	C 95	59.06.0103	10n		PETP, 63V, 10%, RM5	0	P 12	54.14.5535		16p	PCB-Buchse winkel
0	D 1	50.04.0125			75V, 150mA, 4ns, DO-35	0	PB 2	54.11.2004		64-P	P EU-B 2 * 32
0	D 2	50.04.0125			75V, 150mA, 4ns, DO-35	0	Q 1	50.03.0351		BC327-25	PNP, 800mA
0	D 3	50.04.0125			75V, 150mA, 4ns, DO-35	0	Q 2	50.03.1130		J-110	J 110
0	D 4	50.04.0125			75V, 150mA, 4ns, DO-35	0	Q 3	50.03.0350		J-112	J-112
0	D 6	50.04.0125			75V, 150mA, 4ns, DO-35	0	Q 4	50.03.0350		J-112	J-112
0	D 9	50.04.0125			75V, 150mA, 4ns, DO-35	0	R 1	57.11.3153		15k	MF, 1%, 0207
0	D 10	50.04.0125			75V, 150mA, 4ns, DO-35						
0	D 11	50.04.0125			75V, 150mA, 4ns, DO-35						
0	D 12	50.04.0125			75V, 150mA, 4ns, DO-35						
0	D 13	50.04.0125			75V, 150mA, 4ns, DO-35						

**FADER MAIN BOARD (MONO, FILM) 1.980.194.81**  
**FADER MAIN BOARD (MONO, FILM, VCA) 1.980.195.81 (refer to end of list)**



Iidx.	Pos.	Part No.	Qty.	Type/Val.	Description	Iidx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 2	57.11.3103	10k	MF, 1%	0207	0	R 132	57.11.3223	22k	MF, 1%	0207
0	R 3	57.11.3103	10k	MF, 1%	0207	0	R 134	57.11.3392	3k9	MF, 1%	0207
0	R 4	57.11.3103	10k	MF, 1%	0207	0	R 135	57.11.3332	3k3	MF, 1%	0207
0	R 5	57.11.3103	10k	MF, 1%	0207	0	R 138	57.11.3104	100k	MF, 1%	0207
0	R 6	57.11.3105	1M0	MF, 1%	0207	0	R 139	57.11.3104	100k	MF, 1%	0207
0	R 9	57.11.3183	18k	MF, 1%	0207	0	R 140	57.11.3223	22k	MF, 1%	0207
0	R 13	57.11.3103	10k	MF, 1%	0207	0	R 141	57.11.3681	680R	MF, 1%	0207
0	R 17	57.11.3000	0R0	MF,	0207	0	R 142	57.11.5155	1M5	MF, 5%	0207
0	R 18	57.11.5155	1M5	MF, 5%	0207	0	R 147	57.11.3153	15k	MF, 1%	0207
0	R 19	57.11.3000	0R0	MF,	0207	0	R 148	57.11.3223	22k	MF, 1%	0207
0	R 21	57.11.3000	0R0	MF,	0207	0	R 149	57.11.3472	4k7	MF, 1%	0207
0	R 25	57.11.3682	6k8	MF, 1%	0207	0	R 150	57.11.3561	560R	MF, 1%	0207
0	R 27	57.11.3392	3k9	MF, 1%	0207	0	R 151	57.11.3561	560R	MF, 1%	0207
0	R 28	57.11.3392	3k9	MF, 1%	0207	0	R 154	57.11.3183	18k	MF, 1%	0207
0	R 29	57.11.3392	3k9	MF, 1%	0207	0	R 155	57.11.3681	680R	MF, 1%	0207
0	R 31	57.11.3000	0R0	MF,	0207	0	R 156	57.11.3561	560R	MF, 1%	0207
0	R 32	57.11.3000	0R0	MF,	0207	0	R 157	57.11.3564	560k	MF, 1%	0207
0	R 34	57.11.3682	6k8	MF, 1%	0207	0	R 158	57.11.5155	1M5	MF, 5%	0207
0	R 36	57.11.3223	22k	MF, 1%	0207	0	R 160	57.11.5155	1M5	MF, 5%	0207
0	R 37	57.11.3223	22k	MF, 1%	0207	0	R 162	57.11.3564	560k	MF, 1%	0207
0	R 38	57.11.3392	3k9	MF, 1%	0207	0	R 163	57.11.3332	3k3	MF, 1%	0207
0	R 39	57.11.3102	1k0	MF, 1%	0207	0	RA 1	58.01.9503	50k	Cermet, 10%, 0.5W, vertical	
0	R 43	57.11.3332	3k3	MF, 1%	0207	0	RA 4	58.01.9103	10k	Cermet, 10%, 0.5W, vertical	
0	R 44	57.11.3000	0R0	MF,	0207	0	RA 6	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal	
0	R 45	57.11.3223	22k	MF, 1%	0207						
0	R 47	57.11.3000	0R0	MF,	0207	0	RZ 1	57.88.4104	8*100k	2%, SIP 9	
0	R 48	57.11.3223	22k	MF, 1%	0207	0	RZ 2	57.88.2104	4*100k	2%, SIP 8	
0	R 49	57.11.3223	22k	MF, 1%	0207	0	RZ 3	57.88.4104	8*100k	2%, SIP 9	
0	R 50	57.11.3223	22k	MF, 1%	0207	0	RZ 4	57.88.2104	4*100k	2%, SIP 8	
0	R 51	57.11.3223	22k	MF, 1%	0207	0	RZ 5	57.88.2223	4*22k	2%, SIP 8	
0	R 52	57.11.3682	6k8	MF, 1%	0207	0	RZ 6	57.88.2223	4*22k	2%, SIP 8	
0	R 53	57.11.3682	6k8	MF, 1%	0207	0	RZ 7	57.88.2223	4*22k	2%, SIP 8	
0	R 54	57.11.3332	3k3	MF, 1%	0207						
0	R 56	57.11.3330	33R	MF, 1%	0207	0	XIC 14	53.03.0168	16p	DIL 0.3", löt, gerade	
0	R 58	57.11.3392	3k9	MF, 1%	0207	0	XIC 15	53.03.0168	8p	DIL 0.3", löt, gerade	
0	R 59	57.11.3682	6k8	MF, 1%	0207	0	XIC 17	53.03.0168	16p	DIL 0.3", löt, gerade	
0	R 60	57.11.3223	22k	MF, 1%	0207	0	XIC 23	53.03.0168	8p	DIL 0.3", löt, gerade	
0	R 63	57.11.3682	6k8	MF, 1%	0207						
0	R 64	57.11.3000	0R0	MF,	0207						
0	R 65	57.11.3000	0R0	MF,	0207						
0	R 68	57.11.5155	1M5	MF, 5%	0207						
0	R 70	57.11.3000	0R0	MF,	0207						
0	R 76	57.11.3102	1k0	MF, 1%	0207						
0	R 77	57.11.3102	1k0	MF, 1%	0207						
0	R 82	57.11.3000	0R0	MF,	0207						
0	R 83	57.11.3330	33R	MF, 1%	0207						
0	R 84	57.11.3102	1k0	MF, 1%	0207						
0	R 85	57.11.3332	3k3	MF, 1%	0207						
0	R 88	57.11.3104	100k	MF, 1%	0207						
0	R 89	57.11.3104	100k	MF, 1%	0207						
0	R 90	57.11.3102	1k0	MF, 1%	0207						
0	R 91	57.11.3103	10k	MF, 1%	0207						
0	R 92	57.11.3103	10k	MF, 1%	0207						
0	R 93	57.11.3223	22k	MF, 1%	0207						
0	R 94	57.11.3682	6k8	MF, 1%	0207						
0	R 95	57.11.3223	22k	MF, 1%	0207						
0	R 98	57.11.3223	22k	MF, 1%	0207						
0	R 99	57.11.3104	100k	MF, 1%	0207						
0	R 100	57.11.3104	100k	MF, 1%	0207						
0	R 101	57.11.3103	10k	MF, 1%	0207						
0	R 102	57.11.3681	680R	MF, 1%	0207						
0	R 103	57.11.3681	680R	MF, 1%	0207						
0	R 104	57.11.3000	0R0	MF,	0207						
0	R 105	57.11.3000	0R0	MF,	0207						
0	R 106	57.11.3104	100k	MF, 1%	0207						
0	R 107	57.11.3102	1k0	MF, 1%	0207						
0	R 108	57.11.3330	33R	MF, 1%	0207						
0	R 111	57.11.3103	10k	MF, 1%	0207						
0	R 112	57.11.3332	3k3	MF, 1%	0207						
0	R 113	57.11.3124	120k	MF, 1%	0207						
0	R 114	57.11.3564	560k	MF, 1%	0207						
0	R 115	57.11.3684	680k	MF, 1%	0207						
0	R 116	57.11.3330	33R	MF, 1%	0207						
0	R 117	57.11.3330	33R	MF, 1%	0207						
0	R 118	57.11.3000	0R0	MF,	0207						
0	R 119	57.11.3564	560k	MF, 1%	0207						
0	R 120	57.11.3681	680R	MF, 1%	0207						
0	R 121	57.11.3104	100k	MF, 1%	0207						
0	R 122	57.11.5155	1M5	MF, 5%	0207						
0	R 123	57.11.3104	100k	MF, 1%	0207						
0	R 124	57.11.5155	1M5	MF, 5%	0207						
0	R 125	57.11.3274	270k	MF, 1%	0207						
0	R 126	57.11.3564	560k	MF, 1%	0207						
0	R 127	57.11.3102	1k0	MF, 1%	0207						
0	R 128	57.11.3682	6k8	MF, 1%	0207						
0	R 130	57.11.5155	1M5	MF, 5%	0207						

End of List

**Parts with different  
values for 1.980.195.81:**

- BOARD	1.980.194.81		
- MP....1	1.980.195.04	LABEL	
- MP10	28.99.0119	Rohrmiete	
- P.....1B	54.11.2013	32-P	P-EU-BK 2*16P
- R.....86	57.11.3000	0	0-OHM
- R.....87	57.11.3000	0	0-OHM



## FADER SWITCH BOARD (VCA) 1.980.198.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2200	HLMP1700	DL HLMP - 1700 RT
0	DL 2	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN
0	DL 3	73.01.0128	7-SEG	7-SEG.M.ANZEIGE LED RT 7.6 MM
0	MP 1	1.980.198.04	pce	NR-ETIKETTE 5 * 20
0	MP 3	1.980.109.70	pce	FADER SWITCH BOARD ,A
0	MP 4	1.862.811.02	2 pcs	DISTANZSTUECK
0	P 1	1.023.567.01	Ribbon20p	FLACHKABEL 20 POL. 0,15M
0	P 2	54.14.5586	16-P	P PCB-STECKER GERADE 16 P
1	P 3	1.023.566.02	Ribbon16p	FLACHKABEL 16 POL. 0,11M
0	S 1	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 2	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 4	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 5	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 6	55.15.0745	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	S 7	55.15.0725	1*A	S TASTE 1*A, 12MM, RT/GN
0	S 8	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 9	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 10	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 11	55.15.0705	1*A	S TASTE 1*A, 12MM, GN/TRANS
0	S 12	55.15.0745	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK
0	XDL 3	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

(01) 1.023.566.01 changed to 1.023.566.02



## FADER SWITCH BOARD (UNIVERSAL) 1.980.199.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 2	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN
0	MP 1	1.980.199.04	pce	NR.-ETIKETTE 5 * 20
0	MP 3	1.980.109.70	pce	FADER SWITCH BOARD ,A
0	MP 4	1.882.811.02	2 pcs	DISTANZSTUECK
0	P 1	1.023.567.01	Ribbon20p	FLACHKABEL 20 POL. 0,15M
0	P 2	54.14.5586	16-P	P PCB-STECKER GERADE 16 P
0	S 1	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 2	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 4	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 5	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 6	55.15.0745	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	S 7	55.15.0725	1*A	S TASTE 1*A, 12MM, RT/GN
0	S 11	55.15.0705	1*A	S TASTE 1*A, 12MM, GN/TRANS
0	S 12	55.15.0745	1*A	S TASTE 1*A, 12MM, GB/TRANS

End of List

Comments

## Pin assignment P1A

## VCA FADER UNIT to INPUT/FADER CONNECTION BOARD

Valid for:

- Fader Side Board Mono 1.980.133.00

- Fader Side Board Stereo 1.980.143.00

P1A	NO	NAME	REMARK	TYPE
P	01A	-15V	-Supply, fused	
P	01B	0V-A	Audio ground	I
P	01C	-VDC-EXT	-VDC, external control for VCA	I
P	02A	+15V	+Supply, fused	
P	02B	EQ	Equalizer Switch	X
P	02C	+VDC-EXT	+VDC, external control for VCA	I
P	03A	AUX78	AUX 7/8 Switch	X
P	03B	INS	Insert Switch	X
P	03C	-10V	-10V Supply	
P	04A	TXDFA	Transmit data	X
P	04B	DOO	Enable	
P	04C	+10V	+10V Supply	
P	05A	TSTB0	Strobe channel	
P	05B	-VLIM	-VDC, from limiter	I
P	05C	+VLIM	+VDC, from limiter	I
P	06A	TCL	Clock	
P	06B	0V_LEFT	Generated ground left, to VCA	
P	06C	PF-L-SEND	Pre-fader left, send to VCA	O
P	07A	FADER-SEND	Fader send to VCA	I
P	07B	PF-L-RET	Pre-fader left, return from VCA	I
P	07C	FADER-RET	Fader return from VCA	O
P	08A	P1B11A	Reserve to P1B pin 11A	O
P	08B	AF-L-SEND	After fader left, send to VCA	I
P	08C	VCA-G7	VCA GROUP bus 7	
P	09A	-AF_LEFT	After fader left, return from VCA	O
P	09B	0V_LEFT	Generated ground left, to VCA	
P	09C	VCA-G6	VCA GROUP bus 6	
P	10A	-AF_RIGHT	After fader right, return from VCA	
P	10B	0V_RIGHT	Generated ground right, to VCA	
P	10C	VCA-G5	VCA GROUP bus 5	I
P	11A	AF-R-SEND	After fader right, SEND to VCA	I
P	11B	PF-R-SEND	Pre-fader left, send to VCA	I
P	11C	VCA-G4	VCA GROUP bus 4	I
P	12A	Enable	Enable	
P	12B	VCA	VCA CONTROL input	
P	12C	VCA-G3	VCA GROUP bus 3	
P	13A	MUTE-FADER	Mute fader	I
P	13B	I_VCA	VCA INVERSE CONTROL input	
P	13C	VCA-G2	VCA GROUP bus 2	
P	14A	I_USER	I_USER	
P	14B	TXDFC	Transmit data to reserve out	
P	14C	VCA-G1	VCA GROUP bus 1	
P	15A	0V-L	Ground signal (logic)	
P	15B	TXDFB	Transmit data FET Fader	
P	15C	VCA-G0-L	VCA GROUP bus 0, link to left CH.	
P	16A	+5V	Vcc +5V Supply	
P	16B	VLED	LED Supply +3...4V, fused	
P	16C	VCA-G0-R	VCA GROUP bus 0, link to right CH.	

I = Input  
 DI = Digital  
 SY = Balanced  
 \* = not connected

O = Output  
 L = Line  
 AS = Unbalanced  
 X -- Automation DC 2000

AC = Audio  
 B = Bus  
 NO = Normal

DC = Supply or CV  
 C = Connector  
 IV = Inverted

## Pin assignment P1B

## VCA FADER UNIT to INPUT/FADER CONNECTION BOARD

Valid for:

- VCA Fader, Mono 1.980.130.00
- VCA Fader, Mono, Film/HDTV 1.980.131.00
- VCA Fader, Stereo 1.980.140.00

P1B	NO	NAME	REMARK	TYPE
P	1A			
P	1B			
P	2A			
P	2B			
P	3A			
P	3B			
P	4A	TXDFB	Transmit data FET fader	
P	4B			I
P	5A			I
P	5B	PF-L-SEND	Pre-fader left, send to VCA	O
P	6A	PF-L-RET	Pre-fader left, return from VCA	I
P	6B	I_USER	I_USER	O
P	7A	Enable	Enable	O
P	7B	MUTE-FADE	Mute fader	O
P	8A	VCA	VCA ON	
P	8B	I_VCA	INVERSE VCA ON	
P	9A	-AF_RIGHT	After fader right, return from VCA	I
P	9B	AF-R-SEND	After fader right, SEND to VCA	O
P	10A	OV_RIGHT	Generated ground right, to VCA	
P	10B	PF-R-SEND	Pre-fader left, send to VCA	O
P	11A	P1B11A	Reserve to P1A pin 08A	
P	11B	-AF_LEFT	After fader left, return from VCA	I
P	12A	AF-L-SEND	After fader left, send to VCA	O
P	12B	OV_LEFT	Generated ground left, to VCA	
P	13A	FADER-RET	Fader return from VCA	I
P	13B	FADER-SEND	Fader send to VCA	O
P	14A	OV_LEFT	Generated ground left, to VCA	
P	14B	PF-L-RET	Pre-fader left, return from VCA	I
P	15A	PF-L-SEND	Pre-fader left, send to VCA	O
P	15B			
P	16A	0V-A	Audio ground	
P	16B			

I = Input                      O = Output                      AC = Audio                      DC = Supply or CV  
 DI = Digital                    L = Line                          B = Bus                          C = Connector  
 SY = Balanced                AS = Unbalanced                NO = Normal                    IV = Inverted  
 \* = not connected

## Pin assignment P2B

## FADER UNIT to INPUT/FADER CONNECTION BOARD

Valid for:

All Fader Units

P2B	NO	NAME	REMARK	TYPE
P	1A	CHASSIS	Metal frame	
P	1B	MOFA-8	Motor fader link 8	
P	2A	MOFA-7	Motor fader link 7	
P	2B	MOFA-6	Motor fader link 6	
P	3A	MOFA-5	Motor fader link 5	
P	3B	MOFA-4	Motor fader link 4	
P	4A	MOFA-3	Motor fader link 3	
P	4B	MOFA-2	Motor fader link 2	
P	5A	MOFA-1	Motor fader link 1	
P	5B	METER-L		O
P	6A	METER-R		O
P	6B	DIR-OUT-L-A	Direct out left A	O
P	7A	DIR-OUT-L-B	Direct out left B	O
P	7B	DIR-OUT-R-A	Direct out right A	O
P	8A	DIR-OUT-R-B	Direct out right B	O
P	8B	PFLSIGN	Central bus RD5 PFL Signal	O
P	9A	MUTE-S	Mute send (to automation system)	O
P	9B	MUTE-R	Mute return (from automation system)	I
P	10A	DOO	Enable	
P	10B	TCL	Clock	
P	11A	RSTB	Receive STROBE	
P	11B	RCL	Receive Clock	
P	12A	RXD	Receive DATA	
P	12B	RXT	Receive DATA (from INST./LIM)	
P	13A	TSTB0	Strobe channel	
P	13B	SWI	Switch interrupt	
P	14A	TXDFA	Transmit data FET fader	
P	14B	TXDLA	Transmit data LED fader	
P	15A	0V-L	Ground signal (logic)	
P	15B	0V-R	Ground signal (logic)	
P	16A	VLED	LED supply variable +3...4V, fused	
P	16B	VLED	LED supply variable +3...4V, fused	
P	17A	+5V	+5V supply	
P	17B	ON_1_E	ON switch / MUTE switch	O
P	18A	ON_2_E	ON fader / MUTE fader	O
P	18B	USER_E	USER_E	I
P	19A	USER	USER	O
P	19B	MUTE-FADER	Mute fader	O
P	20A	MET-SEL	Meter select DIR/CH	I
P	20B	LINK-A	Link to input	
P	21A	BU-6	Bus-6 audio	O
P	21B	BU-5	Bus-5 audio	O
P	22A	BU-4	Bus-4 audio	O
P	22B	BU-3	Bus-3 audio	O
P	23A	BU-2	Bus-2 audio	O
P	23B	BU-1	Bus-1 audio	O
P	24A	ME-IN-R	Meter right audio / IN2 audio	I
P	24B	TALKBACK	Talkback audio	I
P	25A	ME-IN-L	Meter left audio	I
P	25B	AF-R	After-fader right audio	O
P	26A	MPX-RET	MPX return	I
P	26B	AF-L	After-fader left audio	O
P	27A	PF-R	PRE-fader right audio	I
P	27B	OV-REF	0V reference	
P	28A	PF-L	PRE-fader left audio	I
P	28B	OVERL	Overload	O
P	29A	MET-BR	Meter brightness	I
P	29B	ON_MUTE-SEL	ON/MUTE selector (high = ON)	I
P	30A	TB_SIGN	Talkback Signal	O
P	30B	VAR	VARIO	
P	31A	EXT-MUTE	External MUTE, SOLO DESTRUCTIVE	I, O
P	31B	+15V	+Supply, fused	
P	32A	0V-A	Audio ground	
P	32B	-15V	-Supply, fused	

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted



## Pin assignment P2C1

20-pin flat cable connection FADER SWITCH BOARD (P1) to FADER MAIN BOARD (P11)

Valid for:

All Fader units

P20P	NO	NAME	REMARK	TYPE
P	1	+5V	VCC + Supply fused	DC
P	2	+5V	VCC + Supply fused	DC
P	3	0V-L	Logic ground	DC
P	4	0V-L	Logic ground	DC
P	5	VLED	LED + 3-4V Supply	DC
P	6	VLED	LED + 3-4V Supply	DC
P	7	ON_S	Connector to ON switch	DC
P	8	ON_R	Connector to ON logic	DC
P	9	DO0	Enable	DI
P	10	TSTB0	Transmit strobe channel	DI
P	11	TCL	Transmit Clock	DI
P	12	TXDL	Transmit data to switch board	DI
P	13	TXTL	Transmit data from switch board	DI
P	14	BAL_S	Connector to BAL switch	DC
P	15	SWI	Connector to switch interrupt circuit	DC
P	16	RSTB	Receive strobe channel	DI
P	17	RCL	Receive Clock	DI
P	18	RXD	Receive DATA to switch board	DI
P	19	RXT	Receive DATA from switch board	DI
P	20	BAL_R	Connector to BAL logic	DC

I = Input

O = Output

AC = Audio

DC = Supply or CV

DI = Digital

L = Line

B = Bus

C = Connector

SY = Balanced

AS = Unbalanced

NO = Normal

IV = Inverted

\* = not connected

## Pin assignment P2C2

## 16-pin direct connection FADER SWITCH BOARD (P2) to FADER MAIN BOARD (P12)

Valid for:

All Fader Units

P16P	NO	NAME	REMARK	TYPE
P	1	USR_2	Connector to USER lower LED	DC
P	2	USR_1	Connector to USER upper LED; logic	DC
P	3	ON_2	Connector to ON lower LED	DC
P	4	ON_1	Connector to ON upper LED	DC
P	5	USER_R	Connector to USER logic	DC
P	6	USER_S	Connector to USER switch	DC
P	7	LEVEL_1	LED VU Meter cathode lowest LED	DC
P	8	LEVEL_2	LED VU Meter cathode	DC
P	9	LEVEL_3	LED VU Meter cathode	DC
P	10	LEVEL_4	LED VU Meter cathode	DC
P	11	LEVEL_5	LED VU Meter cathode	DC
P	12	LEVEL_6	LED VU Meter cathode	DC
P	13	LEVEL_7	LED VU Meter cathode	DC
P	14	LEVEL_8	LED VU Meter cathode	DC
P	15	LEVEL_9	LED VU Meter cathode	DC
P	16	LEVEL_10	LED VU Meter cathode highest LED	DC

I = Input                      O = Output                      AC = Audio                      DC = Supply or CV  
 DI = Digital                      L = Line                      B = Bus                      C = Connector  
 SY = Balanced                      AS = Unbalanced                      NO = Normal                      IV = Inverted  
 \* = not connected

## Pin assignment P2C3

16-pin flat cable connection FADER SWITCH BOARD (P3) to FADER VCA SIDE BOARD (P3)

Valid for:

VCA Fader Units only

P16B	NO	NAME	REMARK	TYPE
P	1	GRPMA	GROUP MASTER LED cathode	DC
P	2	GRPSEL	GROUP SEL LED cathode	DC
P	3	GRPSEL_S	Connector to GROUP SEL switch	DC
P	4	GRPSEL_R	Connector to GROUP SEL logic	DC
P	5	GRPMA_S	Connector to GROUP MASTER switch	DC
P	6	GRPMA_R	Connector to GROUP MASTER logic	DC
P	7	DISP_A	7 Segment display LED	DC
P	8	DISP_B	7 Segment display LED	DC
P	9	DISP_C	7 Segment display LED	DC
P	10	DISP_D	7 Segment display LED	DC
P	11	DISP_E	7 Segment display LED	DC
P	12	DISP_F	7 Segment display LED	DC
P	13	DISP_G	7 Segment display LED	DC
P	14	DISP_DOT	7 Segment display DOT LED	DC
P	15	VCA_LED	Connector to VCA LED cathode	DC
P	16	VCA_SWLED	Connector to VCA switch LED	DC

I = Input

O = Output

AC = Audio

DC = Supply or CV

DI = Digital

L = Line

B = Bus

C = Connector

SY = Balanced

AS = Unbalanced

NO = Normal

IV = Inverted

\* = not connected

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## **MASTER UNITS**

**Dual Master Unit****1.980.180.00****Assemblies structure**

---

Master Board CH1	1.980.187.00
Master PCB CH1 MK2	1.911.323.11
Master Board CH2	1.980.188.00
Master PCB CH2 MK2	1.911.324.11
Master Switch Board	1.980.189.00
Master Switch PCB	1.980.189.11

**Block diagram**

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Dual Master Unit	1.980.180.00
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**Circuit diagrams**

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Dual Master Unit	1.980.180.00
Master Switch Board	1.980.189.00

**Component layout drawings**

---

Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

**Parts lists**

---

Dual Master Unit	1.980.180.00
Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

**Connector pin assignments**

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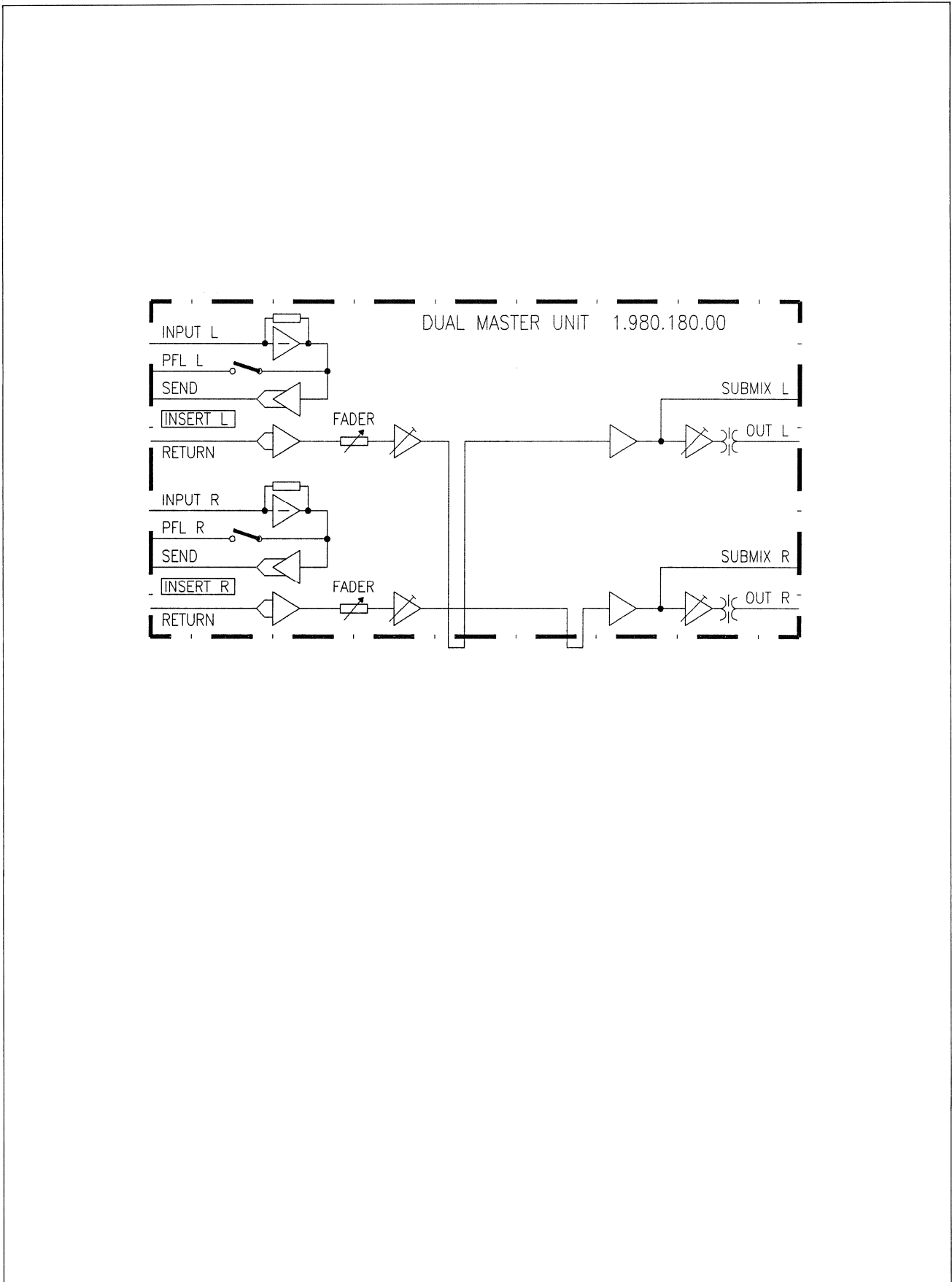
on diagram Dual Master Unit	1.980.180.00
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**Comments**

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Options:	Option 3:	Fader ON → PFL OFF
	Option 4:	Fader ON → PFL ON
	Option 5:	Submix PF

**BLOCK DIAGRAM**  
**DUAL MASTER UNIT 1.980.180.00**



**Dual Master Unit with 1 Limiter Switch****1.980.181.00****Assemblies structure**

Master Board CH1	1.980.187.00
Master PCB CH1 MK2	1.911.323.11
Master Board CH2	1.980.188.00
Master PCB CH2 MK2	1.911.324.11
Master Switch Board	1.980.189.00
Master Switch PCB	1.980.189.11

**Block diagram**

Dual Master Unit w. Limiter	1.980.181.00
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**Circuit diagrams**

Dual Master Unit	1.980.180.00
Master Switch Board	1.980.189.00

**Component layout drawings**

Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

**Parts lists**

Dual Master Unit/1 Limiter Sw.	1.980.181.00
Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

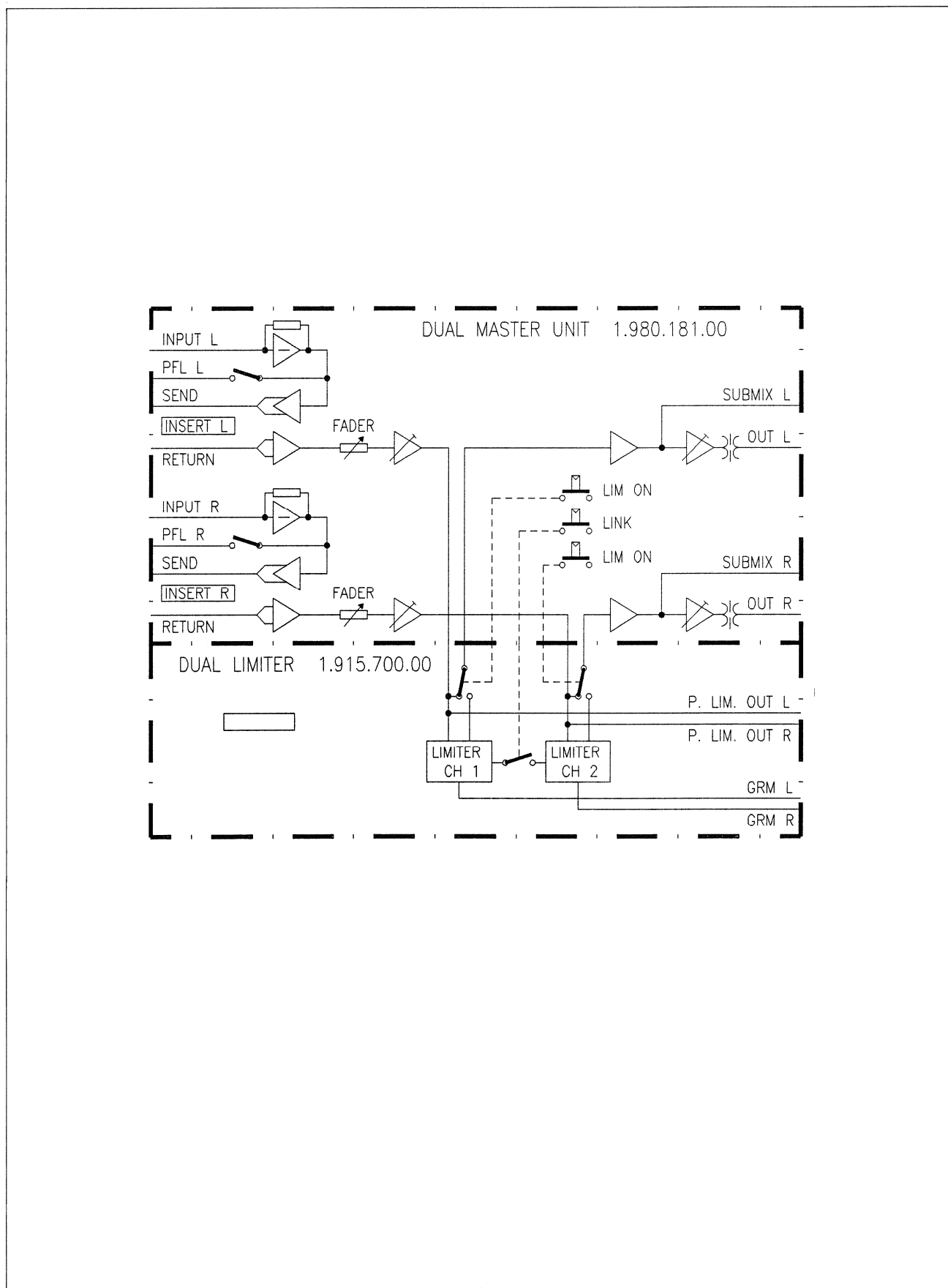
**Connector pin assignments**

on diagram Dual Master Unit	1.980.180.00
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**Comments**

Options:	Option 3:	Fader ON → PFL OFF
	Option 4:	Fader ON → PFL ON
	Option 5:	Submix PF

**BLOCK DIAGRAM**  
**DUAL MASTER UNIT WITH 1 LIMITER SWITCH 1.980.181.00**





**Dual Master Unit with 2 Limiter Switches****1.980.182.00****Assemblies structure**


---

Master Board CH1	1.980.187.00
Master PCB CH1 MK2	1.911.323.11
Master Board CH2	1.980.188.00
Master PCB CH2 MK2	1.911.324.11
Master Switch Board	1.980.189.00
Master Switch PCB	1.980.189.11

**Block diagram**


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Dual Master Unit/2 Limiter Sw.	1.980.182.00
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**Circuit diagrams**


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Dual Master Unit	1.980.180.00
Master Switch Board	1.980.189.00

**Component layout drawings**


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Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

**Parts lists**


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Dual Master Unit/2 Limiter Sw.	1.980.182.00
Master Board CH1	1.980.187.00
Master Board CH2	1.980.188.00
Master Switch Board	1.980.189.00

**Connector pin assignments**


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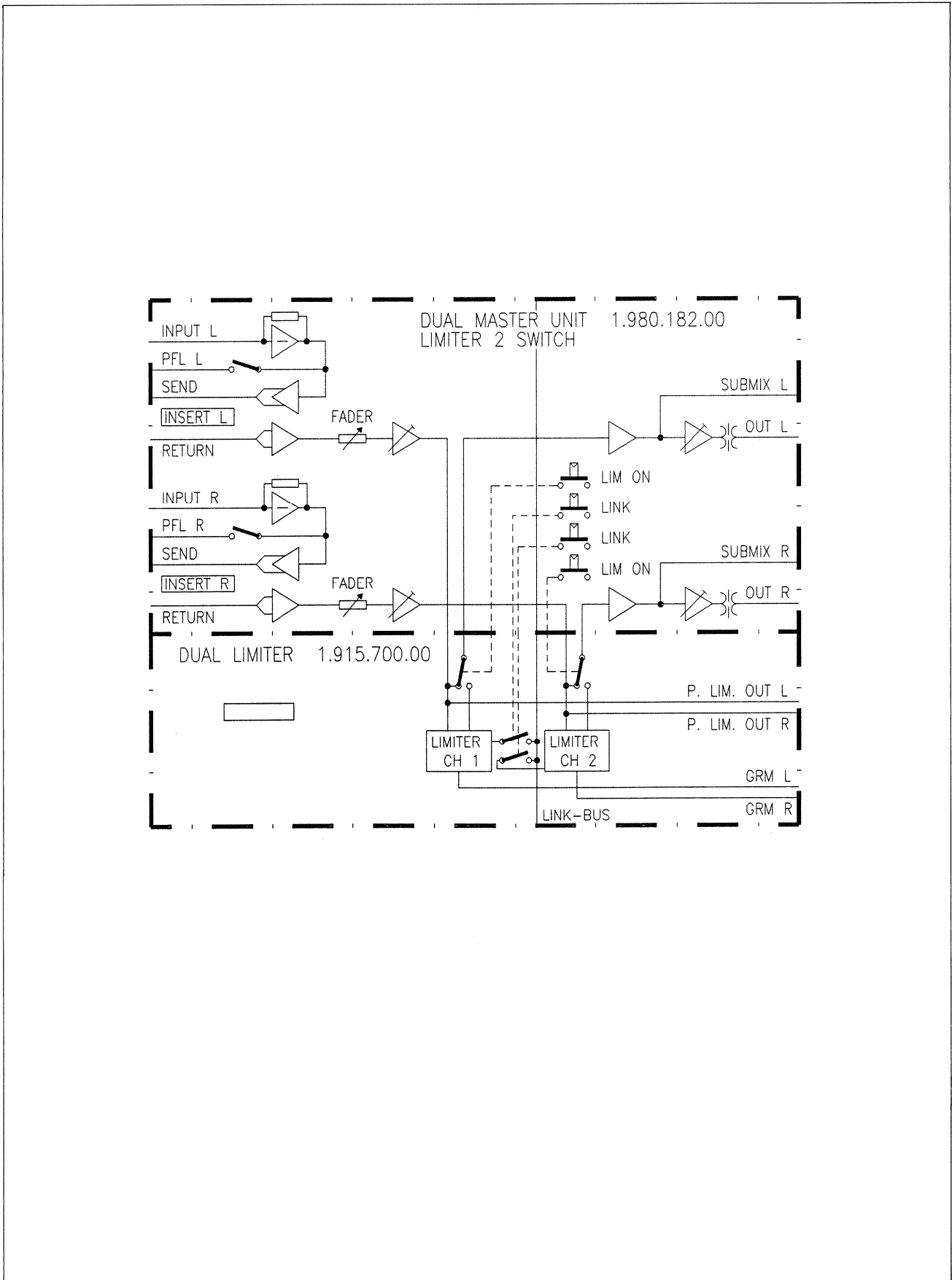
on diagram Dual Master Unit	1.980.180.00
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**Comments**


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<b>Options:</b>	<b>Option 3:</b>	Fader ON → PFL OFF
	<b>Option 4:</b>	Fader ON → PFL ON
	<b>Option 5:</b>	Submix PF

**BLOCK DIAGRAM**  
**DUAL MASTER UNIT WITH 2 LIMITER SWITCHES 1.980.182.00**



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**Mono Master Unit****1.980.183.00**

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**Assemblies structure**

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<b>Master Board CH1</b>	1.980.187.00
<b>Master PCB CH1 MK2</b>	1.911.323.11
<b>Master Switch Board</b>	1.980.189.00
<b>Master Switch PCB</b>	1.980.189.11

**Block diagram**

---

<b>Mono Master Unit</b>	1.980.183.00
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**Circuit diagrams**

---

<b>Master Unit</b>	1.980.180.00
<b>Master Switch Board</b>	1.980.189.00

**Component layout drawings**

---

<b>Master Board CH1</b>	1.980.187.00
<b>Master Switch Board</b>	1.980.189.00

**Parts lists**

---

<b>Mono Master Unit</b>	1.980.183.00
<b>Master Board CH1</b>	1.980.187.00
<b>Master Switch Board</b>	1.980.189.00

**Connector pin assignments**

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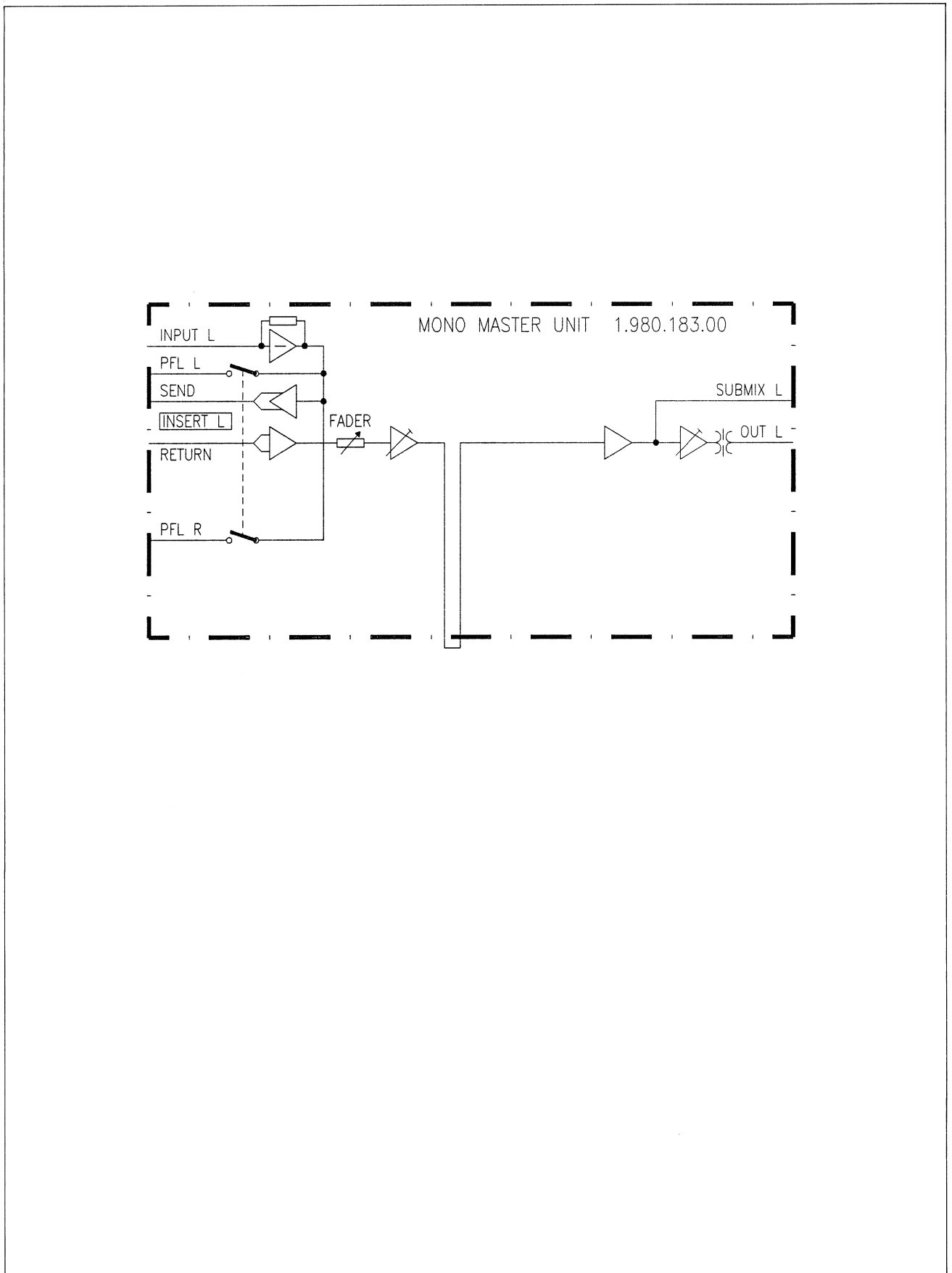
<b>on diagram Dual Master Unit</b>	1.980.180.00
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**Comments**

---

<b>Options:</b>	<b>Option 3:</b>	Fader ON → PFL OFF
	<b>Option 4:</b>	Fader ON → PFL ON
	<b>Option 5:</b>	Submix PF

BLOCK DIAGRAM  
MONO MASTER UNIT 1.980.183.00



**Mono Master Unit with 1 Limiter Switch****1.980.184.00****Assemblies structure**

---

Master Board CH1	1.980.187.00
Master PCB CH1 MK2	1.911.323.11
Master Switch Board	1.980.189.00
Master Switch PCB	1.980.189.11

**Block diagram**

---

Mono Master Unit/1 Limiter Sw. 1.980.184.00

**Circuit diagrams**

---

Master Unit	1.980.180.00
Master Switch Board	1.980.189.00

**Component layout drawings**

---

Master Board CH1	1.980.187.00
Master Switch Board	1.980.189.00

**Parts lists**

---

Mono Master Unit/1 Limiter Sw.	1.980.184.00
Master Board CH1	1.980.187.00
Master Switch Board	1.980.189.00

**Connector pin assignments**

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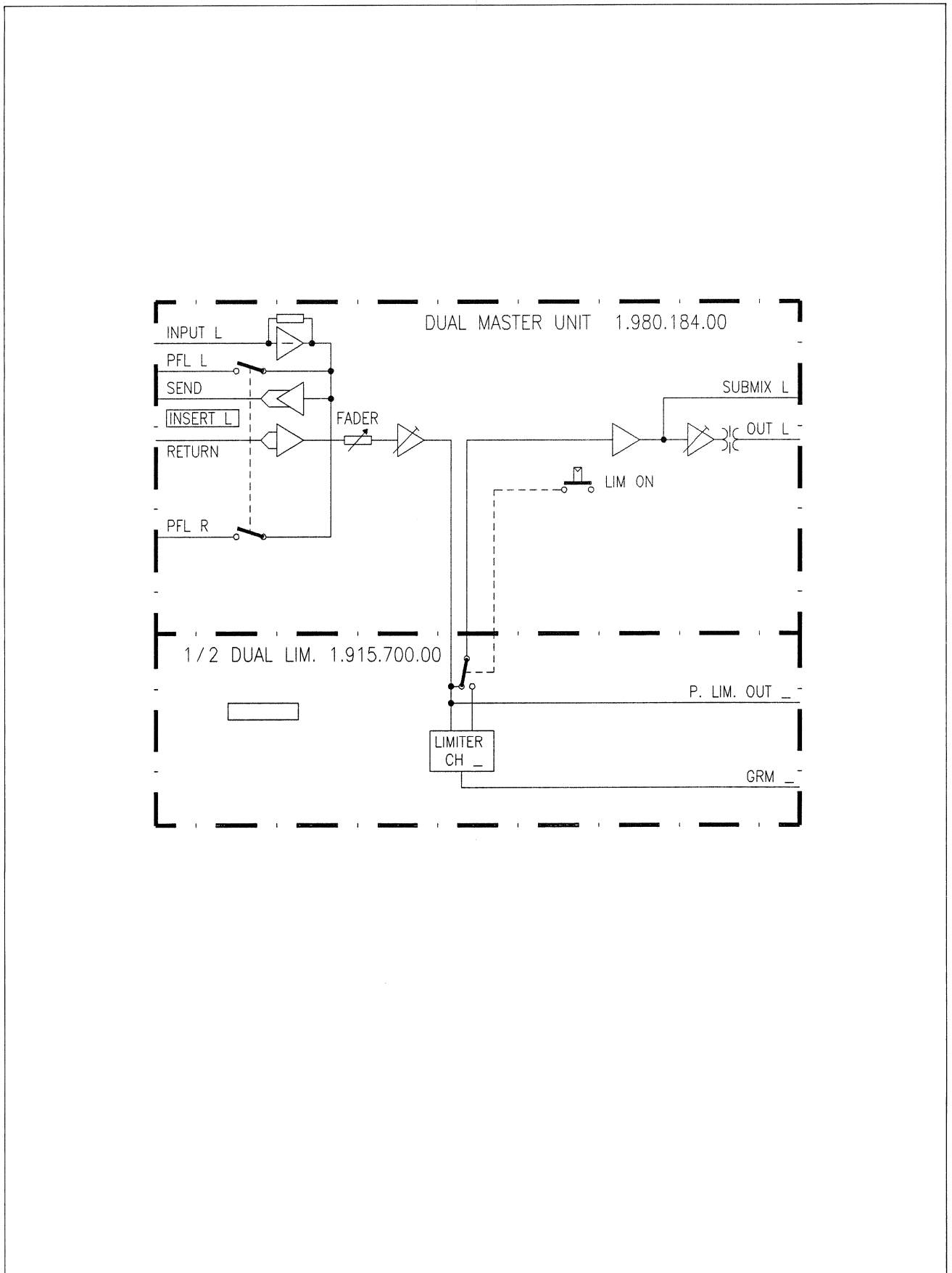
on diagram Dual Master Unit 1.980.180.00

**Comments**

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Options:	Option 3:	Fader ON → PFL OFF
	Option 4:	Fader ON → PFL ON
	Option 5:	Submix PF

**BLOCK DIAGRAM**  
**MONO MASTER UNIT WITH 1 LIMITER SWITCH 1.980.184.00**



**Mono Master Unit with Limiter + Link Switches****1.980.185.00****Assemblies structure**

---

Master Board CH 1	1.980.187.00
Master PCB CH1 MK2	1.911.323.11
Master Switch Board	1.980.189.00
Master Switch PCB	1.980.189.11

**Block diagram**

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Mono Master Unit/Lim.,Link Sw. 1.980.185.00

**Circuit diagrams**

---

Master Unit	1.980.180.00
Master Switch Board	1.980.189.00

**Component layout drawings**

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Master Board CH1	1.980.187.00
Master Switch Board	1.980.189.00

**Parts lists**

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Mono Master Unit/Lim.,Link Sw.	1.980.185.00
Master Board CH1	1.980.187.00
Master Switch Board	1.980.189.00

**Connector pin assignments**

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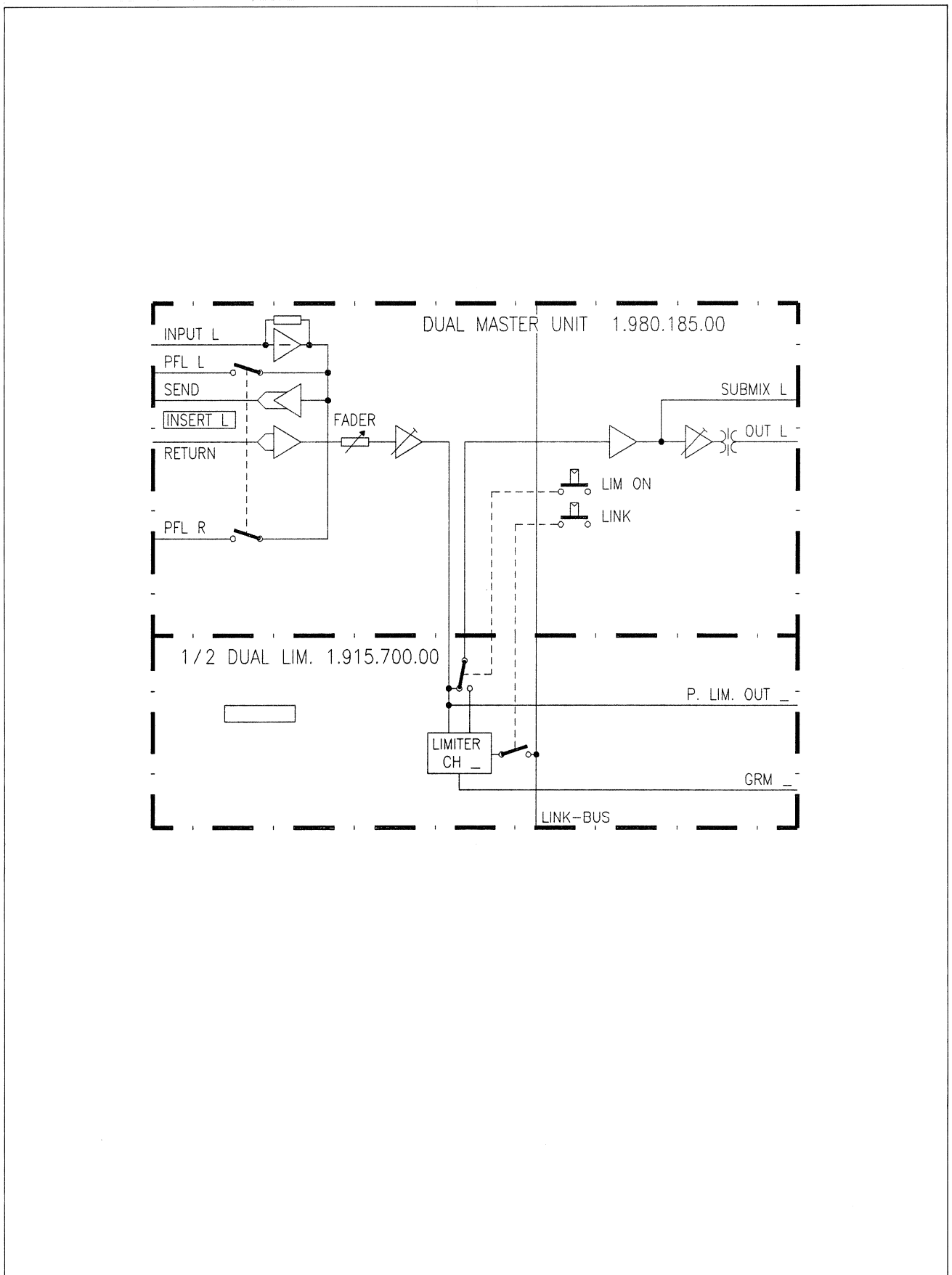
on diagram Dual Master Unit 1.980.180.00

**Comments**

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Options:	Option 3:	Fader ON → PFL OFF
	Option 4:	Fader ON → PFL ON
	Option 5:	Submix PF

**BLOCK DIAGRAM**  
**MONO MASTER UNIT WITH LIMITER + LINK SWITCH 1.980.185.00**



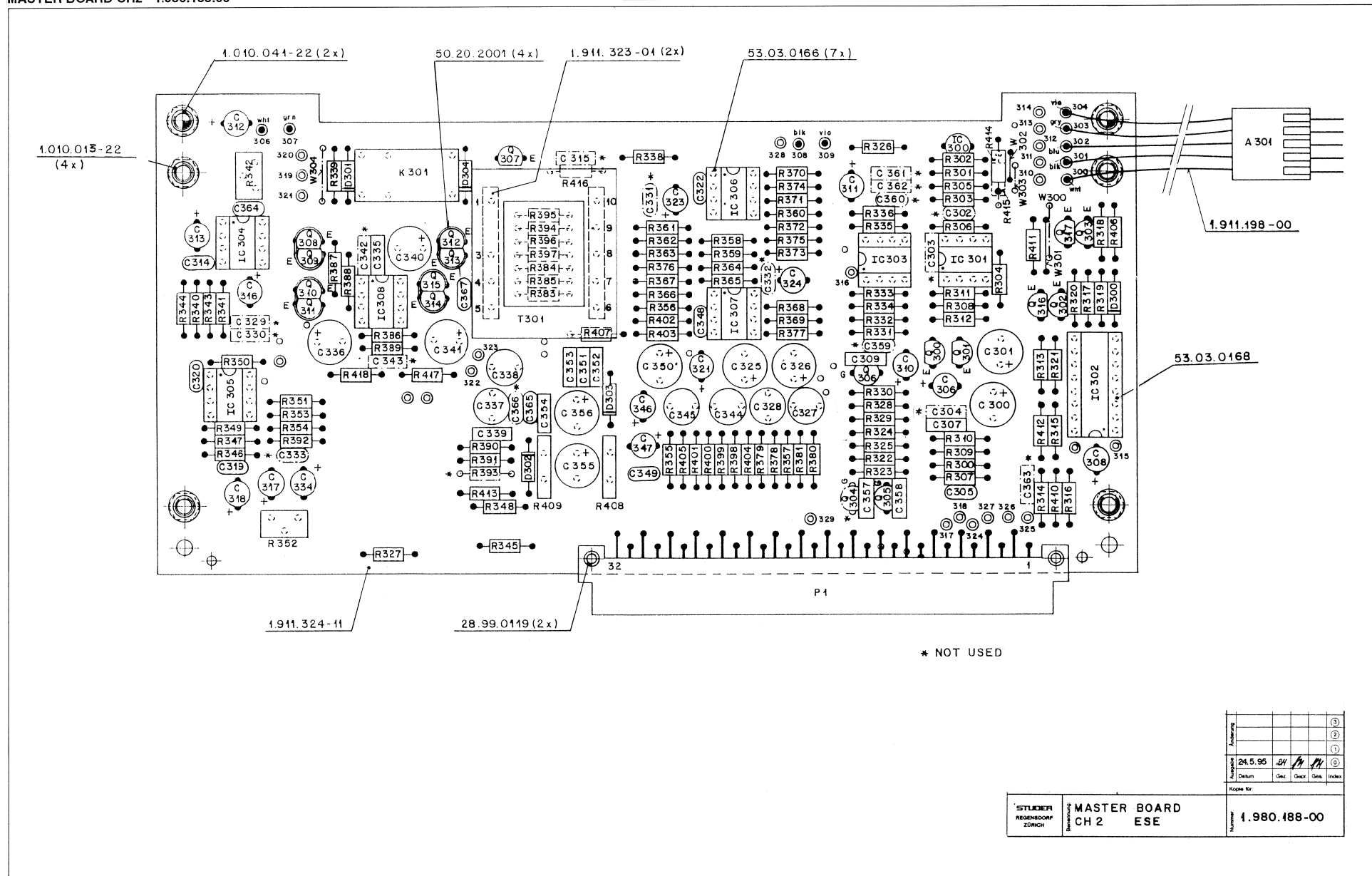








MASTER BOARD CH2 1.980.188.00

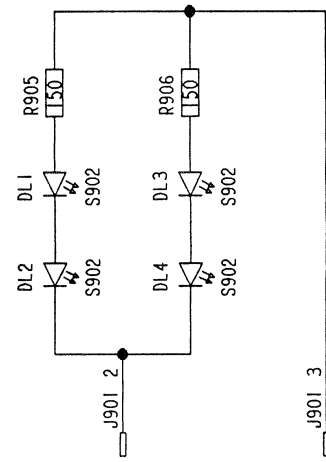
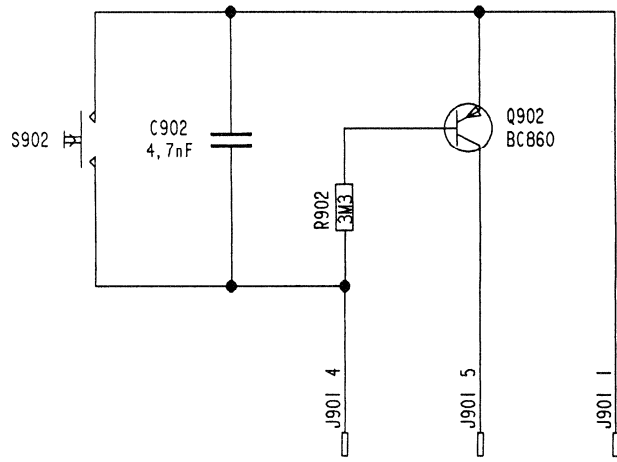
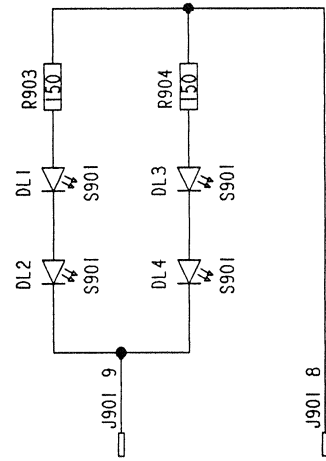
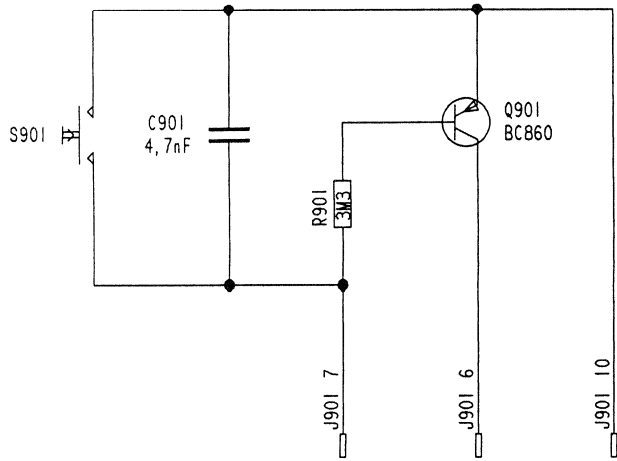


24.5.95	AW	AW	AW	AW	AW	AW	AW	AW	AW
2	Datum	Gez.	Gez.	Gez.	Gez.	Gez.	Gez.	Gez.	Index

STUDER REGENSDORF ZÜRICH	MASTER BOARD CH 2 ESE	1.980.188-00
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MASTER SWITCH BOARD 1.980.189.00

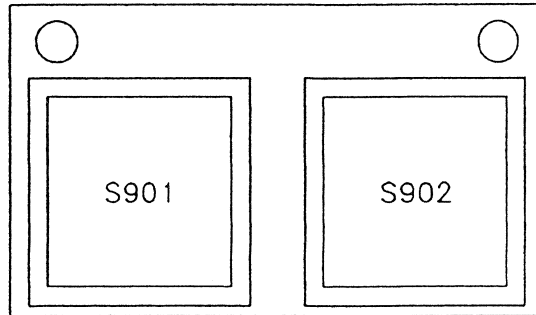


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A 980			PAGE 1 / 1		
STUDER	MASTER SWITCH BOARD "ESE"			SC	1.980.189-00

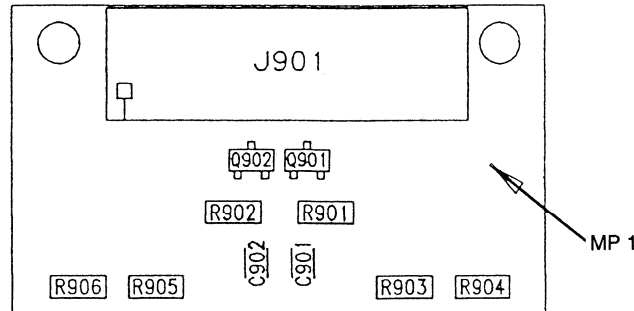


MASTER SWITCH BOARD 1.980.189.00

COMPONENT SIDE



SOLDER SIDE



Modification						①
Aenderung						②
						③
Edition	30.05.95	PZ				④
Ausgabe	Date	Viso	Deztl	Seen		Index
	Datum	Gez.	Gepr.	Ges.		

Copy to:  
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STUDER REGENSDORF	Description: Benennung:	MASTER SWITCH BOARD "ESE"	Number:	1.980.189-00
			Number:	1.980.189-00



## DUAL MASTER UNIT 1.980.180.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.180.02	pce	TRAEGERBLECH
0	MP 2	1.980.180.03	pce	ZWISCHENABSCHIRMUNG
0	MP 4	1.911.320.03	pce	ABSCHIRMUNG
0	MP 5	1.911.320.05	pce	ISOLATION
0	MP 6	1.990.000.01	pce	SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279	pce	S - SCHR. , ZN , M2.5 * 6
0	MP 8	21.51.2353	pce	S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279	pce	Z - SCHR. IS , ZN , M2.5 * 6
0	MP 11	21.99.0117	pce	Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0197	pce	S-Schr M 3 * 5, IS, St brünier
0	MP 13	24.16.1025	pce	RIPPENSCHLEIBE D 2.7/ 5
0	MP 14	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023	pce	WELLENSICHERUNG 2.3
0	MP 16	1.010.041.27	pce	MUTTERBOLZEN M 3 * 28
0	MP 17	1.010.208.27	pce	MUTTERBOLZEN, S 5, M 2.5 * 14
0	MP 18	1.010.221.27	pce	MUTTERBOLZEN M 2.5*10.5
0	MP 19	1.010.022.21	pce	LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00	pce	MASTER BOARD CH 1
0	MP 22	1.980.188.00	pce	MASTER BOARD CH 2
0	MP 23	1.911.000.42	pce	KNOPF ROT
0	MP 24	1.960.031.00	pce	MONOFADER LOG. P+G
0	MP 25	1.980.180.01	pce	FRONTSCHILD DUAL MASTER
0	MP 26	1.980.189.00	pce	FADER MASTER SWITCH BOARD
0	MP 27	1.980.180.04	pce	STUDER NR.-ETIKETTE 10 * 20

End of List

Comments



## DUAL MASTER UNIT WITH 1 LIMITER SWITCH 1.980.181.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.180.02	pce	TRAEGERBLECH
0	MP 2	1.980.180.03	pce	ZWISCHENABSCHIRMUNG
0	MP 4	1.911.320.03	pce	ABSCHIRMUNG
0	MP 5	1.911.320.05	pce	ISOLATION
0	MP 6	1.990.000.01	pce	SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279	pce	S - SCHR. , ZN , M2,5 * 6
0	MP 8	21.51.2353	pce	S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279	pce	Z - SCHR. IS , ZN , M2,5 * 6
0	MP 11	21.99.0117	pce	Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0197	pce	S-Schr M 3 * 5, IS, St brünier
0	MP 13	24.16.1025	pce	RIPPENSCHLEIBE D 2.7/ 5
0	MP 14	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023	pce	WELLENSICHERUNG 2.3
0	MP 16	1.010.041.27	pce	MUTTERBOLZEN M 3 * 28
0	MP 17	1.010.208.27	pce	MUTTERBOLZEN, S 5, M 2.5 * 14
0	MP 18	1.010.221.27	pce	MUTTERBOLZEN M 2.5*10.5
0	MP 19	1.010.022.21	pce	LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00	pce	MASTER BOARD CH 1
0	MP 22	1.980.188.00	pce	MASTER BOARD CH 2
0	MP 23	1.911.000.42	pce	KNOPF ROT
0	MP 24	1.960.031.00	pce	MONOFADER LOG. P+G
0	MP 25	1.980.181.01	pce	FRONTSCHILD DUAL MASTER + LIM.
0	MP 26	1.980.189.00	pce	FADER MASTER SWITCH BOARD
0	MP 27	1.911.335.93	pce	LI-L DUAL MASTER+LIMITER
0	MP 28	1.911.330.02	pce	SCHALTERTRAEGER
0	MP 29	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 30	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 32	1.010.054.27	pce	MUTTERBOLZEN M 3 * 7.5
0	MP 33	55.01.0111	pce	S KIPP- , 1*ON-ON , AU
0	MP 34	1.980.181.04	pce	STUDER NR.-ETIKETTE 10 * 20

End of List

Comments



## DUAL MASTER UNIT WITH 2 LIMITER SWITCHES 1.980.182.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.180.02	pce	TRAEGERBLECH
0	MP 2	1.980.180.03	pce	ZWISCHENABSCHIRMUNG
0	MP 4	1.911.320.03	pce	ABSCHIRMUNG
0	MP 5	1.911.320.05	pce	ISOLATION
0	MP 6	1.990.000.01	pce	SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279	pce	S - SCHR. , ZN , M2.5 * 6
0	MP 8	21.51.2353	pce	S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279	pce	Z - SCHR. IS , ZN , M2.5 * 6
0	MP 11	21.99.0117	pce	Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0197	pce	S-Schr M 3 * 5, IS, St brünier
0	MP 13	24.16.1025	pce	RIPPENSCHLEIBE D 2.7/ 5
0	MP 14	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023	pce	WELLENSICHERUNG 2.3
0	MP 16	1.010.041.27	pce	MUTTERBOLZEN M 3 * 28
0	MP 17	1.010.208.27	pce	MUTTERBOLZEN, S 5, M 2.5* 14
0	MP 18	1.010.221.27	pce	MUTTERBOLZEN M 2.5*10.5
0	MP 19	1.010.022.21	pce	LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00	pce	MASTER BOARD CH 1
0	MP 22	1.980.188.00	pce	MASTER BOARD CH 2
0	MP 23	1.911.000.42	pce	KNOPF ROT
0	MP 24	1.960.031.00	pce	MONOFADER LOG. P+G
0	MP 25	1.980.182.01	pce	FRONTSCHILD DUAL MASTER FILM
0	MP 26	1.980.189.00	pce	FADER MASTER SWITCH BOARD
0	MP 27	1.911.335.93	pce	LI-L DUAL MASTER+LIMITER
0	MP 28	1.911.330.02	pce	SCHALTERTRAEGER
0	MP 29	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 30	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 31	1.010.013.23	pce	U-SCHLEIBE ST D 3,1/6 X1
0	MP 32	1.010.054.27	pce	MUTTERBOLZEN M 3 * 7.5
0	MP 33	55.01.0111	pce	S KIPP- , 1*ON-ON , AU
0	MP 34	1.980.182.04	pce	STUDER NR.-ETIKETTE 10 * 20

End of List

Comments





## MONO MASTER UNIT 1.980.183.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.183.02		TRAEGERBLECH MONO
0	MP 6	1.990.000.01		SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279		S - SCHR. , ZN , M2,5 * 6
0	MP 8	21.51.2353		S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354		LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279		Z - SCHR. IS , ZN , M2,5 * 6
0	MP 11	21.99.0117		Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0167		FZ- SCHR. ST , NI , M 6 * 16
0	MP 13	24.16.1025		RIPPENSCHLEIBE D 2.7/ 5
0	MP 14	24.16.1030		RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023		WELLENSICHERUNG 2.3
0	MP 18	1.010.221.27		MUTTERBOLZEN M 2,5*10.5
0	MP 19	1.010.022.21		LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00		MASTER BOARD CH 1
0	MP 23	1.911.000.42		KNOPF ROT
0	MP 24	1.960.031.00		MONOFADER LOG. P+G
0	MP 25	1.980.183.01		FRONTSCHILD MONO MASTER
0	MP 26	1.980.189.00		FADER MASTER SWITCH BOARD
0	MP 27	1.980.183.04		STUDER NR.-ETIKETTE 10 * 20
0	MP 35	1.010.065.27		MUTTERBOLZEN M 3 X 32
0	MP 36	1.189.200.12		MUTTER SPEZ. M 3
0	MP 37	1.911.110.03		SCHIRMBLECH
0	MP 38	1.911.198.00		VERBINDUNGSKABEL 2
0	Q 105	1.010.355.50		Q-GESICKT,50.43.0216 IN LINE,A

End of List

Comments



## MONO MASTER UNIT WITH 1 LIMITER SWITCH 1.980.184.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.183.02	pce	TRAEGERBLECH MONO
0	MP 6	1.990.000.01	pce	SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279	pce	S - SCHR. , ZN , M2.5 * 6
0	MP 8	21.51.2353	pce	S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279	pce	Z - SCHR. IS , ZN , M2.5 * 6
0	MP 11	21.99.0117	pce	Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0197	pce	S-Schr M 3 * 5, IS, St brünier
0	MP 13	24.16.1025	pce	RIPPENSCHLEIBE D 2.7/5
0	MP 14	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023	pce	WELLENSICHERUNG 2.3
0	MP 18	1.010.221.27	pce	MUTTERBOLZEN M 2.5*10.5
0	MP 19	1.010.022.21	pce	LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00	pce	MASTER BOARD CH 1
0	MP 23	1.911.000.42	pce	KNOPF ROT
0	MP 24	1.960.031.00	pce	MONOFADER LOG. P+G
0	MP 25	1.980.184.01	pce	FRONTSCHILD MONO MASTER + LIM.
0	MP 26	1.980.189.00	pce	FADER MASTER SWITCH BOARD
0	MP 27	1.911.335.03	pce	LI-L DUAL MASTER+LIMITER
0	MP 28	1.911.330.02	pce	SCHALTERTRAEGER
0	MP 29	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 30	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 32	1.010.054.27	pce	MUTTERBOLZEN M 3 * 7.5
0	MP 33	55.01.0111	pce	S KIPP- , 1*ON-ON , AU
0	MP 34	1.980.184.04	pce	STUDER NR.-ETIKETTE 10 * 20
0	MP 35	1.010.065.27	pce	MUTTERBOLZEN M 3 X 32
0	MP 36	1.169.200.12	pce	MUTTER SPEZ. M 3
0	MP 37	1.911.110.03	pce	SCHIRMBLECH
0	MP 38	1.911.198.00	pce	VERBINDUNGSKABEL 2
0	Q 105	1.010.355.50		Q-GESICKT,50.43.0216 IN LINE,A

End of List

Comments


**MONO MASTER UNIT WITH LIMITER + LINK SWITCHES 1.980.185.00**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.980.183.02	pce	TRÄGERBLECH MONO
0	MP 6	1.990.000.01	pce	SCHUTZKRAGEN TASTE 12,5*12,5
0	MP 7	21.01.2279	pce	S - SCHR. , ZN , M2.5 * 6
0	MP 8	21.51.2353	pce	S - SCHR. IS , NI , M 3 * 5
0	MP 9	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 10	21.53.0279	pce	Z - SCHR. IS , ZN , M2.5 * 6
0	MP 11	21.99.0117	pce	Z - SCHR. NYLON , M 3 * 6
0	MP 12	21.99.0197	pce	S-Schr M 3 * 5, IS, St brüniert
0	MP 13	24.16.1025	pce	RIPPENSCHLEIBE D 2.7/ 5
0	MP 14	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 15	24.16.3023	pce	WELLENSICHERUNG 2.3
0	MP 18	1.010.221.27	pce	MUTTERBOLZEN M 2.5*10.5
0	MP 19	1.010.022.21	pce	LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 21	1.980.187.00	pce	MASTER BOARD CH 1
0	MP 23	1.911.000.42	pce	KNOPF ROT
0	MP 24	1.960.031.00	pce	MONOFADER LOG. P+G
0	MP 25	1.980.185.01	pce	FRONTSCHILD MONO MASTER FILM
0	MP 26	1.980.189.00	pce	FADER MASTER SWITCH BOARD
0	MP 27	1.911.335.93	pce	LI-L DUAL MASTER+LIMITER
0	MP 28	1.911.330.02	pce	SCHALTERTRÄGER
0	MP 29	21.51.8354	pce	LIN-SCHR. IS , NI , M 3 * 6
0	MP 30	24.16.1030	pce	RIPPENSCHLEIBE D 3.2/5.5
0	MP 32	1.010.054.27	pce	MUTTERBOLZEN M 3 * 7.5
0	MP 33	55.01.0111	pce	S KIPP- , 1*ON-ON , AU
0	MP 34	1.980.185.04	pce	STUDER NR.-ETIKETTE 10 * 20
0	MP 35	1.010.065.27	pce	MUTTERBOLZEN M 3 X 32
0	MP 36	1.169.200.12	pce	MUTTER SPEZ. M 3
0	MP 37	1.911.110.03	pce	SCHIRMBLECH
0	MP 38	1.911.198.00	pce	VERBINDUNGSKABEL 2
0	Q 105	1.010.355.50		Q-GESICHT,50.43.0216 IN LINE,A

----- End of List -----

Comments



MASTER BOARD CH1 1.980.187.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	A 101	1.911.199.00		VERBINDUNGSKABEL 1	0	Q 108	50.03.0516	BC337E6310	BC 337 E 6310
0	C 100	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	Q 109	50.03.0516	BC337E6310	BC 337 E 6310
0	C 101	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	Q 110	50.03.0625	BC327	BC 327 E 6310
0	C 105	59.34.2101	100p	C 100 P , 5%, N150, CER	0	Q 111	50.03.0625	BC327	BC 327 E 6310
0	C 106	59.26.0470	47u	C 47 U , 20%, 6.3V , SAL	0	Q 112	50.03.0516	BC337E6310	BC 337 E 6310
0	C 107	59.06.0102	1n0	PETP, 10%, 63V	0	Q 113	50.03.0516	BC337E6310	BC 337 E 6310
0	C 108	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 114	50.03.0625	BC327	BC 327 E 6310
0	C 109	59.06.0682	6n8	PETP, 10%, 63V	0	Q 115	50.03.0625	BC327	BC 327 E 6310
0	C 110	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 116	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP
0	C 111	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 117	50.03.0436	BC237B	BC 237 B, 547 B, 550 B,
0	C 112	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 100	57.11.3223	22k	MF, 1%, 0207
0	C 113	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 101	57.11.3153	15k	MF, 1%, 0207
0	C 114	59.34.4221	220p	C 220 P , 5%, N750, CER	0	R 102	57.11.3472	4k7	MF, 1%, 0207
0	C 116	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 103	57.11.3821	820R	MF, 1%, 0207
0	C 117	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 104	57.11.3223	22k	MF, 1%, 0207
0	C 118	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 105	57.11.3223	22k	MF, 1%, 0207
0	C 119	59.34.7151	150p	C 150 P , 2%, N150, CER	0	R 106	57.11.3223	22k	MF, 1%, 0207
0	C 120	59.34.7151	150p	C 150 P , 2%, N150, CER	0	R 107	57.11.3752	7k5	MF, 1%, 0207
0	C 121	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 108	57.11.3184	180k	MF, 1%, 0207
0	C 122	59.34.4101	100p	C 100 P , 5%, N750, CER	0	R 109	57.11.3823	82k	MF, 1%, 0207
0	C 123	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 110	57.11.3101	100R	MF, 1%, 0207
0	C 124	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 111	57.11.3223	22k	MF, 1%, 0207
0	C 125	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 112	57.11.3184	180k	MF, 1%, 0207
0	C 126	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 113	57.11.3104	100k	MF, 1%, 0207
0	C 127	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 114	57.19.0100	10	R 10 , 5%, 0207 , FUSE
0	C 128	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 115	57.11.3104	100k	MF, 1%, 0207
0	C 134	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 116	57.11.3104	100k	MF, 1%, 0207
0	C 135	59.06.0223	22n	PETP, 10%, 63V	0	R 117	57.11.3104	100k	MF, 1%, 0207
0	C 136	59.22.6470	47u	EL 40V, 20%, rad RM5	0	R 118	57.11.3000	0R0	MF, 0207
0	C 137	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	R 119	57.11.3333	33k	MF, 1%, 0207
0	C 138	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	R 120	57.11.3822	8k2	MF, 1%, 0207
0	C 139	59.06.0333	33n	PETP, 10%, 63V	0	R 121	57.11.3104	100k	MF, 1%, 0207
0	C 140	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 122	57.11.3103	10k	MF, 1%, 0207
0	C 141	59.22.6470	47u	EL 40V, 20%, rad RM5	0	R 123	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 144	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 124	57.11.3103	10k	MF, 1%, 0207
0	C 145	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 125	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 146	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 126	57.11.3333	33k	MF, 1%, 0207
0	C 147	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 127	57.11.3330	33R	MF, 1%, 0207
0	C 148	59.34.4101	100p	C 100 P , 5%, N750, CER	0	R 128	57.11.3333	33k	MF, 1%, 0207
0	C 149	59.34.4101	100p	C 100 P , 5%, N750, CER	0	R 129	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 150	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 130	57.11.3333	33k	MF, 1%, 0207
0	C 151	59.06.0223	22n	PETP, 10%, 63V	0	R 131	57.11.3362	3k6	MF, 1%, 0207
0	C 152	59.06.0223	22n	PETP, 10%, 63V	0	R 132	57.11.3362	3k6	MF, 1%, 0207
0	C 153	59.06.0333	33n	PETP, 10%, 63V	0	R 133	57.11.3471	470R	MF, 1%, 0207
0	C 154	59.06.0333	33n	PETP, 10%, 63V	0	R 134	57.11.3471	470R	MF, 1%, 0207
0	C 155	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 135	57.11.3362	3k6	MF, 1%, 0207
0	C 156	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 136	57.11.3362	3k6	MF, 1%, 0207
0	C 157	59.06.0682	6n8	PETP, 10%, 63V	0	R 138	57.11.3334	330k	MF, 1%, 0207
0	C 158	59.06.0682	6n8	PETP, 10%, 63V	0	R 139	57.11.3101	100R	MF, 1%, 0207
0	C 164	59.34.2220	22p	C 22 P , 5%, N150, CER	0	R 140	57.11.3104	100k	MF, 1%, 0207
0	C 165	59.34.4680	68p	C 68 P , 5%, N750, CER	0	R 141	57.11.3272	2k7	MF, 1%, 0207
0	C 167	59.34.2330	33p	C 33 P , 5%, N150, CER	0	R 142	58.01.9501	500R	Cermet, 10%, 0.5W, vertical
0	D 100	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 143	57.11.3102	1k0	MF, 1%, 0207
0	D 101	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 144	57.11.3333	33k	MF, 1%, 0207
0	D 102	50.04.0105	1N4004	D 1 N 4004 ... 1 N 4007	0	R 145	57.11.3330	33R	MF, 1%, 0207
0	D 103	50.04.0105	1N4004	D 1 N 4004 ... 1 N 4007	0	R 146	57.11.3512	5k1	MF, 1%, 0207
2	D 104	not used	1N4448	75V, 150mA, 4ns, DO-35	0	R 147	57.11.3512	5k1	MF, 1%, 0207
0	IC 100	50.10.0106	TL431	IC TL 431 CLP,	0	R 148	57.11.3330	33R	MF, 1%, 0207
0	IC 101	50.09.0101	TL072	IC TL 072 CN ,A	0	R 149	57.11.3512	5k1	MF, 1%, 0207
0	IC 102	50.07.0027	4027	IC .. 4027 .. ,A	0	R 150	57.11.3512	5k1	MF, 1%, 0207
0	IC 103	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 151	57.11.3272	2k7	MF, 1%, 0207
0	IC 104	50.05.0244	NE5534AN	IC 5534 ANB, NE 5534 SAN, ,A	0	R 152	58.01.9103	10k	Cermet, 10%, 0.5W, vertical
0	IC 105	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	1	R 153	57.11.3152	1k5	MF, 1%, 0207
0	IC 106	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 154	57.11.3330	33R	MF, 1%, 0207
0	IC 107	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 155	57.11.3223	22k	MF, 1%, 0207
0	IC 108	50.09.0117	MC3307B	IC MC 33078 P ,A	0	R 156	57.11.3473	47k	MF, 1%, 0207
0	K 101	56.04.0190	K1co	K 5 V 1*U , 250V/ 3 A, AU/CO	0	R 157	57.11.3471	470R	MF, 1%, 0207
0	P 1	54.01.0359	32-P	P EU-B 2 * 16	0	R 158	57.11.3272	2k7	MF, 1%, 0207
0	Q 100	50.03.0625	BC327	BC 327 E 6310	0	R 159	57.11.3302	3k0	MF, 1%, 0207
0	Q 101	50.03.0516	BC337E6310	BC 337 E 6310	0	R 160	57.11.3474	470k	MF, 1%, 0207
0	Q 102	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP	0	R 161	57.11.3302	3k0	MF, 1%, 0207
0	Q 103	50.03.0436	BC237B	BC 237 B, 547 B, 550 B,	0	R 162	57.11.3473	47k	MF, 1%, 0207
0	Q 104	50.03.0216	J-111	J 111	0	R 163	57.11.3302	3k0	MF, 1%, 0207
0	Q 106	50.03.0216	J-111	J 111	0	R 164	57.11.3473	47k	MF, 1%, 0207
0	Q 107	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP	0	R 165	57.11.3302	3k0	MF, 1%, 0207
					0	R 166	57.11.3272	2k7	MF, 1%, 0207
					0	R 167	57.11.3302	3k0	MF, 1%, 0207
					0	R 168	57.11.3302	3k0	MF, 1%, 0207
					0	R 169	57.11.3474	470k	MF, 1%, 0207



## MASTER BOARD CH1 1.980.187.00

Idx. Pos.	Part No.	Qty.	Type/Mal.	Description
0	R 170	57.11.3150	15R	MF, 1%, 0207
0	R 171	57.11.3302	3k0	MF, 1%, 0207
0	R 172	57.11.3302	3k0	MF, 1%, 0207
0	R 173	57.11.3150	15R	MF, 1%, 0207
0	R 174	57.11.3302	3k0	MF, 1%, 0207
0	R 175	57.11.3302	3k0	MF, 1%, 0207
0	R 176	57.11.3302	3k0	MF, 1%, 0207
0	R 177	57.11.3302	3k0	MF, 1%, 0207
0	R 178	57.11.3302	3k0	MF, 1%, 0207
0	R 179	57.11.3302	3k0	MF, 1%, 0207
0	R 180	57.11.3689	6R8	MF, 1%, 0207
0	R 181	57.11.3689	6R8	MF, 1%, 0207
0	R 183	57.11.3223	22k	MF, 1%, 0207
0	R 184	57.11.3332	3k3	MF, 1%, 0207
0	R 185	57.11.3332	3k3	MF, 1%, 0207
0	R 186	57.11.3103	10k	MF, 1%, 0207
0	R 187	57.11.3339	3R3	MF, 1%, 0207
0	R 188	57.11.3339	3R3	MF, 1%, 0207
0	R 189	57.11.3103	10k	MF, 1%, 0207
0	R 190	57.11.3821	820R	MF, 1%, 0207
0	R 191	57.11.3102	1k0	MF, 1%, 0207
0	R 192	57.11.3333	33k	MF, 1%, 0207
0	R 194	57.11.3103	10k	MF, 1%, 0207
0	R 195	57.11.3339	3R3	MF, 1%, 0207
0	R 196	57.11.3339	3R3	MF, 1%, 0207
0	R 197	57.11.3103	10k	MF, 1%, 0207
0	R 198	57.11.3152	1k5	MF, 1%, 0207
0	R 199	57.11.3152	1k5	MF, 1%, 0207
0	R 200	57.11.3392	3k9	MF, 1%, 0207
0	R 201	57.11.3392	3k9	MF, 1%, 0207
0	R 202	57.11.3272	2k7	MF, 1%, 0207
0	R 203	57.11.3272	2k7	MF, 1%, 0207
0	R 204	57.11.3330	33R	MF, 1%, 0207
0	R 205	57.11.3223	22k	MF, 1%, 0207
2	R 206	57.11.3000	0R0	MF, 0207
0	R 207	57.11.3471	470R	MF, 1%, 0207
0	R 208	57.92.7013	0.5A	RT 500 MA ,POLY- PTC
0	R 209	57.92.7013	0.5A	RT 500 MA ,POLY- PTC
0	R 211	57.11.3333	33k	MF, 1%, 0207
0	R 212	57.11.3104	100k	MF, 1%, 0207
0	R 213	57.11.3330	33R	MF, 1%, 0207
0	R 214	57.11.3104	100k	MF, 1%, 0207
0	R 216	57.11.3104	100k	MF, 1%, 0207
0	R 217	57.19.0330	33	R 33 , 5%, 0207 , FUSE
0	R 218	57.19.0330	33	R 33 , 5%, 0207 , FUSE
0	T 101	1.022.362.00	1:1.45	LINE OUTPUT TRAFO 1:1,46
0	W 101	57.11.3000	0R0	MF, 0207
0	W 102	1.010.321.64	Wire	DRAHTBRUECKE U, 4.3* 5.0, 0.6

End of List

Comments

- (01) 13.3.1996 range of gain trim R153  
 (02) 3.6.1996 corrections in parts list



MASTER BOARD CH2 1.980.188.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	A 301	1.911.198.00		VERBINDUNGSKABEL 2	0	Q 307	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP
0	C 300	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	Q 308	50.03.0516	BC337E6310	BC 337 E 6310
0	C 301	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	Q 309	50.03.0516	BC337E6310	BC 337 E 6310
0	C 305	59.34.2101	100p	C 100 P , 5%, N150 , CER	0	Q 310	50.03.0625	BC327	BC 327 E 6310
0	C 306	59.26.0470	47u	C 47 U , 20%, 6.3V , SAL	0	Q 311	50.03.0625	BC327	BC 327 E 6310
0	C 307	59.06.0102	1n0	PETP, 10%, 63V	0	Q 312	50.03.0516	BC337E6310	BC 337 E 6310
0	C 308	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 313	50.03.0516	BC337E6310	BC 337 E 6310
0	C 309	59.06.0682	6n8	PETP, 10%, 63V	0	Q 314	50.03.0625	BC327	BC 327 E 6310
0	C 310	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 315	50.03.0625	BC327	BC 327 E 6310
0	C 311	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 316	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP
0	C 312	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	Q 317	50.03.0436	BC237B	BC 237 B , 547 B , 550 B ,
0	C 313	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 300	57.11.3223	22k	MF, 1%, 0207
0	C 314	59.34.4221	220p	C 220 P , 5%, N750 , CER	0	R 301	57.11.3153	15k	MF, 1%, 0207
0	C 316	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 302	57.11.3472	4k7	MF, 1%, 0207
0	C 317	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 303	57.11.3821	820R	MF, 1%, 0207
0	C 318	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 304	57.11.3223	22k	MF, 1%, 0207
0	C 319	59.34.7151	150p	C 150 P , 2%, N150 , CER	0	R 305	57.11.3223	22k	MF, 1%, 0207
0	C 320	59.34.7151	150p	C 150 P , 2%, N150 , CER	0	R 306	57.11.3223	22k	MF, 1%, 0207
0	C 321	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 307	57.11.3752	7k5	MF, 1%, 0207
0	C 322	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 308	57.11.3184	180k	MF, 1%, 0207
0	C 323	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 309	57.11.3823	82k	MF, 1%, 0207
0	C 324	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 310	57.11.3101	100R	MF, 1%, 0207
0	C 325	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 311	57.11.3223	22k	MF, 1%, 0207
0	C 326	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 312	57.11.3184	180k	MF, 1%, 0207
0	C 327	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 313	57.11.3104	100k	MF, 1%, 0207
0	C 328	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 314	57.19.0100	10	R 10 , 5%, 0207 , FUSE
0	C 334	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 315	57.11.3104	100k	MF, 1%, 0207
0	C 335	59.06.0223	22n	PETP, 10%, 63V	0	R 316	57.11.3104	100k	MF, 1%, 0207
0	C 336	59.22.6470	47u	EL 40V, 20%, rad RM5	0	R 317	57.11.3104	100k	MF, 1%, 0207
0	C 337	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	R 318	57.11.3000	0R0	MF, 0207
0	C 338	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	R 319	57.11.3333	33k	MF, 1%, 0207
0	C 339	59.06.0333	33n	PETP, 10%, 63V	0	R 320	57.11.3822	8k2	MF, 1%, 0207
0	C 340	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 321	57.11.3104	100k	MF, 1%, 0207
0	C 341	59.22.6470	47u	EL 40V, 20%, rad RM5	0	R 322	57.11.3103	10k	MF, 1%, 0207
0	C 344	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 323	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 345	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 324	57.11.3103	10k	MF, 1%, 0207
0	C 346	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 325	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 347	59.26.0680	68u	C 68 U , 20%, 6.3V , SAL	0	R 326	57.11.3333	33k	MF, 1%, 0207
0	C 348	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 327	57.11.3330	33R	MF, 1%, 0207
0	C 349	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 328	57.11.3333	33k	MF, 1%, 0207
0	C 350	59.22.2221	220u	EL 6.3V, 20%, rad RM5	0	R 329	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	C 351	59.06.0223	22n	PETP, 10%, 63V	0	R 330	57.11.3333	33k	MF, 1%, 0207
0	C 352	59.06.0223	22n	PETP, 10%, 63V	0	R 331	57.11.3362	3k6	MF, 1%, 0207
0	C 353	59.06.0333	33n	PETP, 10%, 63V	0	R 332	57.11.3362	3k6	MF, 1%, 0207
0	C 354	59.06.0333	33n	PETP, 10%, 63V	0	R 333	57.11.3471	470R	MF, 1%, 0207
0	C 355	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 334	57.11.3471	470R	MF, 1%, 0207
0	C 356	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 335	57.11.3362	3k6	MF, 1%, 0207
0	C 357	59.06.0682	6n8	PETP, 10%, 63V	0	R 336	57.11.3362	3k6	MF, 1%, 0207
0	C 358	59.06.0682	6n8	PETP, 10%, 63V	0	R 338	57.11.3334	330k	MF, 1%, 0207
0	C 364	59.34.2220	22p	C 22 P , 5%, N150 , CER	0	R 339	57.11.3101	100R	MF, 1%, 0207
0	C 365	59.34.4680	68p	C 68 P , 5%, N750 , CER	0	R 340	57.11.3104	100k	MF, 1%, 0207
0	C 367	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	R 341	57.11.3272	2k7	MF, 1%, 0207
0	D 300	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 342	58.01.9501	500R	Cermet, 10%, 0.5W, vertical
0	D 301	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 343	57.11.3102	1k0	MF, 1%, 0207
0	D 302	50.04.0105	1N4004	D 1 N 4004 ... 1 N 4007	0	R 344	57.11.3333	33k	MF, 1%, 0207
0	D 303	50.04.0105	1N4004	D 1 N 4004 ... 1 N 4007	0	R 345	57.11.3330	33R	MF, 1%, 0207
2	D 304	not used	1N4448	75V, 150mA, 4ns, DO-35	0	R 346	57.11.3512	5k1	MF, 1%, 0207
0	IC 300	50.10.0106	TL431	IC TL 431 CLP,	0	R 347	57.11.3512	5k1	MF, 1%, 0207
0	IC 301	50.09.0101	TL072	IC TL 072 CN ,A	0	R 348	57.11.3330	33R	MF, 1%, 0207
0	IC 302	50.07.0027	4027	IC .. 4027 .. ,A	0	R 349	57.11.3512	5k1	MF, 1%, 0207
0	IC 303	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 350	57.11.3512	5k1	MF, 1%, 0207
0	IC 304	50.05.0244	NE5534AN	IC 5534 ANB, NE 5534 SAN, ,A	0	R 351	57.11.3272	2k7	MF, 1%, 0207
0	IC 305	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 352	58.01.9103	10k	Cermet, 10%, 0.5W, vertical
0	IC 306	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	1	R 353	57.11.3152	1k5	MF, 1%, 0207
0	IC 307	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 354	57.11.3330	33R	MF, 1%, 0207
0	IC 308	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 355	57.11.3223	22k	MF, 1%, 0207
0	K 301	56.04.0190	K1co	K 5 V 1*U , 250V/ 3 A, AU/CO	0	R 356	57.11.3473	47k	MF, 1%, 0207
0	P 301	54.01.0359	32-P	P EU-B 2 * 16	0	R 357	57.11.3471	470R	MF, 1%, 0207
0	Q 300	50.03.0625	BC327	BC 327 E 6310	0	R 358	57.11.3272	2k7	MF, 1%, 0207
0	Q 301	50.03.0516	BC337E6310	BC 337 E 6310	0	R 359	57.11.3302	3k0	MF, 1%, 0207
0	Q 302	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP	0	R 360	57.11.3474	470k	MF, 1%, 0207
0	Q 303	50.03.0436	BC237B	BC 237 B , 547 B , 550 B ,	0	R 361	57.11.3302	3k0	MF, 1%, 0207
0	Q 305	50.03.0216	J-111	J 111	0	R 362	57.11.3473	47k	MF, 1%, 0207
0	Q 306	50.03.0216	J-111	J 111	0	R 363	57.11.3302	3k0	MF, 1%, 0207
0	Q 307	50.03.0515	BC307B	BC 307 B , BC 557 B ,PNP	0	R 364	57.11.3473	47k	MF, 1%, 0207
0	Q 308	50.03.0625	BC327	BC 327 E 6310	0	R 365	57.11.3302	3k0	MF, 1%, 0207
0	Q 309	50.03.0516	BC337E6310	BC 337 E 6310	0	R 366	57.11.3272	2k7	MF, 1%, 0207
0	Q 310	50.03.0625	BC327	BC 327 E 6310	0	R 367	57.11.3302	3k0	MF, 1%, 0207



## MASTER BOARD CH2 1.980.188.00

Idx. Pos.	Part No.	Qty.	Type/Mal.	Description
0	R 368	57.11.3302	3k0	MF, 1%, 0207
0	R 369	57.11.3474	470k	MF, 1%, 0207
0	R 370	57.11.3150	15R	MF, 1%, 0207
0	R 371	57.11.3302	3k0	MF, 1%, 0207
0	R 372	57.11.3302	3k0	MF, 1%, 0207
0	R 373	57.11.3150	15R	MF, 1%, 0207
0	R 374	57.11.3302	3k0	MF, 1%, 0207
0	R 375	57.11.3302	3k0	MF, 1%, 0207
0	R 376	57.11.3302	3k0	MF, 1%, 0207
0	R 377	57.11.3302	3k0	MF, 1%, 0207
0	R 378	57.11.3302	3k0	MF, 1%, 0207
0	R 379	57.11.3302	3k0	MF, 1%, 0207
0	R 380	57.11.3689	6R8	MF, 1%, 0207
0	R 381	57.11.3689	6R8	MF, 1%, 0207
0	R 383	57.11.3223	22k	MF, 1%, 0207
0	R 384	57.11.3332	3k3	MF, 1%, 0207
0	R 385	57.11.3332	3k3	MF, 1%, 0207
0	R 386	57.11.3103	10k	MF, 1%, 0207
0	R 387	57.11.3339	3R3	MF, 1%, 0207
0	R 388	57.11.3339	3R3	MF, 1%, 0207
0	R 389	57.11.3103	10k	MF, 1%, 0207
0	R 390	57.11.3821	820R	MF, 1%, 0207
0	R 391	57.11.3102	1k0	MF, 1%, 0207
0	R 392	57.11.3333	33k	MF, 1%, 0207
0	R 394	57.11.3103	10k	MF, 1%, 0207
0	R 395	57.11.3339	3R3	MF, 1%, 0207
0	R 396	57.11.3339	3R3	MF, 1%, 0207
0	R 397	57.11.3103	10k	MF, 1%, 0207
0	R 398	57.11.3152	1k5	MF, 1%, 0207
0	R 399	57.11.3152	1k5	MF, 1%, 0207
0	R 400	57.11.3392	3k9	MF, 1%, 0207
0	R 401	57.11.3392	3k9	MF, 1%, 0207
0	R 402	57.11.3272	2k7	MF, 1%, 0207
0	R 403	57.11.3272	2k7	MF, 1%, 0207
0	R 404	57.11.3330	33R	MF, 1%, 0207
0	R 405	57.11.3223	22k	MF, 1%, 0207
2	R 406	57.11.3000	0R0	MF, 0207
0	R 407	57.11.3471	470R	MF, 1%, 0207
0	R 408	57.92.7013	0.5A	RT 500 MA ,POLY- PTC
0	R 409	57.92.7013	0.5A	RT 500 MA ,POLY- PTC
0	R 411	57.11.3333	33k	MF, 1%, 0207
0	R 412	57.11.3104	100k	MF, 1%, 0207
0	R 413	57.11.3330	33R	MF, 1%, 0207
0	R 414	57.11.3104	100k	MF, 1%, 0207
0	R 416	57.11.3104	100k	MF, 1%, 0207
0	R 417	57.19.0330	33	R 33 , 5%, 0207 , FUSE
0	R 418	57.19.0330	33	R 33 , 5%, 0207 , FUSE
0	T 301	1.022.362.00	1:1.45	LINE OUTPUT TRAF0 1:1,46
0	W 301	57.11.3000	0R0	MF, 0207
0	W 302	1.010.321.64	Wire	DRAHTBRUECKE U, 4.3* 5.0, 0.6

End of List

Comments

(01) 13.3.1996 range of gain trim R353  
 (02) 3.6.1996 corrections in parts list



## MASTER SWITCH BOARD 1.980.189.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 901	59.60.1472	4n7	C 4.7 N , 10% , X7R , CER
0	C 902	59.60.1472	4n7	C 4.7 N , 10% , X7R , CER
0	J 901	54.01.0290	10-P	J LEISTE 10 POL CIS AUFST.
0	J 902	54.01.0290	10-P	J LEISTE 10 POL CIS AUFST.
0	MP 901	1.980.189.11	pce	FADER MASTER SWITCH PCB //1
0	Q 901	50.60.1002	BC860C	Q BC 860 C, SOT 23
0	Q 902	50.60.1002	BC860C	Q BC 860 C, SOT 23
0	R 901	57.60.1335	3M3	MF, 1%, 0204, E24
0	R 902	57.60.1335	3M3	MF, 1%, 0204, E24
0	R 903	57.60.1151	150R	MF, 1%, 0204, E24
0	R 904	57.60.1151	150R	MF, 1%, 0204, E24
0	R 905	57.60.1151	150R	MF, 1%, 0204, E24
0	R 906	57.60.1151	150R	MF, 1%, 0204, E24
0	S 901	55.15.0705	1*A	S TASTE 1*A, 12MM, GN/TRANS
0	S 902	55.15.0705	1*A	S TASTE 1*A, 12MM, GN/TRANS

End of List

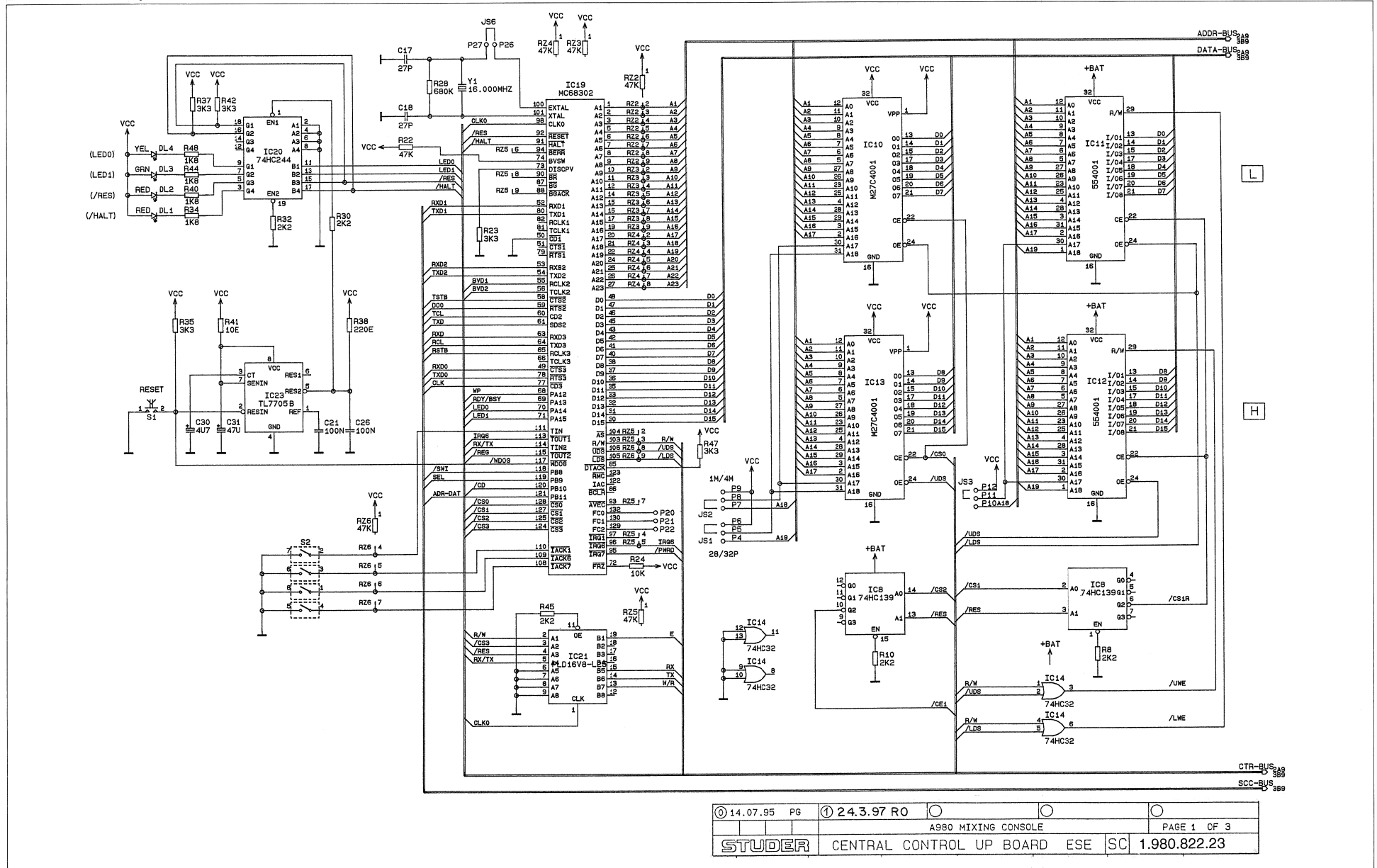
Comments



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**CENTRAL CONTROL**

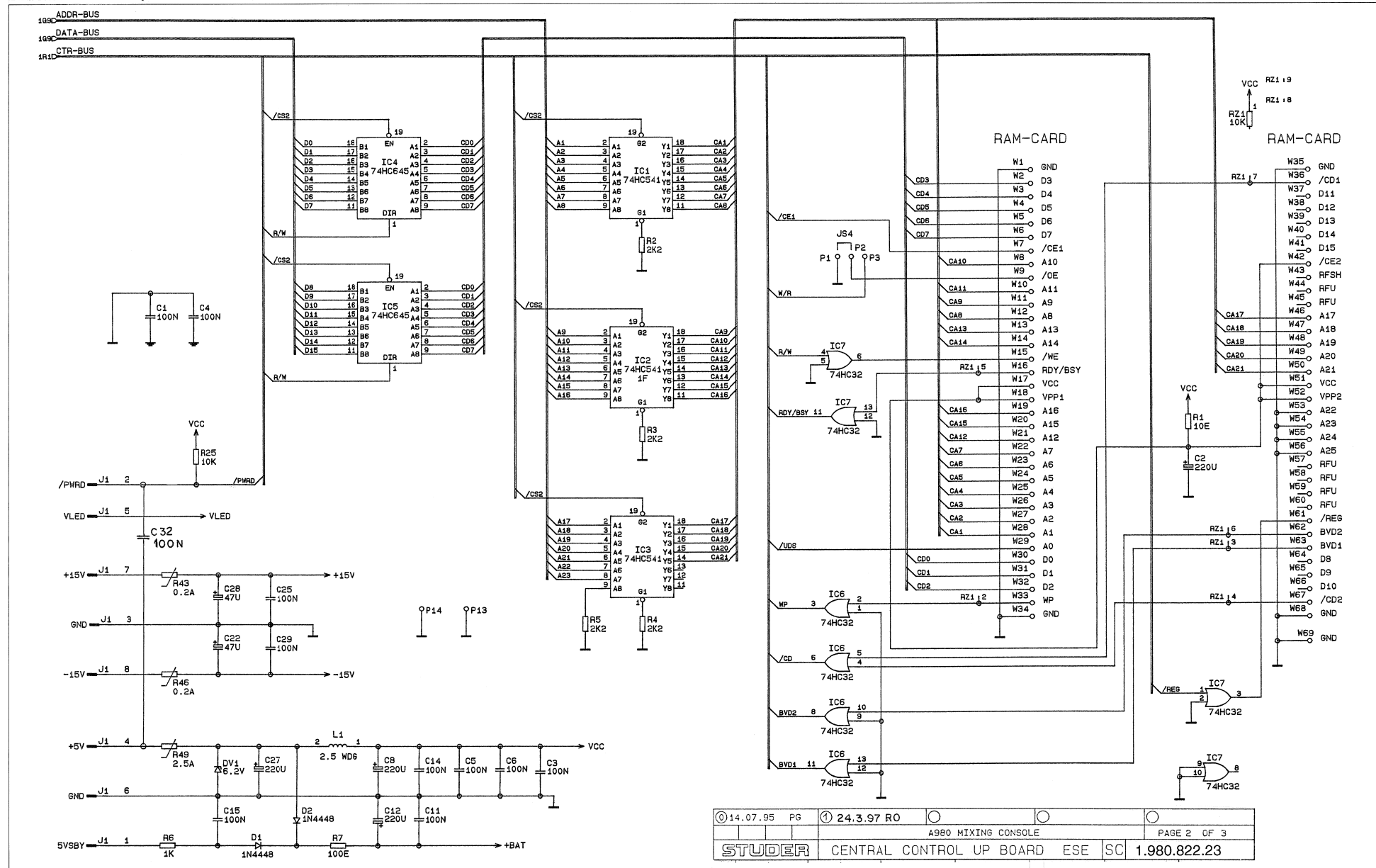
CENTRAL CONTROL µP BOARD 1.980.822.23



① 14.07.95 PG	① 24.3.97 RO	○	○	○
A980 MIXING CONSOLE				
STUDER			PAGE 1 OF 3	
CENTRAL CONTROL µP BOARD ESE SC 1.980.822.23				

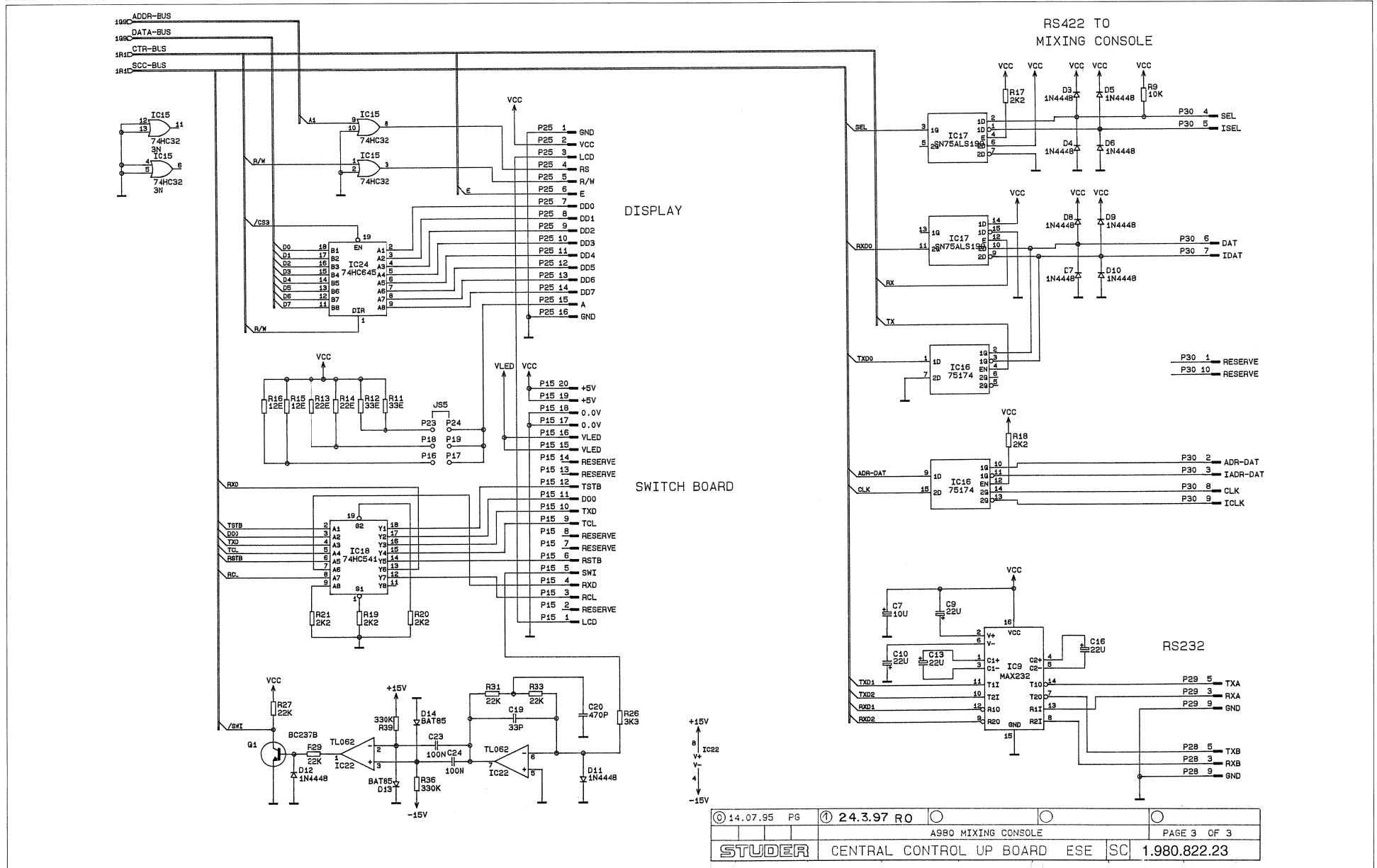


CENTRAL CONTROL  $\mu$ P BOARD 1.980.822.23





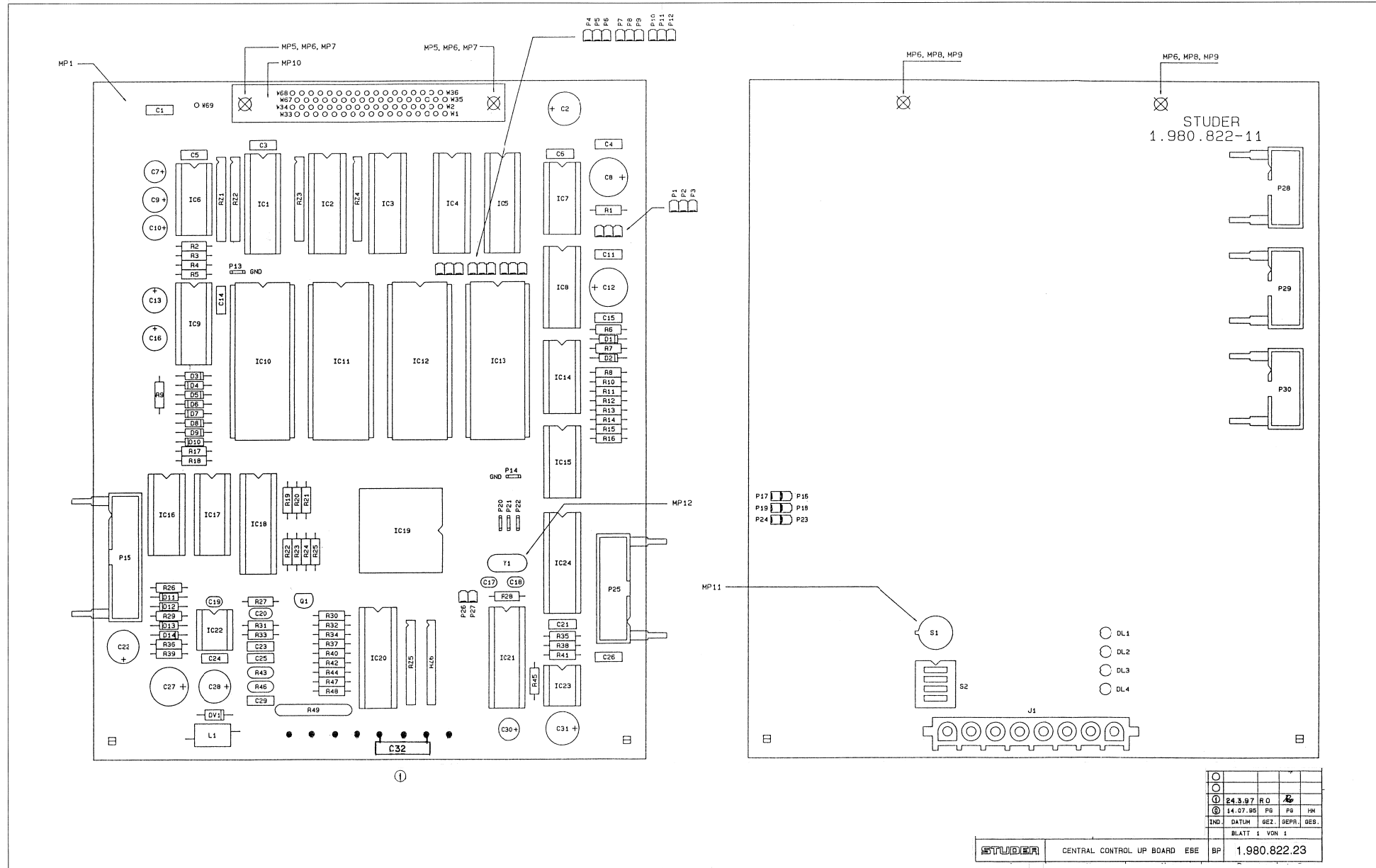
CENTRAL CONTROL μP BOARD 1.980.822.23



14.07.95	P6	24.3.97	RO	A980 MIXING CONSOLE		PAGE 3 OF 3	
STUDER				CENTRAL CONTROL UP BOARD ESE SC		1.980.822.23	



CENTRAL CONTROL  $\mu$ P BOARD 1.980.822.23





CENTRAL CONTROL µP BOARD 1.980.822.23

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.06.0104		100n	PETP, 63V, 10%, RM5	0	L 1	62.01.0115		2.5Wdg	L BREITBAND-
0	C 2	59.22.3221		220u	EL 10V, 20%, RM5	0	MP 1	1.980.822.11	1	pc	CENTRAL CONTROL UP PCB /A
0	C 3	59.06.0104		100n	PETP, 63V, 10%, RM5	0	MP 2	1.980.822.04	0	pc	NR.-ETIKETTE 5 * 20
0	C 4	59.06.0104		100n	PETP, 63V, 10%, RM5	0	MP 3	43.01.0108	1	pc	ESE-WARNSCHILD
0	C 5	59.06.0104		100n	PETP, 63V, 10%, RM5	0	MP 4	1.101.001.20	0	pc	Label TEXT-ETIK. 5*20 HARDWARE -20
0	C 6	59.06.0104		100n	PETP, 63V, 10%, RM5	0	MP 5	21.53.0356	2	pcs	M3*10 Z-Schraube Inbus Zn gb chr
0	C 7	59.22.6100		10u	EL 35V, 20%, RM5	0	MP 6	23.01.2032	4	pcs	M3 U-Scheibe 3.2/7.0*0.5 St gb
0	C 8	59.22.4221		220u	EL 16V, 20%, RM5	0	MP 7	1.010.029.23	2	pcs	U-SCHEIBE HGW D 3.1/ 7.5*0.5
0	C 9	59.22.6220		22u	EL 35V, 20%, RM5	0	MP 8	24.16.1030	2	pcs	RIPPENSCHIBE D 3.2/5.5
0	C 10	59.22.6220		22u	EL 35V, 20%, RM5	0	MP 9	22.01.8030	2	pcs	M3 6kt-Mutter 0.6d St Zn gb
0	C 11	59.06.0104		100n	PETP, 63V, 10%, RM5	0	MP 10	54.99.0336	1	pc	P PCMPIA 68p
0	C 12	59.22.4221		220u	EL 16V, 20%, RM5	0	MP 11	1.010.015.50	1	pc	Spacer ISOLIER-SCHIBE ZU TO 5
0	C 13	59.22.6220		22u	EL 35V, 20%, RM5	0	MP 12	89.01.1499	1	pc	QUARZ - ISOLIERPLATTE
0	C 14	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 1	54.01.0020		1p	Pin 0.63*0.63
0	C 15	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 2	54.01.0020		1p	Pin 0.63*0.63
0	C 16	59.22.6220		22u	EL 35V, 20%, RM5	0	P 3	54.01.0020		1p	Pin 0.63*0.63
0	C 17	59.34.2270		27p	CER 63V, 5%, N150	0	P 4	54.01.0020		1p	Pin 0.63*0.63
0	C 18	59.34.2270		27p	CER 63V, 5%, N150	0	P 5	54.01.0020		1p	Pin 0.63*0.63
0	C 19	59.34.2330		33p	CER 63V, 5%, N150	0	P 6	54.01.0020		1p	Pin 0.63*0.63
0	C 20	59.34.5471		470p	CER 63V, 5%, N1500	0	P 7	54.01.0020		1p	Pin 0.63*0.63
0	C 21	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 8	54.01.0020		1p	Pin 0.63*0.63
0	C 22	59.22.6470		47u	EL 40V, 20%, RM5	0	P 9	54.01.0020		1p	Pin 0.63*0.63
0	C 23	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 10	54.01.0020		1p	Pin 0.63*0.63
0	C 24	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 11	54.01.0020		1p	Pin 0.63*0.63
0	C 25	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 12	54.01.0020		1p	Pin 0.63*0.63
0	C 26	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 13	54.02.0320		1p	Flatpin, 2.8*0.8mm
0	C 27	59.22.4221		220u	EL 16V, 20%, RM5	0	P 14	54.02.0320		1p	Flatpin, 2.8*0.8mm
0	C 28	59.22.6470		47u	EL 40V, 20%, RM5	0	P 15	54.14.2103		20p	P STECKER 20 P,AU,VR,GERADE
0	C 29	59.06.0104		100n	PETP, 63V, 10%, RM5	0	P 16	54.01.0020		1p	Pin 0.63*0.63
0	C 30	59.22.8479		4u7	EL 50V, 20%, RM5	0	P 17	54.01.0020		1p	Pin 0.63*0.63
0	C 31	59.22.6470		47u	EL 40V, 20%, RM5	0	P 18	54.01.0020		1p	Pin 0.63*0.63
0	C 32	59.03.2104		100n	MPETP, 10%, 250V	0	P 19	54.01.0020		1p	Pin 0.63*0.63
0	D 1	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 20	54.02.0320		1p	Flatpin, 2.8*0.8mm
0	D 2	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 21	54.02.0320		1p	Flatpin, 2.8*0.8mm
0	D 3	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 22	54.02.0320		1p	Flatpin, 2.8*0.8mm
0	D 4	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 23	54.01.0020		1p	Pin 0.63*0.63
0	D 5	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 24	54.01.0020		1p	Pin 0.63*0.63
0	D 6	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 25	54.14.2102		16p	P STECKER 16 P,AU,VR,GERADE
0	D 7	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 26	54.01.0020		1p	Pin 0.63*0.63
0	D 8	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 27	54.01.0020		1p	Pin 0.63*0.63
0	D 9	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 28	54.14.2101		10p	P STECKER 10 P,AU,VR,GERADE
0	D 10	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 29	54.14.2101		10p	P STECKER 10 P,AU,VR,GERADE
0	D 11	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	P 30	54.14.2101		10p	P STECKER 10 P,AU,VR,GERADE
0	D 12	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	Q 1	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,
0	D 13	50.04.0127		BAT85	200mA, Schottky	0	R 1	57.11.3100		10R	MF, 1%, 0207
0	D 14	50.04.0127		BAT85	200mA, Schottky	0	R 2	57.11.3222		2k2	MF, 1%, 0207
0	DL 1	50.04.2200		HLMP1700	DL HLMP - 1700 RT	0	R 3	57.11.3222		2k2	MF, 1%, 0207
0	DL 2	50.04.2200		HLMP1700	DL HLMP - 1700 RT	0	R 4	57.11.3222		2k2	MF, 1%, 0207
0	DL 3	50.04.2202		HLMP1790	DL HLMP - 1790 GN	0	R 5	57.11.3222		2k2	MF, 1%, 0207
0	DL 4	50.04.2201		HLMP1719	DL HLMP - 1719 GB	0	R 6	57.11.3102		1k0	MF, 1%, 0207
0	DV 1	50.04.1511		6V2	Zener, 5%, 1.3W, DO-41	0	R 7	57.11.3101		100R	MF, 1%, 0207
0	IC 1	50.17.1541		74HC541	IC ... 74 HC 541 .. ,A	0	R 8	57.11.3222		2k2	MF, 1%, 0207
0	IC 2	50.17.1541		74HC541	IC ... 74 HC 541 .. ,A	0	R 9	57.11.3103		10k	MF, 1%, 0207
0	IC 3	50.17.1541		74HC541	IC ... 74 HC 541 .. ,A	0	R 10	57.11.3222		2k2	MF, 1%, 0207
0	IC 4	50.17.1645		74HC645	IC ... 74 HC 245/645 .. ,A	0	R 11	57.11.3330		33R	MF, 1%, 0207
0	IC 5	50.17.1645		74HC645	IC ... 74 HC 245/645 .. ,A	0	R 12	57.11.3330		33R	MF, 1%, 0207
0	IC 6	50.17.1032		74HC32	IC ... 74 HC 32 .. ,A	0	R 13	57.11.3220		22R	MF, 1%, 0207
0	IC 7	50.17.1032		74HC32	IC ... 74 HC 32 .. ,A	0	R 14	57.11.3220		22R	MF, 1%, 0207
0	IC 8	50.17.1139		74HC139	IC ... 74 HC 139 .. ,A	0	R 15	57.11.3120		12R	MF, 1%, 0207
0	IC 9	50.15.0120		MAX232	IC MAX 232 CPE	0	R 16	57.11.3120		12R	MF, 1%, 0207
0	IC 10	1.980.823.23			SW 980 V1.42 CCU(50.14.2009)	0	R 17	57.11.3222		2k2	MF, 1%, 0207
0	IC 11	50.14.1011			IC 628 512 LP-8 ,A	0	R 18	57.11.3222		2k2	MF, 1%, 0207
0	IC 12	50.14.1011			IC 628 512 LP-8 ,A	0	R 19	57.11.3222		2k2	MF, 1%, 0207
0	IC 13	1.980.823.23			SW 980 V1.42 CCU(50.14.2009)	0	R 20	57.11.3222		2k2	MF, 1%, 0207
0	IC 14	50.17.1032		74HC32	IC ... 74 HC 32 .. ,A	0	R 21	57.11.3222		2k2	MF, 1%, 0207
0	IC 15	50.17.1032		74HC32	IC ... 74 HC 32 .. ,A	0	R 22	57.11.3473		47k	MF, 1%, 0207
0	IC 16	50.15.0121		75174	IC SN 75174 N	0	R 23	57.11.3332		3k3	MF, 1%, 0207
0	IC 17	50.15.0125		75ALS199	IC SN 75 ALS 199 N	0	R 24	57.11.3103		10k	MF, 1%, 0207
0	IC 18	50.17.1541		74HC541	IC ... 74 HC 541 .. ,A	0	R 25	57.11.3103		10k	MF, 1%, 0207
0	IC 19	50.63.0100		MC68302	MPU 16bit	0	R 26	57.11.3332		3k3	MF, 1%, 0207
0	IC 20	50.17.1244		74HC244	IC ... 74 HC 244 .. ,A	0	R 27	57.11.3223		22k	MF, 1%, 0207
0	IC 21	1.980.824.20			SW 822 CENTR.,A (50.18.0100)	0	R 28	57.11.3684		680k	MF, 1%, 0207
0	IC 22	50.09.0119		TL062	IC TL 062 ACP ,A	0	R 29	57.11.3223		22k	MF, 1%, 0207
0	IC 23	50.11.0157		TL7705B	IC TL 7705 BCP,	0	R 30	57.11.3222		2k2	MF, 1%, 0207
0	IC 24	50.17.1645		74HC645	IC ... 74 HC 245/645 .. ,A	0	R 31	57.11.3223		22k	MF, 1%, 0207
0	J 1	54.25.0008		8p	Buchse, 12A, vertikal, PCB	0	R 32	57.11.3222		2k2	MF, 1%, 0207
0	JS 1	54.01.0021		Jumper	0.63 * 0.63mm	0	R 33	57.11.3223		22k	MF, 1%, 0207
0	JS 2	54.01.0021		Jumper	0.63 * 0.63mm	0	R 34	57.11.3182		1k8	MF, 1%, 0207
0	JS 3	54.01.0021		Jumper	0.63 * 0.63mm	0	R 35	57.11.3332		3k3	MF, 1%, 0207
0	JS 4	54.01.0021		Jumper	0.63 * 0.63mm	0	R 36	57.11.3334		330k	MF, 1%, 0207
0	JS 5	54.01.0021		Jumper	0.63 * 0.63mm	0	R 37	57.11.3332		3k3	MF, 1%, 0207
0	JS 6	54.01.0021		Jumper	0.63 * 0.63mm	0	R 38	57.11.3221		220R	MF, 1%, 0207
0	JS 6	54.01.0021		Jumper	0.63 * 0.63mm	0	R 39	57.11.3334		330k	MF, 1%, 0207

CENTRAL CONTROL  $\mu$ P BOARD 1.980.822.23

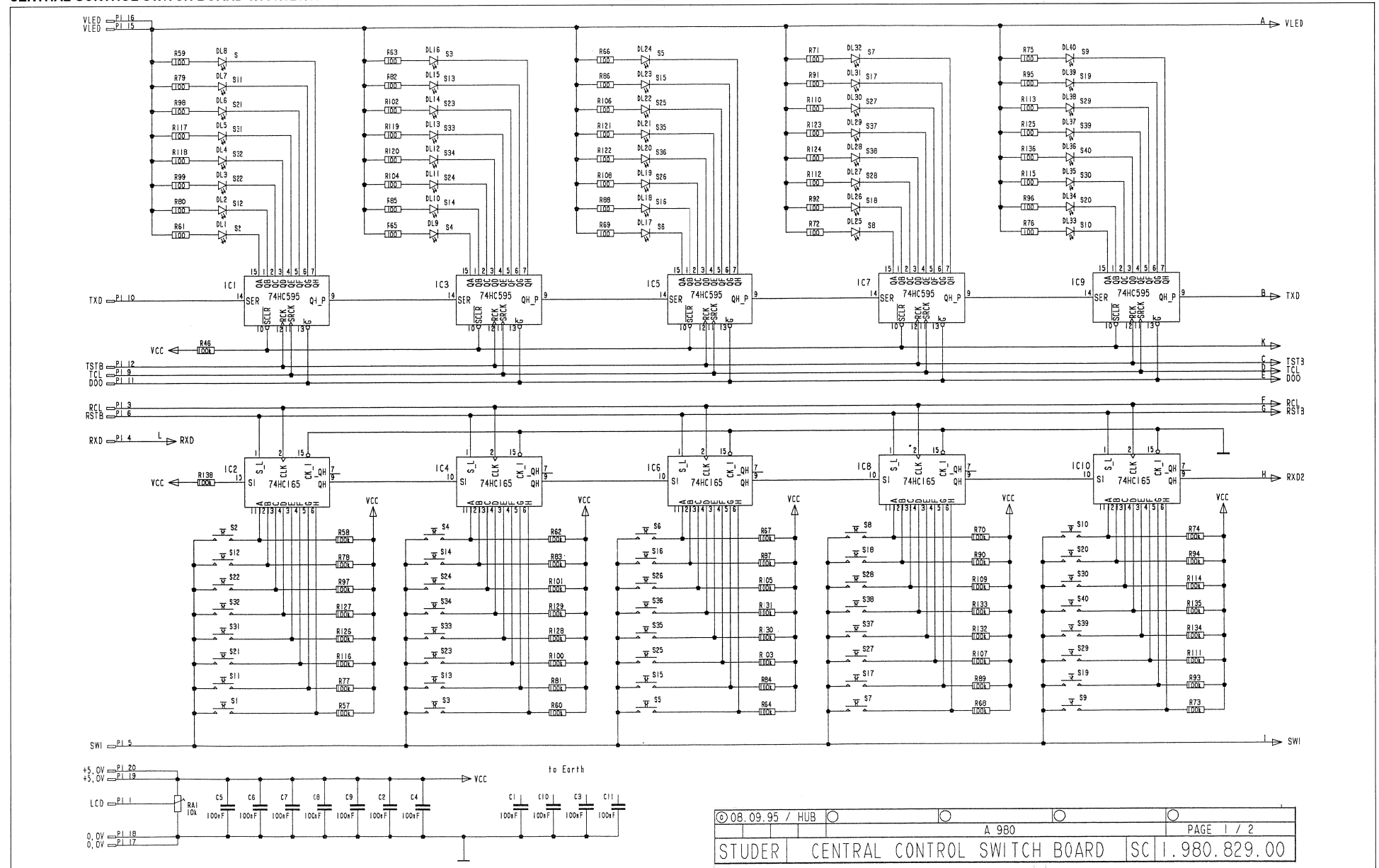
Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 40	57.11.3182		1k8	MF, 1%, 0207
0	R 41	57.11.3100		10R	MF, 1%, 0207
0	R 42	57.11.3332		3k3	MF, 1%, 0207
0	R 43	57.92.7011		0.2A	POLY- PTC, 60V
0	R 44	57.11.3182		1k8	MF, 1%, 0207
0	R 45	57.11.3222		2k2	MF, 1%, 0207
0	R 46	57.92.7011		0.2A	POLY- PTC, 60V
0	R 47	57.11.3332		3k3	MF, 1%, 0207
0	R 48	57.11.3182		1k8	MF, 1%, 0207
0	R 49	57.92.7017		2.5A	POLY- PTC, 50V
0	RZ 1	57.88.4103		8*10k	2%, SIP 9
0	RZ 2	57.88.4473		8*47k	2%, SIP 9
0	RZ 3	57.88.4473		8*47k	2%, SIP 9
0	RZ 4	57.88.4473		8*47k	2%, SIP 9
0	RZ 5	57.88.4473		8*47k	2%, SIP 9
0	RZ 6	57.88.4473		8*47k	2%, SIP 9
0	S 1	55.03.0122		1*a	S 1 TASTE, 1*A, PRINT,IMPULS
0	S 2	55.01.0164		4*a	SZ , 4*A, DIL
0	XIC 1	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 2	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 3	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 4	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 5	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 6	53.03.0167		14p	DIL 0.3", löt, gerade
0	XIC 7	53.03.0167		14p	DIL 0.3", löt, gerade
0	XIC 8	53.03.0168		16p	DIL 0.3", löt, gerade
0	XIC 9	53.03.0168		16p	DIL 0.3", löt, gerade
0	XIC 10	53.03.0184		32p	DIL 0.6", löt, gerade
0	XIC 11	53.03.0184		32p	DIL 0.6", löt, gerade
0	XIC 12	53.03.0184		32p	DIL 0.6", löt, gerade
0	XIC 13	53.03.0184		32p	DIL 0.6", löt, gerade
0	XIC 14	53.03.0167		14p	DIL 0.3", löt, gerade
0	XIC 15	53.03.0167		14p	DIL 0.3", löt, gerade
0	XIC 16	53.03.0168		16p	DIL 0.3", löt, gerade
0	XIC 17	53.03.0168		16p	DIL 0.3", löt, gerade
0	XIC 18	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 20	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 21	53.03.0165		20p	DIL 0.3", löt, gerade
0	XIC 22	53.03.0168		8p	DIL 0.3", löt, gerade
0	XIC 23	53.03.0166		8p	DIL 0.3", löt, gerade
0	XIC 24	53.03.0165		20p	DIL 0.3", löt, gerade
0	Y 1	89.01.1009		16.000MHz	16.000 000 MHz, HC 49/U

End of List

Comments:



CENTRAL CONTROL SWITCH BOARD 1.980.829.00

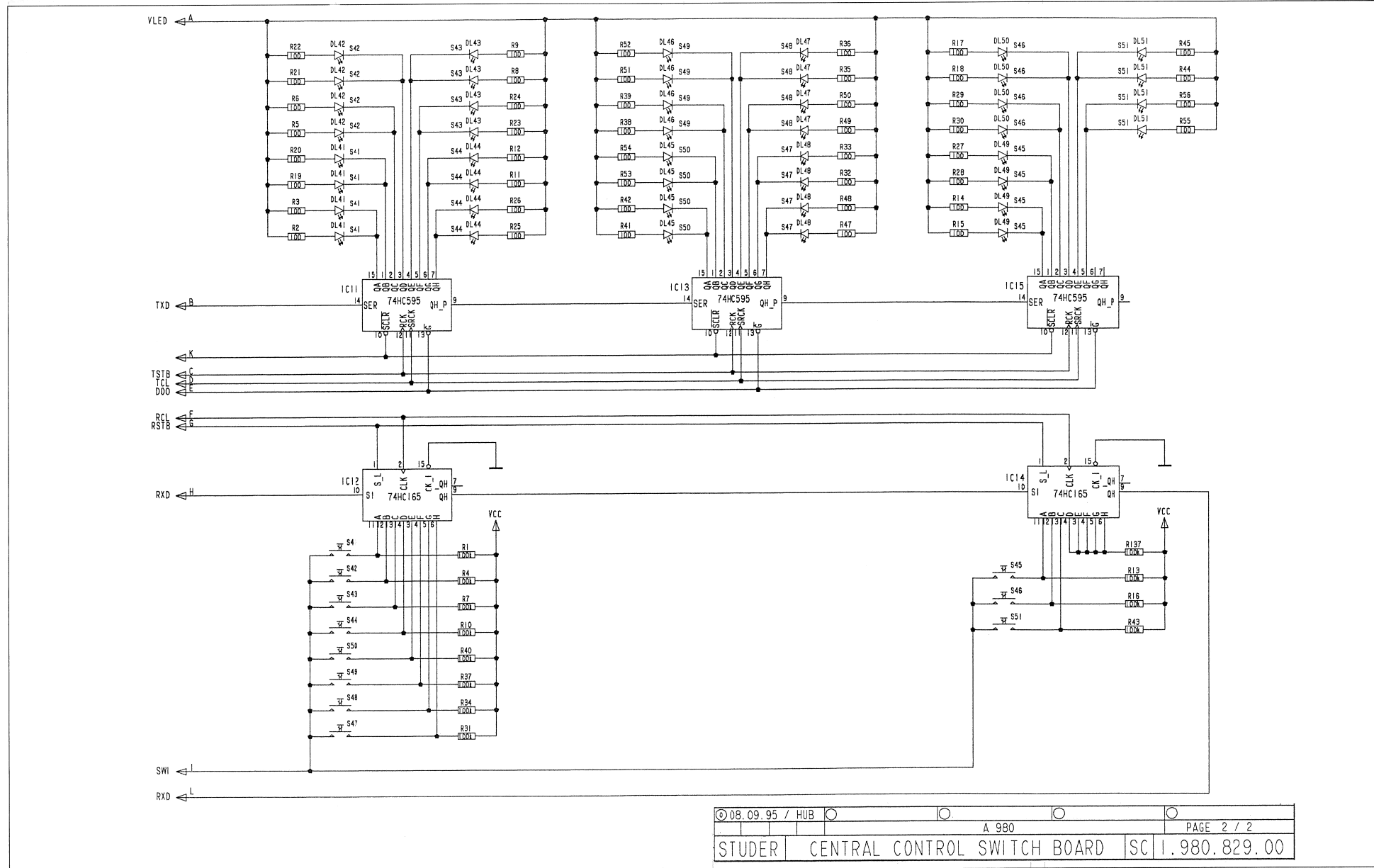


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STUDER	CENTRAL CONTROL SWITCH BOARD	SC	1.980.829.00		





CENTRAL CONTROL SWITCH BOARD 1.980.829.00



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STUDER	CENTRAL CONTROL SWITCH BOARD	SC 1.980.829.00





## Schemata / Circuit Diagrams

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Wegweiser durch den Schema-Dschungel (siehe am Anfang von Section 3)  
 How to find your way through the diagrams jungle (refer to the beginning of section 3)

### Input Units

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#### Structure lists and block diagrams:

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Mono Input Unit with EQ, 8/4 Ch .....	1.980.220.20
Block Diagram Mono Input Unit with EQ, 8/4 CH .....	1.980.220.20
Mono Input Unit with EQ, 6/6 Ch .....	1.980.221.20
Block Diagram Mono Input Unit with EQ, 6/6 CH .....	1.980.221.20
Mono Group Unit without EQ, 4 Ch .....	1.980.230.20
Block Diagram Mono Group Unit without EQ, 4 CH .....	1.980.230.20
Mono Group Unit without EQ, 6 Ch .....	1.980.231.20
Block Diagram Mono Group Unit without EQ, 6 CH .....	1.980.231.20
Stereo Input Unit HL with EQ, 8/4 Ch .....	1.980.240.20
Block Diagram Stereo Input Unit with EQ, 8/4 CH .....	1.980.240.20
Stereo Input Unit HL with EQ, 6/6 Ch .....	1.980.241.20
Block Diagram Stereo Input Unit HL with EQ, 6/6 CH .....	1.980.241.20
Stereo Input Unit HL without EQ, 8/4 Ch .....	1.980.242.20
Block Diagram Stereo Input Unit HL without EQ, 8/4 CH .....	1.980.242.20
Stereo Input Unit HL without EQ, 6/6 Ch .....	1.980.243.20
Block Diagram Stereo Input Unit HL without EQ, 6/6 CH .....	1.980.243.20
Stereo Input Unit Universal with EQ, 8/4 Ch .....	1.980.250.20
Block Diagram Stereo Input Unit Universal with EQ, 8/4 CH .....	1.980.250.20
Stereo Input Unit Universal with EQ, 6/6 Ch .....	1.980.251.20
Block Diagram Stereo Input Unit Universal with EQ, 6/6 CH .....	1.980.251.20

#### Circuit diagrams and component layouts:

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Input Main/Side Board .....	1.980.201.00
Input Main Board .....	1.980.202.00
Input Side Board .....	1.980.203.00
Mic Input Board .....	1.980.205.00
Group Input Board .....	1.980.207.00
Input Switch Board .....	1.980.209.00

## Parts lists:

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Input Main Board .....	1.980.202.70
Input Switch Board .....	1.980.209.70
Input Side Board Mono/EQ .....	1.980.223.00
Mic Input Board Mono .....	1.980.225.00
Group Side Board Mono .....	1.980.233.00
Group Input Board Mono .....	1.980.237.00
Input Side Board Stereo/EQ .....	1.980.244.00
Input Side Board Stereo .....	1.980.245.00
Group Input Board Stereo .....	1.980.247.00
Input Side Board Stereo/Mic/EQ .....	1.980.253.00
MIC Input Board Stereo .....	1.980.255.00
Input Main Board Mono/Mic/EQ .....	1.980.270.00
Input Main Board Stereo/Mic/EQ .....	1.980.271.00
Input Main Board Stereo/HL/Group/EQ .....	1.980.272.00
Input Main Board Stereo/HL/Group .....	1.980.273.00
Input Main Board Mono/HL/Group .....	1.980.274.00
Input Switch Board Mono/Group/Filter .....	1.980.290.00
Input Switch Board Mono/Group .....	1.980.291.00
Input Switch Board Stereo/HL/Group/Filter .....	1.980.292.00
Input Switch Board Stereo/HL/Group .....	1.980.293.00
Input Switch Board Stereo/HL/Group/EQ/Filter .....	1.980.294.00
Input Switch Board Stereo/HL/Group/EQ .....	1.980.295.00
Input Switch Board Stereo/Mic/EQ/Filter .....	1.980.296.00
Input Switch Board Stereo/Mic/EQ .....	1.980.297.00
Input Switch Board Mono/Mic/EQ/Filter .....	1.980.298.00
Input Switch Board Mono/Mic/EQ .....	1.980.299.00

Pin Assignments:

- 
- P3A INPUT UNIT to INPUT/FADER CONNECTION BOARD  
Valid for: All Input Units
  
  - P4A INPUT UNIT to AUB BOARD (1.992.18x)  
Valid for: All non-Film/HDTV input units
  
  - P4A INPUT UNIT to AUB BOARD (1.992.18x)  
Valid for: All Film/HDTV input units
  
  - P5A INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD  
(1.980.712x)  
Valid for: All Input Units
  
  - P6A INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD  
1.980.712.00  
Valid for:  
Stereo Input Unit Universal with EQ, 8/4 Ch, ..... 1.980.250.20  
and Stereo Input Unit Universal with EQ, 6/6 Ch, ..... 1.980.251.20
  
  - P6A INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD  
1.980.712.00  
Valid for:  
Mono Input Unit with EQ, 8/4 Ch, ..... 1.980.220.20  
and Mono Input Unit with EQ, 6/6 Ch, ..... 1.980.221.20
  
  - P6A INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD  
1.980.712.00  
Valid for:  
Stereo Input Unit with EQ, 8/4 Ch, ..... 1.980.240.20  
and Stereo Input Unit with EQ, 6/6 Ch, ..... 1.980.241.20
  
  - P6A INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD  
1.980.712.00  
Valid for:  
Group Unit without EQ, 8/4 Ch, ..... 1.980.230.20  
and Group Unit without EQ, 6/6 Ch, ..... 1.980.231.20

## AUX Master Units

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### Structure lists and block diagrams:

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Aux (Auxiliary) Master Unit, Transformerless .....	1.980.310.20
Block Diagram Aux Master Unit, Transformerless .....	1.980.310.20
Aux (Auxiliary) Master Unit w. Transformer outputs .....	1.980.320.20
Block Diagram Aux Master Unit, with Transformers .....	1.980.320.20

### Circuit diagrams and component layouts:

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Aux Master Main Board .....	1.980.302.00
Aux Master Switch Board .....	1.980.309.00
Aux Master Line Board .....	1.980.323.00

### Parts lists:

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Aux Master Main Board .....	1.980.302.00
Aux Master Switch Board .....	1.980.309.00
Aux Master Line Board .....	1.980.323.00

### Pin Assignments:

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P4A	AUX MASTER UNIT to AUB BOARD (1.992.18x) Valid for: All AUX master units
P5A	AUX MASTER UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD (1.980.712.00) Valid for: All AUX master units
P6A	AUX MASTER UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD (1.980.712.00) Valid for: All AUX master units
P6C	4 x 16-pin flat cable connections AUX MASTER MAIN BOARD to AUX MASTER LINE BOARD Valid for: AUX MASTER UNIT WITH TRANSFORMER OUTPUTS

**Talkback/Monitoring**

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Block diagrams, circuit diagrams, component layouts, and parts lists:

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Talk Back/Studio Monitor .....	1.912.326
Talk Back/Studio Monitor .....	1.912.320.00/326.00
Talk Back/PFL Amplifier.....	1.912.321.00/326.00
Talk Back/Studio Monitor .....	1.912.326.00
Control Room Monitor Unit .....	1.912.420.00
Auxiliary Monitor Selector .....	1.912.460.00
Auxiliary Monitor Selector .....	1.912.460.81



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**INPUT UNITS**

**Mono Input Unit with EQ, 8/4 Ch****1.980.220.21****Assemblies Structure**

PIC w. Software 980200	1.980.210.20
Inp. Main Bd. Mono/Mic/EQ	1.980.270.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board Mono/EQ	1.980.223.00
Input Side PCB	1.980.203.11
Mic Input Board Mono	1.980.225.00
Mic Input PCB	1.980.205.11
Inp. Sw. Bd. Mono/Mic/EQ	1.980.299.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**

Mono Input Unit w. EQ, 8/4 Ch 1.980.220.20

**Diagrams**

Input Main/Side Board	1.980.201.21, pages 1a; 2a; 3a; 5a; 6a; 7a; 8a; 9a; 10a; 11a; 12a; 13a
Input Switch Board	1.980.209.00
Mic Input Board	1.980.205.00, page 1a

**Component Layout Drawings**

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Mic Input Board	1.980.205.00
Input Switch Board	1.980.209.00

**Parts Lists**

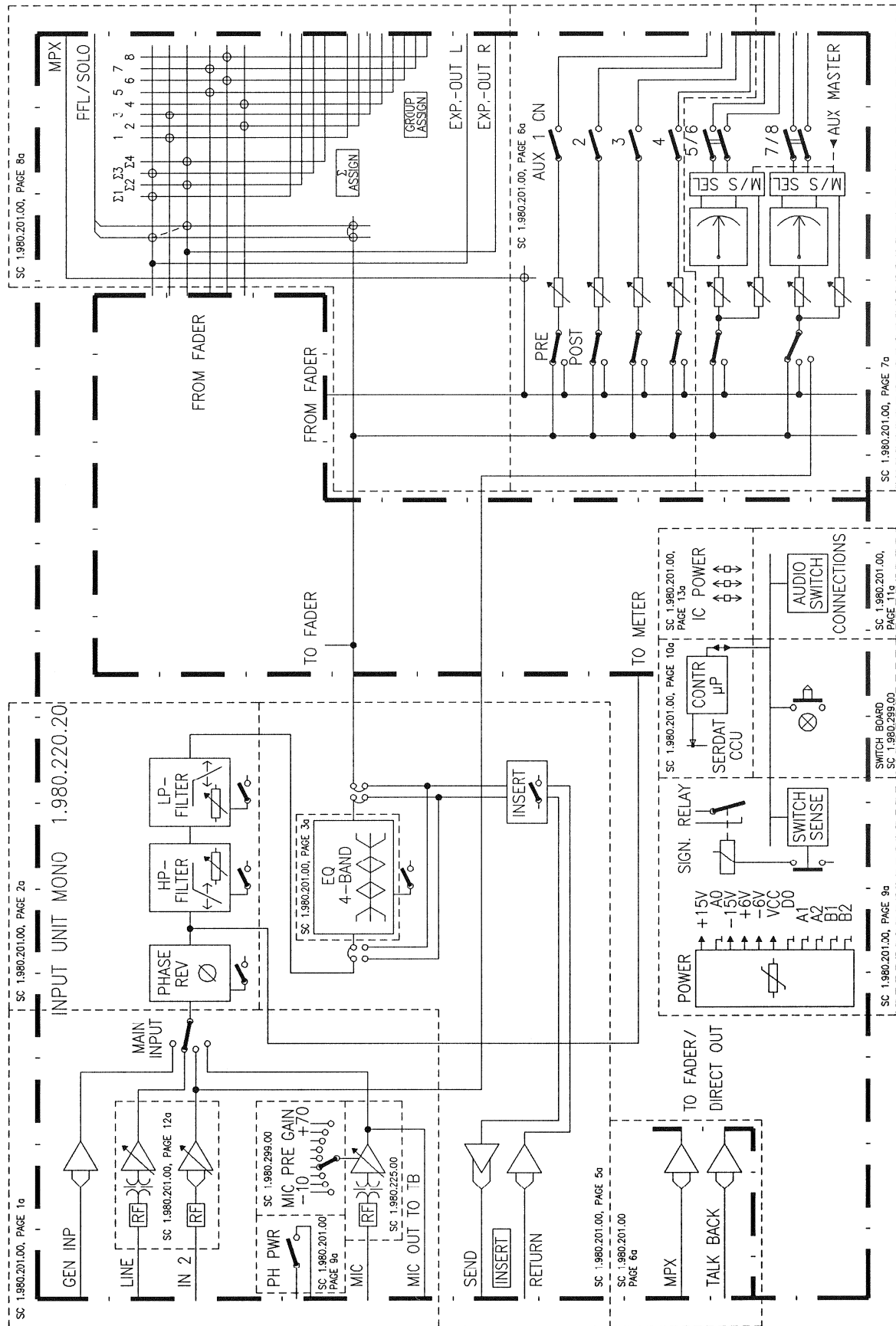
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board Mono/EQ	1.980.223.00
Mic Input Board Mono	1.980.225.00
Inp. Main Bd. Mono/Mic/EQ	1.980.270.21
Inp. Sw. Bd. Mono/Mic/EQ	1.980.299.00

**Connector Pin Assignments**

	P3A, P4 (Input Unit Mono/Stereo/Normal), P5, P6 (Input Unit Mono with EQ, 1.980.220/221.20)
<b>Option 2 Mic:</b>	P6 (Input Unit Mono w. 2 x Mic, 1.980.22X/22X.20)

**Comments****Option 2:** Mic Version 1.980.220/101

**BLOCK DIAGRAM**  
**MONO INPUT UNIT WITH EQ, 8/4 CH 1.980.220.20**



**Mono Input Unit with EQ, 6/6 Ch****1.980.221.21****Assemblies Structure**

PIC w. Software 980200	1.980.210.20
Inp. Main Bd. Mono/Mic/EQ	1.980.270.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board Mono/EQ	1.980.223.00
Input Side PCB	1.980.203.11
Mic Input Board Mono	1.980.225.00
Mic Input PCB	1.980.205.11
Inp. Sw. Bd. Mono/Mic/EQ/Fi.	1.990.298.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**

Mono Input Unit w. EQ, 8/4 Ch	1.980.221.20
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**Diagrams**

Input Main/Side Board	1.980.201.21, <i>pages 1a; 2a; 3a; 5a; 6a; 7a; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Mic Input Board	1.980.205.00, <i>page 1a</i>

**Component Layout Drawings**

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Mic Input Board	1.980.205.00
Input Switch Board	1.980.209.00

**Parts Lists**

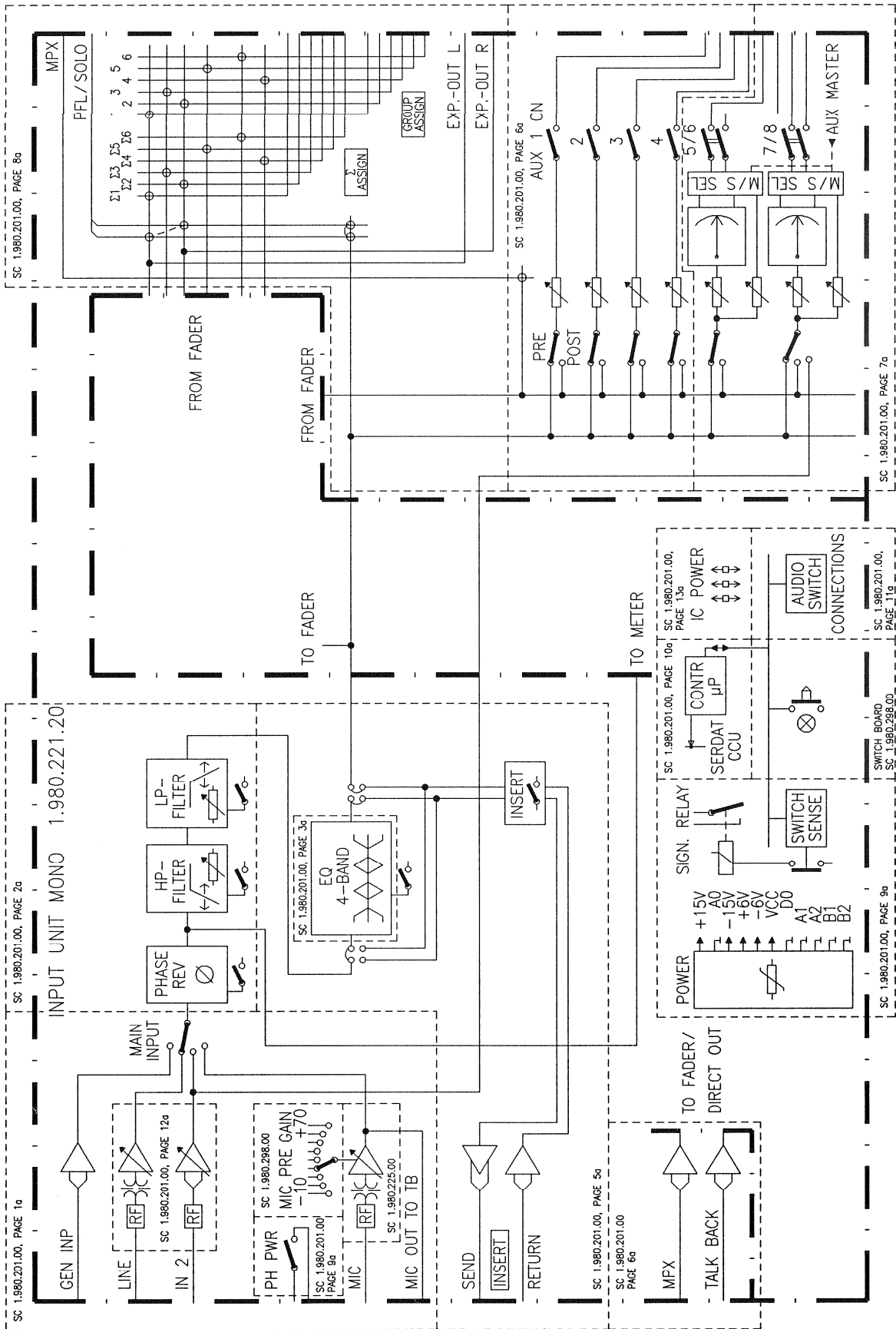
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board Mono/EQ	1.980.223.00
Mic Input Board Mono	1.980.225.00
Inp. Main Bd. Mono/Mic/EQ	1.980.270.21
Inp. Sw. Bd. Mono/Mic/EQ/Fi.	1.980.298.00

**Connector Pin Assignments**

	P3, P4 (Input Unit Mono/Stereo/Film), P5, P6 (Input Unit Mono with EQ, 1.980.220/221.20)
<b>Option 2 Mic:</b>	P6 (Input Unit Mono w. 2 x Mic, 1.980.22X/22X.20)

**Comments****Option 2:** Mic Version 1.980.221/102

BLOCK DIAGRAM  
MONO INPUT UNIT WITH EQ, 6/6 CH 1.980.221.20



**Mono Group Unit without EQ, 4 Ch****1.980.230.21****Assemblies Structure**


---

PIC w. Software 980200	1.980.210.20
Input Main Bd. Mono/HL/GR	1.980.274.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Group Side Board Mono	1.980.233.00
Input Side PCB	1.980.203.11
Group Input Board Mono	1.980.237.00
Group Input PCB	1.980.207.11
Input Switch Bd. Mono/GR	1.980.291.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**


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Mono Group Unit without EQ, 4 Ch	1.980.230.20
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**Diagrams**


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Input Main/Side Board	1.980.201.21, <i>pages 1e; 2e; 5e; 6a; 7a; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Group Input Board	1.980.207.00, <i>page 2b</i>

**Component Layout Drawings**


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Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Group Input Board	1.980.207.00
Input Switch Board	1.980.209.00

**Parts Lists**


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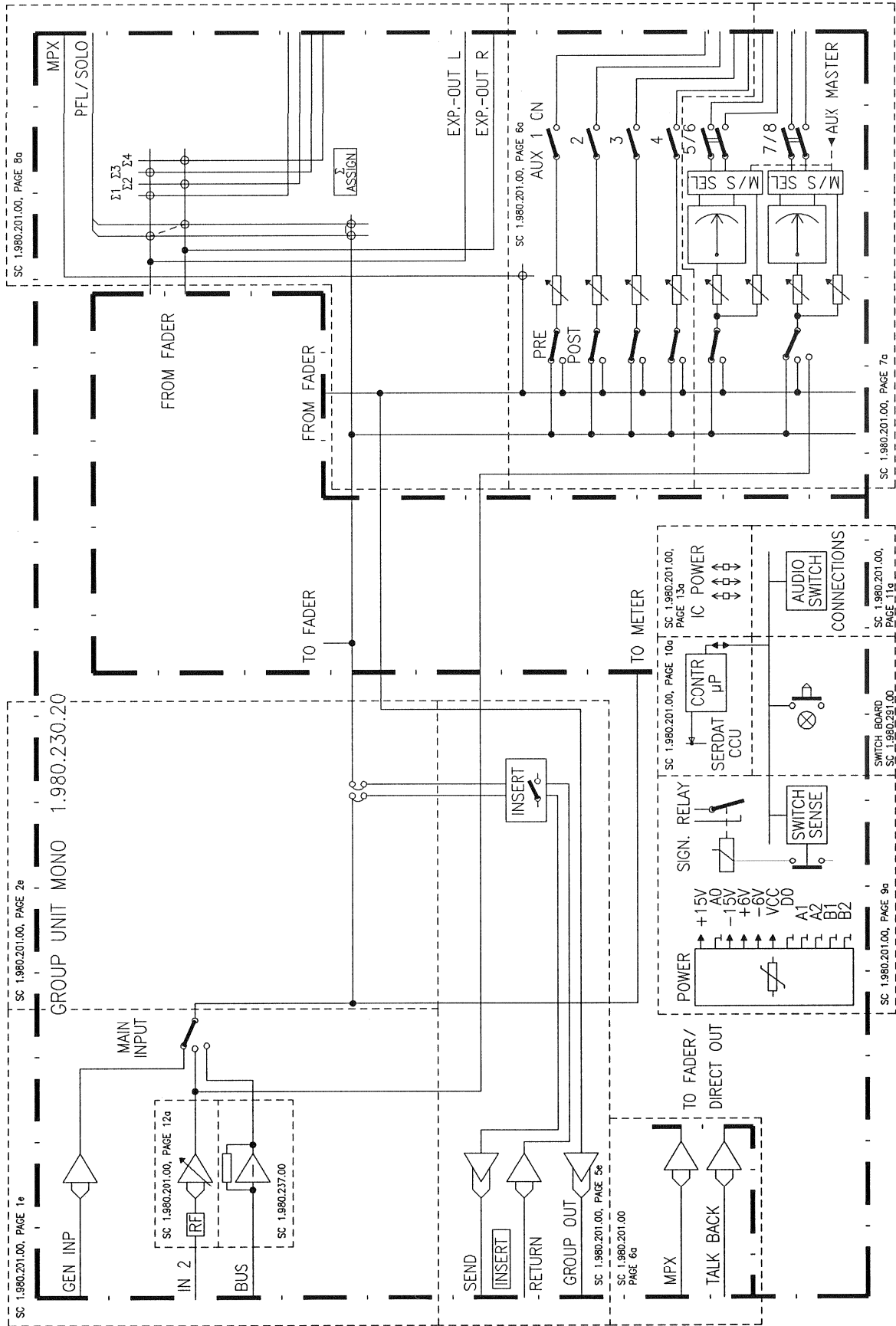
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Group Side Board Mono	1.980.233.00
Group Input Board Mono	1.980.237.00
Input Main Bd. Mono/HL/GR	1.980.274.21
Input Switch Bd. Mono/GR	1.980.291.00

**Connector Pin Assignments**


---

P3, P4 (Input Unit Mono/Stereo/Normal), P5, P6 (Group Unit Mono without EQ, 1.980.230/231.20)

BLOCK DIAGRAM  
MONO GROUP UNIT WITHOUT EQ, 4 CH 1.980.230.20



**Mono Group Unit without EQ, 6 Ch****1.980.231.21****Assemblies Structure**


---

PIC w. Software 980200	1.980.210.20
Input Main Bd. Mono/HL/GR	1.980.274.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Group Side Board Mono	1.980.233.00
Input Side PCB	1.980.203.11
Group Input Board Mono	1.980.237.00
Group Input PCB	1.980.207.11
Inp. Switch Bd. Mono/GR/Fi.	1.980.290.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**


---

Mono Group Unit without EQ, 6 CH	1.980.231.20
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**Diagrams**


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Input Main/Side Board	1.980.201.21, <i>pages 1e; 2e; 5e; 6a; 7a; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Group Input Board	1.980.207.00, <i>page 2b</i>

**Component Layout Drawings**


---

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Group Input Board	1.980.207.00
Input Switch Board	1.980.209.00

**Parts Lists**


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Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Group Side Board Mono	1.980.233.00
Group Input Board Mono	1.980.237.00
Input Main Bd. Mono/HL/GR	1.980.274.21
Inp. Switch Bd. Mono/GR/Fi.	1.980.290.00

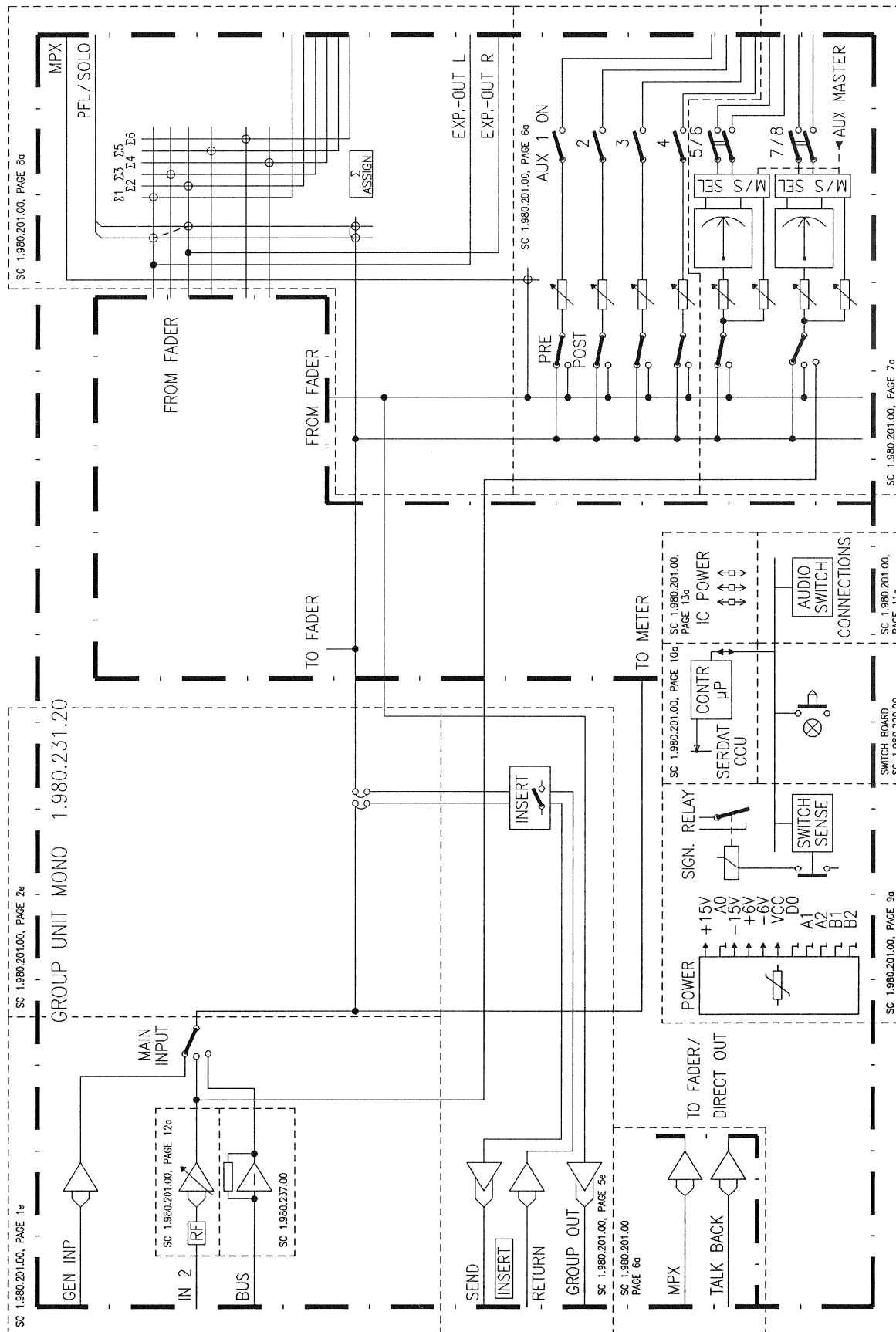
**Connector Pin Assignments**


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P3, P4 (Input Unit Mono/Stereo/Film), P5, P6 (Group Unit Mono without EQ, 1.980.230/231.20)



BLOCK DIAGRAM  
MONO GROUP UNIT WITHOUT EQ, 6 CH 1.980.231.20



**Stereo Input Unit HL with EQ, 8/4 Ch****1.980.240.21****Assemblies Structure**


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PIC w. Software 980200	1.980.210.20
Input Main Bd. St./HL/GR/EQ	1.980.272.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board Stereo/EQ	1.980.244.00
Input Side PCB	1.980.203.11
Group Input Board Stereo	1.980.247.00
Group Input PCB	1.980.207.11
Input Sw. Bd. St./HL/GR/EQ	1.980.295.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram****Stereo Input Unit HL with EQ, 8/4 Ch**

1.980.240.20

**Diagrams**


---

Input Main/Side Board	1.980.201.21, <i>pages 1c; 2b; 3b; 4b; 5b; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Group Input Board	1.980.207.00, <i>pages 1b; 2a</i>

**Component Layout Drawings**


---

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Group Input Board	1.980.207.00
Input Switch Board	1.980.209.00

**Parts Lists**


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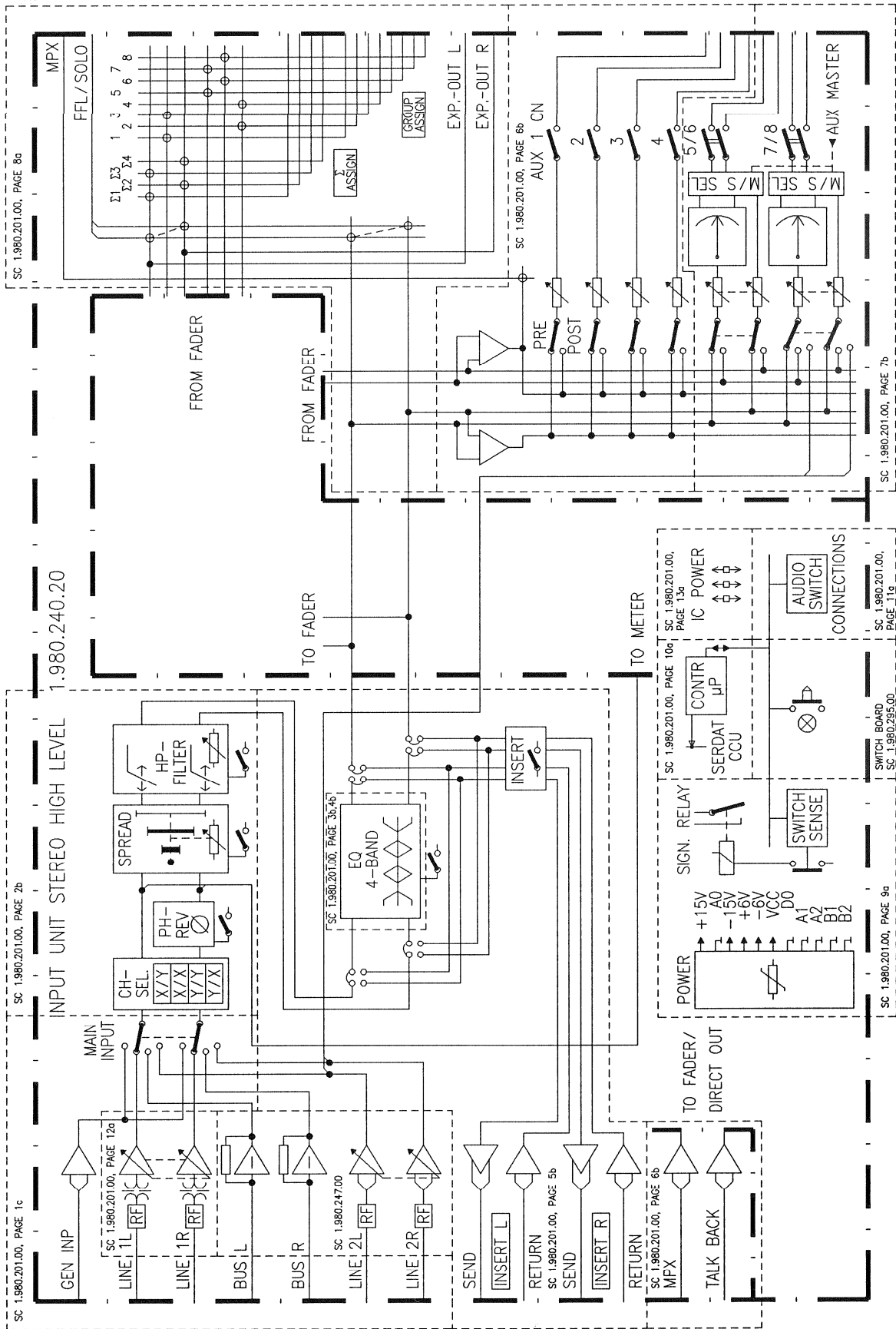
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board Stereo/EQ	1.980.244.00
Group Input Board Stereo	1.980.247.00
Input Main Bd. St./HL/GR/EQ	1.980.272.21
Input Sw. Bd. St./HL/GR/EQ	1.980.295.00

**Connector Pin Assignments**


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P3, P4 (Input Unit Mono/Stereo/Normal), P5, P6 (Input Unit Stereo with EQ, 1.980.240/241.20)

**BLOCK DIAGRAM**  
**STEREO INPUT UNIT HL WITH EQ, 8/4 CH 1.980.240.20**



**Stereo Input Unit HL with EQ, 6/6 Ch****1.980.241.21****Assemblies Structure**


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<b>PIC w. Software 980200</b>	1.980.210.20
<b>Input Main Bd. St./HL/GR/EQ</b>	1.980.272.00
<b>Input Main Board</b>	1.980.202.70
<b>Input Main PCB</b>	1.980.202.11
<b>Input Side Board Stereo/EQ</b>	1.980.244.00
<b>Input Side PCB</b>	1.980.203.11
<b>Group Input Board Stereo</b>	1.980.247.00
<b>Group Input PCB</b>	1.980.207.11
<b>Inp. Sw. Bd. St./HL/GR/EQ/Fi</b>	1.980.294.00
<b>Input Switch Board</b>	1.980.209.70
<b>Input Switch PCB</b>	1.980.209.11

**Block Diagram****Stereo Input Unit HL with EQ, 6/6 Ch**

1.981.241.20

**Diagrams**


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<b>Input Main/Side Board</b>	1.980.201.21, <i>pages 1c; 2b; 3b; 4b; 5b; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
<b>Input Switch Board</b>	1.980.209.00
<b>Group Input Board</b>	1.980.207.00, <i>pages 1b; 2a</i>

**Component Layout Drawings**


---

<b>Input Main Board</b>	1.980.202.00
<b>Input Side Board</b>	1.980.203.00
<b>Group Input Board</b>	1.980.207.00
<b>Input Switch Board</b>	1.980.209.00

**Parts Lists**


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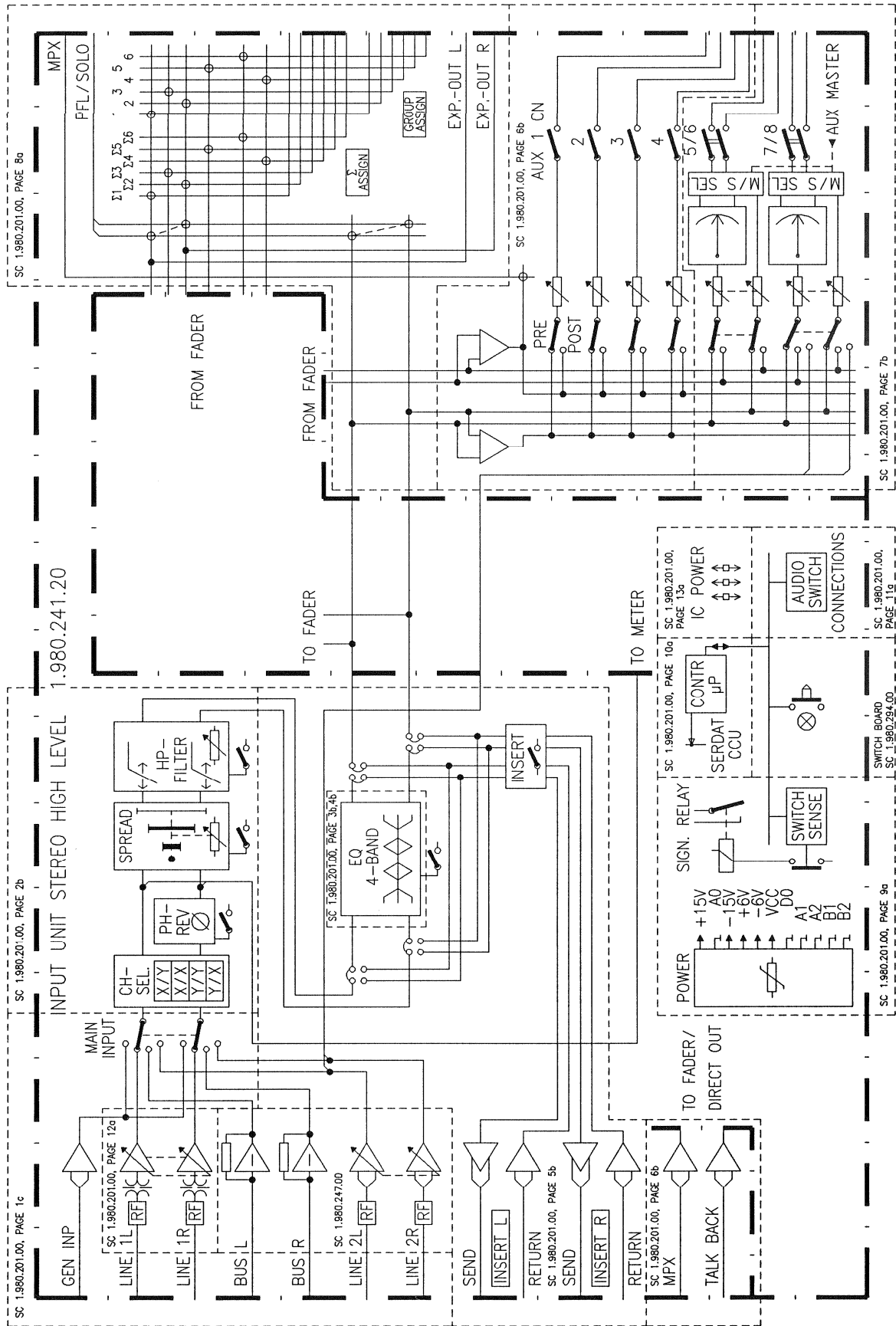
<b>Input Main Board</b>	1.980.202.70 (general parts only)
<b>Input Switch Board</b>	1.980.209.70 (general parts only)
<b>Input Side Board Stereo/EQ</b>	1.980.244.00
<b>Group Input Board Stereo</b>	1.980.247.00
<b>Input Main Bd. St./HL/GR/EQ</b>	1.980.272.21
<b>Inp. Sw. Bd. St./HL/GR/EQ/Fi</b>	1.980.294.00

**Connector Pin Assignments**


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P3, P4 (Input Unit Mono/Stereo/Film), P5, P6 (Input Unit Stereo with EQ, 1.980.240/241.20)

BLOCK DIAGRAM  
STEREO INPUT UNIT HL WITH EQ, 6/6 CH 1.980.241.20



**Stereo Input Unit HL without EQ, 8/4 Ch****1.980.242.21****Assemblies Structure**

PIC w. Software 980200	1.980.210.20
Input Main Board St./HL/GR	1.980.273.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board Stereo	1.980.245.00
Input Side PCB	1.980.203.11
Group Input Board Stereo	1.980.247.00
Group Input PCB	1.980.207.11
Input Switch Bd. St./HL/GR	1.980.293.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**

Stereo Input Unit HL without EQ, 8/4 Ch	1.980.242.20
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**Diagrams**

Input Main/Side Board	1.980.201.21, <i>pages 1c; 2d; 5d; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Group Input Board	1.980.207.00, <i>pages 1b; 2a</i>

**Component Layout Drawings**

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Group Input Board	1.980.207.00
Input Switch Board	1.980.209.00

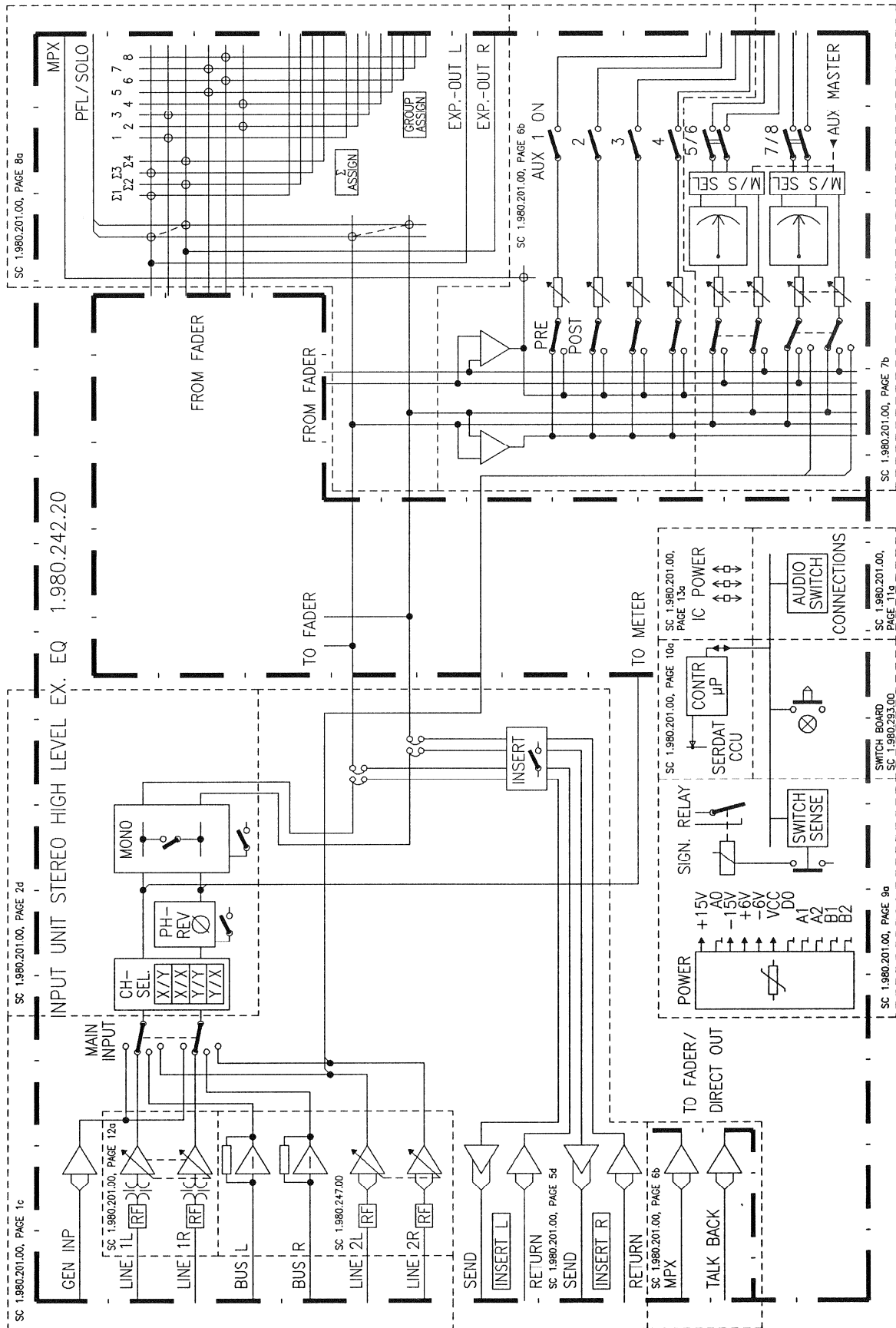
**Parts Lists**

Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board Stereo	1.980.245.00
Group Input Board Stereo	1.980.247.00
Input Main Board St./HL/GR	1.980.273.21
Input Switch Bd. St./HL/GR	1.980.293.00

**Connector Pin Assignments**

P3, P4 (Input Unit Mono/Stereo/Normal), P5, P6 (Input Unit Stereo with EQ, 1.980.240/241.20)

BLOCK DIAGRAM  
STEREO INPUT UNIT HL WITHOUT EQ, 8/4 CH 1.980.242.20



**Stereo Input Unit HL without EQ, 6/6 Ch****1.980.243.21****Assemblies Structure**

PIC w. Software 980200	1.980.210.20
Input Main Board St./HL/GR	1.980.273.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board Stereo	1.980.245.00
Input Side PCB	1.980.203.11
Group Input Board Stereo	1.980.247.00
Group Input PCB	1.980.207.11
Input Sw. Bd. St./HL/GR/Fi	1.980.292.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**

Stereo Input Unit HL without EQ, 6/6 Ch	1.980.243.20
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**Diagrams**

Input Main/Side Board	1.980.201.21, <i>pages 1c; 2d; 5d; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Group Input Board	1.980.207.00, <i>pages 1b; 2a</i>

**Component Layout Drawings**

Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Group Input Board	1.980.207.00
Input Switch Board	1.980.209.00

**Parts Lists**

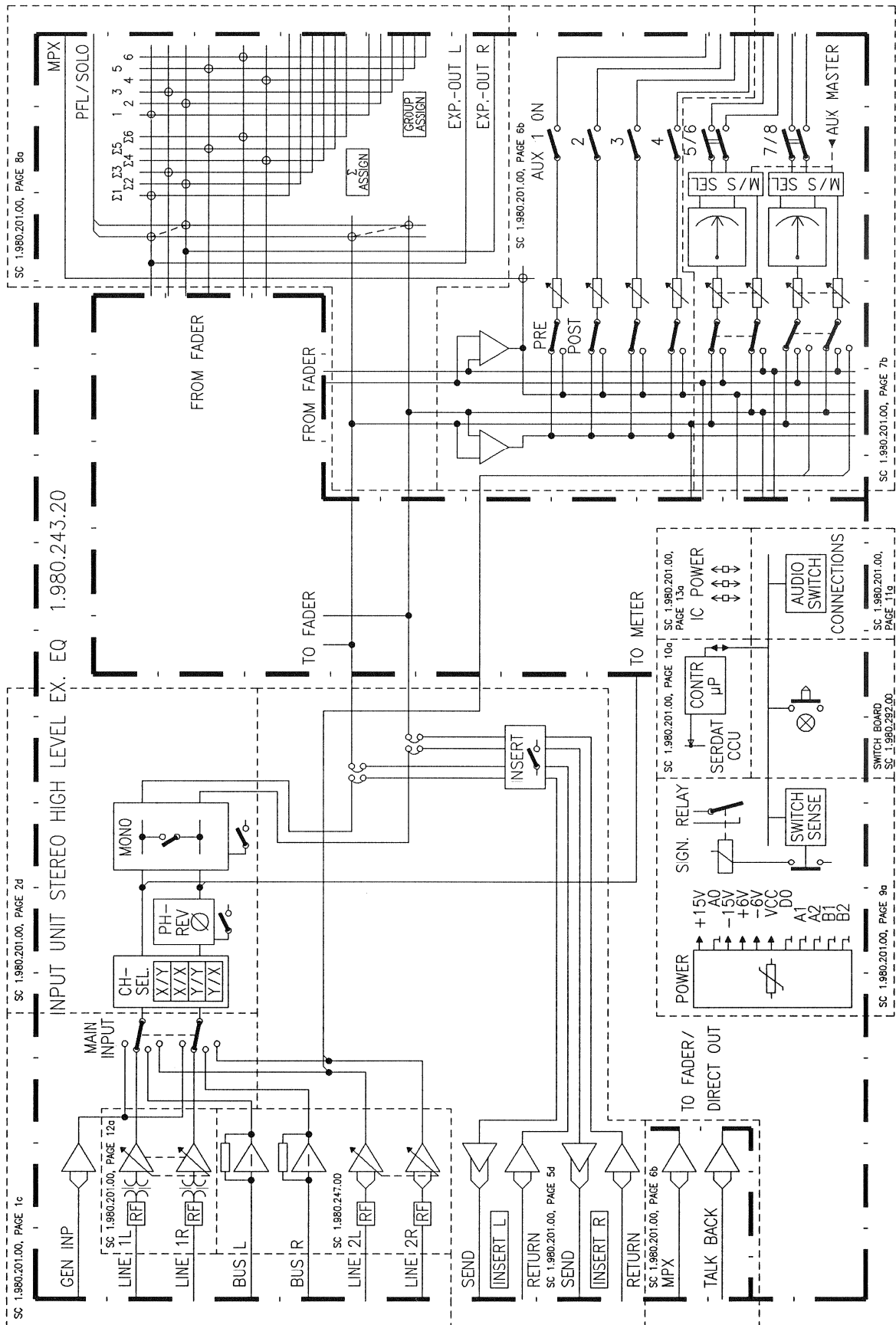
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board Stereo	1.980.245.00
Group Input Board Stereo	1.980.247.00
Input Main Board St./HL/GR	1.980.273.21
Input Sw. Bd. St./HL/GR/Fi	1.980.292.00

**Connector Pin Assignments**

P3, P4 (Input Unit Mono/Stereo/Film), P5, P6 (Input Unit Stereo w. EQ, 1.980.240/241.20)



BLOCK DIAGRAM  
STEREO INPUT UNIT HL WITHOUT EQ, 6/6 CH 1.980.243.20



**Stereo Input Unit Universal with EQ, 8/4 Ch****1.980.250.21****Assemblies Structure**


---

PIC w. Software 980200	1.980.210.20
Input Main Bd. St./Mic/EQ	1.980.271.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board St./Mic/EQ	1.980.253.00
Input Side PCB	1.980.203.11
Mic Input Board Stereo	1.980.255.00
Mic Input PCB	1.980.205.11
Input Switch Bd. St./Mic/EQ	1.980.297.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**


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Stereo Input Unit Universal with EQ, 8/4 Ch	1.980.250/251.20
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**Diagrams**


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Input Main/Side Board	1.980.201.21, <i>pages 1b; 2b; 3b; 4b; 5b; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Mic Input Board	1.980.205.00, <i>pages 1a; 2a</i>

**Component Layout Drawings**


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Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Mic Input Board	1.980.205.00
Input Switch Board	1.980.209.00

**Parts Lists**


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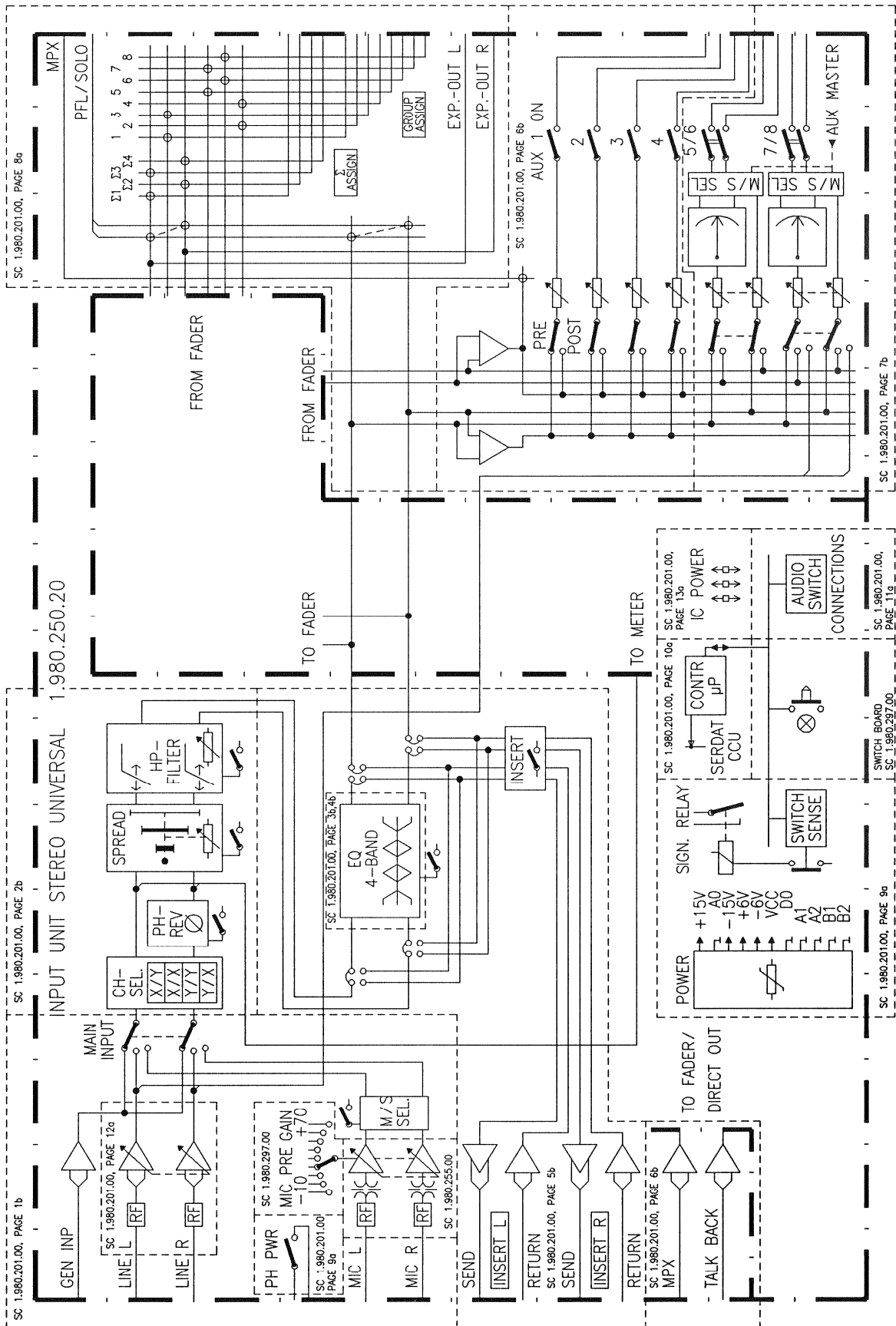
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board St./Mic/EQ	1.980.253.00
Mic Input Board Stereo	1.980.255.00
Input Main Bd. St./Mic/EQ	1.980.271.21
Input Switch Bd. St./Mic/EQ	1.980.297.00

**Connector Pin Assignments**


---

P3, P4 (Input Unit Mono/Stereo/Normal), P5, P6 (Input Unit Stereo Universal, with EQ, 1.980.250/251.20)

BLOCK DIAGRAM  
STEREO INPUT UNIT UNIVERSAL WITH EQ, 8/4 CH 1.980.250.20



**Stereo Input Unit Universal with EQ, 6/6 Ch****1.980.251.21****Assemblies Structure**


---

PIC w. Software 980200	1.980.210.20
Input Main Bd. St./Mic/EQ	1.980.271.00
Input Main Board	1.980.202.70
Input Main PCB	1.980.202.11
Input Side Board St./Mic/EQ	1.980.253.00
Input Side PCB	1.980.203.11
Mic Input Board Stereo	1.980.255.00
Mic Input PCB	1.980.205.11
Input Sw. Bd. St./Mic/EQ/Fi	1.980.296.00
Input Switch Board	1.980.209.70
Input Switch PCB	1.980.209.11

**Block Diagram**


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Stereo Input Unit Universal with EQ, 6/6 Ch	1.980.251.20
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**Diagrams**


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Input Main/Side Board	1.980.201.21, <i>pages 1b; 2b; 3b; 4b; 5b; 6b; 7b; 8a; 9a; 10a; 11a; 12a; 13a</i>
Input Switch Board	1.980.209.00
Mic Input Board	1.980.205.00, <i>pages 1a; 2a</i>

**Component Layout Drawings**


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Input Main Board	1.980.202.00
Input Side Board	1.980.203.00
Mic Input Board	1.980.205.00
Input Switch Board	1.980.209.00

**Parts Lists**


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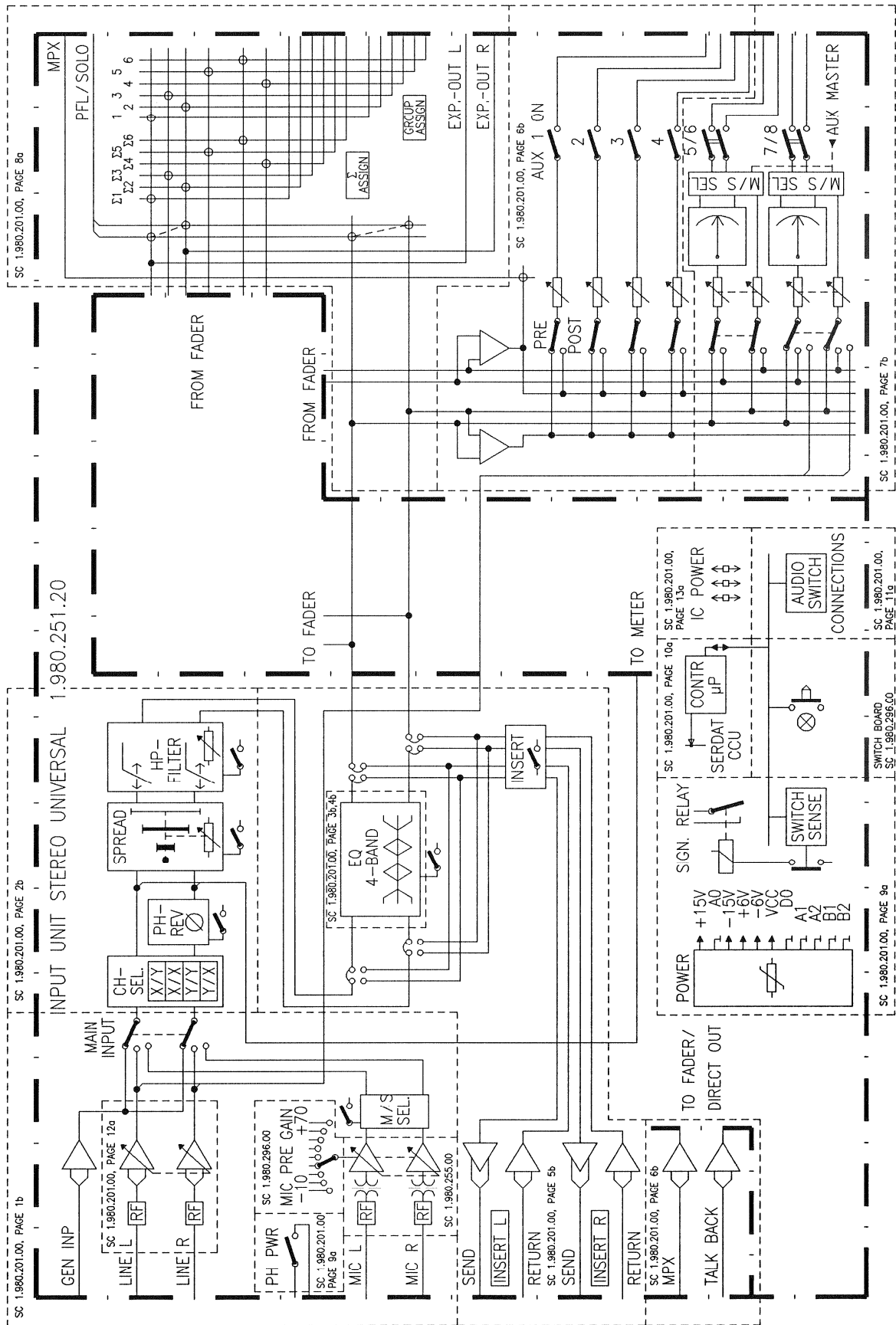
Input Main Board	1.980.202.70 (general parts only)
Input Switch Board	1.980.209.70 (general parts only)
Input Side Board St./Mic/EQ	1.980.253.00
Mic Input Board Stereo	1.980.255.00
Input Main Bd. St./Mic/EQ	1.980.271.21
Input Sw. Bd. St./Mic/EQ/Fi	1.980.296.00

**Connector Pin Assignments**

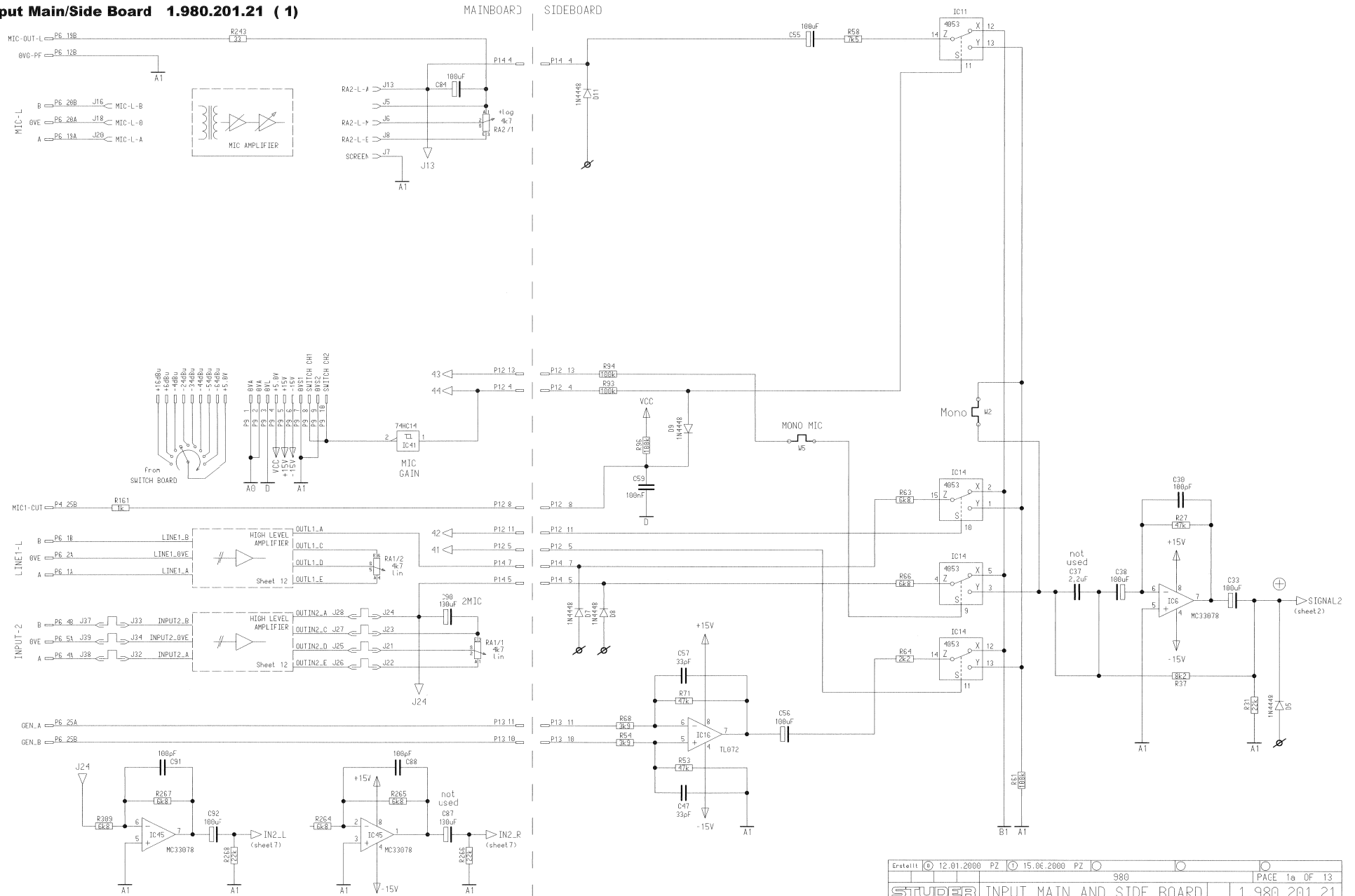

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P3, P4 (Input Unit Mono/Stereo/Film), P5, P6 (Input Unit Stereo Universal, with EQ, 1.980.250/251.20)

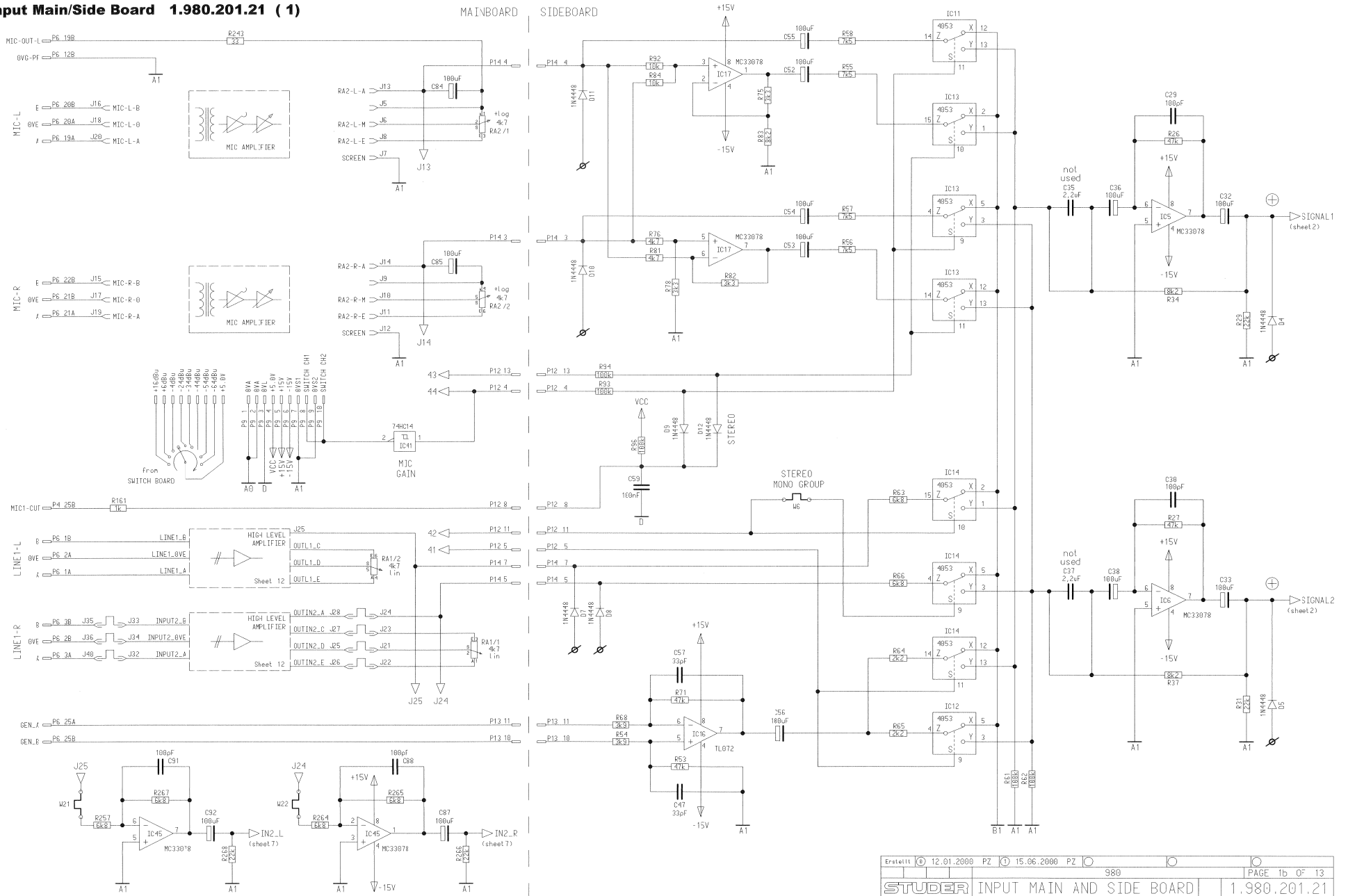
**BLOCK DIAGRAM**  
**STEREO INPUT UNIT UNIVERSAL WITH EQ, 6/6 CH 1.980.251.20**



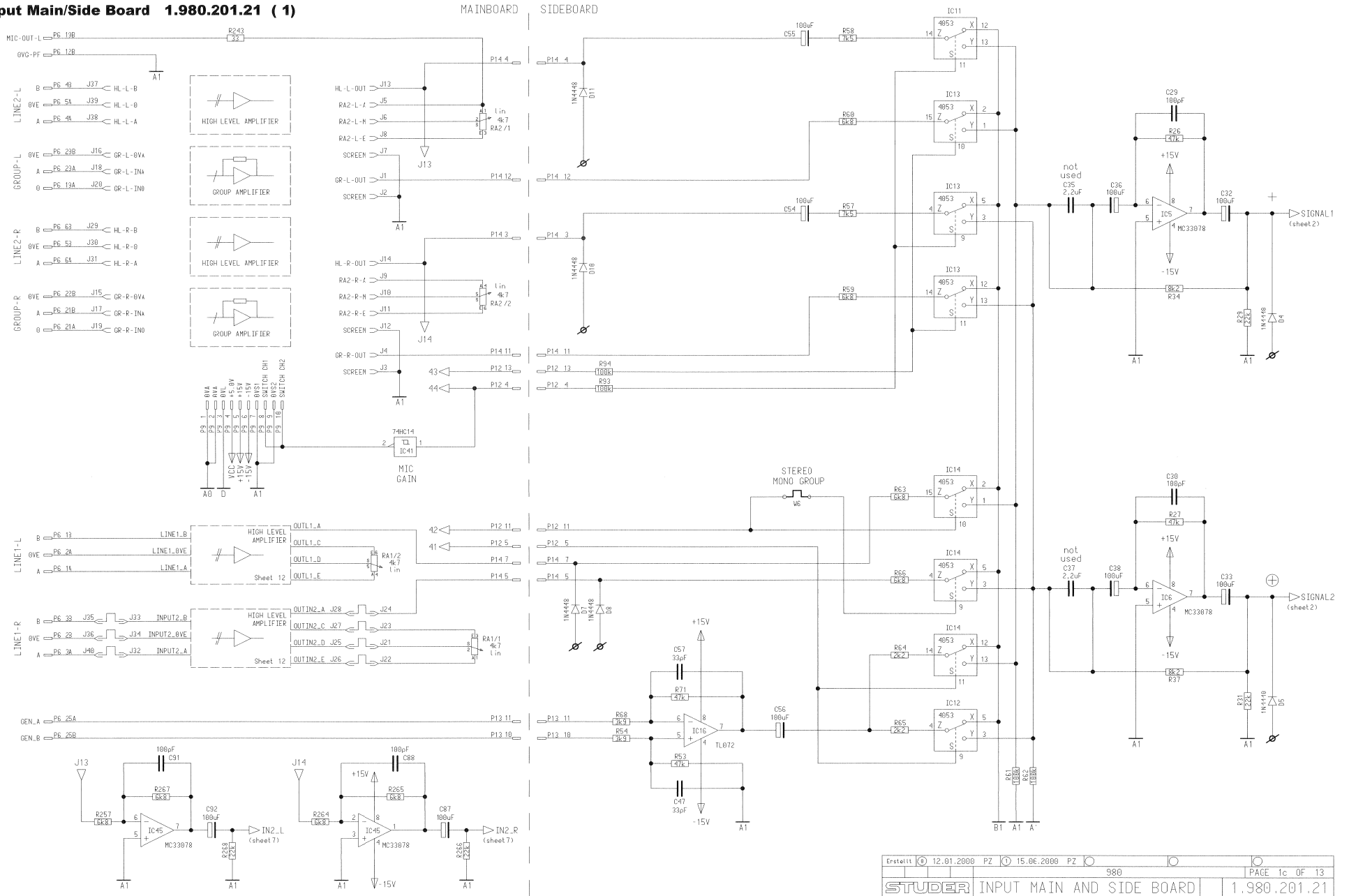
Input Main/Side Board 1.980.201.21 ( 1)



Input Main/Side Board 1.980.201.21 ( 1)



Input Main/Side Board 1.980.201.21 ( 1)

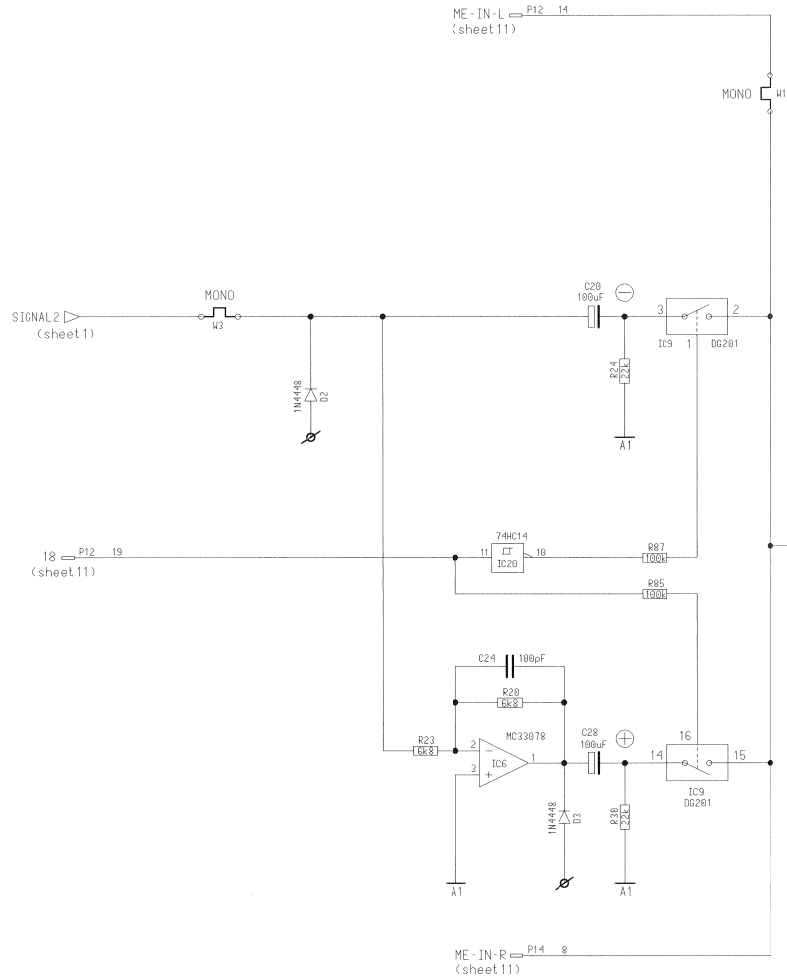


Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE	1c OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21	



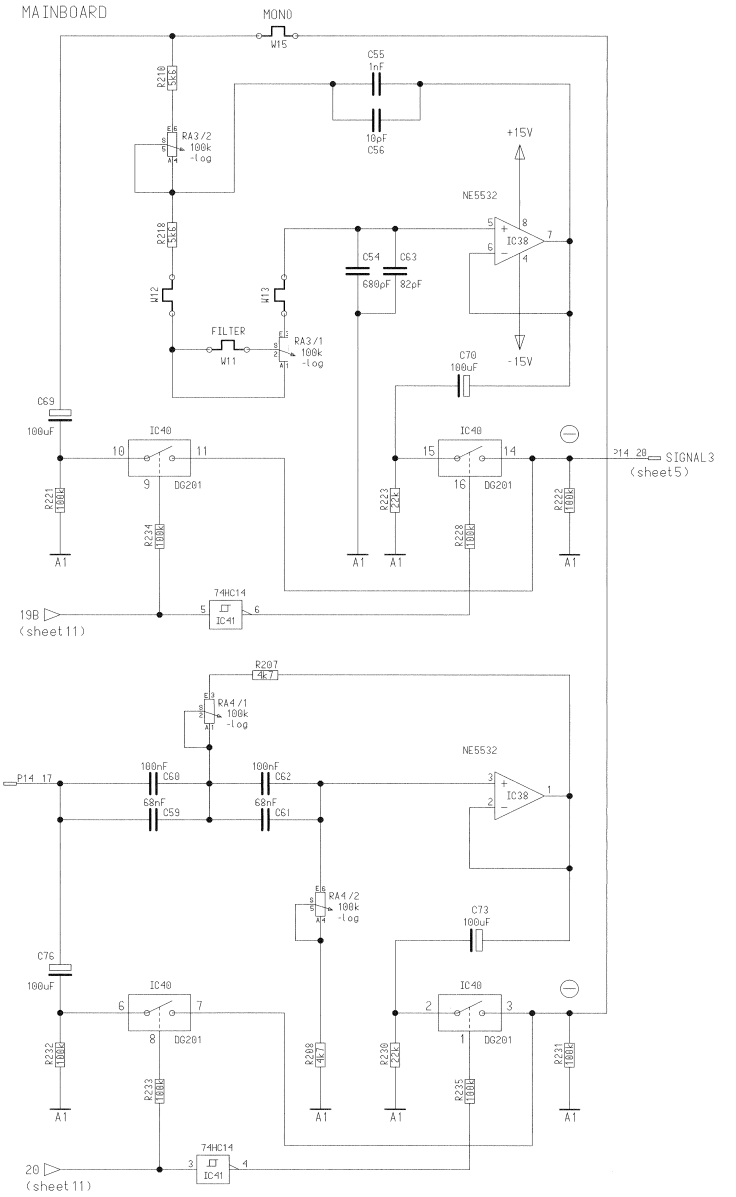


Input Main/Side Board 1.980.201.21 ( 1)



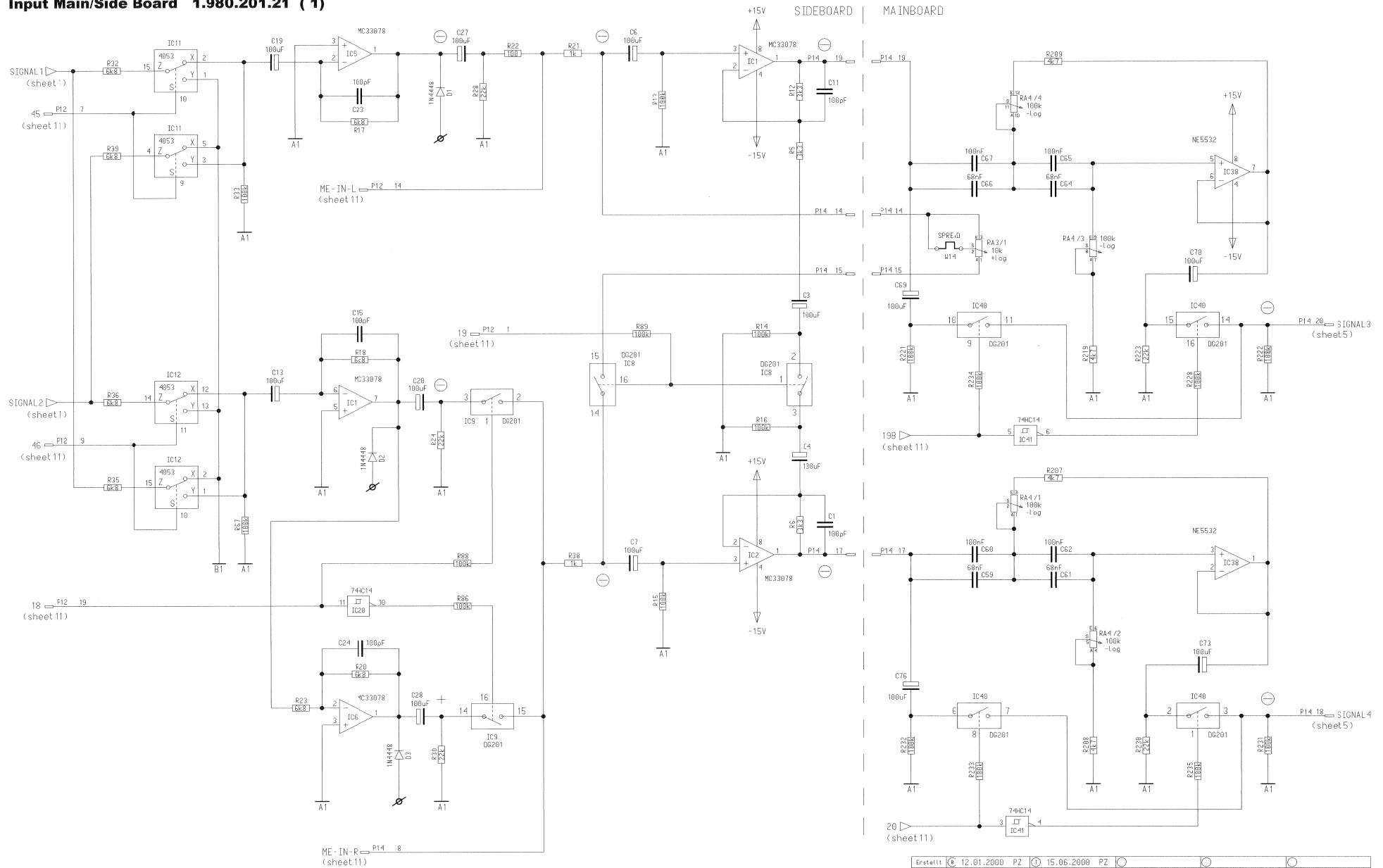
SIDEBOARD

MAINBOARD



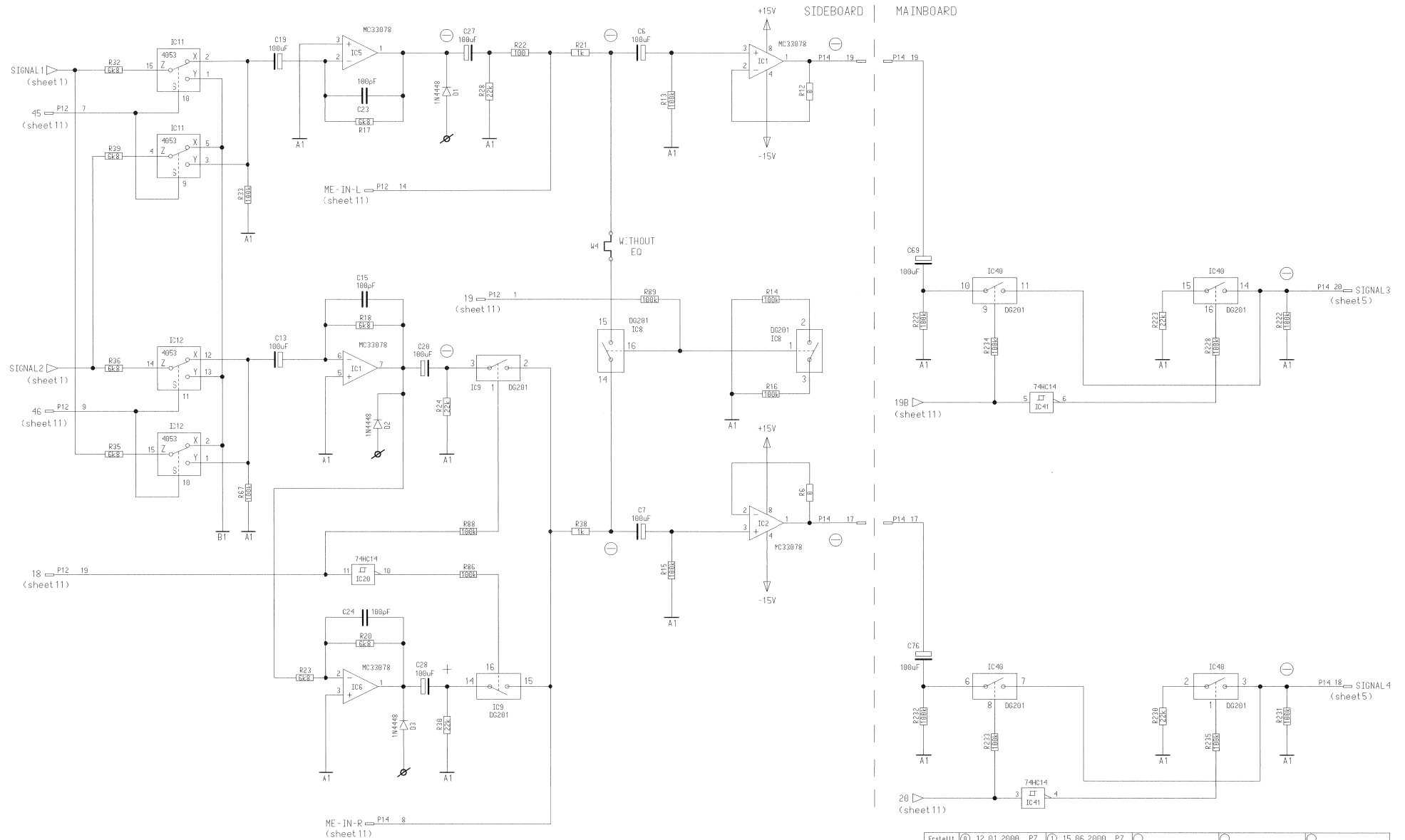
Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 2a OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1)



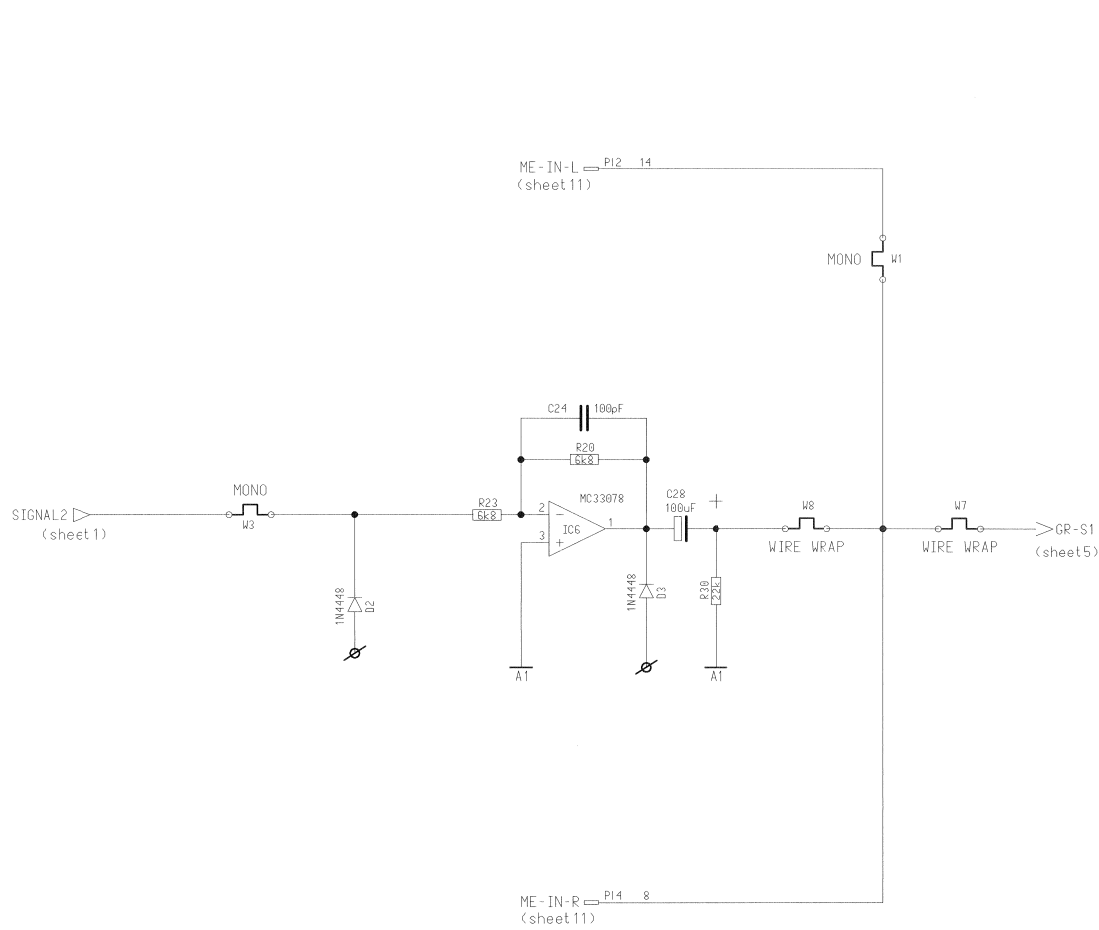
Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 2b OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1)



Erstellt	12.01.2000	PZ	15.06.2000	PZ					
980						PAGE 2d OF 13			
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21			

**Input Main/Side Board 1.980.201.21 ( 1)**



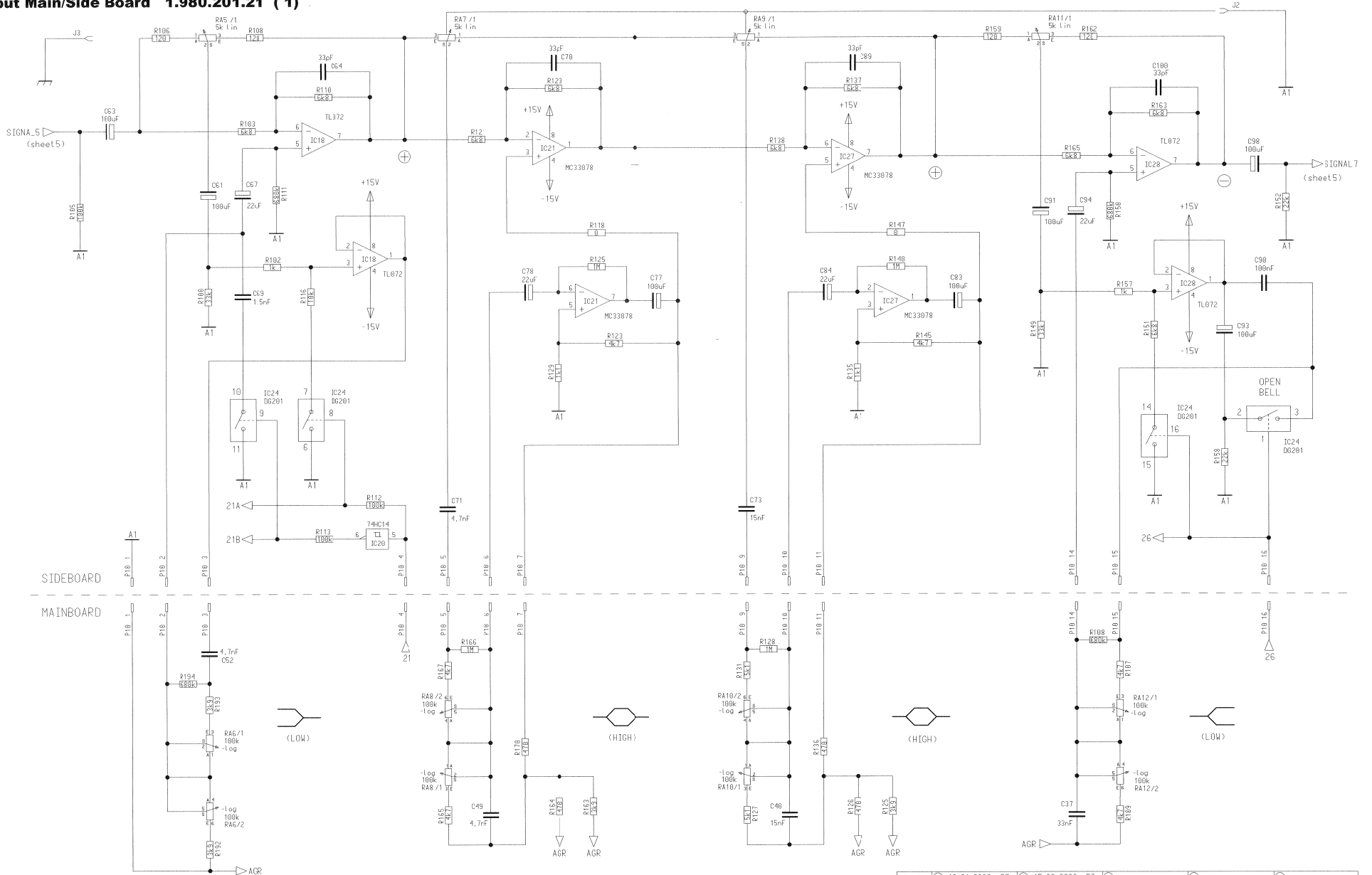
SIDEBOARD      MAINBOARD



Erstellt	© 12.01.2000	PZ	① 15.06.2000	PZ	○	○	○
						980	PAGE 2e OF 13
<b>STUDER</b>						INPUT MAIN AND SIDE BOARD	1.980.201.21

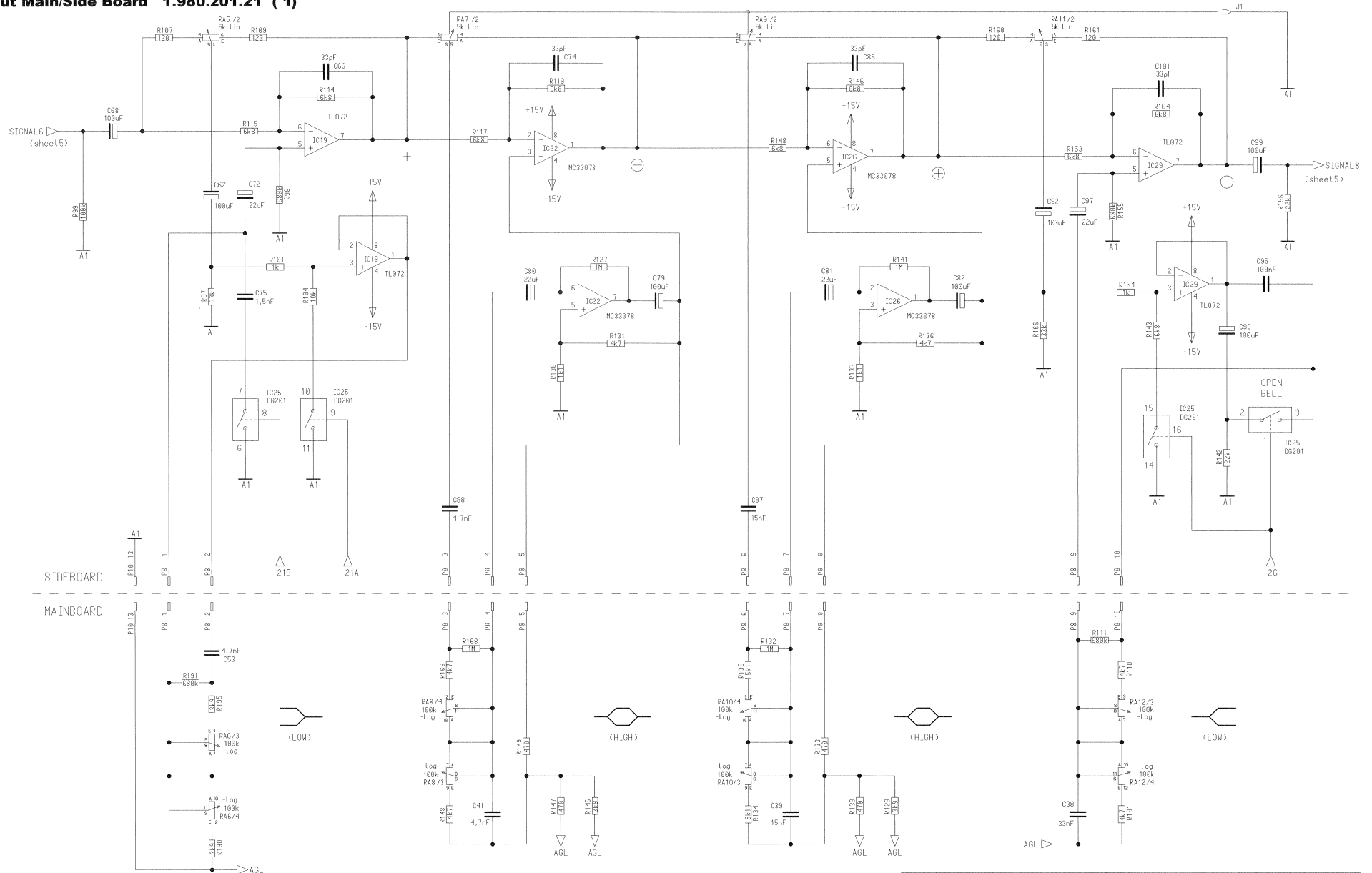


Input Main/Side Board 1.980.201.21 ( 1 )



Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 3b OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

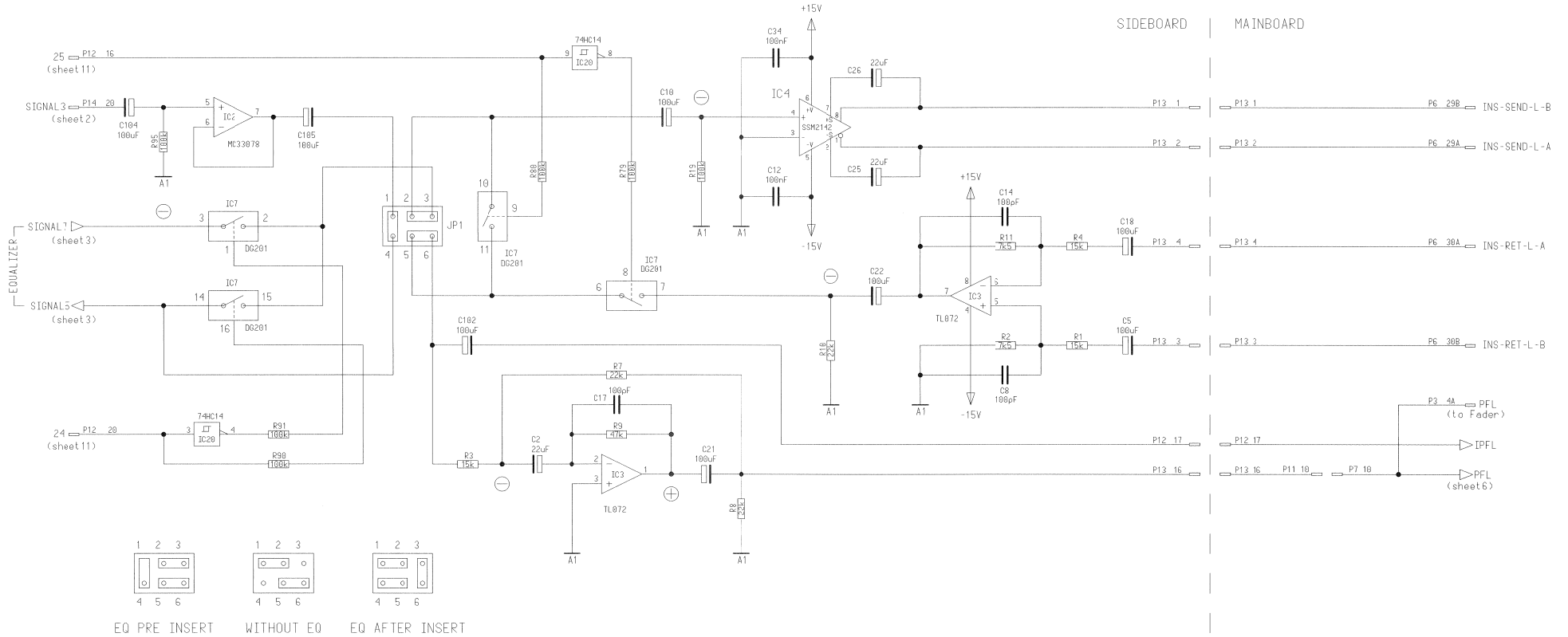
Input Main/Side Board 1.980.201.21 ( 1 )



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STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

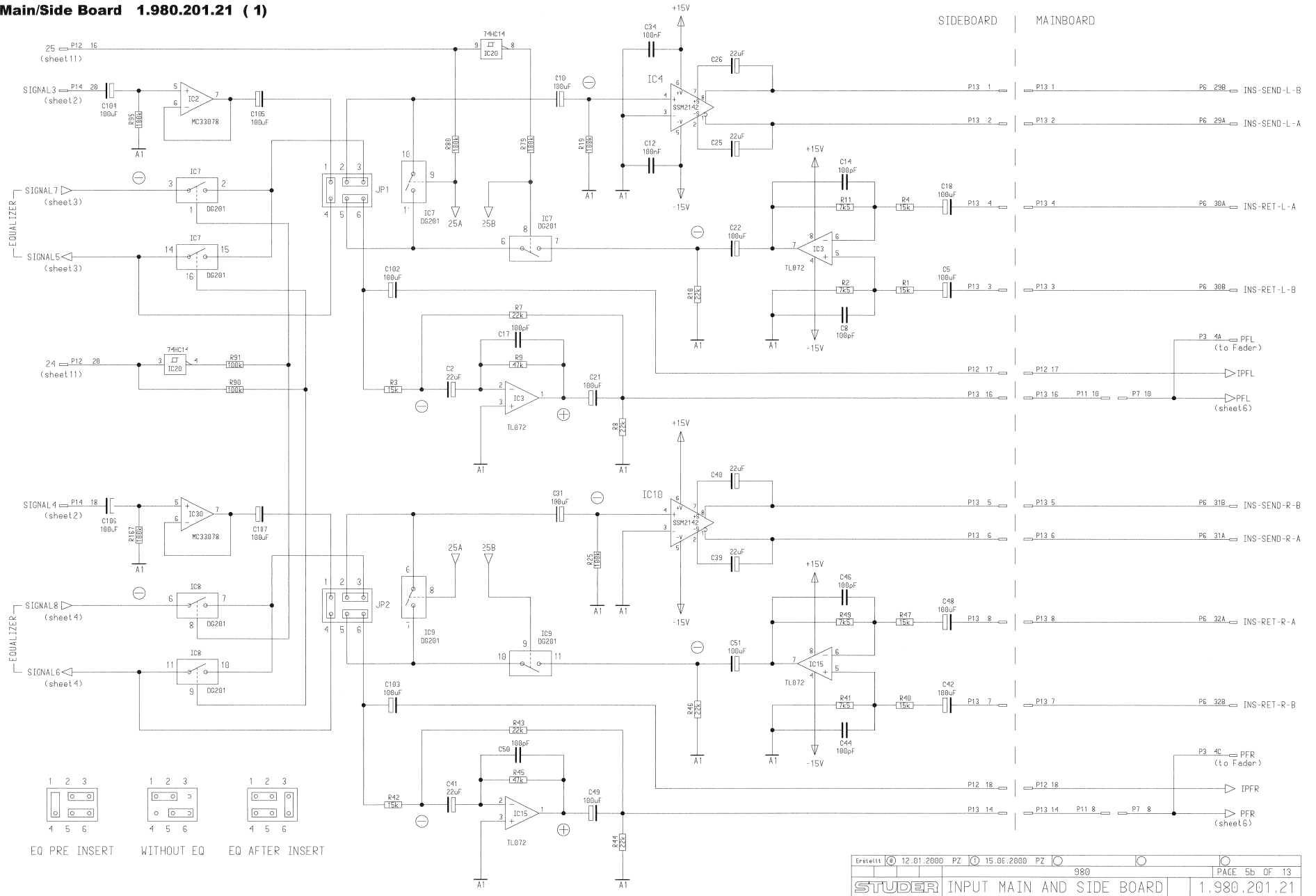


Input Main/Side Board 1.980.201.21 ( 1 )



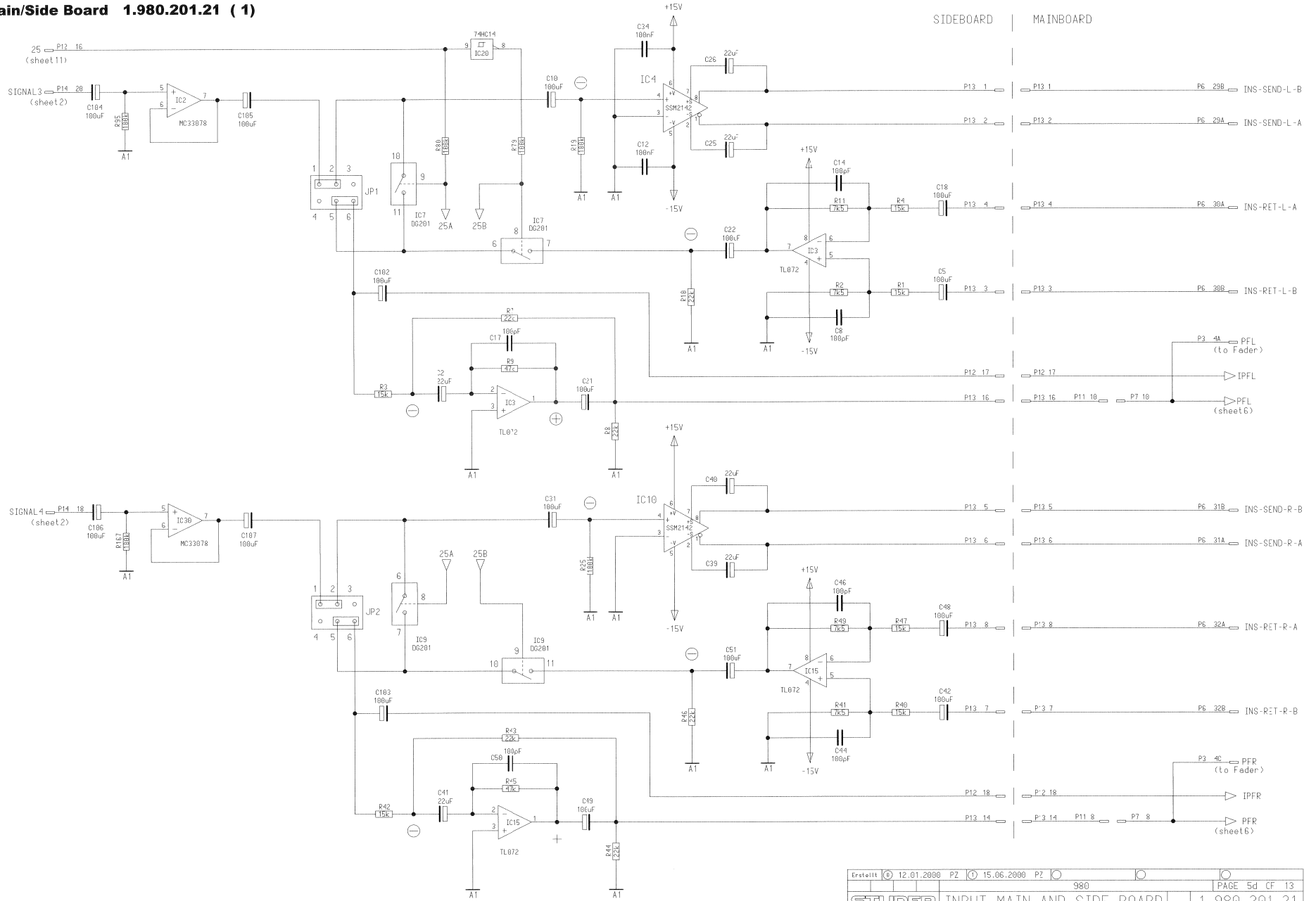
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980							PAGE 5a OF 13
STUDER INPUT MAIN AND SIDE BOARD							1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1 )



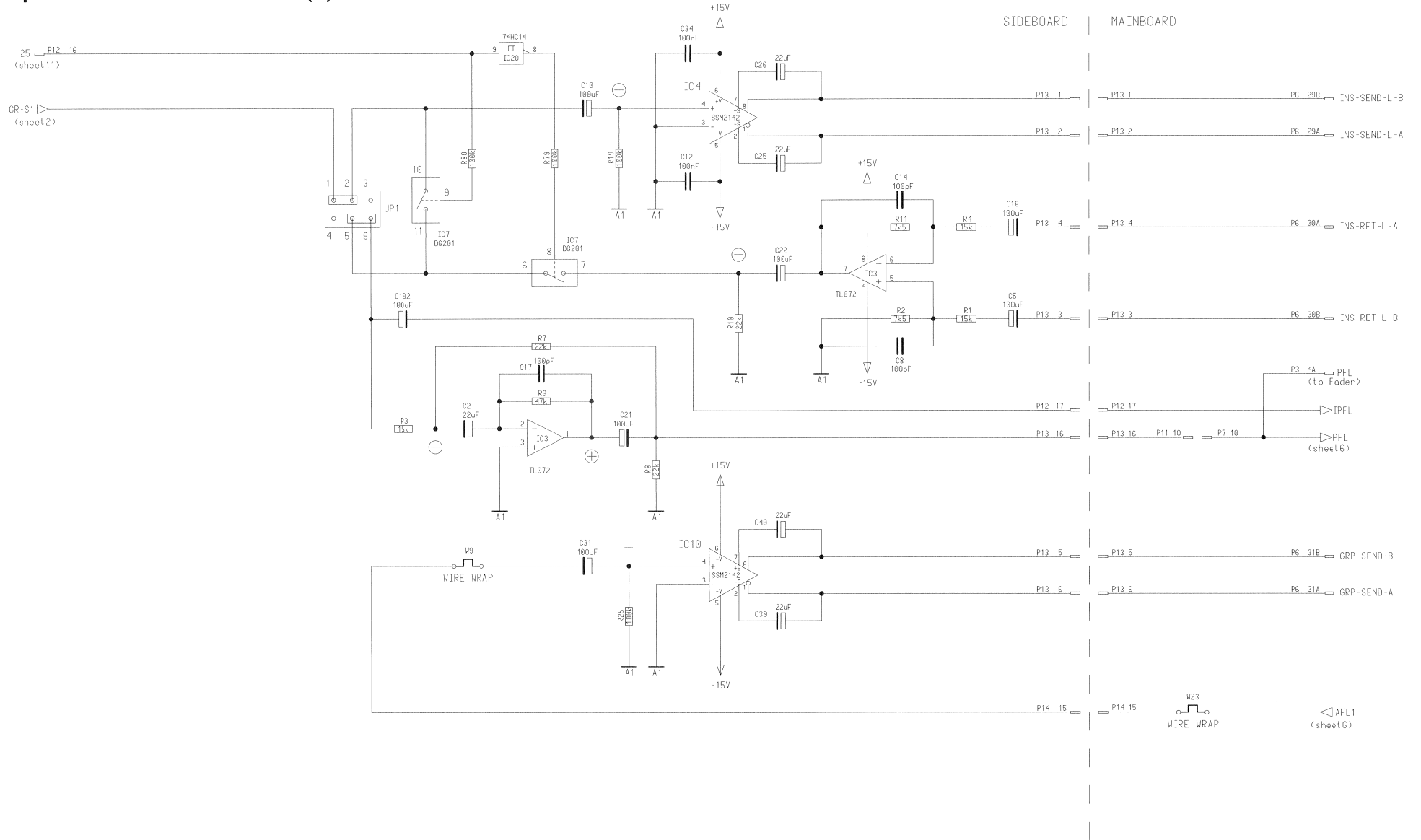
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STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21	PAGE 5b OF 13		

Input Main/Side Board 1.980.201.21 ( 1)



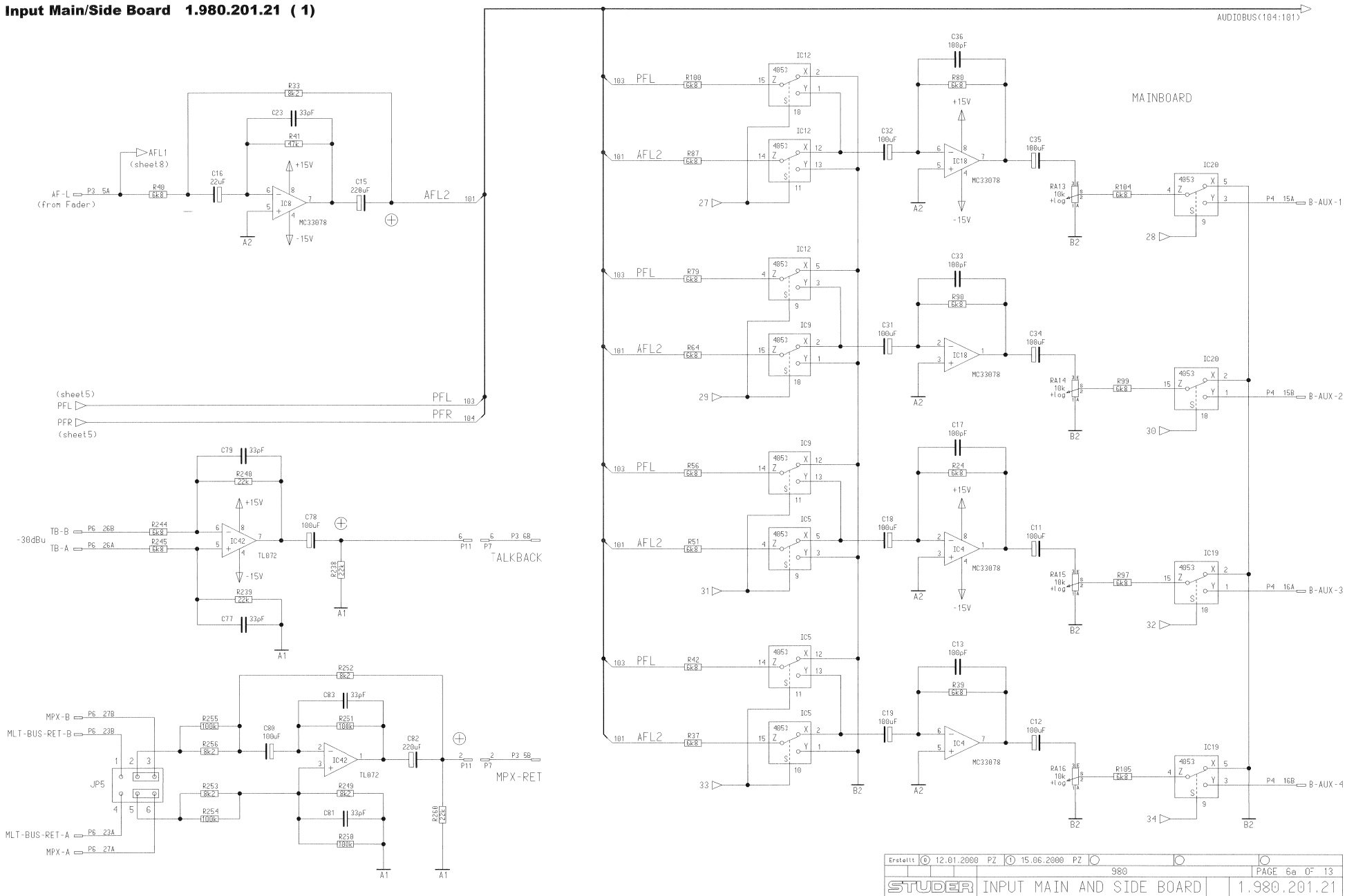
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STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21	

Input Main/Side Board 1.980.201.21 ( 1)



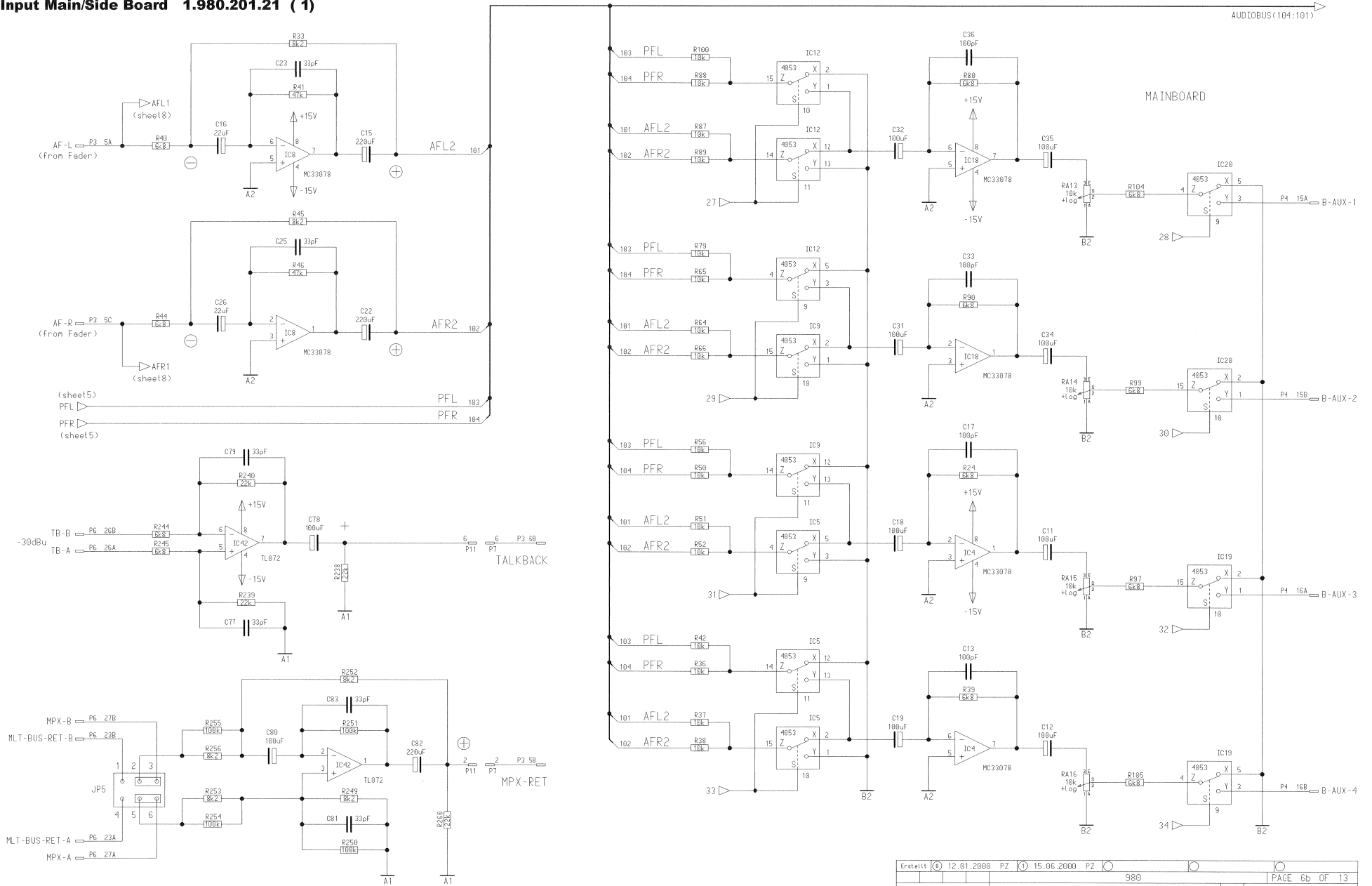
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980							PAGE 5e OF 13
STUDER INPUT MAIN AND SIDE BOARD							1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1)



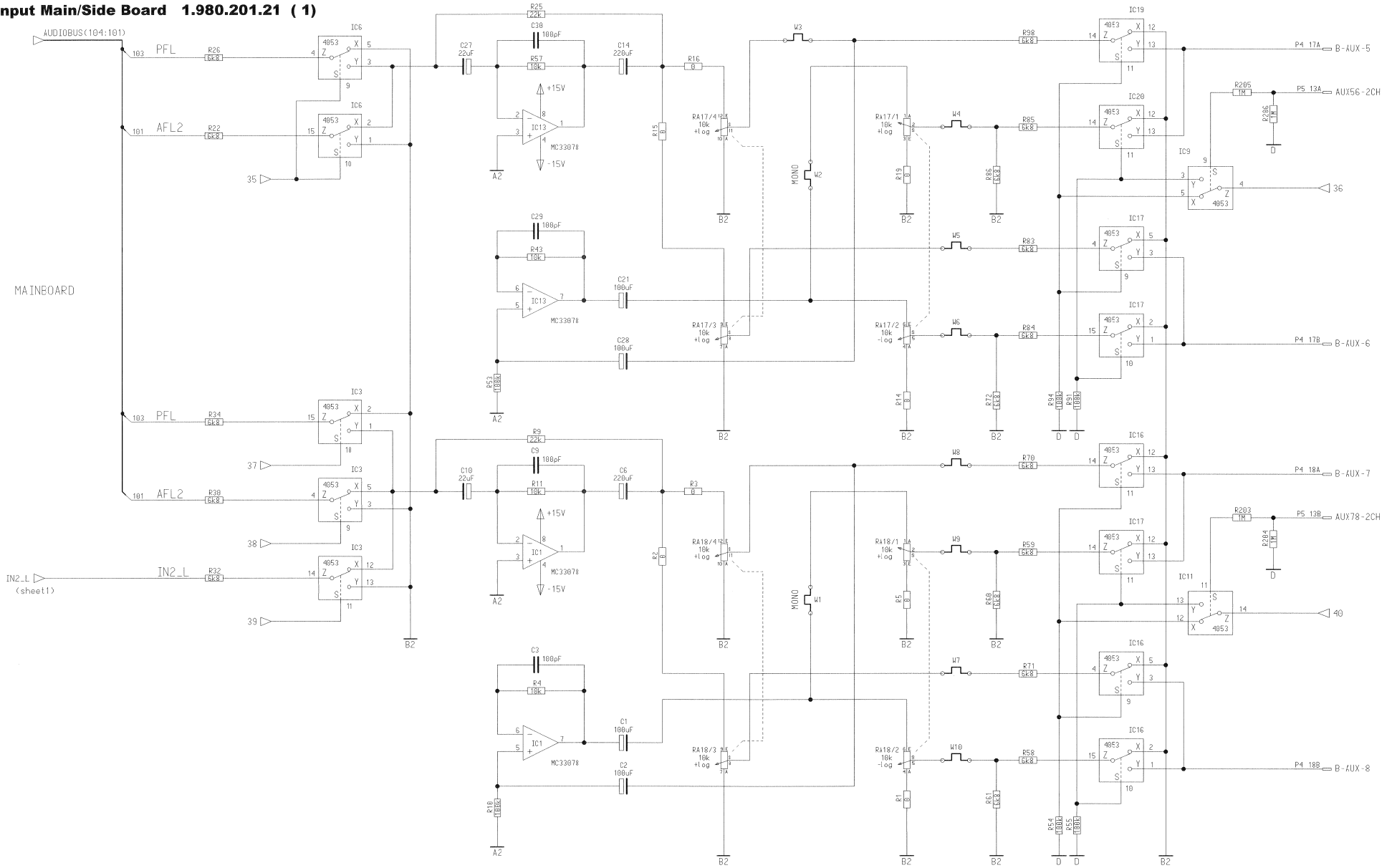
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STUDER INPUT MAIN AND SIDE BOARD								1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1)



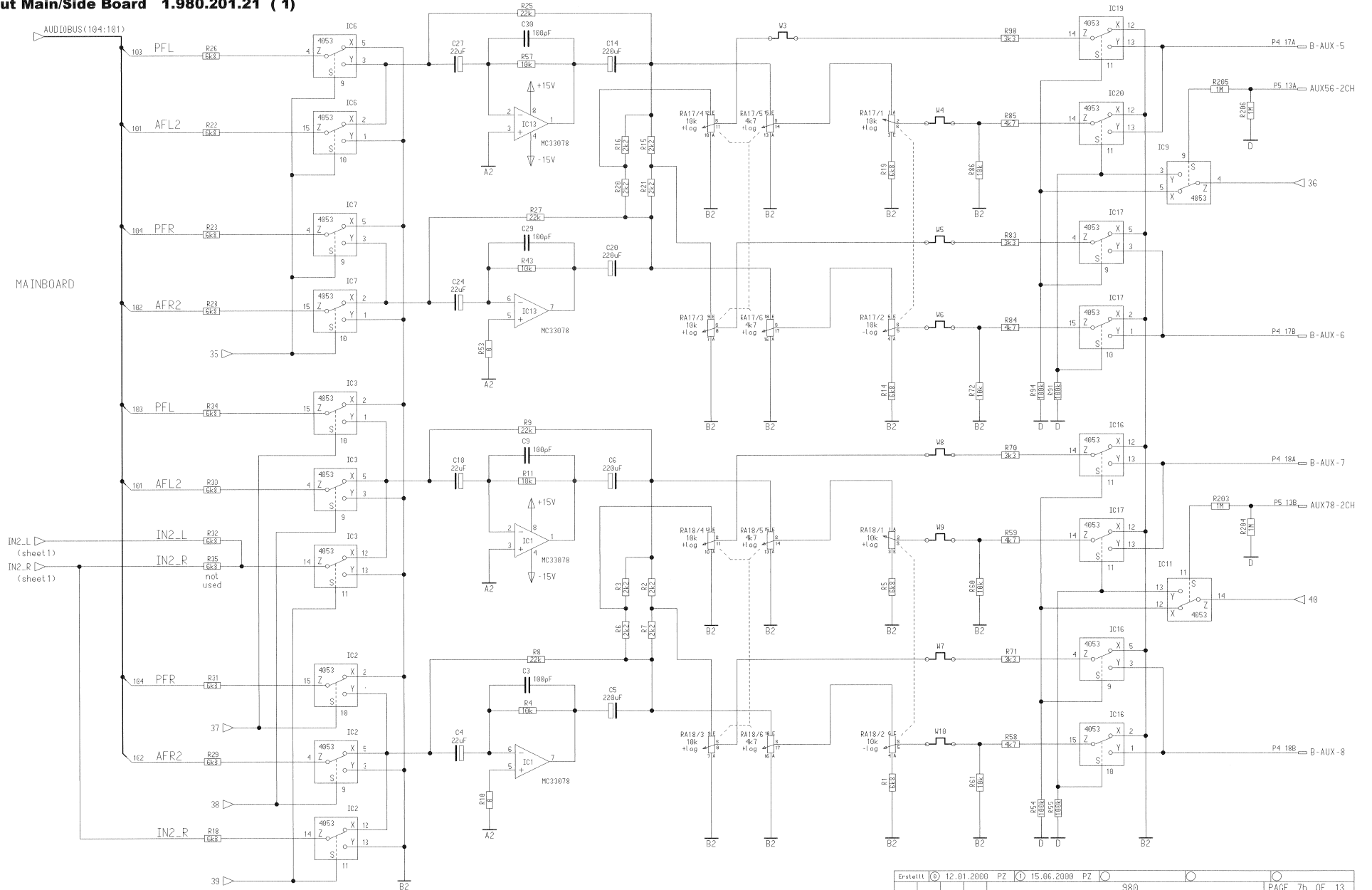
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STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1)



Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 7a 0 <sup>2</sup> 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

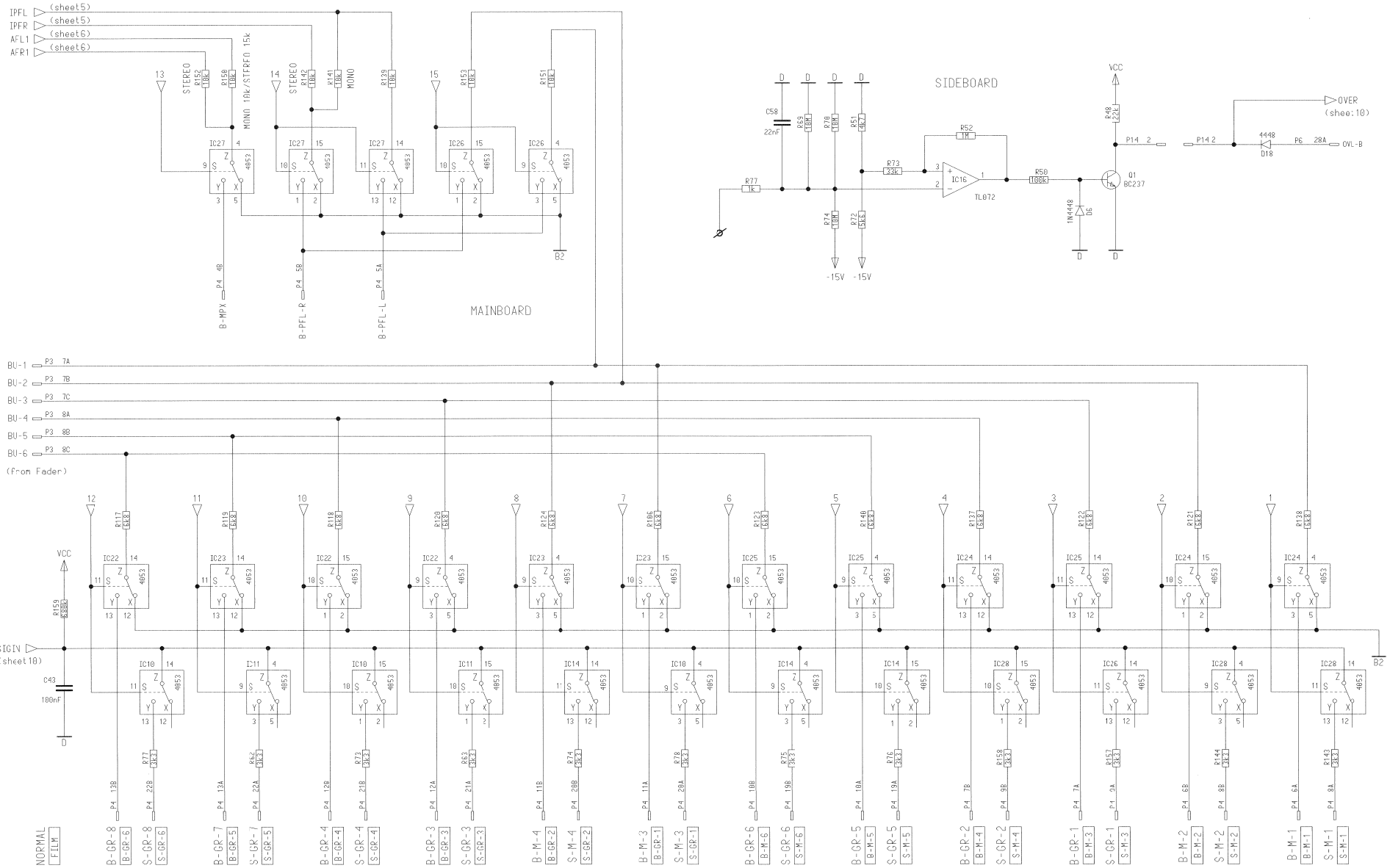
Input Main/Side Board 1.980.201.21 ( 1)



Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 7b OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21



Input Main/Side Board 1.980.201.21 ( 1)

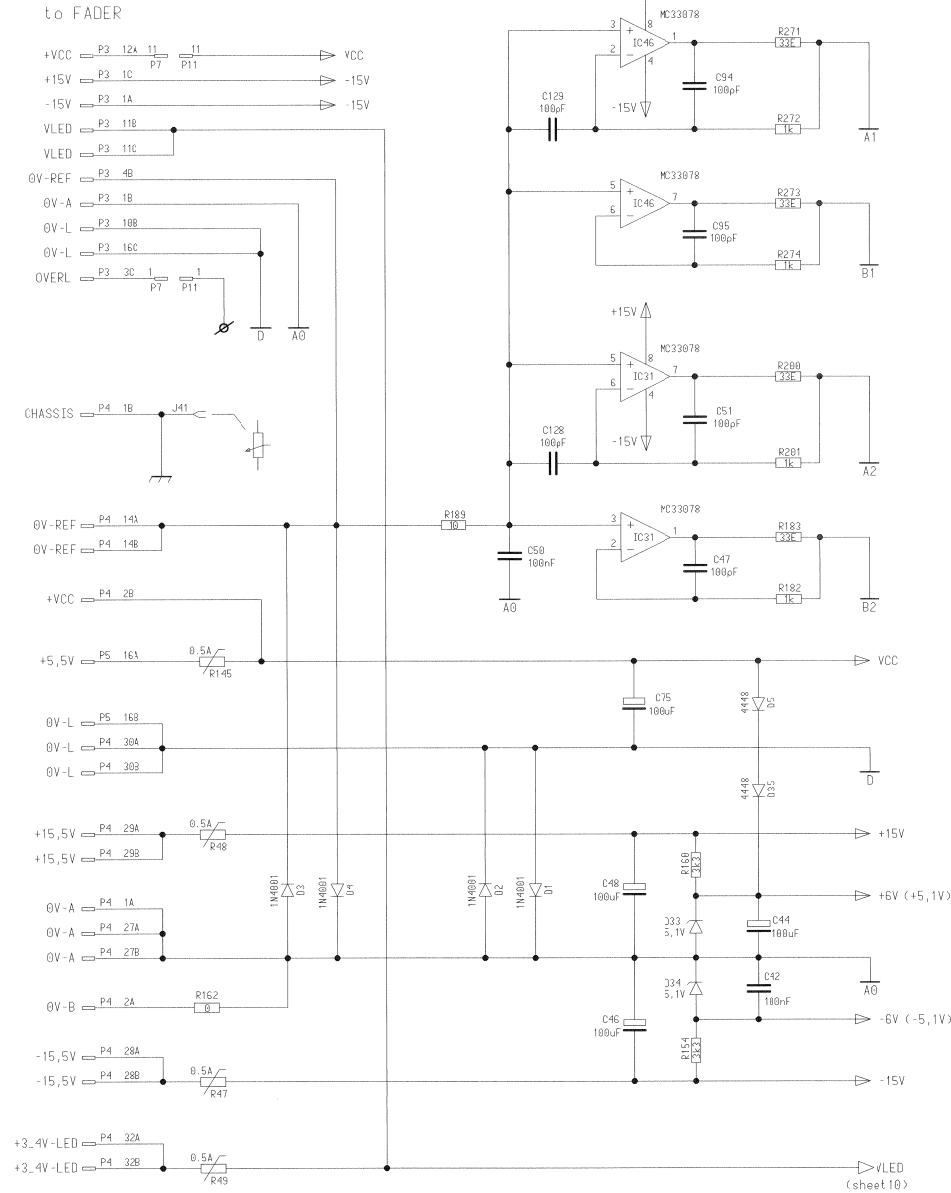


BU-1 P3 7A  
BU-2 P3 7B  
BU-3 P3 7C  
BU-4 P3 8A  
BU-5 P3 8B  
BU-6 P3 8C  
(from Fader)

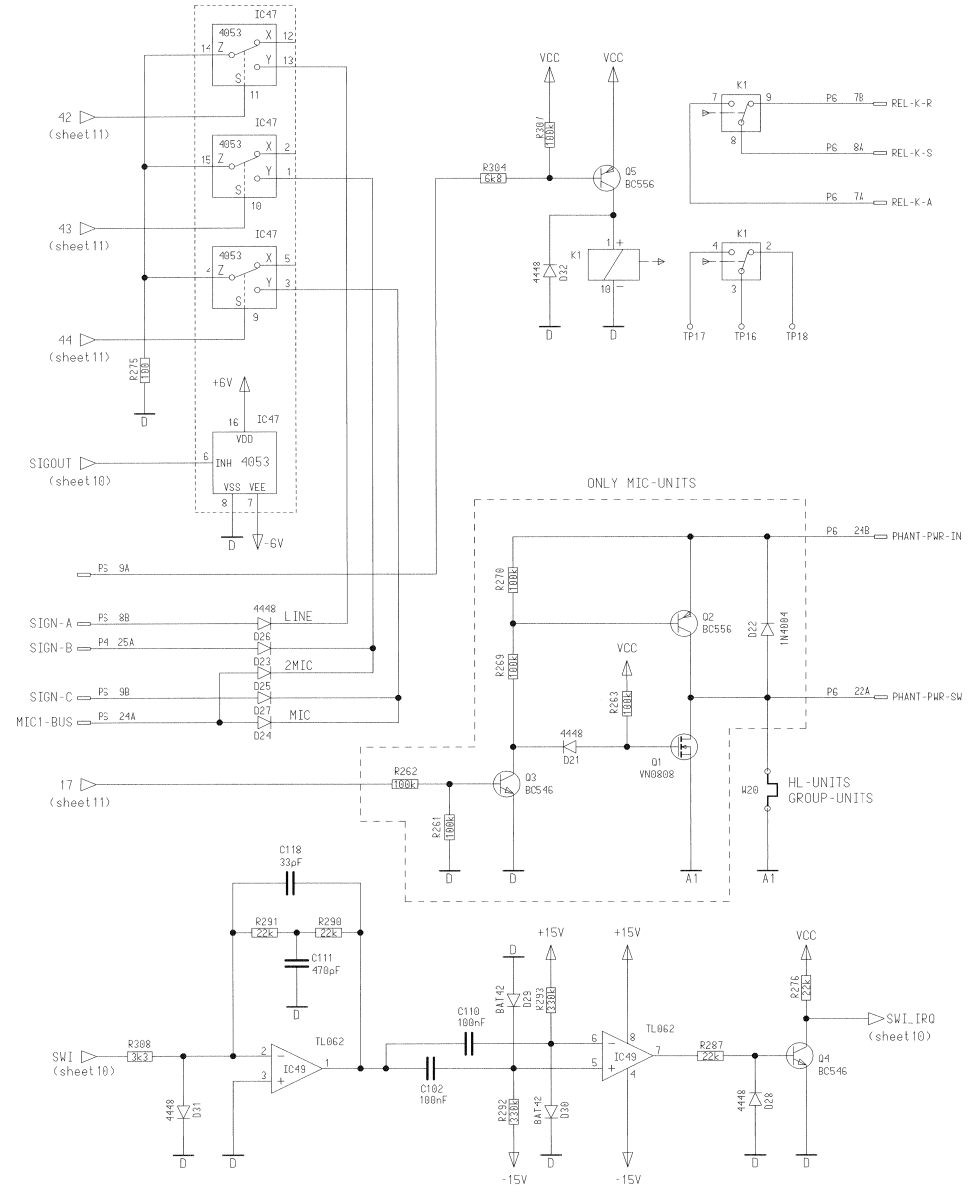
SIG IN (sheet 10)  
C43 180nF  
R159 330k  
VCC

NORMAL  
F.F.L.M.

Input Main/Side Board 1.980.201.21 ( 1)



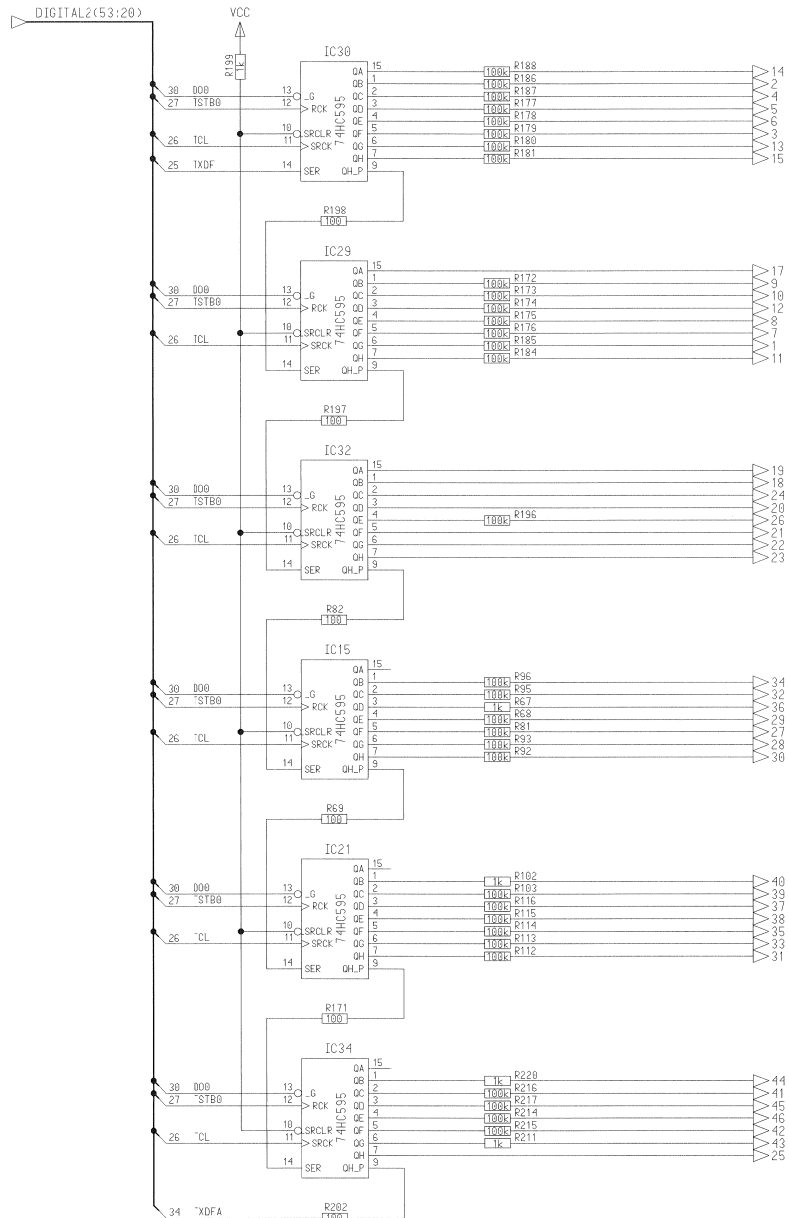
MAINBOARD



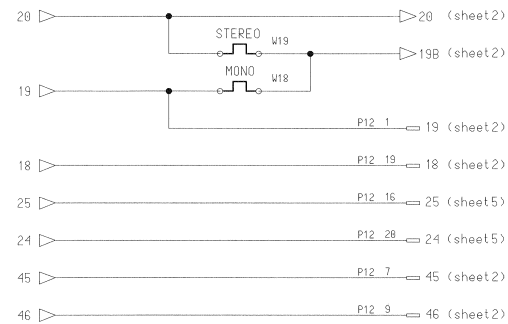
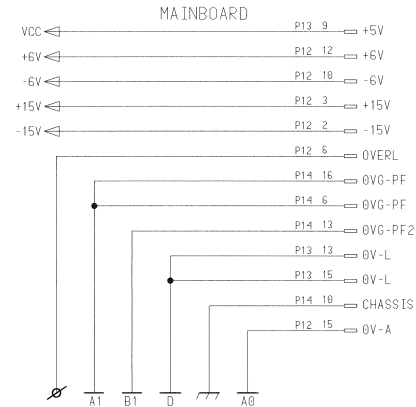
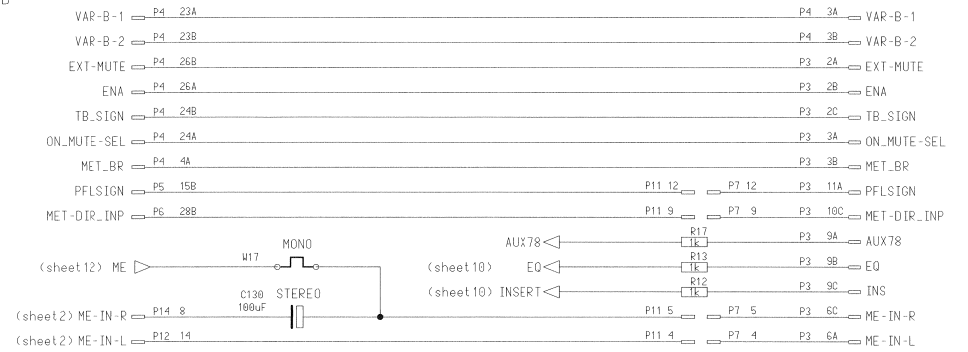
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STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21



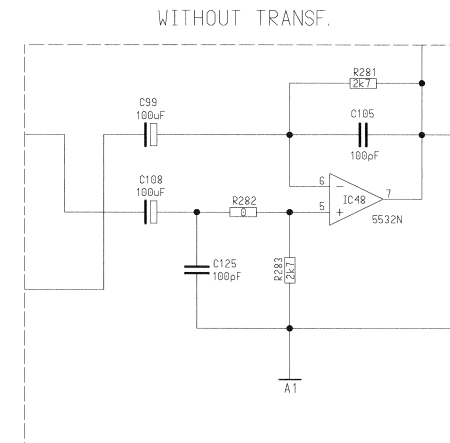
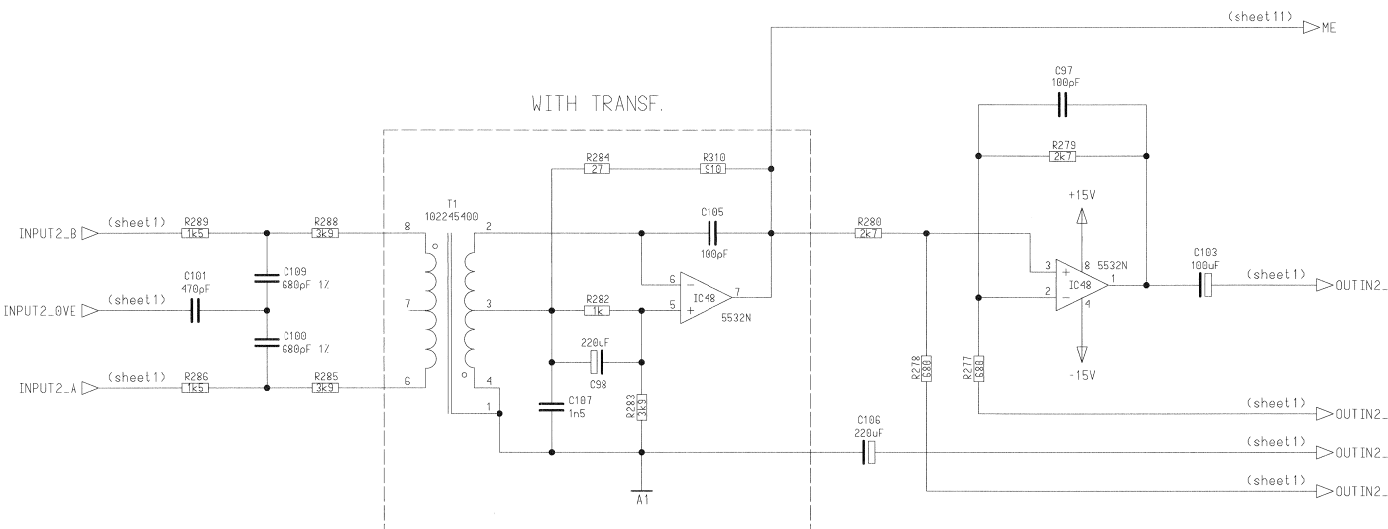
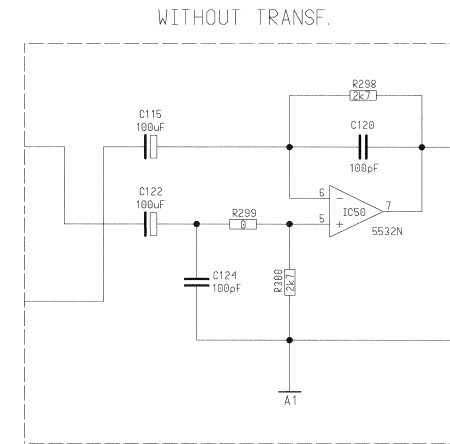
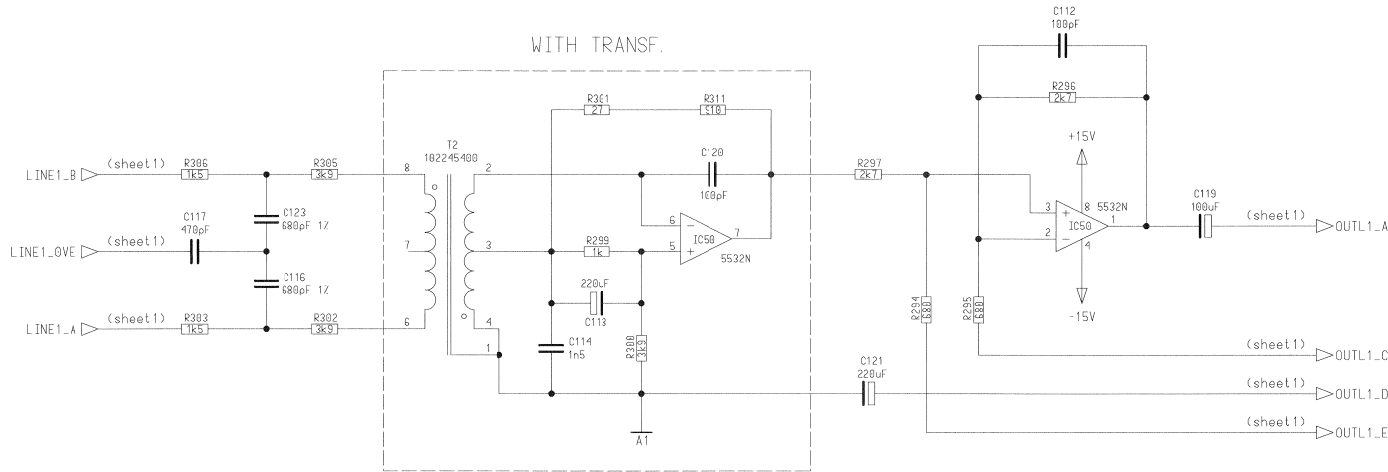
Input Main/Side Board 1.980.201.21 ( 1 )



MAINBOARD

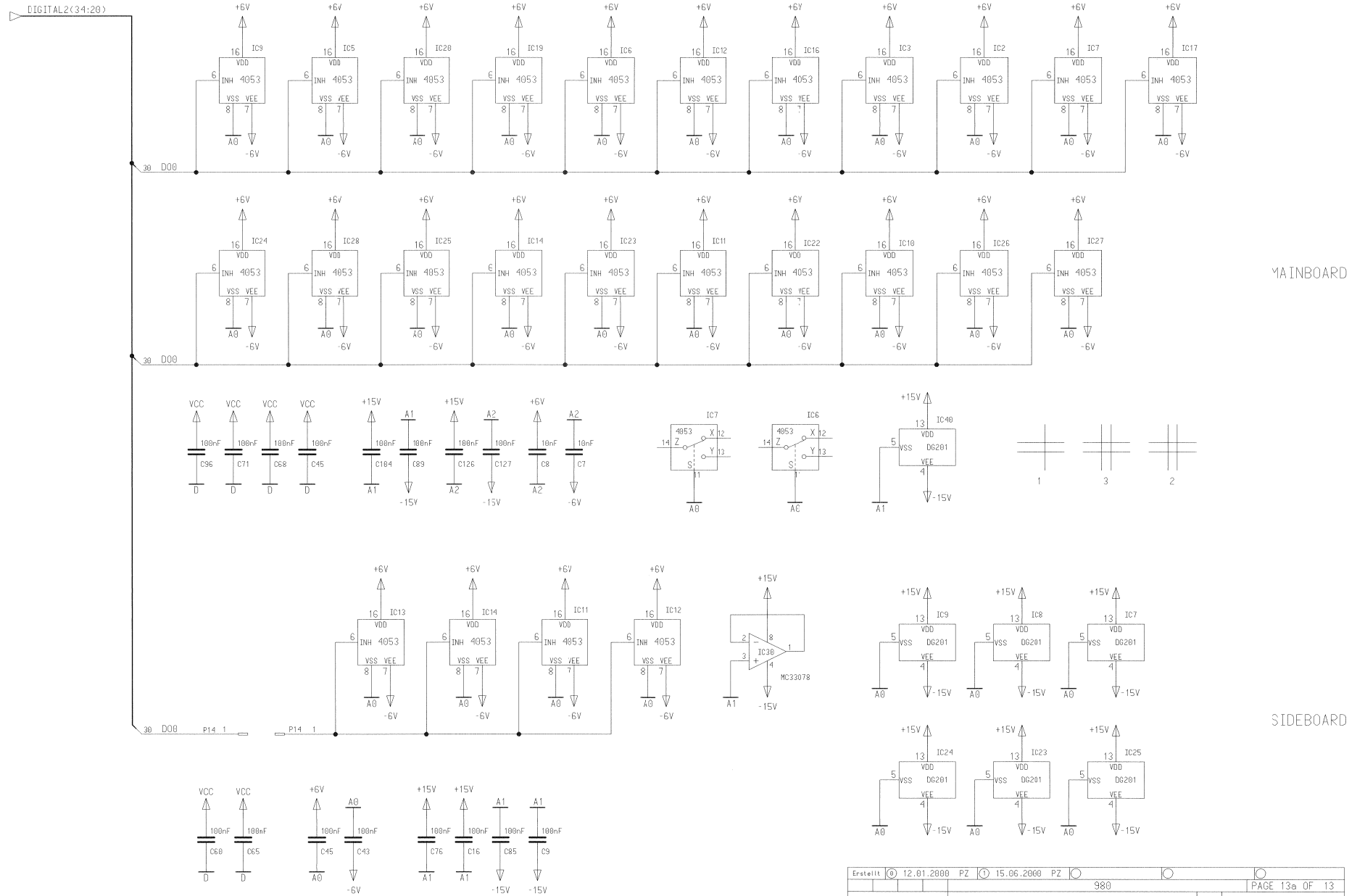


Input Main/Side Board 1.980.201.21 ( 1 )



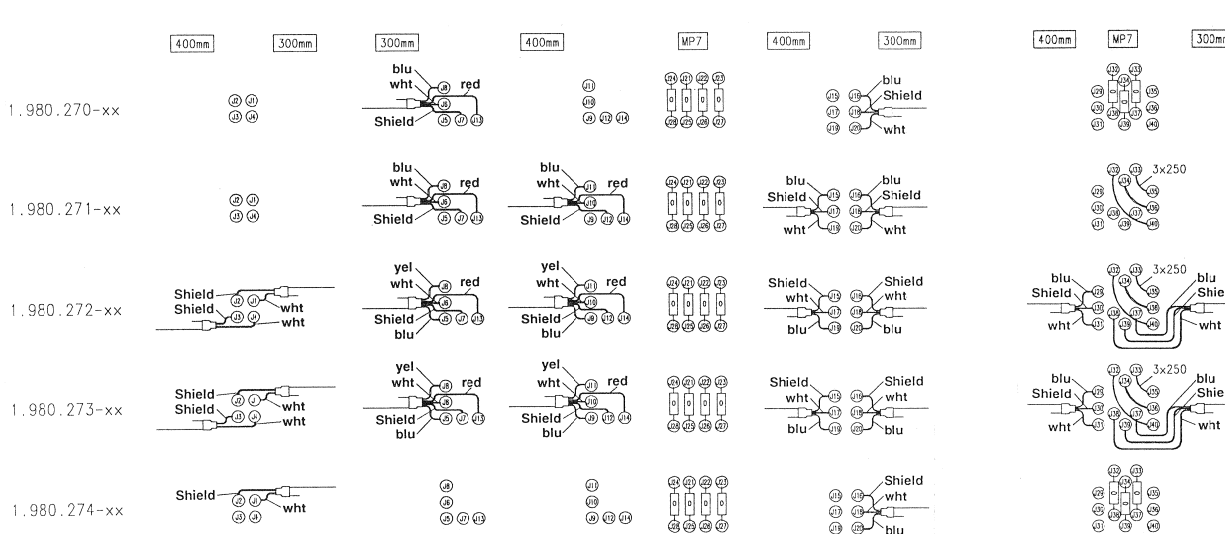
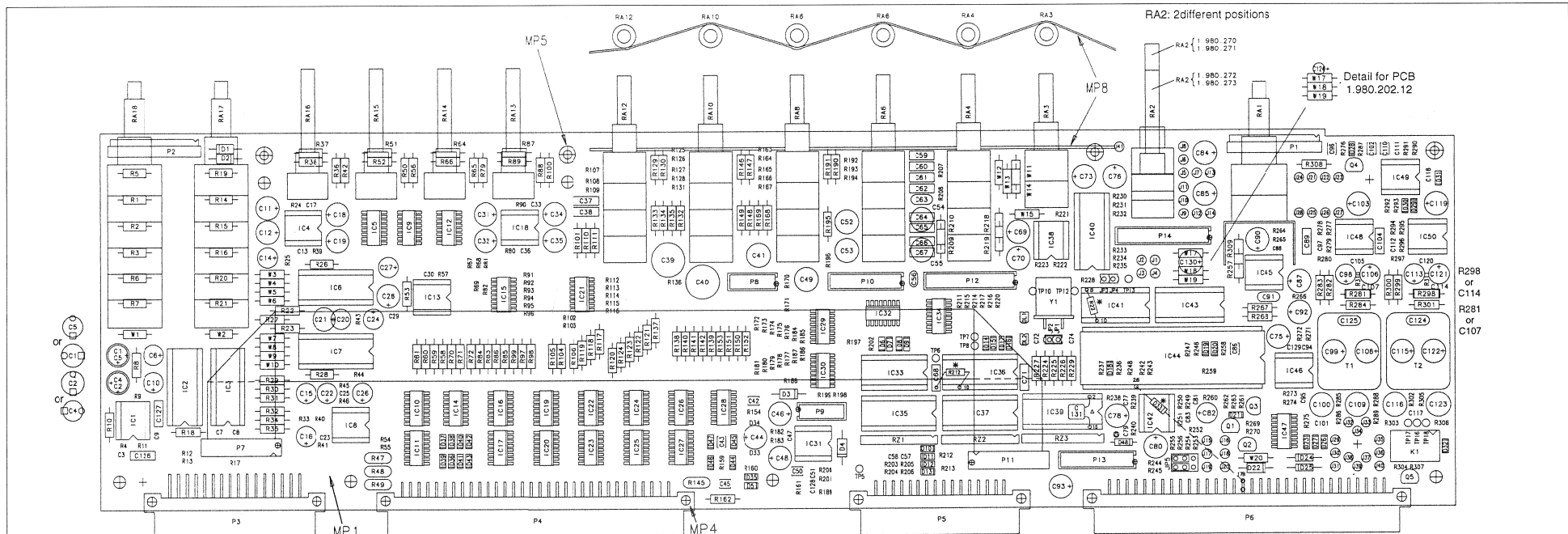
Erstellt	12.01.2000	PZ	15.06.2000	PZ	980	PAGE 12a OF 13
STUDER INPUT MAIN AND SIDE BOARD						1.980.201.21

Input Main/Side Board 1.980.201.21 ( 1 )

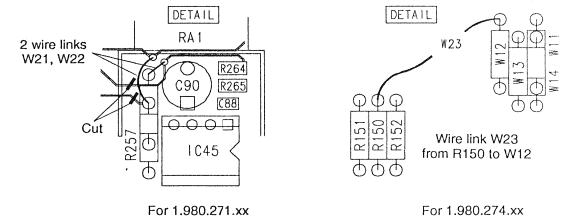


Erstellt	12.01.2000	PZ	15.06.2000	PZ				
							980	PAGE 13a OF 13
STUDER INPUT MAIN AND SIDE BOARD							1.980.201.21	

INPUT MAIN BOARD 1.980.202.00



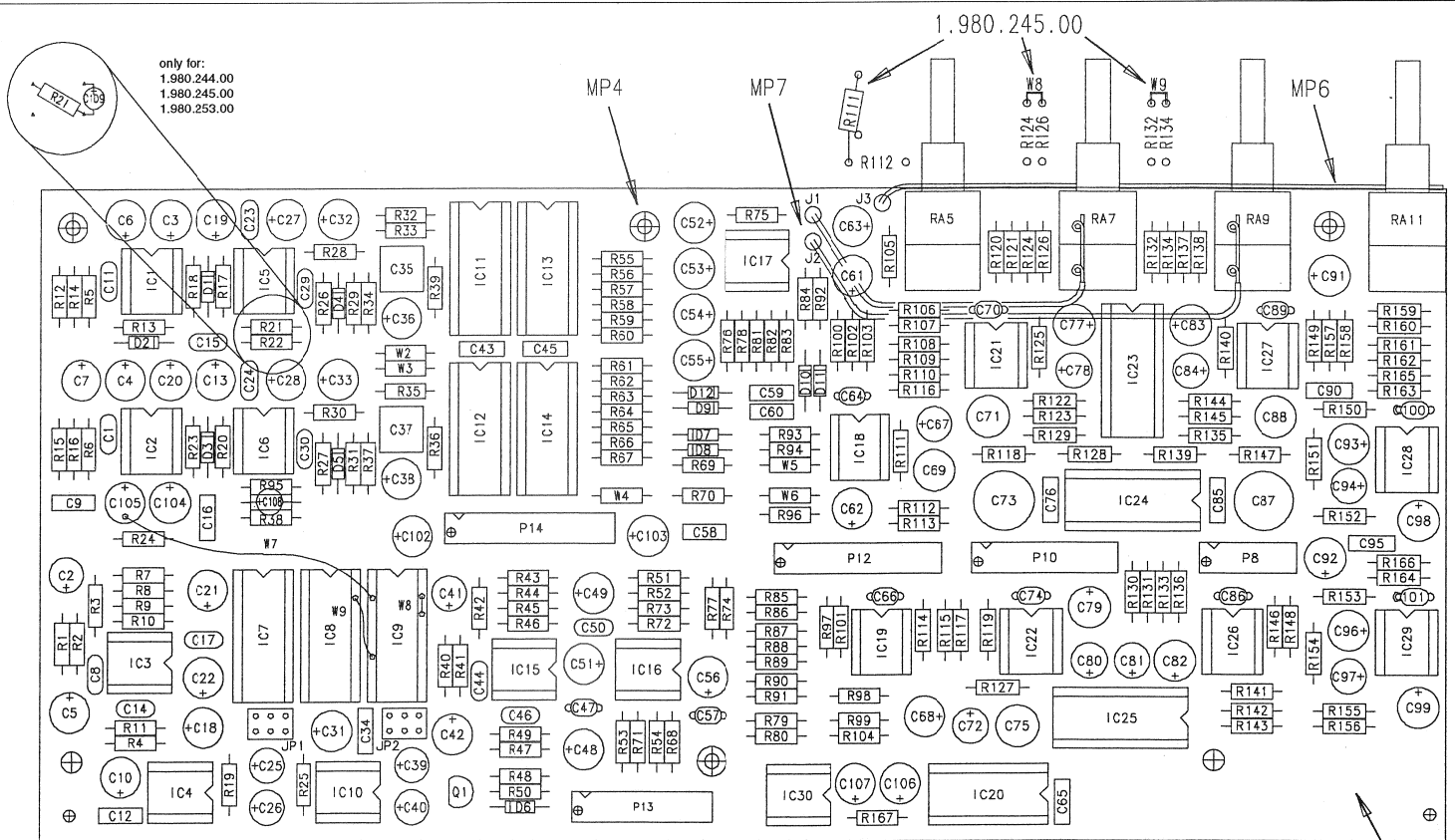
- R112, R22, D33 on solder side for PCB...-12 only
  - D48 added from PCB...-13 and up
- Option Multi Bus Return  
 Jumper JP1 / JP2 installed  
 Jumper JP3 / JP4 not installed



28.10.97	PZ	.	.	⊙
20.3.97	PZ	.	.	⊙
13.11.95	PZ	.	.	⊙
20.3.95	PZ	.	.	⊙
		V.iss	Shen	Index
Copy to:		Kopie fuer:		
Number:		1.980.202-00		

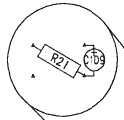
STUDER  
 REGENSDORF  
 INPUT MAIN BOARD "ESE"

INPUT SIDE BOARD 1.980.203.00



only for:  
 1.980.244.00  
 1.980.245.00  
 1.980.253.00

1.980.245.00



- 1.980.223-xx
- 1.980.253-xx
- MP5 1.980.244-xx
- 1.980.245-xx
- 1.980.233-xx
- 1.980.233-xx
  - W7 from C105 / Pin - to IC9 / Pin2
  - W8 from IC9 / Pin14 to IC3 / Pin15
  - W9 from IC8 / Pin15 to IC3 / Pin6

MP1

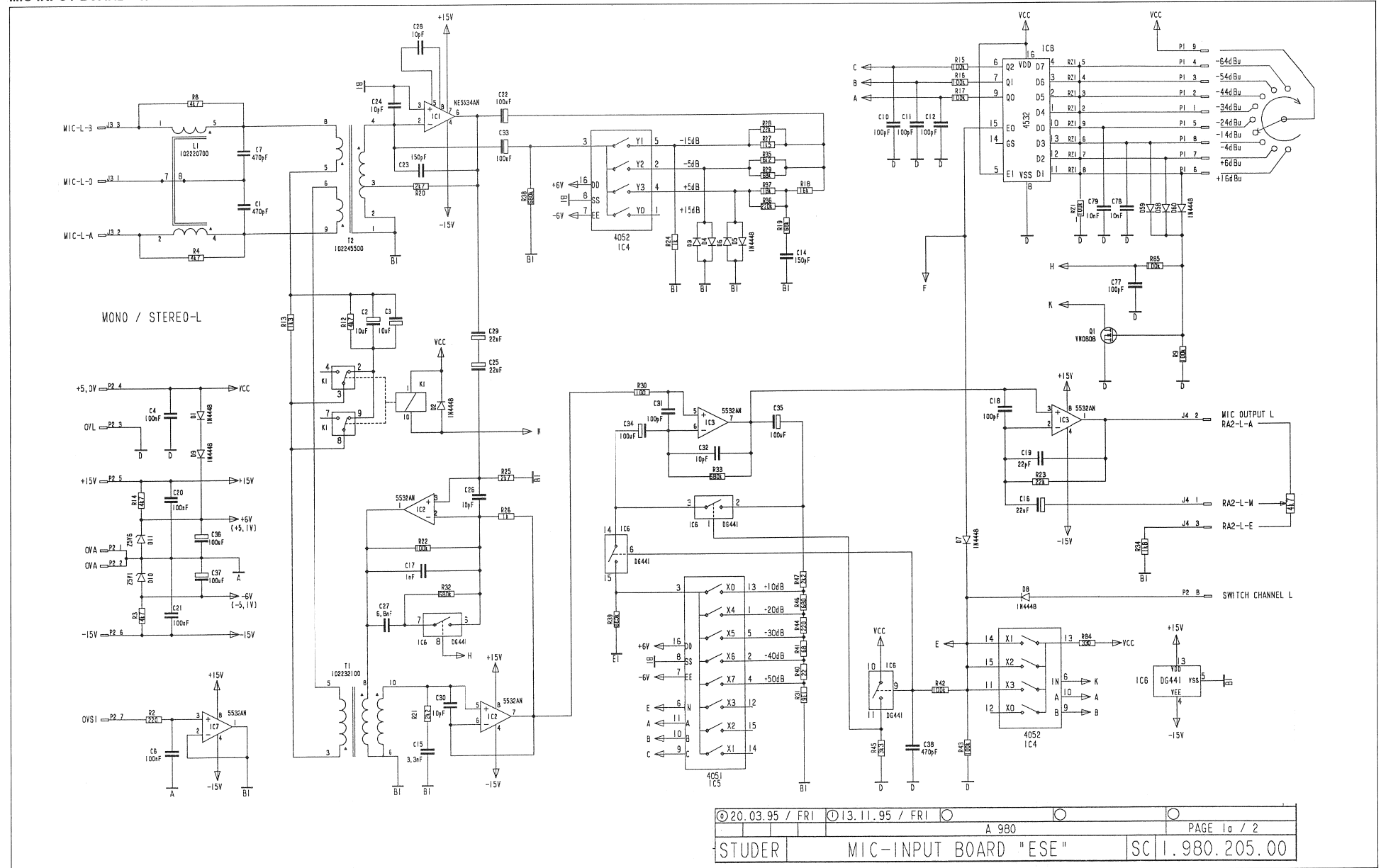
Rev.	13.11.95	PZ		
Issue	20.3.94	PZ		
Date				
Drawn				
Checked				
Approved				
Scale				
Proj. No.				
Proj. Name				
Proj. Loc.				
Proj. Date				
Proj. Status				
Proj. Rev.				
Proj. Desc.				
Proj. Ref.				
Proj. Index				

STUDER REGENSDORF .INPUT SIDE BOARD \*ESE\* 1.980.203-00





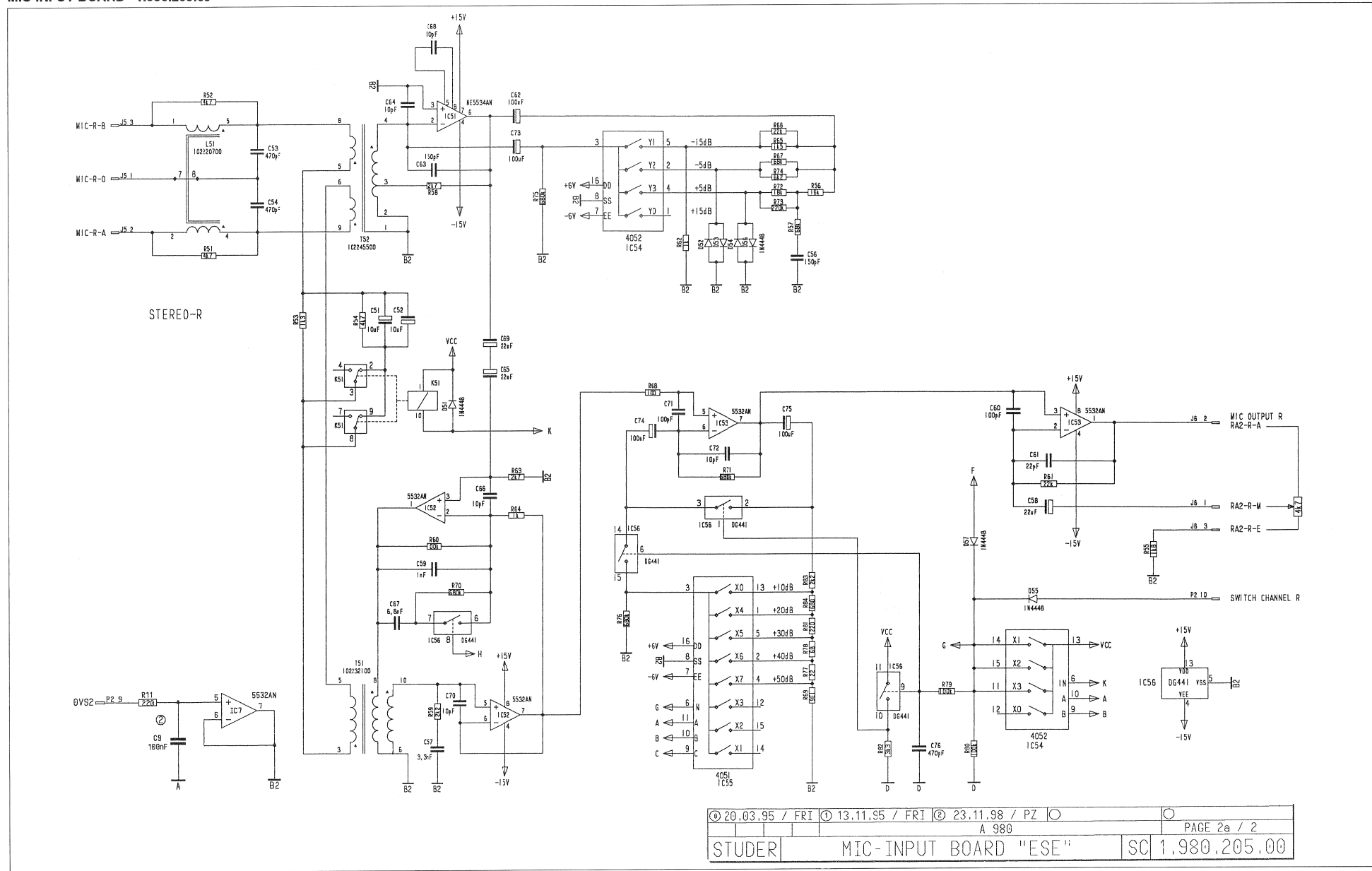
MIC INPUT BOARD 1.980.205.00



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STUDER	MIC-INPUT BOARD "ESE"	SC	1.980.205.00

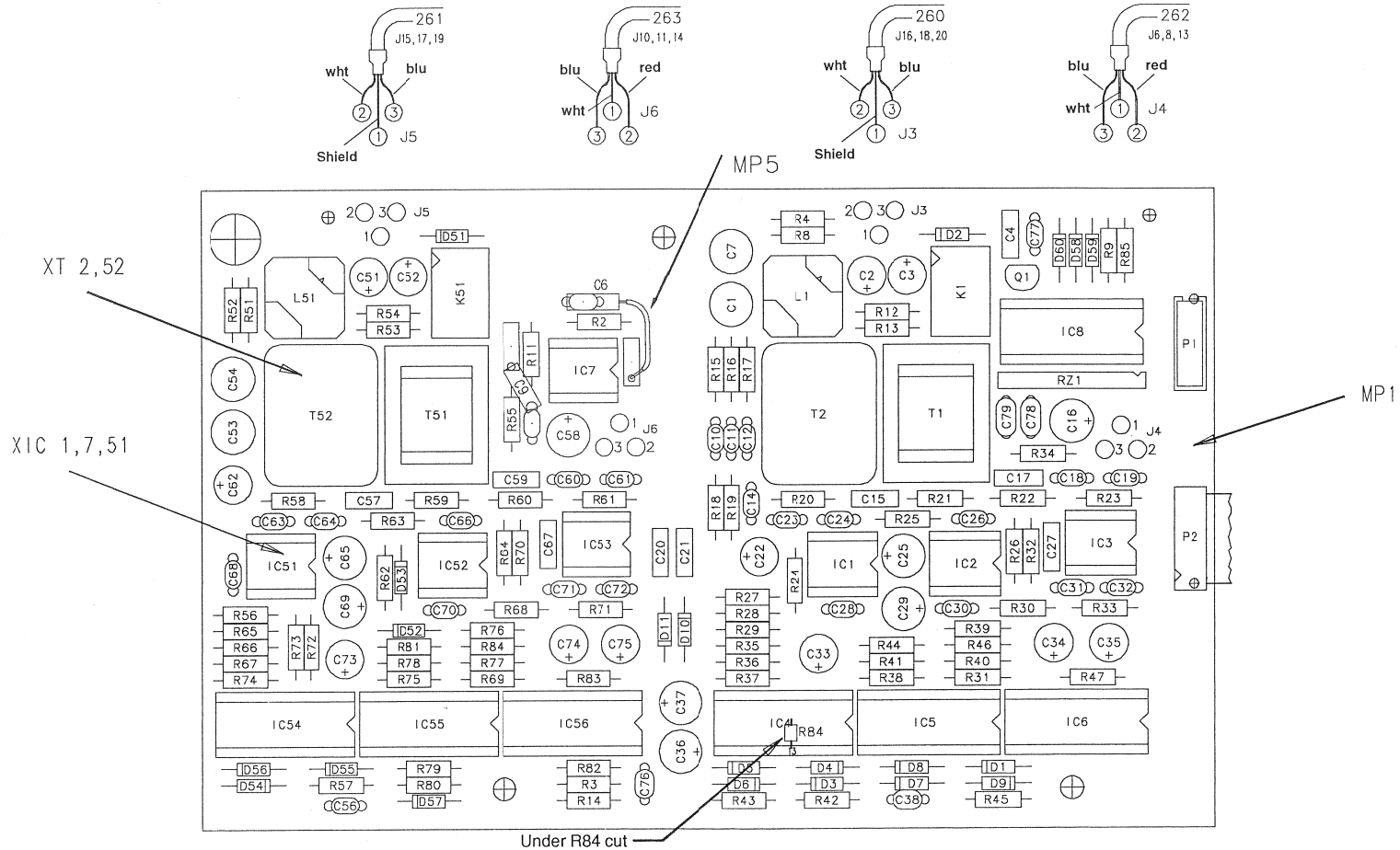


MIC INPUT BOARD 1.980.205.00





MIC INPUT BOARD 1.980.205.00



MONO  
 PL: 1.980.225.xx  
 STEREO  
 PL: 1.980.255.xx

Ediz. Nr.	Modif. Funct. in	Aut.	Ind.	Ind.	Ind.
23.11.98	P2				
13.11.95	P2				
14.3.95	P2				

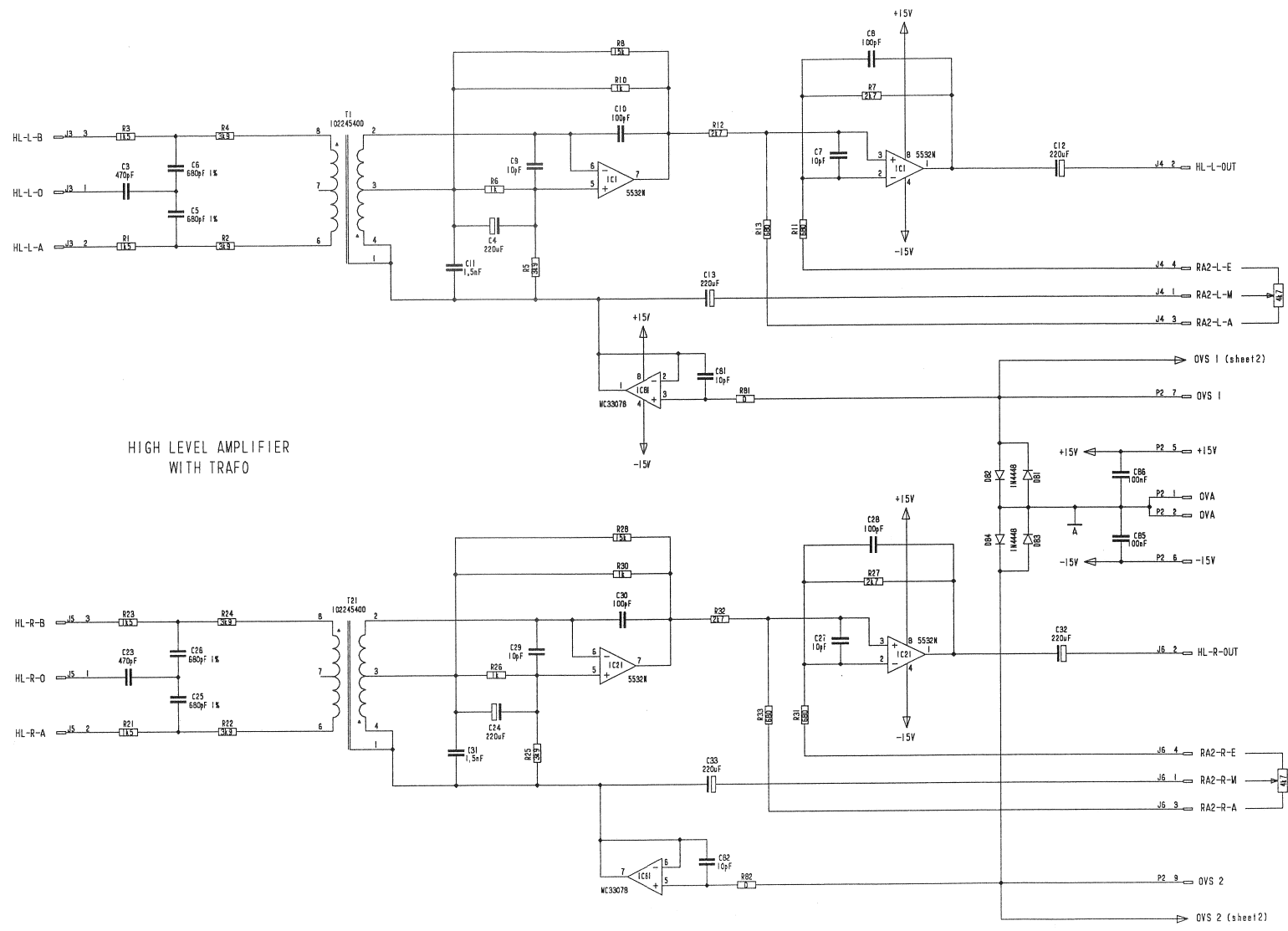
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 Date: \_\_\_\_\_  
 Drawn: \_\_\_\_\_  
 Checked: \_\_\_\_\_  
 Approved: \_\_\_\_\_  
 Index: \_\_\_\_\_

Copy to: \_\_\_\_\_  
 Make file: \_\_\_\_\_

**STUDER**  
 REGENSDORF  
 Description: MIC INPUT BOARD "ESE"  
 Number: 1.980.205-00



GROUP INPUT BOARD 1.980.207.00



HIGH LEVEL AMPLIFIER WITH TRAF0

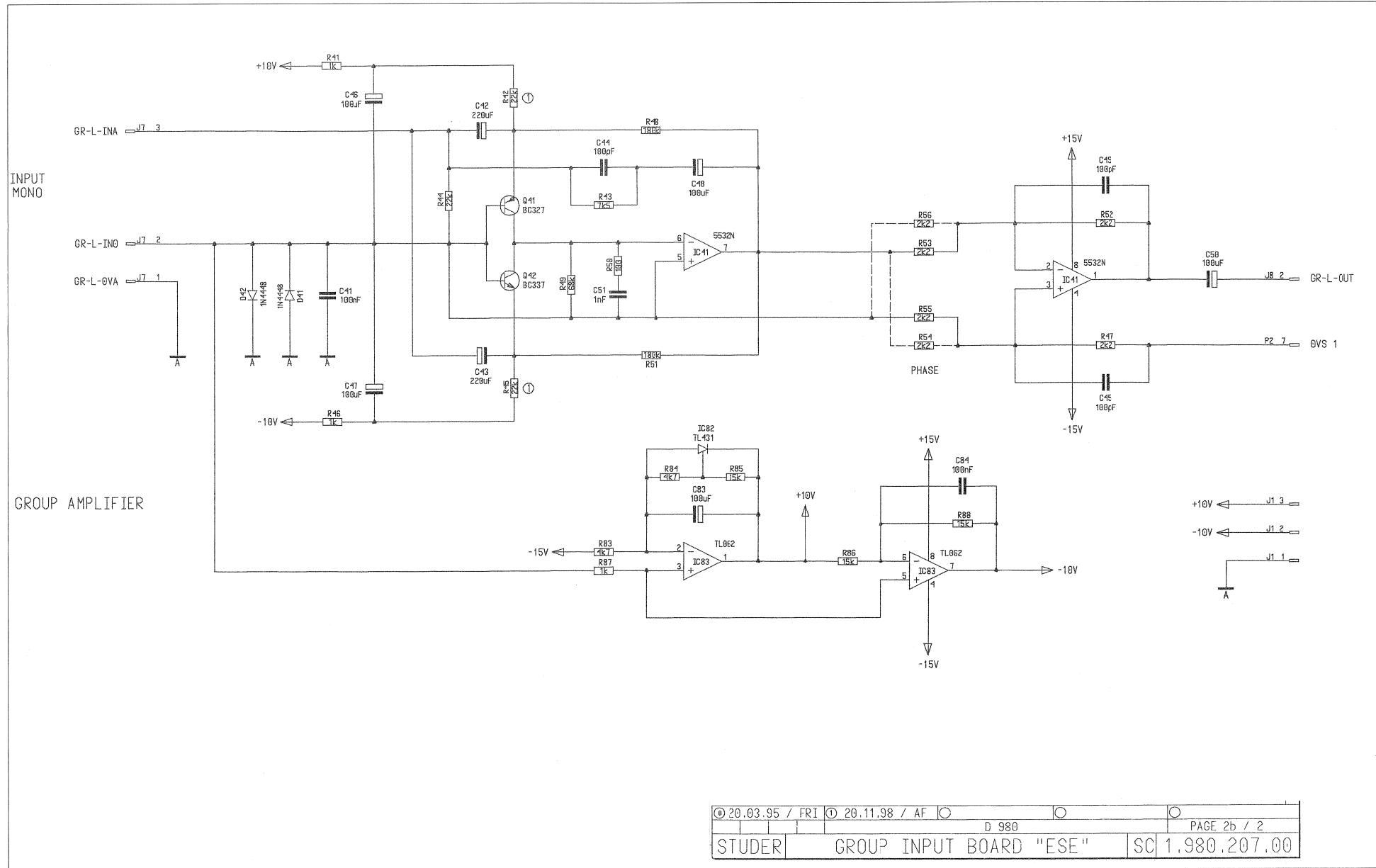
© 20.03.95 / FRI	D 980	PAGE 10 / 2
STUDER	GROUP INPUT BOARD "ESE"	SC 1.980.207.00







GROUP INPUT BOARD 1.980.207.00



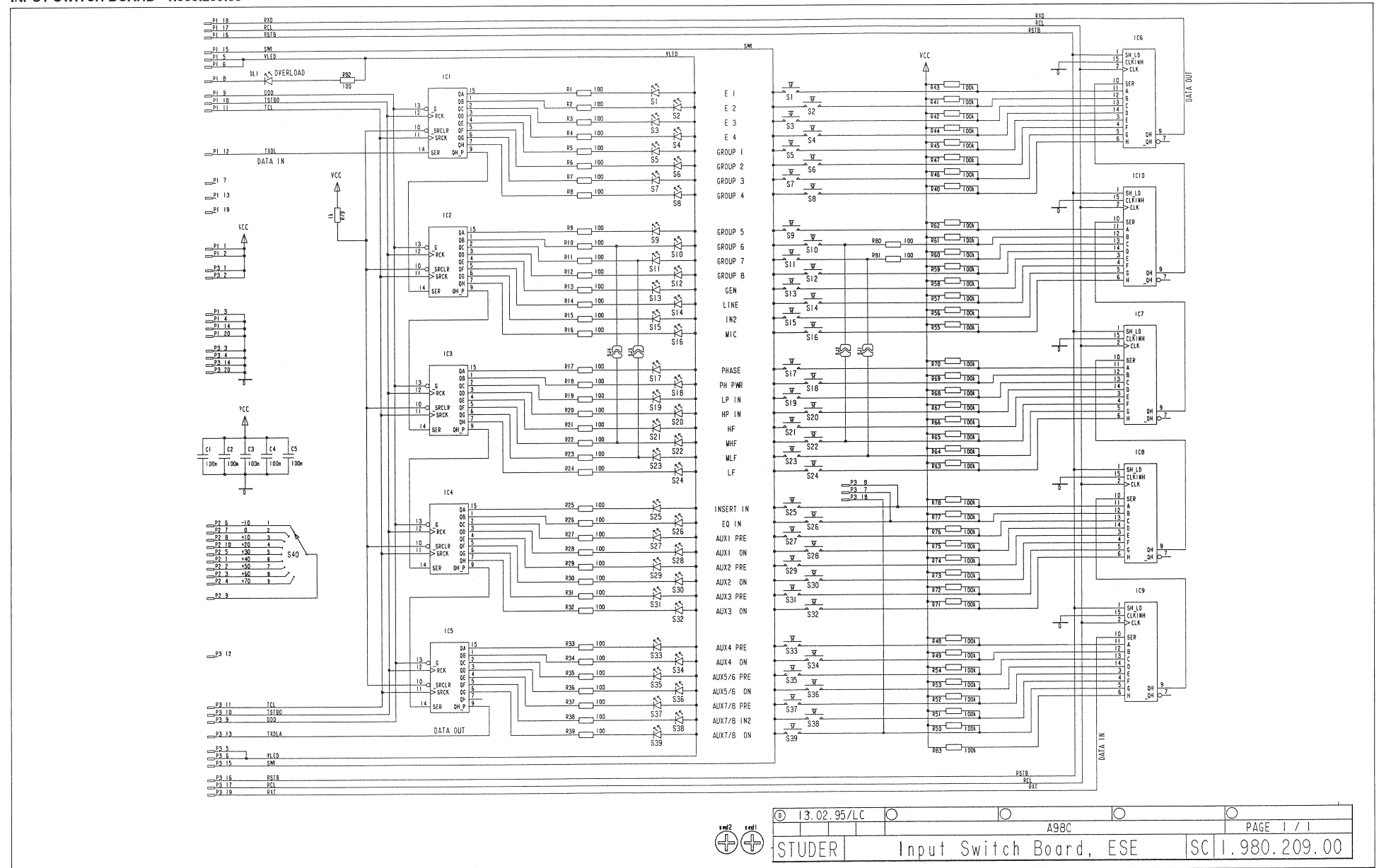
© 20.03.95 / FRI	© 20.11.98 / AF	○	○	○
D 980			PAGE 2b / 2	
STUDER	GROUP INPUT BOARD "ESE"		SC	1.980.207.00





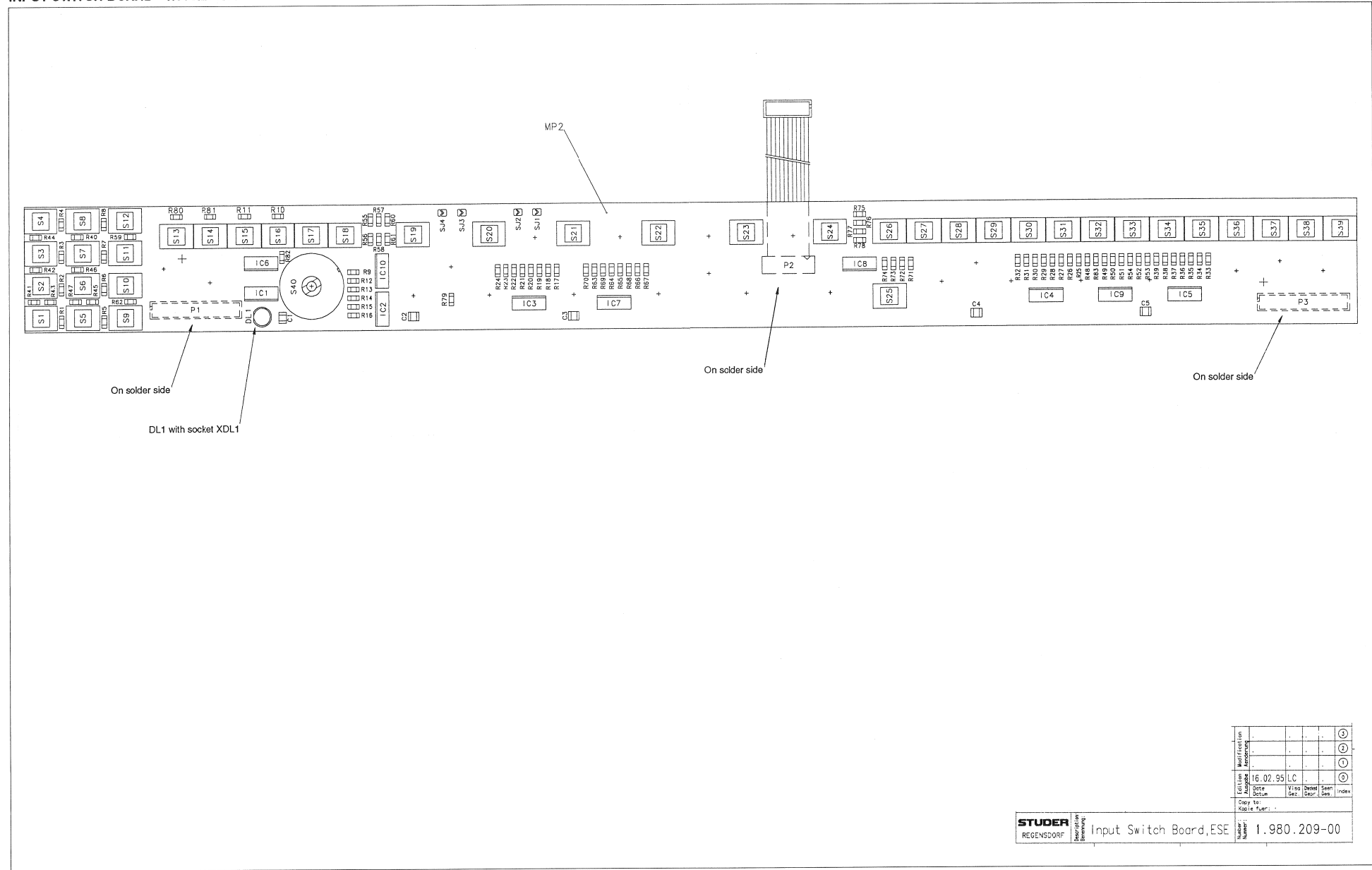


INPUT SWITCH BOARD 1.980.209.00





INPUT SWITCH BOARD 1.980.209.00



Edizyon	Manifaktüron								
Abgefragt	16.02.95	LC							
Datum	1995								
Seit									
Seit									
Index									

STUDER  
REGENSDORF  
Input Switch Board, ESE  
1.980.209-00

INPUT MAIN BOARD 1.980.202.70

(part of 1.980.270.00, 1.980.271.00, 1.980.272.00, 1.980.273.00, 1.980.274.00)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 3	59.60.0101	100p		CER 63V, 5%, COG, 0805	1	D 43	50.60.8001	4448		D LL 4448 SOD 80
0	C 7	59.60.1103	10n		CER 63V, 10%, X7R, 0805	1	D 44	50.60.8001	4448		D LL 4448 SOD 80
0	C 8	59.60.1103	10n		CER 63V, 10%, X7R, 0805	1	D 45	50.60.8001	4448		D LL 4448 SOD 80
0	C 9	59.60.0101	100p		CER 63V, 5%, COG, 0805	1	D 46	50.60.8001	4448		D LL 4448 SOD 80
0	C 13	59.60.0101	1uup		CER 63V, 5%, COG, 0805	1	D 47	50.60.8001	4448		D LL 4448 SOD 80
0	C 17	59.60.0101	100p		CER 63V, 5%, COG, 0805						
0	C 23	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 5	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 25	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 9	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 29	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 10	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 30	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 11	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 33	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 12	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 36	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 14	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 42	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	IC 15	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
0	C 43	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	IC 16	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 45	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	IC 17	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 47	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 19	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 50	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	IC 20	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 51	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 21	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
2	C 57	59.60.1103	10n		CER 63V, 10%, X7R, 0805	0	IC 22	50.62.8053	4053		IC .. 74 HC 4053 . ,A
2	C 58	59.60.1103	10n		CER 63V, 10%, X7R, 0805	0	IC 23	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 72	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 24	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 74	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 25	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 77	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 26	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 79	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 27	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 81	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 28	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 83	59.60.0330	33p		CER 63V, 5%, COG, 0805	0	IC 29	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
0	C 86	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	IC 30	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
0	C 88	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 32	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
0	C 94	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 34	50.62.1595	74HC595		IC .. 74 HC 595 . ,A
0	C 95	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	IC 47	50.62.8053	4053		IC .. 74 HC 4053 . ,A
0	C 96	59.60.1104	100n		CER 63V, 10%, X7R, 1210						
0	C 97	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	MP 1	1.980.202.12	1 mp		INPUT MAIN PCB //A
0	C 101	59.60.0471	470p		CER 63V, 5%, COG, 1206	0	MP 2	1.980.202.04	1 mp		NR.-ETIKETTE 5 * 20
0	C 102	59.60.1104	100n		CER 63V, 10%, X7R, 1210						
0	C 105	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	R 4	57.60.1103	10K		MF, 1%, 0204, E24
0	C 110	59.60.1104	100n		CER 63V, 10%, X7R, 1210	0	R 9	57.60.1223	22K		MF, 1%, 0204, E24
0	C 111	59.60.0471	470p		CER 63V, 5%, COG, 1206	0	R 11	57.60.1103	10K		MF, 1%, 0204, E24
0	C 112	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	R 12	57.60.1103	10K		MF, 1%, 0204, E24
0	C 117	59.60.0471	470p		CER 63V, 5%, COG, 1206	0	R 13	57.60.1103	10K		MF, 1%, 0204, E24
1	C 118	59.60.0330	33 p		CER 63V, 5%, COG, 0805	0	R 17	57.60.1103	10K		MF, 1%, 0204, E24
0	C 120	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	R 24	57.60.1682	6K8		MF, 1%, 0204, E24
0	C 128	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	R 25	57.60.1223	22K		MF, 1%, 0204, E24
0	C 129	59.60.0101	100p		CER 63V, 5%, COG, 0805	0	R 33	57.60.1822	8K2		MF, 1%, 0204, E24
						0	R 39	57.60.1682	6K8		MF, 1%, 0204, E24
						0	R 40	57.60.1682	6K8		MF, 1%, 0204, E24
						0	R 41	57.60.1473	47K		MF, 1%, 0204, E24
						0	R 43	57.60.1103	10K		MF, 1%, 0204, E24
						0	R 44	57.60.1682	6K8		MF, 1%, 0204, E24
						0	R 45	57.60.1822	8K2		MF, 1%, 0204, E24
						0	R 46	57.60.1473	47K		MF, 1%, 0204, E24
						0	R 54	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 55	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 57	57.60.1103	10K		MF, 1%, 0204, E24
						1	R 62	not used	not used		not used
						1	R 63	not used	not used		not used
						1	R 67	57.60.1273	27K		MF, 1%, 0204, E24
						0	R 68	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 69	57.60.1101	100R		MF, 1%, 0204, E24
						1	R 73	not used	not used		not used
						1	R 74	not used	not used		not used
						1	R 75	not used	not used		not used
						1	R 76	not used	not used		not used
						1	R 77	not used	not used		not used
						1	R 78	not used	not used		not used
						0	R 80	57.60.1682	6K8		MF, 1%, 0204, E24
						0	R 81	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 82	57.60.1101	100R		MF, 1%, 0204, E24
						0	R 90	57.60.1682	6K8		MF, 1%, 0204, E24
						0	R 91	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 92	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 93	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 94	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 95	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 96	57.60.1104	100K		MF, 1%, 0204, E24
						1	R 102	57.60.1273	27K		MF, 1%, 0204, E24
						0	R 103	57.60.1104	100K		MF, 1%, 0204, E24
						0	R 107	57.60.1472	4K7		MF, 1%, 0204, E24
						0	R 108	57.60.1684	680K		MF, 1%, 0204, E24
						0	R 109	57.60.1472	4K7		MF, 1%, 0204, E24

**INPUT MAIN BOARD 1.980.202.70**

(part of 1.980.270.00, 1.980.271.00, 1.980.272.00, 1.980.273.00, 1.980.274.00)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 112	57.60.1104		100K	MF, 1%, 0204, E24	0	R 235	57.60.1104		100K	MF, 1%, 0204, E24
0	R 113	57.60.1104		100K	MF, 1%, 0204, E24	0	R 236	57.60.1271		270R	MF, 1%, 0204, E24
0	R 114	57.60.1104		100K	MF, 1%, 0204, E24	0	R 237	57.60.1271		270R	MF, 1%, 0204, E24
0	R 115	57.60.1104		100K	MF, 1%, 0204, E24	0	R 238	57.60.1223		22K	MF, 1%, 0204, E24
0	R 116	57.60.1104		100K	MF, 1%, 0204, E24	0	R 239	57.60.1223		22K	MF, 1%, 0204, E24
0	R 125	57.60.1392		3K9	MF, 1%, 0204, E24	0	R 240	57.60.1223		22K	MF, 1%, 0204, E24
0	R 126	57.60.1471		470R	MF, 1%, 0204, E24	0	R 242	57.60.1271		270R	MF, 1%, 0204, E24
0	R 127	57.60.1512		5K1	MF, 1%, 0204, E24	0	R 243	57.60.1330		33R	MF, 1%, 0204, E24
0	R 128	57.60.1105		1M	MF, 1%, 0204, E24	0	R 244	57.60.1682		6K8	MF, 1%, 0204, E24
0	R 131	57.60.1512		5K1	MF, 1%, 0204, E24	0	R 245	57.60.1682		6K8	MF, 1%, 0204, E24
0	R 136	57.60.1471		470R	MF, 1%, 0204, E24	0	R 246	57.60.1100		10R	MF, 1%, 0204, E24
1	R 143	not used		not used	not used	0	R 247	57.60.1104		100K	MF, 1%, 0204, E24
1	R 144	not used		not used	not used	0	R 248	57.60.1104		100K	MF, 1%, 0204, E24
0	R 154	57.60.1332		3K3	MF, 1%, 0204, E24	0	R 249	57.60.1822		8K2	MF, 1%, 0204, E24
1	R 157	not used		not used	not used	0	R 250	57.60.1104		100K	MF, 1%, 0204, E24
1	R 158	not used		not used	not used	0	R 251	57.60.1104		100K	MF, 1%, 0204, E24
0	R 159	57.60.1684		680K	MF, 1%, 0204, E24	0	R 252	57.60.1822		8K2	MF, 1%, 0204, E24
0	R 160	57.60.1332		3K3	MF, 1%, 0204, E24	0	R 253	57.60.1822		8K2	MF, 1%, 0204, E24
0	R 161	57.60.1102		1K	MF, 1%, 0204, E24	0	R 254	57.60.1104		100K	MF, 1%, 0204, E24
0	R 163	57.60.1392		3K9	MF, 1%, 0204, E24	0	R 255	57.60.1104		100K	MF, 1%, 0204, E24
0	R 164	57.60.1471		470R	MF, 1%, 0204, E24	0	R 256	57.60.1822		8K2	MF, 1%, 0204, E24
0	R 165	57.60.1472		4K7	MF, 1%, 0204, E24	0	R 258	57.60.1100		10R	MF, 1%, 0204, E24
0	R 166	57.60.1105		1M	MF, 1%, 0204, E24	0	R 259	57.60.1102		1K	MF, 1%, 0204, E24
0	R 167	57.60.1472		4K7	MF, 1%, 0204, E24	0	R 260	57.60.1223		22K	MF, 1%, 0204, E24
0	R 170	57.60.1471		470R	MF, 1%, 0204, E24	0	R 261	57.60.1104		100K	MF, 1%, 0204, E24
0	R 171	57.60.1101		100R	MF, 1%, 0204, E24	0	R 262	57.60.1104		100K	MF, 1%, 0204, E24
0	R 172	57.60.1104		100K	MF, 1%, 0204, E24	0	R 263	57.60.1104		100K	MF, 1%, 0204, E24
0	R 173	57.60.1104		100K	MF, 1%, 0204, E24	0	R 264	57.60.1682		6K8	MF, 1%, 0204, E24
0	R 174	57.60.1104		100K	MF, 1%, 0204, E24	0	R 265	57.60.1682		6K8	MF, 1%, 0204, E24
0	R 175	57.60.1104		100K	MF, 1%, 0204, E24	0	R 266	57.60.1223		22K	MF, 1%, 0204, E24
0	R 176	57.60.1104		100K	MF, 1%, 0204, E24	0	R 269	57.60.1104		100K	MF, 1%, 0204, E24
0	R 177	57.60.1104		100K	MF, 1%, 0204, E24	0	R 270	57.60.1104		100K	MF, 1%, 0204, E24
0	R 178	57.60.1104		100K	MF, 1%, 0204, E24	0	R 271	57.60.1330		33R	MF, 1%, 0204, E24
0	R 179	57.60.1104		100K	MF, 1%, 0204, E24	0	R 272	57.60.1102		1K	MF, 1%, 0204, E24
0	R 180	57.60.1104		100K	MF, 1%, 0204, E24	0	R 273	57.60.1330		33R	MF, 1%, 0204, E24
0	R 181	57.60.1104		100K	MF, 1%, 0204, E24	0	R 274	57.60.1102		1K	MF, 1%, 0204, E24
0	R 182	57.60.1102		1K	MF, 1%, 0204, E24	0	R 275	57.60.1101		100R	MF, 1%, 0204, E24
0	R 183	57.60.1330		33R	MF, 1%, 0204, E24	0	R 276	57.60.1223		22K	MF, 1%, 0204, E24
0	R 184	57.60.1104		100K	MF, 1%, 0204, E24	0	R 277	57.60.1681		680R	MF, 1%, 0204, E24
0	R 185	57.60.1104		100K	MF, 1%, 0204, E24	0	R 278	57.60.1681		680R	MF, 1%, 0204, E24
0	R 186	57.60.1104		100K	MF, 1%, 0204, E24	0	R 279	57.60.1272		2K7	MF, 1%, 0204, E24
0	R 187	57.60.1104		100K	MF, 1%, 0204, E24	0	R 280	57.60.1272		2K7	MF, 1%, 0204, E24
0	R 188	57.60.1104		100K	MF, 1%, 0204, E24	0	R 285	57.60.1392		3K9	MF, 1%, 0204, E24
0	R 189	57.60.1100		10R	MF, 1%, 0204, E24	0	R 286	57.60.1152		1K5	MF, 1%, 0204, E24
0	R 192	57.60.1392		3K9	MF, 1%, 0204, E24	0	R 287	57.60.1223		22K	MF, 1%, 0204, E24
0	R 193	57.60.1392		3K9	MF, 1%, 0204, E24	0	R 288	57.60.1392		3K9	MF, 1%, 0204, E24
0	R 194	57.60.1684		680K	MF, 1%, 0204, E24	0	R 289	57.60.1152		1K5	MF, 1%, 0204, E24
0	R 196	57.60.1104		100K	MF, 1%, 0204, E24	0	R 290	57.60.1223		22K	MF, 1%, 0204, E24
0	R 197	57.60.1101		100R	MF, 1%, 0204, E24	0	R 291	57.60.1223		22K	MF, 1%, 0204, E24
0	R 198	57.60.1101		100R	MF, 1%, 0204, E24	0	R 292	57.60.1334		330K	MF, 1%, 0204, E24
0	R 199	57.60.1102		1K	MF, 1%, 0204, E24	0	R 293	57.60.1334		330K	MF, 1%, 0204, E24
0	R 200	57.60.1330		33R	MF, 1%, 0204, E24	0	R 294	57.60.1681		680R	MF, 1%, 0204, E24
0	R 201	57.60.1102		1K	MF, 1%, 0204, E24	0	R 295	57.60.1681		680R	MF, 1%, 0204, E24
0	R 202	57.60.1101		100R	MF, 1%, 0204, E24	0	R 296	57.60.1272		2K7	MF, 1%, 0204, E24
0	R 203	57.60.1105		1M	MF, 1%, 0204, E24	0	R 297	57.60.1272		2K7	MF, 1%, 0204, E24
0	R 204	57.60.1105		1M	MF, 1%, 0204, E24	0	R 302	57.60.1392		3K9	MF, 1%, 0204, E24
0	R 205	57.60.1105		1M	MF, 1%, 0204, E24	0	R 303	57.60.1152		1K5	MF, 1%, 0204, E24
0	R 206	57.60.1105		1M	MF, 1%, 0204, E24	0	R 304	57.60.1682		6K8	MF, 1%, 0204, E24
0	R 207	57.60.1472		4K7	MF, 1%, 0204, E24	0	R 305	57.60.1392		3K9	MF, 1%, 0204, E24
0	R 208	57.60.1472		4K7	MF, 1%, 0204, E24	0	R 306	57.60.1152		1K5	MF, 1%, 0204, E24
0	R 211	57.60.1102		1K	MF, 1%, 0204, E24	0	R 307	57.60.1104		100K	MF, 1%, 0204, E24
1	R 212	not used		not used	not used	0	R 310	57.60.1911		910R	MF, 1%, 0204, E24
1	R 213	57.60.1584		560K	MF, 1%, 0204, E24	0	R 311	57.60.1911		910R	MF, 1%, 0204, E24
0	R 214	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 215	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 216	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 217	57.60.1104		100K	MF, 1%, 0204, E24						
1	R 220	57.60.1684		680K	MF, 1%, 0204, E24						
0	R 221	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 222	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 223	57.60.1223		22K	MF, 1%, 0204, E24						
0	R 228	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 230	57.60.1223		22K	MF, 1%, 0204, E24						
0	R 231	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 232	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 233	57.60.1104		100K	MF, 1%, 0204, E24						
0	R 234	57.60.1104		100K	MF, 1%, 0204, E24						

End of List

**Comments**

- (01) 13.11.95 serie update
- (02) 20.11.95 error parts list

INPUT SWITCH BOARD 1.980.209.70

(part of 1.980.290.00, 1.980.291.00, 1.980.292.00, 1.980.293.00, 1.980.294.00, 1.980.295.00, 1.980.296.00, 1.980.297.00, 1.980.298.00, 1.980.299.00)



Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.1104	100n	CER 10%, X7R, 1210	0	R 58	57.60.1104	100K	MF, 1%, 0204, E24
0	C 2	59.60.1104	100n	CER 10%, X7R, 1210	0	R 59	57.60.1104	100K	MF, 1%, 0204, E24
0	C 3	59.60.1104	100n	CER 10%, X7R, 1210	0	R 60	57.60.1104	100K	MF, 1%, 0204, E24
0	C 4	59.60.1104	100n	CER 10%, X7R, 1210	0	R 61	57.60.1104	100K	MF, 1%, 0204, E24
0	C 5	59.60.1104	100n	CER 10%, X7R, 1210	0	R 62	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 1	50.62.1595	74HC595	IC .. 74 HC 595 . .A	0	R 63	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 2	50.62.1595	74HC595	IC .. 74 HC 595 . .A	0	R 64	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 3	50.62.1595	74HC595	IC .. 74 HC 595 . .A	0	R 65	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 4	50.62.1595	74HC595	IC .. 74 HC 595 . .A	0	R 66	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 5	50.62.1595	74HC595	IC .. 74 HC 595 . .A	0	R 67	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 6	50.62.1165	74HC165	IC .. 74 HC 165 . .A	0	R 68	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 7	50.62.1165	74HC165	IC .. 74 HC 165 . .A	0	R 69	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 8	50.62.1165	74HC165	IC .. 74 HC 165 . .A	0	R 70	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 9	50.62.1165	74HC165	IC .. 74 HC 165 . .A	0	R 71	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 10	50.62.1165	74HC165	IC .. 74 HC 165 . .A	0	R 72	57.60.1104	100K	MF, 1%, 0204, E24
0	MP 1	1.980.209.04	pce	NR.-ETIKETTE 5 * 20	0	R 73	57.60.1104	100K	MF, 1%, 0204, E24
0	MP 2	1.980.209.12	pce	INPUT SWITCH PCB //\	0	R 74	57.60.1104	100K	MF, 1%, 0204, E24
0	MP 3	43.01.0108	pce	Label ESE-WARNSCHILD	0	R 75	57.60.1104	100K	MF, 1%, 0204, E24
0	R 1	57.60.1101	100R	MF, 1%, 0204, E24	0	R 76	57.60.1104	100K	MF, 1%, 0204, E24
0	R 2	57.60.1101	100R	MF, 1%, 0204, E24	0	R 77	57.60.1104	100K	MF, 1%, 0204, E24
0	R 3	57.60.1101	100R	MF, 1%, 0204, E24	0	R 78	57.60.1104	100K	MF, 1%, 0204, E24
0	R 4	57.60.1101	100R	MF, 1%, 0204, E24	0	R 79	57.60.1102	1K	MF, 1%, 0204, E24
0	R 5	57.60.1101	100R	MF, 1%, 0204, E24	0	R 80	57.60.1101	100R	MF, 1%, 0204, E24
0	R 6	57.60.1101	100R	MF, 1%, 0204, E24	0	R 81	57.60.1101	100R	MF, 1%, 0204, E24
0	R 7	57.60.1101	100R	MF, 1%, 0204, E24	0	R 82	57.60.1101	100R	MF, 1%, 0204, E24
0	R 8	57.60.1101	100R	MF, 1%, 0204, E24	0	R 83	57.60.1104	100K	MF, 1%, 0204, E24
0	R 9	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 10	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 11	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 12	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 13	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 14	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 15	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 16	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 17	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 18	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 19	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 20	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 21	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 22	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 23	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 24	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 25	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 26	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 27	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 28	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 29	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 30	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 31	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 32	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 33	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 34	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 35	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 36	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 37	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 38	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 39	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 40	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 41	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 42	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 43	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 44	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 45	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 46	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 47	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 48	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 49	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 50	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 51	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 52	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 53	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 54	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 55	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 56	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 57	57.60.1104	100K	MF, 1%, 0204, E24					

End of List

Comments



INPUT SIDE BOARD MONO/EQ 1.980.223.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1		not used	not used	0	C 81		not used	not used
0	C 2	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 82		not used	not used
0	C 3		not used	not used	0	C 83	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 4		not used	not used	0	C 84	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 5	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 85	59.06.0104	100n	PETP, 10%, 63V
0	C 6		not used	not used	0	C 86		not used	not used
0	C 7	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 87		not used	not used
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 88		not used	not used
0	C 9	59.06.0104	100n	PETP, 10%, 63V	0	C 89	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 10	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 90	59.06.5104	100n	PETP, 5%, 63V
0	C 11		not used	not used	0	C 91	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 12	59.06.0104	100n	PETP, 10%, 63V	0	C 92		not used	not used
0	C 13		not used	not used	0	C 93	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 14	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 94	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 15		not used	not used	0	C 95		not used	not used
0	C 16	59.06.0104	100n	PETP, 10%, 63V	0	C 96		not used	not used
0	C 17	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 97		not used	not used
0	C 18	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 98	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 20	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 99		not used	not used
0	C 21	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 100	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 22	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 101		not used	not used
0	C 23		not used	not used	0	C 102	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 24	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 103		not used	not used
0	C 25	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 104	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 26	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 105	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 27		not used	not used	0	C 106		not used	not used
0	C 28	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 107		not used	not used
0	C 29		not used	not used	1	C 108	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER					
0	C 31		not used	not used	0	D 1		not used	not used
0	C 32		not used	not used	0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 33	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 34	59.06.0104	100n	PETP, 10%, 63V	0	D 4		not used	not used
0	C 35		not used	not used	0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 36		not used	not used	0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 37		not used	not used	0	D 7	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 38	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 39		not used	not used	0	D 9	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 40		not used	not used	0	D 10		not used	not used
0	C 41		not used	not used	0	D 11	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 42		not used	not used	0	D 12		not used	not used
0	C 43	59.06.0104	100n	PETP, 10%, 63V					
0	C 44		not used	not used	0	IC 1		not used	not used
0	C 45	59.06.0104	100n	PETP, 10%, 63V	0	IC 2	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 46		not used	not used	0	IC 3	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 47	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 4	50.09.0124	2142	IC SSM 2142 P
0	C 48		not used	not used	0	IC 5		not used	not used
0	C 49		not used	not used	0	IC 6	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 50		not used	not used	0	IC 7	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 51		not used	not used	0	IC 8		not used	not used
0	C 52		not used	not used	0	IC 9	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 53		not used	not used	0	IC 10		not used	not used
0	C 54		not used	not used	0	IC 11	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 55	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 12		not used	not used
0	C 56	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 13		not used	not used
0	C 57	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 14	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 58	59.06.0223	22n	PETP, 10%, 63V	0	IC 15		not used	not used
0	C 59	59.06.0104	100n	PETP, 10%, 63V	0	IC 16	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 60	59.06.0104	100n	PETP, 10%, 63V	0	IC 17		not used	not used
0	C 61	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 18	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 62		not used	not used	0	IC 19		not used	not used
0	C 63	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 20	50.17.1014	74HC14	IC ... 74 HC 14 .. ,A
0	C 64	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 21	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 65	59.06.0104	100n	PETP, 10%, 63V	0	IC 22		not used	not used
0	C 66		not used	not used	0	IC 23	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 67	59.22.5220	22u	EL 25V, 20%, rad RM5	0	IC 24	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 68		not used	not used	0	IC 25		not used	not used
0	C 69	59.05.2152	1n5	C 1500 P ,2.5%, 160V , PP	0	IC 26		not used	not used
0	C 70	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 27	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 71	59.05.2472	4n7	C 4700 P ,2.5%, 63V , PP	0	IC 28	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 72		not used	not used	0	IC 29		not used	not used
0	C 73	59.05.2153	15n	C .015 U ,2.5%, 63V , PP	0	IC 30		not used	not used
0	C 74		not used	not used					
0	C 75		not used	not used	0	JP 1	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 76	59.06.0104	100n	PETP, 10%, 63V	0	JP 2		not used	not used
0	C 77	59.22.3101	100u	EL 10V, 20%, rad RM5					
0	C 78	59.22.5220	22u	EL 25V, 20%, rad RM5	0	MP 1	1.980.203.12	1 pce	INPUT SIDE PCB //I
0	C 79		not used	not used	0	MP 2	43.01.0108	1 pce	ESE-WARNSCHILD
0	C 80		not used	not used	0	MP 3	1.980.223.04	1 pce	NR.-ETIKETTE 5 * 20



INPUT SIDE BOARD MONO/EQ 1.980.223.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 4	1.010.011.22	4 pcs	MP	NIETMUTTER SW 6 M 3 *1.5	0	R 65	not used	not used
0	MP 5	54.01.0021	3 pcs	Jumper	0.63 * 0.63mm	0	R 66	57.11.3682	6k8 MF, 1%, 0207
0	MP 6	1.177.200.04	1 pce	Wire	ERDUNGSDRAHT	0	R 67	not used	not used
0	MP 7	1.010.210.64	2 pcs	str wire	LITZE SW,120MM, M.KASIKONIAKI	0	R 68	57.11.3392	3k9 MF, 1%, 0207
0	P 8	not used	not used	not used		0	R 69	57.11.5106	10M R 10 M , 5%, 0207 , MF
0	P 10	1.023.566.02	Ribbon16p	FLACHKABEL 16 POL. 0,11M		0	R 70	57.11.5106	10M R 10 M , 5%, 0207 , MF
0	P 12	1.023.567.02	Ribbon20p	FLACHKABEL 20 POL. 0,11M		0	R 71	57.11.3473	47k MF, 1%, 0207
0	P 13	1.023.566.01	Ribbon16p	FLACHKABEL 16 POL. 0,08M		0	R 72	57.11.3562	5k6 MF, 1%, 0207
0	P 14	1.023.567.03	Ribbon20p	FLACHKABEL 20 POL. 0,125M		0	R 73	57.11.3333	33k MF, 1%, 0207
0	Q 1	50.03.0436	BC237B	BC 237 B, 547 B, 550 B,		0	R 74	57.11.5106	10M R 10 M , 5%, 0207 , MF
0	R 1	57.11.3153	15k	MF, 1%, 0207		0	R 75	not used	not used
0	R 2	57.11.3752	7k5	MF, 1%, 0207		0	R 76	not used	not used
0	R 3	57.11.3153	15k	MF, 1%, 0207		0	R 77	57.11.3102	1k0 MF, 1%, 0207
0	R 4	57.11.3153	15k	MF, 1%, 0207		0	R 78	not used	not used
0	R 5	not used	not used	not used		0	R 79	57.11.3104	100k MF, 1%, 0207
0	R 6	57.11.3000	0R0	MF, 0207		0	R 80	57.11.3104	100k MF, 1%, 0207
0	R 7	57.11.3223	22k	MF, 1%, 0207		0	R 81	not used	not used
0	R 8	57.11.3223	22k	MF, 1%, 0207		0	R 82	not used	not used
0	R 9	57.11.3473	47k	MF, 1%, 0207		0	R 83	not used	not used
0	R 10	57.11.3223	22k	MF, 1%, 0207		0	R 84	not used	not used
0	R 11	57.11.3752	7k5	MF, 1%, 0207		0	R 85	57.11.3104	100k MF, 1%, 0207
0	R 12	not used	not used	not used		0	R 86	not used	not used
0	R 13	not used	not used	not used		0	R 87	57.11.3104	100k MF, 1%, 0207
0	R 14	not used	not used	not used		0	R 88	not used	not used
0	R 15	57.11.3104	100k	MF, 1%, 0207		0	R 89	not used	not used
0	R 16	not used	not used	not used		0	R 90	57.11.3104	100k MF, 1%, 0207
0	R 17	not used	not used	not used		0	R 91	57.11.3104	100k MF, 1%, 0207
0	R 18	not used	not used	not used		0	R 92	not used	not used
0	R 19	57.11.3104	100k	MF, 1%, 0207		0	R 93	57.11.3104	100k MF, 1%, 0207
0	R 20	57.11.3682	6k8	MF, 1%, 0207		0	R 94	57.11.3104	100k MF, 1%, 0207
0	R 21	not used	not used	not used		0	R 95	57.11.3104	100k MF, 1%, 0207
0	R 22	not used	not used	not used		0	R 96	57.11.3104	100k MF, 1%, 0207
0	R 23	57.11.3682	6k8	MF, 1%, 0207		0	R 97	not used	not used
0	R 24	57.11.3223	22k	MF, 1%, 0207		0	R 98	not used	not used
0	R 25	not used	not used	not used		0	R 99	not used	not used
0	R 26	not used	not used	not used		0	R 100	57.11.3333	33k MF, 1%, 0207
0	R 27	57.11.3473	47k	MF, 1%, 0207		0	R 101	not used	not used
0	R 28	not used	not used	not used		0	R 102	57.11.3102	1k0 MF, 1%, 0207
0	R 29	not used	not used	not used		0	R 103	57.11.3682	6k8 MF, 1%, 0207
0	R 30	57.11.3223	22k	MF, 1%, 0207		0	R 104	not used	not used
0	R 31	57.11.3223	22k	MF, 1%, 0207		0	R 105	57.11.3104	100k MF, 1%, 0207
0	R 32	not used	not used	not used		0	R 106	57.11.3121	120R MF, 1%, 0207
0	R 33	not used	not used	not used		0	R 107	not used	not used
0	R 34	not used	not used	not used		0	R 108	57.11.3121	120R MF, 1%, 0207
0	R 35	not used	not used	not used		0	R 109	not used	not used
0	R 36	not used	not used	not used		0	R 110	57.11.3682	6k8 MF, 1%, 0207
0	R 37	57.11.3622	6k2	MF, 1%, 0207		0	R 111	57.11.3684	680k MF, 1%, 0207
0	R 38	57.11.3000	0R0	MF, 0207		0	R 112	57.11.3104	100k MF, 1%, 0207
0	R 39	not used	not used	not used		0	R 113	57.11.3104	100k MF, 1%, 0207
0	R 40	not used	not used	not used		0	R 114	not used	not used
0	R 41	not used	not used	not used		0	R 115	not used	not used
0	R 42	not used	not used	not used		0	R 116	57.11.3103	10k MF, 1%, 0207
0	R 43	not used	not used	not used		0	R 117	not used	not used
0	R 44	not used	not used	not used		0	R 118	57.11.3332	3k3 MF, 1%, 0207
0	R 45	not used	not used	not used		0	R 119	not used	not used
0	R 46	not used	not used	not used		0	R 120	57.11.3682	6k8 MF, 1%, 0207
0	R 47	not used	not used	not used		0	R 121	57.11.3682	6k8 MF, 1%, 0207
0	R 48	57.11.3223	22k	MF, 1%, 0207		0	R 122	57.11.3682	6k8 MF, 1%, 0207
0	R 49	not used	not used	not used		0	R 123	57.11.3472	4k7 MF, 1%, 0207
0	R 50	57.11.3104	100k	MF, 1%, 0207		0	R 124	57.11.3112	1k1 MF, 1%, 0207
0	R 51	57.11.3472	4k7	MF, 1%, 0207		0	R 125	57.11.3105	1M0 MF, 1%, 0207
0	R 52	57.11.3105	1M0	MF, 1%, 0207		0	R 126	57.11.3104	100k MF, 1%, 0207
0	R 53	57.11.3473	47k	MF, 1%, 0207		0	R 127	not used	not used
0	R 54	57.11.3392	3k9	MF, 1%, 0207		0	R 128	57.11.3104	100k MF, 1%, 0207
0	R 55	not used	not used	not used		0	R 129	57.11.3112	1k1 MF, 1%, 0207
0	R 56	not used	not used	not used		0	R 130	not used	not used
0	R 57	not used	not used	not used		0	R 131	not used	not used
0	R 58	57.11.3752	7k5	MF, 1%, 0207		0	R 132	57.11.3104	100k MF, 1%, 0207
0	R 59	not used	not used	not used		0	R 133	not used	not used
0	R 60	not used	not used	not used		0	R 134	57.11.3112	1k1 MF, 1%, 0207
0	R 61	57.11.3104	100k	MF, 1%, 0207		0	R 135	57.11.3112	1k1 MF, 1%, 0207
0	R 62	not used	not used	not used		0	R 136	not used	not used
0	R 63	57.11.3682	6k8	MF, 1%, 0207		0	R 137	57.11.3682	6k8 MF, 1%, 0207
0	R 64	57.11.3222	2k2	MF, 1%, 0207		0	R 138	57.11.3682	6k8 MF, 1%, 0207
						0	R 139	57.11.3104	100k MF, 1%, 0207
						0	R 140	57.11.3105	1M0 MF, 1%, 0207
						0	R 141	not used	not used



## INPUT SIDE BOARD MONO/EQ 1.980.223.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 142	not used	not used	not used
0	R 143	not used	not used	not used
0	R 144	57.11.3682	6k8	MF, 1%, 0207
0	R 145	57.11.3472	4k7	MF, 1%, 0207
0	R 146	not used	not used	not used
0	R 147	57.11.3332	3k3	MF, 1%, 0207
0	R 148	not used	not used	not used
0	R 149	57.11.3333	33k	MF, 1%, 0207
0	R 150	57.11.3684	680k	MF, 1%, 0207
0	R 151	57.11.3682	6k8	MF, 1%, 0207
0	R 152	57.11.3223	22k	MF, 1%, 0207
0	R 153	not used	not used	not used
0	R 154	not used	not used	not used
0	R 155	not used	not used	not used
0	R 156	not used	not used	not used
0	R 157	57.11.3102	1k0	MF, 1%, 0207
0	R 158	57.11.3223	22k	MF, 1%, 0207
0	R 159	57.11.3121	120R	MF, 1%, 0207
0	R 160	not used	not used	not used
0	R 161	not used	not used	not used
0	R 162	57.11.3121	120R	MF, 1%, 0207
0	R 163	57.11.3682	6k8	MF, 1%, 0207
0	R 164	not used	not used	not used
0	R 165	57.11.3682	6k8	MF, 1%, 0207
0	R 166	not used	not used	not used
0	R 167	not used	not used	not used
0	RA 5	1.010.301.58	Pot	POT 5K LIN;
0	RA 7	1.010.306.58	Pot	POT 5K LIN; CENTERTAP
0	RA 9	1.010.306.58	Pot	POT 5K LIN; CENTERTAP
0	RA 11	1.010.301.58	Pot	POT 5K LIN;
1	W 1	not used	0R0	MF, 0207
0	W 2	57.11.3000	0R0	MF, 0207
0	W 3	57.11.3000	0R0	MF, 0207
0	W 4	not used	not used	not used
0	W 5	57.11.3000	0R0	MF, 0207
0	W 6	not used	not used	not used
0	XIC 4	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	not used	not used	not used

End of List

Comments

Update 1





MIC INPUT BOARD MONO 1.980.225.00

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1471		470p	C 470 P , 1%, 630V , PP	0	D 56	not used		not used	not used
0	C 2	59.22.6100		10u	EL 35V, 20%, rad RM5	0	D 57	not used		not used	not used
0	C 3	59.22.6100		10u	EL 35V, 20%, rad RM5	0	D 58	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 4	59.06.0104		100n	PETP, 10%, 63V	0	D 59	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0	C 5	not used		not used	not used	0	D 60	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
1	C 6	59.03.2104			C .1 U , 10%, 250V , MPETP						
0	C 7	59.05.1471		470p	C 470 P , 1%, 630V , PP	0	IC 1	50.05.0244		NE5534AN	IC 5534 ANB, NE 5534 SAN, ,A
0	C 8	not used		not used	not used	0	IC 2	50.09.0106		5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 9	not used		not used	not used	0	IC 3	50.09.0106		5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 10	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	IC 4	50.07.0024		4052	IC .. 4052 .. ,A
0	C 11	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	IC 5	50.07.0051		4051	IC .. 4051 .. ,A
0	C 12	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	IC 6	50.19.0300		DG211CJ-2	IC DG 441 DJ ,A
0	C 14	59.34.4151		150p	C 150 P , 5%, N750 , CER	0	IC 7	50.09.0106		5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 15	59.06.5332		3n3	PETP, 5%, 63V	0	IC 8	50.07.0016		4532	IC .. 4532 .. ,A
0	C 16	59.22.6220		22u	EL 35V, 20%, rad RM5	0	IC 51	not used		not used	not used
0	C 17	59.06.5102		1n0	PETP, 5%, 63V	0	IC 52	not used		not used	not used
1	C 18	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	IC 53	not used		not used	not used
0	C 19	59.34.2220		22p	C 22 P , 5%, N150 , CER	0	IC 54	not used		not used	not used
0	C 20	59.06.0104		100n	PETP, 10%, 63V	0	IC 55	not used		not used	not used
0	C 21	59.06.0104		100n	PETP, 10%, 63V	0	IC 56	not used		not used	not used
0	C 22	59.22.9552		100uF	EL 10V, 20%, rad RM5, Audio						
0	C 23	59.34.4151		150p	C 150 P , 5%, N750 , CER	0	K 1	56.04.0198		2U	K 5 V 2*U , 125V/ 2 A, AG/AU
0	C 24	not used		not used	not used	0	K 51	not used		not used	not used
0	C 25	59.22.6220		22u	EL 35V, 20%, rad RM5						
0	C 26	not used		not used	not used	0	L 1	1.022.231.00		235mH	HF-ASYM. DROSSEL RM5
0	C 27	59.06.5682		6n8	PETP, 5%, 63V	0	L 51	not used		not used	not used
0	C 28	59.34.1100		10p	C 10 P , 5%, NP 0 , CER						
0	C 29	59.22.6220		22u	EL 35V, 20%, rad RM5	0	MP 1	1.980.205.12	1 pce		MIC INPUT PCB //1
0	C 30	not used		not used	not used	0	MP 2	43.01.0108	1 pce	Label	ESE-WARNschild
1	C 31	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	MP 3	1.980.225.04	1 pce		NR.-ETIKETTE 5 * 20
0	C 32	59.34.1100		10p	C 10 P , 5%, NP 0 , CER						
0	C 33	59.22.9552		100uF	EL 10V, 20%, rad RM5, Audio	0	P 1	54.14.5510		10-P	J PCB-BUCHSE GERADE 10 P
0	C 34	59.22.9552		100uF	EL 10V, 20%, rad RM5, Audio	0	P 2	1.023.563.01		Ribbon10p	FLACHKABEL 10 POL. 0,11MM
0	C 35	59.22.9552		100uF	EL 10V, 20%, rad RM5, Audio						
0	C 36	59.22.3101		100u	EL 10V, 20%, rad RM5	0	Q 1	50.03.1505		VN0808M	VN 0808 M, ZVN 0108 A
0	C 37	59.22.3101		100u	EL 10V, 20%, rad RM5						
0	C 38	59.32.2471		470p	C 470 P , 10%, 50V , CER	1	R 2	57.11.3221		220R	MF, 1%, 0207
0	C 51	not used		not used	not used	0	R 3	57.11.3472		4k7	MF, 1%, 0207
0	C 52	not used		not used	not used	0	R 4	57.11.3472		4k7	MF, 1%, 0207
0	C 53	not used		not used	not used	0	R 8	57.11.3472		4k7	MF, 1%, 0207
0	C 54	not used		not used	not used	0	R 9	57.11.3104		100k	MF, 1%, 0207
0	C 56	not used		not used	not used	1	R 11	57.11.3221		220R	MF, 1%, 0207
0	C 57	not used		not used	not used	0	R 12	57.11.3472		4k7	MF, 1%, 0207
0	C 58	not used		not used	not used	0	R 13	57.11.3132		1k3	MF, 1%, 0207
0	C 59	not used		not used	not used	0	R 14	57.11.3472		4k7	MF, 1%, 0207
0	C 60	not used		not used	not used	0	R 15	57.11.3104		100k	MF, 1%, 0207
0	C 61	not used		not used	not used	0	R 16	57.11.3104		100k	MF, 1%, 0207
0	C 62	not used		not used	not used	0	R 17	57.11.3104		100k	MF, 1%, 0207
0	C 63	not used		not used	not used	0	R 18	57.11.3163		16k	MF, 1%, 0207
0	C 64	not used		not used	not used	0	R 19	57.11.3683		68k	MF, 1%, 0207
0	C 65	not used		not used	not used	0	R 20	57.11.3272		2k7	MF, 1%, 0207
0	C 66	not used		not used	not used	0	R 21	57.11.3222		2k2	MF, 1%, 0207
0	C 67	not used		not used	not used	0	R 22	57.11.3104		100k	MF, 1%, 0207
0	C 68	not used		not used	not used	0	R 23	57.11.3223		22k	MF, 1%, 0207
0	C 69	not used		not used	not used	0	R 24	57.11.3102		1k0	MF, 1%, 0207
0	C 70	not used		not used	not used	0	R 25	57.11.3272		2k7	MF, 1%, 0207
0	C 71	not used		not used	not used	0	R 26	57.11.3102		1k0	MF, 1%, 0207
0	C 72	not used		not used	not used	0	R 27	57.11.3152		1k5	MF, 1%, 0207
0	C 73	not used		not used	not used	0	R 28	57.11.3223		22k	MF, 1%, 0207
0	C 74	not used		not used	not used	0	R 29	57.11.3683		68k	MF, 1%, 0207
0	C 75	not used		not used	not used	0	R 30	57.11.3101		100R	MF, 1%, 0207
0	C 76	not used		not used	not used	0	R 31	57.11.3919		8R2	MF, 1%, 0207
0	C 77	59.34.4101		100p	C 100 P , 5%, N750 , CER	0	R 32	57.11.3684		680k	MF, 1%, 0207
0	C 78	59.32.3103		10n	C 10 N ,100%, 40V , CER	0	R 33	57.11.3684		680k	MF, 1%, 0207
0	C 79	59.32.3103		10n	C 10 N ,100%, 40V , CER	0	R 34	57.11.3182		1k8	MF, 1%, 0207
						0	R 35	57.11.3622		6k2	MF, 1%, 0207
0	D 1	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 36	57.11.3224		220k	MF, 1%, 0207
0	D 2	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 37	57.11.3183		18k	MF, 1%, 0207
0	D 3	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 38	57.11.3684		680k	MF, 1%, 0207
0	D 4	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 39	57.11.3684		680k	MF, 1%, 0207
0	D 5	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 40	57.11.3220		22R	MF, 1%, 0207
0	D 6	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 41	57.11.3680		68R	MF, 1%, 0207
0	D 7	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 42	57.11.3104		100k	MF, 1%, 0207
0	D 8	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 43	57.11.3104		100k	MF, 1%, 0207
0	D 9	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	R 44	57.11.3221		220R	MF, 1%, 0207
0	D 10	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35	0	R 45	57.11.3332		3k3	MF, 1%, 0207
1	D 11	50.04.1108		5V6	Zener, 5%, 0.5W, DO-35	0	R 46	57.11.3681		680R	MF, 1%, 0207
0	D 51	not used		not used	not used	0	R 47	57.11.3222		2k2	MF, 1%, 0207
0	D 52	not used		not used	not used	0	R 51	not used		not used	not used
0	D 53	not used		not used	not used	0	R 52	not used		not used	not used
0	D 54	not used		not used	not used	0	R 53	not used		not used	not used
0	D 55	not used		not used	not used	0	R 54	not used		not used	not used



## MIC INPUT BOARD MONO 1.980.225.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 55	not used	not used	not used
0	R 56	not used	not used	not used
0	R 57	not used	not used	not used
0	R 58	not used	not used	not used
0	R 59	not used	not used	not used
0	R 60	not used	not used	not used
0	R 61	not used	not used	not used
0	R 62	not used	not used	not used
0	R 63	not used	not used	not used
0	R 64	not used	not used	not used
0	R 65	not used	not used	not used
0	R 66	not used	not used	not used
0	R 67	not used	not used	not used
0	R 68	not used	not used	not used
0	R 69	not used	not used	not used
0	R 70	not used	not used	not used
0	R 71	not used	not used	not used
0	R 72	not used	not used	not used
0	R 73	not used	not used	not used
0	R 74	not used	not used	not used
0	R 75	not used	not used	not used
0	R 76	not used	not used	not used
0	R 77	not used	not used	not used
0	R 78	not used	not used	not used
0	R 79	not used	not used	not used
0	R 80	not used	not used	not used
0	R 81	not used	not used	not used
0	R 82	not used	not used	not used
0	R 83	not used	not used	not used
1	R 84	57.10.1331	330	R 330 , 1%, 0204 , MF
0	R 85	57.11.3104	100k	MF, 1%, 0207
0	RZ 1	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	T 1	1.022.321.00	Trafo	AUSGANGSTRAFO 1 : 2 : 5,78
0	T 2	1.022.455.00	Trafo	EINGANGSTRAFO 1:6,1
0	T 51	not used	not used	not used
0	T 52	not used	not used	not used
0	XIC 1	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 7	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 51	not used	not used	not used
0	XT 2	1.022.400.03		ISOLATION
0	XT 52	not used	not used	not used

End of List

Comments

Update 1



GROUP SIDE BOARD MONO 1.980.233.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	not used	not used	not used	0	C 83	not used	not used	not used
0	C 2	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 84	not used	not used	not used
0	C 3	not used	not used	not used	0	C 85	not used	not used	not used
0	C 4	not used	not used	not used	0	C 86	not used	not used	not used
0	C 5	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 87	not used	not used	not used
0	C 6	not used	not used	not used	0	C 88	not used	not used	not used
0	C 7	not used	not used	not used	0	C 89	not used	not used	not used
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 90	not used	not used	not used
0	C 9	59.06.0104	100n	PETP, 10%, 63V	0	C 91	not used	not used	not used
0	C 10	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 92	not used	not used	not used
0	C 11	not used	not used	not used	0	C 93	not used	not used	not used
0	C 12	59.06.0104	100n	PETP, 10%, 63V	0	C 94	not used	not used	not used
0	C 13	not used	not used	not used	0	C 95	not used	not used	not used
0	C 14	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 96	not used	not used	not used
0	C 15	not used	not used	not used	0	C 97	not used	not used	not used
0	C 16	59.06.0104	100n	PETP, 10%, 63V	0	C 98	not used	not used	not used
0	C 17	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 99	not used	not used	not used
0	C 18	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 100	not used	not used	not used
0	C 19	not used	not used	not used	0	C 101	not used	not used	not used
0	C 20	not used	not used	not used	0	C 102	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 21	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 103	not used	not used	not used
0	C 22	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 104	not used	not used	not used
0	C 23	not used	not used	not used	0	C 105	not used	not used	not used
0	C 24	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 106	not used	not used	not used
0	C 25	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 107	not used	not used	not used
0	C 26	59.22.5220	22u	EL 25V, 20%, rad RM5	1	C 108	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 27	not used	not used	not used					
0	C 28	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 1	not used	not used	not used
0	C 29	not used	not used	not used	0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 31	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 4	not used	not used	not used
0	C 32	not used	not used	not used	0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 33	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 34	59.06.0104	100n	PETP, 10%, 63V	0	D 7	not used	not used	not used
0	C 35	not used	not used	not used	0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 36	not used	not used	not used	0	D 9	not used	not used	not used
0	C 37	not used	not used	not used	0	D 10	not used	not used	not used
0	C 38	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 11	not used	not used	not used
0	C 39	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 12	not used	not used	not used
0	C 40	59.22.5220	22u	EL 25V, 20%, rad RM5					
0	C 41	not used	not used	not used	0	IC 1	not used	not used	not used
0	C 42	not used	not used	not used	0	IC 2	not used	not used	not used
0	C 43	59.06.0104	100n	PETP, 10%, 63V	0	IC 3	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 44	not used	not used	not used	0	IC 4	50.09.0124	2142	IC SSM 2142 P
0	C 45	59.06.0104	100n	PETP, 10%, 63V	0	IC 5	not used	not used	not used
0	C 46	not used	not used	not used	0	IC 6	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 47	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 7	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 48	not used	not used	not used	0	IC 8	not used	not used	not used
0	C 49	not used	not used	not used	0	IC 9	not used	not used	not used
0	C 50	not used	not used	not used	0	IC 10	50.09.0124	2142	IC SSM 2142 P
0	C 51	not used	not used	not used	0	IC 11	not used	not used	not used
0	C 52	not used	not used	not used	0	IC 12	not used	not used	not used
0	C 53	not used	not used	not used	0	IC 13	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 54	not used	not used	not used	0	IC 14	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 55	not used	not used	not used	0	IC 15	not used	not used	not used
0	C 56	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 16	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 57	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 17	not used	not used	not used
0	C 58	59.06.0223	22n	PETP, 10%, 63V	0	IC 18	not used	not used	not used
0	C 59	not used	not used	not used	0	IC 19	not used	not used	not used
0	C 60	not used	not used	not used	0	IC 20	50.17.1014	74HC14	IC ... 74 HC 14 .. ,A
0	C 61	not used	not used	not used	0	IC 21	not used	not used	not used
0	C 62	not used	not used	not used	0	IC 22	not used	not used	not used
0	C 63	not used	not used	not used	0	IC 23	not used	not used	not used
0	C 64	not used	not used	not used	0	IC 24	not used	not used	not used
0	C 65	59.06.0104	100n	PETP, 10%, 63V	0	IC 25	not used	not used	not used
0	C 66	not used	not used	not used	0	IC 26	not used	not used	not used
0	C 67	not used	not used	not used	0	IC 27	not used	not used	not used
0	C 68	not used	not used	not used	0	IC 28	not used	not used	not used
0	C 69	not used	not used	not used	0	IC 29	not used	not used	not used
0	C 70	not used	not used	not used	0	IC 30	not used	not used	not used
0	C 71	not used	not used	not used					
0	C 72	not used	not used	not used	0	JP 1	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 73	not used	not used	not used	0	JP 2	not used	not used	not used
0	C 74	not used	not used	not used					
0	C 75	not used	not used	not used	0	MP 1	1.980.203.12	1 pce	INPUT SIDE PCB //A
0	C 76	not used	not used	not used	0	MP 2	43.01.0108	1 pce	Label ESE-WARNschild
0	C 77	not used	not used	not used	0	MP 3	1.980.233.04	1 pce	NR.-ETIKETTE 5 * 20
0	C 78	not used	not used	not used	0	MP 4	1.010.011.22	4 pcs	MP NIEMUTTER SW 6 M 3 *1.5
0	C 79	not used	not used	not used	0	MP 5	54.01.0021	2 pcs	Jumper 0.63 * 0.63mm
0	C 80	not used	not used	not used	0	MP 6	not used	not used	not used
0	C 81	not used	not used	not used	0	MP 7	not used	not used	not used
0	C 82	not used	not used	not used					



GROUP SIDE BOARD MONO 1.980.233.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description	
0	P 8		not used	not used	0	R 75		not used	not used	
0	P 10		not used	not used	0	R 76		not used	not used	
0	P 12	1.023.567.02		Ribbon20p	FLACHKABEL 20 POL. 0,11M	0	R 77	57.11.3102	1K0	MF, 1%, 0207
0	P 13	1.023.566.01		Ribbon16p	FLACHKABEL 16 POL. 0,08M	0	R 78		not used	not used
0	P 14	1.023.567.03		Ribbon20p	FLACHKABEL 20 POL. 0,125M	0	R 79	57.11.3104	100k	MF, 1%, 0207
0	Q 1	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 80	57.11.3104	100k	MF, 1%, 0207
0	R 1	57.11.3153		15k	MF, 1%, 0207	0	R 81		not used	not used
0	R 2	57.11.3752		7k5	MF, 1%, 0207	0	R 82		not used	not used
0	R 3	57.11.3153		15k	MF, 1%, 0207	0	R 83		not used	not used
0	R 4	57.11.3153		15k	MF, 1%, 0207	0	R 84		not used	not used
0	R 5		not used	not used	not used	0	R 85		not used	not used
0	R 6		not used	not used	not used	0	R 86		not used	not used
0	R 7	57.11.3223		22k	MF, 1%, 0207	0	R 87		not used	not used
0	R 8	57.11.3223		22k	MF, 1%, 0207	0	R 88		not used	not used
0	R 9	57.11.3473		47k	MF, 1%, 0207	0	R 89		not used	not used
0	R 10	57.11.3223		22k	MF, 1%, 0207	0	R 90	57.11.3104	100k	MF, 1%, 0207
0	R 11	57.11.3752		7k5	MF, 1%, 0207	0	R 91	57.11.3104	100k	MF, 1%, 0207
0	R 12		not used	not used	not used	0	R 92		not used	not used
0	R 13		not used	not used	not used	0	R 93	57.11.3104	100k	MF, 1%, 0207
0	R 14		not used	not used	not used	0	R 94	57.11.3104	100k	MF, 1%, 0207
0	R 15		not used	not used	not used	0	R 95		not used	not used
0	R 16		not used	not used	not used	0	R 96		not used	not used
0	R 17		not used	not used	not used	0	R 97		not used	not used
0	R 18		not used	not used	not used	0	R 98		not used	not used
0	R 19	57.11.3104		100k	MF, 1%, 0207	0	R 99		not used	not used
0	R 20	57.11.3682		6k8	MF, 1%, 0207	0	R 100		not used	not used
0	R 21		not used	not used	not used	0	R 101		not used	not used
0	R 22		not used	not used	not used	0	R 102		not used	not used
0	R 23	57.11.3682		6k8	MF, 1%, 0207	0	R 103		not used	not used
0	R 24		not used	not used	not used	0	R 104		not used	not used
0	R 25	57.11.3104		100k	MF, 1%, 0207	0	R 105	57.11.3104	100k	MF, 1%, 0207
0	R 26		not used	not used	not used	0	R 106		not used	not used
0	R 27	57.11.3473		47k	MF, 1%, 0207	0	R 107		not used	not used
0	R 28		not used	not used	not used	0	R 108		not used	not used
0	R 29		not used	not used	not used	0	R 109		not used	not used
0	R 30	57.11.3223		22k	MF, 1%, 0207	0	R 110		not used	not used
0	R 31	57.11.3223		22k	MF, 1%, 0207	0	R 111		not used	not used
0	R 32		not used	not used	not used	0	R 112		not used	not used
0	R 33		not used	not used	not used	0	R 113		not used	not used
0	R 34		not used	not used	not used	0	R 114		not used	not used
0	R 35		not used	not used	not used	0	R 115		not used	not used
0	R 36		not used	not used	not used	0	R 116		not used	not used
0	R 37	57.11.3822		8k2	MF, 1%, 0207	0	R 117		not used	not used
0	R 38		not used	not used	not used	0	R 118		not used	not used
0	R 39		not used	not used	not used	0	R 119		not used	not used
0	R 40		not used	not used	not used	0	R 120		not used	not used
0	R 41		not used	not used	not used	0	R 121		not used	not used
0	R 42		not used	not used	not used	0	R 122		not used	not used
0	R 43		not used	not used	not used	0	R 123		not used	not used
0	R 44		not used	not used	not used	0	R 124		not used	not used
0	R 45		not used	not used	not used	0	R 125		not used	not used
0	R 46		not used	not used	not used	0	R 126		not used	not used
0	R 47		not used	not used	not used	0	R 127		not used	not used
0	R 48	57.11.3223		22k	MF, 1%, 0207	0	R 128		not used	not used
0	R 49		not used	not used	not used	0	R 129		not used	not used
0	R 50	57.11.3104		100k	MF, 1%, 0207	0	R 130		not used	not used
0	R 51	57.11.3472		4k7	MF, 1%, 0207	0	R 131		not used	not used
0	R 52	57.11.3105		1M0	MF, 1%, 0207	0	R 132		not used	not used
0	R 53	57.11.3473		47k	MF, 1%, 0207	0	R 133		not used	not used
0	R 54	57.11.3392		3k9	MF, 1%, 0207	0	R 134		not used	not used
0	R 55		not used	not used	not used	0	R 135		not used	not used
0	R 56		not used	not used	not used	0	R 136		not used	not used
0	R 57		not used	not used	not used	0	R 137		not used	not used
0	R 58		not used	not used	not used	0	R 138		not used	not used
0	R 59		not used	not used	not used	0	R 139		not used	not used
0	R 60	57.11.3682		6k8	MF, 1%, 0207	0	R 140		not used	not used
0	R 61	57.11.3104		100k	MF, 1%, 0207	0	R 141		not used	not used
0	R 62		not used	not used	not used	0	R 142		not used	not used
0	R 63		not used	not used	not used	0	R 143		not used	not used
0	R 64	57.11.3222		2k2	MF, 1%, 0207	0	R 144		not used	not used
0	R 65		not used	not used	not used	0	R 145		not used	not used
0	R 66	57.11.3682		6k8	MF, 1%, 0207	0	R 146		not used	not used
0	R 67		not used	not used	not used	0	R 147		not used	not used
0	R 68	57.11.3392		3k9	MF, 1%, 0207	0	R 148		not used	not used
0	R 69	57.11.5106		10M	R 10 M , 5%, 0207 , MF	0	R 149		not used	not used
0	R 70	57.11.5106		10M	R 10 M , 5%, 0207 , MF	0	R 150		not used	not used
0	R 71	57.11.3473		47k	MF, 1%, 0207	0	R 151		not used	not used
0	R 72	57.11.3562		5k6	MF, 1%, 0207	0	R 152	57.11.3223	22k	MF, 1%, 0207
0	R 73	57.11.3333		33k	MF, 1%, 0207					
0	R 74	57.11.5106		10M	R 10 M , 5%, 0207 , MF					



GROUP SIDE BOARD MONO 1.980.233.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 153	not used	not used	not used
0	R 154	not used	not used	not used
0	R 155	not used	not used	not used
0	R 156	not used	not used	not used
0	R 157	not used	not used	not used
0	R 158	not used	not used	not used
0	R 159	not used	not used	not used
0	R 160	not used	not used	not used
0	R 161	not used	not used	not used
0	R 162	not used	not used	not used
0	R 163	not used	not used	not used
0	R 164	not used	not used	not used
0	R 165	not used	not used	not used
0	R 166	not used	not used	not used
0	R 167	not used	not used	not used
0	RA 5	not used	not used	not used
0	RA 7	not used	not used	not used
0	RA 9	not used	not used	not used
0	RA 11	not used	not used	not used
1	W 1	not used	OR0	MF, 0207
0	W 2	57.11.3000	OR0	MF, 0207
0	W 3	57.11.3000	OR0	MF, 0207
0	W 4	not used	not used	not used
0	W 5	not used	not used	not used
0	W 6	57.11.3000	OR0	MF, 0207
1	W 7	1.010.110.64		WIRE WRAP DRAHT D .255 L=100
0	W 8	1.010.329.64	Wire	DRAHTBRUECKE U, 4.3* 2.5, 0.6
0	W 9	1.010.107.64	Wire	WIRE WRAP DRAHT D 0.25 L= 70
0	XIC 4	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments

Update 1



GROUP INPUT BOARD MONO 1.980.237.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	not used	not used	not used	0	MP 1	1.980.207.12	1 pce	GROUP INPUT PCB //1
0	C 2	not used	not used	not used	0	MP 2	43.01.0108	1 pce	Label ESE-WARNSCHILD
0	C 3	not used	not used	not used	0	MP 3	1.980.237.04	1 pce	NR.-ETIKETTE 5 * 20
0	C 4	not used	not used	not used					
0	C 5	not used	not used	not used	0	P 2	1.023.563.01		Ribbon10p FLACHKABEL 10 POL. 0,11M
0	C 6	not used	not used	not used					
0	C 7	not used	not used	not used	0	Q 41	50.03.0351		BC327-25 PNP, 800mA
0	C 8	not used	not used	not used	0	Q 42	50.03.0340		BC337-25 BC 337-25,
0	C 9	not used	not used	not used	0	Q 61	not used		not used
0	C 10	not used	not used	not used	0	Q 62	not used		not used
0	C 11	not used	not used	not used					
0	C 12	not used	not used	not used	0	R 1	not used		not used
0	C 13	not used	not used	not used	0	R 2	not used		not used
0	C 21	not used	not used	not used	0	R 3	not used		not used
0	C 22	not used	not used	not used	0	R 4	not used		not used
0	C 23	not used	not used	not used	0	R 5	not used		not used
0	C 24	not used	not used	not used	0	R 6	not used		not used
0	C 25	not used	not used	not used	0	R 7	not used		not used
0	C 26	not used	not used	not used	0	R 8	not used		not used
0	C 27	not used	not used	not used	0	R 9	not used		not used
0	C 28	not used	not used	not used	0	R 10	not used		not used
0	C 29	not used	not used	not used	0	R 11	not used		not used
0	C 30	not used	not used	not used	0	R 12	not used		not used
0	C 31	not used	not used	not used	0	R 13	not used		not used
0	C 32	not used	not used	not used	0	R 21	not used		not used
0	C 33	not used	not used	not used	0	R 22	not used		not used
0	C 41	59.06.0104	100n	PETP, 10%, 63V	0	R 23	not used		not used
0	C 42	59.22.3003	220u	EL 10V, 20%, rad RM5	0	R 24	not used		not used
0	C 43	59.22.3003	220u	EL 10V, 20%, rad RM5	0	R 25	not used		not used
0	C 44	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 26	not used		not used
0	C 45	not used	not used	not used	0	R 27	not used		not used
0	C 46	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 28	not used		not used
0	C 47	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 29	not used		not used
0	C 48	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 30	not used		not used
0	C 49	not used	not used	not used	0	R 31	not used		not used
0	C 50	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 32	not used		not used
0	C 51	59.06.0102	1n0	PETP, 10%, 63V	0	R 33	not used		not used
0	C 61	not used	not used	not used	0	R 41	57.11.3102	1k0	MF, 1%, 0207
0	C 62	not used	not used	not used	1	R 42	57.11.3223	22k	MF, 1%, 0207
0	C 63	not used	not used	not used	0	R 43	57.11.3752	7k5	MF, 1%, 0207
0	C 64	not used	not used	not used	0	R 44	57.11.3223	22k	MF, 1%, 0207
0	C 65	not used	not used	not used	1	R 45	57.11.3223	22k	MF, 1%, 0207
0	C 66	not used	not used	not used	0	R 46	57.11.3102	1k0	MF, 1%, 0207
0	C 67	not used	not used	not used	0	R 47	57.11.3222	2k2	MF, 1%, 0207
0	C 68	not used	not used	not used	0	R 48	57.11.3184	180k	MF, 1%, 0207
0	C 69	not used	not used	not used	0	R 49	57.11.3683	68k	MF, 1%, 0207
0	C 70	not used	not used	not used	0	R 50	57.11.3101	100R	MF, 1%, 0207
0	C 71	not used	not used	not used	0	R 51	57.11.3184	180k	MF, 1%, 0207
0	C 81	not used	not used	not used	0	R 52	57.11.3222	2k2	MF, 1%, 0207
0	C 82	not used	not used	not used	0	R 53	57.11.3222	2k2	MF, 1%, 0207
0	C 83	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 54	not used		not used
0	C 84	59.06.0104	100n	PETP, 10%, 63V	0	R 55	57.11.3222	2k2	MF, 1%, 0207
0	C 85	59.06.0104	100n	PETP, 10%, 63V	0	R 56	not used		not used
0	C 86	59.06.0104	100n	PETP, 10%, 63V	0	R 61	not used		not used
0	D 41	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 62	not used		not used
0	D 42	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 63	not used		not used
0	D 61	not used	not used	not used	0	R 64	not used		not used
0	D 62	not used	not used	not used	0	R 65	not used		not used
0	D 81	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 66	not used		not used
0	D 82	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 67	not used		not used
0	D 83	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 68	not used		not used
0	D 84	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 69	not used		not used
0	IC 1	not used	not used	not used	0	R 70	not used		not used
0	IC 21	not used	not used	not used	0	R 71	not used		not used
0	IC 41	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 72	not used		not used
0	IC 61	not used	not used	not used	0	R 73	not used		not used
0	IC 81	not used	not used	not used	0	R 74	not used		not used
0	IC 82	50.10.0106	TL431	IC TL 431 CLP,	0	R 75	not used		not used
0	IC 83	50.09.0119	TL062	IC TL 062 ACP ,A	0	R 76	not used		not used



## GROUP INPUT BOARD MONO 1.980.237.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 81	not used	not used	not used
0	R 82	not used	not used	not used
0	R 83	57.11.3472	4k7	MF, 1%, 0207
0	R 84	57.11.3472	4k7	MF, 1%, 0207
0	R 85	57.11.3153	15k	MF, 1%, 0207
0	R 86	57.11.3153	15k	MF, 1%, 0207
0	R 87	57.11.3102	1k0	MF, 1%, 0207
0	R 88	57.11.3153	15k	MF, 1%, 0207
0	T 1	not used	not used	not used
0	T 21	not used	not used	not used
0	W 1	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 2	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 3	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 4	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 5	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 6	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 7	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 8	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 9	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 10	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	XIC 81	not used	not used	not used

End of List

Comments

(1) 20.11.1998 Improvement of input circuit



INPUT SIDE BOARD STEREO/EQ 1.980.244.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 80	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 2	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 81	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 3	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 82	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 4	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 83	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 5	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 84	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 6	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 85	59.06.0104	100n	PETP, 10%, 63V
0	C 7	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 86	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 87	59.05.2153	15n	C .015 U ,2.5%, 63V , PP
0	C 9	59.06.0104	100n	PETP, 10%, 63V	0	C 88	59.05.2472	4n7	C 4700 P ,2.5%, 63V , PP
0	C 10	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 89	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 11	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 90	59.06.5104	100n	PETP, 5%, 63V
0	C 12	59.06.0104	100n	PETP, 10%, 63V	0	C 91	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 13	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 92	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 14	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 93	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 15	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 94	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 16	59.06.0104	100n	PETP, 10%, 63V	0	C 95	59.06.5104	100n	PETP, 5%, 63V
0	C 17	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 96	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 18	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 97	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 19	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 98	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 20	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 99	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 21	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 100	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 22	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 101	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 23	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 102	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 24	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 103	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 25	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 104	not used	not used	not used
0	C 26	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 105	not used	not used	not used
0	C 27	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 106	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 28	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 107	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 29	59.34.4101	100p	C 100 P , 5%, N750 , CER	1	C 109	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER					
0	C 31	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 32	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 33	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 34	59.06.0104	100n	PETP, 10%, 63V	0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 35	not used	not used	not used	0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 36	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 37	not used	not used	not used	0	D 7	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 38	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 39	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 9	not used	not used	not used
0	C 40	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 10	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 41	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 11	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 42	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 12	not used	not used	not used
0	C 43	59.06.0104	100n	PETP, 10%, 63V	0	IC 1	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 44	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 2	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 45	59.06.0104	100n	PETP, 10%, 63V	0	IC 3	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 46	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 4	50.09.0124	2142	IC SSM 2142 P ,A
0	C 47	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 5	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 48	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 6	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 49	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 7	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 50	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 8	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 51	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 9	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 52	not used	not used	not used	0	IC 10	50.09.0124	2142	IC SSM 2142 P ,A
0	C 53	not used	not used	not used	0	IC 11	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 54	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 12	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 55	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 13	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 56	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 14	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 57	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 15	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 58	59.06.0223	22n	PETP, 10%, 63V	0	IC 16	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 59	not used	not used	not used	0	IC 17	not used	not used	not used
0	C 60	not used	not used	not used	0	IC 18	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 61	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 19	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 62	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 20	50.17.1014	74HC14	IC ... 74 HC 14 .. ,A
0	C 63	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 21	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 64	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 22	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 65	59.06.0104	100n	PETP, 10%, 63V	0	IC 23	not used	not used	not used
0	C 66	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 24	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 67	59.22.5220	22u	EL 25V, 20%, rad RM5	0	IC 25	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 68	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 26	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 69	59.05.2152	1n5	C 1500 P ,2.5%, 160V , PP	0	IC 27	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 70	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 28	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 71	59.05.2472	4n7	C 4700 P ,2.5%, 63V , PP	0	IC 29	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 72	59.22.5220	22u	EL 25V, 20%, rad RM5	0	IC 30	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 73	59.05.2153	15n	C .015 U ,2.5%, 63V , PP					
0	C 74	59.34.2330	33p	C 33 P , 5%, N150 , CER					
0	C 75	59.05.2152	1n5	C 1500 P ,2.5%, 160V , PP	0	JP 1	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 76	59.06.0104	100n	PETP, 10%, 63V	0	JP 2	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 77	59.22.3101	100u	EL 10V, 20%, rad RM5					
0	C 78	59.22.5220	22u	EL 25V, 20%, rad RM5	0	MP 1	1.980.203.12	1	INPUT SIDE PCB //A
0	C 79	59.22.3101	100u	EL 10V, 20%, rad RM5					





## INPUT SIDE BOARD STEREO/EQ 1.980.244.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description		
0	MP 2	43.01.0108	1	Label	ESE-WARNSCHILD	0	R 64	57.11.3222	2k2	MF, 1%, 0207	
0	MP 3	1.980.244.04	1		NR.-ETIKETTE 5 * 20	0	R 65	57.11.3222	2k2	MF, 1%, 0207	
0	MP 4	1.010.011.22	4	MP	NIETMUTTER SW 6 M 3 *1.5	0	R 66	57.11.3682	6k8	MF, 1%, 0207	
0	MP 5	54.01.0021	6	Jumper	0.63 * 0.63mm	0	R 67	57.11.3104	100k	MF, 1%, 0207	
0	MP 6	1.177.200.04	1	Wire	ERDUNGSDRAHT	0	R 68	57.11.3392	3k9	MF, 1%, 0207	
0	MP 7	1.010.210.64	2	str wire	LITZE SW,120MM, M.RASTKONTAKT	0	R 69	57.11.5106	10M	R 10 M , 5%, 0207 , MF	
0	P 8	1.023.563.01		Ribbon10p	FLACHKABEL 10 POL. 0,11M	0	R 70	57.11.5106	10M	R 10 M , 5%, 0207 , MF	
0	P 10	1.023.566.02		Ribbon16p	FLACHKABEL 16 POL. 0,11M	0	R 71	57.11.3473	47k	MF, 1%, 0207	
0	P 12	1.023.567.02		Ribbon20p	FLACHKABEL 20 POL. 0,11M	0	R 72	57.11.3562	5k6	MF, 1%, 0207	
0	P 13	1.023.566.01		Ribbon16p	FLACHKABEL 16 POL. 0,08M	0	R 73	57.11.3333	33k	MF, 1%, 0207	
0	P 14	1.023.567.03		Ribbon20p	FLACHKABEL 20 POL. 0,125M	0	R 74	57.11.5106	10M	R 10 M , 5%, 0207 , MF	
0	Q 1	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 75		not used	not used	
0	R 1	57.11.3153		15k	MF, 1%, 0207	0	R 76		not used	not used	
0	R 2	57.11.3752		7k5	MF, 1%, 0207	0	R 77	57.11.3102	1k0	MF, 1%, 0207	
0	R 3	57.11.3153		15k	MF, 1%, 0207	0	R 78		not used	not used	
0	R 4	57.11.3153		15k	MF, 1%, 0207	0	R 79	57.11.3104	100k	MF, 1%, 0207	
0	R 5	57.11.3332		3k3	MF, 1%, 0207	0	R 80	57.11.3104	100k	MF, 1%, 0207	
0	R 6	57.11.3332		3k3	MF, 1%, 0207	0	R 81		not used	not used	
0	R 7	57.11.3223		22k	MF, 1%, 0207	0	R 82		not used	not used	
0	R 8	57.11.3223		22k	MF, 1%, 0207	0	R 83		not used	not used	
0	R 9	57.11.3473		47k	MF, 1%, 0207	0	R 84		not used	not used	
0	R 10	57.11.3223		22k	MF, 1%, 0207	0	R 85		not used	not used	
0	R 11	57.11.3752		7k5	MF, 1%, 0207	0	R 86	57.11.3104	100k	MF, 1%, 0207	
0	R 12	57.11.3332		3k3	MF, 1%, 0207	0	R 87		not used	not used	
0	R 13	57.11.3104		100k	MF, 1%, 0207	0	R 88	57.11.3104	100k	MF, 1%, 0207	
0	R 14	57.11.3104		100k	MF, 1%, 0207	0	R 89	57.11.3104	100k	MF, 1%, 0207	
0	R 15	57.11.3104		100k	MF, 1%, 0207	0	R 90	57.11.3104	100k	MF, 1%, 0207	
0	R 16	57.11.3104		100k	MF, 1%, 0207	0	R 91	57.11.3104	100k	MF, 1%, 0207	
0	R 17	57.11.3682		6k8	MF, 1%, 0207	0	R 92		not used	not used	
0	R 18	57.11.3682		6k8	MF, 1%, 0207	0	R 93	57.11.3104	100k	MF, 1%, 0207	
0	R 19	57.11.3104		100k	MF, 1%, 0207	0	R 94	57.11.3104	100k	MF, 1%, 0207	
0	R 20	57.11.3682		6k8	MF, 1%, 0207	0	R 95	57.11.3104	100k	MF, 1%, 0207	
1	R 21	57.11.3112		1k1	MF, 1%, 0207	0	R 96		not used	not used	
1	R 22			not used	100R	MF, 1%, 0207	0	R 97	57.11.3333	33k	MF, 1%, 0207
0	R 23	57.11.3682		6k8	MF, 1%, 0207	0	R 98	57.11.3684	680k	MF, 1%, 0207	
0	R 24	57.11.3223		22k	MF, 1%, 0207	0	R 99	57.11.3104	100k	MF, 1%, 0207	
0	R 25	57.11.3104		100k	MF, 1%, 0207	0	R 100	57.11.3333	33k	MF, 1%, 0207	
0	R 26	57.11.3473		47k	MF, 1%, 0207	0	R 101	57.11.3102	1k0	MF, 1%, 0207	
0	R 27	57.11.3473		47k	MF, 1%, 0207	0	R 102	57.11.3102	1k0	MF, 1%, 0207	
0	R 28	57.11.3223		22k	MF, 1%, 0207	0	R 103	57.11.3682	6k8	MF, 1%, 0207	
0	R 29	57.11.3223		22k	MF, 1%, 0207	0	R 104	57.11.3103	10k	MF, 1%, 0207	
0	R 30	57.11.3223		22k	MF, 1%, 0207	0	R 105	57.11.3104	100k	MF, 1%, 0207	
0	R 31	57.11.3223		22k	MF, 1%, 0207	0	R 106	57.11.3121	120R	MF, 1%, 0207	
0	R 32	57.11.3682		6k8	MF, 1%, 0207	0	R 107	57.11.3121	120R	MF, 1%, 0207	
0	R 33	57.11.3104		100k	MF, 1%, 0207	0	R 108	57.11.3121	120R	MF, 1%, 0207	
0	R 34	57.11.3822		8k2	MF, 1%, 0207	0	R 109	57.11.3121	120R	MF, 1%, 0207	
0	R 35	57.11.3682		6k8	MF, 1%, 0207	0	R 110	57.11.3682	6k8	MF, 1%, 0207	
0	R 36	57.11.3682		6k8	MF, 1%, 0207	0	R 111	57.11.3684	680k	MF, 1%, 0207	
0	R 37	57.11.3822		8k2	MF, 1%, 0207	0	R 112	57.11.3104	100k	MF, 1%, 0207	
0	R 38	57.11.3102		1k0	MF, 1%, 0207	0	R 113	57.11.3104	100k	MF, 1%, 0207	
0	R 39	57.11.3682		6k8	MF, 1%, 0207	0	R 114	57.11.3682	6k8	MF, 1%, 0207	
0	R 40	57.11.3153		15k	MF, 1%, 0207	0	R 115	57.11.3682	6k8	MF, 1%, 0207	
0	R 41	57.11.3752		7k5	MF, 1%, 0207	0	R 116	57.11.3103	10k	MF, 1%, 0207	
0	R 42	57.11.3153		15k	MF, 1%, 0207	0	R 117	57.11.3682	6k8	MF, 1%, 0207	
0	R 43	57.11.3223		22k	MF, 1%, 0207	0	R 118	57.11.3000	0R0	MF, 0207	
0	R 44	57.11.3223		22k	MF, 1%, 0207	0	R 119	57.11.3682	6k8	MF, 1%, 0207	
0	R 45	57.11.3473		47k	MF, 1%, 0207	0	R 120	57.11.3682	6k8	MF, 1%, 0207	
0	R 46	57.11.3223		22k	MF, 1%, 0207	0	R 121	57.11.3682	6k8	MF, 1%, 0207	
0	R 47	57.11.3153		15k	MF, 1%, 0207	0	R 122		not used	not used	
0	R 48	57.11.3223		22k	MF, 1%, 0207	0	R 123	57.11.3472	4k7	MF, 1%, 0207	
0	R 49	57.11.3752		7k5	MF, 1%, 0207	0	R 124		not used	not used	
0	R 50	57.11.3104		100k	MF, 1%, 0207	0	R 125	57.11.3105	1M0	MF, 1%, 0207	
0	R 51	57.11.3472		4k7	MF, 1%, 0207	0	R 126		not used	not used	
0	R 52	57.11.3105		1M0	MF, 1%, 0207	0	R 127	57.11.3105	1M0	MF, 1%, 0207	
0	R 53	57.11.3473		47k	MF, 1%, 0207	0	R 128		not used	not used	
0	R 54	57.11.3392		3k9	MF, 1%, 0207	0	R 129	57.11.3112	1k1	MF, 1%, 0207	
0	R 55			not used	not used	not used	0	R 130	57.11.3112	1k1	MF, 1%, 0207
0	R 56			not used	not used	not used	0	R 131	57.11.3472	4k7	MF, 1%, 0207
0	R 57	57.11.3682		6k8	MF, 1%, 0207	0	R 132		not used	not used	
0	R 58	57.11.3682		6k8	MF, 1%, 0207	0	R 133	57.11.3112	1k1	MF, 1%, 0207	
0	R 59	57.11.3682		6k8	MF, 1%, 0207	0	R 134		not used	not used	
0	R 60	57.11.3682		6k8	MF, 1%, 0207	0	R 135	57.11.3112	1k1	MF, 1%, 0207	
0	R 61	57.11.3104		100k	MF, 1%, 0207	0	R 136	57.11.3472	4k7	MF, 1%, 0207	
0	R 62	57.11.3104		100k	MF, 1%, 0207	0	R 137	57.11.3682	6k8	MF, 1%, 0207	
0	R 63	57.11.3682		6k8	MF, 1%, 0207	0	R 138	57.11.3682	6k8	MF, 1%, 0207	
						0	R 139		not used	not used	
						0	R 140	57.11.3105	1M0	MF, 1%, 0207	
						0	R 141	57.11.3105	1M0	MF, 1%, 0207	



INPUT SIDE BOARD STEREO/EQ 1.980.244.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 142	57.11.3223	22k	MF, 1%, 0207
0	R 143	57.11.3682	6k8	MF, 1%, 0207
0	R 144	not used	not used	not used
0	R 145	57.11.3472	4k7	MF, 1%, 0207
0	R 146	57.11.3682	6k8	MF, 1%, 0207
0	R 147	57.11.3000	0R0	MF, 0207
0	R 148	57.11.3682	6k8	MF, 1%, 0207
0	R 149	57.11.3333	33k	MF, 1%, 0207
0	R 150	57.11.3684	680k	MF, 1%, 0207
0	R 151	57.11.3682	6k8	MF, 1%, 0207
0	R 152	57.11.3223	22k	MF, 1%, 0207
0	R 153	57.11.3682	6k8	MF, 1%, 0207
0	R 154	57.11.3102	1k0	MF, 1%, 0207
0	R 155	57.11.3684	680k	MF, 1%, 0207
0	R 156	57.11.3223	22k	MF, 1%, 0207
0	R 157	57.11.3102	1k0	MF, 1%, 0207
0	R 158	57.11.3223	22k	MF, 1%, 0207
0	R 159	57.11.3121	120R	MF, 1%, 0207
0	R 160	57.11.3121	120R	MF, 1%, 0207
0	R 161	57.11.3121	120R	MF, 1%, 0207
0	R 162	57.11.3121	120R	MF, 1%, 0207
0	R 163	57.11.3682	6k8	MF, 1%, 0207
0	R 164	57.11.3682	6k8	MF, 1%, 0207
0	R 165	57.11.3682	6k8	MF, 1%, 0207
0	R 166	57.11.3333	33k	MF, 1%, 0207
0	R 167	57.11.3104	100k	MF, 1%, 0207
0	RA 5	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 7	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 9	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 11	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	W 1	not used	not used	not used
0	W 2	not used	not used	not used
0	W 3	not used	not used	not used
0	W 4	not used	not used	not used
0	W 5	not used	not used	not used
0	W 6	57.11.3000	0R0	MF, 0207
0	XIC 4	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments

Update 1



INPUT SIDE BOARD STEREO 1.980.245.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1		not used	not used	0	C 80		not used	not used
0	C 2	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 81		not used	not used
0	C 3		not used	not used	0	C 82		not used	not used
0	C 4		not used	not used	0	C 83		not used	not used
0	C 5	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 84		not used	not used
0	C 6	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 85		not used	not used
0	C 7	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 86		not used	not used
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 87		not used	not used
0	C 9	59.06.0104	100n	PETP, 10%, 63V	0	C 88		not used	not used
0	C 10	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 89		not used	not used
0	C 11		not used	not used	0	C 90		not used	not used
0	C 12	59.06.0104	100n	PETP, 10%, 63V	0	C 91		not used	not used
0	C 13	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 92		not used	not used
0	C 14	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 93		not used	not used
0	C 15	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 94		not used	not used
0	C 16	59.06.0104	100n	PETP, 10%, 63V	0	C 95		not used	not used
0	C 17	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 96		not used	not used
0	C 18	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 97		not used	not used
0	C 19	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 98		not used	not used
0	C 20	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 99		not used	not used
0	C 21	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 100		not used	not used
0	C 22	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 101		not used	not used
0	C 23	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 102	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 24	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 103	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 25	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 104		not used	not used
0	C 26	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 105		not used	not used
0	C 27	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 106	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 28	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 107	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 29	59.34.4101	100p	C 100 P , 5%, N750 , CER	1	C 109	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER					
0	C 31	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 32	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 33	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 34	59.06.0104	100n	PETP, 10%, 63V	0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 35		not used	not used	0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 36	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 37		not used	not used	0	D 7	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 38	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 39	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 9		not used	not used
0	C 40	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 10	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 41	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 11	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 42	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 12		not used	not used
0	C 43	59.06.0104	100n	PETP, 10%, 63V					
0	C 44	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 1	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 45	59.06.0104	100n	PETP, 10%, 63V	0	IC 2	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 46	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 3	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 47	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 4	50.09.0124	2142	IC SSM 2142 P ,A
0	C 48	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 5	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 49	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 6	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 50	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 7	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 51	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 8	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 52		not used	not used	0	IC 9	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 53		not used	not used	0	IC 10	50.09.0124	2142	IC SSM 2142 P ,A
0	C 54	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 11	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 55	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 12	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 56	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 13	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 57	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 14	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 58	59.06.0223	22n	PETP, 10%, 63V	0	IC 15	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 59		not used	not used	0	IC 16	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 60		not used	not used	0	IC 17		not used	not used
0	C 61		not used	not used	0	IC 18		not used	not used
0	C 62		not used	not used	0	IC 19		not used	not used
0	C 63		not used	not used	0	IC 20	50.17.1014	74HC14	IC ... 74 HC 14 .. ,A
0	C 64		not used	not used	0	IC 21		not used	not used
0	C 65	59.06.0104	100n	PETP, 10%, 63V	0	IC 22		not used	not used
0	C 66		not used	not used	0	IC 23		not used	not used
0	C 67		not used	not used	0	IC 24		not used	not used
0	C 68		not used	not used	0	IC 25		not used	not used
0	C 69		not used	not used	0	IC 26		not used	not used
0	C 70		not used	not used	0	IC 27		not used	not used
0	C 71		not used	not used	0	IC 28		not used	not used
0	C 72		not used	not used	0	IC 29		not used	not used
0	C 73		not used	not used	0	IC 30	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 74		not used	not used					
0	C 75		not used	not used	0	JP 1	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 76		not used	not used	0	JP 2	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 77		not used	not used					
0	C 78		not used	not used	0	MP 1	1.980.203.12	1	INPUT SIDE PCB //I
0	C 79		not used	not used	0	MP 2	43.01.0108	1	Label ESE-WARNSCHILD



INPUT SIDE BOARD STEREO 1.980.245.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 3	1.980.245.04	1	NR.-ETIKETTE 5 * 20	0	R 64	57.11.3222	2k2	MF, 1%, 0207
0	MP 4	1.010.011.22	4	MP NIETMUTTER SW 6 M 3 *1.5	0	R 65	57.11.3222	2k2	MF, 1%, 0207
0	MP 5	54.01.0021	4	Jumper 0.63 * 0.63mm	0	R 66	57.11.3682	6k8	MF, 1%, 0207
0	MP 6	not used		not used	0	R 67	57.11.3104	100k	MF, 1%, 0207
0	MP 7	not used		not used	0	R 68	57.11.3392	3k9	MF, 1%, 0207
0	P 8	not used		not used	0	R 69	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	P 10	not used		not used	0	R 70	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	P 12	1.023.567.02		Ribbon20p FLACHKABEL 20 POL. 0,11M	0	R 71	57.11.3473	47k	MF, 1%, 0207
0	P 13	1.023.566.01		Ribbon16p FLACHKABEL 16 POL. 0,08M	0	R 72	57.11.3562	5k6	MF, 1%, 0207
0	P 14	1.023.567.03		Ribbon20p FLACHKABEL 20 POL. 0,125M	0	R 73	57.11.3333	33k	MF, 1%, 0207
0	Q 1	50.03.0436	BC237B	BC 237 B, 547 B, 550 B,	0	R 74	57.11.5106	10M	R 10 M , 5%, 0207 , MF
0	R 1	57.11.3153	15k	MF, 1%, 0207	0	R 75	not used	not used	not used
0	R 2	57.11.3752	7k5	MF, 1%, 0207	0	R 76	not used	not used	not used
0	R 3	57.11.3153	15k	MF, 1%, 0207	0	R 77	57.11.3102	1k0	MF, 1%, 0207
0	R 4	57.11.3153	15k	MF, 1%, 0207	0	R 78	not used	not used	not used
0	R 5	not used		not used	0	R 79	57.11.3104	100k	MF, 1%, 0207
0	R 6	57.11.3000	0R0	MF, 0207	0	R 80	57.11.3104	100k	MF, 1%, 0207
0	R 7	57.11.3223	22k	MF, 1%, 0207	0	R 81	not used	not used	not used
0	R 8	57.11.3223	22k	MF, 1%, 0207	0	R 82	not used	not used	not used
0	R 9	57.11.3473	47k	MF, 1%, 0207	0	R 83	not used	not used	not used
0	R 10	57.11.3223	22k	MF, 1%, 0207	0	R 84	not used	not used	not used
0	R 11	57.11.3752	7k5	MF, 1%, 0207	0	R 85	not used	not used	not used
0	R 12	57.11.3000	0R0	MF, 0207	0	R 86	57.11.3104	100k	MF, 1%, 0207
0	R 13	57.11.3104	100k	MF, 1%, 0207	0	R 87	not used	not used	not used
0	R 14	57.11.3104	100k	MF, 1%, 0207	0	R 88	57.11.3104	100k	MF, 1%, 0207
0	R 15	57.11.3104	100k	MF, 1%, 0207	0	R 89	57.11.3104	100k	MF, 1%, 0207
0	R 16	57.11.3104	100k	MF, 1%, 0207	0	R 90	57.11.3104	100k	MF, 1%, 0207
0	R 17	57.11.3682	6k8	MF, 1%, 0207	0	R 91	57.11.3104	100k	MF, 1%, 0207
0	R 18	57.11.3682	6k8	MF, 1%, 0207	0	R 92	not used	not used	not used
0	R 19	57.11.3104	100k	MF, 1%, 0207	0	R 93	57.11.3104	100k	MF, 1%, 0207
0	R 20	57.11.3682	6k8	MF, 1%, 0207	0	R 94	57.11.3104	100k	MF, 1%, 0207
1	R 21	57.11.3112	1k1	MF, 1%, 0207	0	R 95	57.11.3104	100k	MF, 1%, 0207
1	R 22	not used	100R	MF, 1%, 0207	0	R 96	not used	not used	not used
0	R 23	57.11.3682	6k8	MF, 1%, 0207	0	R 97	not used	not used	not used
0	R 24	57.11.3223	22k	MF, 1%, 0207	0	R 98	not used	not used	not used
0	R 25	57.11.3104	100k	MF, 1%, 0207	0	R 99	57.11.3104	100k	MF, 1%, 0207
0	R 26	57.11.3473	47k	MF, 1%, 0207	0	R 100	not used	not used	not used
0	R 27	57.11.3473	47k	MF, 1%, 0207	0	R 101	not used	not used	not used
0	R 28	57.11.3223	22k	MF, 1%, 0207	0	R 102	not used	not used	not used
0	R 29	57.11.3223	22k	MF, 1%, 0207	0	R 103	not used	not used	not used
0	R 30	57.11.3223	22k	MF, 1%, 0207	0	R 104	not used	not used	not used
0	R 31	57.11.3223	22k	MF, 1%, 0207	0	R 105	57.11.3104	100k	MF, 1%, 0207
0	R 32	57.11.3682	6k8	MF, 1%, 0207	0	R 106	not used	not used	not used
0	R 33	57.11.3104	100k	MF, 1%, 0207	0	R 107	not used	not used	not used
0	R 34	57.11.3822	8k2	MF, 1%, 0207	0	R 108	not used	not used	not used
0	R 35	57.11.3682	6k8	MF, 1%, 0207	0	R 109	not used	not used	not used
0	R 36	57.11.3682	6k8	MF, 1%, 0207	0	R 110	not used	not used	not used
0	R 37	57.11.3822	8k2	MF, 1%, 0207	1	R 111	57.11.3000	0R0	MF, 0207
0	R 38	57.11.3102	1k0	MF, 1%, 0207	0	R 112	not used	not used	not used
0	R 39	57.11.3682	6k8	MF, 1%, 0207	0	R 113	not used	not used	not used
0	R 40	57.11.3153	15k	MF, 1%, 0207	0	R 114	not used	not used	not used
0	R 41	57.11.3752	7k5	MF, 1%, 0207	0	R 115	not used	not used	not used
0	R 42	57.11.3153	15k	MF, 1%, 0207	0	R 116	not used	not used	not used
0	R 43	57.11.3223	22k	MF, 1%, 0207	0	R 117	not used	not used	not used
0	R 44	57.11.3223	22k	MF, 1%, 0207	0	R 118	not used	not used	not used
0	R 45	57.11.3473	47k	MF, 1%, 0207	0	R 119	not used	not used	not used
0	R 46	57.11.3223	22k	MF, 1%, 0207	0	R 120	not used	not used	not used
0	R 47	57.11.3153	15k	MF, 1%, 0207	0	R 121	not used	not used	not used
0	R 48	57.11.3223	22k	MF, 1%, 0207	0	R 122	not used	not used	not used
0	R 49	57.11.3752	7k5	MF, 1%, 0207	0	R 123	not used	not used	not used
0	R 50	57.11.3104	100k	MF, 1%, 0207	0	R 124	not used	not used	not used
0	R 51	57.11.3472	4k7	MF, 1%, 0207	0	R 125	not used	not used	not used
0	R 52	57.11.3105	1M0	MF, 1%, 0207	0	R 126	not used	not used	not used
0	R 53	57.11.3473	47k	MF, 1%, 0207	0	R 127	not used	not used	not used
0	R 54	57.11.3392	3k9	MF, 1%, 0207	0	R 128	not used	not used	not used
0	R 55	not used		not used	0	R 129	not used	not used	not used
0	R 56	not used		not used	0	R 130	not used	not used	not used
0	R 57	57.11.3682	6k8	MF, 1%, 0207	0	R 131	not used	not used	not used
0	R 58	57.11.3682	6k8	MF, 1%, 0207	0	R 132	not used	not used	not used
0	R 59	57.11.3682	6k8	MF, 1%, 0207	0	R 133	not used	not used	not used
0	R 60	57.11.3682	6k8	MF, 1%, 0207	0	R 134	not used	not used	not used
0	R 61	57.11.3104	100k	MF, 1%, 0207	0	R 135	not used	not used	not used
0	R 62	57.11.3104	100k	MF, 1%, 0207	0	R 136	not used	not used	not used
0	R 63	57.11.3682	6k8	MF, 1%, 0207	0	R 137	not used	not used	not used
					0	R 138	not used	not used	not used
					0	R 139	not used	not used	not used
					0	R 140	not used	not used	not used



## INPUT SIDE BOARD STEREO 1.980.245.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 141	not used	not used	not used
0	R 142	not used	not used	not used
0	R 143	not used	not used	not used
0	R 144	not used	not used	not used
0	R 145	not used	not used	not used
0	R 146	not used	not used	not used
0	R 147	not used	not used	not used
0	R 148	not used	not used	not used
0	R 149	not used	not used	not used
0	R 150	not used	not used	not used
0	R 151	not used	not used	not used
0	R 152	57.11.3223	22k	MF, 1%, 0207
0	R 153	not used	not used	not used
0	R 154	not used	not used	not used
0	R 155	not used	not used	not used
0	R 156	57.11.3223	22k	MF, 1%, 0207
0	R 157	not used	not used	not used
0	R 158	not used	not used	not used
0	R 159	not used	not used	not used
0	R 160	not used	not used	not used
0	R 161	not used	not used	not used
0	R 162	not used	not used	not used
0	R 163	not used	not used	not used
0	R 164	not used	not used	not used
0	R 165	not used	not used	not used
0	R 166	not used	not used	not used
0	R 167	57.11.3104	100k	MF, 1%, 0207
0	RA 5	not used	not used	not used
0	RA 7	not used	not used	not used
0	RA 9	not used	not used	not used
0	RA 11	not used	not used	not used
0	W 1	not used	not used	not used
0	W 2	not used	not used	not used
0	W 3	not used	not used	not used
0	W 4	57.11.3000	0R0	MF, 0207
0	W 5	not used	not used	not used
0	W 6	57.11.3000	0R0	MF, 0207
1	W 8	1.010.329.64	Wire	DRAHTBRUECKE U, 4.3* 2.5, 0.6
1	W 9	1.010.329.64	Wire	DRAHTBRUECKE U, 4.3* 2.5, 0.6
0	XIC 4	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments

Update 1



GROUP INPUT BOARD STEREO 1.980.247.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.22.5101	100u	EL 25V, 20%, rad RM5	0	MP 1	1.980.207.12	1 pce	GROUP INPUT PCB //A
0	C 2	59.22.5101	100u	EL 25V, 20%, rad RM5	0	MP 2	43.01.0108	1 pce	Label ESE-WARNSCHILD
0	C 3	59.34.5471	470p	C 470 P , 5%,N1500 , CER	0	MP 3	1.980.247.04	1 pce	NR.-ETIKETTE 5 * 20
0	C 4	not used	not used	not used					
0	C 5	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	P 2	1.023.563.01	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	C 6	59.05.1681	680p	C 680 P , 1%, 630V , PP					
0	C 7	not used	not used	not used	0	Q 41	50.03.0351	BC327-25	PNP, 800mA
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	Q 42	50.03.0340	BC337-25	BC 337-25,
0	C 9	not used	not used	not used	0	Q 61	50.03.0351	BC327-25	PNP, 800mA
0	C 10	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	Q 62	50.03.0340	BC337-25	BC 337-25,
0	C 11	59.34.4101	100p	C 100 P , 5%, N750 , CER					
0	C 12	59.22.3221	220u	EL 10V, 20%, rad RM5	0	R 1	57.11.3152	1k5	MF, 1%, 0207
0	C 13	59.22.3221	220u	EL 10V, 20%, rad RM5	0	R 2	57.11.3392	3k9	MF, 1%, 0207
0	C 21	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 3	57.11.3152	1k5	MF, 1%, 0207
0	C 22	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 4	57.11.3392	3k9	MF, 1%, 0207
0	C 23	59.34.5471	470p	C 470 P , 5%,N1500 , CER	0	R 5	57.11.3272	2k7	MF, 1%, 0207
0	C 24	not used	not used	not used	0	R 6	57.11.3000	0R0	MF, 0207
0	C 25	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 7	57.11.3272	2k7	MF, 1%, 0207
0	C 26	59.05.1681	680p	C 680 P , 1%, 630V , PP	0	R 8	not used	not used	not used
0	C 27	not used	not used	not used	0	R 9	57.11.3272	2k7	MF, 1%, 0207
0	C 28	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 10	not used	not used	not used
0	C 29	not used	not used	not used	0	R 11	57.11.3681	680R	MF, 1%, 0207
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 12	57.11.3272	2k7	MF, 1%, 0207
0	C 31	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 13	57.11.3681	680R	MF, 1%, 0207
0	C 32	59.22.3221	220u	EL 10V, 20%, rad RM5	0	R 21	57.11.3152	1k5	MF, 1%, 0207
0	C 33	59.22.3221	220u	EL 10V, 20%, rad RM5	0	R 22	57.11.3392	3k9	MF, 1%, 0207
0	C 41	59.06.0104	100n	PETP, 10%, 63V	0	R 23	57.11.3152	1k5	MF, 1%, 0207
0	C 42	59.22.3003	220u	EL 10V, 20%, rad RM5	0	R 24	57.11.3392	3k9	MF, 1%, 0207
0	C 43	59.22.3003	220u	EL 10V, 20%, rad RM5	0	R 25	57.11.3272	2k7	MF, 1%, 0207
0	C 44	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 26	57.11.3000	0R0	MF, 0207
0	C 45	not used	not used	not used	0	R 27	57.11.3272	2k7	MF, 1%, 0207
0	C 46	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 28	not used	not used	not used
0	C 47	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 29	57.11.3272	2k7	MF, 1%, 0207
0	C 48	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 30	not used	not used	not used
0	C 49	not used	not used	not used	0	R 31	57.11.3681	680R	MF, 1%, 0207
0	C 50	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 32	57.11.3272	2k7	MF, 1%, 0207
0	C 51	59.06.0102	1n0	PETP, 10%, 63V	0	R 33	57.11.3681	680R	MF, 1%, 0207
0	C 61	59.06.0104	100n	PETP, 10%, 63V	0	R 41	57.11.3102	1k0	MF, 1%, 0207
0	C 62	59.22.3003	220u	EL 10V, 20%, rad RM5	1	R 42	57.11.3223	22k	MF, 1%, 0207
0	C 63	59.22.3003	220u	EL 10V, 20%, rad RM5	0	R 43	57.11.3752	7k5	MF, 1%, 0207
0	C 64	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 44	57.11.3223	22k	MF, 1%, 0207
0	C 65	not used	not used	not used	1	R 45	57.11.3223	22k	MF, 1%, 0207
0	C 66	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 46	57.11.3102	1k0	MF, 1%, 0207
0	C 67	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 47	57.11.3222	2k2	MF, 1%, 0207
0	C 68	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 48	57.11.3184	180k	MF, 1%, 0207
0	C 69	not used	not used	not used	0	R 49	57.11.3683	68k	MF, 1%, 0207
0	C 70	59.22.3101	100u	EL 10V, 20%, rad RM5	0	R 50	57.11.3101	100R	MF, 1%, 0207
0	C 71	59.06.0102	1n0	PETP, 10%, 63V	0	R 51	57.11.3184	180k	MF, 1%, 0207
0	C 81	not used	not used	not used	0	R 52	57.11.3222	2k2	MF, 1%, 0207
0	C 82	not used	not used	not used	0	R 53	57.11.3222	2k2	MF, 1%, 0207
0	C 83	59.22.5101	100u	EL 25V, 20%, rad RM5	0	R 54	not used	not used	not used
0	C 84	59.06.0104	100n	PETP, 10%, 63V	0	R 55	57.11.3222	2k2	MF, 1%, 0207
0	C 85	59.06.0104	100n	PETP, 10%, 63V	0	R 56	not used	not used	not used
0	C 86	59.06.0104	100n	PETP, 10%, 63V	0	R 61	57.11.3102	1k0	MF, 1%, 0207
0	D 41	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	1	R 62	57.11.3223	22k	MF, 1%, 0207
0	D 42	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 63	57.11.3752	7k5	MF, 1%, 0207
0	D 61	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 64	57.11.3223	22k	MF, 1%, 0207
0	D 62	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	1	R 65	57.11.3223	22k	MF, 1%, 0207
0	D 81	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 66	57.11.3102	1k0	MF, 1%, 0207
0	D 82	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 67	57.11.3222	2k2	MF, 1%, 0207
0	D 83	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 68	57.11.3184	180k	MF, 1%, 0207
0	D 84	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 69	57.11.3683	68k	MF, 1%, 0207
0	IC 1	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 70	57.11.3101	100R	MF, 1%, 0207
0	IC 21	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 71	57.11.3184	180k	MF, 1%, 0207
0	IC 41	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 72	57.11.3222	2k2	MF, 1%, 0207
0	IC 61	50.09.0105	NE5532N	IC NE 5532 N, RC 5532 NB ,A	0	R 74	not used	not used	not used
0	IC 81	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 75	57.11.3222	2k2	MF, 1%, 0207
0	IC 82	50.10.0106	TL431	IC TL 431 CLP, ,A	0	R 76	not used	not used	not used
0	IC 83	50.09.0119	TL062	IC TL 062 ACP ,A					



## GROUP INPUT BOARD STEREO 1.980.247.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 81	57.11.3000	0R0	MF, 0207
0	R 82	57.11.3000	0R0	MF, 0207
0	R 83	57.11.3472	4k7	MF, 1%, 0207
0	R 84	57.11.3472	4k7	MF, 1%, 0207
0	R 85	57.11.3153	15k	MF, 1%, 0207
0	R 86	57.11.3153	15k	MF, 1%, 0207
0	R 87	57.11.3102	1k0	MF, 1%, 0207
0	R 88	57.11.3153	15k	MF, 1%, 0207
0	T 1	not used	not used	not used
0	T 21	not used	not used	not used
0	W 1	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 2	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 3	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 4	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 5	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 6	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 7	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 8	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 9	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	W 10	1.010.324.64	Wire	DRAHTBRUECKE U, 4.3*10.2, 0.6
0	XIC 81	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments

(1) 20.11.1998 Improvement of input circuit



INPUT SIDE BOARD STEREO/MIC/EQ 1.980.253.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 80	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 2	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 81	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 3	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 82	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 4	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 83	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 5	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 84	59.22.3220	22u	EL 25V, 20%, rad RM5
0	C 6	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 85	59.06.0104	100n	PETP, 10%, 63V
0	C 7	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 86	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 8	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 87	59.05.2153	15n	C .015 U ,2.5%, 63V , PP
0	C 9	59.06.0104	100n	PETP, 10%, 63V	0	C 88	59.05.2472	4n7	C 4700 P ,2.5%, 63V , PP
0	C 10	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 89	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 11	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 90	59.06.5104	100n	PETP, 5%, 63V
0	C 12	59.06.0104	100n	PETP, 10%, 63V	0	C 91	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 13	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 92	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 14	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 93	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 15	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 94	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 16	59.06.0104	100n	PETP, 10%, 63V	0	C 95	59.06.5104	100n	PETP, 5%, 63V
0	C 17	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 96	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 18	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 97	59.22.5220	22u	EL 25V, 20%, rad RM5
0	C 19	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 98	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 20	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 99	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 21	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 100	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 22	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 101	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 23	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 102	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 24	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 103	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 25	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 104	not used	not used	not used
0	C 26	59.22.5220	22u	EL 25V, 20%, rad RM5	0	C 105	not used	not used	not used
0	C 27	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 106	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 28	59.22.3101	100u	EL 10V, 20%, rad RM5	0	C 107	59.22.3101	100u	EL 10V, 20%, rad RM5
0	C 29	59.34.4101	100p	C 100 P , 5%, N750 , CER	1	C 109	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 30	59.34.4101	100p	C 100 P , 5%, N750 , CER					
0	C 31	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 32	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 33	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 34	59.06.0104	100n	PETP, 10%, 63V	0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 35	not used	not used	not used	0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 36	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 37	not used	not used	not used	0	D 7	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 38	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 8	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 39	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 9	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 40	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 10	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 41	59.22.5220	22u	EL 25V, 20%, rad RM5	0	D 11	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 42	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 12	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 43	59.06.0104	100n	PETP, 10%, 63V					
0	C 44	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 1	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 45	59.06.0104	100n	PETP, 10%, 63V	0	IC 2	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 46	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 3	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 47	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 4	50.09.0124	2142	IC SSM 2142 P ,A
0	C 48	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 5	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 49	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 6	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 50	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 7	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 51	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 8	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 52	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 9	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 53	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 10	50.09.0124	2142	IC SSM 2142 P ,A
0	C 54	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 11	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 55	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 12	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 56	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 13	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 57	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 14	50.07.0015	4053B	IC .. 4053 .. ,A
0	C 58	59.06.0223	22n	PETP, 10%, 63V	0	IC 15	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 59	59.06.0104	100n	PETP, 10%, 63V	0	IC 16	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 60	59.06.0104	100n	PETP, 10%, 63V	0	IC 17	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 61	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 18	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 62	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 19	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 63	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 20	50.17.1014	74HC14	IC ... 74 HC 14 .. ,A
0	C 64	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 21	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 65	59.06.0104	100n	PETP, 10%, 63V	0	IC 22	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 66	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 23	not used	not used	not used
0	C 67	59.22.5220	22u	EL 25V, 20%, rad RM5	0	IC 24	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 68	59.22.3101	100u	EL 10V, 20%, rad RM5	0	IC 25	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 69	59.05.2152	1n5	C 1500 P ,2.5%, 160V , PP	0	IC 26	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 70	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	IC 27	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 71	59.05.2472	4n7	C 4700 P ,2.5%, 63V , PP	0	IC 28	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 72	59.22.5220	22u	EL 25V, 20%, rad RM5	0	IC 29	50.09.0121	TL072B	IC TL 072 BCP ,A
0	C 73	59.05.2153	15n	C .015 U ,2.5%, 63V , PP	0	IC 30	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 74	59.34.2330	33p	C 33 P , 5%, N150 , CER					
0	C 75	59.05.2152	1n5	C 1500 P ,2.5%, 160V , PP	0	JP 1	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 76	59.06.0104	100n	PETP, 10%, 63V	0	JP 2	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 77	59.22.3101	100u	EL 10V, 20%, rad RM5	0	MP 1	1.980.203.12	1 pce	INPUT SIDE PCB //A
0	C 78	59.22.5220	22u	EL 25V, 20%, rad RM5	0	MP 2	43.01.0108	1 pce	Label ESE-WARNschild
0	C 79	59.22.3101	100u	EL 10V, 20%, rad RM5					





## INPUT SIDE BOARD STEREO/MIC/EQ 1.980.253.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 3	1.980.253.04	1 pce	NR.-ETIKETTE 5 * 20	0	R 64	57.11.3222	2k2	MF, 1%, 0207
0	MP 4	1.010.011.22	4 pcs	MP NIETMUTTER SW 6 M 3 *1.5	0	R 65	57.11.3222	2k2	MF, 1%, 0207
0	MP 5	54.01.0021	6 pcs	Jumper 0.63 * 0.63mm	0	R 66	57.11.3682	6k8	MF, 1%, 0207
0	MP 6	1.177.200.04	1 pce	Wire ERDUNGSDRAHT	0	R 67	57.11.3104	100k	MF, 1%, 0207
0	MP 7	1.010.210.64	2 pcs	str wire LITZE SW,120MM, M.RASTKONTAKT	0	R 68	57.11.3392	3k9	MF, 1%, 0207
0	P 8	1.023.563.01	Ribbon10p	FLACHKABEL 10 POL. 0,11M	0	R 69	57.11.5106	10M	R 10 M, 5%, 0207, MF
0	P 10	1.023.566.02	Ribbon16p	FLACHKABEL 16 POL. 0,11M	0	R 70	57.11.5106	10M	R 10 M, 5%, 0207, MF
0	P 12	1.023.567.02	Ribbon20p	FLACHKABEL 20 POL. 0,11M	0	R 71	57.11.3473	47k	MF, 1%, 0207
0	P 13	1.023.566.01	Ribbon16p	FLACHKABEL 16 POL. 0,08M	0	R 72	57.11.3562	5k6	MF, 1%, 0207
0	P 14	1.023.567.03	Ribbon20p	FLACHKABEL 20 POL. 0,125M	0	R 73	57.11.3333	33k	MF, 1%, 0207
0	Q 1	50.03.0436	BC237B	BC 237 B, 547 B, 550 B,	0	R 74	57.11.5106	10M	R 10 M, 5%, 0207, MF
0	R 1	57.11.3153	15k	MF, 1%, 0207	0	R 75	57.11.3332	3k3	MF, 1%, 0207
0	R 2	57.11.3752	7k5	MF, 1%, 0207	0	R 76	57.11.3472	4k7	MF, 1%, 0207
0	R 3	57.11.3153	15k	MF, 1%, 0207	0	R 77	57.11.3102	1k0	MF, 1%, 0207
0	R 4	57.11.3153	15k	MF, 1%, 0207	0	R 78	57.11.3332	3k3	MF, 1%, 0207
0	R 5	57.11.3332	3k3	MF, 1%, 0207	0	R 79	57.11.3104	100k	MF, 1%, 0207
0	R 6	57.11.3332	3k3	MF, 1%, 0207	0	R 80	57.11.3104	100k	MF, 1%, 0207
0	R 7	57.11.3223	22k	MF, 1%, 0207	0	R 81	57.11.3472	4k7	MF, 1%, 0207
0	R 8	57.11.3223	22k	MF, 1%, 0207	0	R 82	57.11.3332	3k3	MF, 1%, 0207
0	R 9	57.11.3473	47k	MF, 1%, 0207	0	R 83	57.11.3822	8k2	MF, 1%, 0207
0	R 10	57.11.3223	22k	MF, 1%, 0207	0	R 84	57.11.3103	10k	MF, 1%, 0207
0	R 11	57.11.3752	7k5	MF, 1%, 0207	0	R 85	not used	not used	not used
0	R 12	57.11.3332	3k3	MF, 1%, 0207	0	R 86	57.11.3104	100k	MF, 1%, 0207
0	R 13	57.11.3104	100k	MF, 1%, 0207	0	R 87	not used	not used	not used
0	R 14	57.11.3104	100k	MF, 1%, 0207	0	R 88	57.11.3104	100k	MF, 1%, 0207
0	R 15	57.11.3104	100k	MF, 1%, 0207	0	R 89	57.11.3104	100k	MF, 1%, 0207
0	R 16	57.11.3104	100k	MF, 1%, 0207	0	R 90	57.11.3104	100k	MF, 1%, 0207
0	R 17	57.11.3682	6k8	MF, 1%, 0207	0	R 91	57.11.3104	100k	MF, 1%, 0207
0	R 18	57.11.3682	6k8	MF, 1%, 0207	0	R 92	57.11.3103	10k	MF, 1%, 0207
0	R 19	57.11.3104	100k	MF, 1%, 0207	0	R 93	57.11.3104	100k	MF, 1%, 0207
0	R 20	57.11.3682	6k8	MF, 1%, 0207	0	R 94	57.11.3104	100k	MF, 1%, 0207
1	R 21	57.11.3112	1k1	MF, 1%, 0207	0	R 95	57.11.3104	100k	MF, 1%, 0207
1	R 22	not used	100R	MF, 1%, 0207	0	R 96	57.11.3104	100k	MF, 1%, 0207
0	R 23	57.11.3682	6k8	MF, 1%, 0207	0	R 97	57.11.3333	33k	MF, 1%, 0207
0	R 24	57.11.3223	22k	MF, 1%, 0207	0	R 98	57.11.3684	680k	MF, 1%, 0207
0	R 25	57.11.3104	100k	MF, 1%, 0207	0	R 99	57.11.3104	100k	MF, 1%, 0207
0	R 26	57.11.3473	47k	MF, 1%, 0207	0	R 100	57.11.3333	33k	MF, 1%, 0207
0	R 27	57.11.3473	47k	MF, 1%, 0207	0	R 101	57.11.3102	1k0	MF, 1%, 0207
0	R 28	57.11.3223	22k	MF, 1%, 0207	0	R 102	57.11.3102	1k0	MF, 1%, 0207
0	R 29	57.11.3223	22k	MF, 1%, 0207	0	R 103	57.11.3682	6k8	MF, 1%, 0207
0	R 30	57.11.3223	22k	MF, 1%, 0207	0	R 104	57.11.3103	10k	MF, 1%, 0207
0	R 31	57.11.3223	22k	MF, 1%, 0207	0	R 105	57.11.3104	100k	MF, 1%, 0207
0	R 32	57.11.3682	6k8	MF, 1%, 0207	0	R 106	57.11.3121	120R	MF, 1%, 0207
0	R 33	57.11.3104	100k	MF, 1%, 0207	0	R 107	57.11.3121	120R	MF, 1%, 0207
0	R 34	57.11.3822	8k2	MF, 1%, 0207	0	R 108	57.11.3121	120R	MF, 1%, 0207
0	R 35	57.11.3682	6k8	MF, 1%, 0207	0	R 109	57.11.3121	120R	MF, 1%, 0207
0	R 36	57.11.3682	6k8	MF, 1%, 0207	0	R 110	57.11.3682	6k8	MF, 1%, 0207
0	R 37	57.11.3822	8k2	MF, 1%, 0207	0	R 111	57.11.3684	680k	MF, 1%, 0207
0	R 38	57.11.3102	1k0	MF, 1%, 0207	0	R 112	57.11.3104	100k	MF, 1%, 0207
0	R 39	57.11.3682	6k8	MF, 1%, 0207	0	R 113	57.11.3104	100k	MF, 1%, 0207
0	R 40	57.11.3153	15k	MF, 1%, 0207	0	R 114	57.11.3682	6k8	MF, 1%, 0207
0	R 41	57.11.3752	7k5	MF, 1%, 0207	0	R 115	57.11.3682	6k8	MF, 1%, 0207
0	R 42	57.11.3153	15k	MF, 1%, 0207	0	R 116	57.11.3103	10k	MF, 1%, 0207
0	R 43	57.11.3223	22k	MF, 1%, 0207	0	R 117	57.11.3682	6k8	MF, 1%, 0207
0	R 44	57.11.3223	22k	MF, 1%, 0207	0	R 118	57.11.3000	0R0	MF, 0207
0	R 45	57.11.3473	47k	MF, 1%, 0207	0	R 119	57.11.3682	6k8	MF, 1%, 0207
0	R 46	57.11.3223	22k	MF, 1%, 0207	0	R 120	57.11.3682	6k8	MF, 1%, 0207
0	R 47	57.11.3153	15k	MF, 1%, 0207	0	R 121	57.11.3682	6k8	MF, 1%, 0207
0	R 48	57.11.3223	22k	MF, 1%, 0207	0	R 122	not used	not used	not used
0	R 49	57.11.3752	7k5	MF, 1%, 0207	0	R 123	57.11.3472	4k7	MF, 1%, 0207
0	R 50	57.11.3104	100k	MF, 1%, 0207	0	R 124	not used	not used	not used
0	R 51	57.11.3472	47k	MF, 1%, 0207	0	R 125	57.11.3105	1M0	MF, 1%, 0207
0	R 52	57.11.3105	1M0	MF, 1%, 0207	0	R 126	not used	not used	not used
0	R 53	57.11.3473	47k	MF, 1%, 0207	0	R 127	57.11.3105	1M0	MF, 1%, 0207
0	R 54	57.11.3392	3k9	MF, 1%, 0207	0	R 128	not used	not used	not used
0	R 55	57.11.3752	7k5	MF, 1%, 0207	0	R 129	57.11.3112	1k1	MF, 1%, 0207
0	R 56	57.11.3752	7k5	MF, 1%, 0207	0	R 130	57.11.3112	1k1	MF, 1%, 0207
0	R 57	57.11.3752	7k5	MF, 1%, 0207	0	R 131	57.11.3472	4k7	MF, 1%, 0207
0	R 58	57.11.3752	7k5	MF, 1%, 0207	0	R 132	not used	not used	not used
0	R 59	not used	not used	not used	0	R 133	57.11.3112	1k1	MF, 1%, 0207
0	R 60	not used	not used	not used	0	R 134	not used	not used	not used
0	R 61	57.11.3104	100k	MF, 1%, 0207	0	R 135	57.11.3112	1k1	MF, 1%, 0207
0	R 62	57.11.3104	100k	MF, 1%, 0207	0	R 136	57.11.3472	4k7	MF, 1%, 0207
0	R 63	57.11.3682	6k8	MF, 1%, 0207	0	R 137	57.11.3682	6k8	MF, 1%, 0207
					0	R 138	57.11.3682	6k8	MF, 1%, 0207
					0	R 139	not used	not used	not used
					0	R 140	57.11.3105	1M0	MF, 1%, 0207



INPUT SIDE BOARD STEREO/MIC/EQ 1.980.253.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 141	57.11.3105	1M0	MF, 1%, 0207
0	R 142	57.11.3223	22k	MF, 1%, 0207
0	R 143	57.11.3682	6k8	MF, 1%, 0207
0	R 144	not used	not used	not used
0	R 145	57.11.3472	4k7	MF, 1%, 0207
0	R 146	57.11.3682	6k8	MF, 1%, 0207
0	R 147	57.11.3000	0R0	MF, 0207
0	R 148	57.11.3682	6k8	MF, 1%, 0207
0	R 149	57.11.3333	33k	MF, 1%, 0207
0	R 150	57.11.3684	680k	MF, 1%, 0207
0	R 151	57.11.3682	6k8	MF, 1%, 0207
0	R 152	57.11.3223	22k	MF, 1%, 0207
0	R 153	57.11.3682	6k8	MF, 1%, 0207
0	R 154	57.11.3102	1k0	MF, 1%, 0207
0	R 155	57.11.3684	680k	MF, 1%, 0207
0	R 156	57.11.3223	22k	MF, 1%, 0207
0	R 157	57.11.3102	1k0	MF, 1%, 0207
0	R 158	57.11.3223	22k	MF, 1%, 0207
0	R 159	57.11.3121	120R	MF, 1%, 0207
0	R 160	57.11.3121	120R	MF, 1%, 0207
0	R 161	57.11.3121	120R	MF, 1%, 0207
0	R 162	57.11.3121	120R	MF, 1%, 0207
0	R 163	57.11.3682	6k8	MF, 1%, 0207
0	R 164	57.11.3682	6k8	MF, 1%, 0207
0	R 165	57.11.3682	6k8	MF, 1%, 0207
0	R 166	57.11.3333	33k	MF, 1%, 0207
0	R 167	57.11.3104	100k	MF, 1%, 0207
0	RA 5	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 7	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 9	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	RA 11	1.010.302.58	Pot	POT 2 * 5K LIN; CENTERTAP
0	W 1	not used	not used	not used
0	W 2	not used	not used	not used
0	W 3	not used	not used	not used
0	W 4	not used	not used	not used
0	W 5	not used	not used	not used
0	W 6	57.11.3000	0R0	MF, 0207
0	XIC 4	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments

Update 1



MIC INPUT BOARD STEREO 1.980.255.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1471	470p	C 470 P , 1%, 630V , PP	0	D 54	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 2	59.22.6100	10u	EL 35V, 20%, rad RM5	0	D 55	not used	not used	not used
0	C 3	59.22.6100	10u	EL 35V, 20%, rad RM5	0	D 56	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 4	59.06.0104	100n	PETP, 10%, 63V	0	D 57	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 5	not used	not used	not used	0	D 58	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
1	C 6	59.03.2104		C .1 U , 10%, 250V , MPETP	0	D 59	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 7	59.05.1471	470p	C 470 P , 1%, 630V , PP	0	D 60	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 8	not used	not used	not used					
2	C 9	59.03.2104	100n	MPETP, 10%, 250V	0	IC 1	50.05.0244	NE5534AN	IC 5534 ANB, NE 5534 SAN, ,A
0	C 10	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 2	50.09.0106	5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 11	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 3	50.09.0106	5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 12	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 4	50.07.0024	4052	IC .. 4052 .. ,A
0	C 14	59.34.4151	150p	C 150 P , 5%, N750 , CER	0	IC 5	50.07.0051	4051	IC .. 4051 .. ,A
0	C 15	59.06.5332	3n3	PETP, 5%, 63V	0	IC 6	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 16	59.22.6220	22u	EL 35V, 20%, rad RM5	0	IC 7	50.09.0106	5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 17	59.06.5102	1n0	PETP, 5%, 63V	0	IC 8	50.07.0016	4532	IC .. 4532 .. ,A
1	C 18	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	IC 51	50.05.0244	NE5534AN	IC 5534 ANB, NE 5534 SAN, ,A
0	C 19	59.34.2220	22p	C 22 P , 5%, N150 , CER	0	IC 52	50.09.0106	5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 20	59.06.0104	100n	PETP, 10%, 63V	0	IC 53	50.09.0106	5532AN	IC NE 5532 AN, NE 5532 AN, ,A
0	C 21	59.06.0104	100n	PETP, 10%, 63V	0	IC 54	50.07.0024	4052	IC .. 4052 .. ,A
0	C 22	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	IC 55	50.07.0051	4051	IC .. 4051 .. ,A
0	C 23	59.34.4151	150p	C 150 P , 5%, N750 , CER	0	IC 56	50.19.0300	DG211CJ-2	IC DG 441 DJ ,A
0	C 24	not used	not used	not used					
0	C 25	59.22.6220	22u	EL 35V, 20%, rad RM5	0	K 1	56.04.0198	2U	K 5 V 2"U , 125V/ 2 A, AG/AU
0	C 26	not used	not used	not used	0	K 51	56.04.0198	2U	K 5 V 2"U , 125V/ 2 A, AG/AU
0	C 27	59.06.5682	6n8	PETP, 5%, 63V					
0	C 28	59.34.1100	10p	C 10 P , 5%, NP 0 , CER	0	L 1	1.022.231.00	235mH	HF-ASYM. DROSSEL RM5
0	C 29	59.22.6220	22u	EL 35V, 20%, rad RM5	0	L 51	1.022.231.00	235mH	HF-ASYM. DROSSEL RM5
0	C 30	not used	not used	not used					
1	C 31	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	MP 1	1.980.205.12	1 pce	MIC INPUT PCB //A
0	C 32	59.34.1100	10p	C 10 P , 5%, NP 0 , CER	0	MP 2	43.01.0108	1 pce	Label ESE-WARNschild
0	C 33	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	MP 3	1.980.255.04	1 pce	NR.-ETIKETTE 5 * 20
0	C 34	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio					
0	C 35	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	P 1	54.14.5510	10-P	J PCB-BUCHSE GERADE 10 P
0	C 36	59.22.3101	100u	EL 10V, 20%, rad RM5	0	P 2	1.023.563.01	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	C 37	59.22.3101	100u	EL 10V, 20%, rad RM5					
0	C 38	59.32.2471	470p	C 470 P , 10%, 50V , CER	0	Q 1	50.03.1505	VN0808M	VN 0808 M, ZVN 0108 A
0	C 51	59.22.6100	10u	EL 35V, 20%, rad RM5					
0	C 52	59.22.6100	10u	EL 35V, 20%, rad RM5	1	R 2	57.11.3221	220R	MF, 1%, 0207
0	C 53	59.05.1471	470p	C 470 P , 1%, 630V , PP	0	R 3	57.11.3472	4k7	MF, 1%, 0207
0	C 54	59.05.1471	470p	C 470 P , 1%, 630V , PP	0	R 4	57.11.3472	4k7	MF, 1%, 0207
0	C 56	59.34.4151	150p	C 150 P , 5%, N750 , CER	0	R 8	57.11.3472	4k7	MF, 1%, 0207
0	C 57	59.06.5332	3n3	PETP, 5%, 63V	0	R 9	57.11.3104	100k	MF, 1%, 0207
0	C 58	59.22.6220	22u	EL 35V, 20%, rad RM5	1	R 11	57.11.3221	220R	MF, 1%, 0207
0	C 59	59.06.5102	1n0	PETP, 5%, 63V	0	R 12	57.11.3472	4k7	MF, 1%, 0207
1	C 60	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 13	57.11.3132	1k3	MF, 1%, 0207
0	C 61	59.34.2220	22p	C 22 P , 5%, N150 , CER	0	R 14	57.11.3472	4k7	MF, 1%, 0207
0	C 62	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	R 15	57.11.3104	100k	MF, 1%, 0207
0	C 63	59.34.4151	150p	C 150 P , 5%, N750 , CER	0	R 16	57.11.3104	100k	MF, 1%, 0207
0	C 64	not used	not used	not used	0	R 17	57.11.3104	100k	MF, 1%, 0207
0	C 65	59.22.6220	22u	EL 35V, 20%, rad RM5	0	R 18	57.11.3163	16k	MF, 1%, 0207
0	C 66	not used	not used	not used	0	R 19	57.11.3683	68k	MF, 1%, 0207
0	C 67	59.06.5682	6n8	PETP, 5%, 63V	0	R 20	57.11.3272	2k7	MF, 1%, 0207
0	C 68	59.34.1100	10p	C 10 P , 5%, NP 0 , CER	0	R 21	57.11.3222	2k2	MF, 1%, 0207
0	C 69	59.22.6220	22u	EL 35V, 20%, rad RM5	0	R 22	57.11.3104	100k	MF, 1%, 0207
0	C 70	not used	not used	not used	0	R 23	57.11.3223	22k	MF, 1%, 0207
1	C 71	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 24	57.11.3102	1k0	MF, 1%, 0207
0	C 72	59.34.1100	10p	C 10 P , 5%, NP 0 , CER	0	R 25	57.11.3272	2k7	MF, 1%, 0207
0	C 73	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	R 26	57.11.3102	1k0	MF, 1%, 0207
0	C 74	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	R 27	57.11.3152	1k5	MF, 1%, 0207
0	C 75	59.22.9552	100uF	EL 10V, 20%, rad RM5, Audio	0	R 28	57.11.3223	22k	MF, 1%, 0207
0	C 76	59.32.2471	470p	C 470 P , 10%, 50V , CER	0	R 29	57.11.3683	68k	MF, 1%, 0207
0	C 77	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	R 30	57.11.3101	100R	MF, 1%, 0207
0	C 78	59.32.3103	10n	C 10 N ,100%, 40V , CER	0	R 31	57.11.3919	8R2	MF, 1%, 0207
0	C 79	59.32.3103	10n	C 10 N ,100%, 40V , CER	0	R 32	57.11.3684	680k	MF, 1%, 0207
					0	R 33	57.11.3684	680k	MF, 1%, 0207
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 34	57.11.3182	1k8	MF, 1%, 0207
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 35	57.11.3622	6k2	MF, 1%, 0207
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 36	57.11.3224	220k	MF, 1%, 0207
0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 37	57.11.3183	18k	MF, 1%, 0207
0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 38	57.11.3684	680k	MF, 1%, 0207
0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 39	57.11.3684	680k	MF, 1%, 0207
0	D 7	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 40	57.11.3220	22R	MF, 1%, 0207
0	D 8	not used	not used	not used	0	R 41	57.11.3680	68R	MF, 1%, 0207
0	D 9	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 42	57.11.3104	100k	MF, 1%, 0207
0	D 10	50.04.1112	5V1	Zener, 5%, 0.5W, DO-35	0	R 43	57.11.3104	100k	MF, 1%, 0207
1	D 11	50.04.1108	5V6	Zener, 5%, 0.5W, DO-35	0	R 44	57.11.3221	220R	MF, 1%, 0207
0	D 51	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 45	57.11.3332	3k3	MF, 1%, 0207
0	D 52	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 46	57.11.3681	680R	MF, 1%, 0207
0	D 53	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35	0	R 47	57.11.3222	2k2	MF, 1%, 0207



## MIC INPUT BOARD STEREO 1.980.255.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 51	57.11.3472	4k7	MF, 1%, 0207
0	R 52	57.11.3472	4k7	MF, 1%, 0207
0	R 53	57.11.3132	1k3	MF, 1%, 0207
0	R 54	57.11.3472	4k7	MF, 1%, 0207
0	R 55	57.11.3182	1k8	MF, 1%, 0207
0	R 56	57.11.3163	16k	MF, 1%, 0207
0	R 57	57.11.3683	68k	MF, 1%, 0207
0	R 58	57.11.3272	2k7	MF, 1%, 0207
0	R 59	57.11.3222	2k2	MF, 1%, 0207
0	R 60	57.11.3104	100k	MF, 1%, 0207
0	R 61	57.11.3223	22k	MF, 1%, 0207
0	R 62	57.11.3102	1k0	MF, 1%, 0207
0	R 63	57.11.3272	2k7	MF, 1%, 0207
0	R 64	57.11.3102	1k0	MF, 1%, 0207
0	R 65	57.11.3152	1k5	MF, 1%, 0207
0	R 66	57.11.3223	22k	MF, 1%, 0207
0	R 67	57.11.3683	68k	MF, 1%, 0207
0	R 68	57.11.3101	100R	MF, 1%, 0207
0	R 69	57.11.3919	8R2	MF, 1%, 0207
0	R 70	57.11.3684	680k	MF, 1%, 0207
0	R 71	57.11.3684	680k	MF, 1%, 0207
0	R 72	57.11.3183	18k	MF, 1%, 0207
0	R 73	57.11.3224	220k	MF, 1%, 0207
0	R 74	57.11.3622	6k2	MF, 1%, 0207
0	R 75	57.11.3684	680k	MF, 1%, 0207
0	R 76	57.11.3684	680k	MF, 1%, 0207
0	R 77	57.11.3220	22R	MF, 1%, 0207
0	R 78	57.11.3680	68R	MF, 1%, 0207
0	R 79	57.11.3104	100k	MF, 1%, 0207
0	R 80	57.11.3104	100k	MF, 1%, 0207
0	R 81	57.11.3221	220R	MF, 1%, 0207
0	R 82	57.11.3332	3k3	MF, 1%, 0207
0	R 83	57.11.3222	2k2	MF, 1%, 0207
1	R 84	57.10.1331	330	R 330 , 1%, 0204 , MF
0	R 85	57.11.3104	100k	MF, 1%, 0207
0	RZ 1	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	T 1	1.022.321.00	Trafo	AUSGANGSTRAFO 1 : 2 : 5,78
0	T 2	1.022.455.00	Trafo	EINGANGSTRAFO 1:6,1
0	T 51	1.022.321.00	Trafo	AUSGANGSTRAFO 1 : 2 : 5,78
0	T 52	1.022.455.00	Trafo	EINGANGSTRAFO 1:6,1
0	XIC 1	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 7	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 51	53.03.0166	XIC8p	XIC DIL 8-POL
0	XT 2	1.022.400.03		ISOLATION
0	XT 52	1.022.400.03		ISOLATION

End of List

Comments

Aenderung von C9

**INPUT MAIN BOARD MONO/MIC/EQ 1.980.270.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.22.3101	100u		EL 10V 20% RM5	0 D 1	50.04.0122		1N4001	1A, DO 41
0 C 2	59.22.3101	100u		EL 10V 20% RM5	0 D 2	50.04.0122		1N4001	1A, DO 41
0 C 4	not used	not used		not used	0 D 3	50.04.0122		1N4001	1A, DO 41
0 C 5	not used	not used		not used	0 D 4	50.04.0122		1N4001	1A, DO 41
0 C 6	59.22.3003	220u		EL 10V 20% RM5	0 D 22	50.04.0105		1N4004	1A, DO 41
0 C 10	59.22.5220	22u		EL 25V 20% RM5	0 D 24	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0 C 11	59.22.3101	100u		EL 10V 20% RM5	0 D 25	not used		not used	not used
0 C 12	59.22.3101	100u		EL 10V 20% RM5	0 D 48	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35
0 C 14	59.22.3003	220u		EL 10V 20% RM5	0 DL 1	50.04.2121		TLUR 2401	DL TLUR 2401 RT MATT
0 C 15	59.22.3003	220u		EL 10V 20% RM5	0 DL 2	50.04.2133		TLUY 2401	DL TLUY 2401 GB MATT
0 C 16	59.22.5220	22u		EL 25V 20% RM5	0 IC 1	50.09.0117		33078	IC MC 33078 P
0 C 18	59.22.3101	100u		EL 10V 20% RM5	0 IC 2	not used		not used	not used
0 C 19	59.22.3101	100u		EL 10V 20% RM5	0 IC 3	50.07.0015		4053	Tripple 2ch analog mux/demux
0 C 20	not used	not used		not used	0 IC 4	50.09.0117		33078	IC MC 33078 P
0 C 21	59.22.3101	100u		EL 10V 20% RM5	0 IC 6	50.07.0015		4053	Tripple 2ch analog mux/demux
0 C 22	not used	not used		not used	0 IC 7	not used		not used	not used
0 C 24	not used	not used		not used	0 IC 8	50.09.0117		33078	IC MC 33078 P
0 C 26	not used	not used		not used	0 IC 13	50.09.0117		33078	IC MC 33078 P
0 C 27	59.22.5220	22u		EL 25V 20% RM5	0 IC 18	50.09.0117		33078	IC MC 33078 P
0 C 28	59.22.3101	100u		EL 10V 20% RM5	0 IC 31	50.09.0117		33078	IC MC 33078 P
0 C 31	59.22.3101	100u		EL 10V 20% RM5	0 IC 33	50.17.1014		74HC 14	IC ... 74 HC 14 .. ,A
0 C 32	59.22.3101	100u		EL 10V 20% RM5	0 IC 35	50.15.0128		34C86	IC DS 34 C 86 TN, MC34C86P, A
0 C 34	59.22.3101	100u		EL 10V 20% RM5	0 IC 36	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P, A
0 C 35	59.22.3101	100u		EL 10V 20% RM5	0 IC 37	50.17.1165		74HC165	IC ... 74 HC 165 .. ,A
0 C 37	59.06.5333	33n		PETP, 63V, 5%, RM5	0 IC 38	50.09.0105		5532	IC NE 5532 N, RC 5532 NB ,A
0 C 38	not used	not used		not used	0 IC 39	50.17.1165		74HC165	IC ... 74 HC 165 .. ,A
0 C 39	not used	not used		not used	0 IC 40	50.19.0300		DG441	4*SPST analog switch
0 C 40	59.05.2153	15n		PP, 2.5%, 63V	0 IC 41	50.17.1014		74HC 14	IC ... 74 HC 14 .. ,A
0 C 41	not used	not used		not used	0 IC 42	50.09.0121		TL072B	IC TL 072 BCP ,A
0 C 44	59.22.3101	100u		EL 10V 20% RM5	0 IC 43	50.06.0014		74LS14	SN 74 LS 14 N
0 C 46	59.22.4002	100u		EL 16V 20% RM5	0 IC 44	50.16.0302		PIC17C42A-16P	MicroController
0 C 48	59.22.4002	100u		EL 16V 20% RM5	0 IC 45	50.09.0117		33078	IC MC 33078 P
0 C 49	59.05.2472	4n7		PP, 2.5%, 63V	0 IC 46	50.09.0117		33078	IC MC 33078 P
0 C 52	59.05.2472	4n7		PP, 2.5%, 63V	0 IC 48	50.09.0105		5532	IC NE 5532 N, RC 5532 NB ,A
0 C 53	not used	not used		not used	0 IC 49	50.09.0119		062	IC TL 062 ACP ,A
0 C 54	59.05.1681	680p		PP, 1%, 630V	0 IC 50	50.09.0105		5532	IC NE 5532 N, RC 5532 NB ,A
0 C 55	59.05.1102	1n0		PP, 1%, 630V	0 JP 1	54.01.0020		1p	Pin, 1reihig, gerade
0 C 56	not used	not used		not used	0 JP 2	54.01.0020		1p	Pin, 1reihig, gerade
0 C 59	59.06.5683	68n		PETP, 63V, 5%, RM5	0 JP 3	54.01.0020		1p	Pin, 1reihig, gerade
0 C 60	59.06.5104	100n		PETP, 63V, 5%, RM5	0 JP 4	54.01.0020		1p	Pin, 1reihig, gerade
0 C 61	59.06.5683	68n		PETP, 63V, 5%, RM5	0 JP 5	54.11.0136		2*3p	Pin 0.63*0.63, RM2.54
0 C 62	59.06.5104	100n		PETP, 63V, 5%, RM5	0 K 1	56.04.0198		2*u	5V 125V 2A Ag/Au
0 C 63	not used	not used		not used	0 MP 1	1.980.202.71	1 mp		INPUT MAIN BOARD
0 C 64	not used	not used		not used	0 MP 2	43.01.0108	1 mp	Label	ESE-WARNschild
0 C 65	not used	not used		not used	0 MP 3	1.980.270.04	1 mp		NR.-ETIKETTE 5 * 20
0 C 66	not used	not used		not used	0 MP 4	28.99.0119	8 mp		ROHRNIETE D 2.5*0.15" 9
0 C 67	not used	not used		not used	0 MP 5	1.010.011.22	4 mp	M3*1.5	Nieltmutter sw 6
0 C 68	59.06.0104	100n		PETP, 63V, 10%, RM5	0 MP 6	54.01.0021	3 mp	Jumper	0.63*0.63mm, Au
0 C 69	59.22.3101	100u		EL 10V 20% RM5	0 MP 7	57.11.3000	7 mp	0R0	MF, 0207
0 C 70	59.22.3101	100u		EL 10V 20% RM5	0 MP 8	1.177.200.04	1 mp	Wire	ERDUNGSDRAHT
0 C 71	59.06.0104	100n		PETP, 63V, 10%, RM5	0 MP 9	65.99.0111	35 mm		PTFE-SCHLAUCH SPEZ. 89*0.152
0 C 73	59.22.3101	100u		EL 10V 20% RM5	1 MP 10	43.10.0110		A	Revisions-Etikette 5mm h'blau
0 C 75	59.22.3101	100u		EL 10V 20% RM5	0 P 1	54.14.5540		20p	PCB-Buchse winkel
0 C 76	59.22.3101	100u		EL 10V 20% RM5	0 P 2	54.14.5540		20p	PCB-Buchse winkel
0 C 78	59.22.3101	100u		EL 10V 20% RM5	0 P 3	54.11.2261		48p	EU-CK 3*16, l0t
0 C 80	59.22.3101	100u		EL 10V 20% RM5	0 P 4	54.11.2004		2*32p	EU-B 2*32 male
0 C 82	59.22.3003	220u		EL 10V 20% RM5	0 P 5	54.11.2013		2*16p	EU-BK 2*16p male
0 C 84	59.22.3101	100u		EL 10V 20% RM5	0 P 6	54.11.2004		2*32p	EU-B 2*32 male
0 C 85	not used	not used		not used	0 P 7	1.023.556.01		Ribbon16p	FLACHKABEL 16 POL. 0,3 M
0 C 87	not used	not used		not used	0 P 8	not used		not used	not used
0 C 89	59.06.0104	100n		PETP, 63V, 10%, RM5	0 P 9	54.14.5510		10p	PCB-Buchse gerade
0 C 90	not used	not used		not used	0 P 10	54.14.5516		16p	PCB-Buchse gerade
0 C 91	not used	not used		not used	0 P 11	not used		not used	not used
0 C 92	59.22.3101	100u		EL 10V 20% RM5	0 P 12	54.14.5520		20p	PCB-Buchse gerade
0 C 93	59.41.3470	47u		EL 10V 20% RM5	0 P 13	54.14.5516		16p	PCB-Buchse gerade
0 C 98	not used	not used		not used	0 P 14	54.14.5520		20p	PCB-Buchse gerade
0 C 99	59.22.3101	100u		EL 10V 20% RM5	0 Q 1	50.03.1505		VN0808L	N-V MOS-FET 80V, 0,35A
0 C 100	59.05.1681	680p		PP, 1%, 630V	0 Q 2	50.03.0492		BC556B	BC 556 B PNP
0 C 103	59.22.3101	100u		EL 10V 20% RM5	0 Q 3	50.03.0491		BC546B	BC 546 B NPN
0 C 104	59.06.0104	100n		PETP, 63V, 10%, RM5	0 Q 4	50.03.0491		BC546B	BC 546 B NPN
0 C 106	59.22.3003	220u		EL 10V 20% RM5	0 Q 5	50.03.0492		BC556B	BC 556 B PNP
0 C 107	not used	not used		not used	0 R 1	57.11.3000		0R0	MF, 0207
0 C 108	59.22.3101	100u		EL 10V 20% RM5	0 R 2	57.11.3000		0R0	MF, 0207
0 C 109	59.05.1681	680p		PP, 1%, 630V	0 R 3	57.11.3000		0R0	MF, 0207
0 C 113	59.22.3003	220u		EL 10V 20% RM5	0 R 5	57.11.3000		0R0	MF, 0207
0 C 114	59.06.5152	1n5		PETP, 63V, 5%, RM5	0 R 6	not used		not used	not used
0 C 115	not used	not used		not used	0 R 7	not used		not used	not used
0 C 116	59.05.1681	680p		PP, 1%, 630V	0 R 8	not used		not used	not used
0 C 119	59.22.3101	100u		EL 10V 20% RM5	0 R 10	57.11.3104		100k	MF, 1%, 0207
0 C 121	59.22.3003	220u		EL 10V 20% RM5	0 R 14	57.11.3000		0R0	MF, 0207
0 C 122	not used	not used		not used	0 R 15	57.11.3000		0R0	MF, 0207
0 C 123	59.05.1681	680p		PP, 1%, 630V	0 R 16	57.11.3000		0R0	MF, 0207
0 C 125	59.34.4101	100p		CER 63V, 5%, N750	0 R 18	not used		not used	not used
0 C 126	59.06.0104	100n		PETP, 63V, 10%, RM5	0 R 19	57.11.3000		0R0	MF, 0207
0 C 127	59.06.0104	100n		PETP, 63V, 10%, RM5	0 R 20	not used		not used	not used
0 C 130	not used	not used		not used	0 R 21	not used		not used	not used
0 C 131	not used	270p		CER 63V, 5%, N750	0 R 22	57.11.3682		6k8	MF, 1%, 0207

**INPUT MAIN BOARD MONO/MIC/EQ 1.980.270.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 R 23	not used	not used	not used	not used	0 R 218	57.11.3562	5k6		MF, 1%, 0207
0 R 26	57.11.3682	6k8		MF, 1%, 0207	0 R 219	not used	not used		not used
0 R 27	not used	not used	not used	not used	0 R 224	not used	not used		not used
0 R 28	not used	not used	not used	not used	0 R 225	not used	not used		not used
0 R 29	not used	not used	not used	not used	0 R 226	57.11.3000	0R0		MF, 0207
0 R 30	57.11.3682	6k8		MF, 1%, 0207	0 R 227	not used	not used		not used
0 R 31	not used	not used	not used	not used	0 R 229	not used	not used		not used
0 R 32	57.11.3682	6k8		MF, 1%, 0207	0 R 257	not used	not used		not used
0 R 34	57.11.3682	6k8		MF, 1%, 0207	0 R 267	57.11.3682	6k8		MF, 1%, 0207
0 R 35	not used	not used	not used	not used	0 R 268	57.11.3223	22k		MF, 1%, 0207
0 R 36	not used	not used	not used	not used	0 R 281	57.11.3272	2k7		MF, 1%, 0207
0 R 37	57.11.3682	6k8		MF, 1%, 0207	0 R 282	57.11.3000	0R0		MF, 0207
0 R 38	not used	not used	not used	not used	0 R 283	57.11.3272	2k7		MF, 1%, 0207
0 R 42	57.11.3682	6k8		MF, 1%, 0207	0 R 284	not used	not used		not used
0 R 47	57.92.7013	0.5A		PTC 60V	0 R 298	not used	not used		not used
0 R 48	57.92.7013	0.5A		PTC 60V	0 R 299	57.11.3102	1k0		MF, 1%, 0207
0 R 49	57.92.7013	0.5A		PTC 60V	0 R 300	57.11.3392	3k9		MF, 1%, 0207
0 R 50	not used	not used	not used	not used	0 R 301	57.11.3270	27R		MF, 1%, 0207
0 R 51	57.11.3682	6k8		MF, 1%, 0207	0 R 308	57.11.3332	3k3		MF, 1%, 0207
0 R 52	not used	not used	not used	not used	0 R 309	57.11.3682	6k8		MF, 1%, 0207
0 R 53	57.11.3104	100k		MF, 1%, 0207	1 R 312	57.11.3180	18R		MF, 1%, 0207
0 R 56	57.11.3682	6k8		MF, 1%, 0207	0 RA 1	1.010.052.58	2*4K7Lin		POT 4K7 LIN; 4K7 LIN
0 R 58	57.11.3682	6k8		MF, 1%, 0207	0 RA 2	1.010.123.58	Pot		POT 4K7 LIN;
0 R 59	57.11.3682	6k8		MF, 1%, 0207	0 RA 3	1.010.303.58	100k -log		Potentiometer dual
0 R 60	57.11.3682	6k8		MF, 1%, 0207	0 RA 4	1.010.303.58	100k -log		Potentiometer dual
0 R 61	57.11.3682	6k8		MF, 1%, 0207	0 RA 6	1.010.303.58	100k -log		Potentiometer dual
0 R 64	57.11.3682	6k8		MF, 1%, 0207	0 RA 8	1.010.303.58	100k -log		Potentiometer dual
0 R 65	not used	not used	not used	not used	0 RA 10	1.010.303.58	100k -log		Potentiometer dual
0 R 66	not used	not used	not used	not used	0 RA 12	1.010.303.58	100k -log		Potentiometer dual
0 R 70	57.11.3682	6k8		MF, 1%, 0207	0 RA 13	1.010.122.58	Pot		POT 10K +LOG;
0 R 71	57.11.3682	6k8		MF, 1%, 0207	0 RA 14	1.010.122.58	Pot		POT 10K +LOG;
0 R 72	57.11.3682	6k8		MF, 1%, 0207	0 RA 15	1.010.122.58	Pot		POT 10K +LOG;
0 R 79	57.11.3682	6k8		MF, 1%, 0207	0 RA 16	1.010.122.58	Pot		POT 10K +LOG;
0 R 83	57.11.3682	6k8		MF, 1%, 0207	0 RA 17	1.010.055.58	Pot		POT 10K+L;10K-L;10K+L;10K+L;
0 R 84	57.11.3682	6k8		MF, 1%, 0207	0 RA 18	1.010.055.58	Pot		POT 10K+L;10K-L;10K+L;10K+L;
0 R 85	57.11.3682	6k8		MF, 1%, 0207	0 RZ 1	57.88.4684	680k		8*R Resistor-Netw 2% SIP9
0 R 86	57.11.3682	6k8		MF, 1%, 0207	0 RZ 2	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 87	57.11.3682	6k8		MF, 1%, 0207	0 RZ 3	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 88	not used	not used	not used	not used	0 T 1	not used	not used		not used
0 R 89	not used	not used	not used	not used	0 T 2	1.022.454.00	1:0.175		EINGANGSTRAFO 1:0,175
0 R 97	57.11.3682	6k8		MF, 1%, 0207	0 W 1	57.11.3000	0R0		MF, 0207
0 R 98	57.11.3682	6k8		MF, 1%, 0207	0 W 2	57.11.3000	0R0		MF, 0207
0 R 99	57.11.3682	6k8		MF, 1%, 0207	0 W 3	57.11.3000	0R0		MF, 0207
0 R 100	57.11.3682	6k8		MF, 1%, 0207	0 W 4	57.11.3000	0R0		MF, 0207
0 R 101	not used	not used	not used	not used	0 W 5	57.11.3000	0R0		MF, 0207
0 R 104	57.11.3682	6k8		MF, 1%, 0207	0 W 6	57.11.3000	0R0		MF, 0207
0 R 105	57.11.3682	6k8		MF, 1%, 0207	0 W 7	57.11.3000	0R0		MF, 0207
0 R 106	57.11.3682	6k8		MF, 1%, 0207	0 W 8	57.11.3000	0R0		MF, 0207
0 R 110	not used	not used	not used	not used	0 W 9	57.11.3000	0R0		MF, 0207
0 R 111	not used	not used	not used	not used	0 W 10	57.11.3000	0R0		MF, 0207
0 R 117	57.11.3682	6k8		MF, 1%, 0207	0 W 11	57.11.3000	0R0		MF, 0207
0 R 118	57.11.3682	6k8		MF, 1%, 0207	0 W 12	57.11.3000	0R0		MF, 0207
0 R 119	57.11.3682	6k8		MF, 1%, 0207	0 W 13	57.11.3000	0R0		MF, 0207
0 R 120	57.11.3682	6k8		MF, 1%, 0207	0 W 14	not used	not used		not used
0 R 121	57.11.3682	6k8		MF, 1%, 0207	0 W 15	57.11.3000	0R0		MF, 0207
0 R 122	57.11.3682	6k8		MF, 1%, 0207	0 W 17	57.11.3000	0R0		MF, 0207
0 R 123	57.11.3682	6k8		MF, 1%, 0207	0 W 18	57.11.3000	0R0		MF, 0207
0 R 124	57.11.3682	6k8		MF, 1%, 0207	0 W 19	not used	not used		not used
0 R 129	not used	not used	not used	not used	0 W 20	not used	not used		not used
0 R 130	not used	not used	not used	not used	0 XIC 31	53.03.0166	8p		DIL-socket 0.3"
0 R 132	not used	not used	not used	not used	0 XIC 33	53.03.0167	14p		DIL-socket 0.3"
0 R 133	not used	not used	not used	not used	0 XIC 35	53.03.0168	16p		DIL-socket 0.3"
0 R 134	not used	not used	not used	not used	0 XIC 36	53.03.0168	16p		DIL-socket 0.3"
0 R 135	not used	not used	not used	not used	0 XIC 37	53.03.0168	16p		DIL-socket 0.3"
0 R 137	57.11.3682	6k8		MF, 1%, 0207	0 XIC 39	53.03.0168	16p		DIL-socket 0.3"
0 R 138	57.11.3682	6k8		MF, 1%, 0207	0 XIC 41	53.03.0167	14p		DIL-socket 0.3"
0 R 139	57.11.3103	10k		MF, 1%, 0207	0 XIC 43	53.03.0167	14p		DIL-socket 0.3"
0 R 140	57.11.3682	6k8		MF, 1%, 0207	0 XIC 44	53.03.0172	40p		DIL 0.6", lot, gerade
0 R 141	57.11.3103	10k		MF, 1%, 0207	0 XIC 46	53.03.0166	8p		DIL-socket 0.3"
0 R 142	not used	not used	not used	not used	0 XT 1	not used	not used		not used
0 R 145	57.92.7013	0.5A		PTC 60V	0 XT 2	1.022.400.03			ISOLATION
0 R 146	not used	not used	not used	not used	0 Y 1	89.01.1009	16.000MHz		XTAL HC 49/U
0 R 147	not used	not used	not used	not used					
0 R 148	not used	not used	not used	not used					
0 R 149	not used	not used	not used	not used					
0 R 150	57.11.3103	10k		MF, 1%, 0207					
0 R 151	57.11.3103	10k		MF, 1%, 0207					
0 R 152	not used	not used	not used	not used					
0 R 153	57.11.3103	10k		MF, 1%, 0207					
0 R 162	57.11.3000	0R0		MF, 0207					
0 R 168	not used	not used	not used	not used					
0 R 169	not used	not used	not used	not used					
0 R 190	not used	not used	not used	not used					
0 R 191	not used	not used	not used	not used					
0 R 195	not used	not used	not used	not used					
0 R 209	not used	not used	not used	not used					
0 R 210	57.11.3562	5k6		MF, 1%, 0207					

End of List

(1) R312: 39R->18R; MP10: Revision-Label "A" added

**INPUT MAIN BOARD STEREO/MIC/EQ 1.980.271.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	not used	not used	not used	not used	0 C 131	not used	270p		CER 63V, 5%, N750
0 C 2	not used	not used	not used	not used	0 D 1	50.04.0122	1N4001		1A, DO 41
0 C 4	59.22.5220	22u	EL	25V 20% RM5	0 D 2	50.04.0122	1N4001		1A, DO 41
0 C 5	59.22.3003	220u	EL	10V 20% RM5	0 D 3	50.04.0122	1N4001		1A, DO 41
0 C 6	59.22.3003	220u	EL	10V 20% RM5	0 D 4	50.04.0122	1N4001		1A, DO 41
0 C 10	59.22.5220	22u	EL	25V 20% RM5	0 D 22	50.04.0105	1N4004		1A, DO 41
0 C 11	59.22.3101	100u	EL	10V 20% RM5	0 D 24	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 12	59.22.3101	100u	EL	10V 20% RM5	0 D 25	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 14	59.22.3003	220u	EL	10V 20% RM5	0 D 48	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 15	59.22.3003	220u	EL	10V 20% RM5	0 DL 1	50.04.2121	TLUR 2401		DL TLUR 2401 RT MATT
0 C 16	59.22.5220	22u	EL	25V 20% RM5	0 DL 2	50.04.2133	TLUY 2401		DL TLUY 2401 GB MATT
0 C 18	59.22.3101	100u	EL	10V 20% RM5	0 IC 1	50.09.0117	33078		IC MC 33078 P
0 C 19	59.22.3101	100u	EL	10V 20% RM5	0 IC 2	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 20	59.22.3003	220u	EL	10V 20% RM5	0 IC 3	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 21	not used	not used	not used	not used	0 IC 4	50.09.0117	33078		IC MC 33078 P
0 C 22	59.22.3003	220u	EL	10V 20% RM5	0 IC 6	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 24	59.22.5220	22u	EL	25V 20% RM5	0 IC 7	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 26	59.22.5220	22u	EL	25V 20% RM5	0 IC 8	50.09.0117	33078		IC MC 33078 P
0 C 27	59.22.5220	22u	EL	25V 20% RM5	0 IC 13	50.09.0117	33078		IC MC 33078 P
0 C 28	not used	not used	not used	not used	0 IC 18	50.09.0117	33078		IC MC 33078 P
0 C 31	59.22.3101	100u	EL	10V 20% RM5	0 IC 31	50.09.0117	33078		IC MC 33078 P
0 C 32	59.22.3101	100u	EL	10V 20% RM5	0 IC 33	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 34	59.22.3101	100u	EL	10V 20% RM5	0 IC 35	50.15.0128	34C86		IC DS 34 C 86 TN, MC34C86P ,A
0 C 35	59.22.3101	100u	EL	10V 20% RM5	0 IC 36	50.15.0127	34C87		IC DS 34 C 87 TN, MC34C87P ,A
0 C 37	59.06.5333	33n	PETP, 63V, 5%, RM5		0 IC 37	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 38	59.06.5333	33n	PETP, 63V, 5%, RM5		0 IC 38	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 39	59.05.2153	15n	PP, 2.5%, 63V		0 IC 39	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 40	59.05.2153	15n	PP, 2.5%, 63V		0 IC 40	50.19.0300	DG441		4*SPST analog switch
0 C 41	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 41	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 44	59.22.3101	100u	EL	10V 20% RM5	0 IC 42	50.09.0121	TL072B		IC TL 072 BCP ,A
0 C 46	59.22.4002	100u	EL	16V 20% RM5	0 IC 43	50.06.0014	74LS14		SN 74 LS 14 N
0 C 48	59.22.4002	100u	EL	16V 20% RM5	0 IC 44	50.16.0302	PIC17C42A-16P		MicroController
0 C 49	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 45	50.09.0117	33078		IC MC 33078 P
0 C 52	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 46	50.09.0117	33078		IC MC 33078 P
0 C 53	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 48	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 54	not used	not used	not used	not used	0 IC 49	50.09.0119	062		IC TL 062 ACP ,A
0 C 55	not used	not used	not used	not used	0 IC 50	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 56	not used	not used	not used	not used	0 JP 1	54.01.0020	1p		Pin, 1reihig, gerade
0 C 59	59.06.5683	68n	PETP, 63V, 5%, RM5		0 JP 2	54.01.0020	1p		Pin, 1reihig, gerade
0 C 60	59.06.5104	100n	PETP, 63V, 5%, RM5		0 JP 3	54.01.0020	1p		Pin, 1reihig, gerade
0 C 61	59.06.5683	68n	PETP, 63V, 5%, RM5		0 JP 4	54.01.0020	1p		Pin, 1reihig, gerade
0 C 62	59.06.5104	100n	PETP, 63V, 5%, RM5		0 JP 5	54.11.0136	2*3p		Pin 0.63*0.63, RM2,54
0 C 63	not used	not used	not used	not used	0 K 1	56.04.0198	2*u		5V 125V 2A Ag/Au
0 C 64	59.06.5683	68n	PETP, 63V, 5%, RM5		0 MP 1	1.980.202.71	1 mp		INPUT MAIN BOARD
0 C 65	59.06.5104	100n	PETP, 63V, 5%, RM5		0 MP 2	43.01.0108	1 mp	Label	ESE-WARNschild
0 C 66	59.06.5683	68n	PETP, 63V, 5%, RM5		0 MP 3	1.980.271.04	1 mp		NR.-ETIKETTE 5 * 20
0 C 67	59.06.5104	100n	PETP, 63V, 5%, RM5		0 MP 4	28.99.0119	8 mp		ROHRNIETE D 2.5*0.15* 9
0 C 68	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 5	1.010.011.22	4 mp	M3*1.5	Nietmutter sw 6
0 C 69	59.22.3101	100u	EL	10V 20% RM5	0 MP 6	54.01.0021	3 mp	Jumper	0.63*0.63mm, Au
0 C 70	59.22.3101	100u	EL	10V 20% RM5	0 MP 7	57.11.3000	4 mp	0R0	MF, 0207
0 C 71	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 8	1.177.200.04	1 mp	Wire	ERDUNGSDRAHT
0 C 73	59.22.3101	100u	EL	10V 20% RM5	0 MP 9	65.99.0111	35 mm		PTFE-SCHLAUCH SPEZ .89*0.152
0 C 75	59.22.3101	100u	EL	10V 20% RM5	1 MP 10	43.10.0110		A	Revisions-Etikette 5mm h'blau
0 C 76	59.22.3101	100u	EL	10V 20% RM5	0 P 1	54.14.5540	20p		PCB-Buchse winkel
0 C 78	59.22.3101	100u	EL	10V 20% RM5	0 P 2	54.14.5540	20p		PCB-Buchse winkel
0 C 80	59.22.3101	100u	EL	10V 20% RM5	0 P 3	54.11.2261	48p		EU-CK 3*16, lötl
0 C 82	59.22.3003	220u	EL	10V 20% RM5	0 P 4	54.11.2004	2*32p		EU-B 2*32 male
0 C 84	59.22.3101	100u	EL	10V 20% RM5	0 P 5	54.11.2013	2*16p		EU-BK 2*16p male
0 C 85	59.22.3101	100u	EL	10V 20% RM5	0 P 6	54.11.2004	2*32p		EU-B 2*32 male
0 C 87	59.22.3101	100u	EL	10V 20% RM5	0 P 7	1.023.556.01	Ribbon16p		FLACHKABEL 16 POL. 0,3 M
0 C 89	59.06.0104	100n	PETP, 63V, 10%, RM5		0 P 8	54.14.5510	10p		PCB-Buchse gerade
0 C 90	not used	not used	not used	not used	0 P 9	54.14.5510	10p		PCB-Buchse gerade
0 C 91	59.34.4101	100p	CER 63V, 5%, N750		0 P 10	54.14.5516	16p		PCB-Buchse gerade
0 C 92	59.22.3101	100u	EL	10V 20% RM5	0 P 11	not used	not used		not used
0 C 93	59.41.3470	47u	EL	10V 20% RM5	0 P 12	54.14.5520	20p		PCB-Buchse gerade
0 C 98	not used	not used	not used	not used	0 P 13	54.14.5516	16p		PCB-Buchse gerade
0 C 99	59.22.3101	100u	EL	10V 20% RM5	0 P 14	54.14.5520	20p		PCB-Buchse gerade
0 C 100	59.05.1681	680p	PP, 1%, 630V		0 Q 1	50.03.1505	VN0808L		N-VMOS-FET 80V, 0.35A
0 C 103	59.22.3101	100u	EL	10V 20% RM5	0 Q 2	50.03.0492	BC556B		BC 556 B PNP
0 C 104	59.06.0104	100n	PETP, 63V, 10%, RM5		0 Q 3	50.03.0491	BC546B		BC 546 B NPN
0 C 106	59.22.3003	220u	EL	10V 20% RM5	0 Q 4	50.03.0491	BC546B		BC 546 B NPN
0 C 107	not used	not used	not used	not used	0 Q 5	50.03.0492	BC556B		BC 556 B PNP
0 C 108	59.22.3101	100u	EL	10V 20% RM5	0 R 1	57.11.3682	6k8		MF, 1%, 0207
0 C 109	59.05.1681	680p	PP, 1%, 630V		0 R 2	57.11.3222	2k2		MF, 1%, 0207
0 C 113	not used	not used	not used	not used	0 R 3	57.11.3222	2k2		MF, 1%, 0207
0 C 114	not used	not used	not used	not used	0 R 5	57.11.3682	6k8		MF, 1%, 0207
0 C 115	59.22.3101	100u	EL	10V 20% RM5	0 R 6	57.11.3222	2k2		MF, 1%, 0207
0 C 116	59.05.1681	680p	PP, 1%, 630V		0 R 7	57.11.3222	2k2		MF, 1%, 0207
0 C 119	59.22.3101	100u	EL	10V 20% RM5	0 R 8	57.11.3223	22k		MF, 1%, 0207
0 C 121	59.22.3003	220u	EL	10V 20% RM5	0 R 10	57.11.3000	0R0		MF, 0207
0 C 122	59.22.3101	100u	EL	10V 20% RM5	0 R 14	57.11.3682	6k8		MF, 1%, 0207
0 C 123	59.05.1681	680p	PP, 1%, 630V		0 R 15	57.11.3222	2k2		MF, 1%, 0207
0 C 124	59.34.4101	100p	CER 63V, 5%, N750		0 R 16	57.11.3222	2k2		MF, 1%, 0207
0 C 125	59.34.4101	100p	CER 63V, 5%, N750		0 R 18	57.11.3682	6k8		MF, 1%, 0207
0 C 126	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 19	57.11.3682	6k8		MF, 1%, 0207
0 C 127	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 20	57.11.3222	2k2		MF, 1%, 0207
0 C 130	59.22.4002	100u	EL	16V 20% RM5	0 R 21	57.11.3222	2k2		MF, 1%, 0207

**INPUT MAIN BOARD STEREO/MIC/EQ 1.980.271.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 R 22	57.11.3682	6k8		MF, 1%, 0207	0 R 210	not used		not used	not used
0 R 23	57.11.3682	6k8		MF, 1%, 0207	0 R 218	not used		not used	not used
0 R 26	57.11.3682	6k8		MF, 1%, 0207	0 R 219	57.11.3472	4k7		MF, 1%, 0207
0 R 27	57.11.3223	22k		MF, 1%, 0207	0 R 224	not used		not used	not used
0 R 28	57.11.3682	6k8		MF, 1%, 0207	0 R 225	not used		not used	not used
0 R 29	57.11.3682	6k8		MF, 1%, 0207	0 R 226	57.11.3000	0R0		MF, 0207
0 R 30	57.11.3682	6k8		MF, 1%, 0207	0 R 227	57.11.3000	0R0		MF, 0207
0 R 31	57.11.3682	6k8		MF, 1%, 0207	0 R 229	not used		not used	not used
0 R 32	57.11.3682	6k8		MF, 1%, 0207	0 R 257	57.11.3682	6k8		MF, 1%, 0207
0 R 34	57.11.3682	6k8		MF, 1%, 0207	0 R 267	57.11.3682	6k8		MF, 1%, 0207
0 R 35	not used	not used		not used	0 R 268	57.11.3223	22k		MF, 1%, 0207
0 R 36	57.11.3103	10k		MF, 1%, 0207	0 R 261	57.11.3272	2k7		MF, 1%, 0207
0 R 37	57.11.3103	10k		MF, 1%, 0207	0 R 282	57.11.3000	0R0		MF, 0207
0 R 38	57.11.3103	10k		MF, 1%, 0207	0 R 283	57.11.3272	2k7		MF, 1%, 0207
0 R 42	57.11.3103	10k		MF, 1%, 0207	0 R 284	not used		not used	not used
0 R 47	57.92.7013	0.5A		PTC 60V	0 R 298	57.11.3272	2k7		MF, 1%, 0207
0 R 48	57.92.7013	0.5A		PTC 60V	0 R 299	57.11.3000	0R0		MF, 0207
0 R 49	57.92.7013	0.5A		PTC 60V	0 R 300	57.11.3272	2k7		MF, 1%, 0207
0 R 50	57.11.3103	10k		MF, 1%, 0207	0 R 301	not used		not used	not used
0 R 51	57.11.3103	10k		MF, 1%, 0207	0 R 308	57.11.3332	3k3		MF, 1%, 0207
0 R 52	57.11.3103	10k		MF, 1%, 0207	0 R 309	not used		not used	not used
0 R 53	57.11.3000	0R0		MF, 0207	1 R 312	57.11.3180	18R		MF, 1%, 0207
0 R 56	57.11.3103	10k		MF, 1%, 0207	0 RA 1	1.010.124.58	Pot		POT 2 * 4K7 LIN;
0 R 58	57.11.3472	4k7		MF, 1%, 0207	0 RA 2	1.010.126.58	Pot		POT 2 * 4K7 +LOG;
0 R 59	57.11.3472	4k7		MF, 1%, 0207	0 RA 3	1.010.305.58	10k +log		Potentiometer single
0 R 60	57.11.3103	10k		MF, 1%, 0207	0 RA 4	1.010.304.58	100k -log		Potentiometer quadruple
0 R 61	57.11.3103	10k		MF, 1%, 0207	0 RA 6	1.010.304.58	100k -log		Potentiometer quadruple
0 R 64	57.11.3103	10k		MF, 1%, 0207	0 RA 8	1.010.304.58	100k -log		Potentiometer quadruple
0 R 65	57.11.3103	10k		MF, 1%, 0207	0 RA 10	1.010.304.58	100k -log		Potentiometer quadruple
0 R 66	57.11.3103	10k		MF, 1%, 0207	0 RA 12	1.010.304.58	100k -log		Potentiometer quadruple
0 R 70	57.11.3332	3k3		MF, 1%, 0207	0 RA 13	1.010.122.58	Pot		POT 10K +LOG;
0 R 71	57.11.3332	3k3		MF, 1%, 0207	0 RA 14	1.010.122.58	Pot		POT 10K +LOG;
0 R 72	57.11.3103	10k		MF, 1%, 0207	0 RA 15	1.010.122.58	Pot		POT 10K +LOG;
0 R 79	57.11.3103	10k		MF, 1%, 0207	0 RA 16	1.010.122.58	Pot		POT 10K +LOG;
0 R 83	57.11.3332	3k3		MF, 1%, 0207	0 RA 17	1.010.057.58	Pot		POT 10K+;10K-;2*10K+;2*4K7+;
0 R 84	57.11.3472	4k7		MF, 1%, 0207	0 RA 18	1.010.057.58	Pot		POT 10K+;10K-;2*10K+;2*4K7+;
0 R 85	57.11.3472	4k7		MF, 1%, 0207	0 RZ 1	57.88.4684	680k		8*R Resistor-Netw 2% SIP9
0 R 86	57.11.3103	10k		MF, 1%, 0207	0 RZ 2	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 87	57.11.3103	10k		MF, 1%, 0207	0 RZ 3	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 88	57.11.3103	10k		MF, 1%, 0207	0 T 1	not used		not used	not used
0 R 89	57.11.3103	10k		MF, 1%, 0207	0 T 2	not used		not used	not used
0 R 97	57.11.3682	6k8		MF, 1%, 0207	0 W 1	not used		not used	not used
0 R 98	57.11.3332	3k3		MF, 1%, 0207	0 W 2	not used		not used	not used
0 R 99	57.11.3682	6k8		MF, 1%, 0207	0 W 3	57.11.3000	0R0		MF, 0207
0 R 100	57.11.3103	10k		MF, 1%, 0207	0 W 4	57.11.3000	0R0		MF, 0207
0 R 101	57.11.3472	4k7		MF, 1%, 0207	0 W 5	57.11.3000	0R0		MF, 0207
0 R 104	57.11.3682	6k8		MF, 1%, 0207	0 W 6	57.11.3000	0R0		MF, 0207
0 R 105	57.11.3682	6k8		MF, 1%, 0207	0 W 7	57.11.3000	0R0		MF, 0207
0 R 106	57.11.3682	6k8		MF, 1%, 0207	0 W 8	57.11.3000	0R0		MF, 0207
0 R 110	57.11.3472	4k7		MF, 1%, 0207	0 W 9	57.11.3000	0R0		MF, 0207
0 R 111	57.11.3684	680k		MF, 1%, 0207	0 W 10	57.11.3000	0R0		MF, 0207
0 R 117	57.11.3682	6k8		MF, 1%, 0207	0 W 11	not used		not used	not used
0 R 118	57.11.3682	6k8		MF, 1%, 0207	0 W 12	not used		not used	not used
0 R 119	57.11.3682	6k8		MF, 1%, 0207	0 W 13	not used		not used	not used
0 R 120	57.11.3682	6k8		MF, 1%, 0207	0 W 14	57.11.3000	0R0		MF, 0207
0 R 121	57.11.3682	6k8		MF, 1%, 0207	0 W 15	not used		not used	not used
0 R 122	57.11.3682	6k8		MF, 1%, 0207	0 W 17	not used		not used	not used
0 R 123	57.11.3682	6k8		MF, 1%, 0207	0 W 18	not used		not used	not used
0 R 124	57.11.3682	6k8		MF, 1%, 0207	0 W 19	57.11.3000	0R0		MF, 0207
0 R 129	57.11.3392	3k9		MF, 1%, 0207	0 W 20	not used		not used	not used
0 R 130	57.11.3471	470R		MF, 1%, 0207	0 W 21	1.010.107.64			WIRE WRAP DRAHT D .25 L= 70
0 R 132	57.11.3105	1M0		MF, 1%, 0207	0 W 22	1.010.107.64			WIRE WRAP DRAHT D .25 L= 70
0 R 133	57.11.3471	470R		MF, 1%, 0207	0 XIC 31	53.03.0166	8p		DIL-socket 0.3"
0 R 134	57.11.3512	5k1		MF, 1%, 0207	0 XIC 33	53.03.0167	14p		DIL-socket 0.3"
0 R 135	57.11.3512	5k1		MF, 1%, 0207	0 XIC 35	53.03.0168	16p		DIL-socket 0.3"
0 R 137	57.11.3682	6k8		MF, 1%, 0207	0 XIC 36	53.03.0168	16p		DIL-socket 0.3"
0 R 138	57.11.3682	6k8		MF, 1%, 0207	0 XIC 37	53.03.0168	16p		DIL-socket 0.3"
0 R 139	57.11.3103	10k		MF, 1%, 0207	0 XIC 39	53.03.0168	16p		DIL-socket 0.3"
0 R 140	57.11.3682	6k8		MF, 1%, 0207	0 XIC 41	53.03.0167	14p		DIL-socket 0.3"
0 R 141	not used	not used		not used	0 XIC 43	53.03.0167	14p		DIL-socket 0.3"
0 R 142	57.11.3103	10k		MF, 1%, 0207	0 XIC 44	53.03.0172	40p		DIL 0.6", lot, gerade
0 R 145	57.92.7013	0.5A		PTC 60V	0 XIC 46	53.03.0166	8p		DIL-socket 0.3"
0 R 146	57.11.3392	3k9		MF, 1%, 0207	0 XT 1	not used		not used	not used
0 R 147	57.11.3471	470R		MF, 1%, 0207	0 XT 2	not used		not used	not used
0 R 148	57.11.3472	4k7		MF, 1%, 0207	0 Y 1	89.01.1009	16.000MHz		XTAL HC 49/U
0 R 149	57.11.3471	470R		MF, 1%, 0207					
0 R 150	57.11.3153	15k		MF, 1%, 0207					
0 R 151	57.11.3103	10k		MF, 1%, 0207					
0 R 152	57.11.3153	15k		MF, 1%, 0207					
0 R 153	57.11.3103	10k		MF, 1%, 0207					
0 R 162	57.11.3000	0R0		MF, 0207					
0 R 168	57.11.3105	1M0		MF, 1%, 0207					
0 R 169	57.11.3472	4k7		MF, 1%, 0207					
0 R 190	57.11.3392	3k9		MF, 1%, 0207					
0 R 191	57.11.3684	680k		MF, 1%, 0207					
0 R 195	57.11.3392	3k9		MF, 1%, 0207					
0 R 209	57.11.3472	4k7		MF, 1%, 0207					

End of List

(1) R312: 39R->18R; MP10: Revision-Label "A" added



**INPUT MAIN BOARD STEREO/HL/GRP/EQ 1.980.272.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	not used	not used	not used	not used	0 C 131	not used	270p		CER 63V, 5%, N750
0 C 2	not used	not used	not used	not used	0 D 1	50.04.0122	1N4001		1A, DO 41
0 C 4	59.22.5220	22u	EL 25V 20% RM5		0 D 2	50.04.0122	1N4001		1A, DO 41
0 C 5	59.22.3003	220u	EL 10V 20% RM5		0 D 3	50.04.0122	1N4001		1A, DO 41
0 C 6	59.22.3003	220u	EL 10V 20% RM5		0 D 4	50.04.0122	1N4001		1A, DO 41
0 C 10	59.22.5220	22u	EL 25V 20% RM5		0 D 22	not used	not used		not used
0 C 11	59.22.3101	100u	EL 10V 20% RM5		0 D 24	not used	not used		not used
0 C 12	59.22.3101	100u	EL 10V 20% RM5		0 D 25	not used	not used		not used
0 C 14	59.22.3003	220u	EL 10V 20% RM5		0 D 48	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 15	59.22.3003	220u	EL 10V 20% RM5		0 DL 1	50.04.2121	TLUR 2401		DL TLUR 2401 RT MATT
0 C 16	59.22.5220	22u	EL 25V 20% RM5		0 DL 2	50.04.2133	TLUY 2401		DL TLUY 2401 GB MATT
0 C 18	59.22.3101	100u	EL 10V 20% RM5		0 IC 1	50.09.0117	33078		IC MC 33078 P
0 C 19	59.22.3101	100u	EL 10V 20% RM5		0 IC 2	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 20	59.22.3003	220u	EL 10V 20% RM5		0 IC 3	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 21	not used	not used	not used		0 IC 4	50.09.0117	33078		IC MC 33078 P
0 C 22	59.22.3003	220u	EL 10V 20% RM5		0 IC 6	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 24	59.22.5220	22u	EL 25V 20% RM5		0 IC 7	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 26	59.22.5220	22u	EL 25V 20% RM5		0 IC 8	50.09.0117	33078		IC MC 33078 P
0 C 27	59.22.5220	22u	EL 25V 20% RM5		0 IC 13	50.09.0117	33078		IC MC 33078 P
0 C 28	not used	not used	not used		0 IC 18	50.09.0117	33078		IC MC 33078 P
0 C 31	59.22.3101	100u	EL 10V 20% RM5		0 IC 31	50.09.0117	33078		IC MC 33078 P
0 C 32	59.22.3101	100u	EL 10V 20% RM5		0 IC 33	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 34	59.22.3101	100u	EL 10V 20% RM5		0 IC 35	50.15.0128	34C86		IC DS 34 C 86 TN, MC34C86P ,A
0 C 35	59.22.3101	100u	EL 10V 20% RM5		0 IC 36	50.15.0127	34C87		IC DS 34 C 87 TN, MC34C87P ,A
0 C 37	59.06.5333	33n	PETP, 63V, 5%, RM5		0 IC 37	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 38	59.06.5333	33n	PETP, 63V, 5%, RM5		0 IC 38	50.09.0121	TL072B		IC TL 072 BCP ,A
0 C 39	59.05.2153	15n	PP, 2.5%, 63V		0 IC 39	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 40	59.05.2153	15n	PP, 2.5%, 63V		0 IC 40	50.19.0300	DG441		4*SPST analog switch
0 C 41	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 41	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 44	59.22.3101	100u	EL 10V 20% RM5		0 IC 42	50.09.0121	TL072B		IC TL 072 BCP ,A
0 C 46	59.22.4002	100u	EL 16V 20% RM5		0 IC 43	50.06.0014	74LS14		SN 74 LS 14 N
0 C 48	59.22.4002	100u	EL 16V 20% RM5		0 IC 44	50.16.0302	PIC17C42A-16P		MicroController
0 C 49	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 45	50.09.0117	33078		IC MC 33078 P
0 C 52	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 46	50.09.0117	33078		IC MC 33078 P
0 C 53	59.05.2472	4n7	PP, 2.5%, 63V		0 IC 48	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 54	not used	not used	not used		0 IC 49	50.09.0119	062		IC TL 062 ACP ,A
0 C 55	not used	not used	not used		0 IC 50	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 56	not used	not used	not used		0 JP 1	54.01.0020	1p		Pin, 1reihig, gerade
0 C 59	59.06.5683	68n	PETP, 63V, 5%, RM5		0 JP 2	54.01.0020	1p		Pin, 1reihig, gerade
0 C 60	59.06.5104	100n	PETP, 63V, 5%, RM5		0 JP 3	54.01.0020	1p		Pin, 1reihig, gerade
0 C 61	59.06.5683	68n	PETP, 63V, 5%, RM5		0 JP 4	54.01.0020	1p		Pin, 1reihig, gerade
0 C 62	59.06.5104	100n	PETP, 63V, 5%, RM5		0 JP 5	54.11.0136	2*3p		Pin 0.63*0.63, RM2.54
0 C 63	not used	not used	not used		0 K 1	56.04.0198	2*u		5V 125V 2A Ag/Au
0 C 64	59.06.5683	68n	PETP, 63V, 5%, RM5		0 MP 1	1.980.202.71	1 mp		INPUT MAIN BOARD
0 C 65	59.06.5104	100n	PETP, 63V, 5%, RM5		0 MP 2	43.01.0108	1 mp	Label	ESE-WARNschild
0 C 66	59.06.5683	68n	PETP, 63V, 5%, RM5		0 MP 3	1.980.272.04	1 mp		NR.-ETIKETTE 5 * 20
0 C 67	59.06.5104	100n	PETP, 63V, 5%, RM5		0 MP 4	28.99.0119	8 mp		ROHRNIETE D 2.5*0.15* 9
0 C 68	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 5	1.010.011.22	4 mp	M3*1.5	Nietmutter sw 6
0 C 69	59.22.3101	100u	EL 10V 20% RM5		0 MP 6	54.01.0021	3 mp	Jumper	0.63*0.63mm, Au
0 C 70	59.22.3101	100u	EL 10V 20% RM5		0 MP 7	57.11.3000	4 mp	0R0	MF, 0207
0 C 71	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 8	1.177.200.04	1 mp	Wire	ERDUNGSDRAHT
0 C 73	59.22.3101	100u	EL 10V 20% RM5		0 MP 9	65.99.0111	35 mm		PTFE-SCHLAUCH SPEZ .89*0.152
0 C 75	59.22.3101	100u	EL 10V 20% RM5		1 MP 10	43.10.0110		A	Revisions-Etikette 5mm h'blau
0 C 76	59.22.3101	100u	EL 10V 20% RM5		0 P 1	54.14.5540	20p		PCB-Buchse winkel
0 C 78	59.22.3101	100u	EL 10V 20% RM5		0 P 2	54.14.5540	20p		PCB-Buchse winkel
0 C 80	59.22.3101	100u	EL 10V 20% RM5		0 P 3	54.11.2261	48p		EU-CK 3*16, lötl
0 C 82	59.22.3003	220u	EL 10V 20% RM5		0 P 4	54.11.2004	2*32p		EU-B 2*32 male
0 C 84	not used	not used	not used		0 P 5	54.11.2013	2*16p		EU-BK 2*16p male
0 C 85	not used	not used	not used		0 P 6	54.11.2004	2*32p		EU-B 2*32 male
0 C 87	59.22.3101	100u	EL 10V 20% RM5		0 P 7	1.023.556.01	Ribbon16p		FLACHKABEL 16 POL. 0.3 M
0 C 89	59.06.0104	100n	PETP, 63V, 10%, RM5		0 P 8	54.14.5510	10p		PCB-Buchse gerade
0 C 90	not used	not used	not used		0 P 9	54.14.5510	10p		PCB-Buchse gerade
0 C 91	59.34.4101	100p	CER 63V, 5%, N750		0 P 10	54.14.5516	16p		PCB-Buchse gerade
0 C 92	59.22.3101	100u	EL 10V 20% RM5		0 P 11	not used	not used		not used
0 C 93	59.41.3470	47u	EL 10V 20% RM5		0 P 12	54.14.5520	20p		PCB-Buchse gerade
0 C 98	59.22.3003	220u	EL 10V 20% RM5		0 P 13	54.14.5516	16p		PCB-Buchse gerade
0 C 99	not used	not used	not used		0 P 14	54.14.5520	20p		PCB-Buchse gerade
0 C 100	59.05.1681	680p	PP, 1%, 630V		0 Q 1	not used	not used		not used
0 C 103	59.22.3101	100u	EL 10V 20% RM5		0 Q 2	not used	not used		not used
0 C 104	59.06.0104	100n	PETP, 63V, 10%, RM5		0 Q 3	not used	not used		not used
0 C 106	59.22.3003	220u	EL 10V 20% RM5		0 Q 4	50.03.0491	BC546B		BC 546 B NPN
0 C 107	59.06.5152	1n5	PETP, 63V, 5%, RM5		0 Q 5	50.03.0492	BC556B		BC 556 B PNP
0 C 108	not used	not used	not used		0 R 1	57.11.3682	6k8		MF, 1%, 0207
0 C 109	59.05.1681	680p	PP, 1%, 630V		0 R 2	57.11.3222	2k2		MF, 1%, 0207
0 C 113	59.22.3003	220u	EL 10V 20% RM5		0 R 3	57.11.3222	2k2		MF, 1%, 0207
0 C 114	59.06.5152	1n5	PETP, 63V, 5%, RM5		0 R 5	57.11.3682	6k8		MF, 1%, 0207
0 C 115	not used	not used	not used		0 R 6	57.11.3222	2k2		MF, 1%, 0207
0 C 116	59.05.1681	680p	PP, 1%, 630V		0 R 7	57.11.3222	2k2		MF, 1%, 0207
0 C 119	59.22.3101	100u	EL 10V 20% RM5		0 R 8	57.11.3223	22k		MF, 1%, 0207
0 C 121	59.22.3003	220u	EL 10V 20% RM5		0 R 10	57.11.3000	0R0		MF, 0207
0 C 122	not used	not used	not used		0 R 14	57.11.3682	6k8		MF, 1%, 0207
0 C 123	59.05.1681	680p	PP, 1%, 630V		0 R 15	57.11.3222	2k2		MF, 1%, 0207
0 C 124	not used	not used	not used		0 R 16	57.11.3222	2k2		MF, 1%, 0207
0 C 125	not used	not used	not used		0 R 18	57.11.3682	6k8		MF, 1%, 0207
0 C 126	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 19	57.11.3682	6k8		MF, 1%, 0207
0 C 127	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 20	57.11.3222	2k2		MF, 1%, 0207
0 C 130	59.22.4002	100u	EL 16V 20% RM5		0 R 21	57.11.3222	2k2		MF, 1%, 0207

**INPUT MAIN BOARD STEREO/HL/GRP/EQ 1.980.272.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 R 22	57.11.3682	6k8		MF, 1%, 0207	0 R 210	not used		not used	not used
0 R 23	57.11.3682	6k8		MF, 1%, 0207	0 R 218	not used		not used	not used
0 R 26	57.11.3682	6k8		MF, 1%, 0207	0 R 219	57.11.3472	4k7		MF, 1%, 0207
0 R 27	57.11.3223	22k		MF, 1%, 0207	0 R 224	not used		not used	not used
0 R 28	57.11.3682	6k8		MF, 1%, 0207	0 R 225	not used		not used	not used
0 R 29	57.11.3682	6k8		MF, 1%, 0207	0 R 226	57.11.3000	0R0		MF, 0207
0 R 30	57.11.3682	6k8		MF, 1%, 0207	0 R 227	57.11.3000	0R0		MF, 0207
0 R 31	57.11.3682	6k8		MF, 1%, 0207	0 R 229	not used		not used	not used
0 R 32	57.11.3682	6k8		MF, 1%, 0207	0 R 257	57.11.3682	6k8		MF, 1%, 0207
0 R 34	57.11.3682	6k8		MF, 1%, 0207	0 R 267	57.11.3682	6k8		MF, 1%, 0207
0 R 35	not used	not used		not used	0 R 268	57.11.3223	22k		MF, 1%, 0207
0 R 36	57.11.3103	10k		MF, 1%, 0207	0 R 281	not used		not used	not used
0 R 37	57.11.3103	10k		MF, 1%, 0207	0 R 282	57.11.3102	1k0		MF, 1%, 0207
0 R 38	57.11.3103	10k		MF, 1%, 0207	0 R 283	57.11.3392	3k9		MF, 1%, 0207
0 R 42	57.11.3103	10k		MF, 1%, 0207	0 R 284	57.11.3270	27R		MF, 1%, 0207
0 R 47	57.92.7013	0.5A		PTC 60V	0 R 298	not used		not used	not used
0 R 48	57.92.7013	0.5A		PTC 60V	0 R 299	57.11.3102	1k0		MF, 1%, 0207
0 R 49	57.92.7013	0.5A		PTC 60V	0 R 300	57.11.3392	3k9		MF, 1%, 0207
0 R 50	57.11.3103	10k		MF, 1%, 0207	0 R 301	57.11.3270	27R		MF, 1%, 0207
0 R 51	57.11.3103	10k		MF, 1%, 0207	0 R 308	57.11.3332	3k3		MF, 1%, 0207
0 R 52	57.11.3103	10k		MF, 1%, 0207	0 R 309	not used		not used	not used
0 R 53	57.11.3000	0R0		MF, 0207	1 R 312	57.11.3180	18R		MF, 1%, 0207
0 R 56	57.11.3103	10k		MF, 1%, 0207	0 RA 1	1.010.124.58	Pot		POT 2 * 4K7 LIN;
0 R 58	57.11.3472	4k7		MF, 1%, 0207	0 RA 2	1.010.124.58	Pot		POT 2 * 4K7 LIN;
0 R 59	57.11.3472	4k7		MF, 1%, 0207	0 RA 3	1.010.305.58	10k +log		Potentiometer single
0 R 60	57.11.3103	10k		MF, 1%, 0207	0 RA 4	1.010.304.58	100k -log		Potentiometer quadruple
0 R 61	57.11.3103	10k		MF, 1%, 0207	0 RA 6	1.010.304.58	100k -log		Potentiometer quadruple
0 R 64	57.11.3103	10k		MF, 1%, 0207	0 RA 8	1.010.304.58	100k -log		Potentiometer quadruple
0 R 65	57.11.3103	10k		MF, 1%, 0207	0 RA 10	1.010.304.58	100k -log		Potentiometer quadruple
0 R 66	57.11.3103	10k		MF, 1%, 0207	0 RA 12	1.010.304.58	100k -log		Potentiometer quadruple
0 R 70	57.11.3332	3k3		MF, 1%, 0207	0 RA 13	1.010.122.58	Pot		POT 10K +LOG;
0 R 71	57.11.3332	3k3		MF, 1%, 0207	0 RA 14	1.010.122.58	Pot		POT 10K +LOG;
0 R 72	57.11.3103	10k		MF, 1%, 0207	0 RA 15	1.010.122.58	Pot		POT 10K +LOG;
0 R 79	57.11.3103	10k		MF, 1%, 0207	0 RA 16	1.010.122.58	Pot		POT 10K +LOG;
0 R 83	57.11.3332	3k3		MF, 1%, 0207	0 RA 17	1.010.057.58	Pot		POT 10K+;10K;-2*10K+;2*4K7+;
0 R 84	57.11.3472	4k7		MF, 1%, 0207	0 RA 18	1.010.057.58	Pot		POT 10K+;10K;-2*10K+;2*4K7+;
0 R 85	57.11.3472	4k7		MF, 1%, 0207	0 RZ 1	57.88.4684	680k		8*R Resistor-Netw 2% SIP9
0 R 86	57.11.3103	10k		MF, 1%, 0207	0 RZ 2	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 87	57.11.3103	10k		MF, 1%, 0207	0 RZ 3	57.88.4104	100k		8*R Resistor-Netw 2% SIP9
0 R 88	57.11.3103	10k		MF, 1%, 0207	0 T 1	1.022.454.00	1:0.175		EINGANGSTRAFO 1:0,175
0 R 89	57.11.3103	10k		MF, 1%, 0207	0 T 2	1.022.454.00	1:0.175		EINGANGSTRAFO 1:0,175
0 R 97	57.11.3682	6k8		MF, 1%, 0207	0 W 1	not used		not used	not used
0 R 98	57.11.3332	3k3		MF, 1%, 0207	0 W 2	not used		not used	not used
0 R 99	57.11.3682	6k8		MF, 1%, 0207	0 W 3	57.11.3000	0R0		MF, 0207
0 R 100	57.11.3103	10k		MF, 1%, 0207	0 W 4	57.11.3000	0R0		MF, 0207
0 R 101	57.11.3472	4k7		MF, 1%, 0207	0 W 5	57.11.3000	0R0		MF, 0207
0 R 104	57.11.3682	6k8		MF, 1%, 0207	0 W 6	57.11.3000	0R0		MF, 0207
0 R 105	57.11.3682	6k8		MF, 1%, 0207	0 W 7	57.11.3000	0R0		MF, 0207
0 R 106	57.11.3682	6k8		MF, 1%, 0207	0 W 8	57.11.3000	0R0		MF, 0207
0 R 110	57.11.3472	4k7		MF, 1%, 0207	0 W 9	57.11.3000	0R0		MF, 0207
0 R 111	57.11.3684	680k		MF, 1%, 0207	0 W 10	57.11.3000	0R0		MF, 0207
0 R 117	57.11.3682	6k8		MF, 1%, 0207	0 W 11	not used		not used	not used
0 R 118	57.11.3682	6k8		MF, 1%, 0207	0 W 12	not used		not used	not used
0 R 119	57.11.3682	6k8		MF, 1%, 0207	0 W 13	not used		not used	not used
0 R 120	57.11.3682	6k8		MF, 1%, 0207	0 W 14	57.11.3000	0R0		MF, 0207
0 R 121	57.11.3682	6k8		MF, 1%, 0207	0 W 15	not used		not used	not used
0 R 122	57.11.3682	6k8		MF, 1%, 0207	0 W 17	not used		not used	not used
0 R 123	57.11.3682	6k8		MF, 1%, 0207	0 W 18	not used		not used	not used
0 R 124	57.11.3682	6k8		MF, 1%, 0207	0 W 19	57.11.3000	0R0		MF, 0207
0 R 129	57.11.3392	3k9		MF, 1%, 0207	0 W 20	57.11.3000	0R0		MF, 0207
0 R 130	57.11.3471	470R		MF, 1%, 0207	0 XIC 31	53.03.0166	8p		DIL-socket 0.3"
0 R 132	57.11.3105	1M0		MF, 1%, 0207	0 XIC 33	53.03.0167	14p		DIL-socket 0.3"
0 R 133	57.11.3471	470R		MF, 1%, 0207	0 XIC 35	53.03.0168	16p		DIL-socket 0.3"
0 R 134	57.11.3512	5k1		MF, 1%, 0207	0 XIC 36	53.03.0168	16p		DIL-socket 0.3"
0 R 135	57.11.3512	5k1		MF, 1%, 0207	0 XIC 37	53.03.0168	16p		DIL-socket 0.3"
0 R 137	57.11.3682	6k8		MF, 1%, 0207	0 XIC 39	53.03.0168	16p		DIL-socket 0.3"
0 R 138	57.11.3682	6k8		MF, 1%, 0207	0 XIC 41	53.03.0167	14p		DIL-socket 0.3"
0 R 139	57.11.3103	10k		MF, 1%, 0207	0 XIC 43	53.03.0167	14p		DIL-socket 0.3"
0 R 140	57.11.3682	6k8		MF, 1%, 0207	0 XIC 44	53.03.0172	40p		DIL 0.6", löt, gerade
0 R 141	not used	not used		not used	0 XIC 46	53.03.0166	8p		DIL-socket 0.3"
0 R 142	57.11.3103	10k		MF, 1%, 0207	0 XT 1	1.022.400.03			ISOLATION
0 R 145	57.92.7013	0.5A		PTC 60V	0 XT 2	1.022.400.03			ISOLATION
0 R 146	57.11.3392	3k9		MF, 1%, 0207	0 Y 1	89.01.1009	16.000MHz		XTAL HC 49/U
0 R 147	57.11.3471	470R		MF, 1%, 0207					
0 R 148	57.11.3472	4k7		MF, 1%, 0207					
0 R 149	57.11.3471	470R		MF, 1%, 0207					
0 R 150	57.11.3153	15k		MF, 1%, 0207					
0 R 151	57.11.3103	10k		MF, 1%, 0207					
0 R 152	57.11.3153	15k		MF, 1%, 0207					
0 R 153	57.11.3103	10k		MF, 1%, 0207					
0 R 162	57.11.3000	0R0		MF, 0207					
0 R 168	57.11.3105	1M0		MF, 1%, 0207					
0 R 169	57.11.3472	4k7		MF, 1%, 0207					
0 R 190	57.11.3392	3k9		MF, 1%, 0207					
0 R 191	57.11.3684	680k		MF, 1%, 0207					
0 R 195	57.11.3392	3k9		MF, 1%, 0207					
0 R 209	57.11.3472	4k7		MF, 1%, 0207					

End of List

(1) R312: 39R->18R; MP10: Revision-Label "A" added

**INPUT MAIN BOARD STEREO/HL/GROUP 1.980.273.21 (ESE)** Page: 1 of 2

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	not used	not used	not used	not used	0 C 131	not used	270p		CER 63V, 5%, N750
0 C 2	not used	not used	not used	not used	0 D 1	50.04.0122	1N4001		1A, DO 41
0 C 4	59.22.5220	22u	EL	25V 20% RM5	0 D 2	50.04.0122	1N4001		1A, DO 41
0 C 5	59.22.3003	220u	EL	10V 20% RM5	0 D 3	50.04.0122	1N4001		1A, DO 41
0 C 6	59.22.3003	220u	EL	10V 20% RM5	0 D 4	50.04.0122	1N4001		1A, DO 41
0 C 10	59.22.5220	22u	EL	25V 20% RM5	0 D 22	not used	not used		not used
0 C 11	59.22.3101	100u	EL	10V 20% RM5	0 D 24	not used	not used		not used
0 C 12	59.22.3101	100u	EL	10V 20% RM5	0 D 25	not used	not used		not used
0 C 14	59.22.3003	220u	EL	10V 20% RM5	0 D 48	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 15	59.22.3003	220u	EL	10V 20% RM5	0 DL 1	50.04.2121	TLUR 2401		DL TLUR 2401 RT MATT
0 C 16	59.22.5220	22u	EL	25V 20% RM5	0 DL 2	50.04.2133	TLUY 2401		DL TLUY 2401 GB MATT
0 C 18	59.22.3101	100u	EL	10V 20% RM5	0 IC 1	50.09.0117	33078		IC MC 33078 P
0 C 19	59.22.3101	100u	EL	10V 20% RM5	0 IC 2	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 20	59.22.3003	220u	EL	10V 20% RM5	0 IC 3	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 21	not used	not used	not used	not used	0 IC 4	50.09.0117	33078		IC MC 33078 P
0 C 22	59.22.3003	220u	EL	10V 20% RM5	0 IC 6	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 24	59.22.5220	22u	EL	25V 20% RM5	0 IC 7	50.07.0015	4053		Tripple 2ch analog mux/demux
0 C 26	59.22.5220	22u	EL	25V 20% RM5	0 IC 8	50.09.0117	33078		IC MC 33078 P
0 C 27	59.22.5220	22u	EL	25V 20% RM5	0 IC 13	50.09.0117	33078		IC MC 33078 P
0 C 28	not used	not used	not used	not used	0 IC 18	50.09.0117	33078		IC MC 33078 P
0 C 31	59.22.3101	100u	EL	10V 20% RM5	0 IC 31	50.09.0117	33078		IC MC 33078 P
0 C 32	59.22.3101	100u	EL	10V 20% RM5	0 IC 33	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 34	59.22.3101	100u	EL	10V 20% RM5	0 IC 35	50.15.0128	34C86		IC DS 34 C 86 TN, MC34C86P ,A
0 C 35	59.22.3101	100u	EL	10V 20% RM5	0 IC 36	50.15.0127	34C87		IC DS 34 C 87 TN, MC34C87P ,A
0 C 37	not used	not used	not used	not used	0 IC 37	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 38	not used	not used	not used	not used	0 IC 38	not used	not used		not used
0 C 39	not used	not used	not used	not used	0 IC 39	50.17.1165	74HC165		IC ... 74 HC 165 .. ,A
0 C 40	not used	not used	not used	not used	0 IC 40	50.19.0300	DG441		4*SPST analog switch
0 C 41	not used	not used	not used	not used	0 IC 41	50.17.1014	74HC 14		IC ... 74 HC 14 .. ,A
0 C 44	59.22.3101	100u	EL	10V 20% RM5	0 IC 42	50.09.0121	TL072B		IC TL 072 BCP ,A
0 C 46	59.22.4002	100u	EL	16V 20% RM5	0 IC 43	50.06.0014	74LS14		SN 74 LS 14 N
0 C 48	59.22.4002	100u	EL	16V 20% RM5	0 IC 44	50.16.0302	PIC17C42A-16P		MicroController
0 C 49	not used	not used	not used	not used	0 IC 45	50.09.0117	33078		IC MC 33078 P
0 C 52	not used	not used	not used	not used	0 IC 46	50.09.0117	33078		IC MC 33078 P
0 C 53	not used	not used	not used	not used	0 IC 48	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 54	not used	not used	not used	not used	0 IC 49	50.09.0119	062		IC TL 062 ACP ,A
0 C 55	not used	not used	not used	not used	0 IC 50	50.09.0105	5532		IC NE 5532 N, RC 5532 NB ,A
0 C 56	not used	not used	not used	not used	0 JP 1	54.01.0020	1p		Pin, 1reihig, gerade
0 C 59	not used	not used	not used	not used	0 JP 2	54.01.0020	1p		Pin, 1reihig, gerade
0 C 60	not used	not used	not used	not used	0 JP 3	54.01.0020	1p		Pin, 1reihig, gerade
0 C 61	not used	not used	not used	not used	0 JP 4	54.01.0020	1p		Pin, 1reihig, gerade
0 C 62	not used	not used	not used	not used	0 JP 5	54.11.0136	2*3p		Pin 0.63*0.63, RM2,54
0 C 63	not used	not used	not used	not used	0 K 1	56.04.0198	2*u		5V 125V 2A Ag/Au
0 C 64	not used	not used	not used	not used	0 MP 1	1.980.202.71	1 mp		INPUT MAIN BOARD
0 C 65	not used	not used	not used	not used	0 MP 2	43.01.0108	1 mp	Label	ESE-WARNschild
0 C 66	not used	not used	not used	not used	0 MP 3	1.980.273.04	1 mp		NR.-ETIKETTE 5 * 20
0 C 67	not used	not used	not used	not used	0 MP 4	28.99.0119	8 mp		ROHRNIETE D 2.5*0.15" 9
0 C 68	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 5	1.010.011.22	4 mp	M3*1.5	Nietmutter sw 6
0 C 69	59.22.3101	100u	EL	10V 20% RM5	0 MP 6	54.01.0021	3 mp	Jumper	0.63*0.63mm, Au
0 C 70	not used	not used	not used	not used	0 MP 7	57.11.3000	4 mp	0R0	MF, 0207
0 C 71	59.06.0104	100n	PETP, 63V, 10%, RM5		0 MP 8	not used	not used		not used
0 C 73	not used	not used	not used	not used	0 MP 9	65.99.0111	35 mm		PTFE-SCHLAUCH SPEZ .89*0.152
0 C 75	59.22.3101	100u	EL	10V 20% RM5	1 MP 10	43.10.0110		A	Revisions-Etikette 5mm h/blau
0 C 76	59.22.3101	100u	EL	10V 20% RM5	0 P 1	54.14.5540	20p		PCB-Buchse winkel
0 C 78	59.22.3101	100u	EL	10V 20% RM5	0 P 2	54.14.5540	20p		PCB-Buchse winkel
0 C 80	59.22.3101	100u	EL	10V 20% RM5	0 P 3	54.11.2261	48p		EU-CK 3*16, lötl
0 C 82	59.22.3003	220u	EL	10V 20% RM5	0 P 4	54.11.2004	2*32p		EU-B 2*32 male
0 C 84	not used	not used	not used	not used	0 P 5	54.11.2013	2*16p		EU-BK 2*16p male
0 C 85	not used	not used	not used	not used	0 P 6	54.11.2004	2*32p		EU-B 2*32 male
0 C 87	59.22.3101	100u	EL	10V 20% RM5	0 P 7	1.023.556.01	Ribbon16p		FLACHKABEL 16 POL. 0,3 M
0 C 89	59.06.0104	100n	PETP, 63V, 10%, RM5		0 P 8	54.14.5510	10p		PCB-Buchse gerade
0 C 90	not used	not used	not used	not used	0 P 9	54.14.5510	10p		PCB-Buchse gerade
0 C 91	59.34.4101	100p	CER 63V, 5%, N750		0 P 10	54.14.5516	16p		PCB-Buchse gerade
0 C 92	59.22.3101	100u	EL	10V 20% RM5	0 P 11	not used	not used		not used
0 C 93	59.41.3470	47u	EL	10V 20% RM5	0 P 12	54.14.5520	20p		PCB-Buchse gerade
0 C 98	59.22.3003	220u	EL	10V 20% RM5	0 P 13	54.14.5516	16p		PCB-Buchse gerade
0 C 99	not used	not used	not used	not used	0 P 14	54.14.5520	20p		PCB-Buchse gerade
0 C 100	59.05.1681	680p	PP, 1%, 630V		0 Q 1	not used	not used		not used
0 C 103	59.22.3101	100u	EL	10V 20% RM5	0 Q 2	not used	not used		not used
0 C 104	59.06.0104	100n	PETP, 63V, 10%, RM5		0 Q 3	not used	not used		not used
0 C 106	59.22.3003	220u	EL	10V 20% RM5	0 Q 4	50.03.0491	BC546B		BC 546 B NPN
0 C 107	59.06.5152	1n5	PETP, 63V, 5%, RM5		0 Q 5	50.03.0492	BC556B		BC 556 B PNP
0 C 108	not used	not used	not used	not used	0 R 1	57.11.3682	6k8		MF, 1%, 0207
0 C 109	59.05.1681	680p	PP, 1%, 630V		0 R 2	57.11.3222	2k2		MF, 1%, 0207
0 C 113	59.22.3003	220u	EL	10V 20% RM5	0 R 3	57.11.3222	2k2		MF, 1%, 0207
0 C 114	59.06.5152	1n5	PETP, 63V, 5%, RM5		0 R 5	57.11.3682	6k8		MF, 1%, 0207
0 C 115	not used	not used	not used	not used	0 R 6	57.11.3222	2k2		MF, 1%, 0207
0 C 116	59.05.1681	680p	PP, 1%, 630V		0 R 7	57.11.3222	2k2		MF, 1%, 0207
0 C 119	59.22.3101	100u	EL	10V 20% RM5	0 R 8	57.11.3223	22k		MF, 1%, 0207
0 C 121	59.22.3003	220u	EL	10V 20% RM5	0 R 10	57.11.3000	0R0		MF, 0207
0 C 122	not used	not used	not used	not used	0 R 14	57.11.3682	6k8		MF, 1%, 0207
0 C 123	59.05.1681	680p	PP, 1%, 630V		0 R 15	57.11.3222	2k2		MF, 1%, 0207
0 C 124	not used	not used	not used	not used	0 R 16	57.11.3222	2k2		MF, 1%, 0207
0 C 125	not used	not used	not used	not used	0 R 18	57.11.3682	6k8		MF, 1%, 0207
0 C 126	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 19	57.11.3682	6k8		MF, 1%, 0207
0 C 127	59.06.0104	100n	PETP, 63V, 10%, RM5		0 R 20	57.11.3222	2k2		MF, 1%, 0207
0 C 130	59.22.4002	100u	EL	16V 20% RM5	0 R 21	57.11.3222	2k2		MF, 1%, 0207

**INPUT MAIN BOARD STEREO/HL/GROUP 1.980.273.21 (ESE)** Page: 2 of 2

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 R 22	57.11.3682		6k8	MF, 1%, 0207	0 R 210	not used		not used	not used
0 R 23	57.11.3682		6k8	MF, 1%, 0207	0 R 218	not used		not used	not used
0 R 26	57.11.3682		6k8	MF, 1%, 0207	0 R 219	not used		not used	not used
0 R 27	57.11.3223		22k	MF, 1%, 0207	0 R 224	not used		not used	not used
0 R 28	57.11.3682		6k8	MF, 1%, 0207	0 R 225	not used		not used	not used
0 R 29	57.11.3682		6k8	MF, 1%, 0207	0 R 226	57.11.3000		0R0	MF, 0207
0 R 30	57.11.3682		6k8	MF, 1%, 0207	0 R 227	57.11.3000		0R0	MF, 0207
0 R 31	57.11.3682		6k8	MF, 1%, 0207	0 R 229	not used		not used	not used
0 R 32	57.11.3682		6k8	MF, 1%, 0207	0 R 257	57.11.3682		6k8	MF, 1%, 0207
0 R 34	57.11.3682		6k8	MF, 1%, 0207	0 R 267	57.11.3682		6k8	MF, 1%, 0207
0 R 35	not used		not used	not used	0 R 268	57.11.3223		22k	MF, 1%, 0207
0 R 36	57.11.3103		10k	MF, 1%, 0207	0 R 281	not used		not used	not used
0 R 37	57.11.3103		10k	MF, 1%, 0207	0 R 282	57.11.3102		1k0	MF, 1%, 0207
0 R 38	57.11.3103		10k	MF, 1%, 0207	0 R 283	57.11.3392		3k9	MF, 1%, 0207
0 R 42	57.11.3103		10k	MF, 1%, 0207	0 R 284	57.11.3270		27R	MF, 1%, 0207
0 R 47	57.92.7013		0.5A	PTC 60V	0 R 298	not used		not used	not used
0 R 48	57.92.7013		0.5A	PTC 60V	0 R 299	57.11.3102		1k0	MF, 1%, 0207
0 R 49	57.92.7013		0.5A	PTC 60V	0 R 300	57.11.3392		3k9	MF, 1%, 0207
0 R 50	57.11.3103		10k	MF, 1%, 0207	0 R 301	57.11.3270		27R	MF, 1%, 0207
0 R 51	57.11.3103		10k	MF, 1%, 0207	0 R 308	57.11.3332		3k3	MF, 1%, 0207
0 R 52	57.11.3103		10k	MF, 1%, 0207	0 R 309	not used		not used	not used
0 R 53	57.11.3000		0R0	MF, 0207	1 R 312	57.11.3180		18R	MF, 1%, 0207
0 R 56	57.11.3103		10k	MF, 1%, 0207	0 RA 1	1.010.124.58		Pot	POT 2 * 4K7 LIN;
0 R 58	57.11.3472		4k7	MF, 1%, 0207	0 RA 2	1.010.124.58		Pot	POT 2 * 4K7 LIN;
0 R 59	57.11.3472		4k7	MF, 1%, 0207	0 RA 3	not used		not used	not used
0 R 60	57.11.3103		10k	MF, 1%, 0207	0 RA 4	not used		not used	not used
0 R 61	57.11.3103		10k	MF, 1%, 0207	0 RA 6	not used		not used	not used
0 R 64	57.11.3103		10k	MF, 1%, 0207	0 RA 8	not used		not used	not used
0 R 65	57.11.3103		10k	MF, 1%, 0207	0 RA 10	not used		not used	not used
0 R 66	57.11.3103		10k	MF, 1%, 0207	0 RA 12	not used		not used	not used
0 R 70	57.11.3332		3k3	MF, 1%, 0207	0 RA 13	1.010.122.58		Pot	POT 10K +LOG;
0 R 71	57.11.3332		3k3	MF, 1%, 0207	0 RA 14	1.010.122.58		Pot	POT 10K +LOG;
0 R 72	57.11.3103		10k	MF, 1%, 0207	0 RA 15	1.010.122.58		Pot	POT 10K +LOG;
0 R 79	57.11.3103		10k	MF, 1%, 0207	0 RA 16	1.010.122.58		Pot	POT 10K +LOG;
0 R 83	57.11.3332		3k3	MF, 1%, 0207	0 RA 17	1.010.057.58		Pot	POT 10K+;10K-;2*10K+;2*4K7+;
0 R 84	57.11.3472		4k7	MF, 1%, 0207	0 RA 18	1.010.057.58		Pot	POT 10K+;10K-;2*10K+;2*4K7+;
0 R 85	57.11.3472		4k7	MF, 1%, 0207	0 RZ 1	57.88.4684		680k	8*R Resistor-Netw 2% SIP9
0 R 86	57.11.3103		10k	MF, 1%, 0207	0 RZ 2	57.88.4104		100k	8*R Resistor-Netw 2% SIP9
0 R 87	57.11.3103		10k	MF, 1%, 0207	0 RZ 3	57.88.4104		100k	8*R Resistor-Netw 2% SIP9
0 R 88	57.11.3103		10k	MF, 1%, 0207	0 T 1	1.022.454.00		1:0.175	EINGANGSTRAFO 1:0,175
0 R 89	57.11.3103		10k	MF, 1%, 0207	0 T 2	1.022.454.00		1:0.175	EINGANGSTRAFO 1:0,175
0 R 97	57.11.3682		6k8	MF, 1%, 0207	0 W 1	not used		not used	not used
0 R 98	57.11.3332		3k3	MF, 1%, 0207	0 W 2	not used		not used	not used
0 R 99	57.11.3682		6k8	MF, 1%, 0207	0 W 3	57.11.3000		0R0	MF, 0207
0 R 100	57.11.3103		10k	MF, 1%, 0207	0 W 4	57.11.3000		0R0	MF, 0207
0 R 101	not used		not used	not used	0 W 5	57.11.3000		0R0	MF, 0207
0 R 104	57.11.3682		6k8	MF, 1%, 0207	0 W 6	57.11.3000		0R0	MF, 0207
0 R 105	57.11.3682		6k8	MF, 1%, 0207	0 W 7	57.11.3000		0R0	MF, 0207
0 R 106	57.11.3682		6k8	MF, 1%, 0207	0 W 8	57.11.3000		0R0	MF, 0207
0 R 110	not used		not used	not used	0 W 9	57.11.3000		0R0	MF, 0207
0 R 111	not used		not used	not used	0 W 10	57.11.3000		0R0	MF, 0207
0 R 117	57.11.3682		6k8	MF, 1%, 0207	0 W 11	not used		not used	not used
0 R 118	57.11.3682		6k8	MF, 1%, 0207	0 W 12	not used		not used	not used
0 R 119	57.11.3682		6k8	MF, 1%, 0207	0 W 13	not used		not used	not used
0 R 120	57.11.3682		6k8	MF, 1%, 0207	0 W 14	not used		not used	not used
0 R 121	57.11.3682		6k8	MF, 1%, 0207	0 W 15	not used		not used	not used
0 R 122	57.11.3682		6k8	MF, 1%, 0207	0 W 17	not used		not used	not used
0 R 123	57.11.3682		6k8	MF, 1%, 0207	0 W 18	not used		not used	not used
0 R 124	57.11.3682		6k8	MF, 1%, 0207	0 W 19	57.11.3000		0R0	MF, 0207
0 R 129	not used		not used	not used	0 W 20	57.11.3000		0R0	MF, 0207
0 R 130	not used		not used	not used	0 XIC 31	53.03.0166		8p	DIL-socket 0.3"
0 R 132	not used		not used	not used	0 XIC 33	53.03.0167		14p	DIL-socket 0.3"
0 R 133	not used		not used	not used	0 XIC 35	53.03.0168		16p	DIL-socket 0.3"
0 R 134	not used		not used	not used	0 XIC 36	53.03.0168		16p	DIL-socket 0.3"
0 R 135	not used		not used	not used	0 XIC 37	53.03.0168		16p	DIL-socket 0.3"
0 R 137	57.11.3682		6k8	MF, 1%, 0207	0 XIC 39	53.03.0168		16p	DIL-socket 0.3"
0 R 138	57.11.3682		6k8	MF, 1%, 0207	0 XIC 41	53.03.0167		14p	DIL-socket 0.3"
0 R 139	57.11.3103		10k	MF, 1%, 0207	0 XIC 43	53.03.0167		14p	DIL-socket 0.3"
0 R 140	57.11.3682		6k8	MF, 1%, 0207	0 XIC 44	53.03.0172		40p	DIL 0.8", löt, gerade
0 R 141	not used		not used	not used	0 XIC 46	53.03.0166		8p	DIL-socket 0.3"
0 R 142	57.11.3103		10k	MF, 1%, 0207	0 XT 1	1.022.400.03			ISOLATION
0 R 145	57.92.7013		0.5A	PTC 60V	0 XT 2	1.022.400.03			ISOLATION
0 R 146	not used		not used	not used	0 Y 1	89.01.1009		16.000MHz	XTAL HC 49/U
0 R 147	not used		not used	not used					
0 R 148	not used		not used	not used					
0 R 149	not used		not used	not used					
0 R 150	57.11.3153		15k	MF, 1%, 0207					
0 R 151	57.11.3103		10k	MF, 1%, 0207					
0 R 152	57.11.3153		15k	MF, 1%, 0207					
0 R 153	57.11.3103		10k	MF, 1%, 0207					
0 R 162	57.11.3000		0R0	MF, 0207					
0 R 168	not used		not used	not used					
0 R 169	not used		not used	not used					
0 R 190	not used		not used	not used					
0 R 191	not used		not used	not used					
0 R 195	not used		not used	not used					
0 R 209	not used		not used	not used					

End of List

(1) R312: 39R->18R; MP10: Revision-Label "A" added

**INPUT MAIN BOARD MONO/HL/GROUP 1.980.274.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.22.3101	100u	EL 10V 20% RM5	0	C 131	not used	270p	CER 63V, 5%, N750
0	C 2	59.22.3101	100u	EL 10V 20% RM5	0	D 1	50.04.0122	1N4001	1A, DO 41
0	C 4	not used	not used	not used	0	D 2	50.04.0122	1N4001	1A, DO 41
0	C 5	not used	not used	not used	0	D 3	50.04.0122	1N4001	1A, DO 41
0	C 6	59.22.3003	220u	EL 10V 20% RM5	0	D 4	50.04.0122	1N4001	1A, DO 41
0	C 10	59.22.5220	22u	EL 25V 20% RM5	0	D 22	not used	not used	not used
0	C 11	59.22.3101	100u	EL 10V 20% RM5	0	D 24	not used	not used	not used
0	C 12	59.22.3101	100u	EL 10V 20% RM5	0	D 25	not used	not used	not used
0	C 14	59.22.3003	220u	EL 10V 20% RM5	0	D 48	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	C 15	59.22.3003	220u	EL 10V 20% RM5	0	DL 1	50.04.2121	TLUR 2401	DL TLUR 2401 RT MATT
0	C 16	59.22.5220	22u	EL 25V 20% RM5	0	DL 2	50.04.2133	TLUY 2401	DL TLUY 2401 GB MATT
0	C 18	59.22.3101	100u	EL 10V 20% RM5	0	IC 1	50.09.0117	33078	IC MC 33078 P
0	C 19	59.22.3101	100u	EL 10V 20% RM5	0	IC 2	not used	not used	not used
0	C 20	not used	not used	not used	0	IC 3	50.07.0015	4053	Tripple 2ch analog mux/demux
0	C 21	59.22.3101	100u	EL 10V 20% RM5	0	IC 4	50.09.0117	33078	IC MC 33078 P
0	C 22	not used	not used	not used	0	IC 6	50.07.0015	4053	Tripple 2ch analog mux/demux
0	C 24	not used	not used	not used	0	IC 7	not used	not used	not used
0	C 26	not used	not used	not used	0	IC 8	50.09.0117	33078	IC MC 33078 P
0	C 27	59.22.5220	22u	EL 25V 20% RM5	0	IC 13	50.09.0117	33078	IC MC 33078 P
0	C 28	59.22.3101	100u	EL 10V 20% RM5	0	IC 18	50.09.0117	33078	IC MC 33078 P
0	C 31	59.22.3101	100u	EL 10V 20% RM5	0	IC 31	50.09.0117	33078	IC MC 33078 P
0	C 32	59.22.3101	100u	EL 10V 20% RM5	0	IC 33	50.17.1014	74HC 14	IC ... 74 HC 14 .. ,A
0	C 34	59.22.3101	100u	EL 10V 20% RM5	0	IC 35	50.15.0128	34C86	IC DS 34 C 86 TN, MC34C86P, A
0	C 35	59.22.3101	100u	EL 10V 20% RM5	0	IC 36	50.15.0127	34C87	IC DS 34 C 87 TN, MC34C87P, A
0	C 37	not used	not used	not used	0	IC 37	50.17.1165	74HC165	IC ... 74 HC 165 .. ,A
0	C 38	not used	not used	not used	0	IC 38	not used	not used	not used
0	C 39	not used	not used	not used	0	IC 39	50.17.1165	74HC165	IC ... 74 HC 165 .. ,A
0	C 40	not used	not used	not used	0	IC 40	not used	not used	not used
0	C 41	not used	not used	not used	0	IC 41	50.17.1014	74HC 14	IC ... 74 HC 14 .. ,A
0	C 44	59.22.3101	100u	EL 10V 20% RM5	0	IC 42	50.09.0121	TL072B	IC TL 072 BCP .. ,A
0	C 46	59.22.4002	100u	EL 16V 20% RM5	0	IC 43	50.06.0014	74LS14	SN 74 LS 14 N
0	C 48	59.22.4002	100u	EL 16V 20% RM5	0	IC 44	50.16.0302	PIC17C42A-16P	MicroController
0	C 49	not used	not used	not used	0	IC 45	50.09.0117	33078	IC MC 33078 P
0	C 52	not used	not used	not used	0	IC 46	50.09.0117	33078	IC MC 33078 P
0	C 53	not used	not used	not used	0	IC 48	50.09.0105	5532	IC NE 5532 N, RC 5532 NB ,A
0	C 54	not used	not used	not used	0	IC 49	50.09.0119	062	IC TL 062 ACP .. ,A
0	C 55	not used	not used	not used	0	IC 50	not used	not used	not used
0	C 56	not used	not used	not used	0	JP 1	54.01.0020	1p	Pin, 1reihig, gerade
0	C 59	not used	not used	not used	0	JP 2	54.01.0020	1p	Pin, 1reihig, gerade
0	C 60	not used	not used	not used	0	JP 3	54.01.0020	1p	Pin, 1reihig, gerade
0	C 61	not used	not used	not used	0	JP 4	54.01.0020	1p	Pin, 1reihig, gerade
0	C 62	not used	not used	not used	0	JP 5	54.11.0136	2*3p	Pin 0.63*0.63, RM2.54
0	C 63	not used	not used	not used	0	K 1	56.04.0198	2*u	5V 125V 2A Ag/Au
0	C 64	not used	not used	not used	0	MP 1	1.980.202.71	1 mp	INPUT MAIN BOARD
0	C 65	not used	not used	not used	0	MP 2	43.01.0108	1 mp	Label
0	C 66	not used	not used	not used	0	MP 3	1.980.274.04	1 mp	NR.-ETIKETTE 5 * 20
0	C 67	not used	not used	not used	0	MP 4	28.99.0119	8 mp	ROHRNIETE D 2.5*0.15* 9
0	C 68	59.06.0104	100n	PETP, 63V, 10%, RM5	0	MP 5	1.010.011.22	4 mp	M3*1.5
0	C 69	not used	not used	not used	0	MP 6	54.01.0021	3 mp	Jumper
0	C 70	not used	not used	not used	0	MP 7	57.11.3000	7 mp	OR0
0	C 71	59.06.0104	100n	PETP, 63V, 10%, RM5	0	MP 8	not used	not used	not used
0	C 73	not used	not used	not used	0	MP 9	65.99.0111	35 mm	PTFE-SCHLAUCH SPEZ .89*0.152
0	C 75	59.22.3101	100u	EL 10V 20% RM5	1	MP 10	43.10.0110	A	Revisions-Etikette 5mm h'blau
0	C 76	not used	not used	not used	0	P 1	54.14.5540	20p	PCB-Buchse winkel
0	C 78	59.22.3101	100u	EL 10V 20% RM5	0	P 2	54.14.5540	20p	PCB-Buchse winkel
0	C 80	59.22.3101	100u	EL 10V 20% RM5	0	P 3	54.11.2261	48p	EU-CK 3*16, löt
0	C 82	59.22.3003	220u	EL 10V 20% RM5	0	P 4	54.11.2004	2*32p	EU-B 2*32 male
0	C 84	not used	not used	not used	0	P 5	54.11.2013	2*16p	EU-BK 2*16p male
0	C 85	not used	not used	not used	0	P 6	54.11.2004	2*32p	EU-B 2*32 male
0	C 87	not used	not used	not used	0	P 7	1.023.556.01	Ribbon16p	FLACHKABEL 16 POL. 0,3 M
0	C 89	59.06.0104	100n	PETP, 63V, 10%, RM5	0	P 8	not used	not used	not used
0	C 90	not used	not used	not used	0	P 9	54.14.5510	10p	PCB-Buchse gerade
0	C 91	not used	not used	not used	0	P 10	54.14.5516	16p	PCB-Buchse gerade
0	C 92	59.22.3101	100u	EL 10V 20% RM5	0	P 11	not used	not used	not used
0	C 93	59.41.3470	47u	EL 10V 20% RM5	0	P 12	54.14.5520	20p	PCB-Buchse gerade
0	C 98	not used	not used	not used	0	P 13	54.14.5516	16p	PCB-Buchse gerade
0	C 99	59.22.3101	100u	EL 10V 20% RM5	0	P 14	54.14.5520	20p	PCB-Buchse gerade
0	C 100	59.05.1681	680p	PP, 1%, 630V	0	Q 1	not used	not used	not used
0	C 103	59.22.3101	100u	EL 10V 20% RM5	0	Q 2	not used	not used	not used
0	C 104	59.06.0104	100n	PETP, 63V, 10%, RM5	0	Q 3	not used	not used	not used
0	C 106	59.22.3003	220u	EL 10V 20% RM5	0	Q 4	50.03.0491	BC546B	BC 546 B NPN
0	C 107	not used	not used	not used	0	Q 5	50.03.0492	BC556B	BC 556 B PNP
0	C 108	59.22.3101	100u	EL 10V 20% RM5	0	R 1	57.11.3000	OR0	MF, 0207
0	C 109	59.05.1681	680p	PP, 1%, 630V	0	R 2	57.11.3000	OR0	MF, 0207
0	C 113	not used	not used	not used	0	R 3	57.11.3000	OR0	MF, 0207
0	C 114	not used	not used	not used	0	R 5	57.11.3000	OR0	MF, 0207
0	C 115	not used	not used	not used	0	R 6	not used	not used	not used
0	C 116	not used	not used	not used	0	R 7	not used	not used	not used
0	C 119	not used	not used	not used	0	R 8	not used	not used	not used
0	C 121	not used	not used	not used	0	R 10	57.11.3104	100k	MF, 1%, 0207
0	C 122	not used	not used	not used	0	R 14	57.11.3000	OR0	MF, 0207
0	C 123	not used	not used	not used	0	R 15	57.11.3000	OR0	MF, 0207
0	C 124	not used	not used	not used	0	R 16	57.11.3000	OR0	MF, 0207
0	C 125	59.34.4101	100p	CER 63V, 5%, N750	0	R 18	not used	not used	not used
0	C 126	59.06.0104	100n	PETP, 63V, 10%, RM5	0	R 19	57.11.3000	OR0	MF, 0207
0	C 127	59.06.0104	100n	PETP, 63V, 10%, RM5	0	R 20	not used	not used	not used
0	C 130	not used	100u	EL 16V 20% RM5	0	R 21	not used	not used	not used

**INPUT MAIN BOARD MONO/HL/GROUP 1.980.274.21 (ESE)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 R 22	57.11.3682		6k8	MF, 1%, 0207	0 R 210	not used		not used	not used
0 R 23	not used		not used	not used	0 R 218	not used		not used	not used
0 R 26	57.11.3682		6k8	MF, 1%, 0207	0 R 219	not used		not used	not used
0 R 27	not used		not used	not used	0 R 224	57.11.3000		0R0	MF, 0207
0 R 28	not used		not used	not used	0 R 225	not used		not used	not used
0 R 29	not used		not used	not used	0 R 226	57.11.3000		0R0	MF, 0207
0 R 30	57.11.3682		6k8	MF, 1%, 0207	0 R 227	not used		not used	not used
0 R 31	not used		not used	not used	0 R 229	not used		not used	not used
0 R 32	57.11.3682		6k8	MF, 1%, 0207	0 R 257	not used		not used	not used
0 R 34	57.11.3682		6k8	MF, 1%, 0207	0 R 267	57.11.3682		6k8	MF, 1%, 0207
0 R 35	not used		not used	not used	0 R 268	57.11.3223		22k	MF, 1%, 0207
0 R 36	not used		not used	not used	0 R 281	57.11.3272		2k7	MF, 1%, 0207
0 R 37	57.11.3682		6k8	MF, 1%, 0207	0 R 282	57.11.3000		0R0	MF, 0207
0 R 38	not used		not used	not used	0 R 283	57.11.3272		2k7	MF, 1%, 0207
0 R 42	57.11.3682		6k8	MF, 1%, 0207	0 R 284	not used		not used	not used
0 R 47	57.92.7013		0.5A	PTC 60V	0 R 298	not used		not used	not used
0 R 48	57.92.7013		0.5A	PTC 60V	0 R 299	not used		not used	not used
0 R 49	57.92.7013		0.5A	PTC 60V	0 R 300	not used		not used	not used
0 R 50	not used		not used	not used	0 R 301	not used		not used	not used
0 R 51	57.11.3682		6k8	MF, 1%, 0207	0 R 308	57.11.3332		3k3	MF, 1%, 0207
0 R 52	not used		not used	not used	0 R 309	57.11.3682		6k8	MF, 1%, 0207
0 R 53	57.11.3104		100k	MF, 1%, 0207	1 R 312	57.11.3180		18R	MF, 1%, 0207
0 R 56	57.11.3682		6k8	MF, 1%, 0207	0 RA 1	1.010.124.58		Pot	POT 2 * 4K7 LIN;
0 R 58	57.11.3682		6k8	MF, 1%, 0207	0 RA 2	not used		not used	not used
0 R 59	57.11.3682		6k8	MF, 1%, 0207	0 RA 3	not used		not used	not used
0 R 60	57.11.3682		6k8	MF, 1%, 0207	0 RA 4	not used		not used	not used
0 R 61	57.11.3682		6k8	MF, 1%, 0207	0 RA 6	not used		not used	not used
0 R 64	57.11.3682		6k8	MF, 1%, 0207	0 RA 8	not used		not used	not used
0 R 65	not used		not used	not used	0 RA 10	not used		not used	not used
0 R 66	not used		not used	not used	0 RA 12	not used		not used	not used
0 R 70	57.11.3682		6k8	MF, 1%, 0207	0 RA 13	1.010.122.58		Pot	POT 10K +LOG;
0 R 71	57.11.3682		6k8	MF, 1%, 0207	0 RA 14	1.010.122.58		Pot	POT 10K +LOG;
0 R 72	57.11.3682		6k8	MF, 1%, 0207	0 RA 15	1.010.122.58		Pot	POT 10K +LOG;
0 R 79	57.11.3682		6k8	MF, 1%, 0207	0 RA 16	1.010.122.58		Pot	POT 10K +LOG;
0 R 83	57.11.3682		6k8	MF, 1%, 0207	0 RA 17	1.010.055.58		Pot	POT 10K+L;10K-L;10K+L;10K-L;
0 R 84	57.11.3682		6k8	MF, 1%, 0207	0 RA 18	1.010.055.58		Pot	POT 10K+L;10K-L;10K+L;10K-L;
0 R 85	57.11.3682		6k8	MF, 1%, 0207	0 RZ 1	57.88.4684		680k	8*R Resistor-Netw 2% S1P9
0 R 86	57.11.3682		6k8	MF, 1%, 0207	0 RZ 2	57.88.4104		100k	8*R Resistor-Netw 2% S1P9
0 R 87	57.11.3682		6k8	MF, 1%, 0207	0 RZ 3	57.88.4104		100k	8*R Resistor-Netw 2% S1P9
0 R 88	not used		not used	not used	0 T 1	not used		not used	not used
0 R 89	not used		not used	not used	0 T 2	not used		not used	not used
0 R 97	57.11.3682		6k8	MF, 1%, 0207	0 W 1	57.11.3000		0R0	MF, 0207
0 R 98	57.11.3682		6k8	MF, 1%, 0207	0 W 2	57.11.3000		0R0	MF, 0207
0 R 99	57.11.3682		6k8	MF, 1%, 0207	0 W 3	57.11.3000		0R0	MF, 0207
0 R 100	57.11.3682		6k8	MF, 1%, 0207	0 W 4	57.11.3000		0R0	MF, 0207
0 R 101	not used		not used	not used	0 W 5	57.11.3000		0R0	MF, 0207
0 R 104	57.11.3682		6k8	MF, 1%, 0207	0 W 6	57.11.3000		0R0	MF, 0207
0 R 105	57.11.3682		6k8	MF, 1%, 0207	0 W 7	57.11.3000		0R0	MF, 0207
0 R 106	57.11.3682		6k8	MF, 1%, 0207	0 W 8	57.11.3000		0R0	MF, 0207
0 R 110	not used		not used	not used	0 W 9	57.11.3000		0R0	MF, 0207
0 R 111	not used		not used	not used	0 W 10	57.11.3000		0R0	MF, 0207
0 R 117	57.11.3682		6k8	MF, 1%, 0207	0 W 11	not used		not used	not used
0 R 118	57.11.3682		6k8	MF, 1%, 0207	0 W 12	not used		not used	not used
0 R 119	57.11.3682		6k8	MF, 1%, 0207	0 W 13	not used		not used	not used
0 R 120	57.11.3682		6k8	MF, 1%, 0207	0 W 14	not used		not used	not used
0 R 121	57.11.3682		6k8	MF, 1%, 0207	0 W 15	not used		not used	not used
0 R 122	57.11.3682		6k8	MF, 1%, 0207	0 W 17	57.11.3000		0R0	MF, 0207
0 R 123	57.11.3682		6k8	MF, 1%, 0207	0 W 18	57.11.3000		0R0	MF, 0207
0 R 124	57.11.3682		6k8	MF, 1%, 0207	0 W 19	not used		not used	not used
0 R 129	not used		not used	not used	0 W 20	57.11.3000		0R0	MF, 0207
0 R 130	not used		not used	not used	0 W 23	1.010.116.64			WIRE WRAP DRAHT D .255 L=160
0 R 132	not used		not used	not used	0 XIC 31	53.03.0166		8p	DIL-socket 0.3"
0 R 133	not used		not used	not used	0 XIC 33	53.03.0167		14p	DIL-socket 0.3"
0 R 134	not used		not used	not used	0 XIC 35	53.03.0168		16p	DIL-socket 0.3"
0 R 135	not used		not used	not used	0 XIC 36	53.03.0168		16p	DIL-socket 0.3"
0 R 137	57.11.3682		6k8	MF, 1%, 0207	0 XIC 37	53.03.0168		16p	DIL-socket 0.3"
0 R 138	57.11.3682		6k8	MF, 1%, 0207	0 XIC 39	53.03.0168		16p	DIL-socket 0.3"
0 R 139	57.11.3103		10k	MF, 1%, 0207	0 XIC 41	53.03.0167		14p	DIL-socket 0.3"
0 R 140	57.11.3682		6k8	MF, 1%, 0207	0 XIC 43	53.03.0167		14p	DIL-socket 0.3"
0 R 141	57.11.3103		10k	MF, 1%, 0207	0 XIC 44	53.03.0172		40p	DIL 0.8", lötl, gerade
0 R 142	not used		not used	not used	0 XIC 46	53.03.0166		8p	DIL-socket 0.3"
0 R 145	57.92.7013		0.5A	PTC 60V	0 XT 1	not used		not used	not used
0 R 146	not used		not used	not used	0 XT 2	not used		not used	not used
0 R 147	not used		not used	not used	0 Y 1	89.01.1009		16.000MHz	XTAL HC 49/U
0 R 148	not used		not used	not used					
0 R 149	not used		not used	not used					
0 R 150	57.11.3103		10k	MF, 1%, 0207					
0 R 151	57.11.3103		10k	MF, 1%, 0207					
0 R 152	not used		not used	not used					
0 R 153	57.11.3103		10k	MF, 1%, 0207					
0 R 162	57.11.3000		0R0	MF, 0207					
0 R 168	not used		not used	not used					
0 R 169	not used		not used	not used					
0 R 190	not used		not used	not used					
0 R 191	not used		not used	not used					
0 R 195	not used		not used	not used					
0 R 209	not used		not used	not used					

End of List

(1) R312: 39R->18R; MP10: Revision-Label "A" added



INPUT SWITCH BOARD MONO/GROUP/FILTER 1.980.290.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.290.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 2	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 5	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 6	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 9	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 10	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

P2 is not used 23.mai 96 ae



## INPUT SWITCH BOARD MONO/GROUP 1.980.291.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.291.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 2	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 4	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

P2 is not used 23.mai 96 ae





INPUT SWITCH BOARD STEREO/HL/GROUP/FILTER 1.980.292.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.292.04	pce	NR-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 5	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 6	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

P2 is not used 23.mai 96 ae



## INPUT SWITCH BOARD STEREO/HL/GROUP 1.980.293.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.293.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 5	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 6	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

P2 is not used 23.mai 96 ae



INPUT SWITCH BOARD STEREO/HL/GROUP/EQ/FILTER 1.980.294.00

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502		HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.294.04	pce		NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce		INPUT SWITCH BOARD ,A
0	P 1	54.14.5590		20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used		Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590		20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655		1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0644		1*A	S TASTE 1*A, 5MM, GB/GB
0	S 5	55.15.0655		1*A	S TASTE 1*A, 5MM, GN/GN
0	S 6	55.15.0655		1*A	S TASTE 1*A, 5MM, GN/GN
0	S 7	55.15.0644		1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644		1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602		1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602		1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602		1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602		1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 18	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622		1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602		1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605		1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604		1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218		1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments

P2 is not used 23.mai 96 ae



## INPUT SWITCH BOARD STEREO/HL/GROUP/EQ 1.980.295.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.295.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	not used	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 5	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 6	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments  
P2 is not used 23.mai 96 ae



## INPUT SWITCH BOARD STEREO/MIC/EQ/FILTER 1.980.296.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.296.04	pce	NR-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	1.023.563.02	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 5	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 6	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 17	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 40	1.980.209.01		DREHSCHALTER
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

## Comments



## INPUT SWITCH BOARD STEREO/MIC/EQ 1.980.297.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.297.04	pce	NR-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	1.023.563.02	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 5	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 6	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 11	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 17	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 40	1.980.209.01		DREHSCHALTER
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments



INPUT SWITCH BOARD MONO/MIC/EQ/FILTER 1.980.298.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.298.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	1.023.563.02	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 2	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 4	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 5	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 6	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 9	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 10	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 11	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 12	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 17	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 22	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 23	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 40	1.980.209.01		DREHSCHALTER
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments



## INPUT SWITCH BOARD MONO/MIC/EQ 1.980.299.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	DL 1	50.04.2502	HLMP4700	DL HLMP - 4700 RT
0	MP 1	1.980.299.04	pce	NR.-ETIKETTE 5 * 20
0	MP 2	1.980.209.70	pce	INPUT SWITCH BOARD ,A
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	P 2	1.023.563.02	Ribbon10p	FLACHKABEL 10 POL. 0,11M
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P
0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 2	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 3	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 4	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	S 5	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 6	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 7	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 8	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 9	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 10	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 11	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 12	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	S 13	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 14	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 15	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 16	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 17	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 18	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 19	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 20	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 21	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 22	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 23	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 24	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 25	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 26	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	S 27	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 28	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 29	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 30	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 31	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 32	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 33	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 34	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 35	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 36	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 37	55.15.0602	1*A	S TASTE 1*A, 5MM, RT/TRANS
0	S 38	55.15.0605	1*A	S TASTE 1*A, 5MM, GN/TRANS
0	S 39	55.15.0604	1*A	S TASTE 1*A, 5MM, GB/TRANS
0	S 40	1.980.209.01		DREHSCHALTER
0	XDL 1	53.03.0218	1-P	XIC SINGLE, IN-LINE 1PIN=1STK

End of List

Comments



**Pin assignment P3A**  
**INPUT UNIT to INPUT/FADER CONNECTION BOARD**

Valid for:

All Input Units

P3	NO	NAME	REMARK	TYPE
P	01A	-15V	-Supply, fused	
P	01B	0V-A	Audio ground	
P	01C	+15V	+Supply, fused	
P	02A	EXT-MUTE	External MUTE, SOLO DEST. to P4 26B	
P	02B	VAR	VARIO	
P	02C	TB_SIGN	Talkback Signal	
P	03A	ON_MUTE-SEL	ON/MUTE selector	
P	03B	MET-BR	Meter brightness	
P	03C	OVERL	Overload	
P	04A	PF-L	PRE-fader left audio	
P	04B	0V-REF	0V reference	
P	04C	PF-R	PRE-fader right audio	
P	05A	AF-L	AFTER-fader left audio	
P	05B	MPX-RET	MPX return	
P	05C	AF-R	After-fader right audio	
P	06A	ME-IN-L	Meter left audio	
P	06B	TALKBACK	Talkback audio	
P	06C	ME-IN-R	Meter right audio	
P	07A	BU-1	Bus 1 audio	
P	07B	BU-2	Bus 2 audio	
P	07C	BU-3	Bus 3 audio	
P	08A	BU-4	Bus 4 audio	
P	08B	BU-5	Bus 5 audio	
P	08C	BU-6	Bus 6 audio	
P	09A	AUX 78	AUX 78 switch	
P	09B	EQ	EQUALIZER switch	
P	09C	INS	INSERT switch	
P	10A	Mute fader	MUTE	
P	10B	0V-L	Ground signal (logic)	
P	10C	MET-SEL	Meter switch DIR/input	
P	11A	PFLSIGN	Central bus RD5 PFL Signal	
P	11B	VLED	LED supply variable +3...4V, fused	
P	11C	VLED	LED supply variable +3...4V, fused	
P	12A	+VCC	+5V Supply	
P	12B	LINK-A	Link to fader UNIT	
P	12C	TXDFA	Transmit data FET fader	
P	13A	TXDLA	Transmit data LED fader	
P	13B	TSTB2	STROBE 32CH	
P	13C	TSTB1	STROBE INSTRUMENT/LIMITER	
P	14A	TSTB0	Strobe channel	
P	14B	TXDF	Transmit data RESERVE	
P	14C	SWI	Switch interrupt	
P	15A	RXD	Receive DATA	
P	15B	RSTB	Receive STROBE	
P	15C	RCL	Receive Clock	
P	16A	DO0	Enable	
P	16B	TCL	Clock	
P	16C	0V-L	Ground signal (logic)	

I = Input                      O = Output                      AC = Audio                      DC = Supply or CV  
 DI = Digital                    L = Line                         B = Bus                         C = Connector  
 SY = Balanced                 AS = Unbalanced                NO = Normal                    IV = Inverted  
 \* = not connected

## Pin assignment P4A

## INPUT UNIT to AUB BOARD (1.992.18x)

Valid for:

All non-Film/HDTV input units

P4	NO	NAME	REMARK	TYPE
P	01A	0V-B	Audio ground (pin)	O
P	01B	CHASSIS	METAL FRAME	B
P	02A	0V-A	0V audio (LOW) pin; to 24...26	O
P	02B	+VCC	+ 5V (high) pin to 24...26	O
P	03A	VAR-B-1	VARIO bus 1 DIVERS; Connector to P4-23A	B
P	03B	VAR-B-2	VARIO bus 2 DIVERS; Connector to P4-23B	B
P	04A	MET_BR	Meter brightness ; DC bus	B,DC
P	04B	B-MPX	MPX mono ; 0-Ω bus	B,I
P	05A	B-PFL-SOLO-L	PFL/SOLO left ; 0-Ω bus	B,I
P	05B	B-PFL-SOLO-R	PFL/SOLO right ; 0-Ω bus	B,I
P	06A	B-M-1	MASTER 1 ; 0-Ω bus	B,I
P	06B	B-M-2	MASTER 2 ; 0-Ω bus	B,I
P	07A	B-G-1	GROUP 1 ; 0-Ω bus	B,I
P	07B	B-G-2	GROUP 2 ; 0-Ω bus	B,I
P	08A	S-M-1	Signal MASTER 1	B,S
P	08B	S-M-2	Signal MASTER 2	B,S
P	09A	S-G-1	Signal GROUP 1	B,S
P	09B	S-G-2	Signal GROUP 2	B,S
P	10A	B-GR-5	GROUP 5 ; 0-Ω bus	B,I
P	10B	B-GR-6	GROUP 6 ; 0-Ω bus	B,I
P	11A	B-M-3	MASTER 3 ; 0-Ω bus	B,I
P	11B	B-M-4	MASTER 4 ; 0-Ω bus	B,I
P	12A	B-GR-3	GROUP 3 ; 0-Ω bus	B,I
P	12B	B-GR-4	GROUP 4 ; 0-Ω bus	B,I
P	13A	B-GR-7	GROUP 7 ; 0-Ω bus	B,I
P	13B	B-GR-8	GROUP 8 ; 0-Ω bus	B,I
P	14A	0V-REF	0V reference	B X X
P	14B	0V-REF	0V reference	B X X
P	15A	B-AUX-1	AUX 1 ; 0-Ω bus	B,I
P	15B	B-AUX-2	AUX 2 ; 0-Ω bus	B,I
P	16A	B-AUX-3	AUX 3 ; 0-Ω bus	B,I
P	16B	B-AUX-4	AUX 4 ; 0-Ω bus	B,I
P	17A	B-AUX-5	AUX 5 ; 0-Ω bus	B,I
P	17B	B-AUX-6	AUX 6 ; 0-Ω bus	B,I
P	18A	B-AUX-7	AUX 7 ; 0-Ω bus	B,I
P	18B	B-AUX-8	AUX 8 ; 0-Ω bus	B,I
P	19A	S-GR-5	Signal GROUP 5	B,S
P	19B	S-GR-6	Signal GROUP 6	B,S
P	20A	S-M-3	Signal MASTER 3	B,S
P	20B	S-M-4	Signal MASTER 4	B,S
P	21A	S-GR-3	Signal GROUP 3	B,S
P	21B	S-GR-4	Signal GROUP 4	B,S
P	22A	S-GR-7	Signal GROUP 7	B,S
P	22B	S-GR-8	Signal GROUP 8	B,S
P	23A	VAR-B-1	VARIO bus 1 (P4-03A to 23A)	O
P	23B	VAR-B-2	VARIO bus 2 (P4-03B to 23B)	O
P	24A	ON_MUTE-SEL	ON or MUTE jumper to 23A, 5V,0V	O
P	24B	TB_SIGN	Talkback Signal jumper to 23B, 5V,0V	O
P	25A	SIGN-B	MIC 2 Signal / stereo GRP Signal / mono IN 2 Signal jumper to 23A, 5V,0V	O
P	25B	MIC1-CUT	MIC 1 MUTE / CUT jumper to 23B, 5V,0V	O
P	26A	VAR	VARIO jumper to 23A, 5V,0V	O
P	26B	EXT-MUTE	External MUTE, SOLO DESTRUCTIVE jumper to 23B, 5V,0V	O (to P3 2A)
P	27A	0V-A	Audio ground	B X X
P	27B	0V-A	Audio ground	B X X
P	28A	-15.5V	- Supply	B X X
P	28B	-15.5V	- Supply	B X X
P	29A	+15.5V	+ Supply	B X X
P	29B	+15.5V	+ Supply	B X X
P	30A	0V-L	Ground signal (logic)	B X X
P	30B	0V-L	Ground signal (logic)	B X X
P	31A	+5V-SB	+ Stand by supply	B X X
P	31B	+5V-SB	+ Stand by supply	B X X
P	32A	+3_4V-LED	LED supply variable +3...4V	B X X
P	32B	+3_4V-LED	LED supply variable +3...4V	B X X

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted

## Pin assignment P4A

## INPUT UNIT to AUB BOARD (1.992.18x)

Valid for:

All Film/HDTV input units

P4	NO	NAME	REMARK	TYPE
P	01A	0V-B	Audio ground (pin)	O
P	01B	CHASSIS	METAL FRAME	B
P	02A	0V-A	0V audio (LOW) pin; to 24...26	O
P	02B	+VCC	+ 5V (high) pin to 24...26	O
P	03A	VAR-B-1	VARIO bus 1 DIVERS; Connector to P4-23A	B
P	03B	VAR-B-2	VARIO bus 2 DIVERS; Connector to P4-23B	B
P	04A	MET_BR	Meter brightness ; DC bus	B,DC
P	04B	B-MPX	MPX mono ; 0-Ω bus	B,I
P	05A	B-PFL-SOLO-L	PFL/SOLO left ; 0-Ω bus	B,I
P	05B	B-PFL-SOLO-R	PFL/SOLO right ; 0-Ω bus	B,I
P	06A	B-M-1	MASTER 1 ; 0-Ω bus	B,I
P	06B	B-M-2	MASTER 2 ; 0-Ω bus	B,I
P	07A	B-M-3	MASTER 3 ; 0-Ω bus	B,I
P	07B	B-M-4	MASTER 4 ; 0-Ω bus	B,I
P	08A	S-M-1	Signal MASTER 1	B,S
P	08B	S-M-2	Signal MASTER 2	B,S
P	09A	S-M-3	Signal MASTER 3	B,S
P	09B	S-M-4	Signal MASTER 4	B,S
P	10A	B-M-5	MASTER 5 (A left) ; 0-Ω bus	B,I
P	10B	B-M-6	MASTER 6 (A right) ; 0-Ω bus	B,I
P	11A	B-GR-1	GROUP 1 ; 0-Ω bus	B,I
P	11B	B-GR-2	GROUP 2 ; 0-Ω bus	B,I
P	12A	B-GR-3	GROUP 3 ; 0-Ω bus	B,I
P	12B	B-GR-4	GROUP 4 ; 0-Ω bus	B,I
P	13A	B-GR-5	GROUP 5 ; 0-Ω bus	B,I
P	13B	B-GR-6	GROUP 6 ; 0-Ω bus	B,I
P	14A	0V-REF	0V reference	B X X
P	14B	0V-REF	0V reference	B X X
P	15A	B-AUX-1	AUX 1 ; 0-Ω bus	B,I
P	15B	B-AUX-2	AUX 2 ; 0-Ω bus	B,I
P	16A	B-AUX-3	AUX 3 ; 0-Ω bus	B,I
P	16B	B-AUX-4	AUX 4 ; 0-Ω bus	B,I
P	17A	B-AUX-5	AUX 5 ; 0-Ω bus	B,I
P	17B	B-AUX-6	AUX 6 ; 0-Ω bus	B,I
P	18A	B-AUX-7	AUX 7 ; 0-Ω bus	B,I
P	18B	B-AUX-8	AUX 8 ; 0-Ω bus	B,I
P	19A	S-M-5	Signal MASTER 5	B,S
P	19B	S-M-6	Signal MASTER 6	B,S
P	20A	S-GR-1	Signal GROUP 1	B,S
P	20B	S-GR-2	Signal GROUP 2	B,S
P	21A	S-GR-3	Signal GROUP 3	B,S
P	21B	S-GR-4	Signal GROUP 4	B,S
P	22A	S-GR-5	Signal GROUP 5	B,S
P	22B	S-GR-6	Signal GROUP 6	B,S
P	23A	VAR-B-1	VARIO bus 1 (P4-03A to 23A)	O
P	23B	VAR-B-2	VARIO bus 2 (P4-03B to 23B)	O
P	24A	ON_MUTE-SEL	ON OR MUTE jumper to 23A, 5V,0V	O
P	24B	TR_SIGN	Talkback Signal jumper to 23B, 5V,0V	O
P	25A	SIGN-B	MIC 2 Signal / stereo GRP Signal / mono IN 2 Signal jumper to 23A, 5V,0V	O
P	25B	MIC1-CUT	MIC 1 MUTE / CUT jumper to 23B, 5V,0V	O
P	26A	VAR	VARIO jumper to 23A, 5V,0V	O
P	26B	EXT-MUTE	External MUTE,SOLO DEST jumper to 23B, 5V,0V	O (to P3 2A)
P	27A	0V-A	Audio ground	B X X
P	27B	0V-A	Audio ground	B X X
P	28A	-15.5V	- Supply	B X X
P	28B	-15.5V	- Supply	B X X
P	29A	+15.5V	+ Supply	B X X
P	29B	+15.5V	+ Supply	B X X
P	30A	0V-L	Ground signal (logic)	B X X
P	30B	0V-L	Ground signal (logic)	B X X
P	31A	+5V-SB	+ Stand by supply	B X X
P	31B	+5V-SB	+ Stand by supply	B X X
P	32A	+3_4V-LED	LED supply variable +3...4V	B X X
P	32B	+3_4V-LED	LED supply variable +3...4V	B X X

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted

## Pin assignment P5A

INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD (1.980.712.00)

Valid for:

All Input Units

P5	NO	NAME	REMARK	TYPE
P	01A	A-0	Address A 0 (in layout for positions 1...4)	HW wired
P	01B	A-1	Address A 1 (in layout for positions 1...4)	HW wired
P	02A	A-2	Address A 2 bus with Jumper 5...8	Bus HW jumper
P	02B	A-3	Address A 3 bus with Jumper 9...16	Bus HW jumper
P	03A	A-4	Address A 4 bus with Jumper 17...32	Bus HW jumper
P	03B	A-5	Address A 5 bus with Jumper 33...64	Bus HW jumper
P	04A	A-6	Address A 6 bus with Jumper 65...128	Bus HW jumper
P	04B	EXTEND0	Jumper on 1.980.765.00 for Dynamic Extension selection	HW jumper
P	05A	EXTEND1	Jumper on 1.980.765.00 for Multichannel Extension selection	HW jumper
P	05B	EXTEND2	Jumper on 1.980.765.00 for Multichannel Extension selection	HW jumper
P	06A	SOLO_D_ISO	SOLO DESTRUCTIVE ISOLATE link RB7	O 6-pin, connector
P	06B	DO0	Enable	O 6-pin
P	07A	TXD	Serial data	O 6-pin
P	07B	TCL	Clock	O 6-pin
P	08A	TSTB1	STROBE to INSTRUMENT / LIMITER	O 6-pin
P	08B	TSTB2	STROBE to 32 Extension	O 6-pin
P	09A	ADR-DAT	SYM ADDRESS/DATA	B 16-pin
P	09B	IADR-DAT	SYM ADDRESS/DATA INVERT	B 16-pin
P	10A	SEL	SELECT	B 16-pin
P	10B	ISEL	SELECT INVERT	B 16-pin
P	11A	DAT	DATA	B 16-pin
P	11B	IDAT	DATA INVERT	B 16-pin
P	12A	CLK	Clock	B 16-pin
P	12B	ICLK	Clock INVERT	B 16-pin
P	13A	AUX56-2CH	Central bus AUX-5/6 - 2CH	B 16-pin
P	13B	AUX78-2CH	Central bus AUX-7/8 - 2CH	B 16-pin
P	14A	MASTER-TB	Central bus RD4 MASTER TB	B 16-pin
P	14B	N-1	Central bus RD0 (N-1) switch	B 16-pin
P	15A	PFLRES	Central bus RD1 PFLRES	B 16-pin
P	15B	PFLSIGN	Central bus PFLSIGN	B 16-pin
P	16A	+5.5V	+Supply	B 16-pin
P	16B	0V-L	Ground signal (logic)	B 16-pin

I = Input

O = Output

AC = Audio

DC = Supply or CV

DI = Digital

L = Line

B = Bus

C = Connector

SY = Balanced

AS = Unbalanced

NO = Normal

IV = Inverted

\* = not connected

## Pin assignment P6A

## INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD 1.980.712.00

Valid for:

Stereo Input Unit Universal with EQ, 8/4 Ch, 1.980.250.20 and

Stereo Input Unit Universal with EQ, 6/6 Ch, 1.980.251.20

P6	NO	NAME	REMARK	TYPE
P	01A	LINE1-L-A	LINE input 1 left A	S,I,C
P	01B	LINE1-L-B	LINE input 1 left B	S,I,C
P	02A	LINE1-L-0VE	LINE input 1 left ground external	DC,C
P	02B	LINE1-R-0VE	LINE input 1 right ground external	DC,C
P	03A	LINE1-R-A	LINE input 1 right A	S,I,C
P	03B	LINE1-R-B	LINE input 1 right B	S,I,C
P	04A		N.C. (LINE input 2 left A)	S,I,C
P	04B		N.C. (LINE input 2 left B)	S,I,C
P	05A		N.C. (LINE input 2 left ground external)	DC,C
P	05B		N.C. (LINE input 2 R. ground external)	DC,C
P	06A		N.C. (LINE input 2 right A)	S,I,C
P	06B		N.C. (LINE input 2 right B)	S,I,C
P	07A	REL-K-A	Relay contact A (open)	O,DI,C
P	07B	REL-K-R	Relay contact B (closed)	O,DI,C
P	08A	REL-K-S	Relay contact S (switch)	O,DI,C
P	08B	SIGN-A	Pin LINE 1 Signal (low active)	O,DI,C
P	09A	REL_IN	Relay powering (low active)	I,DC,C
P	09B	SIGN-C	Pin MIC 1 Signal (low active)	O,DI,C
P	10A			
P	10B			
P	11A			
P	11B			
P	12A	SIGN-B	Pin-IN-2 Signal (low active)	O,DI,C
P	12B			
P	13A			
P	13B			
P	14A			
P	14B			
P	15A			
P	15B			
P	16A			
P	16B	RESERVE_1	(Conn. 1 wire to Tp 14)	I,DI,C
P	17A			
P	17B	POWER_FAIL	Power fail link	I,DI,C
P	18A			
P	18B	RESERVE_2	Wire connection	C,C,C,C
P	19A	MIC-L-A	MIC input left A	S,I,C
P	19B	MIC-OUT-L	MIC output left	AS,O,C
P	20A	MIC-L-0VE	MIC left ground external	DC,C
P	20B	MIC-L-B	MIC input left B	S,I,C
P	21A	MIC-R-A	MIC input right A	S,I,C
P	21B	MIC-R-0VE	MIC right ground external	DC,C
P	22A	PHANT-PWR-SW	Phantom supply switched	DC,O
P	22B	MIC-R-B	MIC input right B	S,I,C
P	23A	MLT-BUS-RET-a	Multi bus return A	S,I,C
P	23B	MLT-BUS-RET-b	Multi bus return B	S,I,C
P	24A	MIC-1-BUS	MIC 1 signalisation bus	DI,B
P	24B	PHANT-PWR-IN	48 V Phantom bus	DC,B
P	25A	GEN-A	Generator A bus	S,I,B
P	25B	GEN-B	Generator B bus	S,I,B
P	26A	TB-A	Talkback A bus	S,I,B
P	26B	TB-B	Talkback B bus	S,I,B
P	27A	MPX -A	MPX A bus	S,I,B
P	27B	MPX -B	MPX B bus	S,I,B
P	28A	OVL-B	Overload bus	DI,O,B
P	28B	MET-DIR/INP	Meter DIR / INP switch bus	DI,I,B
P	29A	INS-SEND-L-A	Bal. insert left output A	S,O,C
P	29B	INS-SEND-L-B	Bal. insert left output B	S,O,C
P	30A	INS-RET -L-A	Bal. insert left input A	S,I,C
P	30B	INS-RET -L-B	Bal. insert left input B	S,I,C
P	31A	INS-SEND-R-A	Bal. insert right output A	S,O,C
P	31B	INS-SEND-R-B	Bal. insert right output B	S,O,C
P	32A	INS-RET -R-A	Bal. insert right input A	S,I,C
P	32B	INS-RET -R-B	Bal. insert right input B	S,I,C

I = Input  
 DI = Digital  
 SY = Balanced  
 \* = not connected

O = Output  
 L = Line  
 AS = Unbalanced

AC = Audio  
 B = Bus  
 NO = Normal

DC = Supply or CV  
 C = Connector  
 IV = Inverted

## Pin assignment P6A

INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD 1.980.712.00

Valid for:

Mono Input Unit with EQ, 8/4 Ch, 1.980.220.20 and

Mono Input Unit with EQ, 6/6 Ch, 1.980.221.20

P6	NO	NAME	REMARK	TYPE
P	01A	LINE 1-L-A	LINE input A left A	S,I,C
P	01B	LINE 1-L-A	LINE input A left B	S,I,C
P	02A	LINE 1-L-OVE	LINE input A left ground external	DC,C
P	02B		N.C. (stereo)	DC,C
P	03A		N.C. (stereo)	S,I,C
P	03B		N.C. (stereo)	S,I,C
P	04A	IN-2-A	IN 2 input A	S,I,C
P	04B	IN-2-B	IN 2 input B	S,I,C
P	05A	IN-2-OVE	IN 2 input ground external	DC,C
P	05B		N.C. (stereo)	DC,C
P	06A		N.C. (stereo)	S,I,C
P	06B		N.C. (stereo)	S,I,C
P	07A	REL-K-A	Relay contact A (open)	O,DI,C
P	07B	REL-K-R	Relay contact B (closed)	O,DI,C
P	08A	REL-K-S	Relay contact S (switch)	O,DI,C
P	08B	SIGN-A	Pin LINE Signal (low active)	O,DI,C
P	09A	REL_IN	Relay powering (low active)	I,DC,C
P	09B	SIGN_C	Pin MIC 1 Signal (low active)	O,DI,C
P	10A			
P	10B			
P	11A			
P	11B			
P	12A	SIGN-B	Pin IN 2 Signal (low active)	O,DI,C
P	12B			
P	13A			
P	13B			
P	14A			
P	14B			
P	15A			
P	15B			
P	16A			
P	16B	RESERVE_1	(Conn. 1 wire to Tp 14)	I,DI,C
P	17A			
P	17B	POWER_FAIL	Power fail link	I,DI,C
P	18A			
P	18B	RESERVE_2	Wire connection	C,C,C,C
P	19A	MIC-1-A	MIC input 1 A	S,I,C
P	19B	MIC-OUT-1	MIC output 1	AS,O,C
P	20A	MIC-1-OVE	MIC 1 ground external	DC,C
P	20B	MIC-1-B	MIC input 1 B	S,I,C
P	21A	MIC-2-A	MIC input 2 A Option	S,I,C
P	21B	MIC-2-OVE	MIC 2 ground external Option	DC,C
P	22A	PHANT-PWR-SW	Phantom supply switched	DC,O
P	22B	MIC-2-B	MIC input 2 B Option	S,I,C
P	23A	MLT-BUS-RET-a	Multi bus return A	S,I,C
P	23B	MLT-BUS-RET-b	Multi bus return B	S,I,C
P	24A	MIC-1-BUS	MIC 1 signalisation bus	DI,B
P	24B	PHANT-PWR-IN	48 V Phantom bus	DC,B
P	25A	GEN-A	Generator bus A	S,I,B
P	25B	GEN-B	Generator bus B	S,I,B
P	26A	TB-A	Talkback bus A	S,I,B
P	26B	TB-B	Talkback bus B	S,I,B
P	27A	MPX -A	MPX A bus	S,I,B
P	27B	MPX -B	MPX B bus	S,I,B
P	28A	OVL-B	Overload bus	DI,O,B
P	28B	MET-DIR/INP	Meter DIR / INP switch bus	DI,I,B
P	29A	INS-SEND-L-A	Bal. insert left output A	S,O,C
P	29B	INS-SEND-L-B	Bal. insert left output B	S,O,C
P	30A	INS-RET -L-A	Bal. insert left input A	S,I,C
P	30B	INS-RET -L-B	Bal. insert left input B	S,I,C
P	31A		N.C. (stereo)	S,O,C
P	31B		N.C. (stereo)	S,O,C
P	32A		N.C. (stereo)	S,I,C
P	32B		N.C. (stereo)	S,I,C

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted

## Pin assignment P6A

INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD 1.980.712.00

Valid for:

Stereo Input Unit with EQ, 8/4 Ch, 1.980.240.20 and

Stereo Input Unit with EQ, 6/6 Ch, 1.980.241.20

P6	NO	NAME	REMARK	TYPE
P	01A	LINE 1-L-A	LINE input 1 left A	S,I,C
P	01B	LINE 1-L-A	LINE input 1 left B	S,I,C
P	02A	LINE 1-L-0VE	LINE input 1 left ground external	DC,C
P	02B	LINE 1-R-0VE	LINE input 1 right ground external	DC,C
P	03A	LINE 1-R-A	LINE input 1 right A	S,I,C
P	03B	LINE 1-R-B	LINE input 1 right B	S,I,C
P	04A	LINE 2-L-A	LINE input 2 left A	S,I,C
P	04B	LINE 2-L-B	LINE input 2 left B	S,I,C
P	05A	LINE 2-L-0VE	LINE input 2 ground external	DC,C
P	05B	LINE 2-R-0VE	LINE input 2 right ground external	DC,C
P	06A	LINE 2-R-A	LINE input 2 right A	S,I,C
P	06B	LINE 2-R-B	LINE input 2 right B	S,I,C
P	07A	REL-K-A	Relay contact A (open)	O,DI,C
P	07B	REL-K-R	Relay contact B (closed)	O,DI,C
P	08A	REL-K-S	Relay contact S (switch)	O,DI,C
P	08B	SIGN-A	Pin LINE 1 Signal (low active)	O,DI,C
P	09A	REL_IN	Relay powering (low active)	I,DC,C
P	09B	SIGN-C	Pin LINE 2 Signal (low active)	O,DI,C
P	10A			
P	10B			
P	11A			
P	11B			
P	12A	SIGN-B	Pin IN 2 Signal (low active)	O,DI,C
P	12B			
P	13A			
P	13B			
P	14A			
P	14B			
P	15A			
P	15B			
P	16A			
P	16B	RESERVE_1	(Conn. 1 wire to Tp 14)	I,DI,C
P	17A			
P	17B	POWER_FAIL	Power fail link	I,DI,C
P	18A			
P	18B	RESERVE_2	Wire connection	C,C,C,C
P	19A	0V-GR-L-RET	0V return from audio star	DC,C
P	19B	N.C.	(MIC output left)	AS,O,C
P	20A	B-GR-L	GROUP left; 0-Ω bus; input	AS,I,C
P	20B	SC-GR-L	SCREEN GROUP left	DC,C
P	21A	0V-GR-R-RET	0V return from audio star	DC,C
P	21B	B-GR-R	GROUP right; 0-Ω bus; input	AS,I,C
P	22A	N.C.	(Phantom supply switched)	DC,O
P	22B	SC-GR-R	SCREEN GROUP right	S,I,C
P	23A	MLT-BUS-RET-a	Multi bus return A	S,I,C
P	23B	MLT-BUS-RET-b	Multi bus return B	S,I,C
P	24A	MIC-1-BUS	MIC 1 signalisation bus	DI,B
P	24B	N.C.	(48 V Phantom bus)	DC,B
P	25A	GEN-A	Generator A bus	S,I,B
P	25B	GEN-B	Generator B bus	S,I,B
P	26A	TB-A	Talkback A bus	S,I,B
P	26B	TB-B	Talkback B bus	S,I,B
P	27A	MPX -A	MPX A bus	S,I,B
P	27B	MPX -B	MPX B bus	S,I,B
P	28A	OVL-B	Overload bus	DI,O,B
P	28B	MET-DIR/INP	Meter DIR / INP switch bus	DI,I,B
P	29A	INS-SEND-L-A	Bal. insert left output A	S,O,C
P	29B	INS-SEND-L-B	Bal. insert left output B	S,O,C
P	30A	INS-RET -L-A	Bal. insert left input A	S,I,C
P	30B	INS-RET -L-B	Bal. insert left input B	S,I,C
P	31A	INS-SEND-R-A	Bal. insert right output A	S,O,C
P	31B	INS-SEND-R-B	Bal. insert right output B	S,O,C
P	32A	INS-RET -R-A	Bal. insert right input A	S,I,C
P	32B	INS-RET -R-B	Bal. insert right input B	S,I,C

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted

## Pin assignment P6A

INPUT UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD 1.980.712.00

Valid for:

Group Unit without EQ, 8/4 Ch, 1.980.230.20 and

Group Unit without EQ, 6/6 Ch, 1.980.231.20

P6	NO	NAME	REMARK	TYPE
P	01A		N.C. (mono/stereo)	S,I,C
P	01B		N.C. (mono/stereo)	S,I,C
P	02A		N.C. (mono/stereo)	DC,C
P	02B		N.C. (stereo)	DC,C
P	03A		N.C. (stereo)	S,I,C
P	03B		N.C. (stereo)	S,I,C
P	04A	IN-2-A	IN 2 input A	S,I,C
P	04B	IN-2-B	IN 2 input B	S,I,C
P	05A	IN-2-OVE	IN 2 input ground external	DC,C
P	05B		N.C. (stereo)	DC,C
P	06A		N.C. (stereo)	S,I,C
P	06B		N.C. (stereo)	S,I,C
P	07A	REL-K-A	Relay contact A (open)	O,DI,C
P	07B	REL-K-R	Relay contact B (closed)	O,DI,C
P	08A	REL-K-S	Relay contact S (switch)	O,DI,C
P	08B	SIGN-A	Pin LINE 1 Signal (low active)	O,DI,C
P	09A	REL_IN	Relay powering (low active)	I,DC,C
P	09B	SIGN-C	Pin LINE 2 Signal (low active)	O,DI,C
P	10A			
P	10B			
P	11A			
P	11B			
P	12A	SIGN-B	Pin IN 2 Signal (low active)	O,DI,C
P	12B			
P	13A			
P	13B			
P	14A			
P	14B			
P	15A			
P	15B			
P	16A			
P	16B	RESERVE_1	(Conn. 1 wire to Tp 14)	I,DI,C
P	17A			
P	17B	POWER_FAIL	Power fail link	I,DI,C
P	18A			
P	18B	RESERVE_2	Wire connection	C,C,C,C
P	19A	0V-GR-L-RET	0V return from audio star	DC,C
P	19B	N.C.	(MIC output left)	AS,O,C
P	20A	B-GR-L	GROUP left; 0-Ω bus; input	AS,I,C
P	20B	SC-GR-L	SCREEN GROUP left	DC,C
P	21A		N.C. (stereo)	DC,C
P	21B		N.C. (stereo)	AS,I,C
P	22A		N.C. (Phantom supply switched)	DC,O
P	22B		N.C. (stereo)	S,I,C
P	23A	MLT-BUS-RET-a	Multi bus return A	S,I,C
P	23B	MLT-BUS-RET-b	Multi bus return B	S,I,C
P	24A		N.C.	DI,B
P	24B	N.C.	N.C. (48 V Phantom bus)	DC,B
P	25A	GEN-A	Generator A bus	S,I,B
P	25B	GEN-B	Generator B bus	S,I,B
P	26A	TB-A	Talkback A bus	S,I,B
P	26B	TB-B	Talkback B bus	S,I,B
P	27A	MPX -A	MPX A bus	S,I,B
P	27B	MPX -B	MPX B bus	S,I,B
P	28A	OVL-B	Overload bus	DI,O,B
P	28B	MET-DIR/INP	Meter DIR / INP switch bus	DI,I,B
P	29A	INS-SEND-L-A	Bal. insert output A	S,O,C
P	29B	INS-SEND-L-B	Bal. insert output B	S,O,C
P	30A	INS-RET-L-A	Bal. insert input A	S,I,C
P	30B	INS-RET-L-B	Bal. insert input B	S,I,C
P	31A	GRP-SEND-A	SYM GROUP AF output A	S,O,C
P	31B	GRP-SEND-B	SYM GROUP AF output B	S,O,C
P	32A		N.C. (stereo)	
P	32B		N.C. (stereo)	

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted



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## **AUX MASTER UNITS**

**AUX (Auxiliary) Master Unit, transformerless****1.980.310.20****Assemblies structure**

---

PIC w. Software 980300	1.980.213.20
AUX Master Main Board	1.980.302.00
AUX Master Main Board	1.980.302.70
AUX Master Main PCB	1.980.302.11
AUX Master Switch Board	1.980.309.00
AUX Master Switch Board	1.980.309.70
AUX Master Switch PCB	1.980.309.11

**Block diagrams**

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AUX Master Unit, transformerless	1.980.310.20
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**Diagrams**

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AUX Master Main Board	1.980.302.00, <i>pages 1; 2; 3; 4; 5; 6</i>
AUX Master Switch Board	1.980.309.00

**Component layout drawings**

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AUX Master Main Board	1.980.302.00
AUX Master Switch Board	1.980.309.00

**Parts lists**

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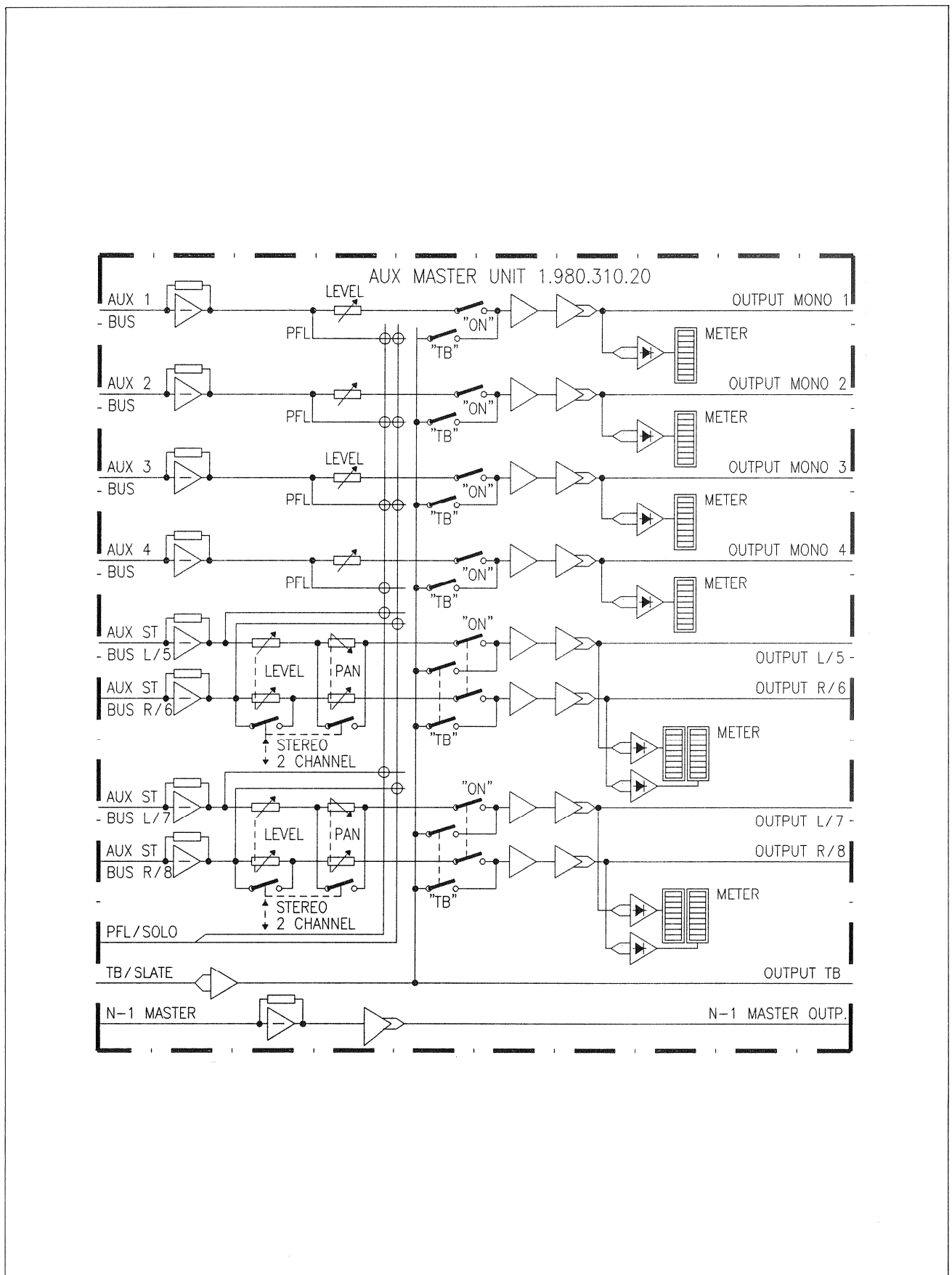
AUX Master Main Board	1.980.302.00
AUX Master Switch Board	1.980.309.00

**Connector pin assignments**

---

P4, P5, P6 (AUX Unit)  
P6C1 (P21, 22, 23, 24)

BLOCK DIAGRAM  
AUX MASTER UNIT, TRANSFORMERLESS 1.980.310.20



**AUX (Auxiliary) Master Unit w. transformer outputs****1.980.320.20****Assemblies structure**


---

PIC w. Software 980300	1.980.213.20
AUX Master Board	1.980.302.00
AUX Master Board	1.980.302.70
AUX Master Main PCB	1.980.302.11
AUX Master Switch Board	1.980.309.00
AUX Master Switch Board	1.980.309.70
AUX Master Switch PCB	1.980.309.11
AUX Master Line Board	1.980.323.00
AUX Master Line PCB	1.980.303.00

**Block diagrams**


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AUX Master Unit with transformer outputs	1.980.310.20
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**Diagrams**


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AUX Master Main Board	1.980.302.00, pages 1; 2; 3; 4; 5; 6
AUX Master Switch Board	1.980.309.00
AUX Master Line Board	1.980.323.00, pages 1; 2

**Component layout drawings**


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AUX Master Main Board	1.980.302.00
AUX Master Switch Board	1.980.309.00
AUX Master Line Board	1.980.323.00

**Parts lists**


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AUX Master Main Board	1.980.302.00
AUX Master Switch Board	1.980.309.00
AUX Master Line Board	1.980.323.00

**Connector pin assignments**


---

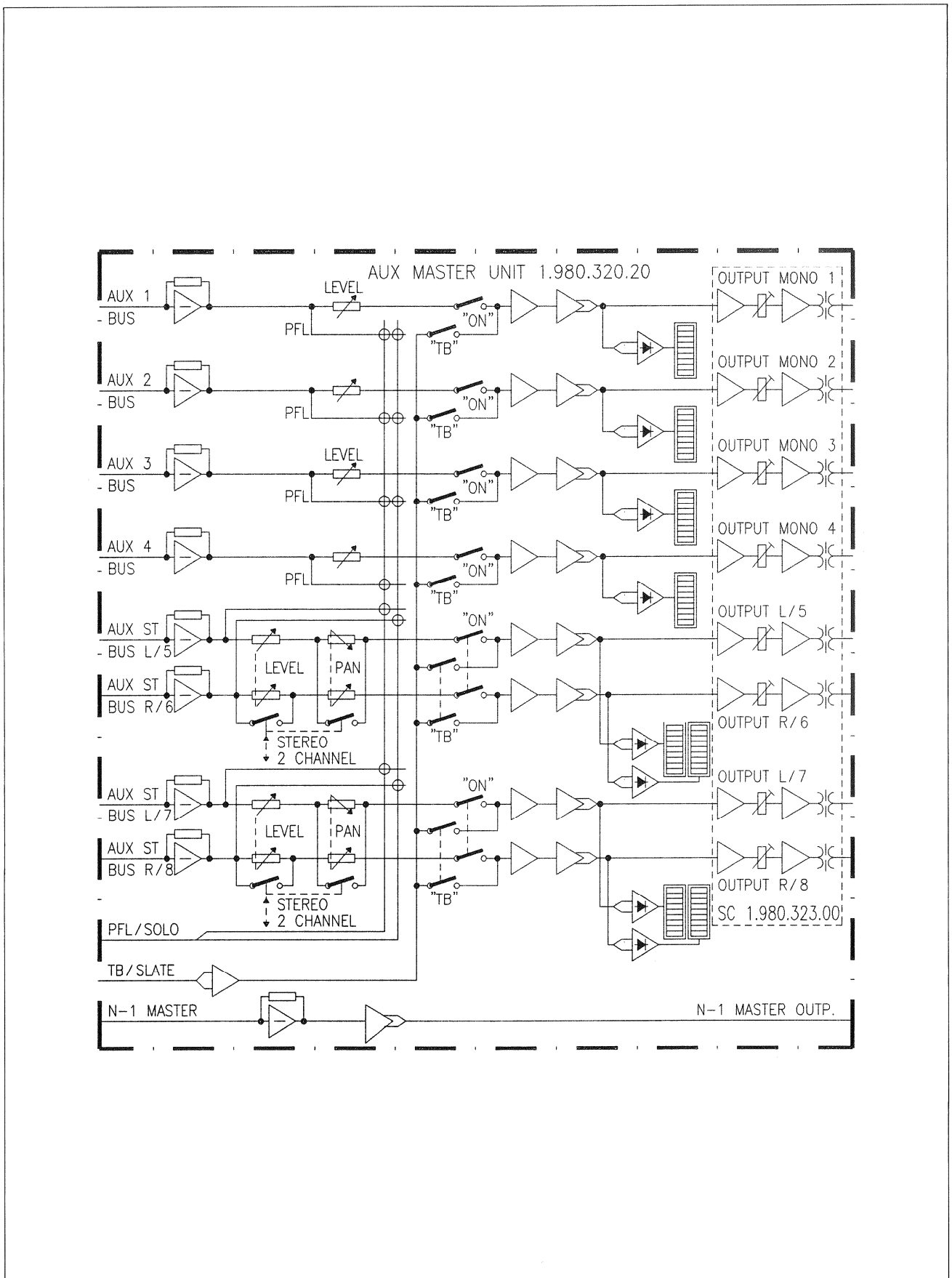
P4, P5, P6 (AUX unit)  
P6C1 (P21, 22, 23, 24)

**Comments**


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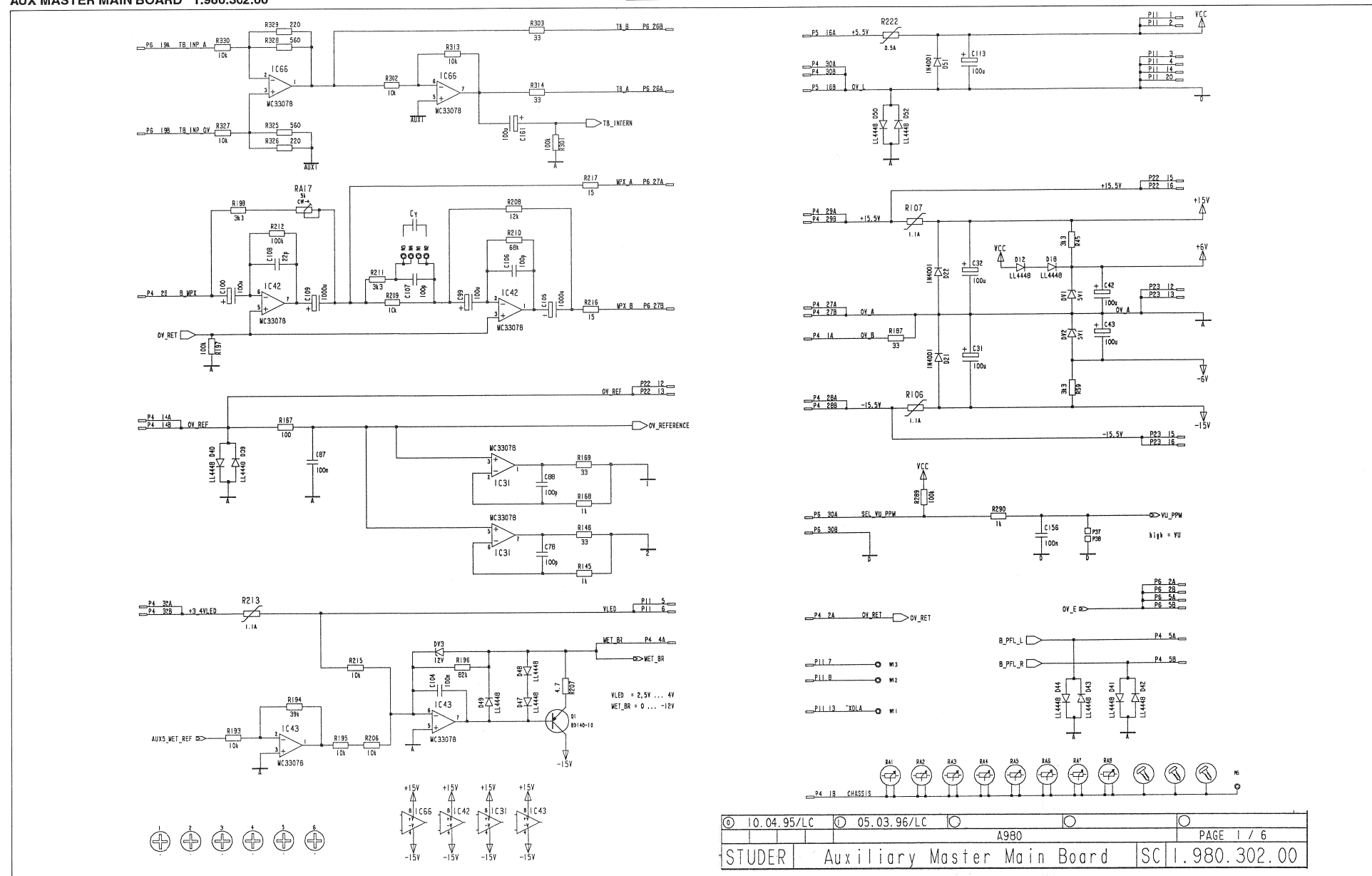
The AUX Master Unit with transformer 1.980.320.20 is a modified basic unit 1.980.310.20. The jumpers P21/22 and P23/24 are removed and replaced by the AUX Master Line Board 1.980.323.00. The gain of the stage before the last one is modified by a insertig an additional parallel resistor on the solder side.

**BLOCK DIAGRAM**  
**AUX MASTER UNIT, WITH TRANSFORMERS 1.980.320.20**





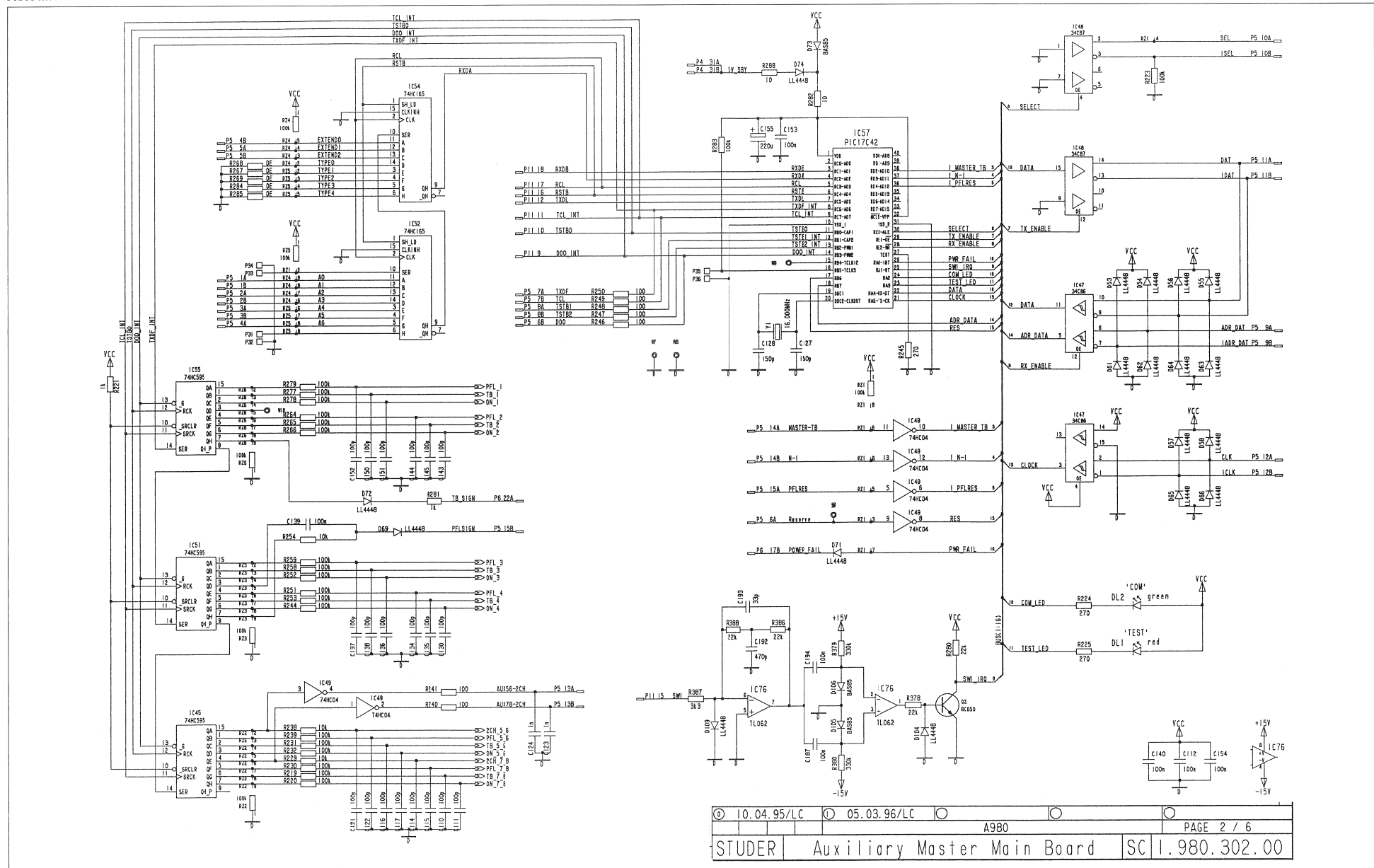
AUX MASTER MAIN BOARD 1.980.302.00



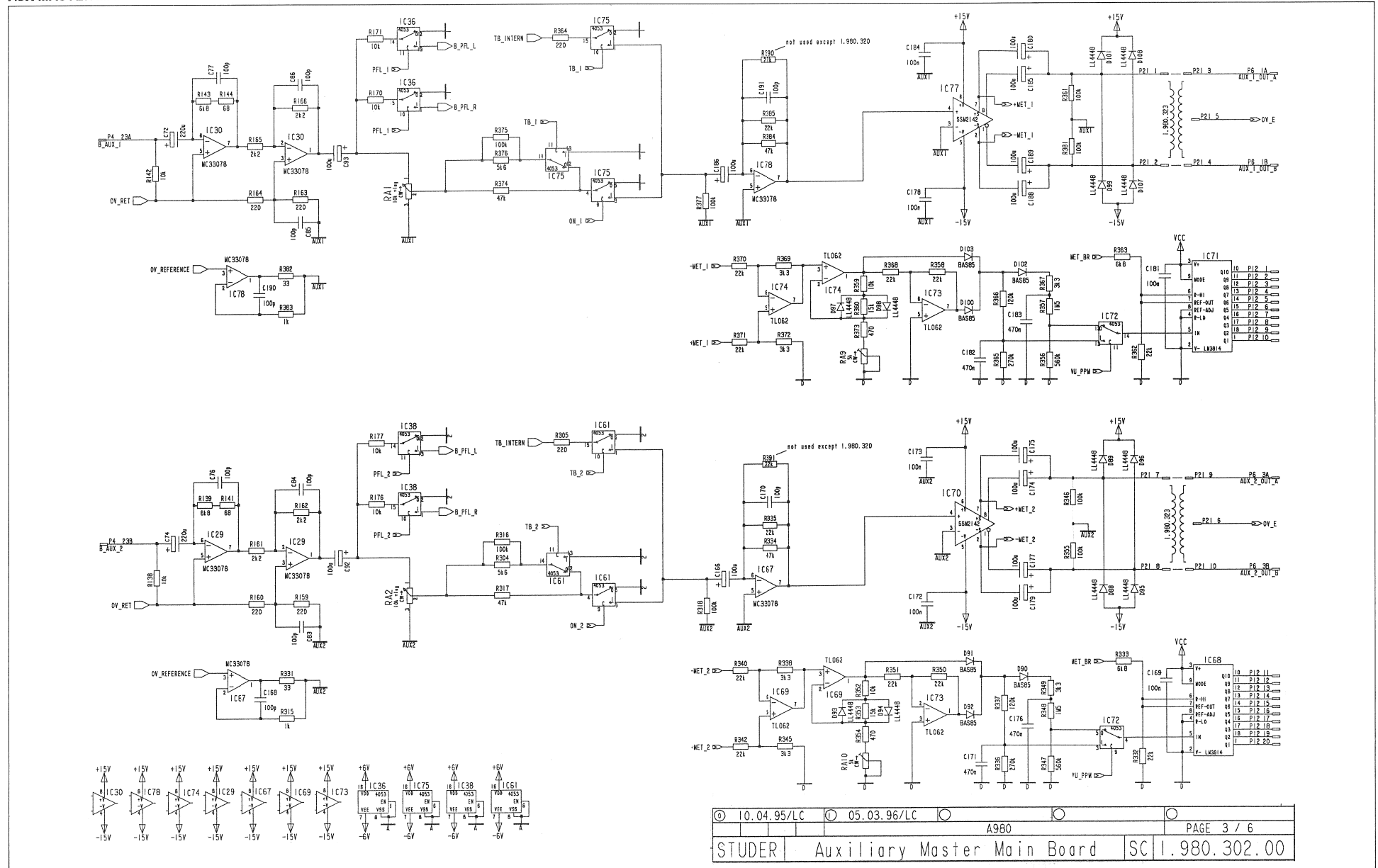
© 10.04.95/LC	© 05.03.96/LC								
A980						PAGE 1 / 6			
STUDER					Auxiliary Master Main Board			SC 1.980.302.00	



AUX MASTER MAIN BOARD 1.980.302.00

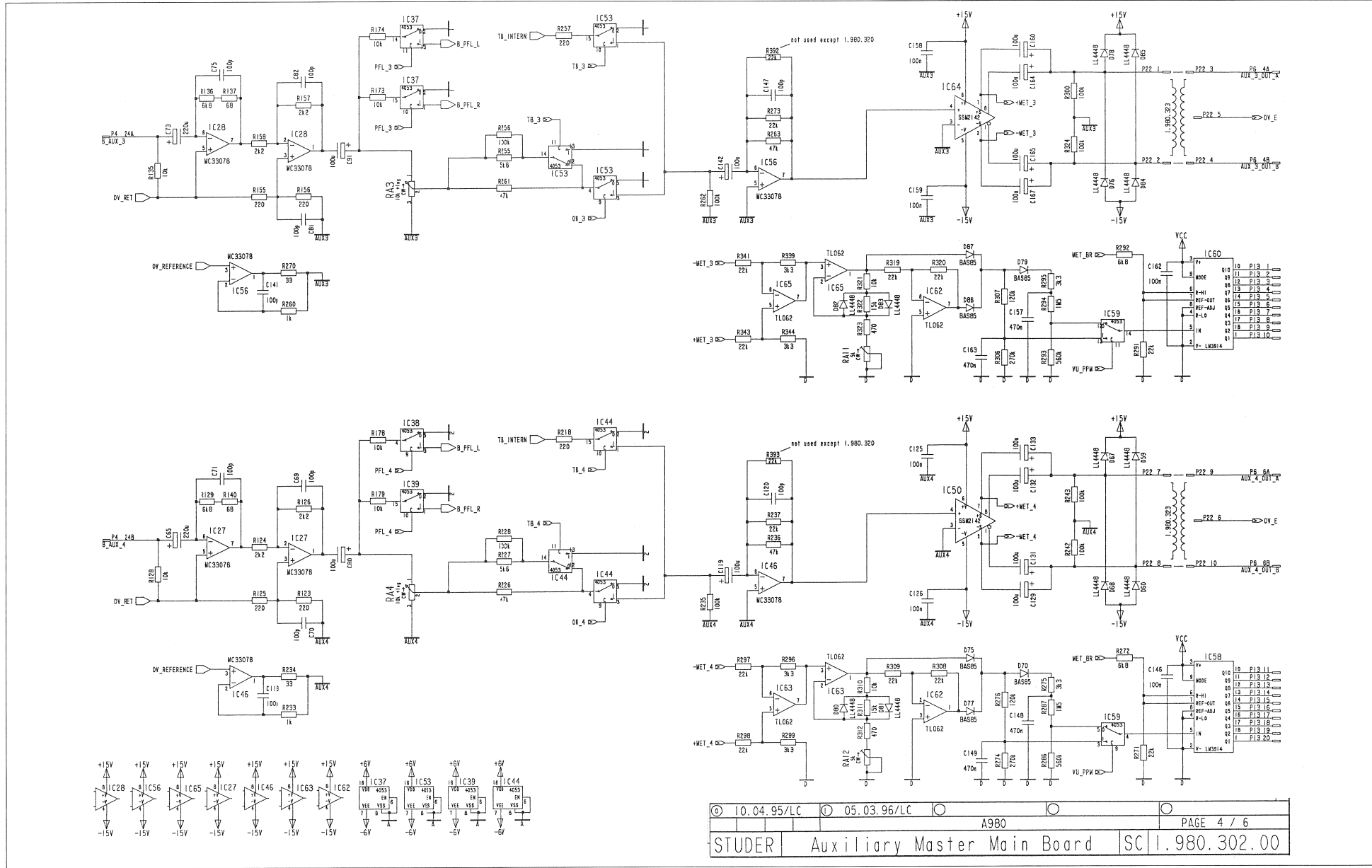


AUX MASTER MAIN BOARD 1.980.302.00



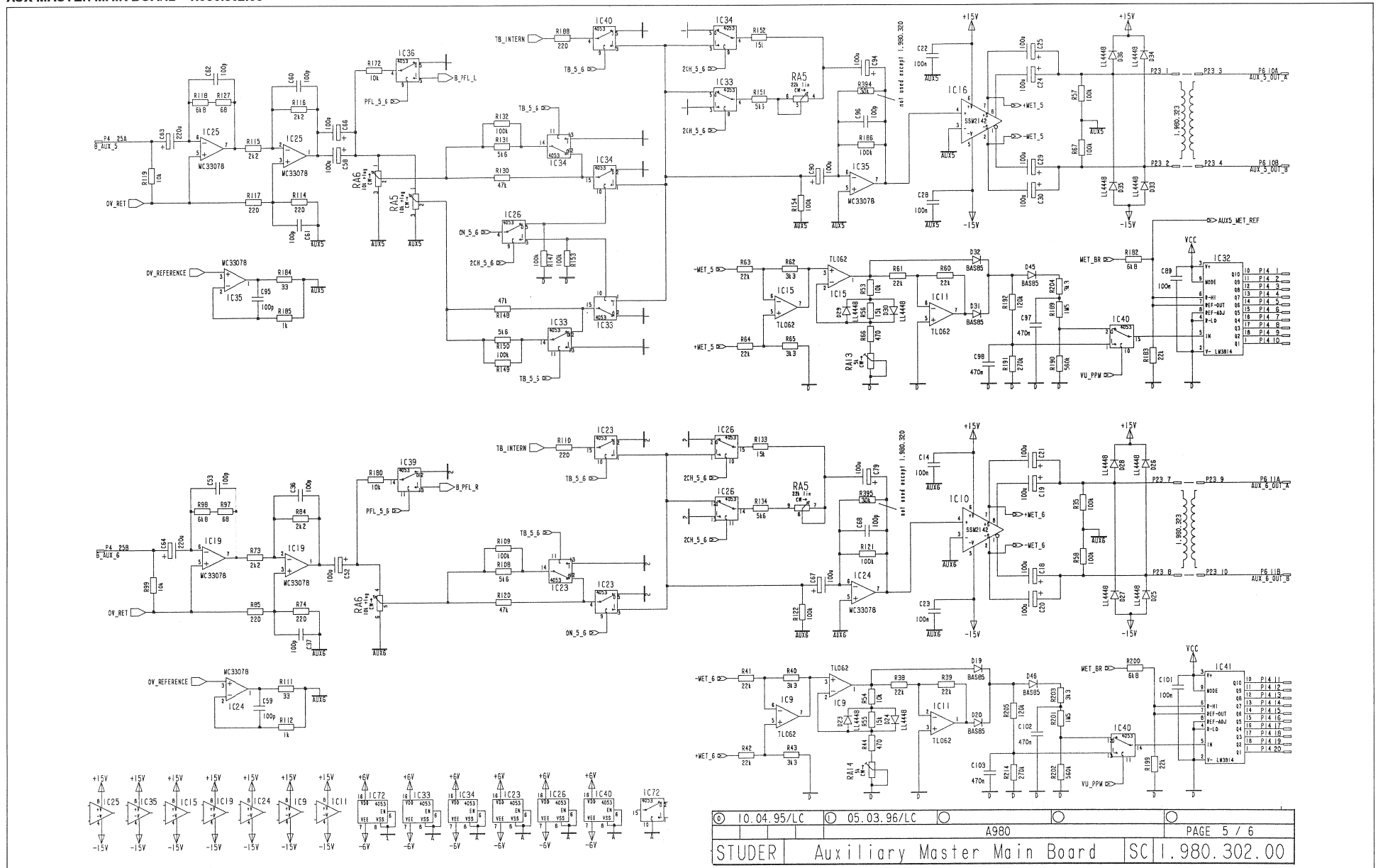


AUX MASTER MAIN BOARD 1.980.302.00

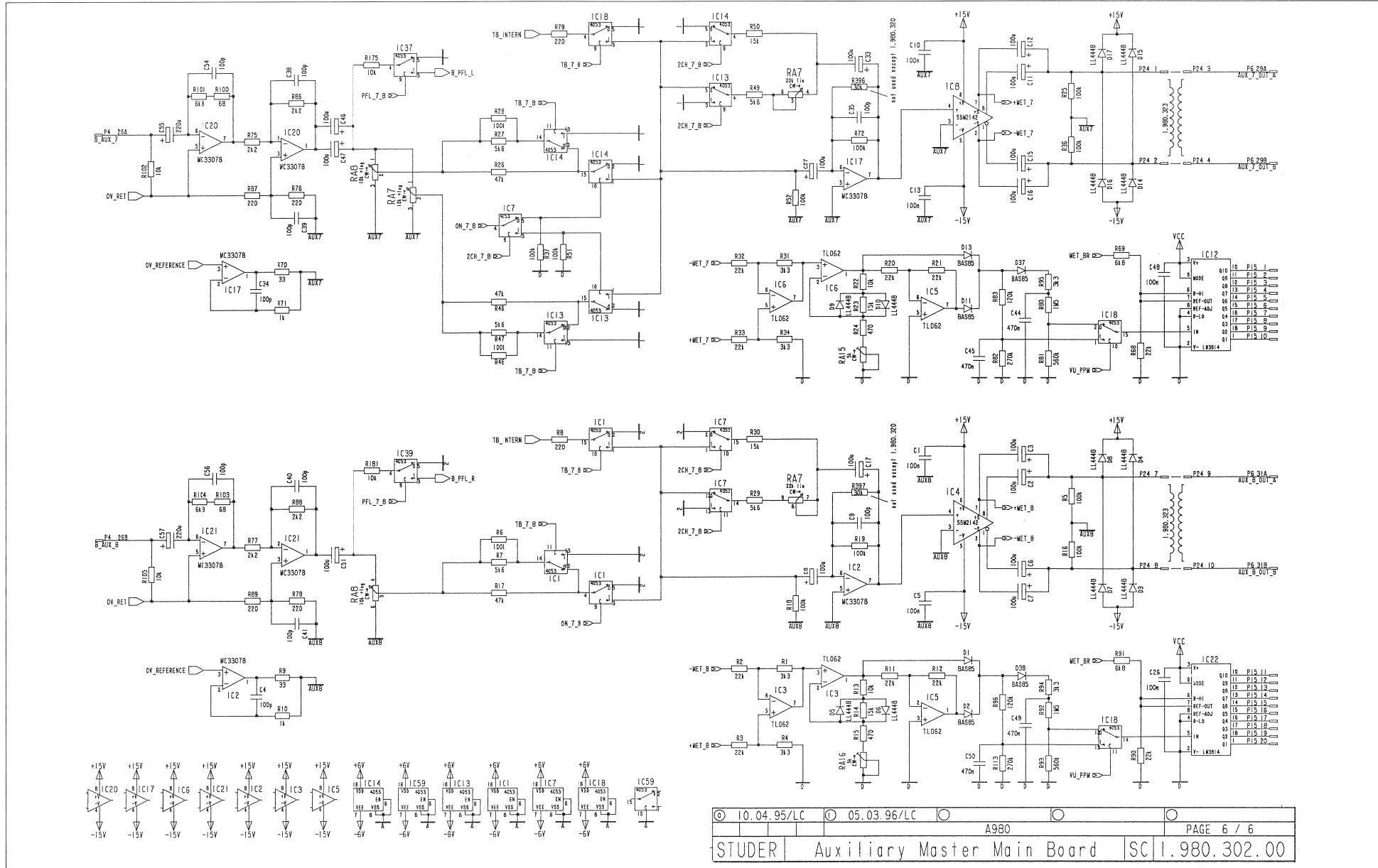




AUX MASTER MAIN BOARD 1.980.302.00



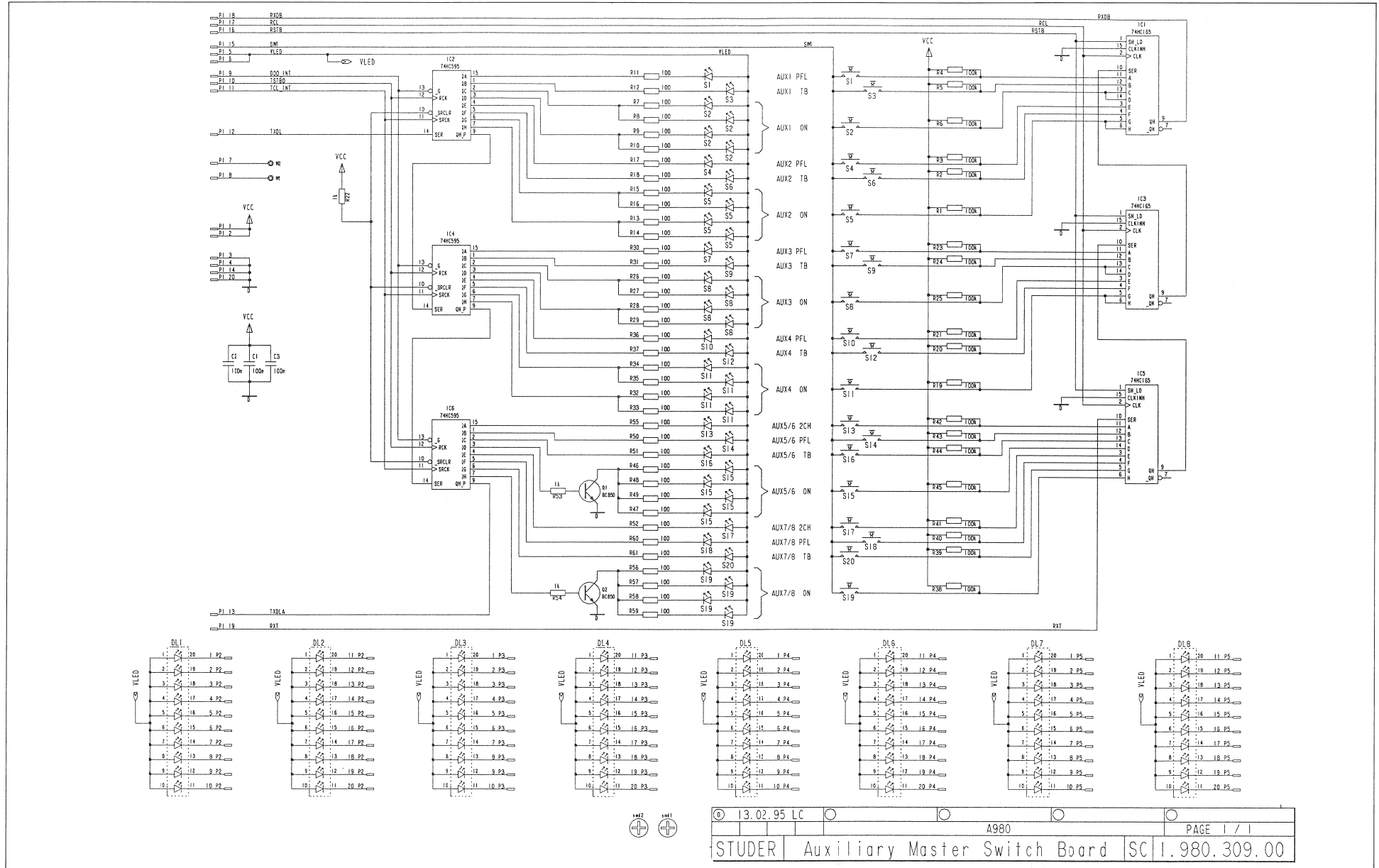
AUX MASTER MAIN BOARD 1.980.302.00





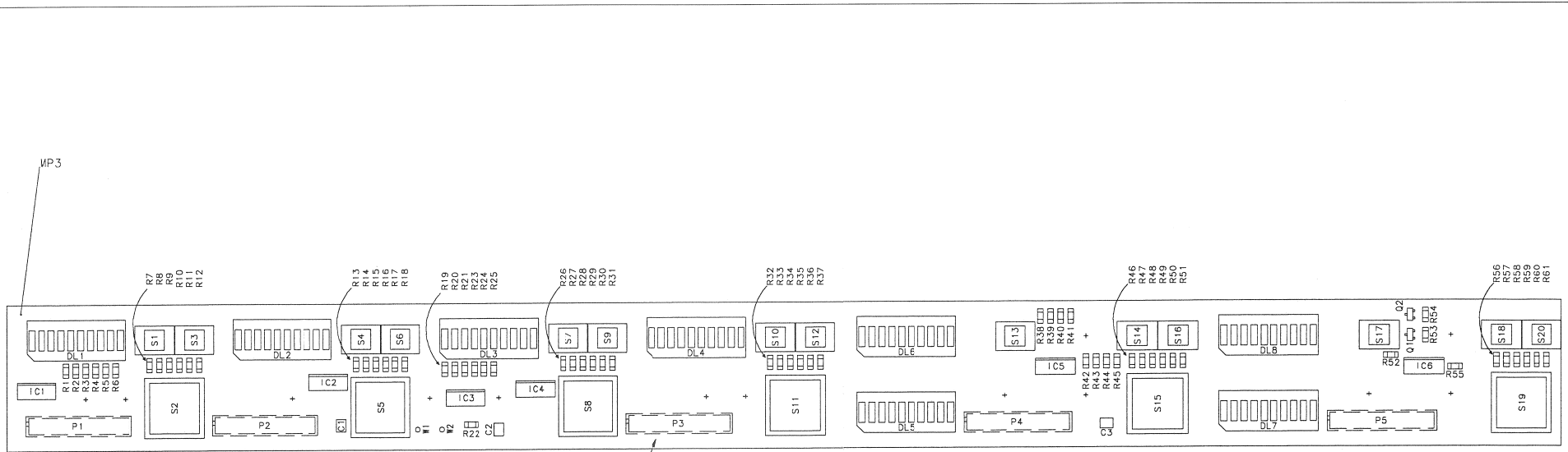


AUX MASTER SWITCH BOARD 1.980.309.00





AUX MASTER SWITCH BOARD 1.980.309.00



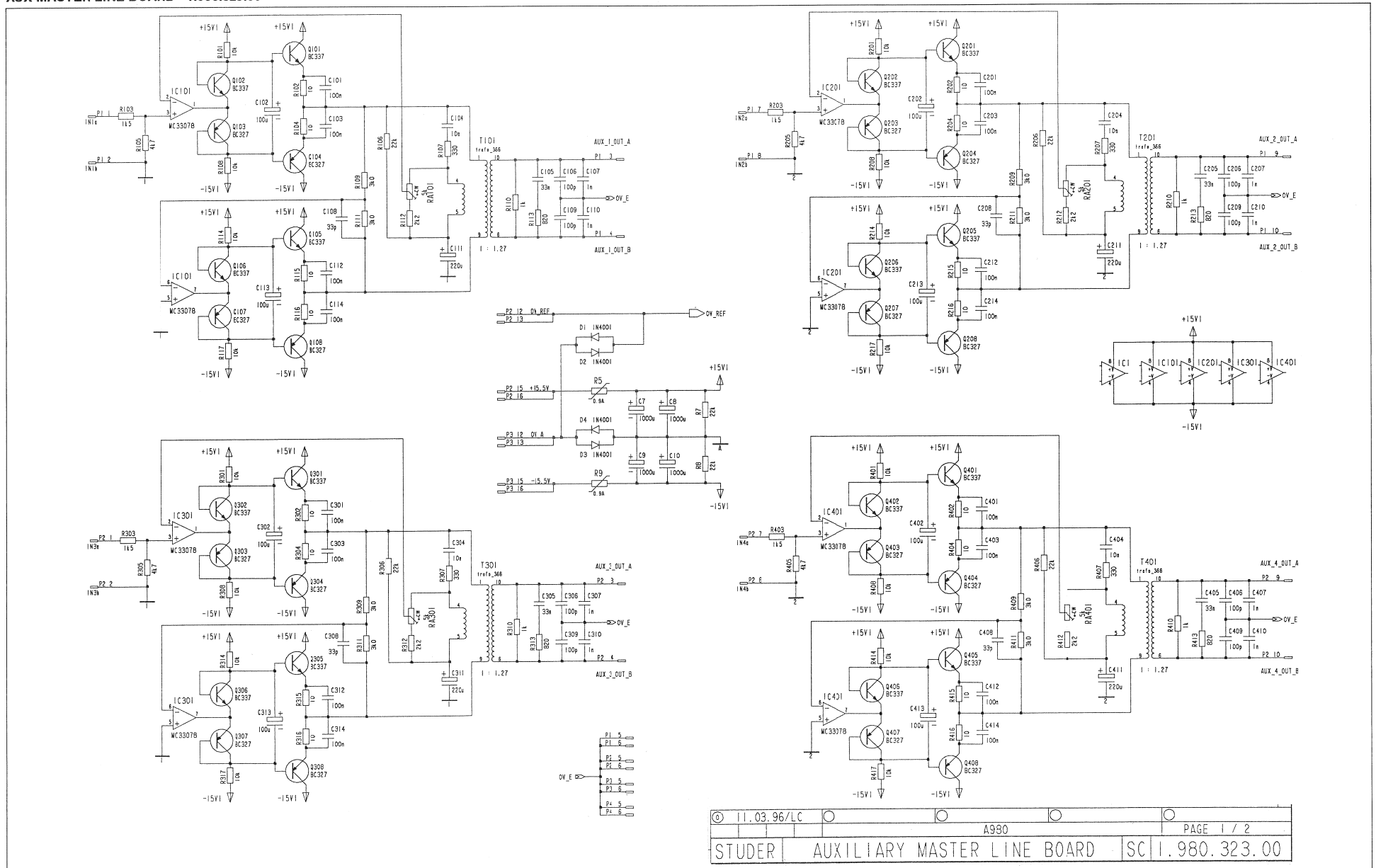
P1...P5 on solder side  
directly connected to  
P1'...P15 on 1.980.302.00

Version	16.02.95	LC				
Date		Verz.	Gez.	Gez.	Seen	Index
Bozun						
Copy to						
Kopie fuer						

**STUDER**  
REGENSDORF  
Aux Master Switch Board, ESE  
1.980.309-00



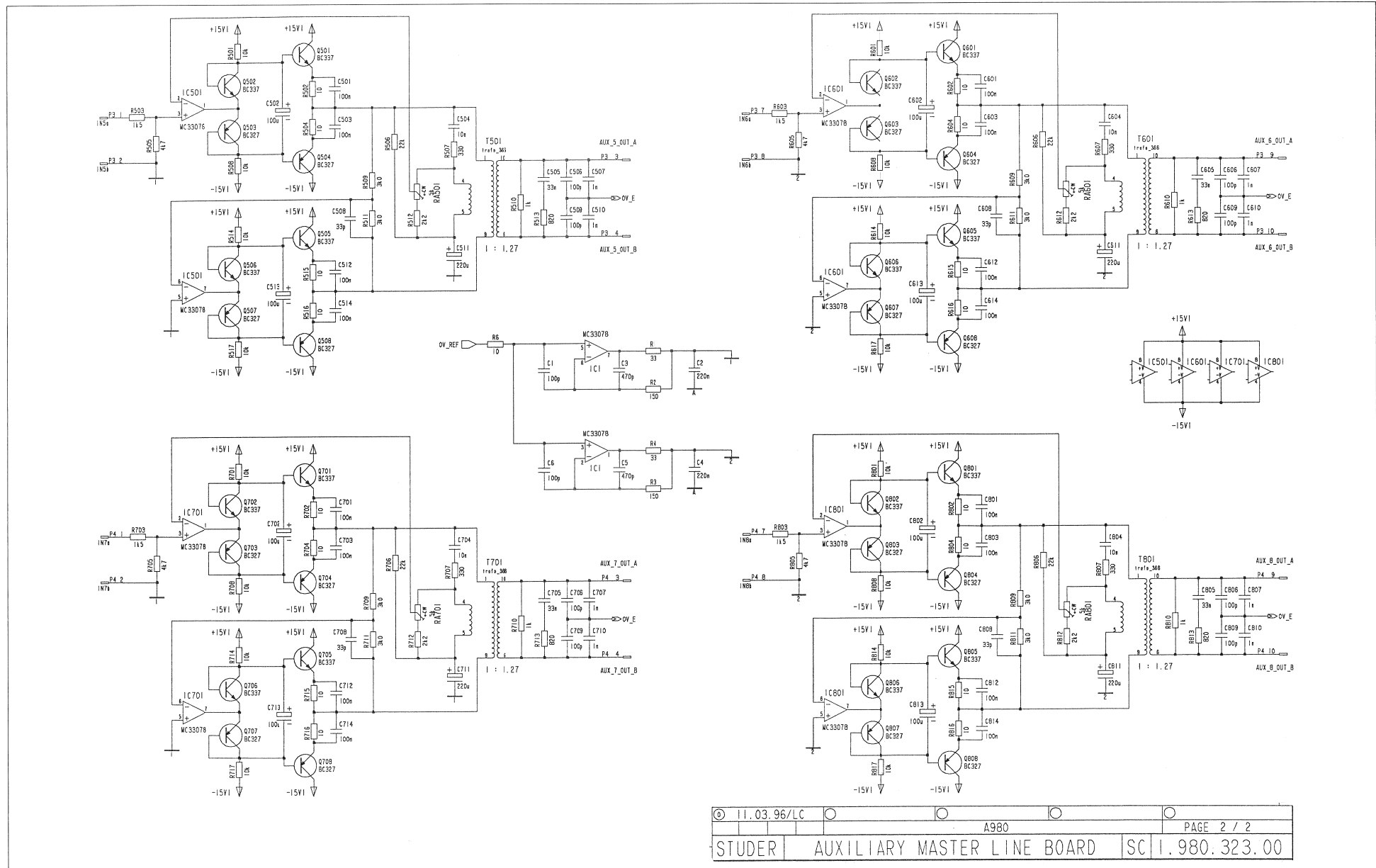
AUX MASTER LINE BOARD 1.980.323.00



© 11.03.96/LC	A930	PAGE 1 / 2
STUDER	AUXILIARY MASTER LINE BOARD	SC 1.980.323.00



AUX MASTER LINE BOARD 1.980.323.00

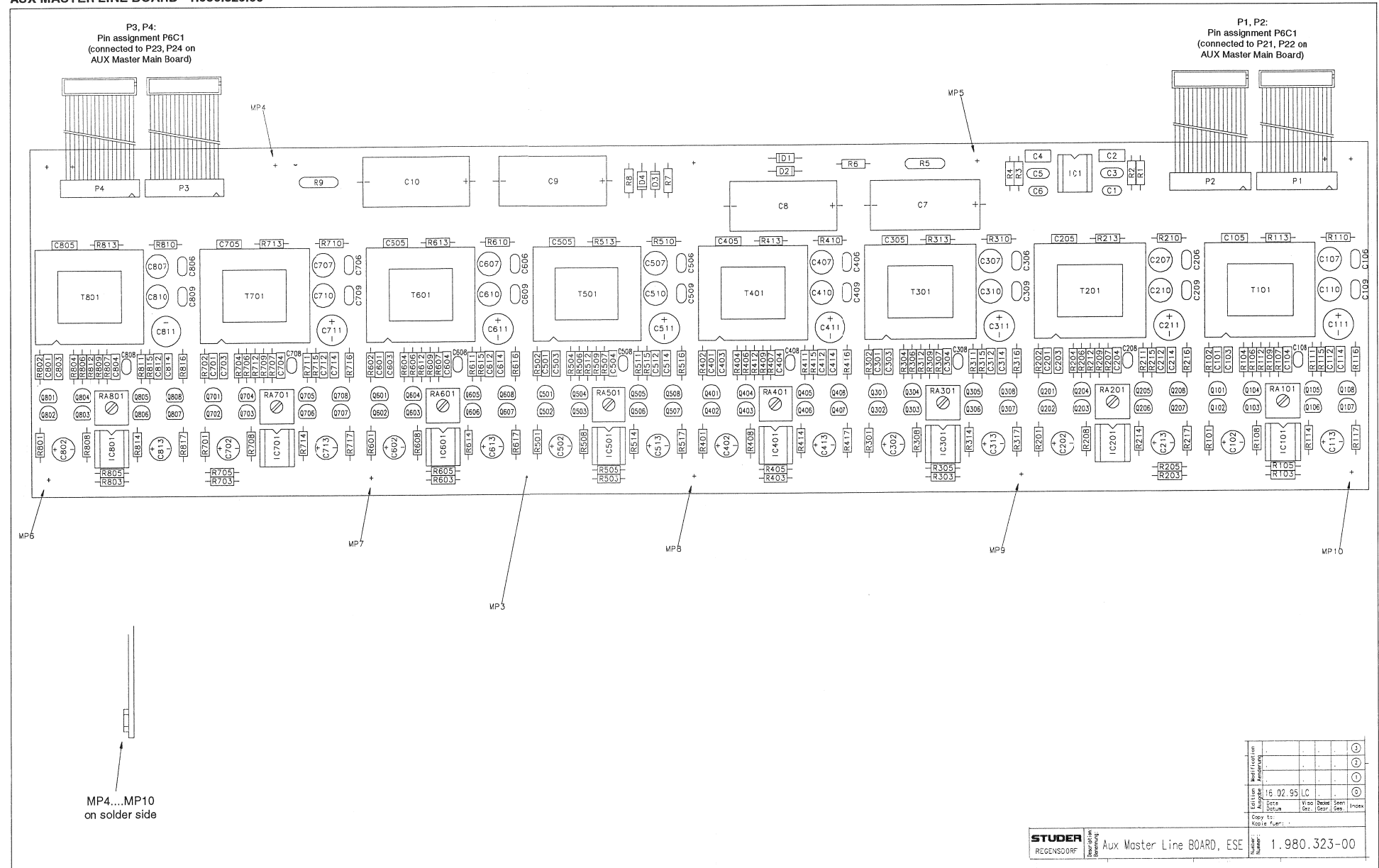


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STUDER	AUXILIARY MASTER LINE BOARD	SC 1.980.323.00





AUX MASTER LINE BOARD 1.980.323.00







AUX MASTER MAIN BOARD 1.980.302.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 165	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 52	50.60.8001	4448	D LL 4448 SOD 80
0	C 166	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 53	50.60.8001	4448	D LL 4448 SOD 80
0	C 167	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 54	50.60.8001	4448	D LL 4448 SOD 80
0	C 168	59.60.0101	100p	C 100 P , 5%, COG , CER	0	D 55	50.60.8001	4448	D LL 4448 SOD 80
0	C 169	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 56	50.60.8001	4448	D LL 4448 SOD 80
0	C 170	59.60.0101	100p	C 100 P , 5%, COG , CER	0	D 57	50.60.8001	4448	D LL 4448 SOD 80
0	C 171	59.60.1474	470n	C 470 N , 10%, X7R , CER	0	D 58	50.60.8001	4448	D LL 4448 SOD 80
0	C 172	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 59	50.60.8001	4448	D LL 4448 SOD 80
0	C 173	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 60	50.60.8001	4448	D LL 4448 SOD 80
0	C 174	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 61	50.60.8001	4448	D LL 4448 SOD 80
0	C 175	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 62	50.60.8001	4448	D LL 4448 SOD 80
0	C 176	59.60.1474	470n	C 470 N , 10%, X7R , CER	0	D 63	50.60.8001	4448	D LL 4448 SOD 80
0	C 177	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 64	50.60.8001	4448	D LL 4448 SOD 80
0	C 178	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 65	50.60.8001	4448	D LL 4448 SOD 80
0	C 179	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 66	50.60.8001	4448	D LL 4448 SOD 80
0	C 180	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 67	50.60.8001	4448	D LL 4448 SOD 80
0	C 181	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 68	50.60.8001	4448	D LL 4448 SOD 80
0	C 182	59.60.1474	470n	C 470 N , 10%, X7R , CER	0	D 69	50.60.8001	4448	D LL 4448 SOD 80
0	C 183	59.60.1474	470n	C 470 N , 10%, X7R , CER	0	D 70	50.60.8101	BAS85	D BAS 85 SOD 80
0	C 184	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 71	50.60.8001	4448	D LL 4448 SOD 80
0	C 185	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 72	50.60.8001	4448	D LL 4448 SOD 80
0	C 186	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 73	50.60.8101	BAS85	D BAS 85 SOD 80
0	C 187	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 74	50.60.8001	4448	D LL 4448 SOD 80
0	C 188	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 75	50.60.8101	BAS85	D BAS 85 SOD 80
0	C 189	59.22.3101	100u	EL 10V, 20%, rad RM5	0	D 76	50.60.8001	4448	D LL 4448 SOD 80
0	C 190	59.60.0101	100p	C 100 P , 5%, COG , CER	0	D 77	50.60.8101	BAS85	D BAS 85 SOD 80
0	C 191	59.60.0101	100p	C 100 P , 5%, COG , CER	0	D 78	50.60.8001	4448	D LL 4448 SOD 80
0	C 192	59.60.0471	470p	C 470 P , 5%, COG , CER	0	D 79	50.60.8101	BAS85	D BAS 85 SOD 80
0	C 193	59.60.0330	33p	C 33 P , 5%, COG , CER	0	D 80	50.60.8001	4448	D LL 4448 SOD 80
0	C 194	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	D 81	50.60.8001	4448	D LL 4448 SOD 80
0	D 1	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 82	50.60.8001	4448	D LL 4448 SOD 80
0	D 2	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 83	50.60.8001	4448	D LL 4448 SOD 80
0	D 3	50.60.8001	4448	D LL 4448 SOD 80	0	D 84	50.60.8001	4448	D LL 4448 SOD 80
0	D 4	50.60.8001	4448	D LL 4448 SOD 80	0	D 85	50.60.8001	4448	D LL 4448 SOD 80
0	D 5	50.60.8001	4448	D LL 4448 SOD 80	0	D 86	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 6	50.60.8001	4448	D LL 4448 SOD 80	0	D 87	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 7	50.60.8001	4448	D LL 4448 SOD 80	0	D 88	50.60.8001	4448	D LL 4448 SOD 80
0	D 8	50.60.8001	4448	D LL 4448 SOD 80	0	D 89	50.60.8001	4448	D LL 4448 SOD 80
0	D 9	50.60.8001	4448	D LL 4448 SOD 80	0	D 90	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 10	50.60.8001	4448	D LL 4448 SOD 80	0	D 91	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 11	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 92	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 12	50.60.8001	4448	D LL 4448 SOD 80	0	D 93	50.60.8001	4448	D LL 4448 SOD 80
0	D 13	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 94	50.60.8001	4448	D LL 4448 SOD 80
0	D 14	50.60.8001	4448	D LL 4448 SOD 80	0	D 95	50.60.8001	4448	D LL 4448 SOD 80
0	D 15	50.60.8001	4448	D LL 4448 SOD 80	0	D 96	50.60.8001	4448	D LL 4448 SOD 80
0	D 16	50.60.8001	4448	D LL 4448 SOD 80	0	D 97	50.60.8001	4448	D LL 4448 SOD 80
0	D 17	50.60.8001	4448	D LL 4448 SOD 80	0	D 98	50.60.8001	4448	D LL 4448 SOD 80
0	D 18	50.60.8001	4448	D LL 4448 SOD 80	0	D 99	50.60.8001	4448	D LL 4448 SOD 80
0	D 19	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 100	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 20	50.60.8101	BAS85	D BAS 85 SOD 80	0	D 101	50.60.8001	4448	D LL 4448 SOD 80
0	D 21	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004	0	D 102	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 22	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004	0	D 103	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 23	50.60.8001	4448	D LL 4448 SOD 80	0	D 104	50.60.8001	4448	D LL 4448 SOD 80
0	D 24	50.60.8001	4448	D LL 4448 SOD 80	0	D 105	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 25	50.60.8001	4448	D LL 4448 SOD 80	0	D 106	50.60.8101	BAS85	D BAS 85 SOD 80
0	D 26	50.60.8001	4440	D LL 4448 SOD 80	0	D 107	50.60.8001	4448	D LL 4448 SOD 80
0	D 27	50.60.8001	4448	D LL 4448 SOD 80	0	D 108	50.60.8001	4448	D LL 4448 SOD 80
0	D 28	50.60.8001	4448	D LL 4448 SOD 80	0	D 109	50.60.8001	4448	D LL 4448 SOD 80
0	D 29	50.60.8001	4448	D LL 4448 SOD 80	0	DL 1	50.04.2121	TLUR 2401	DL TLUR 2401 RT MATT
0	D 30	50.60.8001	4448	D LL 4448 SOD 80	0	DL 2	50.04.2132	TLUG 2401	DL TLUG 2401 GN MATT
0	D 31	50.60.8101	BAS85	D BAS 85 SOD 80	0	DV 1	50.04.1112	5V1	Zener, 5%, 0.5W, DO-35
0	D 32	50.60.8101	BAS85	D BAS 85 SOD 80	0	DV 2	50.04.1112	5V1	Zener, 5%, 0.5W, DO-35
0	D 33	50.60.8001	4448	D LL 4448 SOD 80	0	DV 3	50.04.1117	12V	Zener, 5%, 0.5W, DO-35
0	D 34	50.60.8001	4448	D LL 4448 SOD 80	0	IC 1	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A
0	D 35	50.60.8001	4448	D LL 4448 SOD 80	0	IC 2	50.09.0117	MC33078	IC MC 33078 P ,A
0	D 36	50.60.8001	4448	D LL 4448 SOD 80	0	IC 3	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 37	50.60.8101	BAS85	D BAS 85 SOD 80	0	IC 4	50.09.0124	2142	IC SSM 2142 P ,A
0	D 38	50.60.8101	BAS85	D BAS 85 SOD 80	0	IC 5	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 39	50.60.8001	4448	D LL 4448 SOD 80	0	IC 6	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 40	50.60.8001	4448	D LL 4448 SOD 80	0	IC 7	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A
0	D 41	50.60.8001	4448	D LL 4448 SOD 80	0	IC 8	50.09.0124	2142	IC SSM 2142 P ,A
0	D 42	50.60.8001	4448	D LL 4448 SOD 80	0	IC 9	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 43	50.60.8001	4448	D LL 4448 SOD 80	0	IC 10	50.09.0124	2142	IC SSM 2142 P ,A
0	D 44	50.60.8001	4448	D LL 4448 SOD 80	0	IC 11	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 45	50.60.8101	BAS85	D BAS 85 SOD 80	0	IC 12	50.11.0119	LM4094	IC LM 3914 N, ,A
0	D 46	50.60.8101	BAS85	D BAS 85 SOD 80	0	IC 13	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A
0	D 47	50.60.8001	4448	D LL 4448 SOD 80	0	IC 14	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A
0	D 48	50.60.8001	4448	D LL 4448 SOD 80	0	IC 15	50.61.0201	TL062	IC TL 062 ACD ,A
0	D 49	50.60.8001	4448	D LL 4448 SOD 80					
0	D 50	50.60.8001	4448	D LL 4448 SOD 80					
0	D 51	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004					



AUX MASTER MAIN BOARD 1.980.302.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	IC 16	50.09.0124	2142	IC SSM 2142 P	0	P 32	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 17	50.09.0117	MC33078	IC MC 33078 P ,A	0	P 33	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 18	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	P 34	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 19	50.09.0117	MC33078	IC MC 33078 P ,A	0	P 35	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 20	50.09.0117	MC33078	IC MC 33078 P ,A	0	P 36	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 21	50.09.0117	MC33078	IC MC 33078 P ,A	0	P 37	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 22	50.11.0119	LM4094	IC LM 3914 N,	0	P 38	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4
0	IC 23	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	Q 1	50.03.0452	BD140-10	BD 140-10
0	IC 24	50.09.0117	MC33078	IC MC 33078 P ,A	0	Q 2	50.60.0002	BC850C	Q BC 850 C, SOT 23
0	IC 25	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 1	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 26	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 2	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 27	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 3	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 28	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 4	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 29	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 5	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 30	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 6	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 31	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 7	57.60.1562	5K6	MF, 1%, 0204, E24
0	IC 32	50.11.0119	LM4094	IC LM 3914 N,	0	R 8	57.60.1221	220R	MF, 1%, 0204, E24
0	IC 33	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 9	57.60.1330	33R	MF, 1%, 0204, E24
0	IC 34	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 10	57.60.1102	1K	MF, 1%, 0204, E24
0	IC 35	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 11	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 36	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 12	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 37	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 13	57.60.1103	10K	MF, 1%, 0204, E24
0	IC 38	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 14	57.60.1153	15K	MF, 1%, 0204, E24
0	IC 39	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	1	R 15	57.60.1471	470R	MF, 1%, 0204, E24
0	IC 40	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 16	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 41	50.11.0119	LM4094	IC LM 3914 N,	0	R 17	57.60.1473	47K	MF, 1%, 0204, E24
0	IC 42	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 18	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 43	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 19	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 44	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 20	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 45	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 21	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 46	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 22	57.60.1103	10K	MF, 1%, 0204, E24
0	IC 47	50.15.0128	34C86	IC DS 34 C 86 TN, MC34C86P ,A	0	R 23	57.60.1153	15K	MF, 1%, 0204, E24
0	IC 48	50.15.0127	34C87	IC DS 34 C 87 TN, MC34C87P ,A	1	R 24	57.60.1471	470R	MF, 1%, 0204, E24
0	IC 49	50.17.1004	74HC04	IC ... 74 HC 04 . ,A	0	R 25	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 50	50.09.0124	2142	IC SSM 2142 P	0	R 26	57.60.1473	47K	MF, 1%, 0204, E24
0	IC 51	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 27	57.60.1562	5K6	MF, 1%, 0204, E24
0	IC 52	50.62.1165	74HC165	IC .. 74 HC 165 . ,A	0	R 28	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 53	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 29	57.60.1562	5K6	MF, 1%, 0204, E24
0	IC 54	50.62.1165	74HC165	IC .. 74 HC 165 . ,A	0	R 30	57.60.1153	15K	MF, 1%, 0204, E24
0	IC 55	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 31	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 56	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 32	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 58	50.11.0119	LM4094	IC LM 3914 N,	0	R 33	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 59	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 34	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 60	50.11.0119	LM4094	IC LM 3914 N,	0	R 35	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 61	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 36	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 62	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 37	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 63	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 38	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 64	50.09.0124	2142	IC SSM 2142 P	0	R 39	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 65	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 40	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 66	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 41	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 67	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 42	57.60.1223	22K	MF, 1%, 0204, E24
0	IC 68	50.11.0119	LM4094	IC LM 3914 N,	0	R 43	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 69	50.61.0201	TL062	IC TL 062 ACD ,A	1	R 44	57.60.1471	470R	MF, 1%, 0204, E24
0	IC 70	50.09.0124	2142	IC SSM 2142 P	0	R 45	57.60.1332	3K3	MF, 1%, 0204, E24
0	IC 71	50.11.0119	LM4094	IC LM 3914 N,	0	R 46	57.60.1473	47K	MF, 1%, 0204, E24
0	IC 72	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 47	57.60.1562	5K6	MF, 1%, 0204, E24
0	IC 73	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 48	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 74	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 49	57.60.1562	5K6	MF, 1%, 0204, E24
0	IC 75	50.62.8053	HC4053	IC .. 74 HC 4053 . ,A	0	R 50	57.60.1153	15K	MF, 1%, 0204, E24
0	IC 76	50.61.0201	TL062	IC TL 062 ACD ,A	0	R 51	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 77	50.09.0124	2142	IC SSM 2142 P	0	R 52	57.60.1104	100K	MF, 1%, 0204, E24
0	IC 78	50.09.0117	MC33078	IC MC 33078 P ,A	0	R 53	57.60.1103	10K	MF, 1%, 0204, E24
0	JP 1	54.01.0021	Jumper	0.63 * 0.63mm	0	R 54	57.60.1103	10K	MF, 1%, 0204, E24
0	MP 1	1.980.302.04	pce	NR.-ETIKETTE 5 * 20	0	R 55	57.60.1153	15K	MF, 1%, 0204, E24
0	MP 2	43.01.0108	pce	ESE-WARNschild	0	R 56	57.60.1153	15K	MF, 1%, 0204, E24
0	MP 3	1.980.302.12	pce	AUXILIARY MASTER MAIN PCB //A	0	R 57	57.60.1104	100K	MF, 1%, 0204, E24
0	P 4	54.11.2004	64-P	P EU-B 2 * 32	0	R 58	57.60.1104	100K	MF, 1%, 0204, E24
0	P 5	54.11.2013	32-P	P EU-BK 2 * 16	0	R 59	57.60.1332	3K3	MF, 1%, 0204, E24
0	P 6	54.11.2004	64-P	P EU-B 2 * 32	0	R 60	57.60.1223	22K	MF, 1%, 0204, E24
0	P 11	54.14.5540	20-P	J PCB-BUCHSE WINKEL 20 P	0	R 61	57.60.1223	22K	MF, 1%, 0204, E24
0	P 12	54.14.5540	20-P	J PCB-BUCHSE WINKEL 20 P	0	R 62	57.60.1332	3K3	MF, 1%, 0204, E24
0	P 13	54.14.5540	20-P	J PCB-BUCHSE WINKEL 20 P	0	R 63	57.60.1223	22K	MF, 1%, 0204, E24
0	P 14	54.14.5540	20-P	J PCB-BUCHSE WINKEL 20 P	0	R 64	57.60.1223	22K	MF, 1%, 0204, E24
0	P 15	54.14.5540	20-P	J PCB-BUCHSE WINKEL 20 P	0	R 65	57.60.1332	3K3	MF, 1%, 0204, E24
0	P 21	54.14.5516	16-P	J PCB-BUCHSE GERADE 16 P	1	R 66	57.60.1471	470R	MF, 1%, 0204, E24
0	P 22	54.14.5516	16-P	J PCB-BUCHSE GERADE 16 P	0	R 67	57.60.1104	100K	MF, 1%, 0204, E24
0	P 23	54.14.5516	16-P	J PCB-BUCHSE GERADE 16 P	0	R 68	57.60.1223	22K	MF, 1%, 0204, E24
0	P 24	54.14.5516	16-P	J PCB-BUCHSE GERADE 16 P	0	R 69	57.60.1682	6K8	MF, 1%, 0204, E24
0	P 31	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 70	57.60.1330	33R	MF, 1%, 0204, E24
					0	R 71	57.60.1102	1K	MF, 1%, 0204, E24



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Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 72	57.60.1104	100K	MF, 1%, 0204, E24	0	R 154	57.60.1104	100K	MF, 1%, 0204, E24
0	R 73	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 155	57.60.1221	220R	MF, 1%, 0204, E24
0	R 74	57.60.1221	220R	MF, 1%, 0204, E24	0	R 156	57.60.1221	220R	MF, 1%, 0204, E24
0	R 75	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 157	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 76	57.60.1221	220R	MF, 1%, 0204, E24	0	R 158	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 77	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 159	57.60.1221	220R	MF, 1%, 0204, E24
0	R 78	57.60.1221	220R	MF, 1%, 0204, E24	0	R 160	57.60.1221	220R	MF, 1%, 0204, E24
0	R 79	57.60.1221	220R	MF, 1%, 0204, E24	0	R 161	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 80	57.60.1155	1M5	MF, 1%, 0204, E24	0	R 162	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 81	57.60.1564	560K	MF, 1%, 0204, E24	0	R 163	57.60.1221	220R	MF, 1%, 0204, E24
0	R 82	57.60.1274	270K	MF, 1%, 0204, E24	0	R 164	57.60.1221	220R	MF, 1%, 0204, E24
0	R 83	57.60.1124	120K	MF, 1%, 0204, E24	0	R 165	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 84	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 166	57.60.1222	2K2	MF, 1%, 0204, E24
0	R 85	57.60.1221	220R	MF, 1%, 0204, E24	0	R 167	57.60.1101	100R	MF, 1%, 0204, E24
0	R 86	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 168	57.60.1102	1K	MF, 1%, 0204, E24
0	R 87	57.60.1221	220R	MF, 1%, 0204, E24	0	R 169	57.60.1330	33R	MF, 1%, 0204, E24
0	R 88	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 170	57.60.1103	10K	MF, 1%, 0204, E24
0	R 89	57.60.1221	220R	MF, 1%, 0204, E24	0	R 171	57.60.1103	10K	MF, 1%, 0204, E24
0	R 90	57.60.1223	22K	MF, 1%, 0204, E24	0	R 172	57.60.1103	10K	MF, 1%, 0204, E24
0	R 91	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 173	57.60.1103	10K	MF, 1%, 0204, E24
0	R 92	57.60.1155	1M5	MF, 1%, 0204, E24	0	R 174	57.60.1103	10K	MF, 1%, 0204, E24
0	R 93	57.60.1564	560K	MF, 1%, 0204, E24	0	R 175	57.60.1103	10K	MF, 1%, 0204, E24
0	R 94	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 176	57.60.1103	10K	MF, 1%, 0204, E24
0	R 95	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 177	57.60.1103	10K	MF, 1%, 0204, E24
0	R 96	57.60.1124	120K	MF, 1%, 0204, E24	0	R 178	57.60.1103	10K	MF, 1%, 0204, E24
0	R 97	57.60.1680	68R	MF, 1%, 0204, E24	0	R 179	57.60.1103	10K	MF, 1%, 0204, E24
0	R 98	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 180	57.60.1103	10K	MF, 1%, 0204, E24
0	R 99	57.60.1103	10K	MF, 1%, 0204, E24	0	R 181	57.60.1103	10K	MF, 1%, 0204, E24
0	R 100	57.60.1680	68R	MF, 1%, 0204, E24	0	R 182	57.60.1682	6K8	MF, 1%, 0204, E24
0	R 101	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 183	57.60.1223	22K	MF, 1%, 0204, E24
0	R 102	57.60.1103	10K	MF, 1%, 0204, E24	0	R 184	57.60.1330	33R	MF, 1%, 0204, E24
0	R 103	57.60.1680	68R	MF, 1%, 0204, E24	0	R 185	57.60.1102	1K	MF, 1%, 0204, E24
0	R 104	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 186	57.60.1104	100K	MF, 1%, 0204, E24
0	R 105	57.60.1103	10K	MF, 1%, 0204, E24	0	R 187	57.60.1330	33R	MF, 1%, 0204, E24
0	R 106	57.92.7015	1.1A	RT 1.1 A ,POLY- PTC	0	R 188	57.60.1221	220R	MF, 1%, 0204, E24
0	R 107	57.92.7015	1.1A	RT 1.1 A ,POLY- PTC	0	R 189	57.60.1155	1M5	MF, 1%, 0204, E24
0	R 108	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 190	57.60.1564	560K	MF, 1%, 0204, E24
0	R 109	57.60.1104	100K	MF, 1%, 0204, E24	0	R 191	57.60.1274	270K	MF, 1%, 0204, E24
0	R 110	57.60.1221	220R	MF, 1%, 0204, E24	0	R 192	57.60.1124	120K	MF, 1%, 0204, E24
0	R 111	57.60.1330	33R	MF, 1%, 0204, E24	0	R 193	57.60.1103	10K	MF, 1%, 0204, E24
0	R 112	57.60.1102	1K	MF, 1%, 0204, E24	0	R 194	57.60.1393	39K	MF, 1%, 0204, E24
0	R 113	57.60.1274	270K	MF, 1%, 0204, E24	0	R 195	57.60.1103	10K	MF, 1%, 0204, E24
0	R 114	57.60.1221	220R	MF, 1%, 0204, E24	0	R 196	57.60.1823	82K	MF, 1%, 0204, E24
0	R 115	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 197	57.60.1104	100K	MF, 1%, 0204, E24
0	R 116	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 198	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 117	57.60.1221	220R	MF, 1%, 0204, E24	0	R 199	57.60.1223	22K	MF, 1%, 0204, E24
0	R 118	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 200	57.60.1682	6K8	MF, 1%, 0204, E24
0	R 119	57.60.1103	10K	MF, 1%, 0204, E24	0	R 201	57.60.1155	1M5	MF, 1%, 0204, E24
0	R 120	57.60.1473	47K	MF, 1%, 0204, E24	0	R 202	57.60.1564	560K	MF, 1%, 0204, E24
0	R 121	57.60.1104	100K	MF, 1%, 0204, E24	0	R 203	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 122	57.60.1104	100K	MF, 1%, 0204, E24	0	R 204	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 123	57.60.1221	220R	MF, 1%, 0204, E24	0	R 205	57.60.1124	120K	MF, 1%, 0204, E24
0	R 124	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 206	57.60.1103	10K	MF, 1%, 0204, E24
0	R 125	57.60.1221	220R	MF, 1%, 0204, E24	0	R 207	57.60.1479	4R7	MF, 2%, 0204, E24
0	R 126	57.60.1222	2K2	MF, 1%, 0204, E24	0	R 208	57.60.1123	12K	MF, 1%, 0204, E24
0	R 127	57.60.1680	68R	MF, 1%, 0204, E24	0	R 209	57.60.1103	10K	MF, 1%, 0204, E24
0	R 128	57.60.1103	10K	MF, 1%, 0204, E24	0	R 210	57.60.1683	68K	MF, 1%, 0204, E24
0	R 129	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 211	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 130	57.60.1473	47K	MF, 1%, 0204, E24	0	R 212	57.60.1104	100K	MF, 1%, 0204, E24
0	R 131	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 213	57.92.7015	1.1A	RT 1.1 A ,POLY- PTC
0	R 132	57.60.1104	100K	MF, 1%, 0204, E24	0	R 214	57.60.1274	270K	MF, 1%, 0204, E24
0	R 133	57.60.1153	15K	MF, 1%, 0204, E24	0	R 215	57.60.1103	10K	MF, 1%, 0204, E24
0	R 134	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 216	57.60.1150	15R	MF, 1%, 0204, E24
0	R 135	57.60.1103	10K	MF, 1%, 0204, E24	0	R 217	57.60.1150	15R	MF, 1%, 0204, E24
0	R 136	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 218	57.60.1221	220R	MF, 1%, 0204, E24
0	R 137	57.60.1680	68R	MF, 1%, 0204, E24	0	R 219	57.60.1104	100K	MF, 1%, 0204, E24
0	R 138	57.60.1103	10K	MF, 1%, 0204, E24	0	R 220	57.60.1104	100K	MF, 1%, 0204, E24
0	R 139	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 221	57.60.1102	1K	MF, 1%, 0204, E24
0	R 140	57.60.1680	68R	MF, 1%, 0204, E24	0	R 222	57.92.7013	0.5A	RT 500 MA ,POLY- PTC
0	R 141	57.60.1680	68R	MF, 1%, 0204, E24	0	R 223	57.60.1104	100K	MF, 1%, 0204, E24
0	R 142	57.60.1103	10K	MF, 1%, 0204, E24	0	R 224	57.60.1271	270R	MF, 1%, 0204, E24
0	R 143	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 225	57.60.1271	270R	MF, 1%, 0204, E24
0	R 144	57.60.1680	68R	MF, 1%, 0204, E24	0	R 226	57.60.1473	47K	MF, 1%, 0204, E24
0	R 145	57.60.1102	1K	MF, 1%, 0204, E24	0	R 227	57.60.1562	5K6	MF, 1%, 0204, E24
0	R 146	57.60.1330	33R	MF, 1%, 0204, E24	0	R 228	57.60.1104	100K	MF, 1%, 0204, E24
0	R 147	57.60.1104	100K	MF, 1%, 0204, E24	0	R 229	57.60.1103	10K	MF, 1%, 0204, E24
0	R 148	57.60.1473	47K	MF, 1%, 0204, E24	0	R 230	57.60.1104	100K	MF, 1%, 0204, E24
0	R 149	57.60.1104	100K	MF, 1%, 0204, E24	0	R 231	57.60.1104	100K	MF, 1%, 0204, E24
0	R 150	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 232	57.60.1104	100K	MF, 1%, 0204, E24
0	R 151	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 233	57.60.1102	1K	MF, 1%, 0204, E24
0	R 152	57.60.1153	15K	MF, 1%, 0204, E24	0	R 234	57.60.1330	33R	MF, 1%, 0204, E24
0	R 153	57.60.1104	100K	MF, 1%, 0204, E24					



AUX MASTER MAIN BOARD 1.980.302.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 235	57.60.1104	100K	MF, 1%, 0204, E24	0	R 317	57.60.1473	47K	MF, 1%, 0204, E24
0	R 236	57.60.1473	47K	MF, 1%, 0204, E24	0	R 318	57.60.1104	100K	MF, 1%, 0204, E24
0	R 237	57.60.1223	22K	MF, 1%, 0204, E24	0	R 319	57.60.1223	22K	MF, 1%, 0204, E24
0	R 238	57.60.1103	10K	MF, 1%, 0204, E24	0	R 320	57.60.1223	22K	MF, 1%, 0204, E24
0	R 239	57.60.1104	100K	MF, 1%, 0204, E24	0	R 321	57.60.1103	10K	MF, 1%, 0204, E24
0	R 240	57.60.1101	100R	MF, 1%, 0204, E24	0	R 322	57.60.1153	15K	MF, 1%, 0204, E24
0	R 241	57.60.1101	100R	MF, 1%, 0204, E24	1	R 323	57.60.1471	470R	MF, 1%, 0204, E24
0	R 242	57.60.1104	100K	MF, 1%, 0204, E24	0	R 324	57.60.1104	100K	MF, 1%, 0204, E24
0	R 243	57.60.1104	100K	MF, 1%, 0204, E24	0	R 325	57.60.1561	560R	MF, 1%, 0204, E24
0	R 244	57.60.1104	100K	MF, 1%, 0204, E24	0	R 326	57.60.1221	220R	MF, 1%, 0204, E24
0	R 245	57.60.1271	270R	MF, 1%, 0204, E24	0	R 327	57.60.1103	10K	MF, 1%, 0204, E24
0	R 246	57.60.1101	100R	MF, 1%, 0204, E24	0	R 328	57.60.1561	560R	MF, 1%, 0204, E24
0	R 247	57.60.1101	100R	MF, 1%, 0204, E24	0	R 329	57.60.1221	220R	MF, 1%, 0204, E24
0	R 248	57.60.1101	100R	MF, 1%, 0204, E24	0	R 330	57.60.1103	10K	MF, 1%, 0204, E24
0	R 249	57.60.1101	100R	MF, 1%, 0204, E24	0	R 331	57.60.1330	33R	MF, 1%, 0204, E24
0	R 250	57.60.1101	100R	MF, 1%, 0204, E24	0	R 332	57.60.1223	22K	MF, 1%, 0204, E24
0	R 251	57.60.1104	100K	MF, 1%, 0204, E24	0	R 333	57.60.1682	6K8	MF, 1%, 0204, E24
0	R 252	57.60.1104	100K	MF, 1%, 0204, E24	0	R 334	57.60.1473	47K	MF, 1%, 0204, E24
0	R 253	57.60.1104	100K	MF, 1%, 0204, E24	0	R 335	57.60.1223	22K	MF, 1%, 0204, E24
0	R 254	57.60.1103	10K	MF, 1%, 0204, E24	0	R 336	57.60.1274	270K	MF, 1%, 0204, E24
0	R 255	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 337	57.60.1124	120K	MF, 1%, 0204, E24
0	R 256	57.60.1104	100K	MF, 1%, 0204, E24	0	R 338	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 257	57.60.1221	220R	MF, 1%, 0204, E24	0	R 339	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 258	57.60.1104	100K	MF, 1%, 0204, E24	0	R 340	57.60.1223	22K	MF, 1%, 0204, E24
0	R 259	57.60.1104	100K	MF, 1%, 0204, E24	0	R 341	57.60.1223	22K	MF, 1%, 0204, E24
0	R 260	57.60.1102	1K	MF, 1%, 0204, E24	0	R 342	57.60.1223	22K	MF, 1%, 0204, E24
0	R 261	57.60.1473	47K	MF, 1%, 0204, E24	0	R 343	57.60.1223	22K	MF, 1%, 0204, E24
0	R 262	57.60.1104	100K	MF, 1%, 0204, E24	0	R 344	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 263	57.60.1473	47K	MF, 1%, 0204, E24	0	R 345	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 264	57.60.1104	100K	MF, 1%, 0204, E24	0	R 346	57.60.1104	100K	MF, 1%, 0204, E24
0	R 265	57.60.1104	100K	MF, 1%, 0204, E24	0	R 347	57.60.1564	560K	MF, 1%, 0204, E24
0	R 266	57.60.1104	100K	MF, 1%, 0204, E24	0	R 348	57.60.1155	1M5	MF, 1%, 0204, E24
0	R 267	57.60.1000	0R0	MF, 0204	0	R 349	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 268	57.60.1000	0R0	MF, 0204	0	R 350	57.60.1223	22K	MF, 1%, 0204, E24
0	R 269	57.60.1000	0R0	MF, 0204	0	R 351	57.60.1223	22K	MF, 1%, 0204, E24
0	R 270	57.60.1330	33R	MF, 1%, 0204, E24	0	R 352	57.60.1103	10K	MF, 1%, 0204, E24
0	R 271	57.60.1223	22K	MF, 1%, 0204, E24	0	R 353	57.60.1153	15K	MF, 1%, 0204, E24
0	R 272	57.60.1682	6K8	MF, 1%, 0204, E24	1	R 354	57.60.1471	470R	MF, 1%, 0204, E24
0	R 273	57.60.1223	22K	MF, 1%, 0204, E24	0	R 355	57.60.1104	100K	MF, 1%, 0204, E24
0	R 274	57.60.1274	270K	MF, 1%, 0204, E24	0	R 356	57.60.1564	560K	MF, 1%, 0204, E24
0	R 275	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 357	57.60.1155	1M5	MF, 1%, 0204, E24
0	R 276	57.60.1124	120K	MF, 1%, 0204, E24	0	R 358	57.60.1223	22K	MF, 1%, 0204, E24
0	R 277	57.60.1104	100K	MF, 1%, 0204, E24	0	R 359	57.60.1103	10K	MF, 1%, 0204, E24
0	R 278	57.60.1104	100K	MF, 1%, 0204, E24	0	R 360	57.60.1153	15K	MF, 1%, 0204, E24
0	R 279	57.60.1104	100K	MF, 1%, 0204, E24	0	R 361	57.60.1104	100K	MF, 1%, 0204, E24
0	R 280	57.60.1223	22K	MF, 1%, 0204, E24	0	R 362	57.60.1223	22K	MF, 1%, 0204, E24
0	R 281	57.60.1102	1K	MF, 1%, 0204, E24	0	R 363	57.60.1682	6K8	MF, 1%, 0204, E24
0	R 282	57.60.1100	10R	MF, 1%, 0204, E24	0	R 364	57.60.1221	220R	MF, 1%, 0204, E24
0	R 283	57.60.1104	100K	MF, 1%, 0204, E24	0	R 365	57.60.1274	270K	MF, 1%, 0204, E24
0	R 284	57.60.1000	0R0	MF, 0204	0	R 366	57.60.1124	120K	MF, 1%, 0204, E24
0	R 285	57.60.1000	0R0	MF, 0204	0	R 367	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 286	57.60.1564	560K	MF, 1%, 0204, E24	0	R 368	57.60.1223	22K	MF, 1%, 0204, E24
0	R 287	57.60.1155	1M5	MF, 1%, 0204, E24	0	R 369	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 288	57.60.1100	10R	MF, 1%, 0204, E24	0	R 370	57.60.1223	22K	MF, 1%, 0204, E24
0	R 289	57.60.1104	100K	MF, 1%, 0204, E24	0	R 371	57.60.1223	22K	MF, 1%, 0204, E24
0	R 290	57.60.1102	1K	MF, 1%, 0204, E24	0	R 372	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 291	57.60.1223	22K	MF, 1%, 0204, E24	1	R 373	57.60.1471	470R	MF, 1%, 0204, E24
0	R 292	57.60.1682	6K8	MF, 1%, 0204, E24	0	R 374	57.60.1473	47K	MF, 1%, 0204, E24
0	R 293	57.60.1564	560K	MF, 1%, 0204, E24	0	R 375	57.60.1104	100K	MF, 1%, 0204, E24
0	R 294	57.60.1155	1M5	MF, 1%, 0204, E24	0	R 376	57.60.1562	5K6	MF, 1%, 0204, E24
0	R 295	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 377	57.60.1104	100K	MF, 1%, 0204, E24
0	R 296	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 378	57.60.1223	22K	MF, 1%, 0204, E24
0	R 297	57.60.1223	22K	MF, 1%, 0204, E24	0	R 379	57.60.1334	330K	MF, 1%, 0204, E24
0	R 298	57.60.1223	22K	MF, 1%, 0204, E24	0	R 380	57.60.1334	330K	MF, 1%, 0204, E24
0	R 299	57.60.1332	3K3	MF, 1%, 0204, E24	0	R 381	57.60.1104	100K	MF, 1%, 0204, E24
0	R 300	57.60.1104	100K	MF, 1%, 0204, E24	0	R 382	57.60.1330	33R	MF, 1%, 0204, E24
0	R 301	57.60.1104	100K	MF, 1%, 0204, E24	0	R 383	57.60.1102	1K	MF, 1%, 0204, E24
0	R 302	57.60.1103	10K	MF, 1%, 0204, E24	0	R 384	57.60.1473	47K	MF, 1%, 0204, E24
0	R 303	57.60.1330	33R	MF, 1%, 0204, E24	0	R 385	57.60.1223	22K	MF, 1%, 0204, E24
0	R 304	57.60.1562	5K6	MF, 1%, 0204, E24	0	R 386	57.60.1223	22K	MF, 1%, 0204, E24
0	R 305	57.60.1221	220R	MF, 1%, 0204, E24	0	R 387	57.60.1332	3K3	MF, 1%, 0204, E24
0	R 306	57.60.1274	270K	MF, 1%, 0204, E24	0	R 388	57.60.1223	22K	MF, 1%, 0204, E24
0	R 307	57.60.1124	120K	MF, 1%, 0204, E24	0	RA 1	1.010.122.58	Pot	POT 10K +LOG;
0	R 308	57.60.1223	22K	MF, 1%, 0204, E24	0	RA 2	1.010.122.58	Pot	POT 10K +LOG;
0	R 309	57.60.1223	22K	MF, 1%, 0204, E24	0	RA 3	1.010.122.58	Pot	POT 10K +LOG;
0	R 310	57.60.1103	10K	MF, 1%, 0204, E24	0	RA 4	1.010.122.58	Pot	POT 10K +LOG;
0	R 311	57.60.1153	15K	MF, 1%, 0204, E24	0	RA 5	1.010.127.58	Pot	POT 10K+LOG; 22K LIN; 22K LIN
1	R 312	57.60.1471	470R	MF, 1%, 0204, E24	0	RA 6	1.010.125.58	Pot	POT 2 * 10K +LOG;
0	R 313	57.60.1103	10K	MF, 1%, 0204, E24	0	RA 7	1.010.127.58	Pot	POT 10K+LOG; 22K LIN; 22K LIN
0	R 314	57.60.1330	33R	MF, 1%, 0204, E24	0	RA 8	1.010.125.58	Pot	POT 2 * 10K +LOG;
0	R 315	57.60.1102	1K	MF, 1%, 0204, E24	0	RA 9	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	R 316	57.60.1104	100K	MF, 1%, 0204, E24					



AUX MASTER MAIN BOARD 1.980.302.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	RA 10	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 11	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 12	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 13	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 14	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 15	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 16	58.01.9502	5k	Cermet, 10%, 0.5W, vertical
0	RA 17	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RZ 1	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	RZ 2	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	RZ 3	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	RZ 4	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	RZ 5	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
0	RZ 6	57.88.4104	100k	RZ 8 * 100 K, 2%, SIP 9
1	W 1	53.03.0240	2 pcs	XLED SINGLE LINE, 2 POL. PRINT
0	XIC 2	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 10	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 12	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 17	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 19	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 20	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 21	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 22	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 24	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 28	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 29	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 30	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 31	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 32	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 35	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 41	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 42	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 43	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 46	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 47	53.03.0168	XIC16p	XIC DIL 16-POL
0	XIC 48	53.03.0168	XIC16p	XIC DIL 16-POL
0	XIC 49	53.03.0167	XIC14p	XIC DIL 14-POL
0	XIC 50	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 56	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 57	53.03.0172	XIC40p	XIC DIL 40-POL,
0	XIC 58	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 60	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 64	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 66	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 67	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 68	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 70	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 71	53.03.0175	XIC18p	XIC DIL 18-POL,
0	XIC 77	53.03.0166	XIC8p	XIC DIL 8-POL
0	XIC 78	53.03.0166	XIC8p	XIC DIL 8-POL

End of List

Comments



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Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	R 42	57.60.1104	100K	MF, 1%, 0204, E24
0	C 2	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	R 43	57.60.1104	100K	MF, 1%, 0204, E24
0	C 3	59.60.1104	100n	C 100 N , 10%, X7R , CER	0	R 44	57.60.1104	100K	MF, 1%, 0204, E24
0	DL 1	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 45	57.60.1104	100K	MF, 1%, 0204, E24
0	DL 2	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 46	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 3	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 47	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 4	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 48	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 5	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 49	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 6	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 50	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 7	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 51	57.60.1101	100R	MF, 1%, 0204, E24
0	DL 8	50.04.2810	B1001	DLZ B1001/3E+7GWA, 3OR/7GN	0	R 52	57.60.1101	100R	MF, 1%, 0204, E24
0	IC 1	50.62.1165	74HC165	IC .. 74 HC 165 . ,A	0	R 53	57.60.1102	1K	MF, 1%, 0204, E24
0	IC 2	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 54	57.60.1102	1K	MF, 1%, 0204, E24
0	IC 3	50.62.1165	74HC165	IC .. 74 HC 165 . ,A	0	R 55	57.60.1101	100R	MF, 1%, 0204, E24
0	IC 4	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 56	57.60.1101	100R	MF, 1%, 0204, E24
0	IC 5	50.62.1165	74HC165	IC .. 74 HC 165 . ,A	0	R 57	57.60.1101	100R	MF, 1%, 0204, E24
0	IC 6	50.62.1595	74HC595	IC .. 74 HC 595 . ,A	0	R 58	57.60.1101	100R	MF, 1%, 0204, E24
0	MP 1	1.980.309.04	pce	NR-ETIKETTE 5 * 20	0	R 59	57.60.1101	100R	MF, 1%, 0204, E24
0	MP 2	43.01.0108	pce	ESE-WARNSCHILD	0	R 60	57.60.1101	100R	MF, 1%, 0204, E24
0	MP 3	1.980.309.12	pce	AUXILIARY MASTER SWITCH PCB/II	0	R 61	57.60.1101	100R	MF, 1%, 0204, E24
0	MP 4	1.862.811.02	pce	DISTANZSTUECK	0	S 1	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	MP 5	1.862.811.02	pce	DISTANZSTUECK	0	S 2	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	MP 6	1.862.811.02	pce	DISTANZSTUECK	0	S 3	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	MP 7	1.862.811.02	pce	DISTANZSTUECK	0	S 4	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	MP 8	1.862.811.02	pce	DISTANZSTUECK	0	S 5	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	MP 9	1.862.811.02	pce	DISTANZSTUECK	0	S 6	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	MP 10	1.862.811.02	pce	DISTANZSTUECK	0	S 7	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	MP 11	1.862.811.02	pce	DISTANZSTUECK	0	S 8	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	P 1	54.14.5590	20-P	P PCB-STECKER GERADE 20 P	0	S 9	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	P 2	54.14.5590	20-P	P PCB-STECKER GERADE 20 P	0	S 10	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	P 3	54.14.5590	20-P	P PCB-STECKER GERADE 20 P	0	S 11	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	P 4	54.14.5590	20-P	P PCB-STECKER GERADE 20 P	0	S 12	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	P 5	54.14.5590	20-P	P PCB-STECKER GERADE 20 P	0	S 13	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	Q 1	50.60.0002	BC850C	Q BC 850 C, SOT 23	0	S 14	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	Q 2	50.60.0002	BC850C	Q BC 850 C, SOT 23	0	S 15	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	R 1	57.60.1104	100K	MF, 1%, 0204, E24	0	S 16	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	R 2	57.60.1104	100K	MF, 1%, 0204, E24	0	S 17	55.15.0622	1*A	S TASTE 1*A, 5MM, RT/RT
0	R 3	57.60.1104	100K	MF, 1%, 0204, E24	0	S 18	55.15.0655	1*A	S TASTE 1*A, 5MM, GN/GN
0	R 4	57.60.1104	100K	MF, 1%, 0204, E24	0	S 19	55.15.0704	1*A	S TASTE 1*A, 12MM, GB/TRANS
0	R 5	57.60.1104	100K	MF, 1%, 0204, E24	0	S 20	55.15.0644	1*A	S TASTE 1*A, 5MM, GB/GB
0	R 6	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 7	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 8	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 9	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 10	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 11	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 12	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 13	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 14	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 15	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 16	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 17	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 18	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 19	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 20	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 21	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 22	57.60.1102	1K	MF, 1%, 0204, E24					
0	R 23	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 24	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 25	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 26	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 27	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 28	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 29	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 30	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 31	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 32	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 33	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 34	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 35	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 36	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 37	57.60.1101	100R	MF, 1%, 0204, E24					
0	R 38	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 39	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 40	57.60.1104	100K	MF, 1%, 0204, E24					
0	R 41	57.60.1104	100K	MF, 1%, 0204, E24					

End of List

Comments





AUX MASTER LINE BOARD 1.980.323.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 614	59.06.0104	100n	PETP, 10%, 63V
0	C 2	59.06.0224	220n	PETP, 10%, 63V	0	C 701	59.06.0104	100n	PETP, 10%, 63V
0	C 3	59.34.5471	470p	C 470 P , 5%,N1500 , CER	0	C 702	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 4	59.06.0224	220n	PETP, 10%, 63V	0	C 703	59.06.0104	100n	PETP, 10%, 63V
0	C 5	59.34.5471	470p	C 470 P , 5%,N1500 , CER	0	C 704	59.06.0103	10n	PETP, 10%, 63V
0	C 6	59.34.4101	100p	C 100 P , 5%, N750 , CER	0	C 705	59.06.0333	33n	PETP, 10%, 63V
0	C 7	59.25.4102	1m	C 1000 U ,-20%, 25V , EL	0	C 707	59.05.1102	1n	C 1000 P , 1%, 630V , PP
0	C 8	59.25.4102	1m	C 1000 U ,-20%, 25V , EL	0	C 708	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 9	59.25.4102	1m	C 1000 U ,-20%, 25V , EL	0	C 710	59.05.1102	1n	C 1000 P , 1%, 630V , PP
0	C 10	59.25.4102	1m	C 1000 U ,-20%, 25V , EL	0	C 711	59.22.3221	220u	EL 10V, 20%, rad RM5
0	C 101	59.06.0104	100n	PETP, 10%, 63V	0	C 712	59.06.0104	100n	PETP, 10%, 63V
0	C 102	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	C 713	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 103	59.06.0104	100n	PETP, 10%, 63V	0	C 714	59.06.0104	100n	PETP, 10%, 63V
0	C 104	59.06.0103	10n	PETP, 10%, 63V	0	C 801	59.06.0104	100n	PETP, 10%, 63V
0	C 105	59.06.0333	33n	PETP, 10%, 63V	0	C 802	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 107	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	C 803	59.06.0104	100n	PETP, 10%, 63V
0	C 108	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	C 804	59.06.0103	10n	PETP, 10%, 63V
0	C 110	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	C 805	59.06.0333	33n	PETP, 10%, 63V
0	C 111	59.22.3221	220u	EL 10V, 20%, rad RM5	0	C 807	59.05.1102	1n	C 1000 P , 1%, 630V , PP
0	C 112	59.06.0104	100n	PETP, 10%, 63V	0	C 808	59.34.2330	33p	C 33 P , 5%, N150 , CER
0	C 113	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	C 810	59.05.1102	1n	C 1000 P , 1%, 630V , PP
0	C 114	59.06.0104	100n	PETP, 10%, 63V	0	C 811	59.22.3221	220u	EL 10V, 20%, rad RM5
0	C 201	59.06.0104	100n	PETP, 10%, 63V	0	C 812	59.06.0104	100n	PETP, 10%, 63V
0	C 202	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	C 813	59.22.4002	100uF	EL 16V, 20%, rad RM5
0	C 203	59.06.0104	100n	PETP, 10%, 63V	0	C 814	59.06.0104	100n	PETP, 10%, 63V
0	C 204	59.06.0103	10n	PETP, 10%, 63V	0	D 1	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004
0	C 205	59.06.0333	33n	PETP, 10%, 63V	0	D 2	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004
0	C 207	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	D 3	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004
0	C 208	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	D 4	50.04.0122	1N4001	D 1 N 4001 ... 1 N 4004
0	C 210	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	IC 1	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 211	59.22.3221	220u	EL 10V, 20%, rad RM5	0	IC 101	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 212	59.06.0104	100n	PETP, 10%, 63V	0	IC 201	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 213	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	IC 301	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 214	59.06.0104	100n	PETP, 10%, 63V	0	IC 401	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 301	59.06.0104	100n	PETP, 10%, 63V	0	IC 401	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 302	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	IC 501	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 303	59.06.0104	100n	PETP, 10%, 63V	0	IC 601	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 304	59.06.0103	10n	PETP, 10%, 63V	0	IC 701	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 305	59.06.0333	33n	PETP, 10%, 63V	0	IC 801	50.09.0117	MC33078	IC MC 33078 P ,A
0	C 307	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	MP 1	1.980.323.04	pce	NR-ETIKETTE 5 * 20
0	C 308	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	MP 2	43.01.0108	Label	ESE-WARNSCHILD
0	C 310	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	MP 3	1.980.303.12	pce	AUXILIARY MASTER LINE PCB /!l
0	C 311	59.22.3221	220u	EL 10V, 20%, rad RM5	0	MP 4	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 312	59.06.0104	100n	PETP, 10%, 63V	0	MP 5	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 313	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	MP 6	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 314	59.06.0104	100n	PETP, 10%, 63V	0	MP 7	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 401	59.06.0104	100n	PETP, 10%, 63V	0	MP 8	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 402	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	MP 9	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 403	59.06.0104	100n	PETP, 10%, 63V	0	MP 10	1.010.011.22	MP	NIETMUTTER SW 6 M 3 *1.5
0	C 404	59.06.0103	10n	PETP, 10%, 63V	0	P 1	1.023.566.03	Ribbon16p	FLACHKABEL 16 POL. 0,05M
0	C 405	59.06.0333	33n	PETP, 10%, 63V	0	P 2	1.023.566.03	Ribbon16p	FLACHKABEL 16 POL. 0,05M
0	C 407	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	P 3	1.023.566.03	Ribbon16p	FLACHKABEL 16 POL. 0,05M
0	C 408	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	P 4	1.023.566.03	Ribbon16p	FLACHKABEL 16 POL. 0,05M
0	C 410	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	Q 101	50.03.0340	BC337-25	BC 337-25,
0	C 411	59.22.3221	220u	EL 10V, 20%, rad RM5	0	Q 102	50.03.0340	BC337-25	BC 337-25,
0	C 412	59.06.0104	100n	PETP, 10%, 63V	0	Q 103	50.03.0351	BC327-25	PNP, 800mA
0	C 413	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	Q 104	50.03.0351	BC327-25	PNP, 800mA
0	C 414	59.06.0104	100n	PETP, 10%, 63V	0	Q 105	50.03.0340	BC337-25	BC 337-25,
0	C 501	59.06.0104	100n	PETP, 10%, 63V	0	Q 106	50.03.0340	BC337-25	BC 337-25,
0	C 502	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	Q 107	50.03.0351	BC327-25	PNP, 800mA
0	C 503	59.06.0104	100n	PETP, 10%, 63V	0	Q 108	50.03.0351	BC327-25	PNP, 800mA
0	C 504	59.06.0103	10n	PETP, 10%, 63V	0	Q 109	50.03.0340	BC337-25	BC 337-25,
0	C 505	59.06.0333	33n	PETP, 10%, 63V	0	Q 201	50.03.0340	BC337-25	BC 337-25,
0	C 507	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	Q 202	50.03.0340	BC337-25	BC 337-25,
0	C 508	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	Q 203	50.03.0351	BC327-25	PNP, 800mA
0	C 510	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	Q 204	50.03.0351	BC327-25	PNP, 800mA
0	C 511	59.22.3221	220u	EL 10V, 20%, rad RM5	0	Q 205	50.03.0340	BC337-25	BC 337-25,
0	C 512	59.06.0104	100n	PETP, 10%, 63V	0	Q 206	50.03.0340	BC337-25	BC 337-25,
0	C 513	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	Q 207	50.03.0351	BC327-25	PNP, 800mA
0	C 514	59.06.0104	100n	PETP, 10%, 63V	0	Q 208	50.03.0351	BC327-25	PNP, 800mA
0	C 601	59.06.0104	100n	PETP, 10%, 63V	0	Q 301	50.03.0340	BC337-25	BC 337-25,
0	C 602	59.22.4002	100uF	EL 16V, 20%, rad RM5	0	Q 302	50.03.0340	BC337-25	BC 337-25,
0	C 603	59.06.0104	100n	PETP, 10%, 63V	0	Q 303	50.03.0351	BC327-25	PNP, 800mA
0	C 604	59.06.0103	10n	PETP, 10%, 63V	0	Q 304	50.03.0351	BC327-25	PNP, 800mA
0	C 605	59.06.0333	33n	PETP, 10%, 63V	0	Q 305	50.03.0340	BC337-25	BC 337-25,
0	C 607	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	Q 306	50.03.0340	BC337-25	BC 337-25,
0	C 608	59.34.2330	33p	C 33 P , 5%, N150 , CER	0	Q 307	50.03.0351	BC327-25	PNP, 800mA
0	C 610	59.05.1102	1n	C 1000 P , 1%, 630V , PP	0	Q 308	50.03.0351	BC327-25	PNP, 800mA
0	C 611	59.22.3221	220u	EL 10V, 20%, rad RM5					
0	C 612	59.06.0104	100n	PETP, 10%, 63V					
0	C 613	59.22.4002	100uF	EL 16V, 20%, rad RM5					



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Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	Q 401	50.03.0340	BC337-25	BC 337-25,	0	R 214	57.11.3103	10k	MF, 1%, 0207
0	Q 402	50.03.0340	BC337-25	BC 337-25,	0	R 215	57.11.3100	10R	MF, 1%, 0207
0	Q 403	50.03.0351	BC327-25	PNP, 800mA	0	R 216	57.11.3100	10R	MF, 1%, 0207
0	Q 404	50.03.0351	BC327-25	PNP, 800mA	0	R 217	57.11.3103	10k	MF, 1%, 0207
0	Q 405	50.03.0340	BC337-25	BC 337-25,	0	R 301	57.11.3103	10k	MF, 1%, 0207
0	Q 406	50.03.0340	BC337-25	BC 337-25,	0	R 302	57.11.3100	10R	MF, 1%, 0207
0	Q 407	50.03.0351	BC327-25	PNP, 800mA	0	R 303	57.11.3152	1k5	MF, 1%, 0207
0	Q 408	50.03.0351	BC327-25	PNP, 800mA	0	R 304	57.11.3100	10R	MF, 1%, 0207
0	Q 501	50.03.0340	BC337-25	BC 337-25,	0	R 305	57.11.3472	4k7	MF, 1%, 0207
0	Q 502	50.03.0340	BC337-25	BC 337-25,	0	R 306	57.11.3223	22k	MF, 1%, 0207
0	Q 503	50.03.0351	BC327-25	PNP, 800mA	0	R 307	57.11.3331	330R	MF, 1%, 0207
0	Q 504	50.03.0351	BC327-25	PNP, 800mA	0	R 308	57.11.3103	10k	MF, 1%, 0207
0	Q 505	50.03.0340	BC327-25	BC 337-25,	0	R 309	57.11.3302	3k0	MF, 1%, 0207
0	Q 506	50.03.0340	BC337-25	BC 337-25,	0	R 310	57.11.3102	1k0	MF, 1%, 0207
0	Q 507	50.03.0351	BC327-25	PNP, 800mA	0	R 311	57.11.3302	3k0	MF, 1%, 0207
0	Q 508	50.03.0351	BC327-25	PNP, 800mA	0	R 312	57.11.3222	2k2	MF, 1%, 0207
0	Q 601	50.03.0340	BC337-25	BC 337-25,	0	R 313	57.11.3821	820R	MF, 1%, 0207
0	Q 602	50.03.0340	BC337-25	BC 337-25,	0	R 314	57.11.3103	10k	MF, 1%, 0207
0	Q 603	50.03.0351	BC327-25	PNP, 800mA	0	R 315	57.11.3100	10R	MF, 1%, 0207
0	Q 604	50.03.0351	BC327-25	PNP, 800mA	0	R 316	57.11.3100	10R	MF, 1%, 0207
0	Q 605	50.03.0340	BC337-25	BC 337-25,	0	R 317	57.11.3103	10k	MF, 1%, 0207
0	Q 606	50.03.0340	BC337-25	BC 337-25,	0	R 401	57.11.3103	10k	MF, 1%, 0207
0	Q 607	50.03.0351	BC327-25	PNP, 800mA	0	R 402	57.11.3100	10R	MF, 1%, 0207
0	Q 608	50.03.0351	BC327-25	PNP, 800mA	0	R 403	57.11.3152	1k5	MF, 1%, 0207
0	Q 701	50.03.0340	BC337-25	BC 337-25,	0	R 404	57.11.3100	10R	MF, 1%, 0207
0	Q 702	50.03.0340	BC337-25	BC 337-25,	0	R 405	57.11.3472	4k7	MF, 1%, 0207
0	Q 703	50.03.0351	BC327-25	PNP, 800mA	0	R 406	57.11.3223	22k	MF, 1%, 0207
0	Q 704	50.03.0351	BC327-25	PNP, 800mA	0	R 407	57.11.3331	330R	MF, 1%, 0207
0	Q 705	50.03.0340	BC337-25	BC 337-25,	0	R 408	57.11.3103	10k	MF, 1%, 0207
0	Q 706	50.03.0340	BC337-25	BC 337-25,	0	R 409	57.11.3302	3k0	MF, 1%, 0207
0	Q 707	50.03.0351	BC327-25	PNP, 800mA	0	R 410	57.11.3102	1k0	MF, 1%, 0207
0	Q 708	50.03.0351	BC327-25	PNP, 800mA	0	R 411	57.11.3302	3k0	MF, 1%, 0207
0	Q 801	50.03.0340	BC337-25	BC 337-25,	0	R 412	57.11.3222	2k2	MF, 1%, 0207
0	Q 802	50.03.0340	BC337-25	BC 337-25,	0	R 413	57.11.3821	820R	MF, 1%, 0207
0	Q 803	50.03.0351	BC327-25	PNP, 800mA	0	R 414	57.11.3103	10k	MF, 1%, 0207
0	Q 804	50.03.0351	BC327-25	PNP, 800mA	0	R 415	57.11.3100	10R	MF, 1%, 0207
0	Q 805	50.03.0340	BC337-25	BC 337-25,	0	R 416	57.11.3100	10R	MF, 1%, 0207
0	Q 806	50.03.0340	BC337-25	BC 337-25,	0	R 417	57.11.3103	10k	MF, 1%, 0207
0	Q 807	50.03.0351	BC327-25	PNP, 800mA	0	R 501	57.11.3103	10k	MF, 1%, 0207
0	Q 808	50.03.0351	BC327-25	PNP, 800mA	0	R 502	57.11.3100	10R	MF, 1%, 0207
0	R 1	57.11.3330	33R	MF, 1%, 0207	0	R 503	57.11.3152	1k5	MF, 1%, 0207
0	R 2	57.11.3151	150R	MF, 1%, 0207	0	R 504	57.11.3100	10R	MF, 1%, 0207
0	R 3	57.11.3151	150R	MF, 1%, 0207	0	R 505	57.11.3472	4k7	MF, 1%, 0207
0	R 4	57.11.3330	33R	MF, 1%, 0207	0	R 506	57.11.3223	22k	MF, 1%, 0207
0	R 5	57.92.7021	0.9A	RT 0.90A ,POLY- PTC	0	R 507	57.11.3331	330R	MF, 1%, 0207
0	R 6	57.11.3100	10R	MF, 1%, 0207	0	R 508	57.11.3103	10k	MF, 1%, 0207
0	R 7	57.11.3223	22k	MF, 1%, 0207	0	R 509	57.11.3302	3k0	MF, 1%, 0207
0	R 8	57.11.3223	22k	MF, 1%, 0207	0	R 510	57.11.3102	1k0	MF, 1%, 0207
0	R 9	57.92.7021	0.9A	RT 0.90A ,POLY- PTC	0	R 511	57.11.3302	3k0	MF, 1%, 0207
0	R 101	57.11.3103	10k	MF, 1%, 0207	0	R 512	57.11.3222	2k2	MF, 1%, 0207
0	R 102	57.11.3100	10R	MF, 1%, 0207	0	R 513	57.11.3821	820R	MF, 1%, 0207
0	R 103	57.11.3152	1k5	MF, 1%, 0207	0	R 514	57.11.3103	10k	MF, 1%, 0207
0	R 104	57.11.3100	10R	MF, 1%, 0207	0	R 515	57.11.3100	10R	MF, 1%, 0207
0	R 105	57.11.3472	4k7	MF, 1%, 0207	0	R 516	57.11.3100	10R	MF, 1%, 0207
0	R 106	57.11.3223	22k	MF, 1%, 0207	0	R 517	57.11.3103	10k	MF, 1%, 0207
0	R 107	57.11.3331	330R	MF, 1%, 0207	0	R 601	57.11.3103	10k	MF, 1%, 0207
0	R 108	57.11.3103	10k	MF, 1%, 0207	0	R 602	57.11.3100	10R	MF, 1%, 0207
0	R 109	57.11.3302	3k0	MF, 1%, 0207	0	R 603	57.11.3152	1k5	MF, 1%, 0207
0	R 110	57.11.3102	1k0	MF, 1%, 0207	0	R 604	57.11.3100	10R	MF, 1%, 0207
0	R 111	57.11.3302	3k0	MF, 1%, 0207	0	R 605	57.11.3472	4k7	MF, 1%, 0207
0	R 112	57.11.3222	2k2	MF, 1%, 0207	0	R 606	57.11.3223	22k	MF, 1%, 0207
0	R 113	57.11.3821	820R	MF, 1%, 0207	0	R 607	57.11.3331	330R	MF, 1%, 0207
0	R 114	57.11.3103	10k	MF, 1%, 0207	0	R 608	57.11.3103	10k	MF, 1%, 0207
0	R 115	57.11.3100	10R	MF, 1%, 0207	0	R 609	57.11.3302	3k0	MF, 1%, 0207
0	R 116	57.11.3100	10R	MF, 1%, 0207	0	R 610	57.11.3102	1k0	MF, 1%, 0207
0	R 117	57.11.3103	10k	MF, 1%, 0207	0	R 611	57.11.3302	3k0	MF, 1%, 0207
0	R 201	57.11.3103	10k	MF, 1%, 0207	0	R 612	57.11.3222	2k2	MF, 1%, 0207
0	R 202	57.11.3100	10R	MF, 1%, 0207	0	R 613	57.11.3821	820R	MF, 1%, 0207
0	R 203	57.11.3152	1k5	MF, 1%, 0207	0	R 614	57.11.3103	10k	MF, 1%, 0207
0	R 204	57.11.3100	10R	MF, 1%, 0207	0	R 615	57.11.3100	10R	MF, 1%, 0207
0	R 205	57.11.3472	4k7	MF, 1%, 0207	0	R 616	57.11.3100	10R	MF, 1%, 0207
0	R 206	57.11.3223	22k	MF, 1%, 0207	0	R 617	57.11.3103	10k	MF, 1%, 0207
0	R 207	57.11.3331	330R	MF, 1%, 0207	0	R 701	57.11.3103	10k	MF, 1%, 0207
0	R 208	57.11.3103	10k	MF, 1%, 0207	0	R 702	57.11.3100	10R	MF, 1%, 0207
0	R 209	57.11.3302	3k0	MF, 1%, 0207	0	R 703	57.11.3152	1k5	MF, 1%, 0207
0	R 210	57.11.3102	1k0	MF, 1%, 0207	0	R 704	57.11.3100	10R	MF, 1%, 0207
0	R 211	57.11.3302	3k0	MF, 1%, 0207	0	R 705	57.11.3472	4k7	MF, 1%, 0207
0	R 212	57.11.3222	2k2	MF, 1%, 0207	0	R 706	57.11.3223	22k	MF, 1%, 0207
0	R 213	57.11.3821	820R	MF, 1%, 0207	0	R 707	57.11.3331	330R	MF, 1%, 0207



AUX MASTER LINE BOARD 1.980.323.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 708	57.11.3103	10k	MF, 1%, 0207
0	R 709	57.11.3302	3k0	MF, 1%, 0207
0	R 710	57.11.3102	1k0	MF, 1%, 0207
0	R 711	57.11.3302	3k0	MF, 1%, 0207
0	R 712	57.11.3222	2k2	MF, 1%, 0207
0	R 713	57.11.3821	820R	MF, 1%, 0207
0	R 714	57.11.3103	10k	MF, 1%, 0207
0	R 715	57.11.3100	10R	MF, 1%, 0207
0	R 716	57.11.3100	10R	MF, 1%, 0207
0	R 717	57.11.3103	10k	MF, 1%, 0207
0	R 801	57.11.3103	10k	MF, 1%, 0207
0	R 802	57.11.3100	10R	MF, 1%, 0207
0	R 803	57.11.3152	1k5	MF, 1%, 0207
0	R 804	57.11.3100	10R	MF, 1%, 0207
0	R 805	57.11.3472	4k7	MF, 1%, 0207
0	R 806	57.11.3223	22k	MF, 1%, 0207
0	R 807	57.11.3331	330R	MF, 1%, 0207
0	R 808	57.11.3103	10k	MF, 1%, 0207
0	R 809	57.11.3302	3k0	MF, 1%, 0207
0	R 810	57.11.3102	1k0	MF, 1%, 0207
0	R 811	57.11.3302	3k0	MF, 1%, 0207
0	R 812	57.11.3222	2k2	MF, 1%, 0207
0	R 813	57.11.3821	820R	MF, 1%, 0207
0	R 814	57.11.3103	10k	MF, 1%, 0207
0	R 815	57.11.3100	10R	MF, 1%, 0207
0	R 816	57.11.3100	10R	MF, 1%, 0207
0	R 817	57.11.3103	10k	MF, 1%, 0207
0	RA 101	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 201	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 301	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 401	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 501	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 601	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 701	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	RA 801	58.01.8502	5k	Cermet, 10%, 0.5W, horizontal
0	T 101	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 201	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 301	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 401	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 501	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 601	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 701	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27
0	T 801	1.022.366.00	Trafo	LINE OUTPUT TRAF0 1:1,27

End of List

Comments

**Pin assignment P4A****AUX MASTER UNIT to AUB BOARD (1.992.18x)****Valid for:****All AUX master units**

P4	NO	NAME	REMARK	TYPE
P	01A	0V-B	Audio ground (pin)	B
P	01B	CHASSIS	METAL FRAME	B
P	02A	0V-RET	0V return from audio star	O
P	02B	B-MPX	MPX mono bus; 0-Ω bus; input	O,I
P	03A			B
P	03B			B
P	04A	MET-BR	Meter brightness	B,DC
P	04B			B,I
P	05A	B-PFL-SOLO-L	PFL/SOLO left ; 0-Ω bus	B,I
P	05B	B-PFL-SOLO-R	PFL/SOLO right ; 0-Ω bus	B,I
P	06A			B,I
P	06B			B,I
P	07A			B,I
P	07B			B,I
P	08A			B,I
P	08B			B,I
P	09A			B,I
P	09B			B,I
P	10A			B,I
P	10B			B,I
P	11A			B,I
P	11B			B,I
P	12A			B,I
P	12B			B,I
P	13A			B,I
P	13B			B,I
P	14A	0V-REF	0V reference	B X X
P	14B	0V-REF	0V reference	B X X
P	15A			B,I
P	15B			B,I
P	16A			B,I
P	16B			B,I
P	17A			B,I
P	17B			B,I
P	18A			B,I
P	18B			B,I
P	19A			B,I
P	19B			B,I
P	20A			B,I
P	20B			B,I
P	21A			B,I
P	21B			B,I
P	22A			B,I
P	22B			B,I
P	23A	B-AUX-1	AUX 1 input ; 0-Ω bus	O,I
P	23B	B-AUX-2	AUX 2 input ; 0-Ω bus	O,I
P	24A	B-AUX-3	AUX 3 input ; 0-Ω bus	O,I
P	24B	B-AUX-4	AUX 4 input ; 0-Ω bus	O,I
P	25A	B-AUX-5	AUX 5 input ; 0-Ω bus	O,I
P	25B	B-AUX-6	AUX 6 input ; 0-Ω bus	O,I
P	26A	B-AUX-7	AUX 7 input ; 0-Ω bus	O,I
P	26B	B-AUX-8	AUX 8 input ; 0-Ω bus	O,I
P	27A	0V-A	Audio ground	B X X
P	27B	0V-A	Audio ground	B X X
P	28A	-15.5V	- Supply	B X X
P	28B	-15.5V	- Supply	B X X
P	29A	+15.5V	+Supply	B X X
P	29B	+15.5V	+Supply	B X X
P	30A	0V-L	Ground signal (logic)	B X X
P	30B	0V-L	Ground signal (logic)	B X X
P	31A	+5V-SB	+ Stand by supply	B X X
P	31B	+5V-SB	+ Stand by supply	B X X
P	32A	+3..4V-LED	LED supply variable +3..4V	B X X
P	32B	+3..4V-LED	LED supply variable +3..4V	B X X

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = Supply or CV

C = Connector

IV = Inverted

## Pin assignment P5A

AUX MASTER UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD (1.980.712.00)

Valid for:

All AUX master units

P5	NO	NAMF	REMARK	TYPE
P	01A	A-0	Address A 0 (in layout for positions 1...4)	HW wired
P	01B	A-1	Address A 1 (in layout for positions 1...4)	HW wired
P	02A	A-2	Address A 2 bus with Jumper 5...8	Bus HW jumper
P	02B	A-3	Address A 3 bus with Jumper 9...16	Bus HW jumper
P	03A	A-4	Address A 4 bus with Jumper 17...32	Bus HW jumper
P	03B	A-5	Address A 5 bus with Jumper 33...64	Bus HW jumper
P	04A	A-6	Address A 6 bus with Jumper 65...128	Bus HW jumper
P	04B	EXTEND0	Jumper on 1.980.765.00 for Dynamic Extension selection	HW jumper
P	05A	EXTEND1	Jumper on 1.980.765.00 for Multichannel Extension selection	HW jumper
P	05B	EXTEND2	Jumper on 1.980.765.00 for Multichannel Extension selection	HW jumper
P	06A	RESERVE	RB7	O 6-pin
P	06B	DO0	Enable	O 6-pin
P	07A	TXDF	Serial data	O 6-pin
P	07B	TCL	Clock	O 6-pin
P	08A	TSTB1	Strobe to INSTRUMENT / LIMITER	O 6-pin
P	08B	TSTB2	Strobe to 32 Extension	O 6-pin
P	09A	ADR-DAT	SYM ADDRESS/DATA	B 16-pin
P	09B	IADR-DAT	SYM ADDRESS/DATA INVERT	B 16-pin
P	10A	SEL	SELECT	B 16-pin
P	10B	ISEL	SELECT INVERT	B 16-pin
P	11A	DAT	DATA	B 16-pin
P	11B	IDAT	DATA INVERT	B 16-pin
P	12A	CLK	Clock	B 16-pin
P	12B	ICLK	Clock INVERT	B 16-pin
P	13A	AUX5/6-2CH	Central bus AUX-5/6 - 2CH	B 16-pin
P	13B	AUX7/8-2CH	Central bus AUX-7/8 - 2CH	B 16-pin
P	14A	MASTER-TB	Central bus RD4 MASTER TB	B 16-pin
P	14B	N-1	Central bus RD0 (N-1) switch	B 16-pin
P	15A	PFLRES	Central bus RD1 PFLRES	B 16-pin
P	15B	PFLSIGN	Central bus PFL Signal	B 16-pin
P	16A	+5.5V	+Supply	B 16-pin
P	16B	0V-L	Ground signal (logic)	B 16-pin

I = Input

DI = Digital

SY = Balanced

\* = not connected

O = Output

L = Line

AS = Unbalanced

AC = Audio

B = Bus

NO = Normal

DC = supply or CV

C = Connector

IV = Inverted

**Pin assignment P6A**

**AUX MASTER UNIT to INPUT/OUTPUT CONNECTOR 4A / DIGITAL BUS BOARD (1.980.712.00)**

Valid for:

All AUX master units

Pin	NO	NAME	REMARK	TYPE
P	01A	AUX-1-OUT-A	AUX output 1 A	S,O
P	01B	AUX-1-OUT-B	AUX output 1 B	S,O
P	02A	AUX-0VE	AUX output ground external	O
P	02B	AUX-0VE	AUX output ground external	O
P	03A	AUX-2-OUT-A	AUX output 2 A	S,O
P	03B	AUX-2-OUT-B	AUX output 2 B	S,O
P	04A	AUX-3-OUT-A	AUX output 3 A	S,O
P	04B	AUX-3-OUT-B	AUX output 3 B	S,O
P	05A	AUX-0VE	AUX output ground external	O
P	05B	AUX-0VE	AUX output ground external	O
P	06A	AUX-4-OUT-A	AUX output 4 A	S,O
P	06B	AUX-4-OUT-B	AUX output 4 B	S,O
P	07A			
P	07B			
P	08A			
P	08B			
P	09A			
P	09B			
P	10A	AUX-5-OUT-A	AUX output 5 A	S,O
P	10B	AUX-5-OUT-B	AUX output 5 B	S,O
P	11A	AUX-6-OUT-A	AUX output 6 A	S,O
P	11B	AUX-6-OUT-B	AUX output 6 B	S,O
P	12A			
P	12B			
P	13A			
P	13B			
P	14A			
P	14B			
P	15A			
P	15B			
P	16A			
P	16B	RESERVE_1	(Conn. 1 wire to Tp 14)	
P	17A			
P	17B	POWER_FAIL	Power fail link	
P	18A			
P	18B	RESERVE_2	Wire connection	
P	19A	TB-INP-A	Talkback input A	O
P	19B			
P	20A	TB-INP-0V	Talkback input GROUND	O
P	20B			
P	21A	VU_PPM-SEL	VU/PPM selector	
P	21B	0V-L	For wire link to 21A (PPM)	O
P	22A			
P	22B	TB_SIGN	Talkback Signal	O
P	23A			
P	23B			
P	24A		(MIC 1)	B
P	24B		(48 V Phantom)	B
P	25A		(Generator bus A)	B
P	25B		(Generator bus B)	B
P	26A	TB-A	Talkback bus output A	B
P	26B	TB-B	Talkback bus output B	B
P	27A	MPX-A	MPX mono bus output A	B
P	27B	MPX-B	MPX mono bus output B	B
P	28A			
P	28B			
P	29A	AUX-7-OUT-A	AUX output 7 A	S,O
P	29B	AUX-7-OUT-B	AUX output 7 B	S,O
P	30A			
P	30B			
P	31A	AUX-8-OUT-A	AUX output 8 A	S,O
P	31B	AUX-8-OUT-B	AUX output 8 B	S,O
P	32A			
P	32B			

I = Input                      O = Output                      AC = Audio                      DC = Supply or CV  
 DI = Digital                      L = Line                          B = Bus                          C = Connector  
 SY = Balanced                      AS = Unbalanced                      NO = Normal                      IV = Inverted  
 \* = not connected

## Pin assignment P6C

4 x 16-pin flat cable connections AUX MASTER MAIN BOARD to AUX MASTER LINE BOARD

Valid for:

AUX MASTER UNIT WITH TRANSFORMER OUTPUTS

P16P	NO	NAME	REMARK	TYPE
P21	1	AUX_1_OUT_A	From Board	L;AC
P21	2	AUX_1_OUT_B	From Board	L;AC
P21	3	AUX_1_OUT_A	To Output	L;AC
P21	4	AUX_1_OUT_B	To Output	L;AC
P21	5	0V_E	Ground	DC
P21	6	0V_E	Ground	DC
P21	7	AUX_2_OUT_A	From Board	L;AC
P21	8	AUX_2_OUT_B	From Board	L;AC
P21	9	AUX_2_OUT_A	To Output	L;AC
P21	10	AUX_2_OUT_B	To Output	L;AC
P21	11			
P21	12			
P21	13			
P21	14			
P21	15			
P21	16			

P16P	NO	NAME	REMARK	TYPE
P22	1	AUX_3_OUT_A	From Board	L;AC
P22	2	AUX_3_OUT_B	From Board	L;AC
P22	3	AUX_3_OUT_A	To Output	L;AC
P22	4	AUX_3_OUT_B	To Output	L;AC
P22	5	0V_E	Ground	DC
P22	6	0V_E	Ground	DC
P22	7	AUX_4_OUT_A	From Board	L;AC
P22	8	AUX_4_OUT_B	From Board	L;AC
P22	9	AUX_4_OUT_A	To Output	L;AC
P22	10	AUX_4_OUT_B	To Output	L;AC
P22	11			
P22	12	0V_REF		DC
P22	13	0V_REF		DC
P22	14			
P22	15	+15.5V		DC
P22	16	+15.5V		DC

P16P	NO	NAME	REMARK	TYPE
P23	1	AUX_5_OUT_A	From Board	L;AC
P23	2	AUX_5_OUT_B	From Board	L;AC
P23	3	AUX_5_OUT_A	To Output	L;AC
P23	4	AUX_5_OUT_B	To Output	L;AC
P23	5	0V_E	Ground	DC
P23	6	0V_E	Ground	DC
P23	7	AUX_6_OUT_A	From Board	L;AC
P23	8	AUX_6_OUT_B	From Board	L;AC
P23	9	AUX_6_OUT_A	To Output	L;AC
P23	10	AUX_6_OUT_B	To Output	L;AC
P23	11			
P23	12			
P23	13			
P23	14			
P23	15	-15.5V		DC
P23	16	-15.5V		DC

P16P	NO	NAME	REMARK	TYPE
P24	1	AUX_7_OUT_A	From Board	L;AC
P24	2	AUX_7_OUT_B	From Board	L;AC
P24	3	AUX_7_OUT_A	To Output	L;AC
P24	4	AUX_7_OUT_B	To Output	L;AC
P24	5	0V_E	Ground	DC
P24	6	0V_E	Ground	DC
P24	7	AUX_8_OUT_A	From Board	L;AC
P24	8	AUX_8_OUT_B	From Board	L;AC
P24	9	AUX_8_OUT_A	To Output	L;AC
P24	10	AUX_8_OUT_B	To Output	L;AC
P24	11			
P24	12			
P24	13			
P24	14			
P24	15			
P24	16			

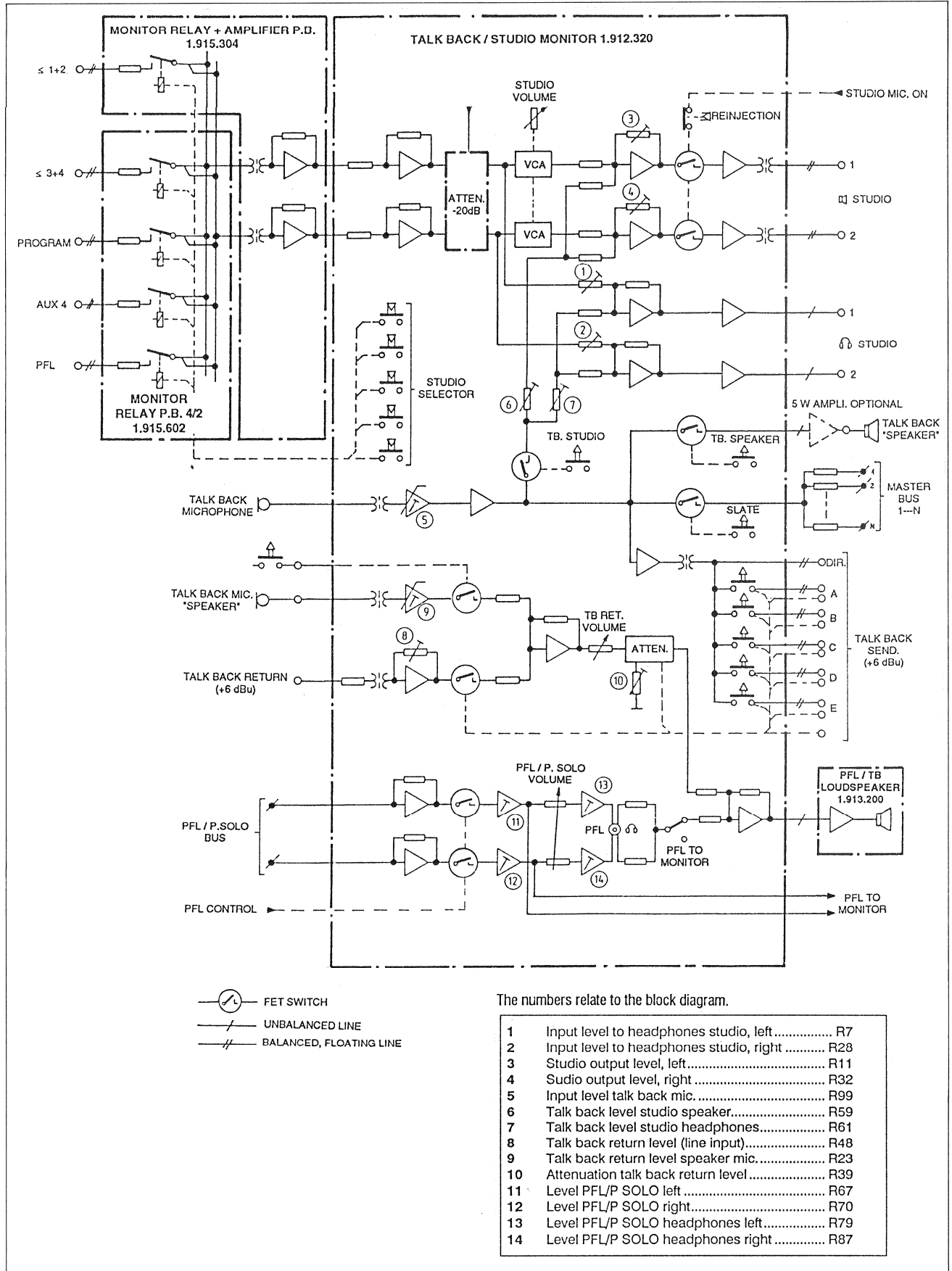
I = Input                      O = Output                      AC = Audio                      DC = Supply or CV  
 DI = Digital                    L = Line                          B = Bus                          C = Connector  
 SY = Balanced                AS = Unbalanced                NO = Normal                    IV = Inverted  
 \* = not connected

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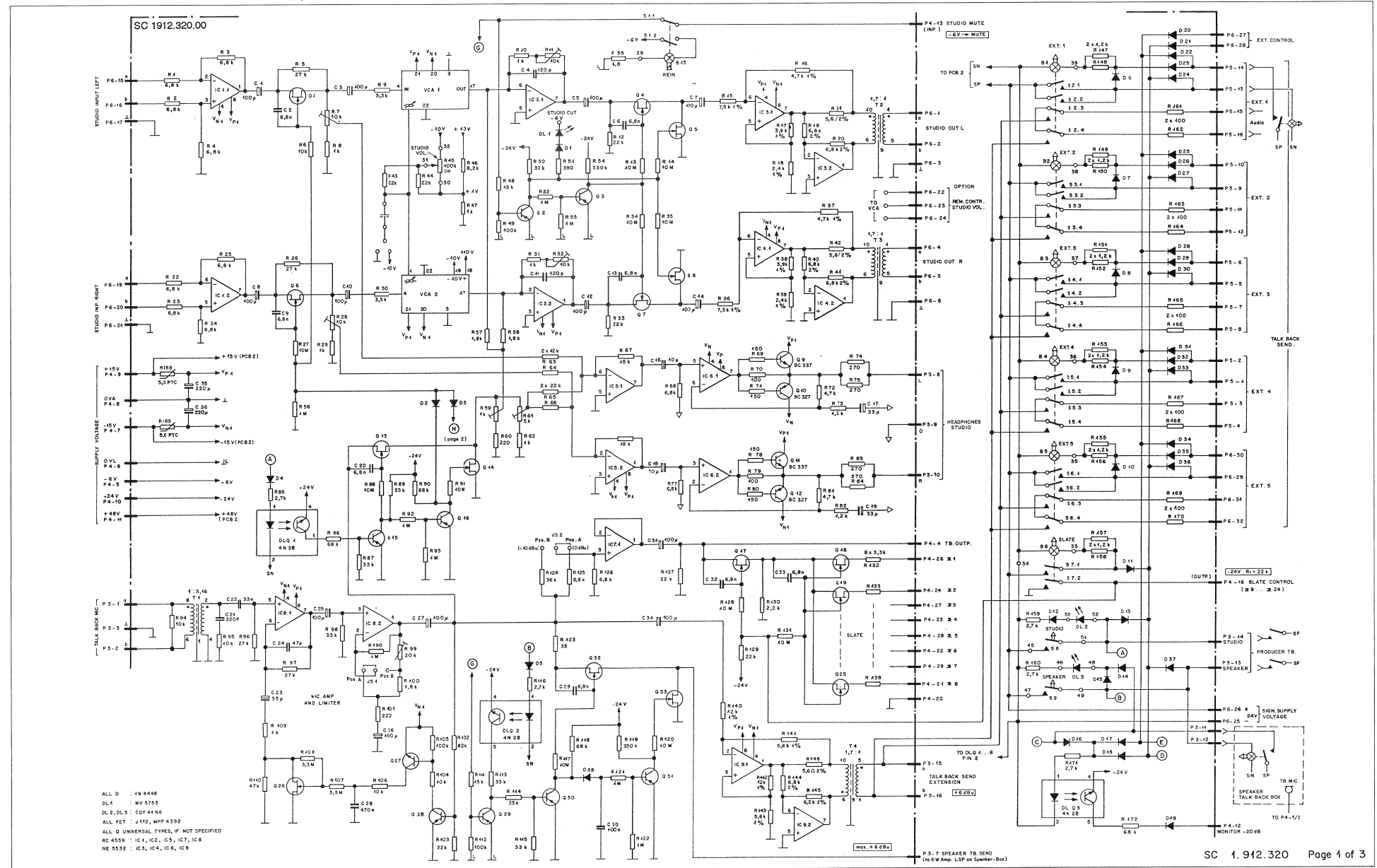
**TALKBACK / MONITORING**



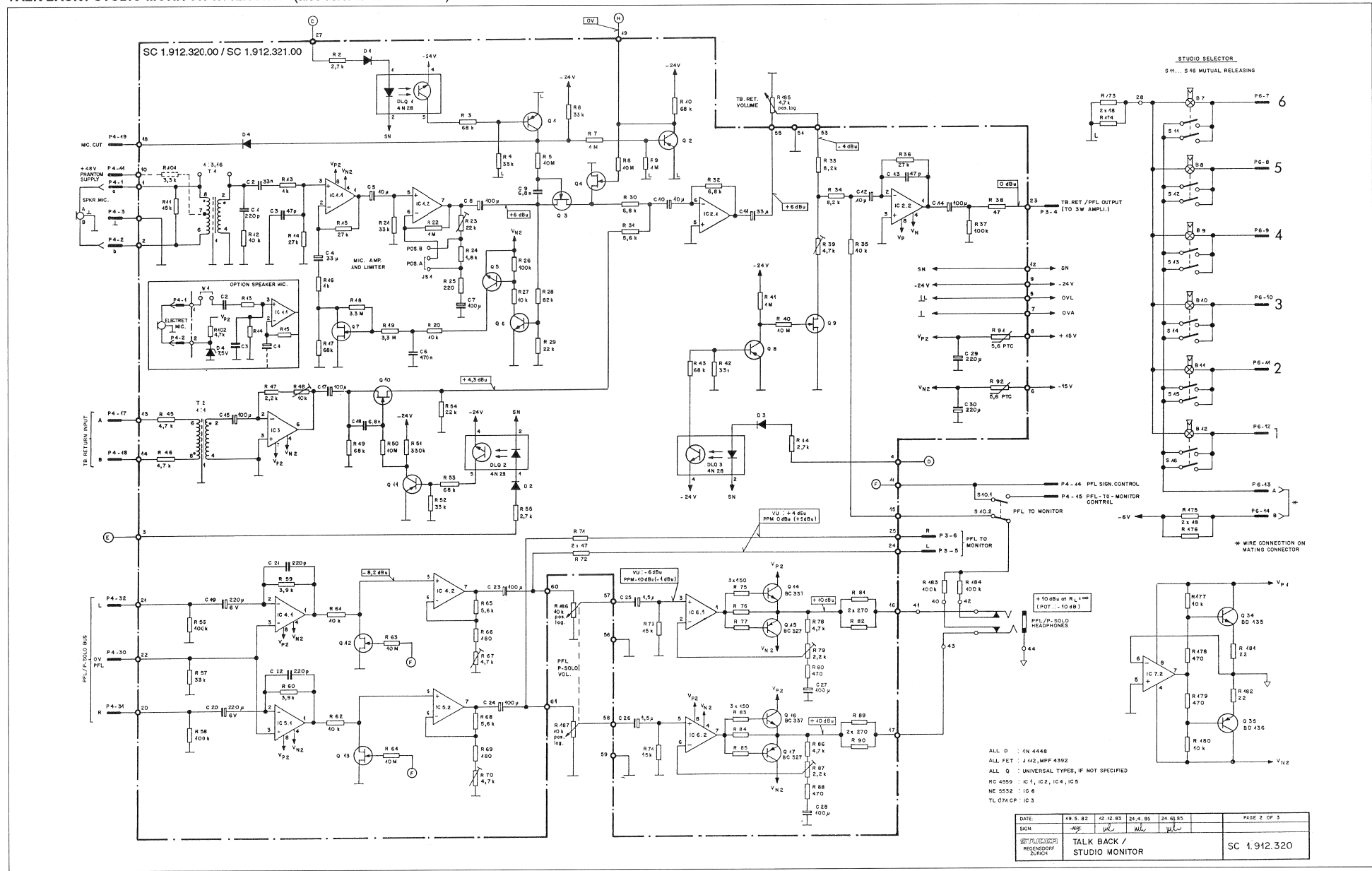
**BLOCK DIAGRAM**  
**TALK BACK / STUDIO MONITOR 1.912.326**



TALK BACK / STUDIO MONITOR 1.912.320.00 (also refer to 1.912.326.00)



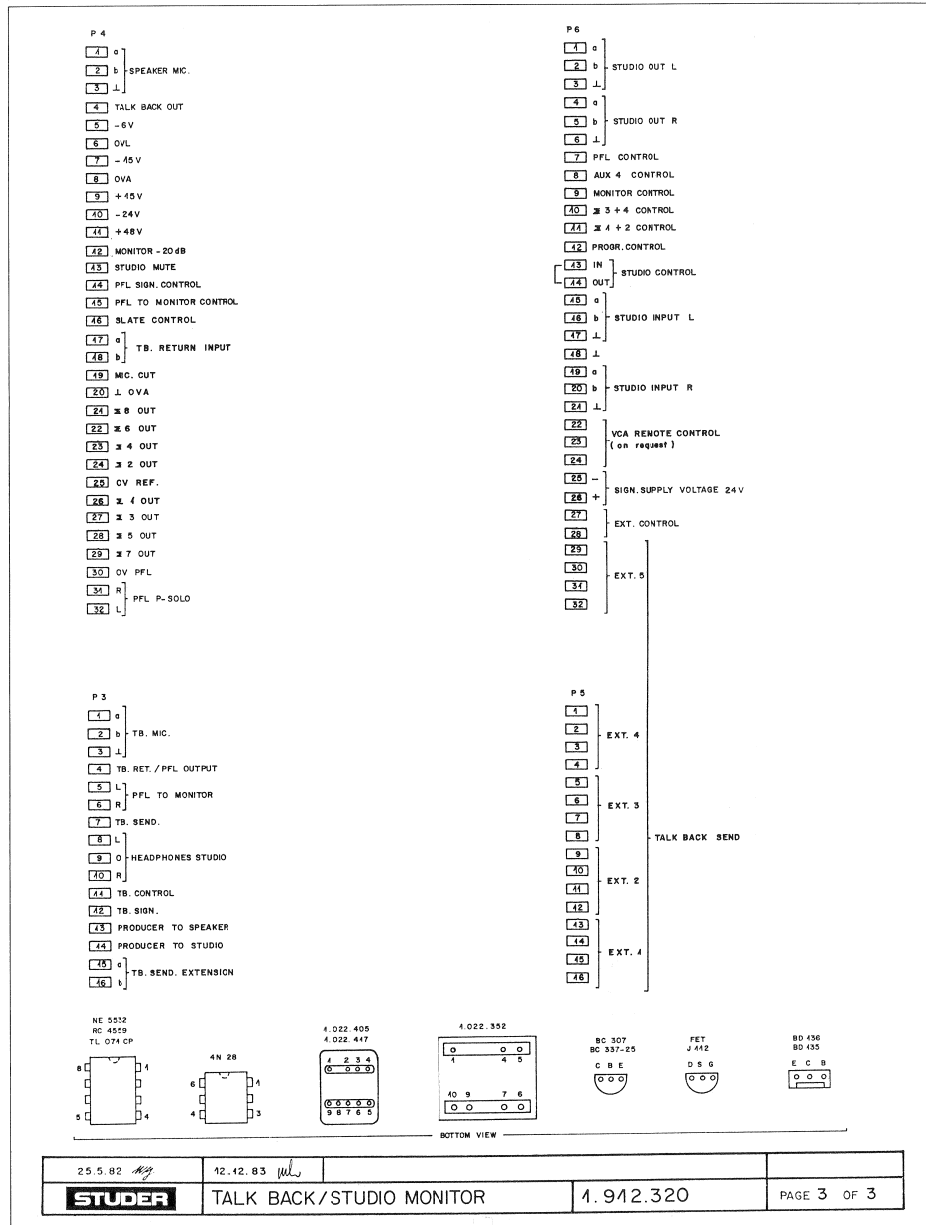
TALK BACK / STUDIO MONITOR 1.912.320.00 (also refer to 1.912.326.00)



- ALL D : 4N 4448
- ALL FET : J 452, MFF 4392
- ALL Q : UNIVERSAL TYPES, IF NOT SPECIFIED
- IC 4559 : IC 1, IC 2, IC 4, IC 5
- NE 5532 : IC 6
- TL 074 CP : IC 3

DATE	49.5.82	12.12.83	24.4.85	24.10.85	PAGE 2 OF 3
SIGN	<i>Age</i>	<i>W</i>	<i>W</i>	<i>W</i>	
REVISIONS/REVISIONS	TALK BACK / STUDIO MONITOR				SC 1.912.320

TALK BACK / STUDIO MONITOR 1.912.320.00 (also refer to 1.912.326.00)







TALK BACK / STUDIO MONITOR 1.912.320.00 (also refer to 1.912.326.00)

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include components like capacitors (C1-C29) and resistors (R1-R29).

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (Q1-Q30) and other components.

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (R25-R54) and other components.

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (R85-R144) and other components.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like CER Ceramic, EL Electrolytic, PE Polyester, SAL Solid Aluminum Lacquered.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like M Motorola, N National, Sx Siliconix, \* universal type, P>200, Utop>400V.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like A-Hi-Log.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like A-Hi-Log.

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include diodes (D1-D3), LEDs (DL1-DL3), and integrated circuits (IC1-IC9).

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (R1-R24) and other components.

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (R55-R84) and other components.

Table with columns: INDI, POS NO, PART NO, VALUE, SPECIFICATIONS/EQUIVALENT, MFR. Rows include resistors (R45-R74) and other components.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like CM Chicago Min, Ex Exar, M Motorola, Ms Monsanto, Ra Raytheon.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like A-Hi-Log.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like A-Hi-Log.

Table with columns: INDI, DATE, NAME. Lists component manufacturers like A-Hi-Log.

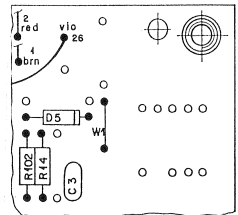
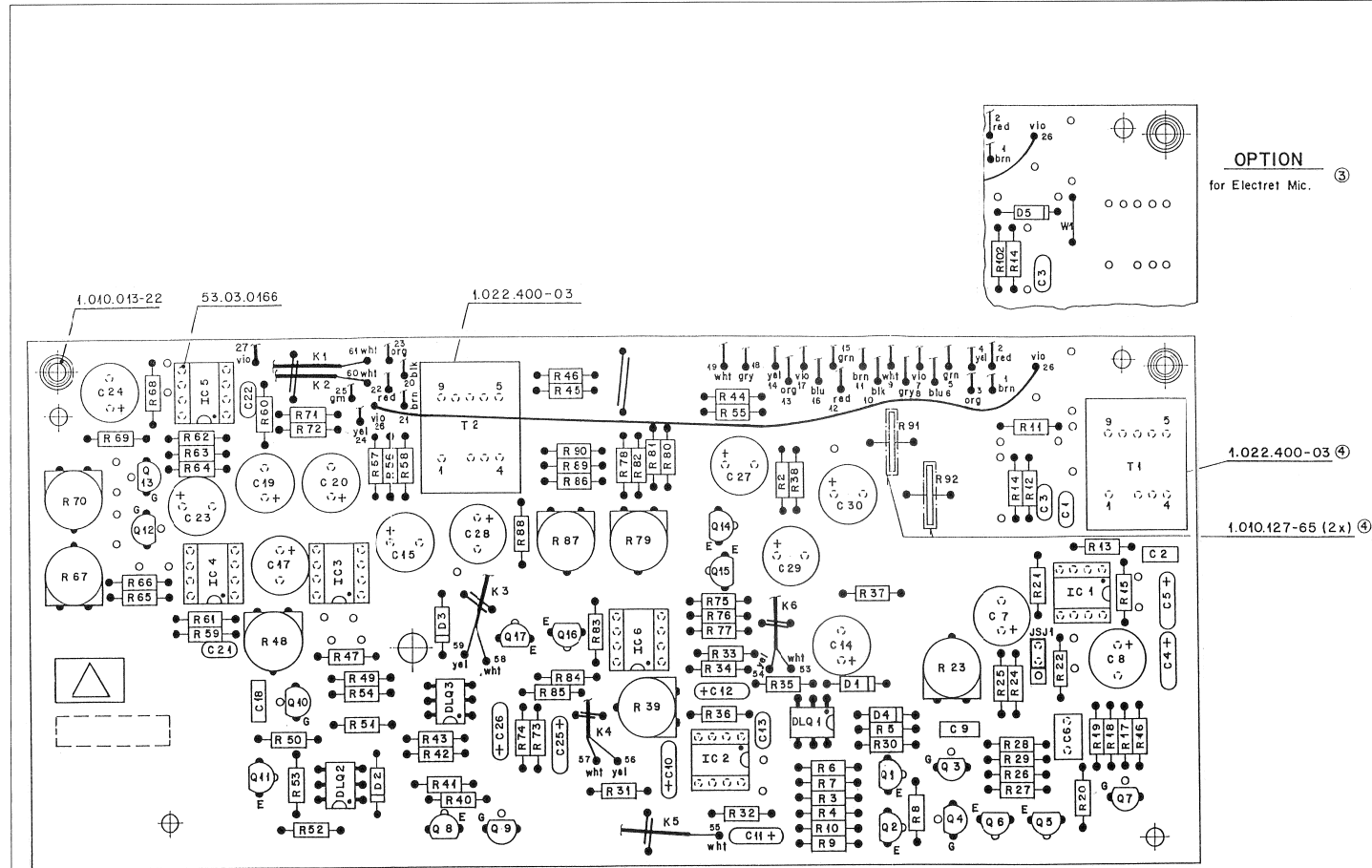








TALK BACK / PFL AMPLIFIER 1.912.321.00 (also refer to 1.912.326.00)



OPTION  
for Electret Mic. ③

1.022.400-03 ④

1.010.127-65 (2x) ④

INDI POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
C 1	53.34.4224	220 pF	CER 5%	
C 2	53.06.0333	33 nF	PE 10%	
C 3	59.34.2470	47 pF	CER 5%	
C 4	59.26.1330	33 µF	SAL 10V	
C 5	59.26.2400	10 µF	SAL 16V	
C 6	59.26.0474	470 nF	PE 10%	
C 7	59.22.4404	100 µF	EL 16V	
C 8	59.22.4404	100 µF	EL 16V	
C 9	59.06.0682	6.8 nF	PE 10%	
C10	59.26.2400	10 µF	SAL 16V	
C11	59.26.1330	33 µF	SAL 10V	
C12	59.22.4400	10 µF	EL 16V	
C13	59.34.2470	47 pF	CER 5%	
C14	59.22.4404	100 µF	EL 16V	
C15	59.22.4404	100 µF	EL 16V	
C17	59.22.4404	100 µF	EL 16V	
C18	59.06.0682	6.8 nF	PE 10%	
C19	59.22.2224	220 µF	EL 6V	
C20	59.22.2224	220 µF	EL 6V	
C21	59.34.4224	220 pF	CER 5%	
C22	59.34.4224	220 pF	CER 5%	
C23	59.22.4404	100 µF	EL 16V	
C24	59.22.4404	100 µF	EL 16V	
C25	59.26.5159	45 µF	SAL 25V	
C26	59.26.5159	45 µF	SAL 25V	
C27	59.22.4404	100 µF	EL 16V	
C28	59.22.4404	100 µF	EL 16V	
C29	59.22.4224	220 µF	EL 16V	
C30	59.22.4224	220 µF	EL 16V	

INDI	DATE	NAME	
①			CER Ceramic
②			EL Electrolytic
③	19-04-85		PE Polyester
④	25-2-85		SAL Solid Aluminum Lacquered
⑤	05-04-82		

STUDER Talk Back / PFL-Ampl. Board PL 1.912.321. PAGE 1 OF 6

INDI POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
D1	50.04.0125	1N4448	or equivalent	any
D2	50.04.0125	1N4448	or equivalent	any
D3	50.04.0125	1N4448	or equivalent	any
D4	50.04.0125	1N4448	or equivalent	any
DLQ1	50.93.0126	4N26	(4N28)	M, TI
DLQ2	50.93.0126	4N26	(4N28)	M, TI
DLQ3	50.93.0126	4N26	(4N28)	M, TI
IC1	50.09.0107	RC4559		Ra, TI
IC2	50.09.0107	RC4559		Ra, TI
IC3	50.09.0103	TL074CP	LF354N	Tl, N
IC4	50.09.0107	RC4559		Ra, TI
IC5	50.09.0107	RC4559		Ra, TI
IC6	50.09.0105	NE5532N	XR 5532N	Si, Ex
JSJ4	54.04.0024		Jumper jack	
Q1	50.03.0545	P-N-P	*	any
Q2	50.03.0545	P-N-P	*	any
Q3	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q4	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q5	50.03.0340	N-P-N	*	any
Q6	50.03.0545	P-N-P	*	any
Q7	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q8	50.03.0545	P-N-P	*	any
Q9	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q10	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q11	50.03.0545	P-N-P	*	any
Q12	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M
Q13	50.03.0350	J-N-FET	JM2, MPF4392	Si, N, M

5.9.94	Si	JF	IF	①
26.5.86	A.Ho	JF	IF	①
11.11.84	RBe	JF	IF	①
6.10.83	A.Ho	JF	IF	①
1.10.83	A.Ho	JF	IF	①
15.10.82	A.Ho	JF	IF	①

STUDER REGENSDORF ZÜRICH  
Talk Back / PFL-Ampl. Board ESE  
1.912.321-00

INDI	DATE	NAME	
①			Ex Evar
②			M Motorola
③			N National
④	19-04-85		Ra Polytron
⑤	25-2-85		Si Siquelics
⑥	05-04-82		

STUDER Talk Back / PFL-Ampl. Board PL 1.912.321. PAGE 2 OF 6



TALK BACK / PFL AMPLIFIER 1.912.321.00 (also refer to 1.912.326.00)

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	Q14	50.03.0340	N-P-N	Ic 800mA BC337-25 or equiv.	any
	Q15	50.03.0351	P-N-P	Ic 800mA BC337-25 or equiv.	any
	Q16	50.03.0340	N-P-N	Ic 800mA BC337-25 or equiv.	any
	Q17	50.03.0351	P-N-P	Ic 800mA BC337-25 or equiv.	any
	R2	57.11.4272	27k		
	R3	57.11.4683	68k		
	R4	57.11.4333	33k		
	R5	57.11.6106	10M		
	R6	57.11.4333	33k		
	R7	57.11.4105	1M		
	R8	57.11.6106	10M		
	R9	57.11.4105	1M		
	R10	57.11.4683	68k		
	R11	57.11.4153	45k		
	R12	57.11.4103	10k		
	R13	57.11.4102	1k		
	R14	57.11.4273	27k		
	R15	57.11.4273	27k		
	R16	57.11.4102	1k		
	R17	57.11.4683	68k		
	R18	57.11.6335	3,3M		
	R19	57.11.6335	3,3M		
	R20	57.11.4103	10k		
	R21	57.11.4333	33k		
	R22	57.11.4105	1M		
	R23	58.02.5223	22k	Trim-Pot.	
	R24	57.11.4182	18k		
	R25	57.11.4221	220		

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R56	57.11.4104	100k		
	R57	57.11.4333	33k		
	R58	57.11.4104	100k		
	R59	57.11.4392	3,9k		
	R60	57.11.4392	3,9k		
	R61	57.11.4103	10k		
	R62	57.11.4103	10k		
	R63	57.11.6106	10M		
	R64	57.11.6106	10M		
	R65	57.11.4562	5,6k		
	R66	57.11.4181	180		
	R67	58.02.5472	4,7k	Trim-Pot.	
	R68	57.11.4562	5,6k		
	R69	57.11.4181	180		
	R70	58.02.5472	4,7k	Trim-Pot.	
	R71	57.11.4470	47		
	R72	57.11.4470	47		
	R73	57.11.4153	45k		
	R74	57.11.4153	45k		
	R75	57.11.4151	150		
	R76	57.11.4151	150		
	R77	57.11.4151	150		
	R78	57.11.4472	47k		
	R79	58.02.5222	2,2k	Trim-Pot	
	R80	57.11.4471	470		
	R81	57.11.4271	270		
	R82	57.11.4271	270		
	R83	57.11.4151	150		
	R84	57.11.4151	150		
	R85	57.11.4151	150		

IND	DATE	NAME
④		
③		
②	19-04-85	ny
①	25-02-85	ny
○	05-01-82	ny

STUDER Talk Back/PFL Ampl. Board PL 1.912.321 PAGE 3 OF 6

IND	DATE	NAME
④		
③		
②	19-04-85	ny
①	25-02-85	ny
○	05-01-82	ny

STUDER Talk Back/PFL-Ampl. Board PL 1.912.321 PAGE 5 OF 6

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R26	57.11.4104	100k		
	R27	57.11.4103	10k		
	R28	57.11.4823	82k		
	R29	57.11.4223	22k		
	R30	57.11.4682	68k		
	R31	57.11.4562	5,6k		
	R32	57.11.4682	68k		
	R33	57.11.4822	8,2k		
	R34	57.11.4822	8,2k		
	R35	57.11.4103	10k		
	R36	57.11.4273	27k		
	R37	57.11.4104	100k		
	R38	57.11.4470	47		
	R39	58.02.5472	4,7k	Trim-Pot	
	R40	57.11.6106	10M		
	R41	57.11.4105	1M		
	R42	57.11.4333	33k		
	R43	57.11.4683	68k		
	R44	57.11.4272	27k		
	R45	57.11.4472	47k		
	R46	57.11.4472	47k		
	R47	57.11.4222	2,2k		
	R48	58.02.5103	10k	Trim-Pot.	
	R49	57.11.4683	68k		
	R50	57.11.6106	10M		
	R51	57.11.4334	330k		
	R52	57.11.4333	33k		
	R53	57.11.4683	68k		
	R54	57.11.4223	22k		
	R55	57.11.4272	27k		

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR	
	R86	57.11.4472	47k			
	R87	58.02.5222	2,2k	Trim-Pot.		
	R88	57.11.4471	470			
	R89	57.11.4271	270			
	R90	57.11.4271	270			
	R91	57.99.0209	5,6	PTC Philips		
	R92	57.99.0209	5,6	PTC 2322.662.91005		
	T1	1.022.417.00	1:3,16	Mic-Trafo	Studer	
	T2	1.022.405.00	1:1	Input-Trafo	Studer	
	X1C	53.03.0166		IC-Socket, DIP 8pins		
	P	54.01.0020		Plug for Jumper JSJA 1/2 S.11		
	OPTIONS					
	D5	50.04.1103		Zener. 7,5V, 400mW	any	
	R101	57.11.4332	3,3k			
	R102	57.11.4472	47k			
	W1	-		wire connection on PCB		

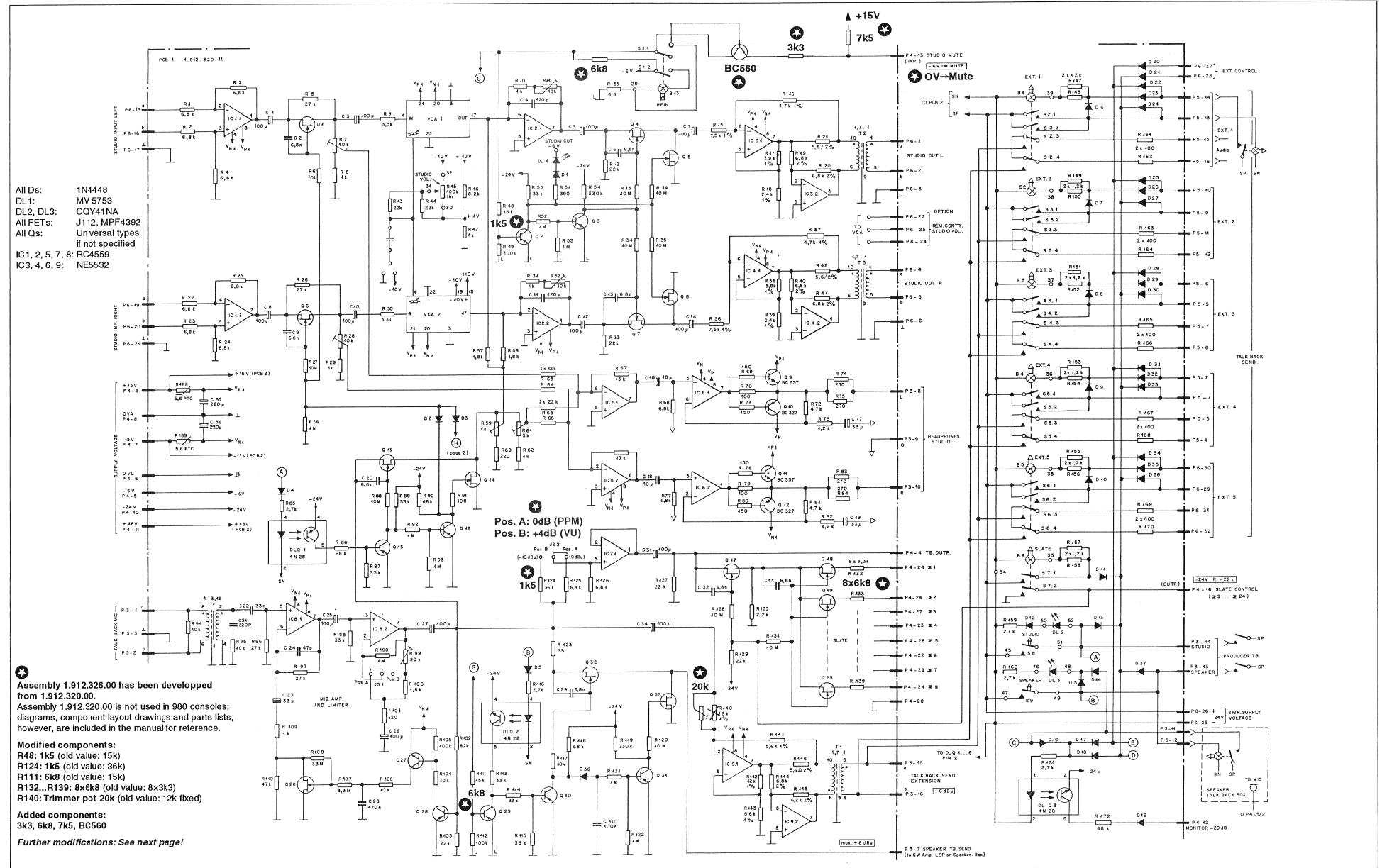
IND	DATE	NAME
④		
③		
②	19-04-85	ny
①	25-02-85	ny
○	05-01-82	ny

STUDER Talk Back/PFL-Ampl. Board PL 1.912.321 PAGE 4 OF 6

IND	DATE	NAME
④		Änderungen
③		① Fehler im Text korrigiert
②	19-04-85	ny
①	25-02-85	ny
○	05-01-82	ny

STUDER Talk Back/PFL-Ampl. Board PL 1.912.321 PAGE 6 OF 6

TALK BACK / STUDIO MONITOR 1.912.326.00



All Ds: 1N4448  
 DL1: MV5753  
 DL2, DL3: CQY41NA  
 All FETs: J112, MPF4392  
 All Qs: Universal types  
 If not specified  
 IC1, 2, 5, 7, 8: RC4559  
 IC3, 4, 6, 9: NE5532

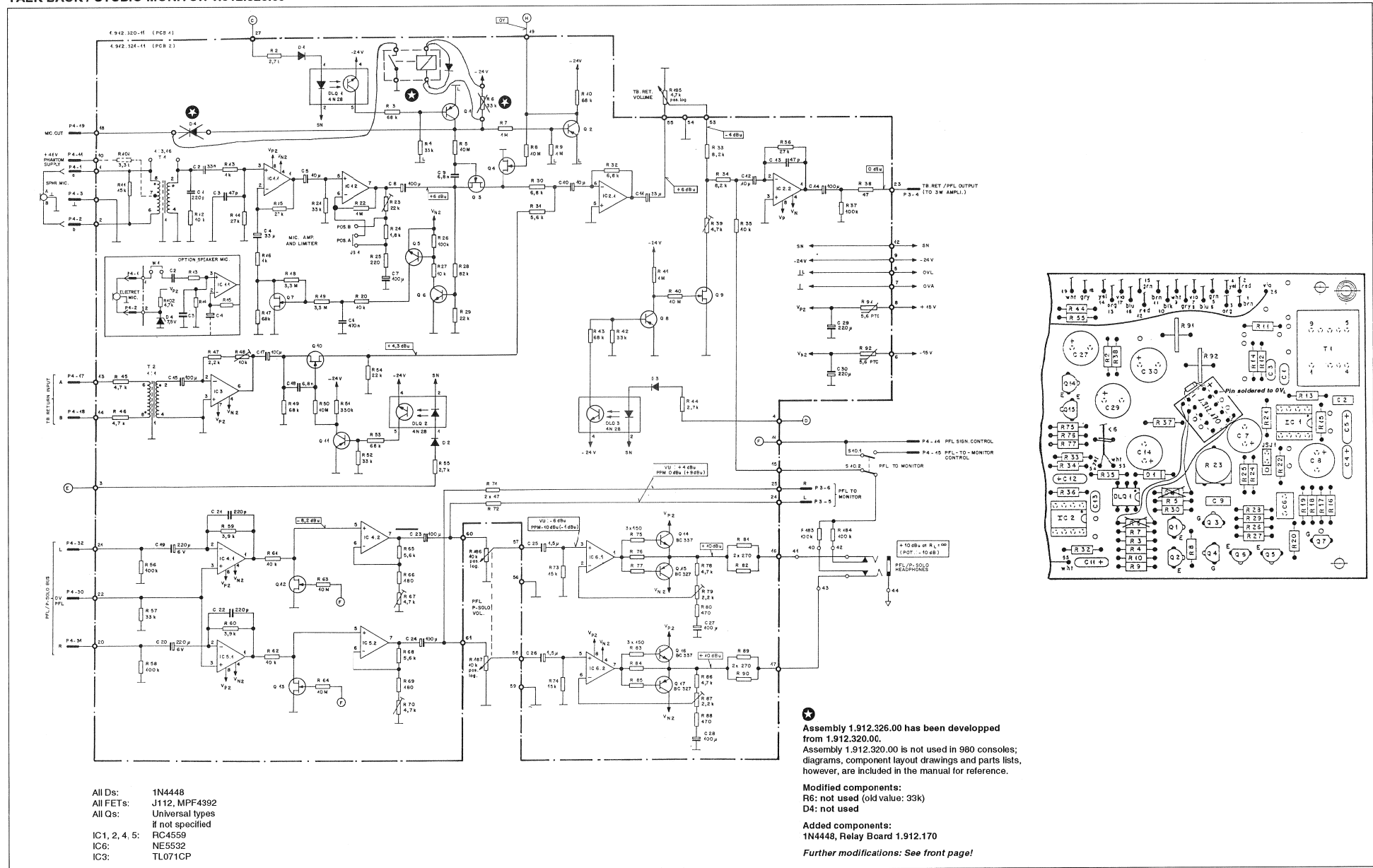
Assembly 1.912.326.00 has been developed from 1.912.320.00. Assembly 1.912.320.00 is not used in 980 consoles; diagrams, component layout drawings and parts lists, however, are included in the manual for reference.

**Modified components:**  
 R48: 1k5 (old value: 15k)  
 R124: 1k5 (old value: 36k)  
 R111: 6k8 (old value: 15k)  
 R132...R139: 8x6k8 (old value: 8x3k3)  
 R140: Trimmer pot 20k (old value: 12k fixed)

**Added components:**  
 3k3, 6k8, 7k5, BC560

Further modifications: See next page!

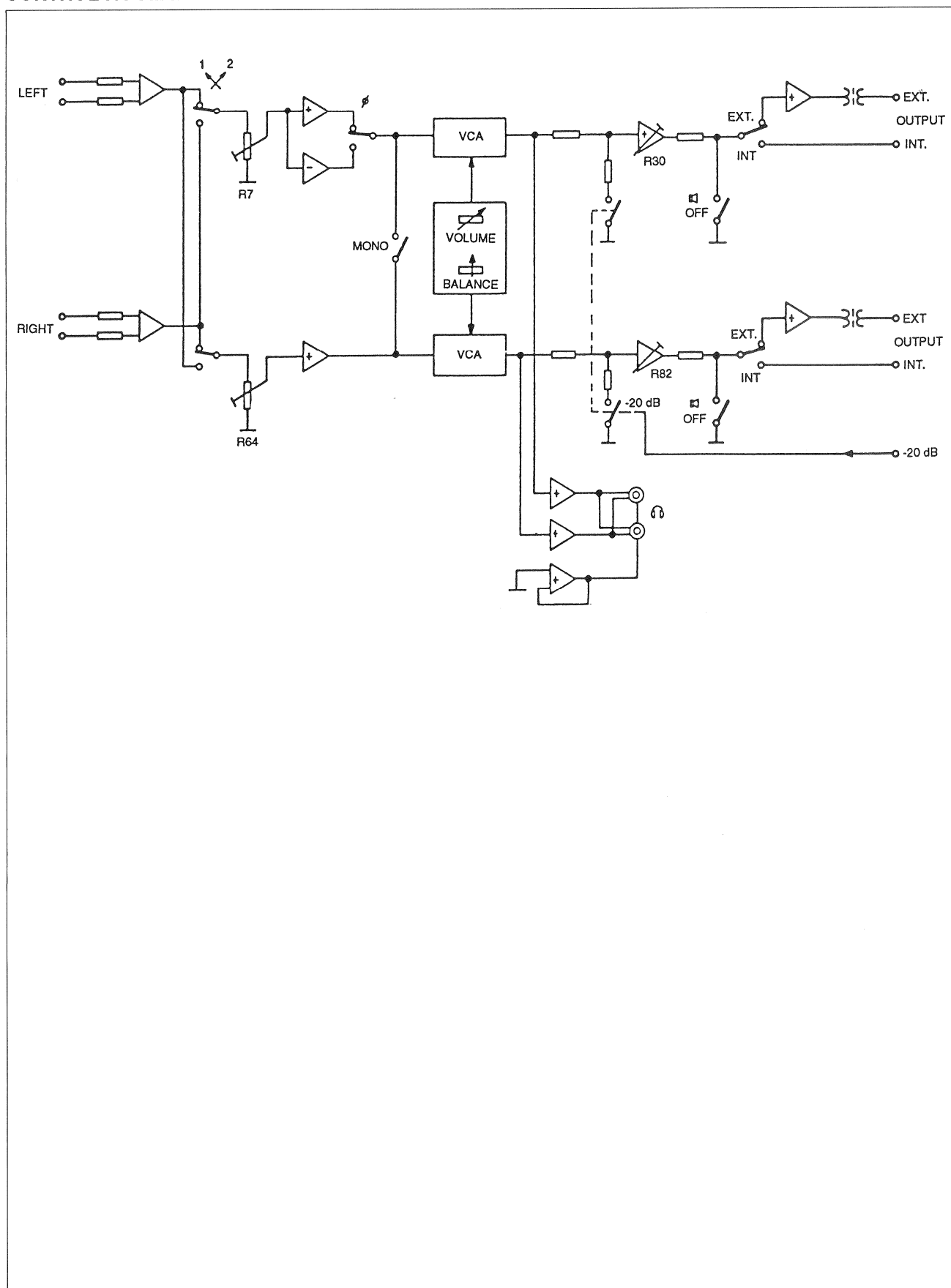
TALK BACK / STUDIO MONITOR 1.912.326.00



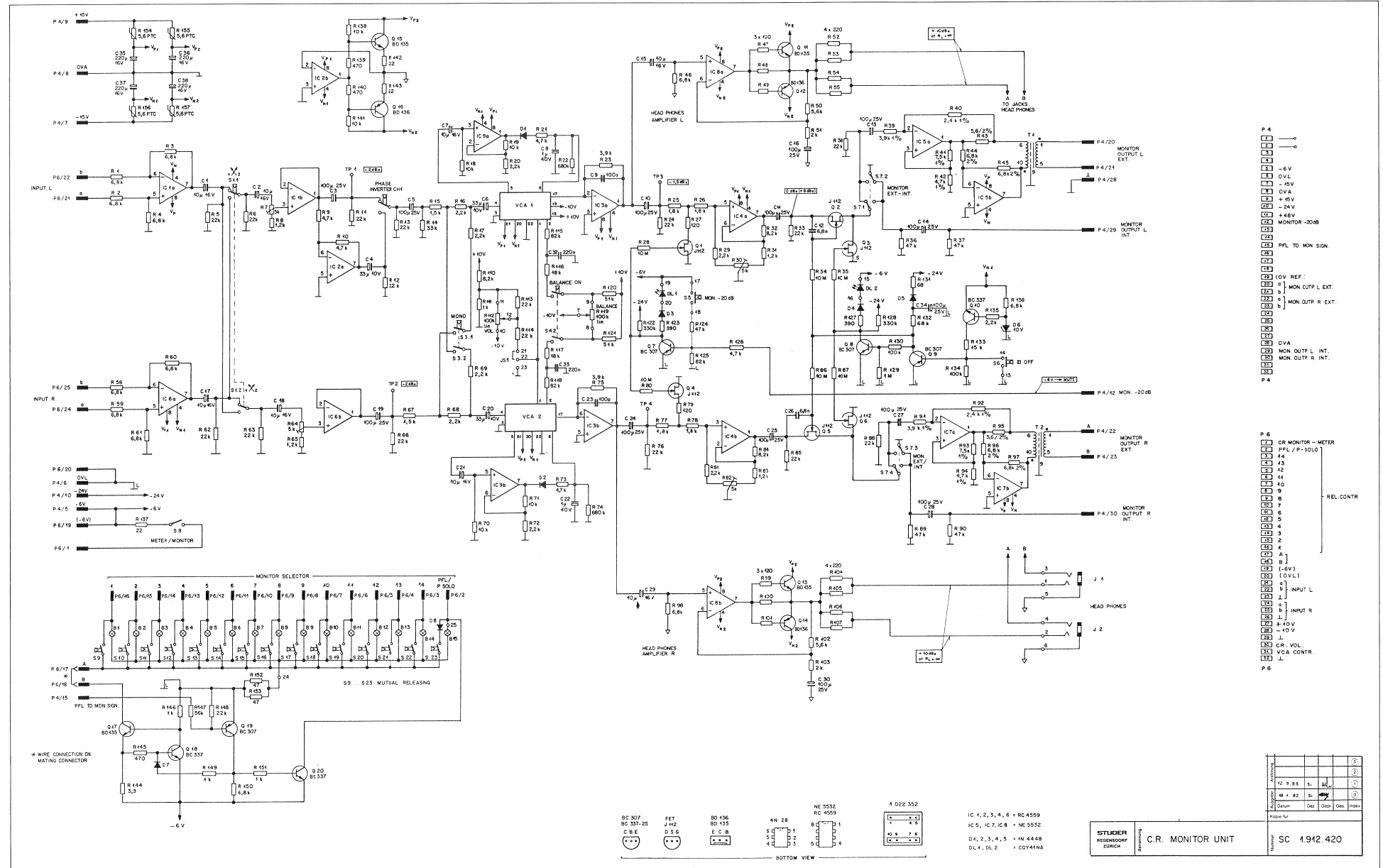
All Ds: 1N4448  
 All FETs: J112, MPF4392  
 All Qs: Universal types  
 if not specified  
 IC1, 2, 4, 5: RC4559  
 IC6: NE5532  
 ICs: TL071CP

★ Assembly 1.912.326.00 has been developed from 1.912.320.00. Assembly 1.912.320.00 is not used in 980 consoles; diagrams, component layout drawings and parts lists, however, are included in the manual for reference.  
 Modified components:  
 R6: not used (old value: 33k)  
 D4: not used  
 Added components:  
 1N4448, Relay Board 1.912.170  
 Further modifications: See front page!

BLOCK DIAGRAM  
CONTROL ROOM MONITOR UNIT 1.912.420



CONTROL ROOM MONITOR UNIT 1.912.420.00







CONTROL ROOM MONITOR UNIT 1.912.420.00

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	31-845	54.02.0144	6V 30mA	Lamp T1½	
	C 1	59.26.2100	10µF	SAL 16V	
	C 2	59.26.2100	10µF	SAL 16V	
	C 3	59.22.5101	100µF	EL 25V	
	C 4	59.26.1330	33µF	SAL 10V	
	C 5	59.22.5101	100µF	EL 25V	
	C 6	59.26.1330	33µF	SAL 10V	
	C 7	59.26.2100	10µF	SAL 16V	
	C 8	59.26.9109	1µF	SAL 40V	
	C 9	59.34.4101	100pF	CER 5%	
	C 10	59.22.5101	100µF	EL 25V	
	C 11	59.22.5101	100µF	EL 25V	
	C 12	59.06.0682	6,8nF	PE 10%	
	C 13	59.22.5101	100µF	EL 25V	
	C 14	59.22.5101	100µF	EL 25V	
	C 15	59.26.2100	10µF	SAL 16V	
	C 16	59.22.5101	100µF	EL 25V	
	C 17	59.26.2100	10µF	SAL 16V	
	C 18	59.26.2100	10µF	SAL 16V	
	C 19	59.22.5101	100µF	EL 25V	
	C 20	59.26.1330	33µF	SAL 10V	
	C 21	59.26.2100	10µF	SAL 16V	
	C 22	59.26.9109	1µF	SAL 40V	
	C 23	59.34.4101	100pF	CER 5%	
	C 24	59.22.5101	100µF	EL 25V	
	C 25	59.22.5101	100µF	EL 25V	
	C 26	59.06.0682	6,8nF	PE 10%	
	C 27	59.22.5101	100µF	EL 25V	
	C 28	59.22.5101	100µF	EL 25V	
	C 29	59.26.2100	10µF	SAL 16V	

IND	DATE	NAME	
④		EL	ELECTROLYTIC
③		PE	POLYESTER
②		CER	CERAMIC
①		SAL	SOLID ALUMINIUM LACQUERED
○	04-01-82	<i>MH</i>	

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 1 OF 9

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	IC5	50.09.0105	NE5532N	XR 5532N	Si, Ex
	IC6	50.09.0107	RC4559		Ra, TI
	IC7	50.09.0105	NE5532N	XR 5532N	Si, Ex
	IC8	50.09.0105	NE5532N	XR 5532N	Si, Ex
	IC9	50.09.0107	RC4559		Ra, TI
	J1	54.24.0103		Jack	
	J2	54.24.0103		Jack	
	J5J42	1.169.20085		Jumper jack	
	P4	54.01.0359		Edge Connector 32p.	
	P6	54.01.0359		Edge Connector 32p.	
	Q1	50.03.0350	J-N-FET		
	Q2	50.03.0350	J-N-FET		
	Q3	50.03.0350	J-N-FET		
	Q4	50.03.0350	J-N-FET	JM2F or MPF4392	Si, N, M
	Q5	50.03.0350	J-N-FET		
	Q6	50.03.0350	J-N-FET		
	Q7	50.03.0515	P-N-P	*	any
	Q8	50.03.0515	P-N-P	*	any
	Q9	50.03.0515	P-N-P	*	any
	Q10	50.03.0340	N-P-N	*	any
	Q11	50.03.0495	N-P-N	BD135-16 or equivalent	Si, M, RCA
	Q12	50.03.0510	P-N-P	BD136-16 or equivalent	Si, M, RCA
	Q13	50.03.0495	N-P-N	BD135-16 or equivalent	Si, M, RCA
	Q14	50.03.0510	P-N-P	BD136-16 or equivalent	Si, M, RCA
	Q15	50.03.0495	N-P-N	BD135-16 or equivalent	Si, M, RCA
	Q16	50.03.0510	P-N-P	BD136-16 or equivalent	Si, M, RCA
	Q17	50.03.0495	N-P-N	BD135-16 or equivalent	Si, M, RCA

IND	DATE	NAME	
④		Ex	Exar M Motorola
③		Si	Signetics Sx Siliconix
②		Ra	Raytheon N National Semiconductors
①		TI	Texas Instruments * universal type β>100 U <sub>CEO</sub> >40V
○	04-01-82	<i>MH</i>	

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 3 OF 9

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	C 30	59.22.5101	100µF	EL 25V	
	C 32	59.06.0224	220nF	PE 10%	
	C 33	59.06.0224	220nF	PE 10%	
	C 34	59.22.5101	100µF	EL 25V	
	C 35	59.22.4221	220µF	EL 16V	
	C 36	59.22.4221	220µF	EL 16V	
	C 37	59.22.4221	220µF	EL 16V	
	C 38	59.22.4221	220µF	EL 16V	
	D 1	50.04.0125	1N4448	or equivalent	
	D 2	50.04.0125	1N4448	or equivalent	
	D 3	50.04.0125	1N4448	or equivalent	
	D 4	50.04.0125	1N4448	or equivalent	
	D 5	50.04.0125	1N4448	or equivalent	
	D 6	50.04.1114	10V 10%	Zener Diode	
	D 7	50.04.0125	1N4448	or equivalent	
	D 8	50.04.0125	1N4448	or equivalent	
	DL1	50.04.2121	CQY41NA	LED red	T
	DL2	50.04.2121	CQY41NA	LED red	T
	IC 1	50.09.0107	RC4559		Ra, TI
	IC 2	50.09.0107	RC4559		Ra, TI
	IC 3	50.09.0107	RC4559		Ra, TI
	IC 4	50.09.0107	RC4559		Ra, TI

IND	DATE	NAME	
④		Ra	Raytheon
③		TI	Texas Instruments
②		T	Telefunken
①			
○	04-01-82	<i>MH</i>	

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 2 OF 9

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	Q 18	50.03.0340	N-P-N	*	
	Q 19	50.03.0515	P-N-P	*	
	Q 20	50.03.0340	N-P-N	I <sub>c</sub> : 800mA, BC337-25 or equiv.	any
	R 1	57.11.4682	6,8k	2%	
	R 2	57.11.4682	6,8k	2%	
	R 3	57.11.4682	6,8k	2%	
	R 4	57.11.4682	6,8k	2%	
	R 5	57.11.4223	22k		
	R 6	57.11.4223	22k		
	R 7	58.01.8502	5k	10% Trim-Pot	
	R 8	57.11.4122	12k		
	R 9	57.11.4372	47k	1%	
	R 10	57.11.4372	47k	1%	
	R 11	57.11.4223	22k		
	R 12	57.11.4223	22k		
	R 13	57.11.4223	22k		
	R 14	57.11.4333	33k		
	R 15	57.11.4152	4,5k	2%	
	R 16	57.11.4222	2,2k	2%	
	R 17	57.11.4222	2,2k	2%	
	R 18	57.11.4103	40k		
	R 19	57.11.4103	40k		
	R 20	57.11.4222	2,2k		
	R 21	57.11.4472	47k		
	R 22	57.11.4684	680k		
	R 23	57.11.4392	3,9k	2%	
	R 24	57.11.4223	22k		
	R 25	57.11.4182	1,8k	2%	

IND	DATE	NAME	
④			
③			
②			
①			
○	04-01-82	<i>MH</i>	

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 4 OF 9





CONTROL ROOM MONITOR UNIT 1.912.420.00

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R26	57.11.4182	4,8 k	2%	
	R27	57.11.4121	120		
	R28	57.11.6106	40 M		
	R29	57.11.4222	2,2k	5%	
	R30	58.01.8502	5 k	10% Trim-Potm.	
	R31	57.11.4122	4,2k	5%	
	R32	57.11.4822	8,2k	5%	
	R33	57.11.4223	2,2k		
	R34	57.11.6106	40M		
	R35	57.11.6106	40M		
	R36	57.11.4473	47 k		
	R37	57.11.4473	47k		
	R38	57.11.4223	2,2k		
	R39	57.11.3392	3,9 k	1%	
	R40	57.11.3242	2,4k	1%	
	R41	57.11.3752	7,5k	1%	
	R42	57.11.3472	4,7k	1%	
	R43	57.11.4569	5,6	2%	
	R44	57.11.4682	6,8k	2%	
	R45	57.11.4682	6,8k	2%	
	R46	57.11.4682	6,8k		
	R47	57.11.4121	120		
	R48	57.11.4121	120		
	R49	57.11.4121	120		
	R50	57.11.4562	5,6k	2%	
	R51	57.11.3202	2,0k	1%	
	R52	57.11.4221	220		
	R53	57.11.4221	220		
	R54	57.11.4221	220		
	R55	57.11.4221	220		

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R86	57.11.6106	40 M		
	R87	57.11.6106	40 M		
	R88	57.11.4223	2,2 k		
	R89	57.11.4473	47 k		
	R90	57.11.4473	47 k		
	R91	57.11.3392	3,9k	1%	
	R92	57.11.3242	2,4k	1%	
	R93	57.11.3752	7,5k	1%	
	R94	57.11.3472	4,7k	1%	
	R95	57.11.4569	5,6	2%	
	R96	57.11.4682	6,8k	2%	
	R97	57.11.4682	6,8k	2%	
	R98	57.11.4682	6,8k		
	R99	57.11.4121	120		
	R100	57.11.4121	120		
	R101	57.11.4121	120		
	R102	57.11.4562	5,6 k	2%	
	R103	57.11.3202	2,0k	1%	
	R104	57.11.4221	220		
	R105	57.11.4221	220		
	R106	57.11.4221	220		
	R107	57.11.4221	220		
	R110	57.11.4822	8,2k	2%	
	R111	57.11.4102	1 k	2%	
	R112	1.912.001.23	400k	Potm. Lin. (Volume)	
	R113	57.11.4223	2,2 k		
	R114	57.11.4223	2,2k		
	R115	57.11.4823	8,2k	5%	

IND	DATE	NAME
④		
③		
②		
①		
○	04-01-82	My

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 5 OF 9

IND	DATE	NAME
④		
③		
②		
①		
○	04-01-82	My

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 7 OF 9

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R58	57.11.4682	6,8k	2%	
	R59	57.11.4682	6,8k	2%	
	R60	57.11.4682	6,8k	2%	
	R61	57.11.4682	6,8k	2%	
	R62	57.11.4223	2,2k		
	R63	57.11.4223	2,2k		
	R64	58.01.8502	5k	10% Trim-Potm.	
	R65	57.11.4122	4,2k		
	R66	57.11.4223	2,2k		
	R67	57.11.4452	4,5k	2%	
	R68	57.11.4222	2,2k	2%	
	R69	57.11.4222	2,2k	2%	
	R70	57.11.4103	40 k		
	R71	57.11.4103	40 k		
	R72	57.11.4222	2,2k		
	R73	57.11.4472	4,7k		
	R74	57.11.4684	680k		
	R75	57.11.4392	3,9k	2%	
	R76	57.11.4223	2,2k		
	R77	57.11.4152	4,5k		
	R78	57.11.4182	4,8k	2%	
	R79	57.11.4121	120		
	R80	57.11.6106	40 M		
	R81	57.11.4222	2,2k	5%	
	R82	58.01.8502	5k	10% Trim-Potm.	
	R83	57.11.4122	4,2k	5%	
	R84	57.11.4822	8,2k	5%	
	R85	57.11.4223	2,2k		

IND	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R116	57.11.4183	4,8 k	5%	
	R117	57.11.4183	4,8 k	5%	
	R118	57.11.4823	8,2k	5%	
	R119	1.912.001.23	400k	Potm. Lin. (Balance)	
	R120	57.11.3513	51k	1%	
	R121	57.11.3513	51k	1%	
	R122	57.11.4334	330k		
	R123	57.11.4391	390		
	R124	57.11.4473	47k		
	R125	57.11.4823	8,2k		
	R126	57.11.4472	4,7k		
	R127	57.11.4391	390		
	R128	57.11.4334	330k		
	R129	57.11.4105	41 M		
	R130	57.11.4104	400 k		
	R131	57.11.4680	68		
	R132	57.11.4683	68 k		
	R133	57.11.4153	45k		
	R134	57.11.4104	400k		
	R135	57.11.4222	2,2k		
	R136	57.11.4682	6,8k		
	R137	57.11.4220	22		
	R138	57.11.4103	40 k		
	R139	57.11.4471	470		
	R140	57.11.4471	470		
	R141	57.11.4103	40 k		
	R142	57.11.4220	22		
	R143	57.11.4220	22		
	R144	57.11.4339	3,3		
	R145	57.11.4471	470		

IND	DATE	NAME
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②		
①		
○	04-01-82	My

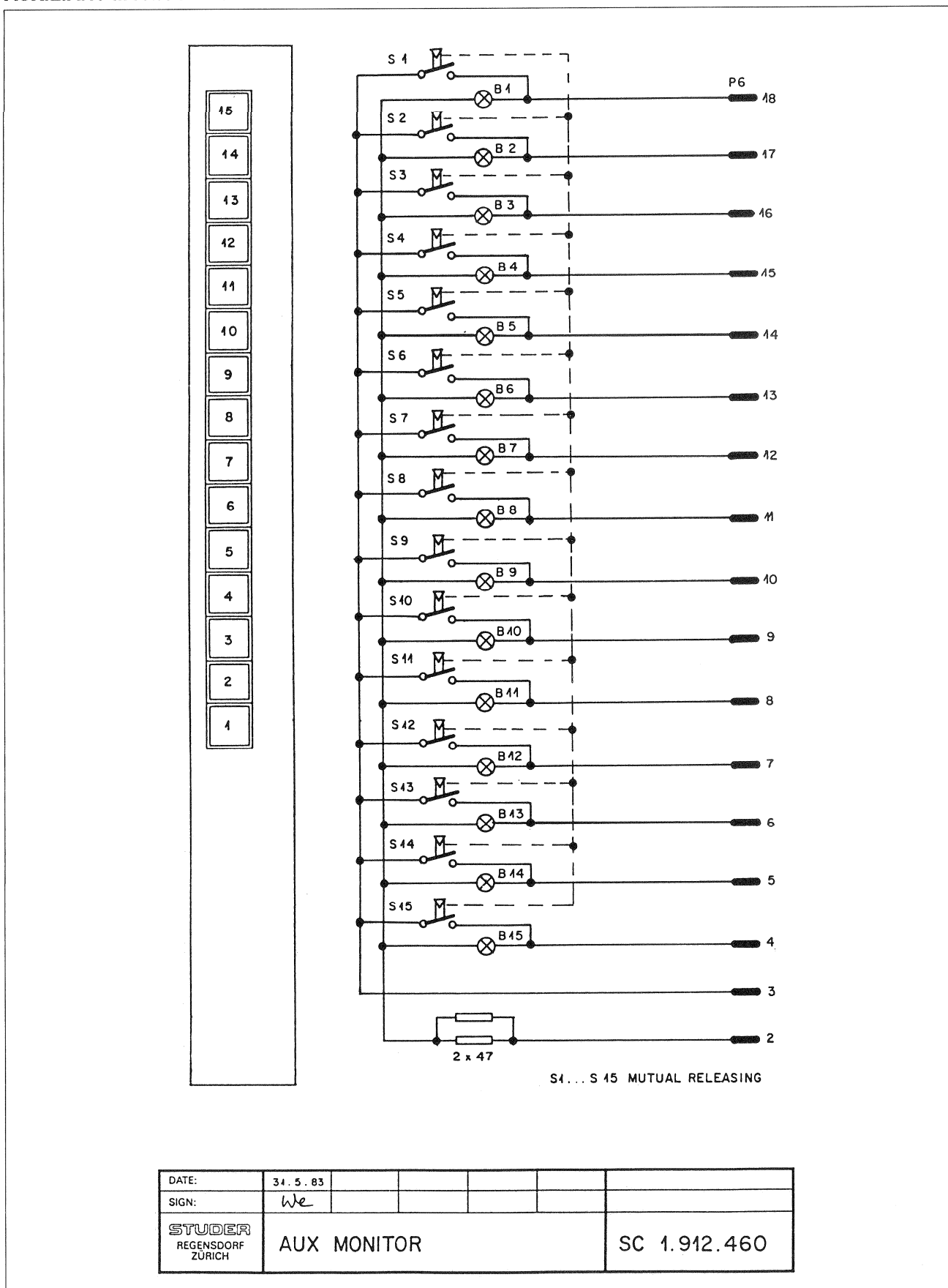
STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 6 OF 9

IND	DATE	NAME
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○	04-01-82	My

STUDER C.R. MONITOR UNIT 2CH PL 1.912.420 PAGE 8 OF 9

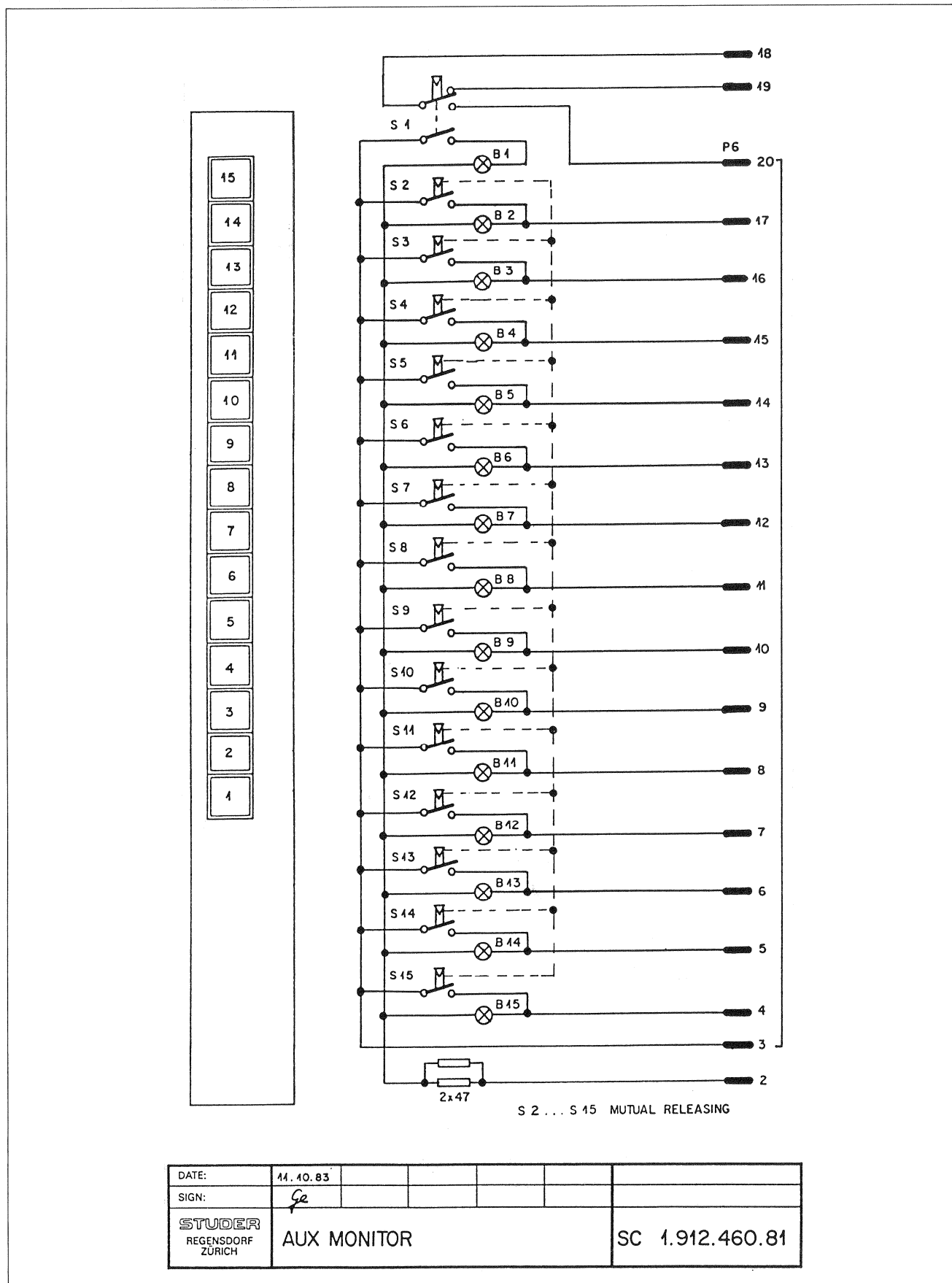


AUXILIARY MONITOR SELECTOR 1.912.460.00



DATE:	31.5.83					
SIGN:	<i>We</i>					
STUDER REGENSDORF ZÜRICH	AUX MONITOR				SC 1.912.460	

AUXILIARY MONITOR SELECTOR 1.912.460.81



## Schemata / Circuit Diagrams

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### Signalling/Indication

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Circuit diagrams, component layouts, and parts lists:

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* Autostart Interface Stop Watch .....	1.910.302.00
* Correlator (30 LED) 4 Ch .....	1.913.100.00
* 1 Ch PPM (30 LED) .....	1.913.101.00
* 1 Ch VU (30 LED) .....	1.913.102.00
* 1 Ch PPM (30 LED) w. GRM .....	1.913.103.00
* 1 Ch VU (30 LED) w. GRM .....	1.913.104.00
* 2 Ch PPM (30 LED) .....	1.913.105.00
* 2 Ch VU (30 LED) .....	1.913.106.00
* 2 Ch PPM (30 LED) w. GRM .....	1.913.107.00
* 2 Ch VU (30 LED) w. GRM .....	1.913.108.00
* Correlator (30 LED) 2 Ch .....	1.913.109.00
* Dual Bar Graph PPM w. GRM .....	1.913.111.81
* Dual Bar Graph VU-Meter w. GRM .....	1.913.112.81
Signalling/Indication Unit .....	1.913.142.00
- Switch Board .....	1.913.140.22
Audio Generator .....	1.913.150.81
* Compressor/Limiter/Noise Gate .....	1.913.155.00
* Low-/Highpass Filter 24 dB/Oct.....	1.913.157.00
PFL Loudspeaker .....	1.913.200.00
* Correlator 2 Ch .....	1.913.210.00
* Correlator 4 Ch .....	1.913.211.00
* Peak Progr. Meter .....	1.913.220.00
* Peak Progr. Meter w. GRM .....	1.913.221.00
* VU-Meter.....	1.913.230.00

\* This information is supplied according to the customer's requirements

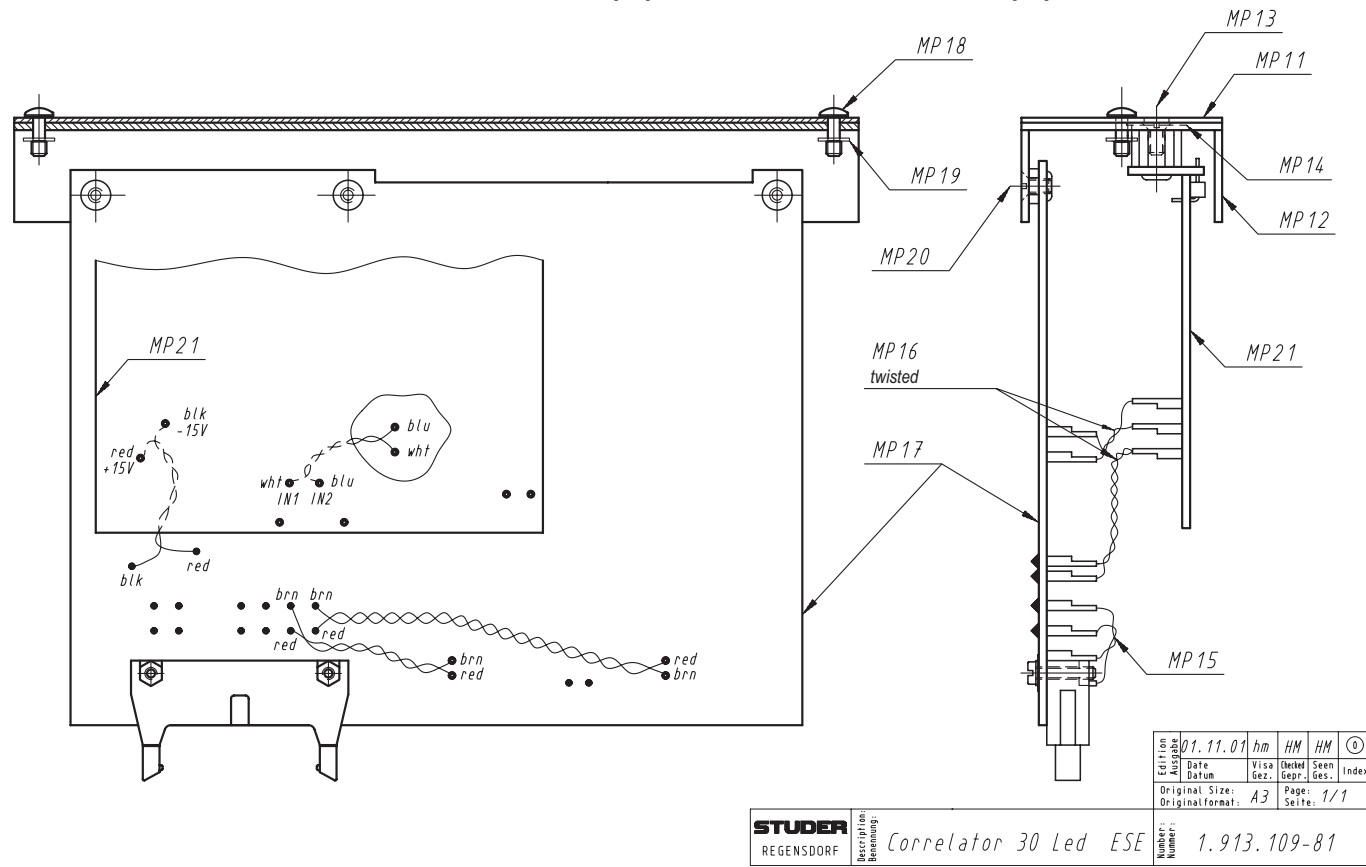
\* Diese Informationen werden kundenspezifisch bestückt

* VU-Meter w. GRM .....	1.913.231.00
* Stop Watch .....	1.913.310.81
* 4 Ch PPM (30 LED) .....	1.913.321.00
* 4 Ch VU-Meter (30 LED) .....	1.913.322.00
* 4 Ch PPM (30 LED) w. GRM .....	1.913.323.00
* 4 Ch VU-Meter (30 LED) w. GRM .....	1.913.324.00
* 8 Ch Bar Graph PPM w. GRM .....	1.913.411.81
* 8 Ch Bar Graph VU-Meter w. GRM .....	1.913.412.81
* Tape Remote Control .....	1.913.503.00
* Dynamics Unit Lim/Comp/Noise Gate .....	1.990.510.00
* 4 Ch VFD Bar Graph Mono + Bus .....	1.990.620.00
* 4 Ch VFD Bar Graph Stereo + Bus .....	1.990.621.00

\* This information is supplied according to the customer's requirements

\* Diese Informationen werden kundenspezifisch bestückt

Correlator 30 LED, 2-CH 1.913.109.81 (0) / 4-CH 1.913.100.81 (0)



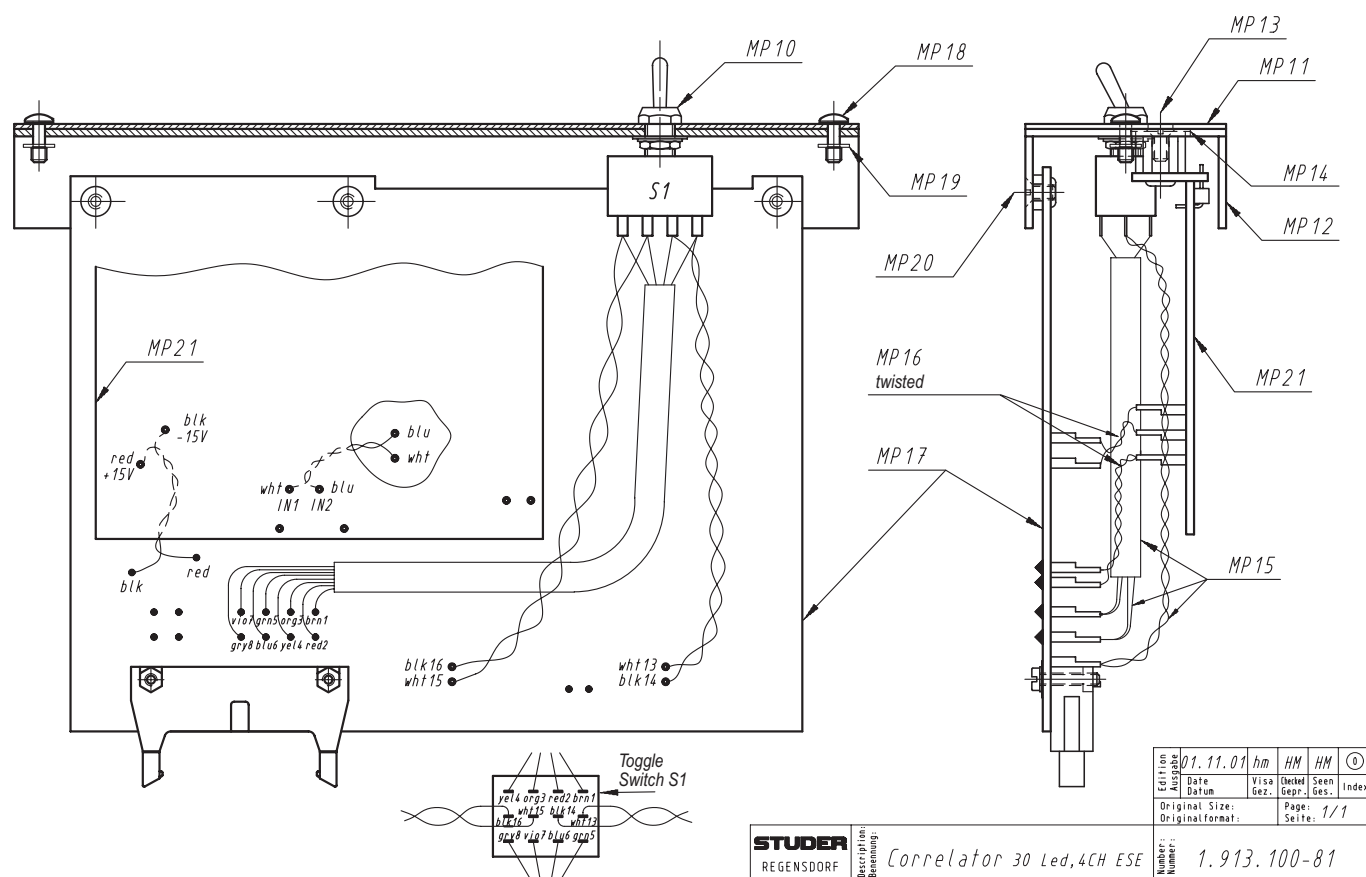
Correlator 30 LED, 2-CH 1.913.109.81 (0)

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 9	1.913.109.04	1 pce	STUDER-NR.-ETIKETTE 10 * 20
0	MP 11	1.913.010.41	1 pce	FRONTSCHILD 1E 30LED CORR.2CH
0	MP 12	1.913.010.40	1 pce	TRAEGER 1E 30LED CORRELATOR
0	MP 13	21.99.0175	2 pcs M3*6	S-Schraube IS A2 sw oxydiert
0	MP 14	1.913.136.03	1 pce	FENSTER BUS SELECTOR +VU
0	MP 15	1.913.212.93	1 pce	LL KORRELATOR 2CH
0	MP 16	1.913.109.93	1 pce	LL CORRELATOR 30 LED
0	MP 17	1.913.212.00	1 pce	CORRELATOR BOARD ,A
0	MP 18	24.16.3023	2 pcs 2.3	Wellensicherung
0	MP 19	1.010.022.21	2 pcs M3*8	L-Schraube IS sw spezial
0	MP 20	21.01.2353	3 pcs M3*5	S - Schraube Zn bl chr
0	MP 21	1.913.095.00	1 pce	CORRELATOR 30LED 2CH ,A

Comments:

End of List

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 9	1.913.109.04	1 pce	STUDER-NR.-ETIKETTE 10 * 20
0	MP 11	1.913.010.41	1 pce	FRONTSCHILD 1E 30LED CORR.2CH
0	MP 12	1.913.010.40	1 pce	TRAEGER 1E 30LED CORRELATOR
0	MP 13	21.99.0175	2 pcs M3*6	S-Schraube IS A2 sw oxydiert
0	MP 14	1.913.136.03	1 pce	FENSTER BUS SELECTOR +VU
0	MP 15	1.913.212.93	1 pce	LL KORRELATOR 2CH
0	MP 16	1.913.109.93	1 pce	LL CORRELATOR 30 LED
0	MP 17	1.913.212.00	1 pce	CORRELATOR BOARD ,A
0	MP 18	24.16.3023	2 pcs 2.3	Wellensicherung
0	MP 19	1.010.022.21	2 pcs M3*8	L-Schraube IS sw spezial
0	MP 20	21.01.2353	3 pcs M3*5	S - Schraube Zn bl chr
0	MP 21	1.913.095.00	1 pce	CORRELATOR 30LED 2CH ,A



Correlator 30 LED, 4-CH 1.913.100.81 (0)

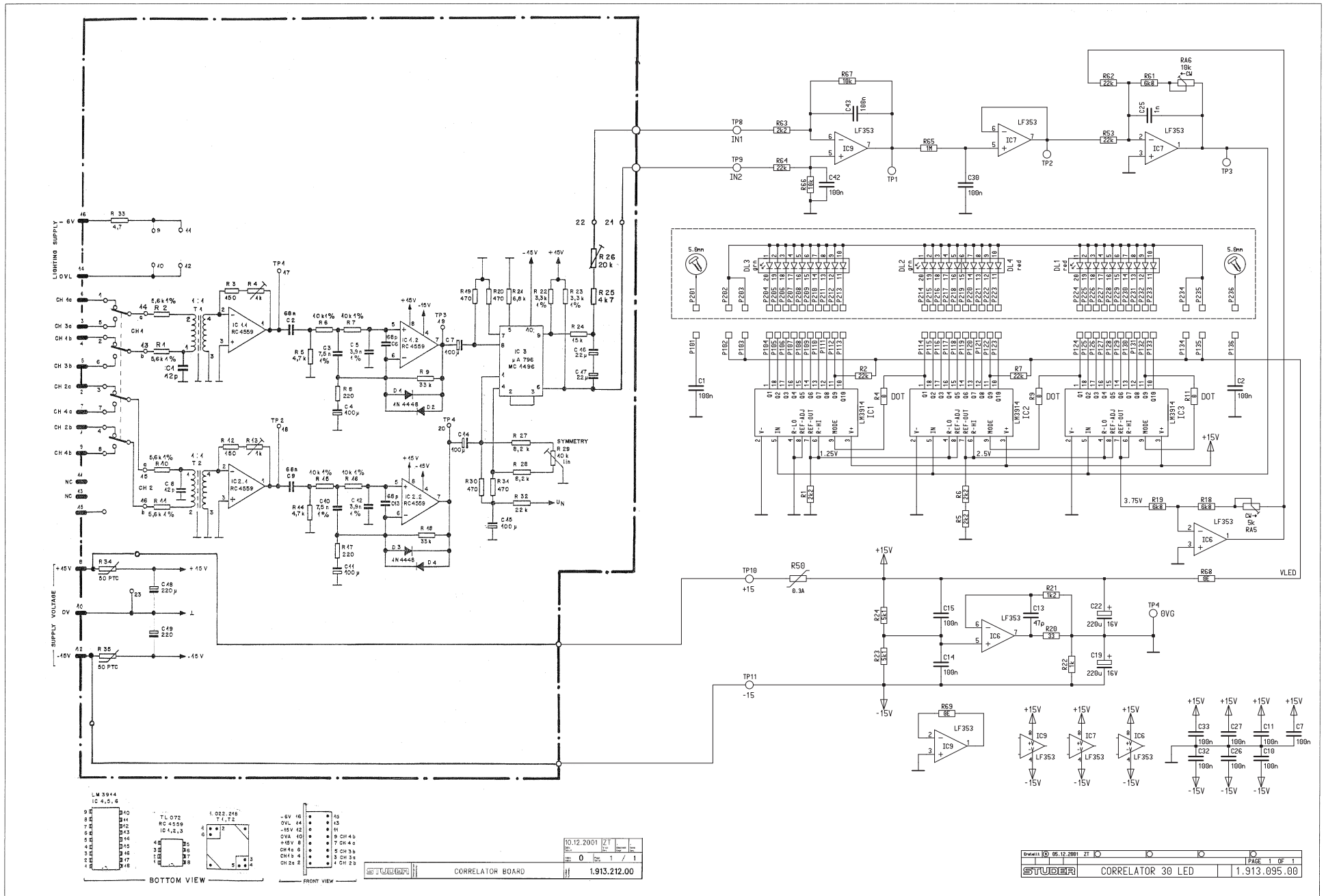
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 9	1.913.100.04	1 pce	STUDER-NR.-ETIKETTE 10 * 20
0	MP 10	1.010.031.22	1 pce 1/4*40NS	Abdeck-Mutter Ms Ni
0	MP 11	1.913.010.42	1 pce	FRONTSCHILD 1E 30LED CORR.4CH
0	MP 12	1.913.010.40	1 pce	TRAEGER 1E 30LED CORRELATOR
0	MP 13	21.99.0175	2 pcs M3*6	S-Schraube IS A2 sw oxydiert
0	MP 14	1.913.136.03	1 pce	FENSTER BUS SELECTOR +VU
0	MP 15	1.913.211.93	1 pce	LL KORRELATOR 4CH
0	MP 16	1.913.109.93	1 pce	LL CORRELATOR 30 LED
0	MP 17	1.913.212.00	1 pce	CORRELATOR BOARD ,A
0	MP 18	24.16.3023	2 pcs 2.3	Wellensicherung
0	MP 19	1.010.022.21	2 pcs M3*8	L-Schraube IS sw spezial
0	MP 20	21.01.2353	3 pcs M3*5	S - Schraube Zn bl chr
0	MP 21	1.913.095.00	1 pce	CORRELATOR 30LED 2CH ,A
0	S 1	55.01.0115	1 pce 4*on-none-on	Kippschalter Ag

Comments:

End of List

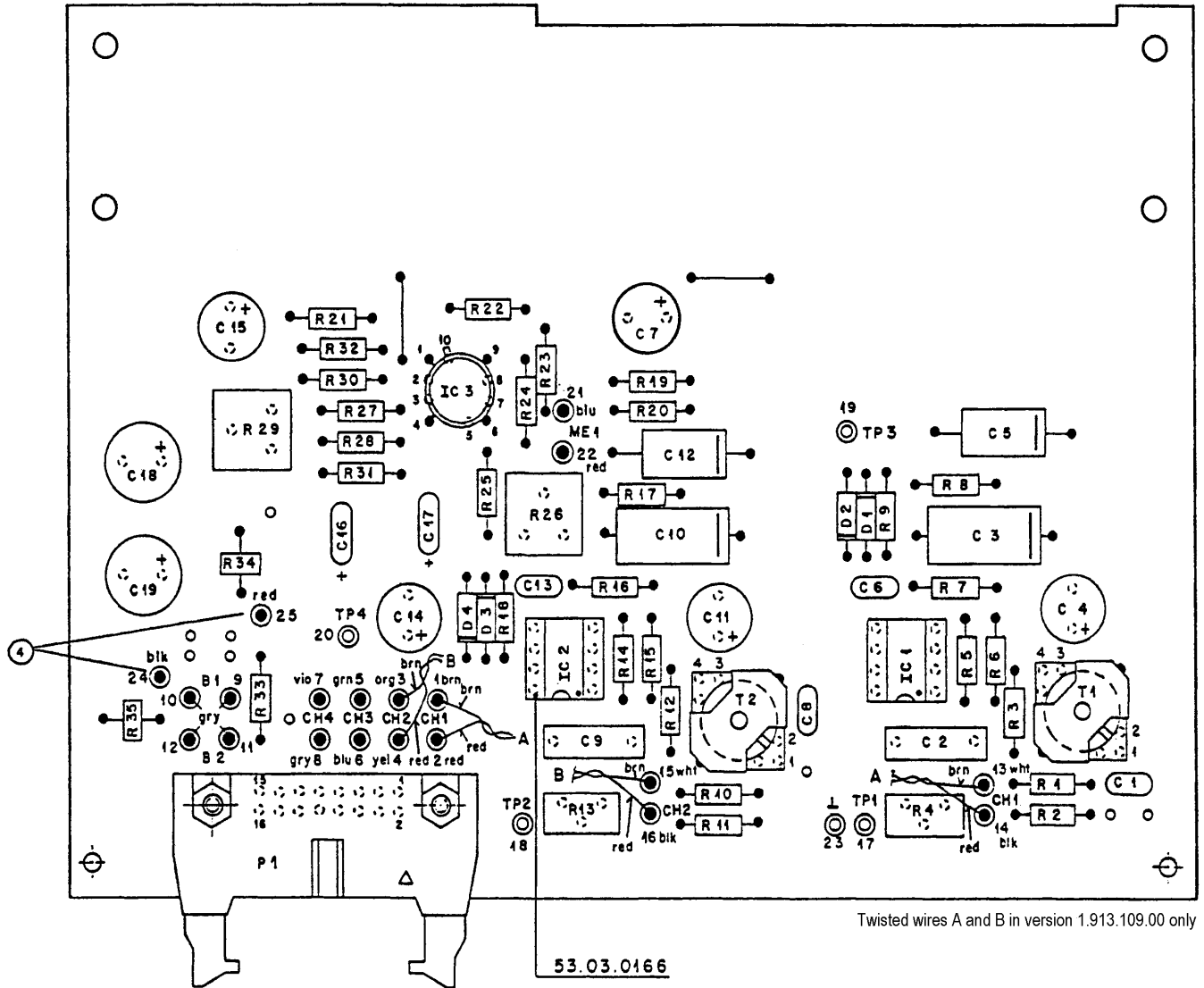
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 9	1.913.100.04	1 pce	STUDER-NR.-ETIKETTE 10 * 20
0	MP 10	1.010.031.22	1 pce 1/4*40NS	Abdeck-Mutter Ms Ni
0	MP 11	1.913.010.42	1 pce	FRONTSCHILD 1E 30LED CORR.4CH
0	MP 12	1.913.010.40	1 pce	TRAEGER 1E 30LED CORRELATOR
0	MP 13	21.99.0175	2 pcs M3*6	S-Schraube IS A2 sw oxydiert
0	MP 14	1.913.136.03	1 pce	FENSTER BUS SELECTOR +VU
0	MP 15	1.913.211.93	1 pce	LL KORRELATOR 4CH
0	MP 16	1.913.109.93	1 pce	LL CORRELATOR 30 LED
0	MP 17	1.913.212.00	1 pce	CORRELATOR BOARD ,A
0	MP 18	24.16.3023	2 pcs 2.3	Wellensicherung
0	MP 19	1.010.022.21	2 pcs M3*8	L-Schraube IS sw spezial
0	MP 20	21.01.2353	3 pcs M3*5	S - Schraube Zn bl chr
0	MP 21	1.913.095.00	1 pce	CORRELATOR 30LED 2CH ,A
0	S 1	55.01.0115	1 pce 4*on-none-on	Kippschalter Ag

Correlator 4CH 30 LED 1.913.100  
Correlator 2CH 30 LED 1.913.109



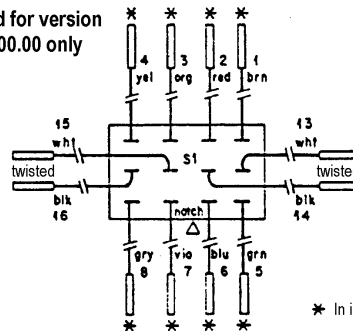


Correlator PCB 1.913.212.00 (4)



Twisted wires A and B in version 1.913.109.00 only

S1 used for version 1.913.100.00 only



\* In insulating tube 65.03.0146

30.11.88	A.H.	17	17	17	17
12.11.86	A.Ho	17	17	17	17
10.12.84	A.Ho	17	17	17	17
4.1.84	A.Ho	17	17	17	17
9.2.83	A.Ho	17	17	17	17
Datum	Gez.	Gez.	Gez.	Gez.	Indst.

STUDER REGENSDORF ZÜRICH	MEMORANDUM <b>CORRELATOR BOARD</b>	Nummer: <b>1.913.212</b>
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**Correlator PCB 1.913.212.00 ( 0)**

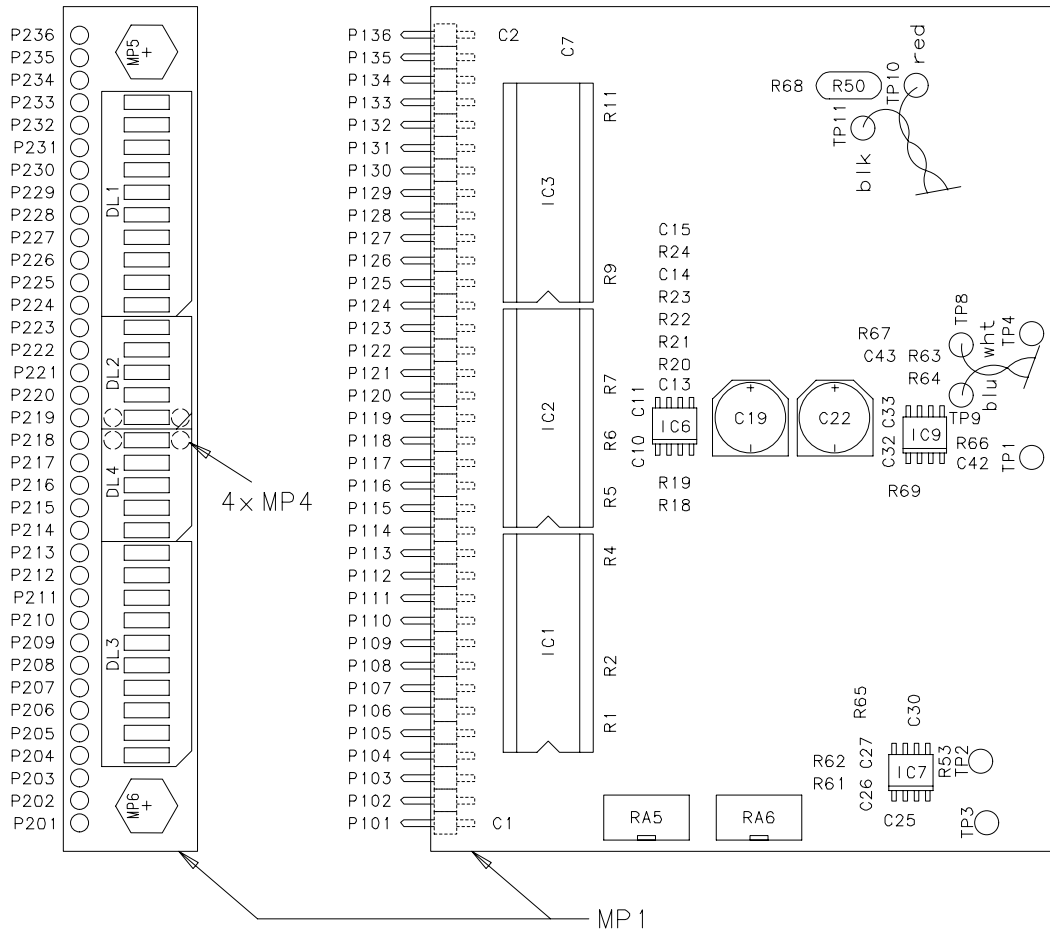
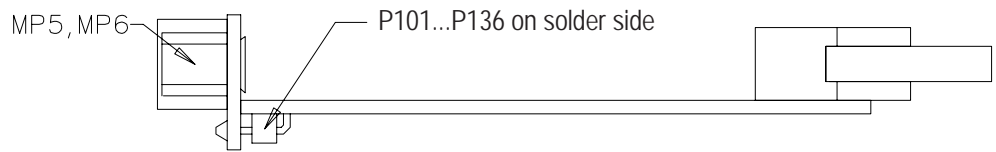
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.34.1120	12p	CER 63V, 5%, NP 0
0	C 2	59.02.5683	68n	MPC, 5%, 250V
0	C 3	59.12.7752	7n5	PS 63V 1%
0	C 4	59.22.5101	100u	EL 25V 20% RM5
0	C 5	59.12.7392	3n9	PS 63V 1%
0	C 6	59.34.4680	68p	CER 63V, 5%, N750
0	C 7	59.22.5101	100u	EL 25V 20% RM5
0	C 8	59.34.1120	12p	CER 63V, 5%, NP 0
0	C 9	59.02.5683	68n	MPC, 5%, 250V
0	C 10	59.12.7752	7n5	PS 63V 1%
0	C 11	59.22.5101	100u	EL 25V 20% RM5
0	C 12	59.12.7392	3n9	PS 63V 1%
0	C 13	59.34.4680	68p	CER 63V, 5%, N750
0	C 14	59.22.5101	100u	EL 25V 20% RM5
0	C 15	59.22.5101	100u	EL 25V 20% RM5
0	C 16	59.26.1220	22u	SAL 10V 20%
0	C 17	59.26.1220	22u	SAL 10V 20%
0	C 18	59.22.4221	220u	EL 16V 20% RM5
0	C 19	59.22.4221	220u	EL 16V 20% RM5
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	IC 1	50.09.0107	4559	Dual Op-Amp
0	IC 2	50.09.0107	4559	Dual Op-Amp
0	IC 3	50.05.0122	1496	Multiplier TO100
0	MP 1	1.913.210.11	1 pcs	CORRELATOR BOARD
0	MP 2	54.02.0471	25 pcs	Stift d 1.5 * 5.5 lot
0	P 1	54.14.2012	16p	Winkelstecker Au
0	R 1	57.11.3562	5k6	MF, 1%, 0207
0	R 2	57.11.3562	5k6	MF, 1%, 0207
0	R 3	57.11.3151	150R	MF, 1%, 0207
0	R 4	58.01.7102	1k0	Cermet, 10% 0.25W
0	R 5	57.11.3472	4k7	MF, 1%, 0207
0	R 6	57.11.3103	10k	MF, 1%, 0207
0	R 7	57.11.3103	10k	MF, 1%, 0207
0	R 8	57.11.3221	220R	MF, 1%, 0207
0	R 9	57.11.3333	33k	MF, 1%, 0207
0	R 10	57.11.3562	5k6	MF, 1%, 0207
0	R 11	57.11.3562	5k6	MF, 1%, 0207
0	R 12	57.11.3151	150R	MF, 1%, 0207
0	R 13	58.01.7102	1k0	Cermet, 10% 0.25W
0	R 14	57.11.3472	4k7	MF, 1%, 0207
0	R 15	57.11.3103	10k	MF, 1%, 0207
0	R 16	57.11.3103	10k	MF, 1%, 0207
0	R 17	57.11.3221	220R	MF, 1%, 0207
0	R 18	57.11.3333	33k	MF, 1%, 0207
0	R 19	57.11.3471	470R	MF, 1%, 0207
0	R 20	57.11.3471	470R	MF, 1%, 0207
0	R 21	57.11.3682	6k8	MF, 1%, 0207
0	R 22	57.11.3332	3k3	MF, 1%, 0207
0	R 23	57.11.3332	3k3	MF, 1%, 0207
0	R 24	57.11.3153	15k	MF, 1%, 0207
0	R 25	57.11.3472	4k7	MF, 1%, 0207
0	R 26	58.01.8203	20k	Cermet, 10%, 0.5W, horizontal
0	R 27	57.11.3822	8k2	MF, 1%, 0207
0	R 28	57.11.3822	8k2	MF, 1%, 0207
0	R 29	58.01.8103	10k	Cermet, 10%, 0.5W, horizontal
0	R 30	57.11.3471	470R	MF, 1%, 0207
0	R 31	57.11.3471	470R	MF, 1%, 0207
0	R 32	57.11.3223	22k	MF, 1%, 0207
0	R 33	57.11.3479	4R7	MF, 1%, 0207
0	R 34	57.99.0206	50R	PTC, 25V, 0.5W
0	R 35	57.99.0206	50R	PTC, 25V, 0.5W
0	T 1	1.022.218.00	1 : 1	EINGANGSTRAFO 1 : 1
0	T 2	1.022.218.00	1 : 1	EINGANGSTRAFO 1 : 1
0	W 1	1.010.324.64	RM10.2	U shaped wire 0.6mm
0	W 2	1.010.324.64	RM10.2	U shaped wire 0.6mm
0	XIC 1	53.03.0166	8p	DIL-socket 0.3"
0	XIC 2	53.03.0166	8p	DIL-socket 0.3"

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.34.1120	12p	CER 63V, 5%, NP 0
0	C 2	59.02.5683	68n	MPC, 5%, 250V
0	C 3	59.12.7752	7n5	PS 63V 1%
0	C 4	59.22.5101	100u	EL 25V 20% RM5
0	C 5	59.12.7392	3n9	PS 63V 1%
0	C 6	59.34.4680	68p	CER 63V, 5%, N750
0	C 7	59.22.5101	100u	EL 25V 20% RM5
0	C 8	59.34.1120	12p	CER 63V, 5%, NP 0
0	C 9	59.02.5683	68n	MPC, 5%, 250V
0	C 10	59.12.7752	7n5	PS 63V 1%
0	C 11	59.22.5101	100u	EL 25V 20% RM5
0	C 12	59.12.7392	3n9	PS 63V 1%
0	C 13	59.34.4680	68p	CER 63V, 5%, N750
0	C 14	59.22.5101	100u	EL 25V 20% RM5
0	C 15	59.22.5101	100u	EL 25V 20% RM5
0	C 16	59.26.1220	22u	SAL 10V 20%
0	C 17	59.26.1220	22u	SAL 10V 20%
0	C 18	59.22.4221	220u	EL 16V 20% RM5
0	C 19	59.22.4221	220u	EL 16V 20% RM5
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	IC 1	50.09.0107	4559	Dual Op-Amp
0	IC 2	50.09.0107	4559	Dual Op-Amp
0	IC 3	50.05.0122	1496	Multiplier TO100
0	MP 1	1.913.210.11	1 pcs	CORRELATOR BOARD
0	MP 2	54.02.0471	25 pcs	Stift d 1.5 * 5.5 lot
0	P 1	54.14.2012	16p	Winkelstecker Au
0	R 1	57.11.3562	5k6	MF, 1%, 0207
0	R 2	57.11.3562	5k6	MF, 1%, 0207
0	R 3	57.11.3151	150R	MF, 1%, 0207
0	R 4	58.01.7102	1k0	Cermet, 10% 0.25W
0	R 5	57.11.3472	4k7	MF, 1%, 0207
0	R 6	57.11.3103	10k	MF, 1%, 0207
0	R 7	57.11.3103	10k	MF, 1%, 0207
0	R 8	57.11.3221	220R	MF, 1%, 0207
0	R 9	57.11.3333	33k	MF, 1%, 0207
0	R 10	57.11.3562	5k6	MF, 1%, 0207
0	R 11	57.11.3562	5k6	MF, 1%, 0207
0	R 12	57.11.3151	150R	MF, 1%, 0207
0	R 13	58.01.7102	1k0	Cermet, 10% 0.25W
0	R 14	57.11.3472	4k7	MF, 1%, 0207
0	R 15	57.11.3103	10k	MF, 1%, 0207
0	R 16	57.11.3103	10k	MF, 1%, 0207
0	R 17	57.11.3221	220R	MF, 1%, 0207
0	R 18	57.11.3333	33k	MF, 1%, 0207
0	R 19	57.11.3471	470R	MF, 1%, 0207
0	R 20	57.11.3471	470R	MF, 1%, 0207
0	R 21	57.11.3682	6k8	MF, 1%, 0207
0	R 22	57.11.3332	3k3	MF, 1%, 0207
0	R 23	57.11.3332	3k3	MF, 1%, 0207
0	R 24	57.11.3153	15k	MF, 1%, 0207
0	R 25	57.11.3472	4k7	MF, 1%, 0207
0	R 26	58.01.8203	20k	Cermet, 10%, 0.5W, horizontal
0	R 27	57.11.3822	8k2	MF, 1%, 0207
0	R 28	57.11.3822	8k2	MF, 1%, 0207
0	R 29	58.01.8103	10k	Cermet, 10%, 0.5W, horizontal
0	R 30	57.11.3471	470R	MF, 1%, 0207
0	R 31	57.11.3471	470R	MF, 1%, 0207
0	R 32	57.11.3223	22k	MF, 1%, 0207
0	R 33	57.11.3479	4R7	MF, 1%, 0207
0	R 34	57.99.0206	50R	PTC, 25V, 0.5W
0	R 35	57.99.0206	50R	PTC, 25V, 0.5W
0	T 1	1.022.218.00	1 : 1	EINGANGSTRAFO 1 : 1
0	T 2	1.022.218.00	1 : 1	EINGANGSTRAFO 1 : 1
0	W 1	1.010.324.64	RM10.2	U shaped wire 0.6mm
0	W 2	1.010.324.64	RM10.2	U shaped wire 0.6mm
0	XIC 1	53.03.0166	8p	DIL-socket 0.3"
0	XIC 2	53.03.0166	8p	DIL-socket 0.3"

End of List

Comments:

**Correlator 30 LED PCB 1.913.095.00 ( 0)**



Edition	05.12.2001	ZT	ML	HW	Ⓢ
Number					
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Bozum		itz	Sign	Gas	
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<b>STUDER</b> REGENSDORF	Bestell-Nr.: Bezeichnung:	CORRELATOR 30 LED, ESE	Z	Number: Number:	1.913.095.00
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**Correlator 30 LED PCB 1.913.095.00 ( 0)**

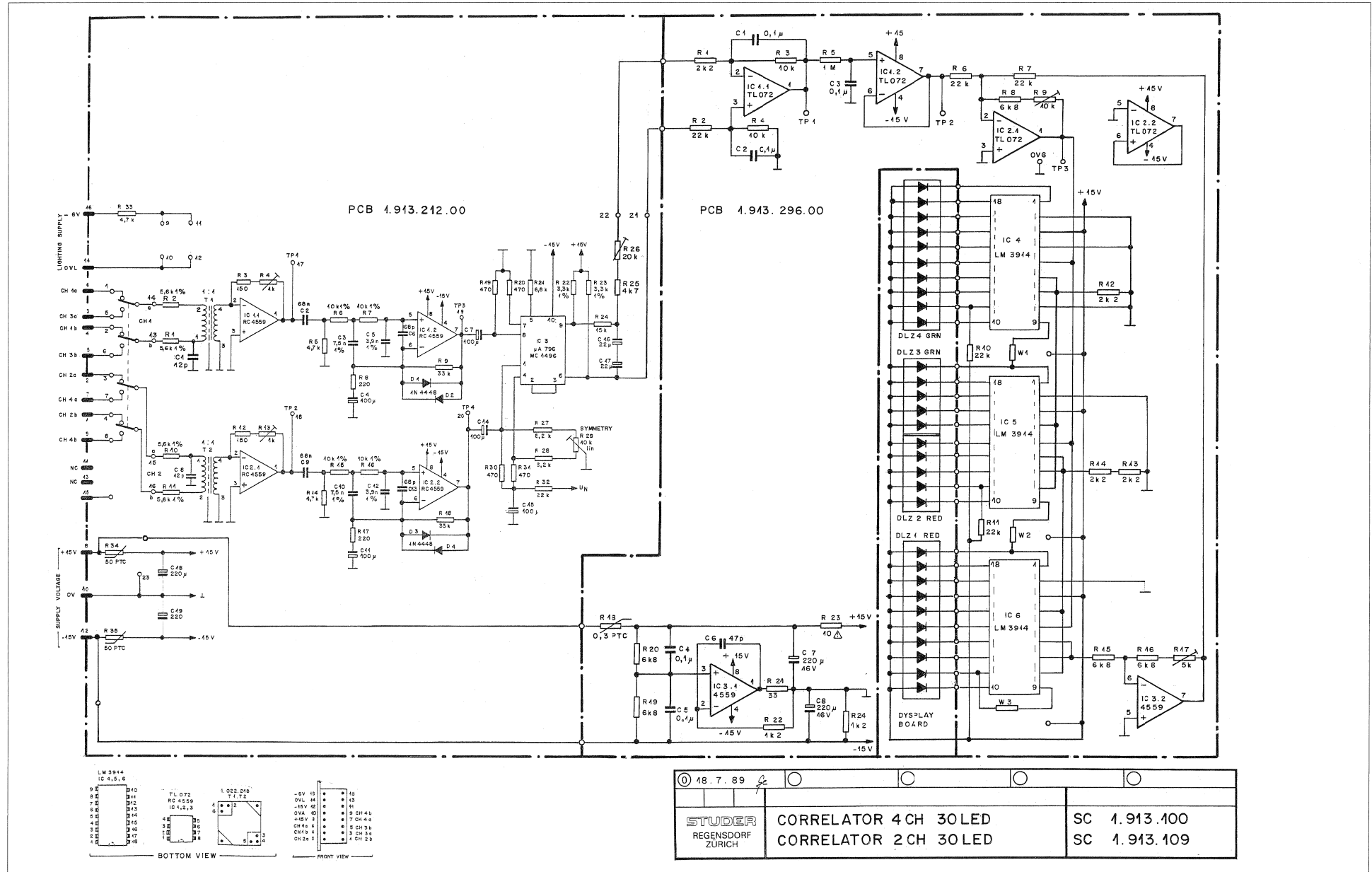
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 2	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 7	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 10	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 11	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 13	59.60.2241	1 pce	47p	CER 50V, 5%, COG, 0603
0 C 14	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 15	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 19	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 22	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 25	59.60.2373	1 pce	1r0	CER 50V, 5%, COG, 0805
0 C 26	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 27	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 30	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 32	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 33	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 42	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 43	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 DL 1	50.04.2150	1 pce	MV57164	10*LED-Bargraf rot diffus
0 DL 2	1.913.109.01	1 pce		5 LED DISPLAY RED
0 DL 3	50.04.2161	1 pce	GRN	DLZ MV 54 164,LTA1000G 10*D GN
0 DL 4	1.913.109.02	1 pce		5 LED DISPLAY GREEN
0 IC 1	50.11.0119	1 pce	LM3914	IC LM 3914 N,
0 IC 2	50.11.0119	1 pce	LM3914	IC LM 3914 N,
0 IC 3	50.11.0119	1 pce	LM3914	IC LM 3914 N,
0 IC 6	50.61.0207	1 pce	LF353	Dual Op-Amp JFET SO 8
0 IC 7	50.61.0207	1 pce	LF353	Dual Op-Amp JFET SO 8
0 IC 9	50.61.0207	1 pce	LF353	Dual Op-Amp JFET SO 8
0 MP 1	1.913.293.11	1 pce		VU/PPM/GRM METER PCB
0 MP 2	1.913.109.04	1 pce		STUDER-NR.-ETIKETTE 10 * 20
0 MP 3	43.01.0108	1 pce	Label	ESE-Warnschild
0 MP 4	1.913.109.03	4 pcs		DISPLAY UNTERLAGE
0 MP 5	1.010.057.22	1 pce	M3*7.4	Nietmutter sw 6
0 MP 6	1.010.057.22	1 pce	M3*7.4	Nietmutter sw 6
0 P 101	54.11.0125	1p		Pin, 1reihig, winkel
0 P 102	54.11.0125	1p		Pin, 1reihig, winkel
0 P 103	54.11.0125	1p		Pin, 1reihig, winkel
0 P 104	54.11.0125	1p		Pin, 1reihig, winkel
0 P 105	54.11.0125	1p		Pin, 1reihig, winkel
0 P 106	54.11.0125	1p		Pin, 1reihig, winkel
0 P 107	54.11.0125	1p		Pin, 1reihig, winkel
0 P 108	54.11.0125	1p		Pin, 1reihig, winkel
0 P 109	54.11.0125	1p		Pin, 1reihig, winkel
0 P 110	54.11.0125	1p		Pin, 1reihig, winkel
0 P 111	54.11.0125	1p		Pin, 1reihig, winkel
0 P 112	54.11.0125	1p		Pin, 1reihig, winkel
0 P 113	54.11.0125	1p		Pin, 1reihig, winkel
0 P 114	54.11.0125	1p		Pin, 1reihig, winkel
0 P 115	54.11.0125	1p		Pin, 1reihig, winkel
0 P 116	54.11.0125	1p		Pin, 1reihig, winkel
0 P 117	54.11.0125	1p		Pin, 1reihig, winkel
0 P 118	54.11.0125	1p		Pin, 1reihig, winkel
0 P 119	54.11.0125	1p		Pin, 1reihig, winkel
0 P 120	54.11.0125	1p		Pin, 1reihig, winkel
0 P 121	54.11.0125	1p		Pin, 1reihig, winkel
0 P 122	54.11.0125	1p		Pin, 1reihig, winkel
0 P 123	54.11.0125	1p		Pin, 1reihig, winkel
0 P 124	54.11.0125	1p		Pin, 1reihig, winkel
0 P 125	54.11.0125	1p		Pin, 1reihig, winkel
0 P 126	54.11.0125	1p		Pin, 1reihig, winkel
0 P 127	54.11.0125	1p		Pin, 1reihig, winkel
0 P 128	54.11.0125	1p		Pin, 1reihig, winkel
0 P 129	54.11.0125	1p		Pin, 1reihig, winkel
0 P 130	54.11.0125	1p		Pin, 1reihig, winkel
0 P 131	54.11.0125	1p		Pin, 1reihig, winkel
0 P 132	54.11.0125	1p		Pin, 1reihig, winkel
0 P 133	54.11.0125	1p		Pin, 1reihig, winkel
0 P 134	54.11.0125	1p		Pin, 1reihig, winkel
0 P 135	54.11.0125	1p		Pin, 1reihig, winkel
0 P 136	54.11.0125	1p		Pin, 1reihig, winkel
0 R 1	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 2	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 4	57.60.1000	1 pce	0R0	MF, 0204
0 R 5	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 6	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 7	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 9	57.60.1000	1 pce	0R0	MF, 0204
0 R 11	57.60.1000	1 pce	0R0	MF, 0204
0 R 18	57.60.1682	1 pce	6k8	MF, 1%, 0204, E24
0 R 19	57.60.1682	1 pce	6k8	MF, 1%, 0204, E24
0 R 20	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0 R 21	57.60.1122	1 pce	1k2	MF, 1%, 0204, E24
0 R 22	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0 R 23	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 24	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 50	57.92.7012	1 pce	0.3A	PTC 60V
0 R 53	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 61	57.60.1682	1 pce	6k8	MF, 1%, 0204, E24
0 R 62	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 63	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 64	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 65	57.60.1105	1 pce	1M0	MF, 1%, 0204, E24
0 R 66	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0 R 67	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0 R 68	57.60.1000	1 pce	0R0	MF, 0204
0 R 69	57.60.1000	1 pce	0R0	MF, 0204
0 RA 5	58.01.9502	1 pce	5k0	Cermet, 10%, 0.5W, vertical
0 RA 6	58.01.9103	1 pce	10k	Cermet, 10%, 0.5W, vertical
0 TP 1	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 2	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 3	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 4	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 TP 8	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 9	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 10	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 11	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl

End of List

Comments:

Correlator 4CH 30 LED 1.913.100  
 Correlator 2CH 30 LED 1.913.109



① 16.7.89			
STUDER REGENSDORF ZÜRICH	CORRELATOR 4 CH 30LED CORRELATOR 2 CH 30LED	SC 1.913.100 SC 1.913.109	





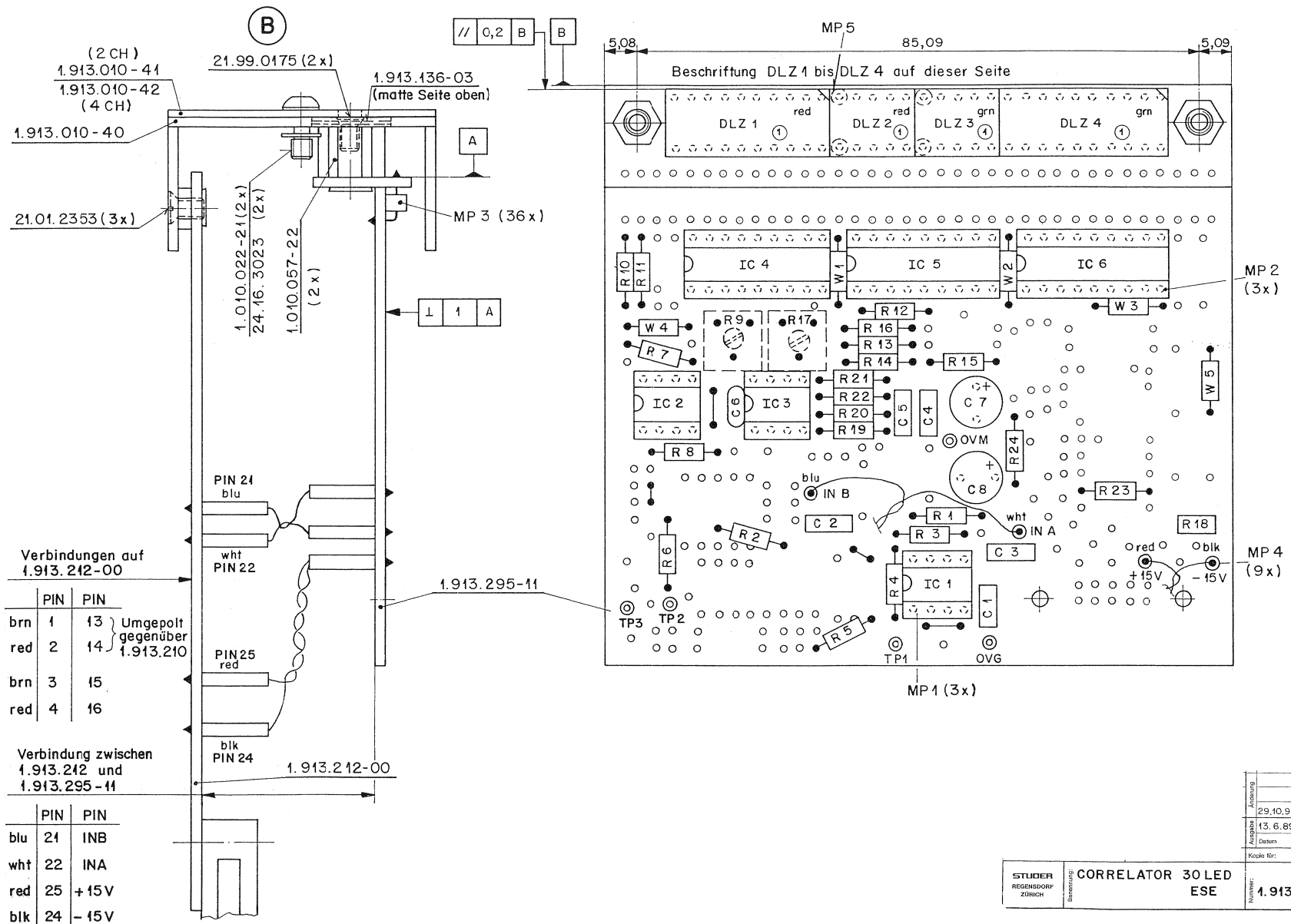
Correlator 4CH 30 LED 1.913.100

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.06.0104		100n	PETP, 63V, 10%, RMS
0	C 2	59.06.0104		100n	PETP, 63V, 10%, RMS
0	C 3	59.06.0104		100n	PETP, 63V, 10%, RMS
0	C 4	59.06.0104		100n	PETP, 63V, 10%, RMS
0	C 5	59.06.0104		100n	PETP, 63V, 10%, RMS
0	C 6	59.34.2470		47p	CER 63V, 5%, N150
0	C 7	59.22.4221		220u	EL 16V, 20%, RM5
0	C 8	59.22.4221		220u	EL 16V, 20%, RM5
0	DLZ 1	50.04.2150		MV57164	DLZ MV 57164 " G " 10"D RT
0	DLZ 2	1.913.109.01			5 LED DISPLAY RED
0	DLZ 3	1.913.109.02			5 LED DISPLAY GREEN
0	DLZ 4	50.04.2161		GRN	DLZ MV 54 164,LTA1000G 10"D GN
0	IC 1	50.09.0101		TL072	IC TL 072 CN ,A
0	IC 2	50.09.0101		TL072	IC TL 072 CN ,A
0	IC 3	50.09.0107		RC4559	Dual Op-Amp
0	IC 4	50.11.0119		LM3914	IC LM 3914 N,
0	IC 5	50.11.0119		LM3914	IC LM 3914 N,
0	IC 6	50.11.0119		LM3914	IC LM 3914 N,
0	MP 1	53.03.0166	3 mp	8p	DIL 0.3", lötl, gerade
0	MP 2	53.03.0175	3 mp	18p	DIL 0.3", lötl, gerade
0	MP 3	54.11.0132	36 mp	1p	P STIFT,WINKEL 1 PIN=1 STK.
0	MP 4	54.02.0471	9 mp		Stift d 1.5 * 5.5 lötl
0	MP 5	1.913.109.03	4 mp		DISPLAY UNTERLAGE
0	MP 6	1.913.295.11	1 pce		VU/PPM METER 30LED PCB
0	MP 7	1.010.057.22	2 pcs		NIETMUTTER, M 3 * 7.4
0	MP 8	43.01.0108		Label	ESE-WARNSCHILD
0	MP 9	1.913.100.04			STUDER-NR.-ETIKETTE 10 * 20
0	MP 10	1.010.031.22	1 pce		ABDECKMUTTER SW 8
0	MP 11	1.913.010.42	1 pce		FRONTSCHILD 1E 30LED CORR.4CH
0	MP 12	1.913.010.40	1 pce		TRAEGER 1E 30LED CORRELATOR
0	MP 13	21.99.0175	2 pcs		S - SCHR. IS ,SVOX, M 3 * 6
0	MP 14	1.913.136.03	1 pce		FENSTER BUS SELECTOR +VU
0	MP 15	1.913.211.93	1 pce		LL-KORRELATOR 4CH
0	MP 16	1.913.109.93	1 pce		LL CORRELATOR 30 LED
0	MP 17	1.913.212.00	1 pce		CORRELATOR BOARD ,A
0	MP 18	24.16.3023	2 pcs		WELLENSICHERUNG 2.3
0	MP 19	1.010.022.21	2 pcs		LINSENSCHRAUBE IS SPEZ.M3X8 SW
0	MP 20	21.01.2353	3 pcs		S - SCHR. ,ZN, M 3 * 5
0	R 1	57.11.3222		2k2	MF, 1%, 0207
0	R 2	57.11.3223		22k	MF, 1%, 0207
0	R 3	57.11.3103		10k	MF, 1%, 0207
0	R 4	57.11.3103		10k	MF, 1%, 0207
0	R 5	57.11.3105		1M0	MF, 1%, 0207
0	R 6	57.11.3223		22k	MF, 1%, 0207
0	R 7	57.11.3223		22k	MF, 1%, 0207
0	R 8	57.11.3682		6k8	MF, 1%, 0207
0	R 9	58.01.8103		10k	Cermet, 10%, 0.5W, horizontal
0	R 10	57.11.3223		22k	MF, 1%, 0207
0	R 11	57.11.3223		22k	MF, 1%, 0207
0	R 12	57.11.3222		2k2	MF, 1%, 0207
0	R 13	57.11.3222		2k2	MF, 1%, 0207
0	R 14	57.11.3222		2k2	MF, 1%, 0207
0	R 15	57.11.3682		6k8	MF, 1%, 0207
0	R 16	57.11.3682		6k8	MF, 1%, 0207
0	R 17	58.01.8502		5k	Cermet, 10%, 0.5W, horizontal
0	R 18	57.92.7001			RT 500 MA, PTC ->57.92.7013
0	R 19	57.11.3682		6k8	MF, 1%, 0207
0	R 20	57.11.3682		6k8	MF, 1%, 0207
0	R 21	57.11.3330		33R	MF, 1%, 0207
0	R 22	57.11.3122		1k2	MF, 1%, 0207
0	R 23	57.19.0100		10R	5%, 0207, Fuse
0	R 24	57.11.3122		1k2	MF, 1%, 0207
0	S 1	55.01.0115			S KIPP ,4*ON-ON , AG
0	W 1	57.11.3000		0R0	MF, 0207
0	W 2	57.11.3000		0R0	MF, 0207
0	W 3	57.11.3000		0R0	MF, 0207
0	W 4	57.11.3000		0R0	MF, 0207
0	W 5	57.11.3000		0R0	MF, 0207
0	W 6	1.010.321.64		Wire	DRAHTBRUECKE U, 4.3* 5.0, 0.6
0	W 7	1.010.321.64		Wire	DRAHTBRUECKE U, 4.3* 5.0, 0.6
0	W 8	1.010.329.64		Wire	DRAHTBRUECKE U, 4.3* 2.5, 0.6
0	W 9	1.010.329.64		Wire	DRAHTBRUECKE U, 4.3* 2.5, 0.6

End of List

Comments

Correlator 2CH 30 LED 1.913.109



Abrechnung					
29.10.92	PH	W	TH		
13.6.89	AW	W	W		
Abgeber	Gez.	Gepr.	Gez.	Index	

STUDER REGENSDORF ZÜRICH

BRUNNEN

**CORRELATOR 30 LED ESE**

Number: 1.913.109-00





Correlator 2CH 30 LED 1.913.109

Ind.	Pos.Nr.	Teil Nr.	Wert (Menge)	Bezeichnung	Hersteller	Ind.	Pos.Nr.	Teil Nr.	Wert (Menge)	Bezeichnung	Hersteller
00	C....01	59.06.0104	0.1 uF	PE		00	R....23	57.19.0100	10 Ohm	5% 0.33W fusible resistor /!\	
00	C....02	59.06.0104	0.1 uF	PE		00	R....24	57.11.3122	1.2 kOhm	1% 0.25W	
00	C....03	59.06.0104	0.1 uF	PE		00	W....01	57.11.3000		Wire link	
00	C....04	59.06.0104	0.1 uF	PE		00	W....02	57.11.3000		Wire link	
00	C....05	59.06.0104	0.1 uF	PE		00	W....03	57.11.3000		Wire link	
00	C....06	59.34.2470	47 pF	CE		00	W....04	57.11.3000		Wire link	
00	C....07	59.22.4221	220 uF	16V EL		00	W....05	57.11.3000		Wire link	
00	C....08	59.22.4221	220 uF	16V EL							
00	DLZ..01	50.04.2150	10 LED	DISPLAY RED	HP						
00	DLZ..02	1.913.109.01	5 LED	DISPLAY RED	St,HP						
00	DLZ..03	1.913.109.02	5 LED	DISPLAY GREEN	St,HP						
00	DLZ..04	50.04.2161	10 LED	DISPLAY GREEN	HP						
00	IC...01	50.09.0101	TL 072	dual op. amp.	NS,TI						
00	IC...02	50.09.0101	TL 072	dual op. amp.	NS,TI						
00	IC...03	50.09.0107	4559	dual op. amp.	RC						
00	IC...04	50.11.0119	LM3914	LED bar/dot lin.	NS						
00	IC...05	50.11.0119	LM3914	LED bar/dot lin.	NS						
00	IC...06	50.11.0119	LM3914	LED bar/dot lin.	NS						
00	MP...01	53.03.0166	3 pcs	8-pin IC-socket							
00	MP...02	53.03.0175	3 pcs	18-pin IC-socket							
00	MP...03	54.11.0132	36 pcs	Connection							
00	MP...04	54.02.0471	9 pcs	Plug (Rund - Steckstift)							
00	MP...05	1.913.109.03	1 pcs	Display-Unterlage	St						
00	R....01	57.11.3222	2.2 kOhm	1% 0.25W							
00	R....02	57.11.3223	22 kOhm	1% 0.25W							
00	R....03	57.11.3103	10 kOhm	1% 0.25W							
00	R....04	57.11.3103	10 kOhm	1% 0.25W							
00	R....05	57.11.3105	1 MOhm	5% 0.25W							
00	R....06	57.11.3223	22 kOhm	1% 0.25W							
00	R....07	57.11.3223	22 kOhm	1% 0.25W							
00	R....08	57.11.3682	6.8 kOhm	1% 0.25W							
00	R....09	58.01.8103	10 kOhm	10% 0.50W variabel, liegend							
00	R....10	57.11.3223	22 kOhm	1% 0.25W							
00	R....11	57.11.3223	22 kOhm	1% 0.25W							
00	R....12	57.11.3222	2.2 kOhm	1% 0.25W							
00	R....13	57.11.3222	2.2 kOhm	1% 0.25W							
00	R....14	57.11.3222	2.2 kOhm	1% 0.25W							
00	R....15	57.11.3682	6.8 kOhm	1% 0.25W							
00	R....16	57.11.3682	6.8 kOhm	1% 0.25W							
00	R....17	58.01.8502	5 kOhm	10% 0.50W variabel, liegend							
00	R....18	57.92.7001	0.3 Ohm	0.5 A PTC							
00	R....19	57.11.3682	6.8 kOhm	1% 0.25W							
00	R....20	57.11.3682	6.8 kOhm	1% 0.25W							
00	R....21	57.11.3330	33 Ohm	1% 0.25W							
00	R....22	57.11.3122	1.2 kOhm	1% 0.25W							

CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol

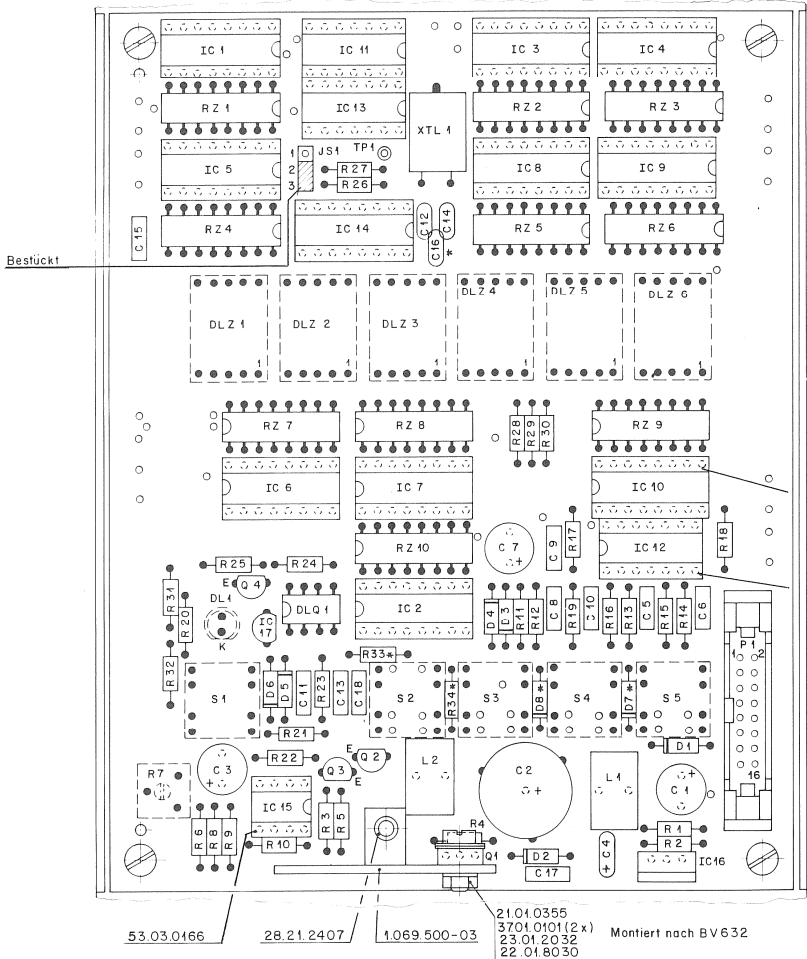
MANUFACTURER: Bu=Burndy, Ex=Exar, Fc=Fairchild, GI=General Instrument, HP=Hewlett Packard, ITT=Intermetall, Mot=Motorola, NS=National Semiconductors, Ph=Philips, Ra=Raytheon, Sig=Signetics, Si=Siemens, St=Studer, TI=Texas Instrument,

6. Stop Watch Unit

1.913.310.81

Stop watch Unit

1.913.310.81

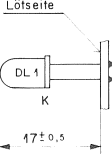


53.03.0168 (11x)

53.03.0167 (3x)

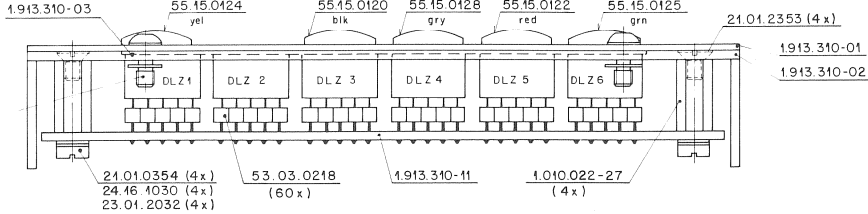
L 1, L 2 geklebt nach BV 640

53.03.0166    28.21.2407    1.069.500-03    21.01.0355  
 37.01.0101 (2x)    Montiert nach BV 632  
 23.01.2032  
 22.01.8030



R 7  
 DL 1  
 DL Z 1 - 6  
 S 4 - 5 } auf Lötseite bestückt

\* D 8, D 7, R 33, R 34, C 46 nicht bestückt  
 Warnschild-ESE und Nr. Etikette nach Fabr. Muster aufgeklebt.



# STUDER AUDIO CONSOLE 970

## Stop Watch

1.913.310.81

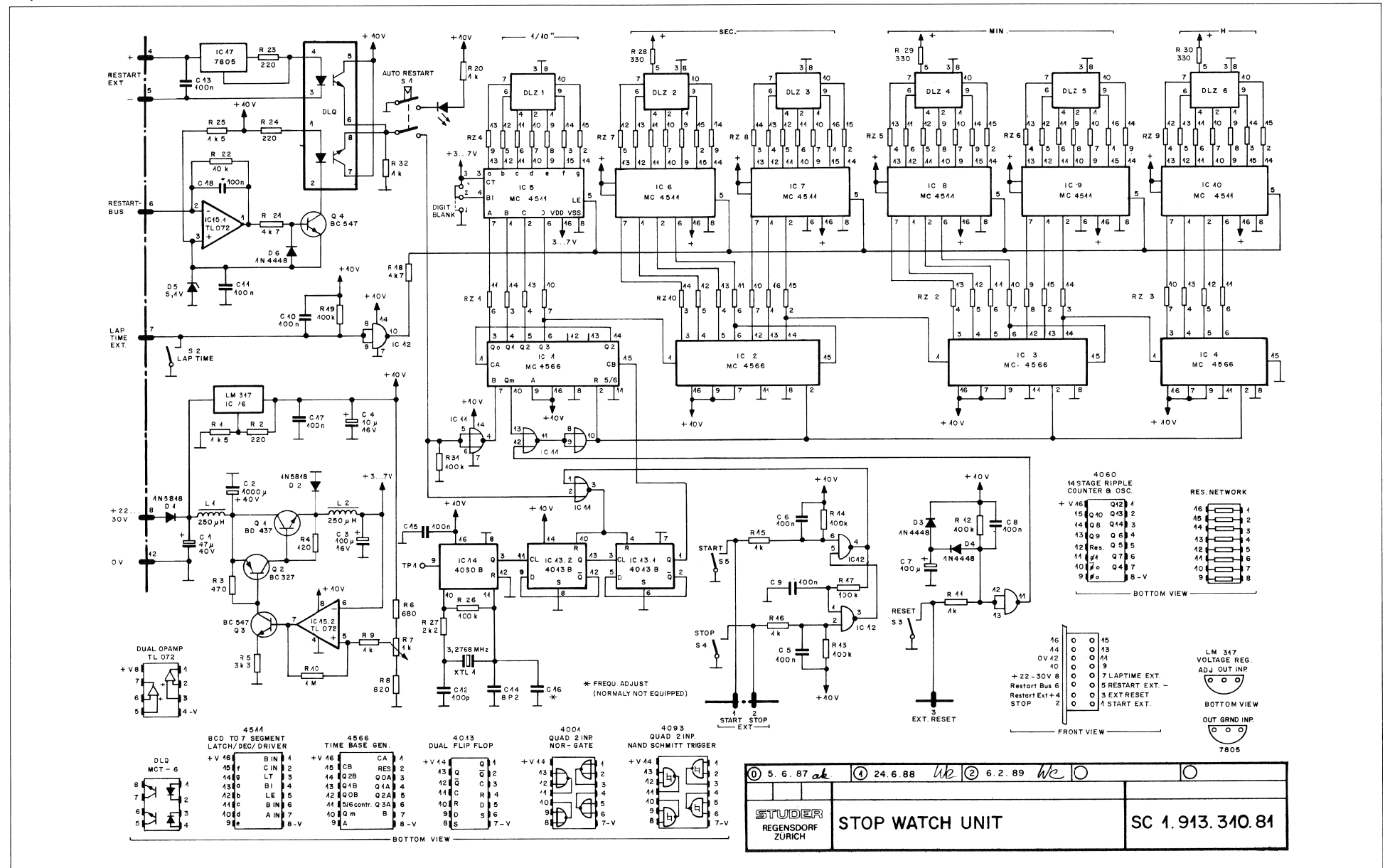
Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

C.....1	59.22.6470	47 uF	-20%	40V	EL		
C.....2	59.22.6102	1000 uF	-20%	40V	EL		
C.....3	59.22.4101	100 uF	-20%	16V	EL		
C.....4	59.26.2100	10 uF	-20%	16V	EL		
C.....5	59.06.0104	100 nF	10%		PE		
C.....6	59.06.0104	100 nF	10%		PE		
C.....7	59.22.4101	100 uF	-20%	16V	EL		
C.....8	59.06.0104	100 nF	10%		PE		
C.....9	59.06.0104	100 nF	10%		PE		
C.....10	59.06.0104	100 nF	10%		PE		
C.....11	59.06.0104	100 nF	10%		PE		
C.....12	59.34.4101	100 pF			CE		
C.....13	59.06.0104	100 nF	10%		PE		
C.....14	59.34.1829	8.2 pF			CE		
C.....15	59.06.0104	100 nF	10%		PE		
C.....16					not used		
C.....17	59.06.0104	100 nF	10%		PE		
C.....18	59.06.0104	100 nF	10%		PE		
D.....1	50.04.0512	1N5818		Schottky Diode	any		
D.....2	50.04.0512	1N5818		Schottky Diode	any		
D.....3	50.04.0125	1N4448			any		
D.....4	50.04.0125	1N4448			any		
D.....5	50.04.1112	Z 5V1	400mW	BZX83C5V1 ,BZX55C5V1 ,ZPD 5V1	Ses,ITT		
D.....6	50.04.0125	1N4448			any		
D.....7					not used		
D.....8					not used		
DL.....1	50.04.2112	LED		Led gb dif.			
DLQ...1	50.99.0111	MCT6		Dual Optokoppler			
DLZ...1	73.01.0140	H0SP 550	3	Display	HP		
DLZ...2	73.01.0140	H0SP 550	3	Display	HP		
DLZ...3	73.01.0140	H0SP 550	3	Display	HP		
DLZ...4	73.01.0140	H0SP 550	3	Display	HP		
DLZ...5	73.01.0140	H0SP 550	3	Display	HP		
DLZ...6	73.01.0140	H0SP 550	3	Display	HP		
JS....1	54.01.0020			Jumper Plug 3 Pin			
JP....1	54.01.0021			Jumper Jack			
IC....1	50.07.0566	MC14566B		ind. time base generator	Mot		
IC....2	50.07.0566	MC14566B		ind. time base generator	Mot		
IC....3	50.07.0566	MC14566B		ind. time base generator	Mot		
IC....4	50.07.0566	MC14566B		ind. time base generator	Mot		
IC....5	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....6	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....7	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....8	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....9	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....10	50.07.0511	MC14511B		latch/decoder/display-driver	Mot		
IC....11	50.07.0006	HEF4001		Quad 2-Input NOR Gate			
IC....12	50.07.0008	HEF4093		NAND Schmitt trigger			
IC....13	50.07.0013	HEF4013		Dual D-flip-Flop			
IC....14	50.07.0060	HEF4060		Binary Counter	Mot		
IC....15	50.09.0101	TL 072		dual op. amp. ( LF 353 N )	TI		
IC....16	50.10.0104	LM 317		Voltage Reg.			
IC....17	50.10.0108	LM 317		Voltage Reg.			
01 IC....17	50.10.0107	7805		Voltage Reg.			
L....1	62.03.0005	L 250uH		RFI-suppression coil	Token		
L....2	62.03.0005	L 250uH		RFI-suppression coil	Token		
MP....1	53.03.0166	1pcs		1c-socket 8 Pin			
MP....2	53.03.0167	3pcs		1c-socket 14 Pin			
MP....3	53.03.0168	11pcs		1c-socket 16 Pin			
MP....4	1.069.500.03	1pcs		Head sink			
MP....5	1.010.012.22	1pcs		Nietbolzen M3*2			
MP....6	55.15.0124	1pcs		yel.Bottom for S1			
MP....7	55.15.0120	1pcs		blk.Bottom for S2			
MP....8	55.15.0128	1pcs		gray Bottom for S3			
MP....9	55.15.0122	1pcs		red.Bottom for S4			
MP....10	55.15.0125	1pcs		grn.Bottom for S5			
P....1	54.14.2052	16 Pin		ribbon cable connector			
Q....1	50.03.0493	Bd 437		npn			
Q....2	50.03.0351	Bc 327		pnp			
Q....3	50.03.0436	Bc 237		npn			
Q....4	50.03.0436	Bc 237		npn			
R....1	57.11.4152	1.5 kOhm	5%	0.25W			
R....2	57.11.4221	220 Ohm	5%	0.25W			
R....3	57.11.4471	470 Ohm	5%	0.25W			
R....4	57.11.4121	120 Ohm	5%	0.25W			
R....5	57.11.4332	3.3 kOhm	5%	0.25W			
R....6	57.11.4681	680 Ohm	2%	0.25W			
R....7	58.01.8102	1 kOhm	10%	0.50W			trimming resistor
R....8	57.11.4821	820 Ohm	2%	0.25W			
R....9	57.11.4102	1 kOhm	5%	0.25W			
R....10	57.11.4105	1 MOhm	5%	0.25W			
R....11	57.11.4102	1 kOhm	5%	0.25W			
R....12	57.11.4104	100 kOhm	5%	0.25W			
R....13	57.11.4104	100 kOhm	5%	0.25W			
R....14	57.11.4104	100 kOhm	5%	0.25W			
R....15	57.11.4102	1 kOhm	5%	0.25W			
R....16	57.11.4102	1 kOhm	5%	0.25W			
R....17	57.11.4104	100 kOhm	5%	0.25W			
R....18	57.11.4472	4.7 kOhm	5%	0.25W			
R....19	57.11.4104	100 kOhm	5%	0.25W			
R....20	57.11.4102	1 kOhm	5%	0.25W			
R....21	57.11.4472	4.7 kOhm	5%	0.25W			
R....22	57.11.4103	10 kOhm	5%	0.25W			
R....23	57.11.4221	220 Ohm	5%	0.25W			
R....24	57.11.4152	1.5 kOhm	5%	0.25W			
01 R....24	57.11.3221	220 Ohm	5%	0.25W			
R....25	57.11.4152	1.5 kOhm	5%	0.25W			
R....26	57.11.4104	100 kOhm	5%	0.25W			
R....27	57.11.4222	2.2 kOhm	5%	0.25W			
R....28	57.11.4331	330 Ohm	5%	0.25W			

Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

R....29	57.11.4331	330 Ohm	5%	0.25W			
R....30	57.11.4331	330 Ohm	5%	0.25W			
R....31	57.11.4104	100 kOhm	5%	0.25W			
R....32	57.11.4104	100 kOhm	5%	0.25W			
01 R....32	57.11.3102	1 kOhm	5%	0.25W			
R....33				not used			
R....34				not used			
RZ....1	57.88.3473	47 kOhm			Interface Network		
RZ....2	57.88.3473	47 kOhm			Interface Network		
RZ....3	57.88.3473	47 kOhm			Interface Network		
RZ....4	57.88.3221	220 Ohm			Interface Network		
RZ....5	57.88.3221	220 Ohm			Interface Network		
RZ....6	57.88.3221	220 Ohm			Interface Network		
RZ....7	57.88.3221	220 Ohm			Interface Network		
RZ....8	57.88.3221	220 Ohm			Interface Network		
RZ....9	57.88.3221	220 Ohm			Interface Network		
RZ....10	57.88.3473	47 kOhm			Interface Network		
S....1	55.15.0113	2P			switch , latching		
S....2	55.15.0112	2P			switch , non latching		
S....3	55.15.0112	2P			switch , non latching		
S....4	55.15.0112	2P			switch , non latching		
S....5	55.15.0112	2P			switch , non latching		
TP....1	54.01.0020				Jumper Plug 1 Pin		
XTL...1	89.01.0376	3.2768MHZ			Quarz	ITT	
(01) faster rise time for optocoupler							
CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, PS=Polystyrol							
MANUFACTURER: Bu=Burdny, Ex=Exar, Fc=Fairchild, GI=General Instrument HP=Hewlett Packard, ITT=Intermetall, Mot=Motorola, Nat=National (Matsushita), NS=National Semiconductors, Ph=Philips, Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer, TI=Texas Instrument							
1.913.310.81 STOP WATCH SE 88/01/0400							
1.913.310.81 STOP WATCH SE 88/06/2401							

Stop watch Unit 1.913.310.81



**VU/PPM LED Level Meter Modules**

**Contents**

1 General ..... 2

2 Functional Description ..... 3

3 Technical Specifications..... 3

4 Block Diagram ..... 4

5 Alignment..... 4

Diagrams	PCB No.	Diagram	Component Layout	Parts List
VU/PPM 30 LED with GRM	1.913.293.00	1.913.293.00	1.913.293.00	1.913.293.00
VU/PPM 30 LED	1.913.294.00			1.913.294.00
LED PPM Meter (10 LED)	1.913.291.00	1.913.291.00	1.913.291.00	1.913.291.00

**Scope of Validity**

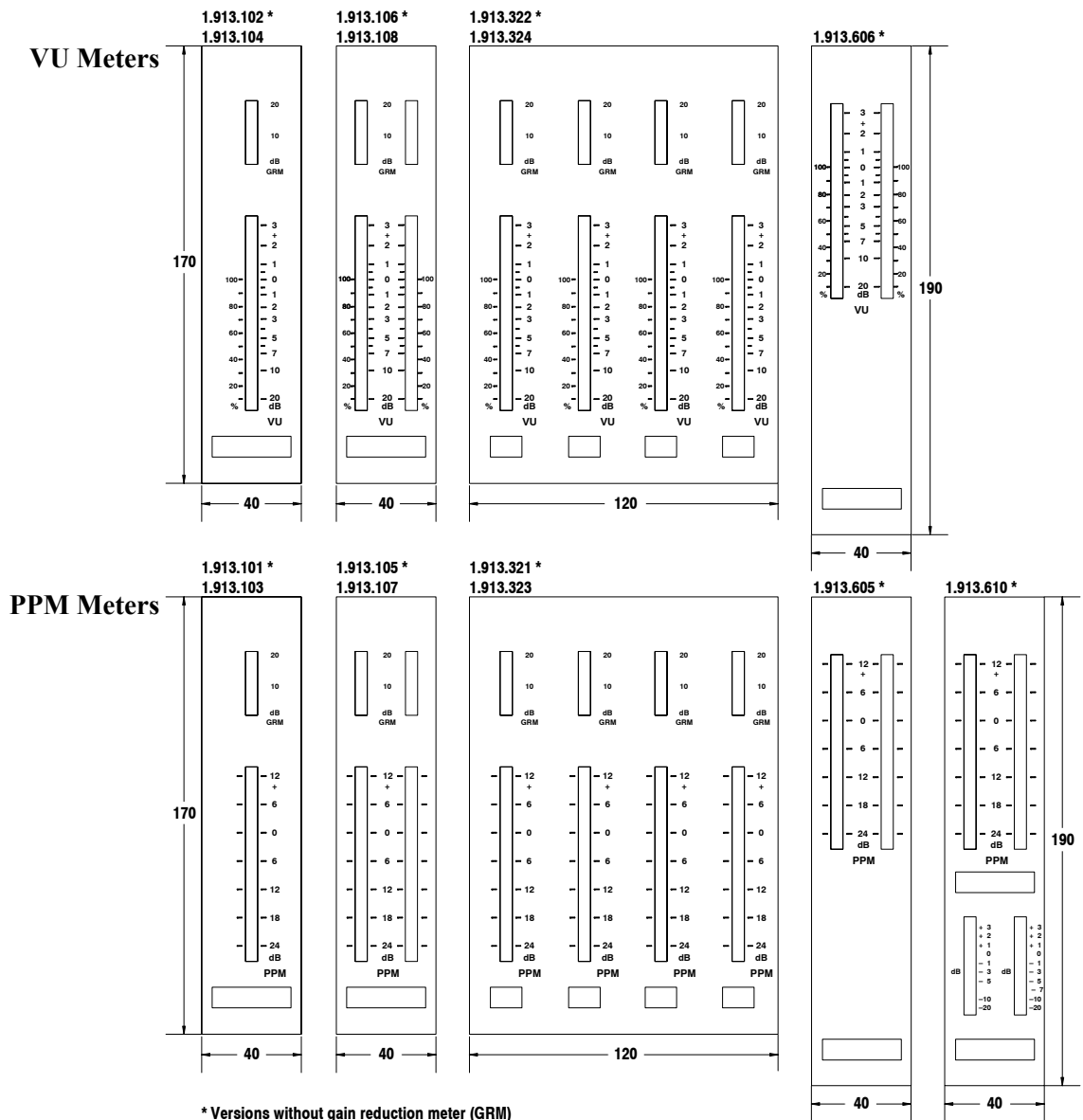
These instructions apply to the following assemblies:

Display	1 Channel, dark front panel	2 Channels, dark front panel	2 Channels, bright front panel	4 Channels, dark front panel	PCB No.
PPM	1.913.101	1.913.105	1.913.605	1.913.321	1.913.294
VU	1.913.102	1.913.106	1.913.606	1.913.322	1.913.294
PPM w. GRM	1.913.103	1.913.107	-	1.913.323	1.913.293
VU w. GRM	1.913.104	1.913.108	-	1.913.324	1.913.293
PPM w. additional small level meter	-	-	1.913.610	-	1.913.294, 1.913.291

**1 General**

The Level Meter units with 30 LEDs have been developed for installation in the display panel of Studer Mixing Consoles. Instruments with VU (volume unit) and PPM (peak program meter) characteristics, with or without gain reduction meter (GRM) are available. Instead of bar-graph indication, also dot indication is optionally available.

The instruments listed below are equipped with the PCBs 1.913.294 (VU or PPM) or 1.913.293 (VU or PPM with gain reduction meter) according to the table above. Please consult the circuit diagram relating to the corresponding assembly number.



**2 Functional Description**

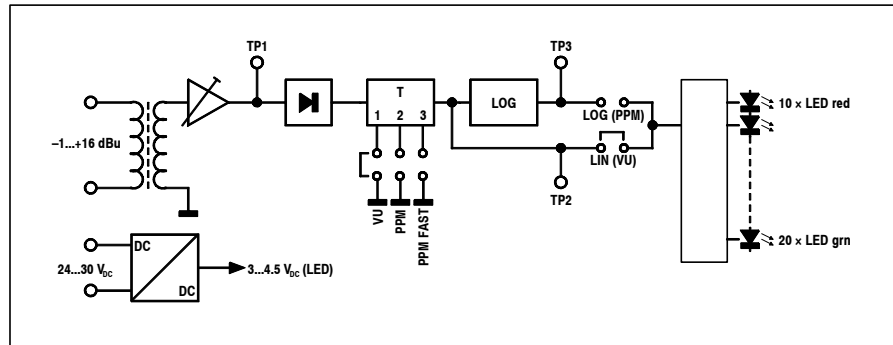
- PPM:** The peak program meter is a quasi-peak value instrument with long decay time. When a signal voltage corresponding to a level of 0 dB is applied for 10 ms, the resulting indication is -1 dB. Decay time (0 to -20 dB) is 1.7 s.
- VU Meter:** The VU meter indicates signals according to the standard defined by ANSI 1954. When a signal with a duration of 300 ms is applied, the indication is 99% of the reference value. Rise and decay times on a VU meter are identical. The factory-set lead is +6 dB.
- Gain Reduction Meter:** When the limiter/compressor is switched on, the GRM indicates the magnitude of the gain reduction.
- Small PPM:** The assembly 1.913.610 contains an additional small PPM meter with 10 LEDs, normally used for AUX level indication.
- Bar/Dot Display Selection:** On each of the PCBs, selection of bar or dot display mode is provided. All level meters are factory-set to bar display mode; dot display mode is unusual and recommended only if extra-low current consumption is required.

PCB No.	Bar Display Mode (Default Factory Setting)	Dot Display Mode
1.913.293.00 (VU/PPM 30 LED w. GRM)	insert: R3, R8, R10, R15 remove: R4, R9, R11, R14	insert: R4, R9, R11, R14 remove: R3, R8, R10, R15
1.913.294.00 (VU/PPM 30 LED)	insert: R3, R8, R10 remove: R4, R9, R11	insert: R4, R9, R11 remove: R3, R8, R10
1.913.291.00 (PPM 10 LED)	insert jumper JS201	remove jumper JS201

**3 Technical Specifications**

General:	0 dBu $\pm$ 0.775 V <sub>rms</sub>			
	<b>Sensitivity for reference indication</b>	-1 dBu ... +16 dBu		
<b>Input impedance</b>	>10 k $\Omega$			
<b>Supply</b>		$\pm$ 15 V <sub>DC</sub>	+24 V <sub>DC</sub>	
<b>Current consumption without GRM (p. ch., bar display mode)</b>	Quiescent:	45 mA	35 mA	
	Full load:	80 mA	80 mA	
<b>Current consumption with GRM (p. ch., bar display mode)</b>	Quiescent:	55 mA	45 mA	
	Full load:	105 mA	105 mA	
<b>VU Meter (1.913.293):</b>	<b>Indication range</b>	-20 VU ... +3 VU		
	<b>Accuracy (conditions: -10...+3 VU, 0...+50° C, 31.5 Hz...16 kHz)</b>	$\pm$ 1 segment		
	<b>Response time to -1 VU</b>	207 ms $\pm$ 30 ms		
<b>PPM (1.913.293):</b>	<b>Indication range</b>	-30 dBu ... +15 dBu		
	<b>Accuracy (conditions: -30...+15 VU, 0...+50° C, 31.5 Hz...16 kHz)</b>	$\pm$ 1 segment		
	<b>Dynamic behavior</b>			
	Jumper "normal" 0 dB, 10 ms burst	Indication:	-1 dB $\pm$ 0.5 dB	
	0 dB, 3 ms burst	Indication:	-4 dB $\pm$ 1 dB	
	Jumper "fast" 0 dB, 100 $\mu$ s burst	Indication:	-1 dB	
<b>Decay time: 0...-20 dB</b>	1.7 s $\pm$ 0.3 s			
<b>GRM (1.913.294):</b>	<b>Input voltage range</b>	min. control: 0 V ... +2 V <sub>DC</sub>		
		max. control: 0 V ... +11 V <sub>DC</sub>		
<b>Dimensions:</b>	1- and 2-channel units, dark front panel (w x h x d)		40 x 170 x 97 mm	
	2-channel units, bright front panel (w x h x d)		40 x 190 x 97 mm	
	4-channel units, dark front panel (w x h x d)		120 x 170 x 97 mm	

## 4 VU/PPM Meter Block Diagram



**VU/PPM meter block diagram:** VU/PPM/PPM FAST and LIN/LOG settings are established with jumpers J2 and J3, respectively.

## 5 Alignment

**Required Instruments:** AC voltmeter,  $R_i \geq 20 \text{ k}\Omega$   
 DC voltmeter,  $R_i \geq 100 \text{ k}\Omega$   
 AF generator, 31.5 Hz ... 16 kHz, 0...16 dBu; attenuator with 10 dB increments.

**DC/DC Converter Check:** Connect DC voltmeter to TP5 (hot) and TP4 (ground). Feed generator output signal with line level (-1...+16 dBu) to the input (pins 5 and 7 of P1, or TP8 and TP9); all green LEDs are on.  
 DC voltmeter reading should be:  
 $3.1 \pm 0.1 \text{ V}_{\text{DC}}$  (supply: +24  $\text{V}_{\text{DC}}$ ),  
 $4.1 \pm 0.1 \text{ V}_{\text{DC}}$  (supply: +30  $\text{V}_{\text{DC}}$ ).

**Input Range:** Feed generator output signal with line level (1 kHz, -1...+16 dBu) to the input (pins 5 and 7 of P1, or TP8 and TP9).  
 Connect AC voltmeter to test points TP1 (hot) and TP4 (ground). Reading must be adjustable with RA3 to  $290 \pm 10 \text{ mV}_{\text{AC}}$  for the complete input level range.

**Line Level:** Feed generator output signal with your line level (1 kHz, range: -1...+16 dBu) to the input (pins 5 and 7 of P1, or TP8 and TP9).  
 Adjust RA3 until all green LEDs are on. The red LEDs must be dark.  
 (TP3:  $2.5 \pm 0.1 \text{ V}_{\text{DC}}$ ).

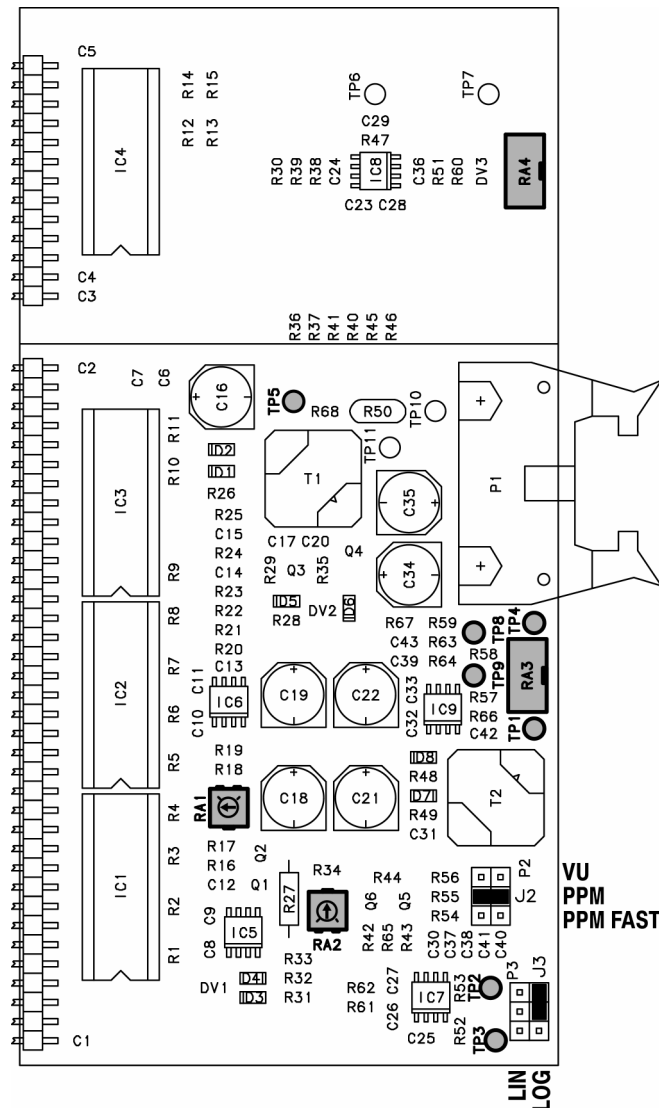
**Rectifier and Indication:** Set J2 to VU, J3 to LIN.  
 Feed generator output signal with your line level (1 kHz, usually 0 dBu) to the input (pins 5 and 7 of P1, or TP8 and TP9).  
 Connect AC voltmeter to test points TP1 (hot) and TP4 (ground). Adjust with RA3 to  $290 \pm 10 \text{ mV}_{\text{AC}}$ . All green LEDs must be on.  
 Connect DC voltmeter to test points TP2 (hot) and TP4 (ground); the meter should read  $-380 \pm 15 \text{ mV}_{\text{DC}}$ .  
 Connect DC voltmeter to test points TP3 (hot) and TP4 (ground); the meter should read  $+2.575 \pm 0.100 \text{ V}_{\text{DC}}$ . All green LEDs must be on.  
*Check:* Set generator output for a DC voltmeter reading of  $3.8 \pm 0.1 \text{ V}_{\text{DC}}$ . All LEDs must be on. Set generator output for a DC voltmeter reading of  $170 \pm 20 \text{ mV}_{\text{DC}}$ . Only the lowest LED must be on.



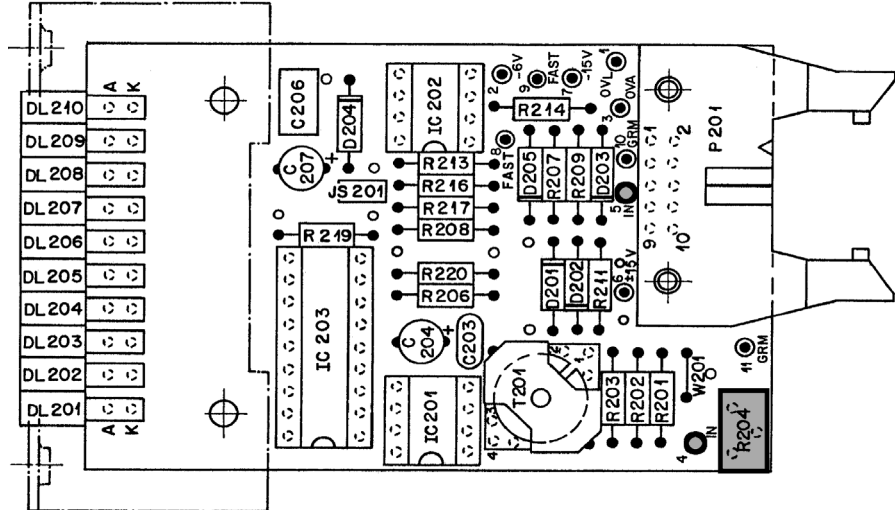
**Log Converter (PPM only):** Set J2 to PPM, J3 to LOG.  
 Feed generator output signal (1 kHz, +6 dBu) to the input (pins 5 and 7 of P1, or TP8 and TP9).  
 Connect DC voltmeter to test points TP2 (hot) and TP4 (ground). Adjust with RA3 to  $1.18 \pm 0.05 V_{DC}$ .  
 RA1 and RA2: Basic setting according to the arrows in the diagram below.  
 Procedure:

1. Upper value setting: Adjust with RA2 to  $3.06 \pm 0.10 V_{DC}$ . All green LEDs and four red LEDs must be on (+6 dB indication).
2. Set generator output to -24 dBu (i.e., attenuate the +6 dBu setting from above by 30 dB).
3. Lower value setting: Adjust with RA1 to  $560 \pm 20 mV_{DC}$ . Only the four lowest green LEDs must be on (-24 dB indication).
4. These two settings are interdependent, therefore repeat steps 1...3 several times.

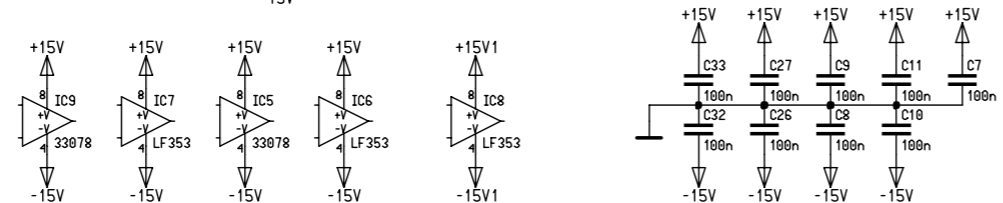
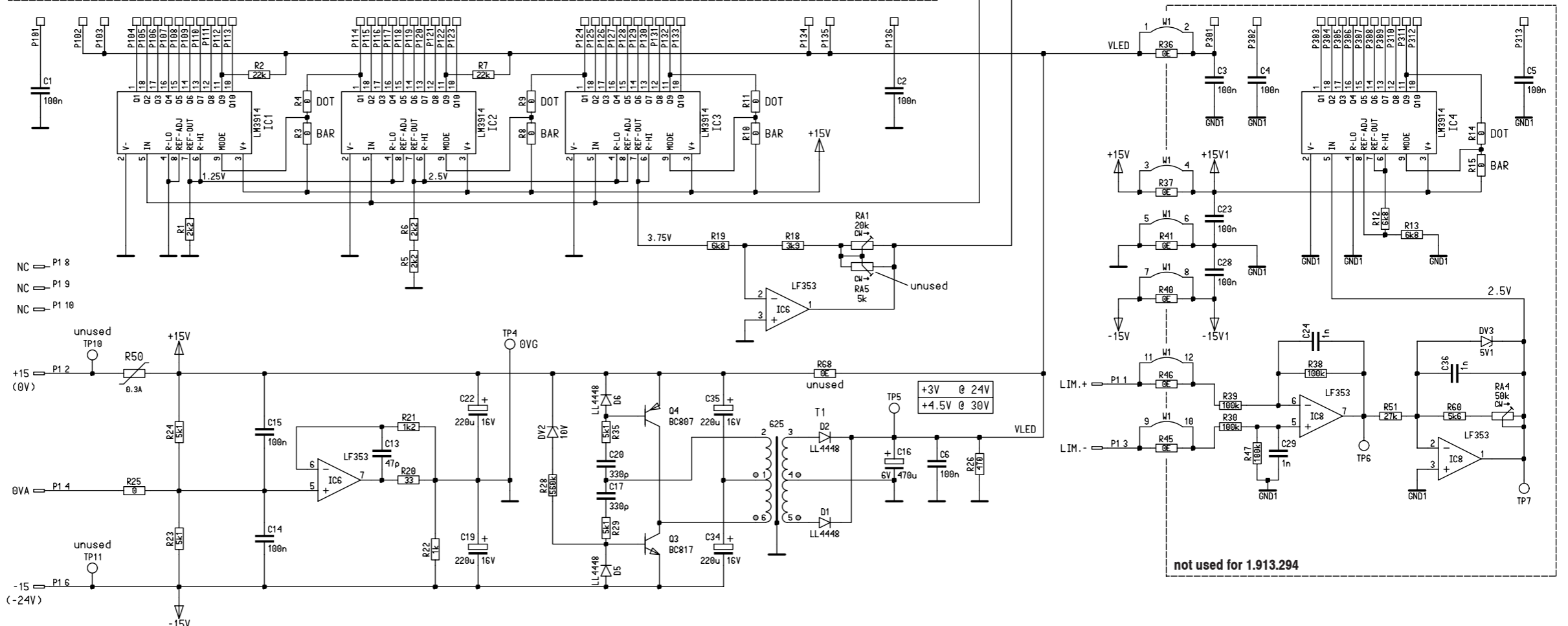
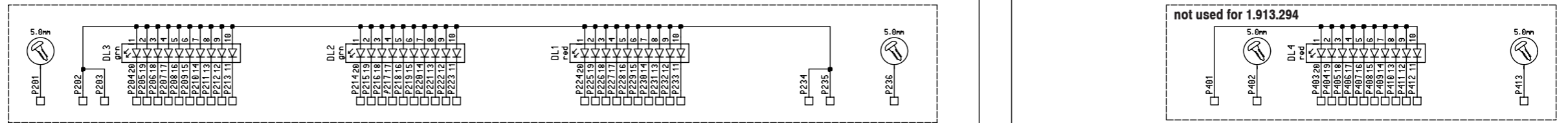
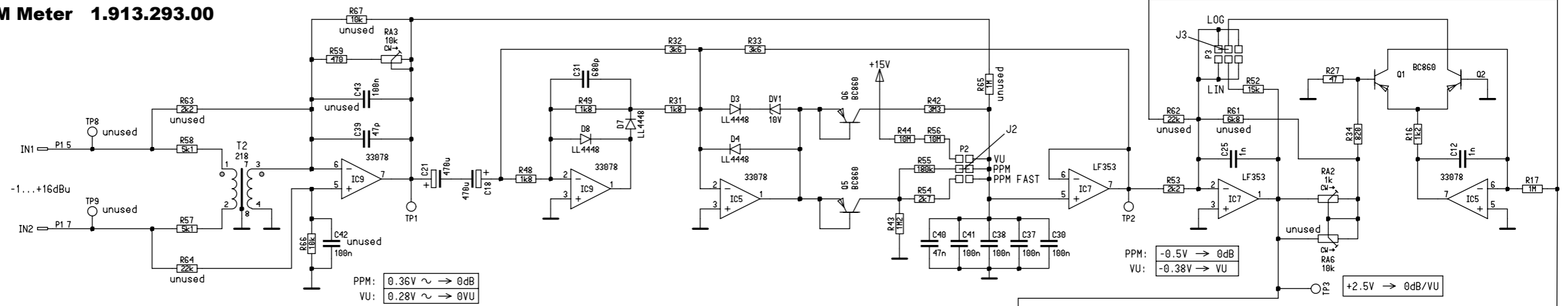
**GRM (if included):** Connect the Meter Unit to the console.  
 Feed a test signal via an input channel. Set the level on the master output to nominal level +20 dB.  
 Switch the limiter on.  
 Align with RA4 to a GRM indication of 20 dB.



**Line Level for 1.913.291:** Feed generator output signal with your line level (1 kHz, range: +6...+15 dBu) to the input (pins 5 and 7 of P201, or TP5 and TP4). Adjust R204 until all green LEDs are on. The red LEDs must be dark.

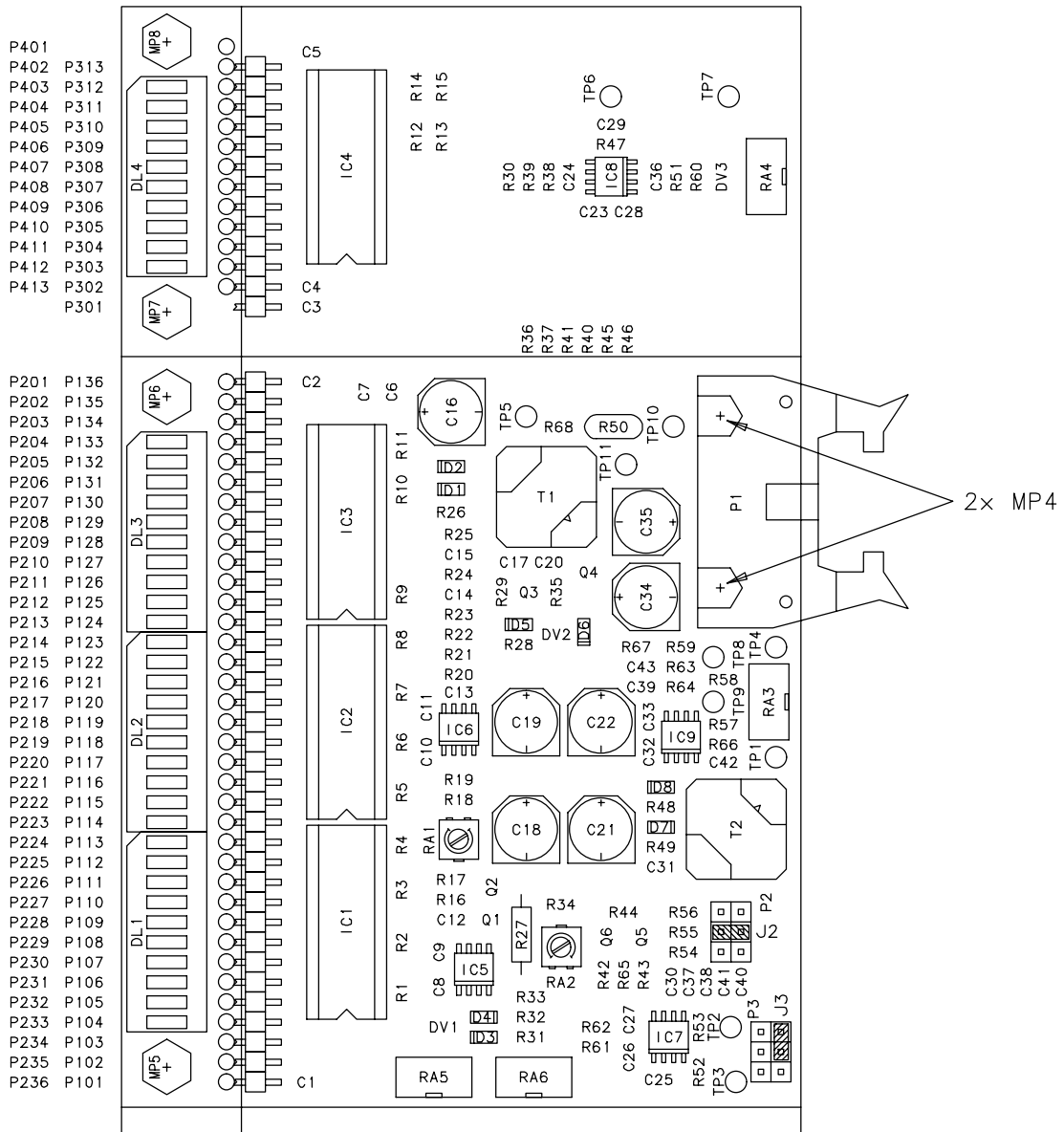
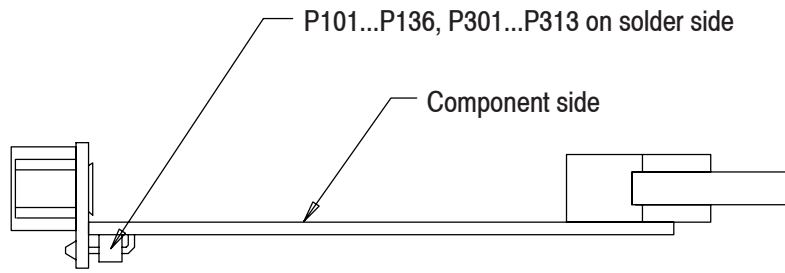


VU/PPM/GRM Meter 1.913.293.00



Erstellt	29.10.2001	ZT	29.01.2002	ZT					
<b>STUDER</b>								PAGE 1 OF 1	
VU/PPM/GRM METER								SC 1.913.293.00	

**VU/PPM/GRM Meter 1.913.293.00**



Accompanying documents: Zugehörige Unterlagen: PL	General tolerance: Freimasstoleranz:	Scale: Massstab: 1:1	Edition Ausgabe 29.10.2001	ZT	ML	HW	⊙
Substitute for: Ersatz fuer:			Date Datum	Visa Gez.	Checked Gepr.	Seen Ges.	Index
<b>STUDER</b> REGENSDORF	Description: Benennung: VU/PPM/GRM METER , ESE		Page: Seite: 1 / 1	Number: Number: 1.913.293.00			

VU/PPM/GRM Meter 1.913.293.00 ( 4)

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 2	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 3	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 4	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 5	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 6	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 7	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 8	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 9	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 10	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 11	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 12	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 13	59.60.2241	1 pce	47p	CER 50V, 5%, COG, 0603
0 C 14	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 15	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 16	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 17	59.60.2361	1 pce	330p	CER 50V, 5%, COG, 0805
0 C 18	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 19	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 20	59.60.2361	1 pce	330p	CER 50V, 5%, COG, 0805
0 C 21	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 22	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 23	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 24	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 25	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 26	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 27	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 28	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 29	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 30	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 31	59.60.2369	1 pce	680p	CER 50V, 5%, COG, 0805
0 C 32	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 33	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 34	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 35	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 36	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 37	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 38	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 39	59.60.2241	1 pce	47p	CER 50V, 5%, COG, 0603
0 C 40	59.60.3333	1 pce	47n	CER 50V, 10%, X7R, 0805
0 C 41	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 D 1	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 2	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 3	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 4	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 5	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 6	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 7	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 8	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 DL 1	50.04.2150	1 pce		10*LED-Bargraf rot diffus
0 DL 2	50.04.2161	1 pce	GRN	DLZ MV 54 164,LTA1000G 10*D GN
0 DL 3	50.04.2161	1 pce	GRN	DLZ MV 54 164,LTA1000G 10*D GN
0 DL 4	50.04.2150	1 pce		10*LED-Bargraf rot diffus
0 DV 1	50.60.9017	1 pce	10V	5%, 0.2W, SOT 23
0 DV 2	50.60.9017	1 pce	10V	5%, 0.2W, SOT 23
0 DV 3	50.60.9010	1 pce	5V1	5%, 0.2W, SOT 23
4 DV 4	50.04.1112	1 pce	5V1	Zener, 5%, 0.5W, DO-35
0 IC 1	50.11.0119	1 pce		LM3914
0 IC 2	50.11.0119	1 pce		IC LM 3914 N,
0 IC 3	50.11.0119	1 pce		IC LM 3914 N,
0 IC 4	50.11.0119	1 pce		IC LM 3914 N,
0 IC 5	50.61.0204	1 pce		MC33078
0 IC 6	50.61.0207	1 pce		LF353
3 IC 7	50.61.0209	1 pce		LF412
0 IC 8	50.61.0207	1 pce		LF353
1 IC 9	50.61.0204	1 pce		MC33078
0 J 2	54.01.0021	1 pce		Jumper
0 J 3	54.01.0021	1 pce		Jumper
0 MP 1	1.913.293.11	1 pce		VU/PPM/GRM METER PCB
0 MP 2	1.913.293.10	1 pce		NR.-ETIKETTE 5 * 20
0 MP 3	43.01.0108	1 pce		Label
0 MP 4	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0 MP 5	1.010.057.22	1 pce		M3*7.4
0 MP 6	1.010.057.22	1 pce		M3*7.4
0 MP 7	1.010.057.22	1 pce		M3*7.4
0 MP 8	1.010.057.22	1 pce		M3*7.4
4 MP 9	43.10.0113	1 pce		D
0 P 1	54.14.2011	1 pce		10p
0 P 2	54.11.0136	1 pce		2*3p
0 P 3	54.11.0136	1 pce		2*3p
0 P 102	54.11.0125	1 pce		1p
0 P 103	54.11.0125	1 pce		1p
0 P 104	54.11.0125	1 pce		1p
0 P 105	54.11.0125	1 pce		1p
0 P 106	54.11.0125	1 pce		1p
0 P 107	54.11.0125	1 pce		1p
0 P 108	54.11.0125	1 pce		1p
0 P 109	54.11.0125	1 pce		1p
0 P 110	54.11.0125	1 pce		1p
0 P 111	54.11.0125	1 pce		1p
0 P 112	54.11.0125	1 pce		1p
0 P 113	54.11.0125	1 pce		1p
0 P 114	54.11.0125	1 pce		1p
0 P 115	54.11.0125	1 pce		1p
0 P 116	54.11.0125	1 pce		1p
0 P 117	54.11.0125	1 pce		1p
0 P 118	54.11.0125	1 pce		1p
0 P 119	54.11.0125	1 pce		1p
0 P 120	54.11.0125	1 pce		1p
0 P 121	54.11.0125	1 pce		1p
0 P 122	54.11.0125	1 pce		1p
0 P 123	54.11.0125	1 pce		1p

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 P 124	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 125	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 126	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 127	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 128	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 129	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 130	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 131	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 132	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 133	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 134	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 135	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 136	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 301	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 302	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 303	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 304	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 305	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 306	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 307	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 308	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 309	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 310	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 311	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 312	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 P 313	54.11.0125	1 pce	1p	Pin, 1reiHg, winkel
0 Q 1	50.60.1002	1 pce		BC860C
0 Q 2	50.60.1002	1 pce		BC860C
0 Q 3	50.60.0050	1 pce		BC817-25
0 Q 4	50.60.1050	1 pce		BC807-25
0 Q 5	50.60.1002	1 pce		BC860C
0 Q 6	50.60.1002	1 pce		BC860C
0 R 1	57.60.1222	1 pce		2k2
0 R 2	57.60.1223	1 pce		22k
0 R 3	57.60.1000	1 pce		0R0
0 R 4	not used	1 pce		0R0
0 R 5	57.60.1222	1 pce		2k2
0 R 6	57.60.1222	1 pce		2k2
0 R 7	57.60.1223	1 pce		22k
0 R 8	57.60.1000	1 pce		0R0
0 R 9	not used	1 pce		0R0
0 R 10	57.60.1000	1 pce		0R0
0 R 11	not used	1 pce		0R0
0 R 12	57.60.1682	1 pce		6k8
0 R 13	57.60.1682	1 pce		6k8
0 R 14	not used	1 pce		0R0
0 R 15	57.60.1000	1 pce		0R0
0 R 16	57.60.1122	1 pce		1k2
0 R 17	57.60.1105	1 pce		1M0
0 R 18	57.60.1392	1 pce		3k9
0 R 19	57.60.1682	1 pce		6k8
0 R 20	57.60.1330	1 pce		33R
0 R 21	57.60.1122	1 pce		1k2
0 R 22	57.60.1102	1 pce		1k0
0 R 23	57.60.1512	1 pce		5k1
0 R 24	57.60.1512	1 pce		5k1
2 R 25	not used	1 pce		0R0
0 R 26	57.60.1471	1 pce		470R
0 R 27	57.99.0252	1 pce		47
0 R 28	57.60.1564	1 pce		560k
0 R 29	57.60.1512	1 pce		5k1
0 R 30	57.60.1104	1 pce		100k
0 R 31	57.60.1182	1 pce		1k8
0 R 32	57.60.1362	1 pce		3k6
0 R 33	57.60.1362	1 pce		3k6
0 R 34	57.60.1821	1 pce		820R
0 R 35	57.60.1512	1 pce		5k1
0 R 36	57.60.1000	1 pce		0R0
0 R 37	57.60.1000	1 pce		0R0
0 R 38	57.60.1104	1 pce		100k
0 R 39	57.60.1104	1 pce		100k
0 R 40	57.60.1000	1 pce		0R0
0 R 41	57.60.1000	1 pce		0R0
0 R 42	57.60.1335	1 pce		3M3
0 R 43	57.60.1125	1 pce		1M2
0 R 44	57.60.1106	1 pce		10M
0 R 45	57.60.1000	1 pce		0R0
0 R 46	57.60.1000	1 pce		0R0
0 R 47	57.60.1104	1 pce		100k
0 R 48	57.60.1182	1 pce		1k8
0 R 49	57.60.1182	1 pce		1k8
0 R 50	57.92.7012	1 pce		0.3A
0 R 51	57.60.1273	1 pce		27k
0 R 52	57.60.1153	1 pce		15k
0 R 53	57.60.1222	1 pce		2k2
0 R 54	57.60.1272	1 pce		2k7
0 R 55	57.60.1184	1 pce		180k
0 R 56	57.60.1106	1 pce		10M
0 R 57	57.60.1512	1 pce		5k1
0 R 58	57.60.1512	1 pce		5k1
0 R 59	57.60.1471	1 pce		470R
0 R 60	57.60.1562	1 pce		5k6
0 R 66	57.60.1103	1 pce		10k
0 RA 1	58.60.0121	1 pce		20k
0 RA 2	58.60.0113	1 pce		1k0
0 RA 3	58.01.9103	1 pce		10k
0 RA 4	58.01.9503	1 pce		50k
0 T 1	1.022.625.00	1 pce		SCHALTTRAFO 3:1
0 T 2	1.022.218.00	1 pce	1 : 1	ENGANGSTRAFO 1 : 1
0 TP 1	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 2	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 3	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 4	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl

**VU/PPM/GRM Meter 1.913.293.00 ( 4)**

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Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	TP 5	54.02.0471	1 pce	Stift d 1.5 * 5.5 löf
0	TP 6	not used	1 pce	Stift d 1.5 * 5.5 löf
0	TP 7	not used	1 pce	Stift d 1.5 * 5.5 löf

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
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End of List

**Comments:**

- (01) Offset-voltage of IC 9 LF 353 too large  
->replaced by MC
- (02) R25 not used
- (03) IC7 LF353 replaced by LF412
- (04) DV4 added

**VU/PPM Meter mod. 1.913.294.00 ( 3)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 2	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 6	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 7	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 8	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 9	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 10	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 11	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 12	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 13	59.60.2241	1 pce	47p	CER 50V, 5%, COG, 0603
0 C 14	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 15	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 16	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 17	59.60.2361	1 pce	330p	CER 50V, 5%, COG, 0805
0 C 18	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 19	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 20	59.60.2361	1 pce	330p	CER 50V, 5%, COG, 0805
0 C 21	59.68.0033	1 pce	470u	EL 6V, 8.0*10.7
0 C 22	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 25	59.60.2373	1 pce	1n0	CER 50V, 5%, COG, 0805
0 C 26	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 27	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 30	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 31	59.60.2369	1 pce	680p	CER 50V, 5%, COG, 0805
0 C 32	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 33	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 34	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 35	59.68.0073	1 pce	220u	EL 16V, 8.0*10.7
0 C 37	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 38	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 C 39	59.60.2241	1 pce	47p	CER 50V, 5%, COG, 0603
0 C 40	59.60.3333	1 pce	47n	CER 50V, 10%, X7R, 0805
0 C 41	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0 D 1	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 2	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 3	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 4	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 5	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 6	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 7	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 D 8	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0 DL 1	50.04.2150	1 pce		10*LED-Bargraf rot diffus
0 DL 2	50.04.2161	1 pce		DLZ MV 54 164,LTA1000G 10*D GN
0 DL 3	50.04.2161	1 pce		DLZ MV 54 164,LTA1000G 10*D GN
0 DV 1	50.60.9017	1 pce	10V	5%, 0.2W, SOT 23
0 DV 2	50.60.9017	1 pce	10V	5%, 0.2W, SOT 23
3 DV 4	50.04.1112	1 pce	5V1	Zener, 5%, 0.5W, DO-35
0 IC 1	50.11.0119	1 pce		IC LM 3914 N,
0 IC 2	50.11.0119	1 pce		IC LM 3914 N,
0 IC 3	50.11.0119	1 pce		IC LM 3914 N,
0 IC 5	50.61.0204	1 pce		Dual Op-Amp low noise
0 IC 6	50.61.0207	1 pce		Dual Op-Amp JFET SO 8
0 IC 7	50.61.0207	1 pce		Dual Op-Amp JFET SO 8
1 IC 9	50.61.0204	1 pce		Dual Op-Amp low noise
0 J 2	54.01.0021	1 pce		Jumper
0 J 3	54.01.0021	1 pce		Jumper
0 MP 1	1.913.293.11	1 pce		VU/PPM/GRM METER PCB
0 MP 2	1.913.294.10	1 pce		NR-ETIKETTE 5 * 20
0 MP 3	43.01.0108	1 pce		ESE-Warnschild
0 MP 4	28.99.0119	2 pcs		ROHRNIETE D 2.5*0.15* 9
0 MP 5	1.010.057.22	1 pce	M3*7.4	Nietmutter sw 6
0 MP 6	1.010.057.22	1 pce	M3*7.4	Nietmutter sw 6
3 MP 7	43.10.0112	1 pce		C Revisions-Etikette 5mm h/blau
0 P 1	54.14.2011	1 pce	10p	Winkelstecker Au
0 P 2	54.11.0136	1 pce	2*3p	Pin 0.63*0.63, RM2.54
0 P 3	54.11.0136	1 pce	2*3p	Pin 0.63*0.63, RM2.54
0 P 101	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 102	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 103	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 104	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 105	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 106	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 107	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 108	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 109	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 110	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 111	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 112	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 113	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 114	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 115	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 116	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 117	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 118	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 119	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 120	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 121	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 122	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 123	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 124	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 125	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 126	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 127	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 128	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 129	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 130	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 131	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 132	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 133	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 134	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 135	54.11.0125	1 pce	1p	Pin, 1reihig, winkel
0 P 136	54.11.0125	1 pce	1p	Pin, 1reihig, winkel

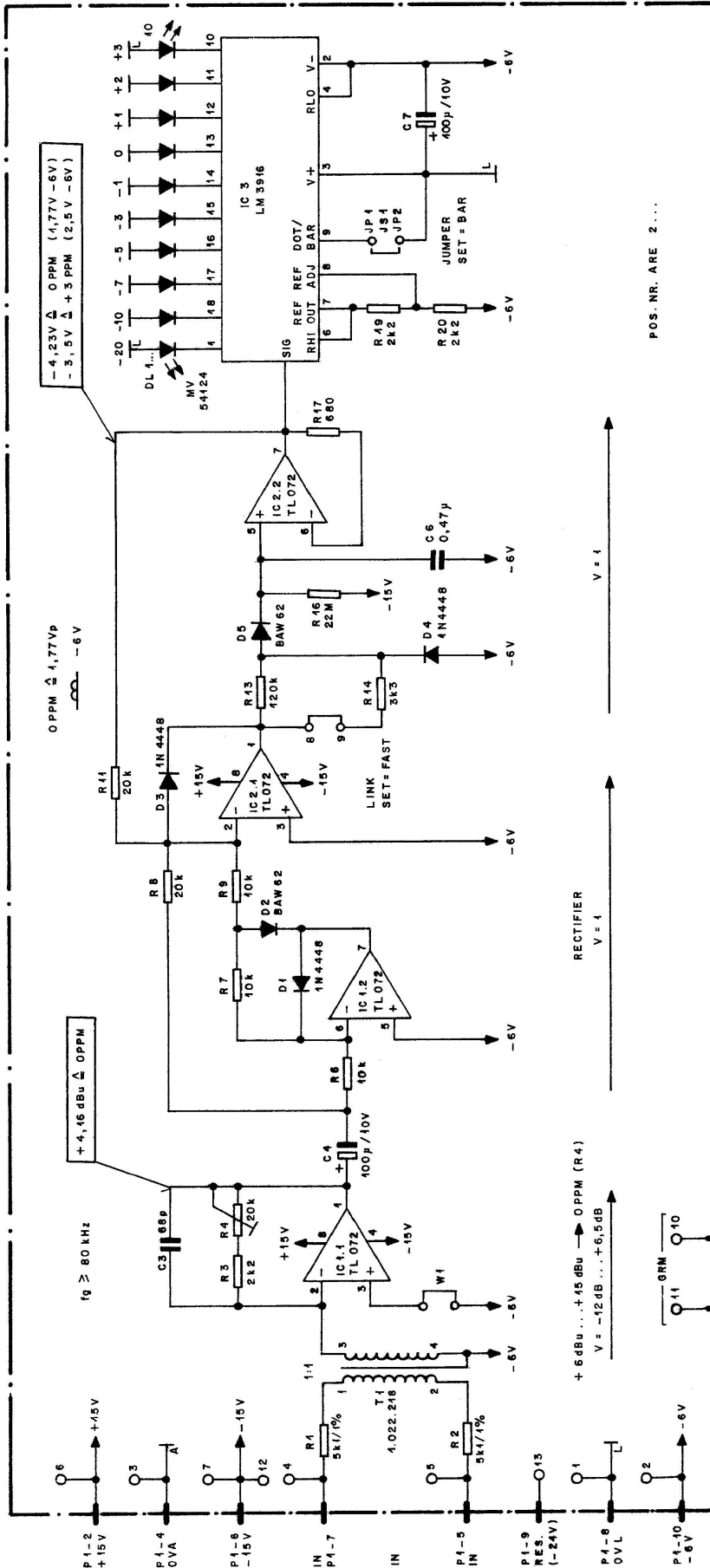
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 Q 1	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23
0 Q 2	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23
0 Q 3	50.60.0050	1 pce	BC817-25	NPN 45V 800mA SOT 23
0 Q 4	50.60.1050	1 pce	BC807-25	PNP 45V 800mA SOT 23
0 Q 5	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23
0 Q 6	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23
0 R 1	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 2	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 3	57.60.1000	1 pce	0R0	MF, 0204
0 R 4		1 pce	not used	MF, 0204
0 R 5	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 6	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 7	57.60.1223	1 pce	22k	MF, 1%, 0204, E24
0 R 8	57.60.1000	1 pce	0R0	MF, 0204
0 R 9		1 pce	not used	MF, 0204
0 R 10	57.60.1000	1 pce	0R0	MF, 0204
0 R 11		1 pce	not used	MF, 0204
0 R 16	57.60.1122	1 pce	1k2	MF, 1%, 0204, E24
0 R 17	57.60.1105	1 pce	1M0	MF, 1%, 0204, E24
0 R 18	57.60.1392	1 pce	3k9	MF, 1%, 0204, E24
0 R 19	57.60.1682	1 pce	6k8	MF, 1%, 0204, E24
0 R 20	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0 R 21	57.60.1122	1 pce	1k2	MF, 1%, 0204, E24
0 R 22	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0 R 23	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 24	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
2 R 25		1 pce	not used	MF, 0204
0 R 26	57.60.1471	1 pce	470R	MF, 1%, 0204, E24
0 R 27	57.99.0252	1 pce	47	MF 10%, +4500ppm
0 R 28	57.60.1564	1 pce	560k	MF, 1%, 0204, E24
0 R 29	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 31	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0 R 32	57.60.1362	1 pce	3k6	MF, 1%, 0204, E24
0 R 33	57.60.1362	1 pce	3k6	MF, 1%, 0204, E24
0 R 34	57.60.1821	1 pce	820R	MF, 1%, 0204, E24
0 R 35	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 42	57.60.1335	1 pce	3M3	MF, 1%, 0204, E24
0 R 43	57.60.1125	1 pce	1M2	MF, 1%, 0204, E24
0 R 44	57.60.1106	1 pce	10M	MF, 1%, 0204, E24
0 R 48	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0 R 49	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0 R 50	57.92.7012	1 pce	0.3A	PTC 60V
0 R 52	57.60.1153	1 pce	15k	MF, 1%, 0204, E24
0 R 53	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0 R 54	57.60.1272	1 pce	2k7	MF, 1%, 0204, E24
0 R 55	57.60.1184	1 pce	180k	MF, 1%, 0204, E24
0 R 56	57.60.1106	1 pce	10M	MF, 1%, 0204, E24
0 R 57	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 58	57.60.1512	1 pce	5k1	MF, 1%, 0204, E24
0 R 59	57.60.1471	1 pce	470R	MF, 1%, 0204, E24
0 R 66	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0 RA 1	58.60.0121	1 pce	20k	SMD 20%, 0.25W, Cermet
0 RA 2	58.60.0113	1 pce	1k0	SMD 20%, 0.25W, Cermet
0 RA 3	58.01.9103	1 pce	10k	Cermet, 10%, 0.5W, vertical
0 T 1	1.022.625.00	1 pce		SCHALTSTRAFO 3:1
0 T 2	1.022.218.00	1 pce	1 : 1	EINGANGSTRAFO 1 : 1
0 TP 1	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 2	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 3	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 4	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl
0 TP 5	54.02.0471	1 pce		Stift d 1.5 * 5.5 lötl

End of List

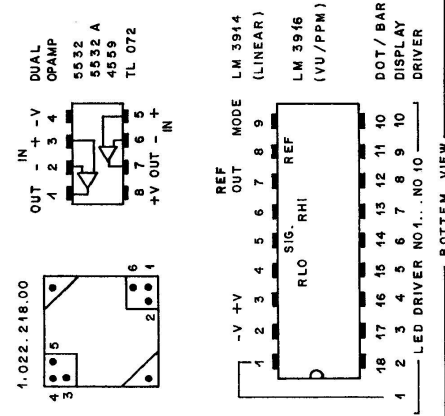
Comments:

- (01) Offset-voltage of IC 9 LF 353 too large  
->replaced by MC 33078
- (02) R25 not used
- (03) DV4 added

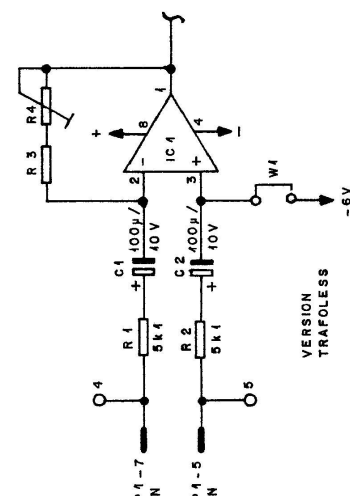
LED PPM Meter (10 LED) 1.913.291.00



POS. NR. ARE 2...



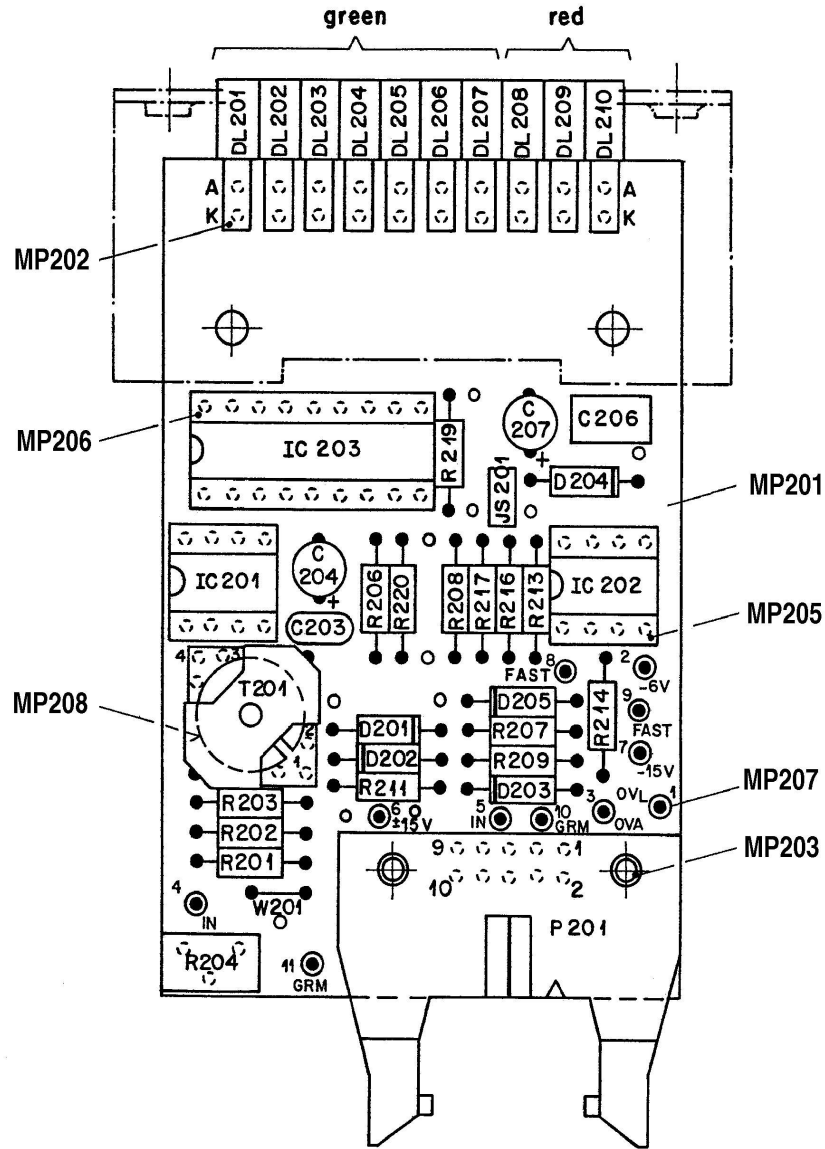
P	NO NAME	REMARK (PCB CONNECTOR)
P...1	1 GRM	INPUT GRM
P...2	2 +10V	+ SUPPLY
P...3	3 GRM	INPUT GRM
P...4	4 OV-A	GROUND AUDIO
P...5	5 IN	INPUT AUDIO
P...6	6 -45V	- SUPPLY
P...7	7 IN	INPUT AUDIO
P...8	8 OV-L	GROUND SIGN. (LOGIC)
P...9	9 RES.	RESERVE (-24V)
P...10	10 -6V	- SUPPLY



VERSION TRAFOLESS



**LED PPM Meter (10 LED) 1.913.291.00**



Werkstoff	Norm-Nr.:	Güte:		Änderung					③	
	DIN-Bez.:	Beh.:								②
	Abmessung:									①
Zugehörige Unterlagen:		Freimasstoleranz:	Maßstab:	Ausgabe	22.10.87	A.Ho	Zi	Ja	④	
<b>PL</b>		±		Datum	Gez.	Gepr.	Ges.	Index		
Ersatz für:		Ersetzt durch:		Kopie für:						
<b>STUDER</b> REGENSDORF ZÜRICH		Benennung: <b>LED PPM METER ESE</b>			Nummer: <b>1.913.291-00</b>					

**LED PPM Meter (10 LED) 1.913.291.00 ( 1)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 201		not used	not used					
0	C 202		not used	not used					
0	C 203		59.34.2680	68p					CER 63V, 5%, N150
0	C 204		59.22.3101	100u					EL 10V 20% RM5
0	C 205		not used	not used					not used
0	C 206		59.06.5474	470n					PETP, 63V, 5%, RM5
0	C 207		59.22.3101	100u					EL 10V 20% RM5
0	D 201		50.04.0125	1N4448					75V, 150mA, 4ns, DO-35
0	D 202		50.04.0132	BAW62					D BAW 62
1	D 203		50.04.0125	1N4448					75V, 150mA, 4ns, DO-35
1	D 204		50.04.0125	1N4448					75V, 150mA, 4ns, DO-35
0	D 205		50.04.0132	BAW62					D BAW 62
0	D 206		not used	not used					not used
0	DL 201		50.04.2146	MV54124A					LED green
0	DL 202		50.04.2146	MV54124A					LED green
0	DL 203		50.04.2146	MV54124A					LED green
0	DL 204		50.04.2146	MV54124A					LED green
0	DL 205		50.04.2146	MV54124A					LED green
0	DL 206		50.04.2146	MV54124A					LED green
0	DL 207		50.04.2146	MV54124A					LED green
0	DL 208		50.04.2119	MV57124A					LED red
0	DL 209		50.04.2119	MV57124A					LED red
0	DL 210		50.04.2119	MV57124A					LED red
0	IC 201		50.09.0101	TL072					Dual op-amp biFET
0	IC 202		50.09.0101	TL072					Dual op-amp biFET
0	IC 203		50.11.0144	LM3916					LED Bar/Dot driver
0	JP 201		54.01.0020	1p					Pin, 1reihig, gerade
0	JP 202		54.01.0020	1p					Pin, 1reihig, gerade
0	JS 201		54.01.0021	Jumper					0.63*0.63mm, Au
0	MP 201		1.913.290.11	1 pce					LED METER PCB
0	MP 202		1.010.012.50	10 pcs					LED-spacer universal
0	MP 203		28.99.0119	2 pcs					ROHRNIETE D 2.5*0.15* 9
0	MP 204		not used	not used					not used
0	MP 205		53.03.0166	2 pcs					8p DIL-socket 0.3"
0	MP 206		53.03.0175	1 pce					18p DIL 0.3", lötl, gerade
0	MP 207		54.02.0471	11 pcs					Stift d 1.5 * 5.5 lötl
0	MP 208		1.010.004.61	1 pce					RM5 Isolierscheibe d=10
0	P 201		54.14.2011	10p					Winkelstecker Au
0	R 201		57.11.3512	5k1					MF, 1%, 0207
0	R 202		57.11.3512	5k1					MF, 1%, 0207
0	R 203		57.11.4222	2k2					MF, 2%, 0207
0	R 204		58.01.9203	20k					Cermet, 10%, 0.5W, vertical
0	R 205		not used	not used					not used
				<i>replaced by W 201</i>					
0	R 206		57.11.4103	10k					MF, 2%, 0207
0	R 207		57.11.4103	10k					MF, 2%, 0207
0	R 208		57.11.3203	20k					MF, 1%, 0207
0	R 209		57.11.4103	10k					MF, 2%, 0207
0	R 210		not used	not used					not used
0	R 211		57.11.3203	20k					MF, 1%, 0207
0	R 212		not used	not used					not used
				<i>replaced by D 203</i>					
0	R 213		57.11.4823	82k					MF, 2%, 0207
0	R 214		57.11.4332	3k3					MF, 2%, 0207
0	R 215		not used	not used					not used
				<i>replaced by D 205</i>					
0	R 216		57.11.6226	22M					MF, 10%, 0207
0	R 217		57.11.4681	680R					MF, 2%, 0207
0	R 218		not used	not used					not used
0	R 219		57.11.4222	2k2					MF, 2%, 0207
0	R 220		57.11.4222	2k2					MF, 2%, 0207
0	R 221		not used	not used					not used
0	T 201		1.022.218.00	1 : 1					EINGANGSTRAFO 1 : 1
0	W 201		1.010.321.64	RM5.0					U shaped wire 0.6mm

End of List

Comments:

(01) D203, D204 changed

## Level meter VU/PPM 30 LED and gain reduction meter 10 LED

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	Gain reduction meter	
	▪ Diagram .....	9
	▪ Component layout, position list .....	10

### SCOPE OF VALIDITY

This manual applies to the following modules:

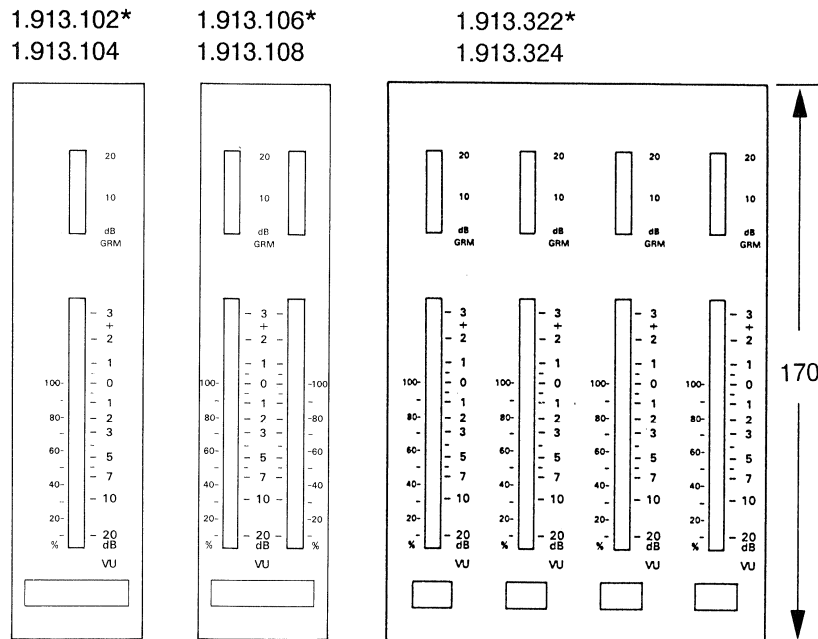
<b>Display</b>	<b>1 Channel</b>	<b>2 Channels</b>	<b>4 Channels</b>	<b>PCB Nr.</b>
PPM	1.913.101	1.913.105	1.913.321	1.913.295
VU	1.913.102	1.913.106	1.913.322	1.913.295
PPM / GRM	1.913.103	1.913.107	1.913.323	1.913.295/297
VU / GRM	1.913.104	1.913.108	1.913.324	1.913.295/297

1. General

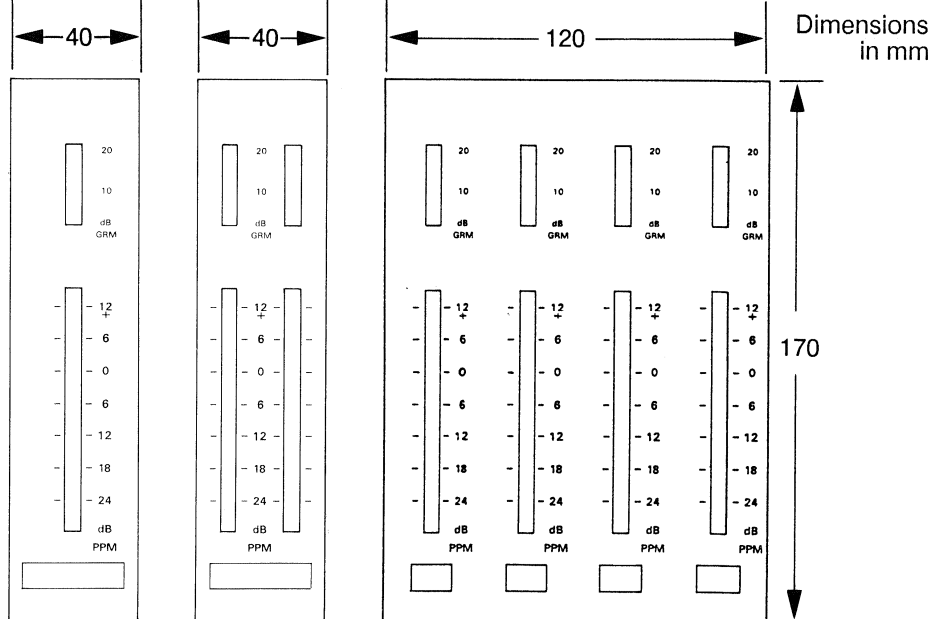
The **STUDER output meter VU-PPM 30 LED** has been developed for installation into the display panel of STUDER mixing consoles. Instruments with VU (volume unit) or PPM (peak program meter) characteristic are available. In place of the bar indication, an optional dot indication is available.

The instruments listed below are equipped with the two PCBs 1.913.295 (VU/PPM) and 1.913.297 (GRM) corresponding to the table on page 1. The circuit diagram relating to the corresponding circuit board number should be consulted.

«Volume Unit Meters»



«Peak Program Meters»

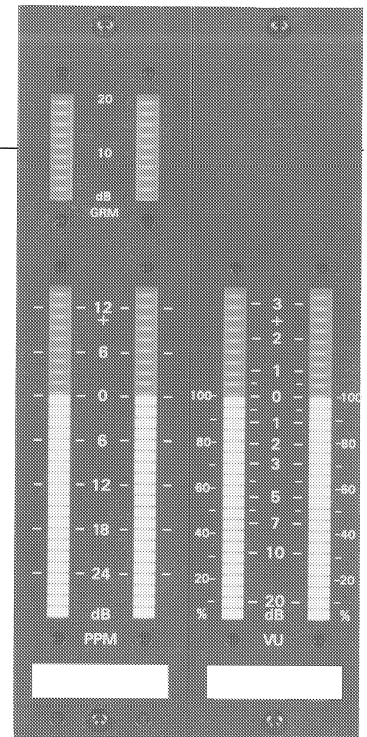


1.913.101*	1.913.105*	1.913.321*
1.913.103	1.913.107	1.913.323

\* = Version without gain reduction meter (GRM)

## 2. Functional description

- PPM:** The peak program meter is a quasi-peak value instrument with a long release time. When a signal voltage corresponding to a level of 0 dB is applied for 10 ms, the resulting indication should be -1 dB. The desired decay time to -20dB is 1.7 s.
- VU-meter:** The VU-meter indicates signals according to the standard defined by ANSI 1954. When a signal with a duration of 300 ms is applied, the indication should be 99% of the reference value. The rise and decay time on the VU-meter are identical. The factory set lead is 6 dB.
- Gain reduction meter:** When the limiter/compressor is switched on, the GRM indicates the magnitude of the gain reduction.



## 3. Technical data

PCB 1.913.295

### General:

$$0 \text{ dBu} \hat{=} 0.775 V_{\text{eff}}$$

	Input sensitivity of the reference indication:	-1 dBu... +16 dBu
	Input impedance	> 10 k $\Omega$
	Supply:	<u>DC <math>\pm</math> 15 V</u> or <u>DC +24 V</u>
	Current consumption: Quiescent	45mA / 35 mA
	Medium load	58mA / 56mA
	Full load	80mA / 80 mA
<b>VU-meter:</b>	Indicating range:	-20VU... +30VU
	Accuracy:	$\pm$ 1 segment
	(precond.: -10VU... +3VU/0...50°C/31.5Hz...16kHz)	
	Response time to -1VU:	207( $\pm$ 30)ms
<b>PP-meter:</b>	Indicating range:	-30dBu... +15dBu
	Accuracy:	$\pm$ 1 segment
	(precond.: -30dB... +15dB/0...50°C/31.5Hz...16kHz)	
	<b>Dynamic behavior:</b>	
	Jumper normal: 0dB for 10 ms	$\rightarrow$ indication: -1dB $\pm$ 0.5dB
	Jumper normal: 0dB for 3ms	$\rightarrow$ indication: -4dB $\pm$ 1dB
	Jumper fast: 0dB for $\sim$ 100 $\mu$ s	$\rightarrow$ indication: 1dB
	Decay time 0...-20dB:	1.7( $\pm$ 0.3)s
<b>Circuit board sizes:</b>	Height x depth, with connector:	96 mm x 95 mm
	Width:	18 mm
	Center between M3 mounting holes:	85.1 mm (3.35")

4. Block diagram

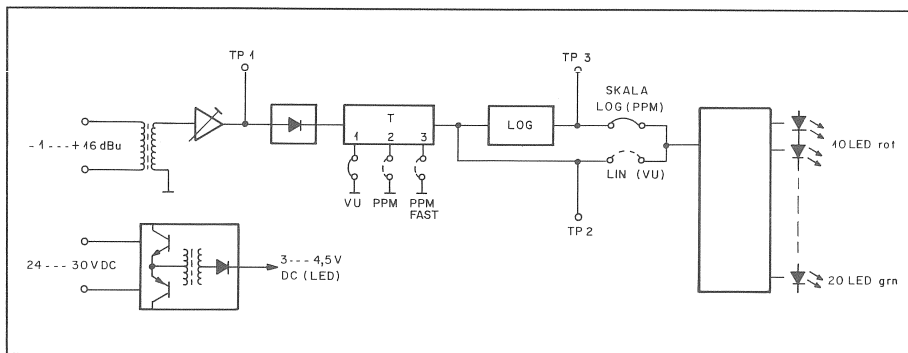


Fig. 2 VU-PPM block diagram: The settings VU/PPM/PPM fast or lin/log are established with the jumpers JS 1 and JS 2 respectively (see Fig. 3)

5. Alignment instructions VU/PP meter

PCB 1.913.295

Measuring instruments:

- AC voltmeter  $R_i \geq 20 \text{ k}\Omega$
- DC voltmeter  $R_i \geq 100 \text{ k}\Omega$ , preferably digital VM
- Generator, 31.5Hz...16kHz, 0...16dBu; attenuator with 10dB increments.

Alignment elements

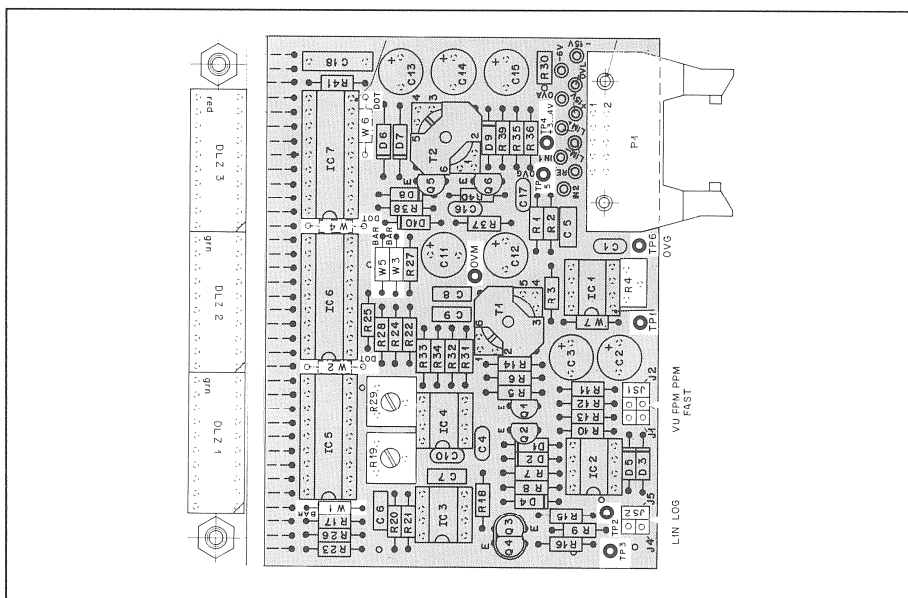


Fig. 3 Alignment elements of the VU/PPM 30 LED

Aligning the line level:

From the generator feed line level (-1dBu ... +16dBu) to the input. Align with R4 until all green LEDs are light and the red LEDs are still dark.  
 [ on TP3: 2.5(±0.1)V ]

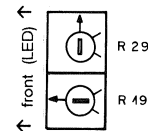
## 6. Maintenance instructions

PCB 1.913.295

**Test input range:** **Generator:** 1 kHz on input, level: -1dBu ... +16 dBu  
**AC VM:** Hot to TP 1, cold to TP 6 (0V G)  
 $U_{TP1}$  adjustable with R4 to 290(±10)mV AC

**Rectifier and indication:** Both jumpers set to the VU/LIN position.  
**Generator:** 1kHz with 0dBu level on input  
 $U_{TP1}$ : Adjust with R4 to 290(±2)mV AC. All green LEDs must be light.  
**DC VM:** Hot to TP2, cold to TP6.  
 $U_{TP2} = -380(±15)mV DC$   
**DC VM:** Hot to TP3, cold to TP6  
 $U_{TP3} = +2.575(±0.1)V DC$ . All green LEDs are light.  
**Check:** Adjust the generator level in such a way that:  
 $U_{TP3} = +3.8(±0.1)V DC$ . All diodes are light.  
 $U_{TP3} = +0.17(±0.02)V DC$ . Only the lowest green LED is light.

**Logarithmation (PPM):** Both jumpers are set to PPM/LOG.  
**Generator:** 1kHz with +6dBu level on input.  
 Set  $U_{TP2}$  with R4 to 1.18(±0.05V) DC.  
 The two trimmers have the following basic setting:

**Alignment procedure:**

**DC VM:** hot to TP3, cold to TP6.

**A:** Align the upper value with R19. Desired:  $U_{TP3} = 3.06(±0.10)V$ .  
 All green LEDs and 4 red LEDs are light. Indication +6dB.

**B:** Attenuation by 30 dB with attenuator.

**C:** Align the lower value with R29. Desired:  $U_{TP3} = 0.56(±0.02)V$ .  
 4 green LEDs are light. Indication -24 dB

Repeat the procedure A → B → C → A → ... several times.

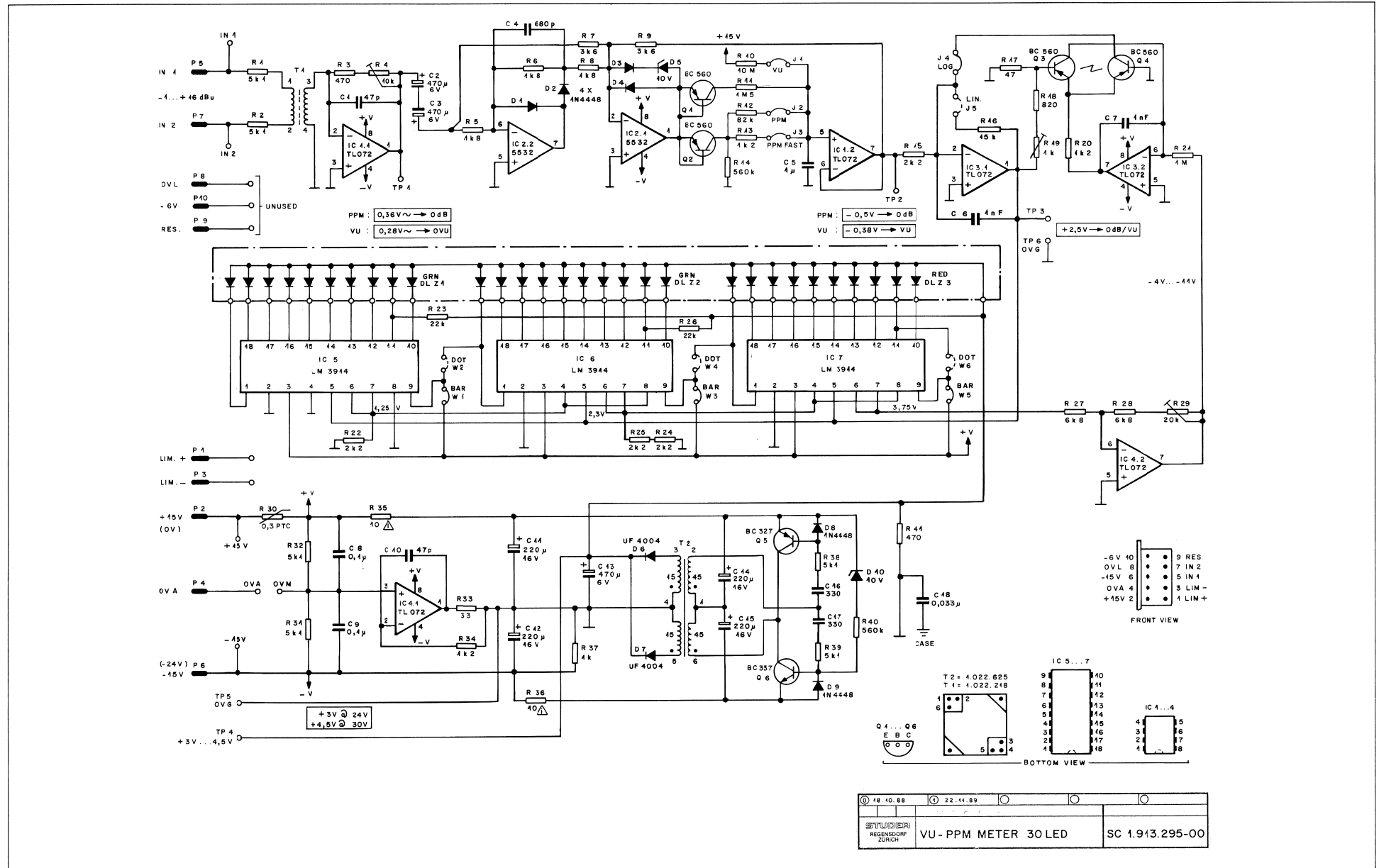
**DC/DC converter:** To check, connect the DC VM hot to TP4, cold to TP5. Generator with line level on input causes all green LEDs to light.  
 Supply voltage:      +24 V DC                      →TP4 = 3.1(±0.1)V  
                                  +30 V DC                      →TP4 = 4.1(±0.1)V





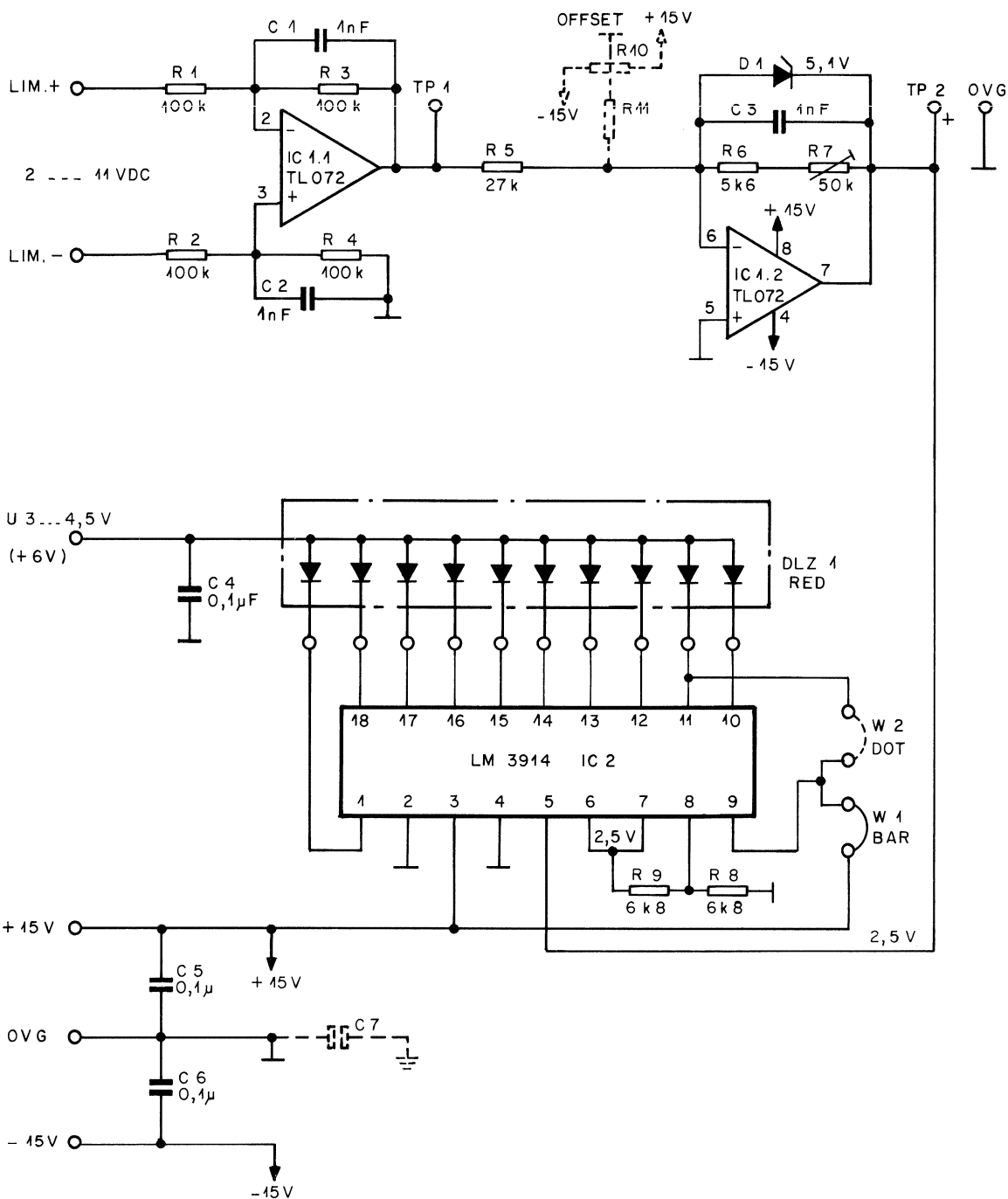
8. Diagrams / Schemata

VU- / PP - Meter 30 LED 1.913.295.00





Gain Reduction Meter 1.913.297.00

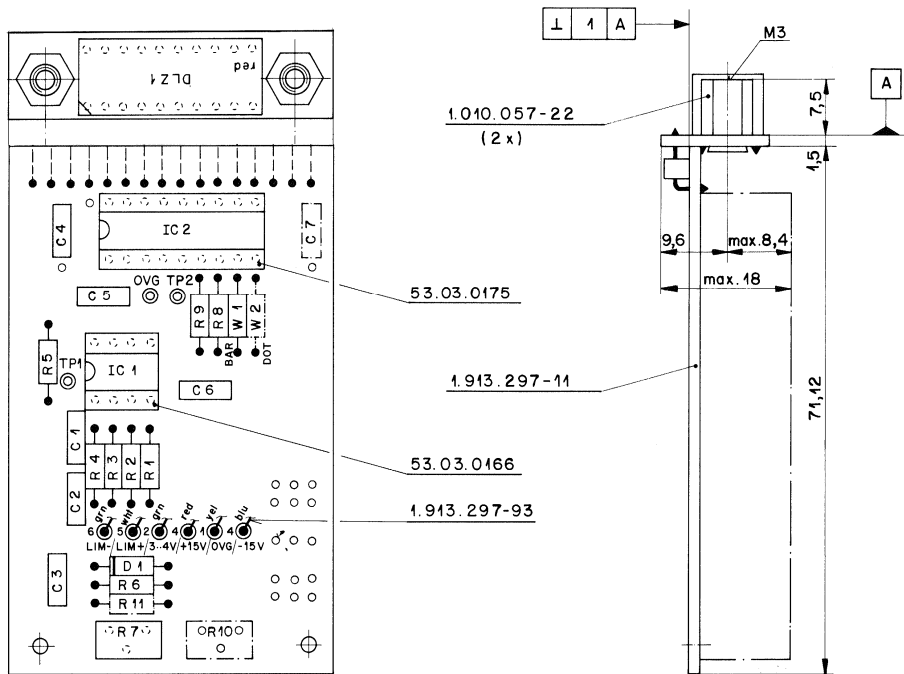


**SPECIFICATIONS** : UNIT WILL SUPPLIED BY VU/PPM METER 1.913.295.00 / 24V... 30V  
 CURRENT WILL INCREASE BY → IDLE : 10mA / LOAD : 25mA

© 13.11.89		
STUDER REGENSDORF ZÜRICH	GRM METER 10 LED	SC 1.913.297.00

VU / PPM 30 LED

Gain Reduction Meter 1.913.297.00



Schilder 1.913.297-04 / 43.01.0108  
aufgeklebt nach Fabrikationsmuster.

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.	IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
C...	01	59.06.5102	1 nF	5% PE							
C...	02	59.06.5102	1 nF	5% PE							
C...	03	59.06.5102	1 nF	5% PE							
C...	04	59.06.0104	0.1 uF	PE							
C...	05	59.06.0104	0.1 uF	PE							
C...	06	59.06.0104	0.1 uF	PE							
D...	01	50.04.1112	ZPD 5.1	V 5W 5.1V SI	any						
DLZ...	01	50.04.2150	10 LED	DISPLAY RED	HP						
IC...	01	50.09.0101	TL 072	dual op. amp.	NS, TI						
IC...	02	50.11.0119	LM3914	led bar/dot lin.	NS						
MP...	01	1.913.297.11	1 pcs	GRM METER 10 LED PCB	St						
MP...	02	1.010.057.22	2 pcs	Hexagon post NSM7.4							
MP...	03	53.03.0166	1 pcs	8-pin IC-socket							
MP...	04	53.03.0175	1 pcs	18-pin IC-socket							
MP...	05	54.11.0132	16 pcs	connection							
MP...	06	54.02.0471	9 pcs	plug (Rund - Steckstift)							
MP...	07	1.913.297.93	Li-Li	6 cable connections	St						
R...	01	57.11.3104	100 kOhm	1% 0.25W							
R...	02	57.11.3104	100 kOhm	1% 0.25W							
R...	03	57.11.3104	100 kOhm	1% 0.25W							
R...	04	57.11.3104	100 kOhm	1% 0.25W							
(00) R...	05	57.11.3473	47 kOhm	0.25W							
(01) R...	05	57.11.3273	27 kOhm	0.25W							
(00) R...	06	57.11.3103	10 kOhm	0.25W							
(00) R...	06	57.11.3562	5.6 kOhm	0.25W							
R...	07	58.01.9503	50 kOhm	10% 0.50W trim							
R...	08	57.11.3682	6.8 kOhm	1% 0.25W							
R...	09	57.11.3682	6.8 kOhm	1% 0.25W							
W...	01	57.11.3000		Wire link BAR, W2 DOT							

ORIG 88/10/31 (01) 89/11/22

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**Bargraph Display**

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**Contents**

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**REFERENCE**

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This manual refers to the following units:

Dual Bar Graph PPM	1.913.111
Dual Bar Graph VU	1.913.112
8 Channel Bar Graph PPM	1.913.411
8 Channel Bar Graph VU	1.913.412

## 1. Technical Description

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The output meter, whatever it may be called, is one of the most important tools in audio engineering. Wherever audio signals are being processed, it is an essential, because the output level is an important criterion. On the one hand, maximum output level is needed for achieving the best signal-to-noise ratio, on the other hand the reference level should not be exceeded, particularly in digital recordings, otherwise distortion will increase dramatically.

Two types of output meters with different dynamic characteristics have proven themselves useful in recording studios:

### Volume Unit Meter (VU)

The most frequently used instrument for measuring audio frequency signal levels is the VU-meter. In the ANSI standard (American National Standards Institute, Inc.), the mechanical and electrical behavior of the VU-meter was already defined in 1954. The rule is that the indication shall be 99% of the ultimate value (0 VU) when a signal of 0.3 s (300 ms) duration is applied. The overshooting of the indication shall be between 1...1.5%. The rise and decay time are identical in the VU-meter.

In the conventional version a VU-meter consists of a suitable moving coil instrument and a full-wave rectifier connected to the input.

### Peak Program Meter (PPM)

The PPM is a more recent instrument. Its behavior is defined in the applicable DIN or IEC standards. The principal difference to the VU-meter is in the integration time: the PPM is a quasi peak value instrument with a long release time. A peak value will be indicated even for very short peaks in a music program.

If a sine wave voltage is applied for 10 ms that yields a level of 0dB, the indication should be -1dB. A release time of 1.7 s is desired for levels down to -20dB (IEC).

### Instrument Types

An advanced alternative to electromechanical analog displays are the gas discharge bargraph displays. Neon gas that is induced to glow between two glass plates emits visible light. The plasma display has some decisive advantages over all the other displays. For example: large reading angle and high contrast combined with low power consumption and long life. Its disadvantages are: high anode voltage (250 V), high price, and sophisticated electronic circuitry. Despite these drawbacks this excellent type of display has become the de-facto standard in professional studio applications.

### Implementation of the Studer Bargraph Output Meters

The design specifications for a precision metering instrument that would not be too costly but still have a modular design resulted in the following arrangement; two individual circuit boards, one for the two-channel signal processing paths and one for the digital section with the switching power supply. In this way it became feasible to achieve a modular design: four signal modules for eight channels but only one digital module.

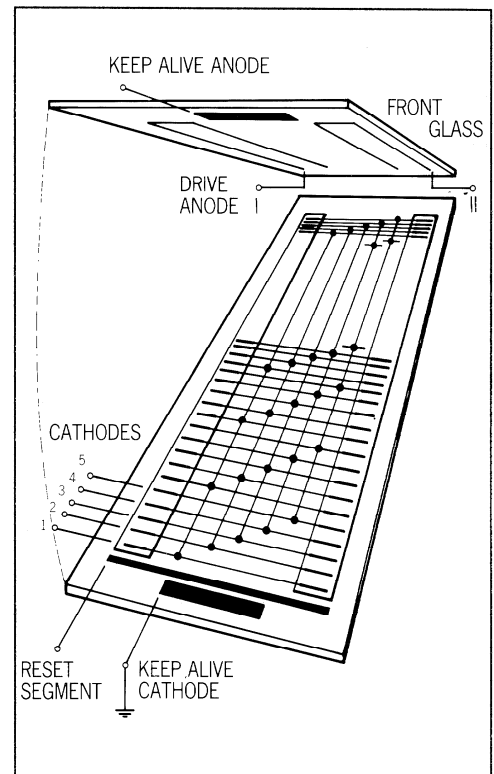
## BARGRAPH

The operating principle of the individual elements that make up the bargraph display is depicted in the following picture:

## Plasma Tube

After the 250 VDC supply voltage has been applied, a continuous glow discharge is triggered between the pre-ionization anode and cathode. Since the area around the pre-ionization segment is not physically isolated from the neighboring segments, the charge carriers diffuse into the area of the reset cathode. When the latter is energized first, a glow discharge occurs also here. The same effect causes the first segment to light up (ignite), if the reset cathode is switched off while cathode 1 is switched on. Although each 5th segment is electrically interconnected, only the lowest one glows because sufficient charge carriers are located in its vicinity.

The cathodes 1-2-3-4-5 / 1-2-3-4...etc. are now controlled in this order. The glow discharge migrates segment by segment to the last segment. A new cycle is then initiated by means of the reset segment.



Plasma tube

The length of the bargraph is controlled by the power-on duration of the corresponding anode while the cathodes are controlled cyclically in the dark segment. This design requires only 8 connections or driver stages (2 anodes, 1 reset cathode and 5 write cathodes) for controlling the 2 x 200 segments. In order to create a flicker-free bargraph the refresh rate must be at least 70 Hz. Unnoticeable to the viewer is, however, that only one segment glows at any one moment!

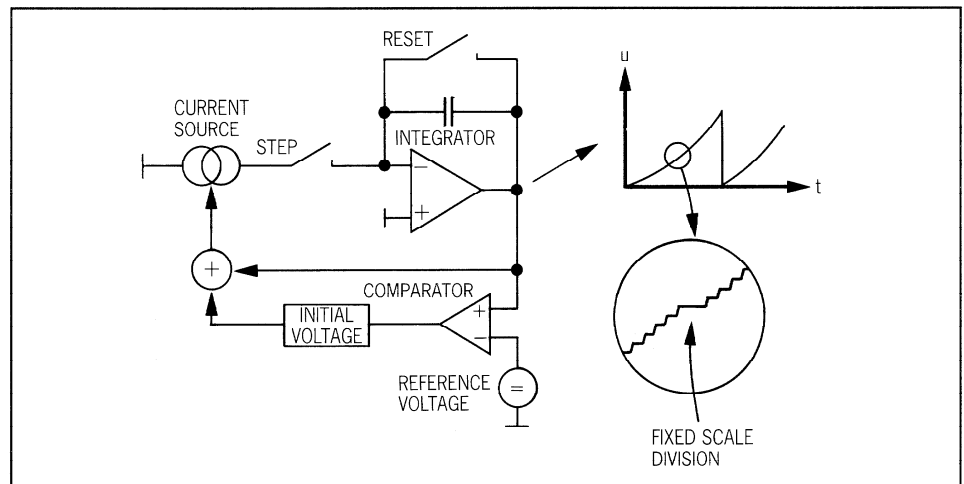
## Analog Electronics

The audio section is shown in the block diagram (see p.12). The isolated AF signal is taken to the level stage; the large working range permits the connection of almost any level. For very small levels a +20 dB amplifier is provided. The low-pass filter of the 3rd order attenuates frequencies of over 20 kHz. This circuit is followed by a sophisticated rectifier stage that compensates very carefully with respect to the offset voltages.

For the VU representation, the rectified signal is fed to a filter that duplicates the characteristic of mechanical moving coil instruments. For the PPM representation, the peak value of the rectified signal is formed.

### Digital Electronics

The digital section performs various functions. Not only does it process the signals for the plasma tube, it also is responsible for generating the ramp. A totally new approach has been selected for the ramp generation. Normally the audio signal is converted to logarithmic characteristic in an amplifier in order to achieve dB representation. The resulting signal is subsequently compared with a time-linear ramp. However, the same can be accomplished by comparing the linear AF signal with an exponential ramp, without the typical problems of a logarithmic circuit (temperature dependence, offset). In addition, more instruments can be controlled by means of a ramp (in the digital section); no logarithmic circuits are required.



**Ramp generator**

While a capacitor is charged with a constant current, the terminal voltage rises linearly. If this source is equipped with a positive feedback that converts the continually rising voltage to a continually increasing current, we obtain an exponentially progressing terminal voltage.

If the capacitor is discharged after a while, the initial voltage for starting the cycle is missing. A control circuit is available that prepares the initial voltage in such a way that a reference value is achieved after a certain time.

For inserting fixed scale divisions, the capacitor charging is interrupted during three cycle units. As a result the corresponding segment glows three times longer and consequently appears to be brighter.

By disconnecting the above mentioned positive feedback, the linear ramp is again obtained for representing VU values or representable DC values.

The ramp oscillator also supplies the input signal for a binary counter that increments until reset. The outputs of the counter are address lines for an EPROM which generates the 5-phase signal and a reset signal for creating the fixed scale divisions as well as a reset signal for the counter. With the two remaining address lines it is possible to insert different scale divisions.

### Future Application

The new bargraph instrument also features a LED column for indicating limiter or compressor gain reduction signals. With the externally controllable selection of VU or PPM characteristic it is also possible to display DC voltages on linear or logarithmic scale. The built-in switching power supply supports a large range of DC supply voltages.

For PCM recordings a faster response time ( $t = 0.1 \text{ ms}$ ) may be selected by a switch.



## BARGRAPH

## 2. Technical Data

## PEAK PROGRAM METER SPECIFICATION

Reference Indication	0 dB = 0 dBu .... + 15 dBu
Indicating Range	+ 5 dB .... - 40 dB
Error	± 0.2 dB (± 2 segments) within + 5 dB and - 40 dB
Frequency Response	± 0.5 dB between 31.5 Hz and 16 kHz at 0° C .... 50° C
Dynamic Response	according to IEC publication 268-10 1974:

SINGLE BURST	FREQUENCY	DEFLECTION VALUE	SLOW TOLERANCE	DEFLECTION FAST
10 ms	3 kHz	- 1 dB	± 0.5 dB	-0,3 dB
5 ms	3 kHz	- 2 dB	± 1 dB	-0,6 dB
3 ms	3 kHz	- 4 dB	± 1 dB	-0,8 dB
0.4 ms	10 kHz	- 15 dB	± 3 dB	-1,0 dB

Overswing	none
Return Time	0 dB .... - 20 dB: 1.7 ± 0.3 seconds

## VU-METER SPECIFICATION

Reference Indication	0 VU = - 4 dBu .... + 11 dBu
Indicating Range	+ 3 VU .... - 20 VU, voltage linear
Frequency Response	+ 1.0/- 0.0 dB at 0 VU and 31.5 Hz; Temperature range 0° C .... 50° C
Response Time	207 ms (± 30 ms) to - 1 VU of reference indication
Overswing	1 ... 1.5 %
Return Time	207 ms (± 30 ms).

**DC METER SPECIFICATION****Display Range**

INDICATION	NORMAL			REVERSE
	TOP END	0 V	0 V	- 1 V
BOTTOM	+ 10 V	+ 6 V	+ 6 V	- 10 V

There is mutual influence between the alignment of 'Top End' and 'Bottom' indication. The values in the row 'Normal' are ment to be examples for possible settings.

**GENERAL SPECIFICATIONS**

<b>Input Impedance</b>	> 10 kOhm
<b>Source Impedance</b>	< 1 kOhm
<b>Reversibility Error</b>	< 0.5 dB
<b>Temperature Range</b>	error $\pm$ 0.5 dB in the range - 10° C ... + 60° C (reference: 1 kHz at 25° C)
<b>Supply Voltage</b>	24 V ... 34 V (or $\pm$ 15 V)
<b>Power Consumption</b>	dual unit: 3.5 W typ., 5.0 W max. 8 channels: 9.5 W typ., 14.5 W max.
<b>Mechanical Dimensions</b>	dual unit: 40 mm(W) x 170 mm(H) x 130 mm(D) 8 channel unit: 160 mm(W) x 170 mm(H) x 130 mm(D)
<b>Weight</b>	dual unit: 640 g 8 channel unit: 1600 g

**GR METER SPECIFICATION**

<b>Input Range</b>	$\pm$ 2 V ... $\pm$ 5 V for + 20 dB indication
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## BARGRAPH

### 3. Alignments and Settings

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**Note:** The Analog Print 1.913.117 contains two channels, so each adjustment pot exists twice. All adjustments have to be performed on all channels.

The Digital Print 1.913.118 exists only once per unit, be it a two or eight channel device.

#### 3.1 Adjustments

---

##### Level Setting

For adaptation to different line levels only the following adjustment is necessary:

- Feed reference level 1 kHz (e.g. +6 dBu)
- adjust 0 dB indication on bargraph with R 5 (R 105) Potentiometer is marked **AUDIO GAIN**

##### Complete Adjustment

In case of part exchange a full adjustment procedure may be necessary. In this case proceed in the following steps:

**AC Input:** Set unit to "PPM", "+20 dB off", and "Not fast" (see below)

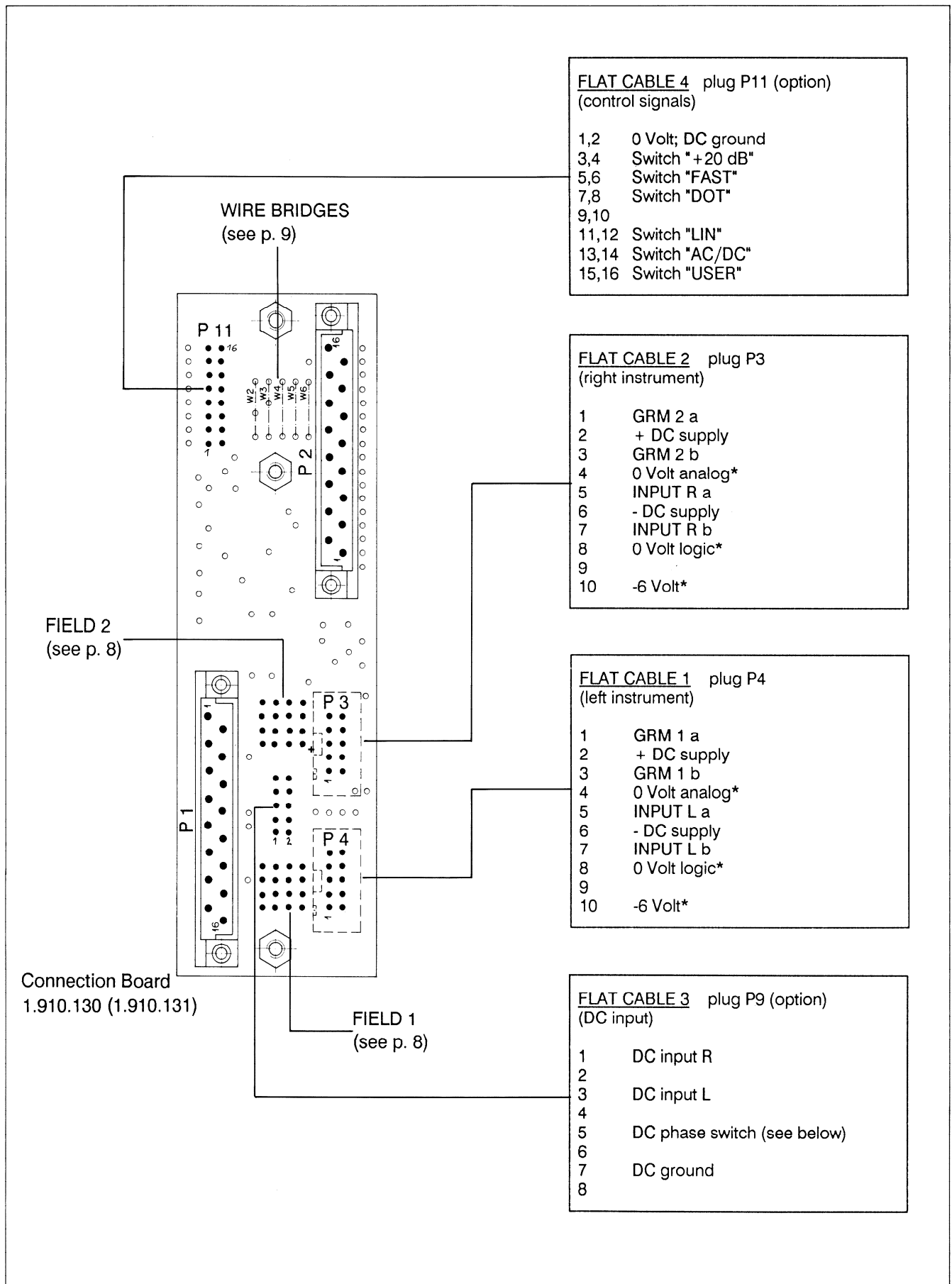
- Disconnect input, terminate input with 200 Ohm
- adjust minimal level ( $0 \pm 1$  mV) at pin 7 of IC 6 (internal potentiometer)
- Feed reference level 1 kHz (e.g. +6 dBu)
- adjust 0 dB indication on bargraph with R 5 (R 105). Potentiometer is marked **AUDIO GAIN**
- Feed 20 dB below reference level 1 kHz (e.g. -14 dBu)
- adjust -20 dB indication with R 64 (potentiometer on digital print; do not readjust after the first channel has been properly adjusted)
- Feed 30 dB below reference level 1 kHz (e.g. -24 dBu)
- adjust -30 dB indication with R 30 (R 130). Potentiometer is marked **AUDIO OFFSET**
- Repeat all steps until all indications are correct.

**DC Input:** Set unit to "DC" and adjust the wanted input phase configuration (see below).

- Feed maximum DC voltage.
- Adjust maximum indication with R 55 (R 155). Potentiometer is marked **DC GAIN**
- Feed minimum DC voltage
- Adjust minimum indication with R 63 (R 163). Potentiometer is marked **DC REF**
- Repeat all steps until all indications are correct.

- GRM Input:**
- Feed level 1 kHz required for a indication of +20 dB on the gain reduction meter.
  - Adjust indication with R 60 (R 160). Potentiometer is marked **GRM**

3.2 Connections

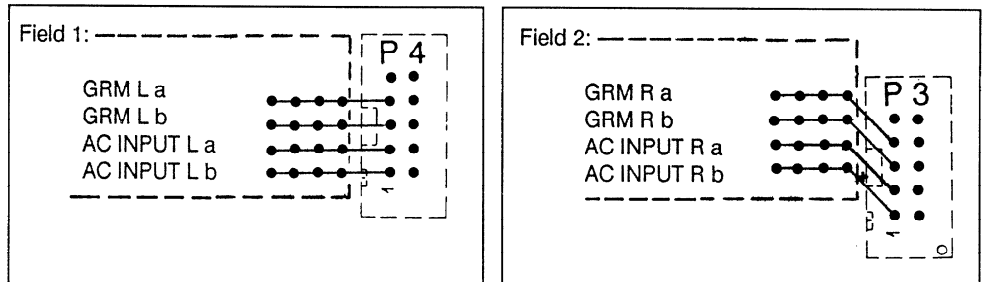


BARGRAPH

If the unit is powered by an unstabilized DC supply, an additional C may be installed (1000  $\mu$ F, 40 Volt, Order No. 59.22.6102).

Signals marked with an asterisk (\*) are not required for the bargraph.

The lines carrying the AC bargraph input and the GRM input signals may also be soldered to the unit (instead of feeding those signals via the flat cables; especially useful for operation outside STUDER mixers). The connection points are:



DC Supply

DC can be fed either via flat cable 1 or 2 or directly to the pins marked "+" and "-".

### 3.3 Function Settings

Some functions can be set both by wire bridges and by external switches. Do not duplicate!

#### Wire Bridges

BRIDGE	ON	OFF	
W2	■	■	INSTRUMENT ATTACK TIME 0.1 ms STANDARD ATTACK TIME (10 ms in PPM mode)
W3	■	■	GRM INDICATION AS SINGLE DOT GRM INDICATION AS BAR
W4			(reserved for future use)
W5 W6		■	PPM INDICATION
W5 W6	■	■	VU INDICATION
W5 W6		■	DC LOG INDICATION
W5 W6	■	■	DC LIN INDICATION

#### External Switches

"ON" means that either the pin is connected to ground (pin 1/2) or that a TTL low level is connected. "OFF" means that either the switch is open (internal pull-up resistor) or that a TTL high level is connected.

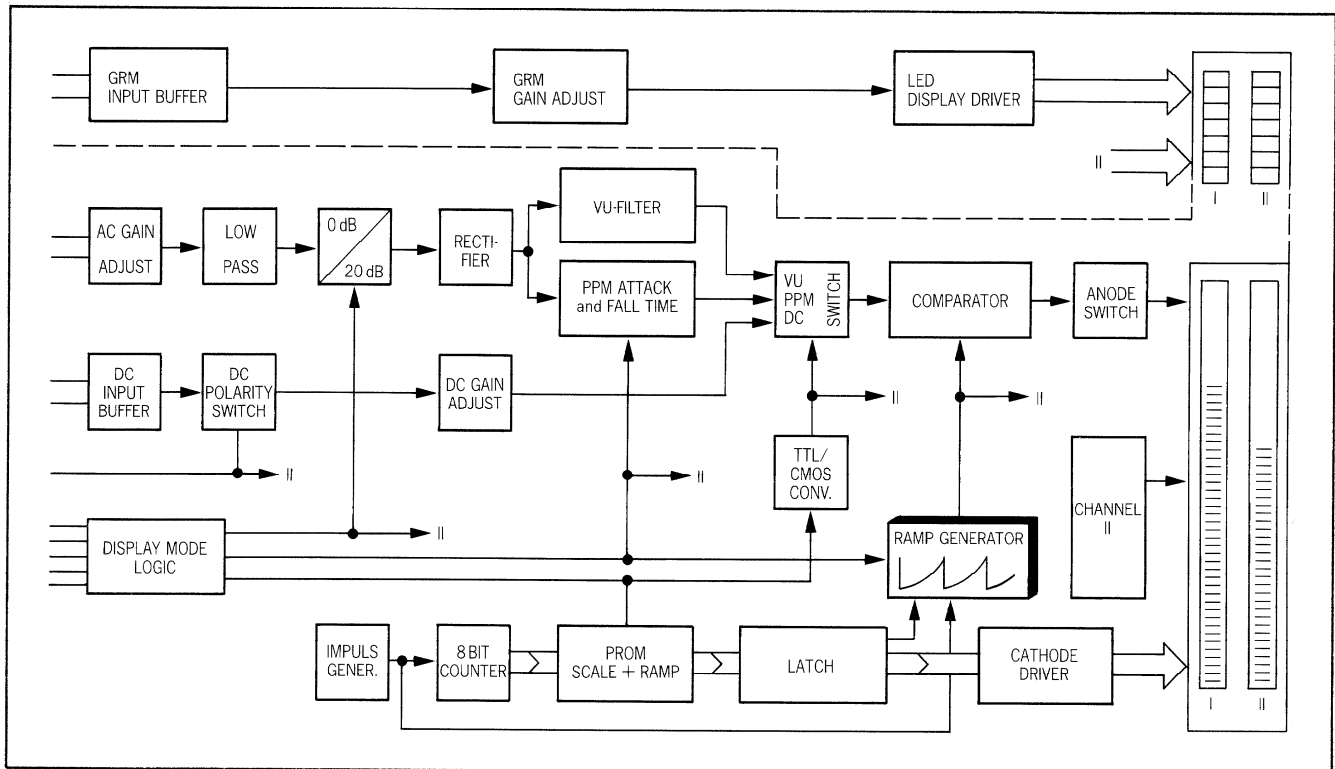
All external switches are connected via flat cable 4 (see above).

PIN	ON	OFF	
1,2			0 VOLT
3,4	■	■	AC GAIN +20 dB AC GAIN 0 dB
5,6	■	■	INSTRUMENT ATTACK TIME 0.1 ms STANDARD ATTACK TIME (10 ms in PPM mode)
7,8	■	■	GRM INDICATION AS SINGLE DOT GRM INDICATION AS BAR
11,12	■	■	LIN INDICATION (if DC selected), VU INDICATION (if AC selected, see 13/14) LOG INDICATION (if DC selected), PPM INDICATION (if AC selected, see 13/14)
13,14	■	■	DC AC
15,16	■	■	USER SWITCH: LED ON FRONT PLATE ON LED ON FRONT PLATE OFF

BARGRAPH

4. Block Diagram

Block Diagram for Channel I



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## 5. SCHEMATICS

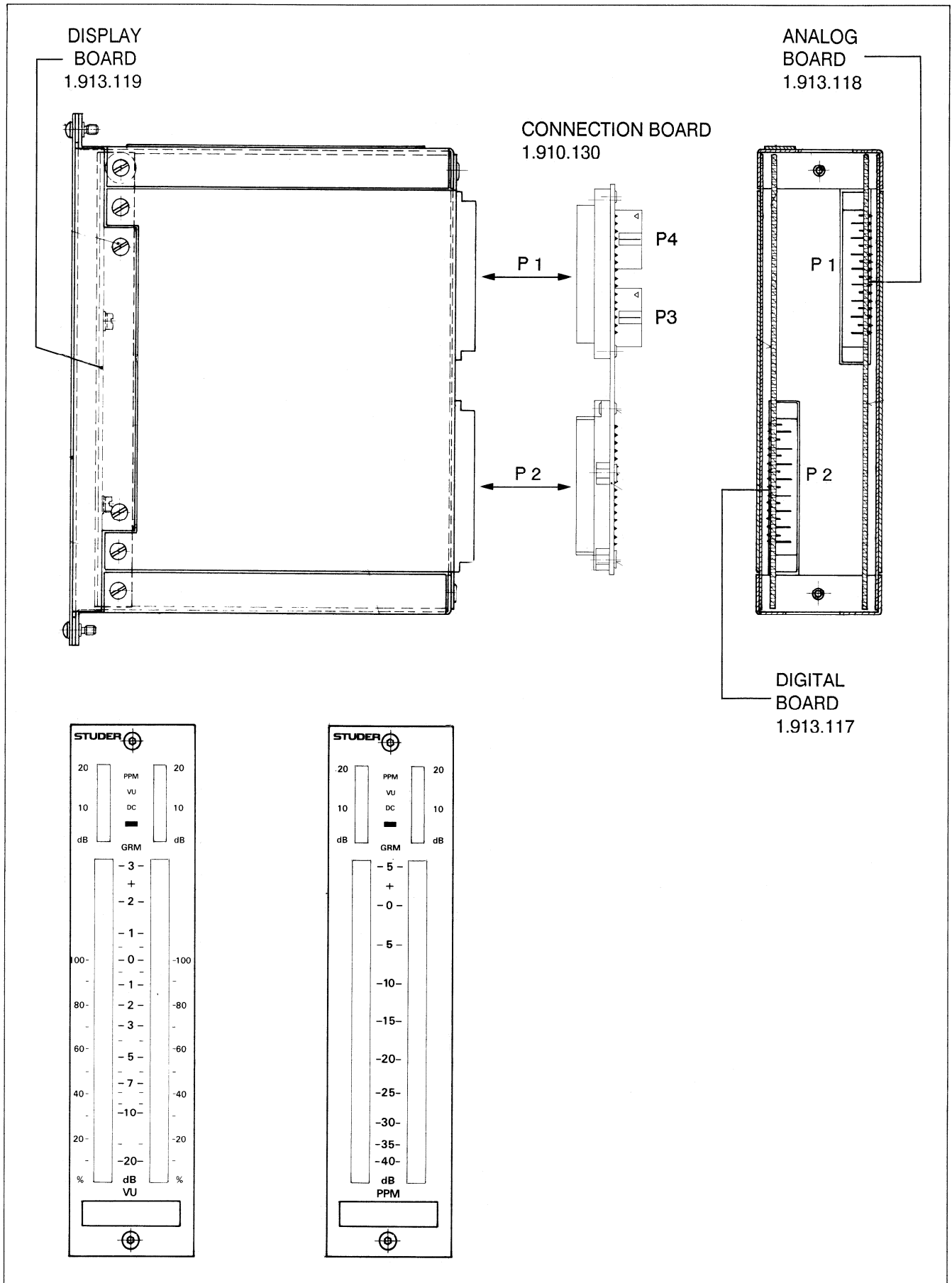
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1. **Bar Graph 1 Unit (VU or PPM)**
  - General..... 1.913.111 / 112
  - Display Board..... 1.913.119
  - Connection Board ..... 1.910.130
  
2. **Bar Graph 4 Units (VU or PPM)**
  - General..... 1.913.411 / 412
  - Display Board..... 1.913.419
  - Connection Board ..... 1.910.131
  
3. **Dual Bargraph circuit diagram..... 1.913.111/112**
  - Digital Board (1 Unit and 4 Units)..... 1.913.117
  - Analog Board (1 Unit and 4 Units) ..... 1.913.118



Bargraph 1 Unit (PPM or VU) 1.913.111.81 / 112.81



BARGRAPH

Display Board 1 Unit 1.913.119.00

**Bestückungsseite**

**Lötseite**

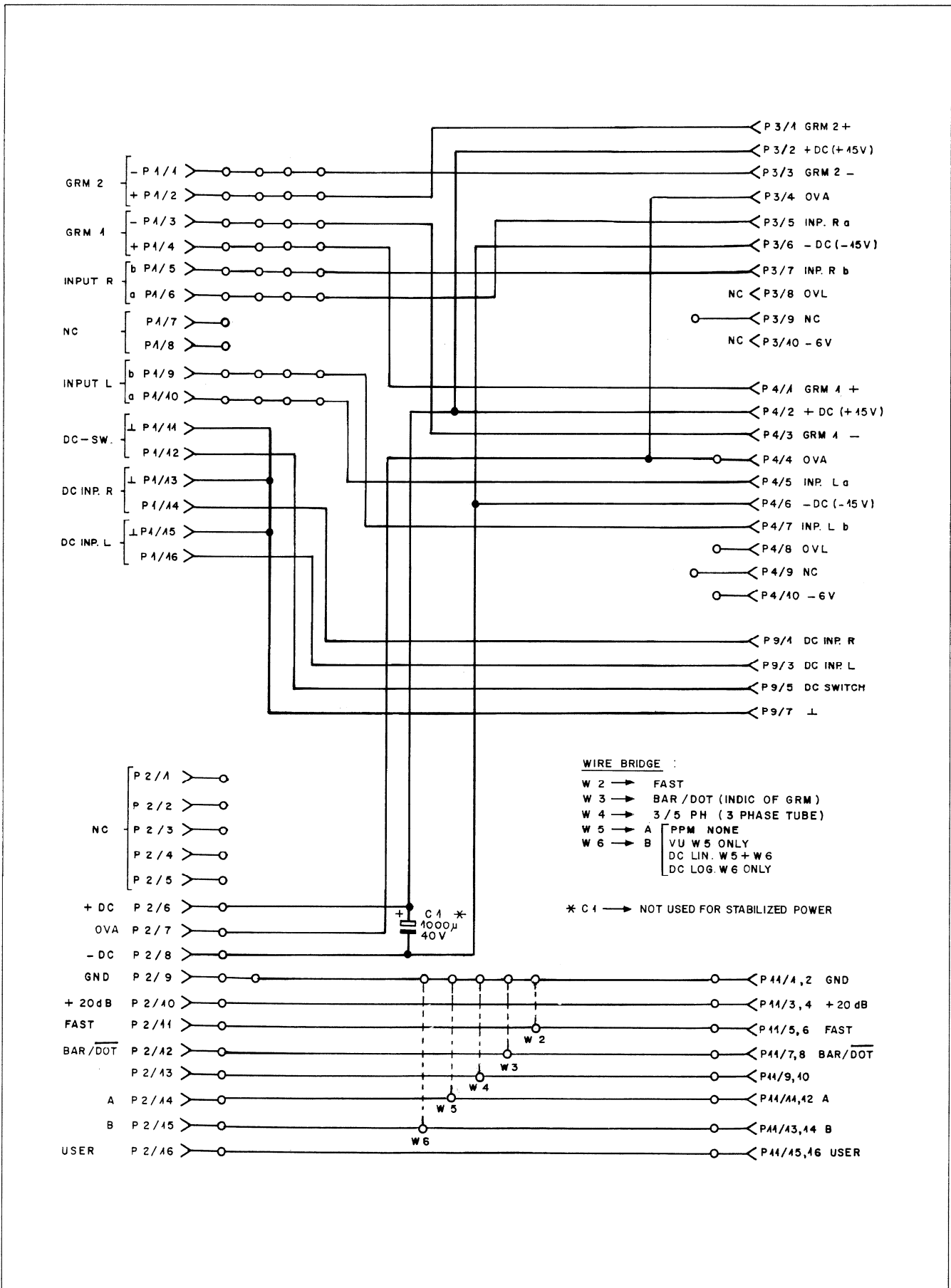
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
B.....1		89.01.4800		PLASMA-BAR-GRAPH 200 BARS, 5 PHASES	
C.....1			not used		
C.....2		59.31.8333	33 nF	+5% 400V MPC	
C.....3			not used		
DL.....1		50.04.2119	MV57124	red	
DL.....2		50.04.2119	MV57124	red	
DL.....3		50.04.2119	MV57124	red	
DL.....4		50.04.2119	MV57124	red	
DLZ...1		50.04.2150		led bar-graph red	
DLZ...2		50.04.2150		led bar-graph red	
IC....1		50.11.0119	LM3914N	led bar driver linear	NS
IC....2		50.11.0119	LM3914N	led bar driver linear	NS
L.....1		62.03.0005	250uH	coil	
L.....2		62.03.0005	250uH	coil	
MP....1		53.03.0175	2 pcs	IC-socket 18 pin	
MP....2		1.913.119.11	1 pcs	Print	
MP....3		1.913.111.03	1 pcs	Chassis 1E	0
MP....4		1.913.111.07	1 pcs	Isolation 1E	
MP....5		21.01.0352	2 pcs	Zylinder-schrauben M3x4	
MP....6		24.16.1030	2 pcs	Schnorr M3	
MP....7		23.01.1032	2 pcs	Unterlagsscheiben M3	
P.....5		54.01.0215		Cis Stecker 12 Pol	
P.....6		54.01.0241		Cis Stecker 4 Pol	
P.....7		54.01.0294		Cis Stecker 16 Pol	
P.....8		54.01.0289		Cis Stecker 8 Pol	
R.....1		57.11.3472	4.7 kOhm	5% 0.25W	
R.....2		57.11.3242	2.4 kOhm	5% 0.25W	
R.....3		57.11.3472	4.7 kOhm	5% 0.25W	
R.....4		57.11.3105	1 MOhm	5% 0.25W	

STUDER (00) 87/11/24 AE DISPLAY UNIT 1E PL 1.913.119.00 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
MANUFACTURER: Bu=Burdny, Ex=Exer, Fc=Fairchild, GI=General Instrument					
HP=Hewlett Packard, IIT=Intermetall, Mot=Motorola, Nat=National					
(Matsushita), NS=National Semiconductors, Ph=Philips,					
Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer,					
TI=Texas Instrument, Si=Siemens, I=Intersil, Un=Unitrode					

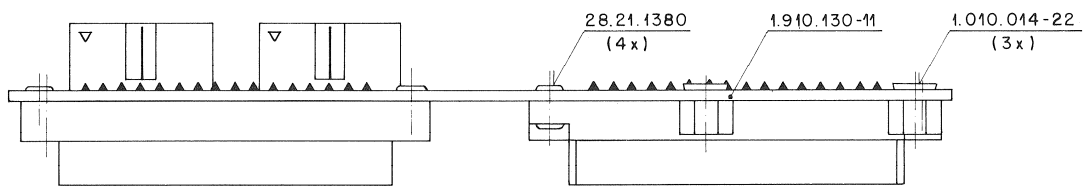
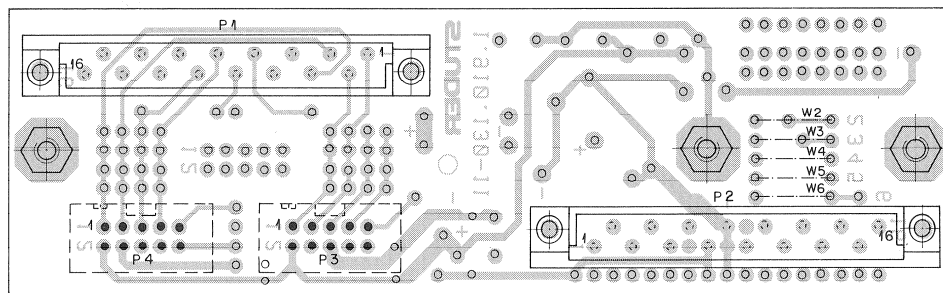
ORIG 87/11/24  
STUDER (00) 87/11/24 AE DISPLAY UNIT 1E PL 1.913.119.00 PAGE 2

Bargraph Connection Board 1 Unit 1.913.130.00



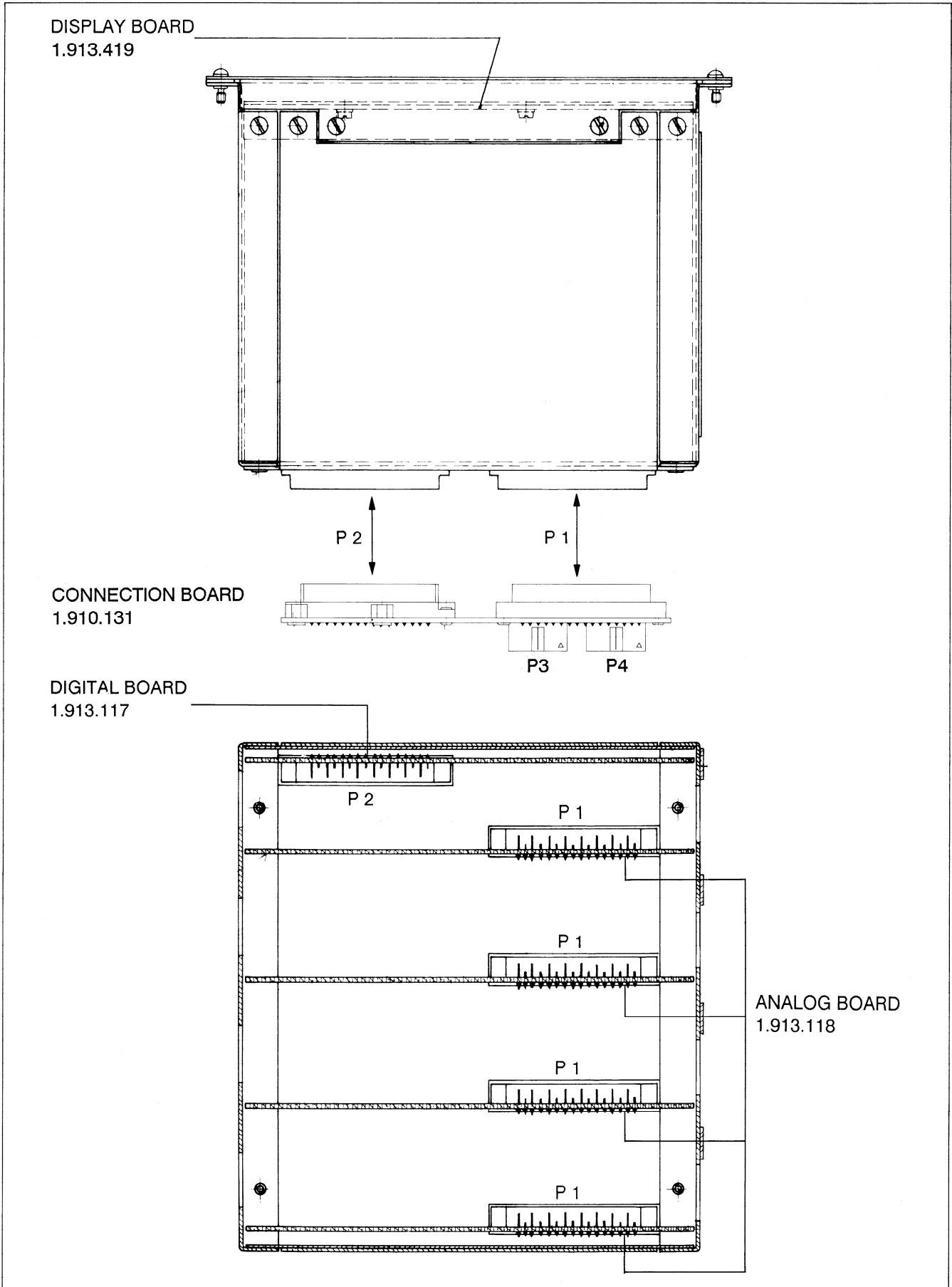
BARGRAPH

Bargraph Connection Board 1 Unit 1.913.130.00



W2 bis W6 nach Angabe Studio-Projektierung

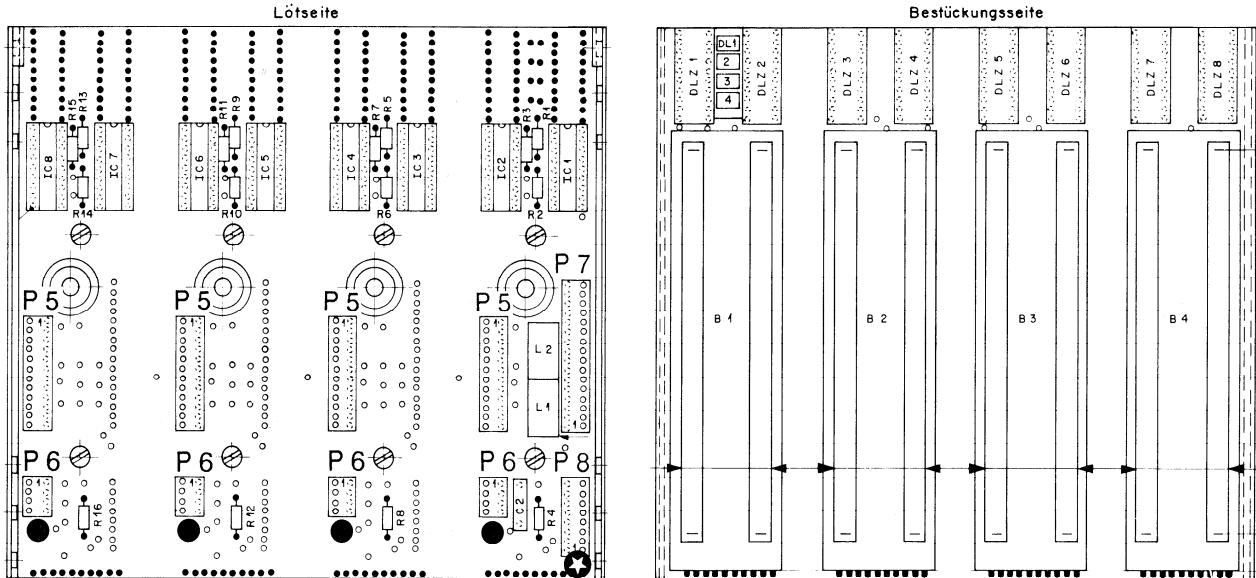
Bargraph 4 Units (PPM or VU) 1.913.411.81 / 412.81



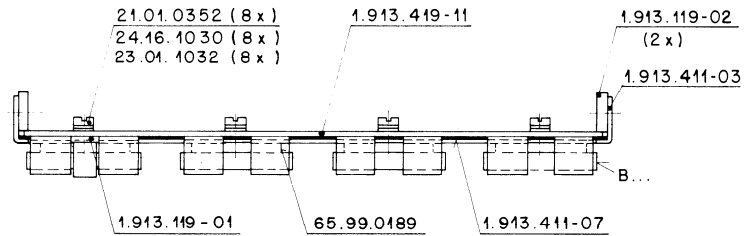
BARGRAPH

Display Board 4 Units 1.913.419.00

The Display Board 4 Units is adequate to four display boards for one unit each.  
For details see schematic number 1.913.119.



- ANALOG BOARD  
1.913.118
- ★ DIGITAL BOARD  
1.913.117



Bargraph Connection Board 4 Units 1.910.131

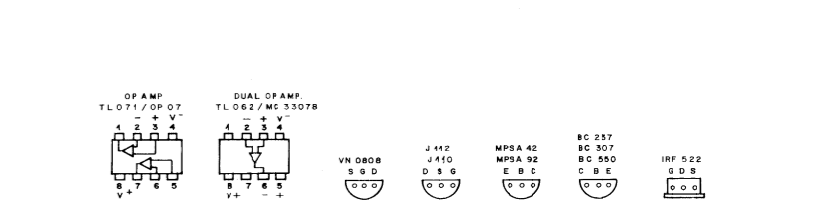
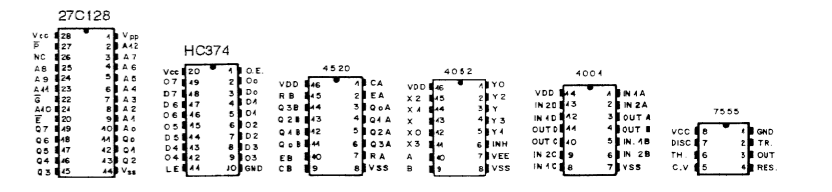
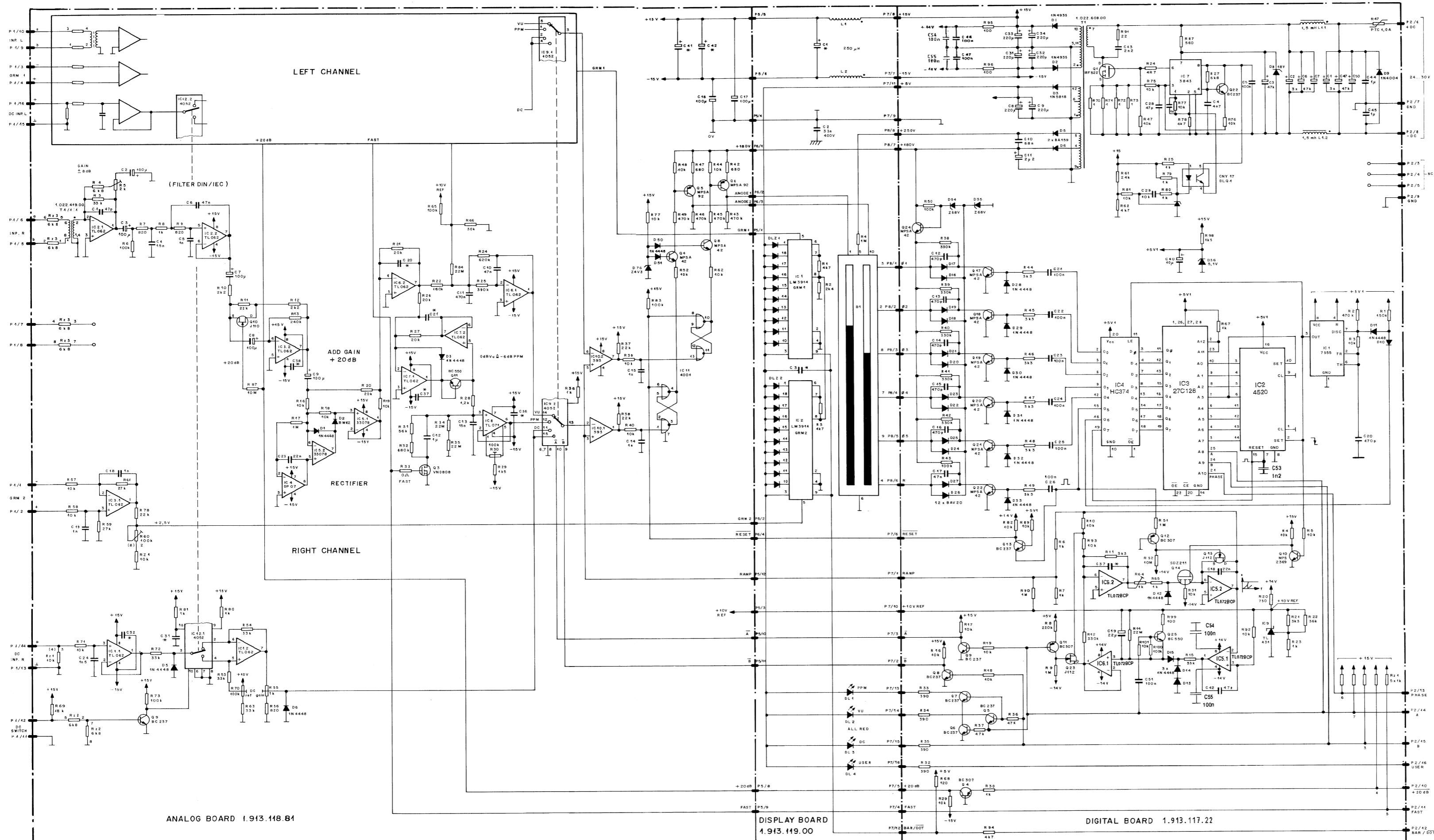
This Board combines four connection boards for one unit on a single print.  
For details please see 'Connection Board 1 Unit 1.910.130'.

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.	IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
B....1		89.01.4800		PLASMA-BAR-GRAPH 200 BARS, 5 PHASES		MP....3			1 pcs	Chassis 4E	
B....2		89.01.4800		PLASMA-BAR-GRAPH 200 BARS, 5 PHASES		MP....4			1 pcs	Isolation 4E	
B....3		89.01.4800		PLASMA-BAR-GRAPH 200 BARS, 5 PHASES		MP....5	21.01.0352		2 pcs	Zylinderschrauben M3x4	
B....4		89.01.4800		PLASMA-BAR-GRAPH 200 BARS, 5 PHASES		MP....6	24.16.1030		2 pcs	Schraur M3	
C....1			not used			MP....7	23.01.1032		2 pcs	Unterlagscheiben M3	
C....2		59.31.8333	33 nF	+-5% 400V MFC		P....5	54.01.0215			Cia Stecker 12 Pol	4 Stueck
C....3			not used			P....6	54.01.0241			Cia Stecker 4 Pol	4 Stueck
DL....1		50.04.2119	MV57124	red		P....7	54.01.0294			Cia Stecker 16 Pol	1 Stueck
DL....2		50.04.2119	MV57124	red		P....8	54.01.0289			Cia Stecker 8 Pol	1 Stueck
DL....3		50.04.2119	MV57124	red		R....1	57.11.3472	4.7 kOhm	5%	0.25W	
DL....4		50.04.2119	MV57124	red		R....2	57.11.3242	2.4 kOhm	5%	0.25W	
DLZ...1		50.04.2150		led bar-graph red		R....3	57.11.3472	4.7 kOhm	5%	0.25W	
DLZ...2		50.04.2150		led bar-graph red		R....4	57.11.3105	1 MOhm	5%	0.25W	
DLZ...3		50.04.2150		led bar-graph red		R....5	57.11.3472	4.7 kOhm	5%	0.25W	
DLZ...4		50.04.2150		led bar-graph red		R....6	57.11.3242	2.4 kOhm	5%	0.25W	
DLZ...5		50.04.2150		led bar-graph red		R....7	57.11.3472	4.7 kOhm	5%	0.25W	
DLZ...6		50.04.2150		led bar-graph red		R....8	57.11.3105	1 MOhm	5%	0.25W	
DLZ...7		50.04.2150		led bar-graph red		R....9	57.11.3472	4.7 kOhm	5%	0.25W	
DLZ...8		50.04.2150		led bar-graph red		R....10	57.11.3242	2.4 kOhm	5%	0.25W	
IC....1		50.11.0119	LM3914N	led bar driver linear	NS	R....11	57.11.3472	4.7 kOhm	5%	0.25W	
IC....2		50.11.0119	LM3914N	led bar driver linear	NS	R....12	57.11.3105	1 MOhm	5%	0.25W	
IC....3		50.11.0119	LM3914N	led bar driver linear	NS	R....13	57.11.3472	4.7 kOhm	5%	0.25W	
IC....4		50.11.0119	LM3914N	led bar driver linear	NS	R....14	57.11.3242	2.4 kOhm	5%	0.25W	
IC....5		50.11.0119	LM3914N	led bar driver linear	NS	R....15	57.11.3472	4.7 kOhm	5%	0.25W	
IC....6		50.11.0119	LM3914N	led bar driver linear	NS	R....16	57.11.3105	1 MOhm	5%	0.25W	
IC....7		50.11.0119	LM3914N	led bar driver linear	NS						
IC....8		50.11.0119	LM3914N	led bar driver linear	NS						
L....1		62.03.0005	250uH	coil							
L....2		62.03.0005	250uH	coil							
MP....1		53.03.0175	8 pcs	IC-socket 18 pin							
MP....2		1.913.419.11	1 pcs	Print							

MANUFACTURER: Bu=Burdny, Ex=Exner, Fc=Fairchild, G=General Instrument  
 HP=Hewlett Packard, ITT=Internatell. Mot=Motorola, Nat=National  
 (Matsushita), NS=National Semiconductors, Ph=Philips,  
 Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer,  
 TI=Texas Instrument, S=Siemens, In=Intersil, Un=Unitecra

ORIG 87/11/24

S T U D E R (00) 87/11/24 AE DISPLAY UNIT 4E PL 1.913.419.00 PAGE 1 S T U D E R (00) 87/11/24 AE DISPLAY UNIT 4E PL 1.913.419.00 PAGE 2



ANALOG BOARD 1.913.118.81

DISPLAY BOARD 1.913.119.00

DIGITAL BOARD 1.913.117.22

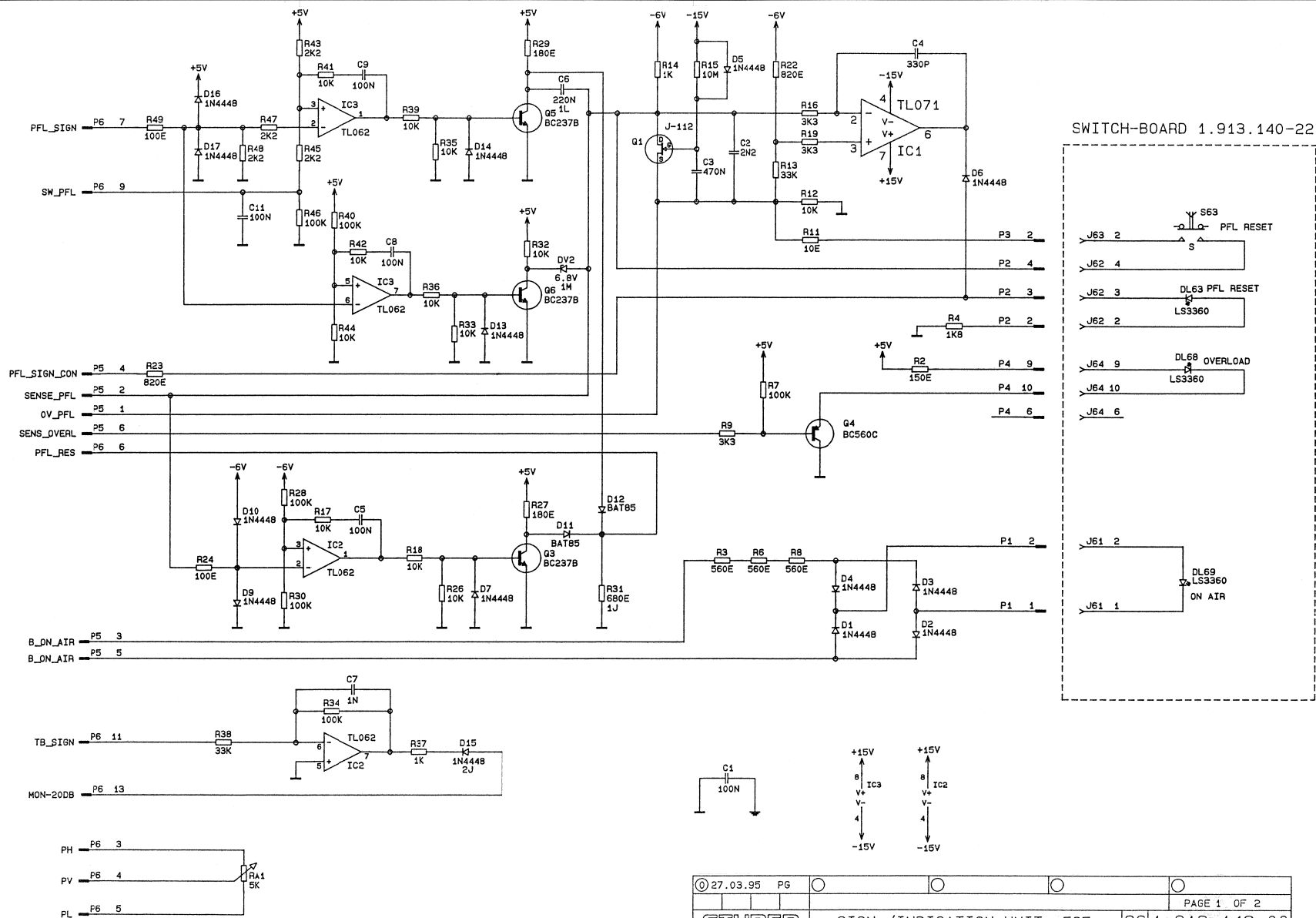
REGISDORF ZÜRICH	DUAL BAR GRAPH PPM	SC 1.913.111.81
	DUAL BAR GRAPH VU	SC 1.913.112.81





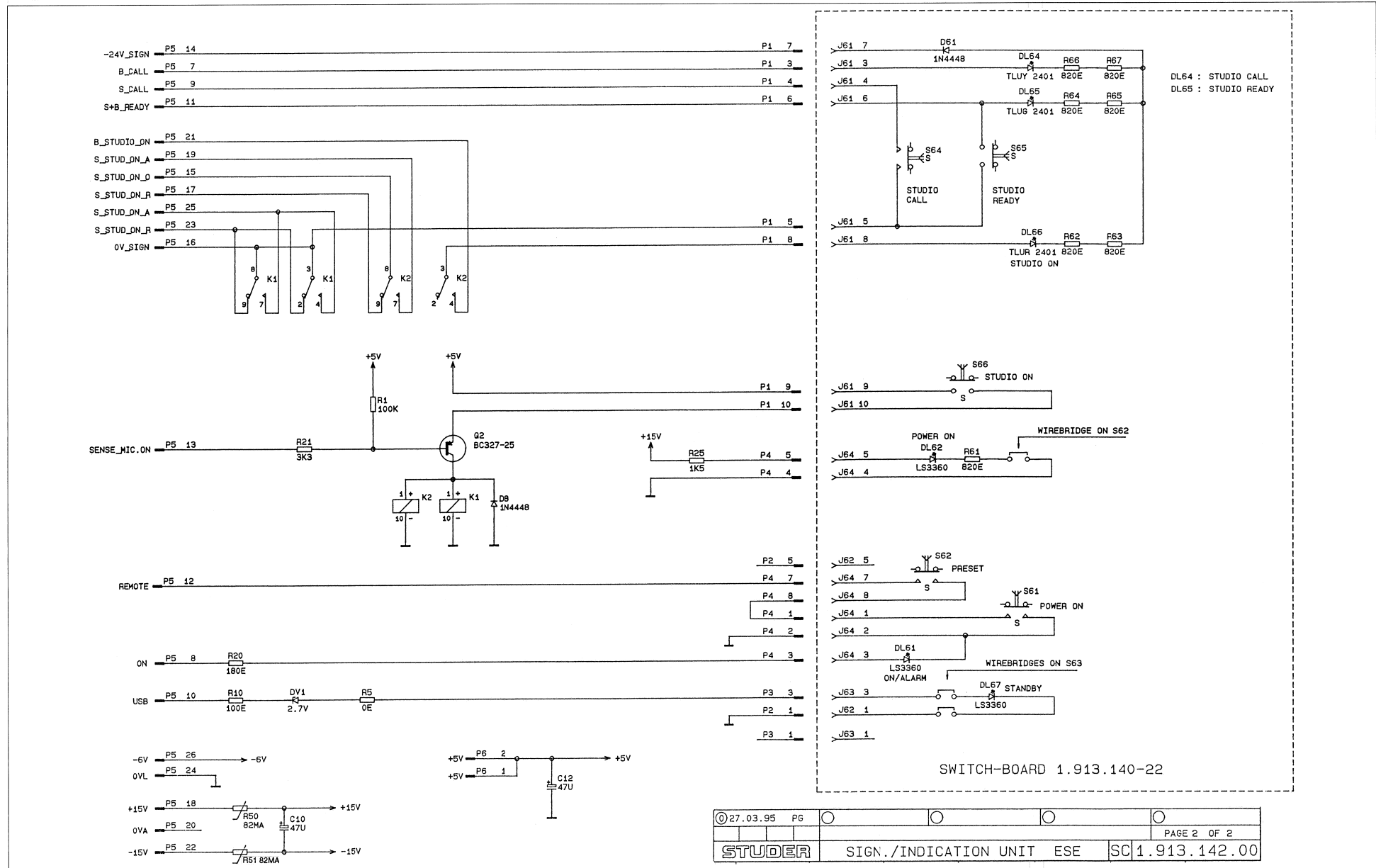


SIGN. / INDICATION UNIT 1.913.142.00  
 - Switch Board 1.913.140.22

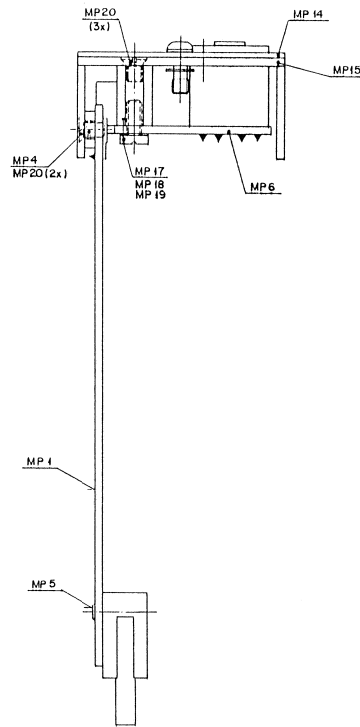
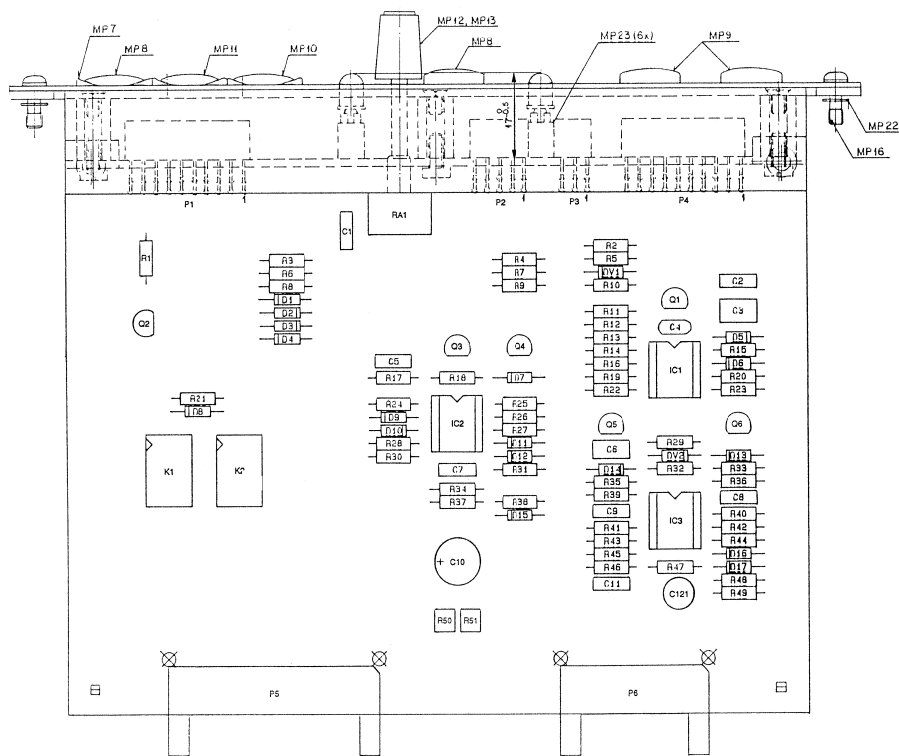


① 27.03.95	PG				
					PAGE 1 OF 2
STUDER		SIGN./INDICATION UNIT ESE		SC 1.913.142.00	

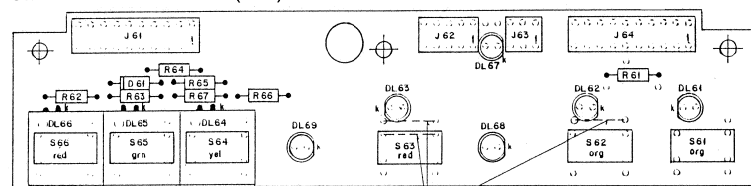
SIGN. / INDICATION UNIT 1.913.142.00  
- Switch Board 1.913.140.22



SIGN. / INDICATION UNIT 1.913.142.00  
- Switch Board 1.913.140.22



Switch Board 1.913.140.22 (MP6)



MP24: 3 wire bridges on solder side

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C.....1	59.06.0104	.1 U	10%, 63V, PETP	
C.....2	59.06.0222	2200 P	10%, 63V, PETP	
C.....3	59.06.0474	47 U	10%, 63V, PETP	
C.....4	59.94.4331	330 P	5%, N750, CER	
C.....5	59.06.0104	.1 U	10%, 63V, PETP	
C.....6	59.06.0224	22 U	10%, 63V, PETP	
C.....7	59.06.0102	1000 P	10%, 63V, PETP	
C.....8	59.06.0104	.1 U	10%, 63V, PETP	
C.....9	59.06.0104	.1 U	10%, 63V, PETP	
C.....10	59.22.6470	47 U	-20%, 40V, EL	
C.....11	59.06.0104	.1 U	10%, 63V, PETP	
C.....12	59.22.3470	47 U	-20%, 10V, EL	
D.....1	50.04.0125	1N 4448	SI	
D.....2	50.04.0125	1N 4448	SI	
D.....3	50.04.0125	1N 4448	SI	
D.....4	50.04.0125	1N 4448	SI	
D.....5	50.04.0125	1N 4448	SI	
D.....6	50.04.0125	1N 4448	SI	
D.....7	50.04.0125	1N 4448	SI	
D.....8	50.04.0125	1N 4448	SI	
D.....9	50.04.0125	1N 4448	SI	
D.....10	50.04.0125	1N 4448	SI	
D.....11	50.04.0127	BAT 85	SI	
D.....12	50.04.0127	BAT 85	SI	
D.....13	50.04.0125	1N 4448	SI	
D.....14	50.04.0125	1N 4448	SI	
D.....15	50.04.0125	1N 4448	SI	
D.....16	50.04.0125	1N 4448	SI	
D.....17	50.04.0125	1N 4448	SI	
D...61	50.04.0125	1N 4448	SI	
DL 61	50.04.2129	LS 3360	RT DIFF	
DL 62	50.04.2129	LS 3360	RT DIFF	
DL 63	50.04.2129	LS 3360	RT DIFF	
DL 64	1.010.042.50	DL CQY 73N,	GB GEBOGEN LINKS	
DL 65	1.010.041.50	DL CQY 73N,	GN GEBOGEN LINKS	
DL 66	1.010.040.50	DL CQY 41NA,	RT GEBOGEN LINKS	
DL 67	50.04.2129	LS 3360	RT DIFF	
DL 68	50.04.2129	LS 3360	RT DIFF	
DL 69	50.04.2129	LS 3360	RT DIFF	
DV...1	50.04.1106	2.7 V	5%, 40W, Z	
DV...2	50.04.1102	6.8 V	5%, 40W, Z	
IC....1	50.09.0103	TL 071	CP A	
IC....2	50.09.0119	TL 062	ACP A	
IC....3	50.09.0119	TL 062	ACP A	
J....61	54.01.0242	LEISTE 10 POL CIS	DURCHS	
J....62	54.01.0246	LEISTE 5 POL CIS	DURCHS	
J....63	54.01.0239	LEISTE 3 POL CIS	DURCHS	
J....64	54.01.0242	LEISTE 10 POL CIS	DURCHS	
K....1	56.04.0198	5 V 2'U	125W 2 A, AG/AU	
K....2	56.04.0198	5 V 2'U	125W 2 A, AG/AU	
MP..1	1.913.142.11	1 pcs	SIGN / INDICATION PCB / 1	
MP..2	1.913.142.04	1 pcs	STUDER NR.-ETIKETTE 10 * 20	
MP..3	43.01.0106	1 pcs	ESE-WARNSCHILD	
MP..4	1.010.012.22	2 pcs	NIEMUTTER SW 6 M 3 * 2	
MP..5	28.89.0119	4 pcs	ROHRNIETE D 2.5*0.15' 9	
MP..6	1.913.140.22	1 pcs	SWITCH BOARD	
MP..7	55.15.0116	3 pcs	KALOTTE FUER 1 LED, LW	
MP..8	55.15.0122	2 pcs	TASTENKNOPF RT	
MP..9	55.15.0123	2 pcs	TASTENKNOPF OR	
MP..10	55.15.0124	1 pcs	TASTENKNOPF GB	
MP..11	55.15.0125	1 pcs	TASTENKNOPF GN	
MP..12	42.01.0228	1 pcs	KNEBELKNOPF GR D 10/4	
MP..13	42.01.0250	1 pcs	DECKEL H'GR ZU KNOPF-D 10	
MP..14	1.913.142.01	1 pcs	FRONTSCHILD SIGN / INDICATION	
MP..15	1.913.140.02	1 pcs	TRAEGER	
MP..16	1.010.022.21	2 pcs	LINSENSCHRAUBE IS SPEZ.MX3 SW	
MP..17	1.010.022.27	3 pcs	MUTTERBOLZEN M 3 * 12	
MP..18	24.16.1030	3 pcs	RIPPENSCHNEIBE D 3.2/5.5	
MP..19	21.51.8354	3 pcs	LIN-SCHR. IS, NI, M 3 * 6	
MP..20	21.51.2353	5 pcs	S-SCHR. IS, NI, M 3 * 5	
MP..21	21.01.2354	3 pcs	S-SCHR. ,ZN, M 3 * 6	
MP..22	24.16.3023	2 pcs	WELLENSICHERUNG 2,3	
MP..23	53.03.0240	6 pcs	SOCKEL FUER LED 50.04.2129	
MP..24	1.010.324.64	3 pcs	DRAHTBRUECKE U, 4.3*10.2, 0.6	
P.....1	54.01.0430	LEISTE 10 POL CIS	WINKEL	
P.....2	54.01.0425	LEISTE 5 POL CIS	WINKEL	
P.....3	54.01.0423	LEISTE 3 POL CIS	WINKEL	

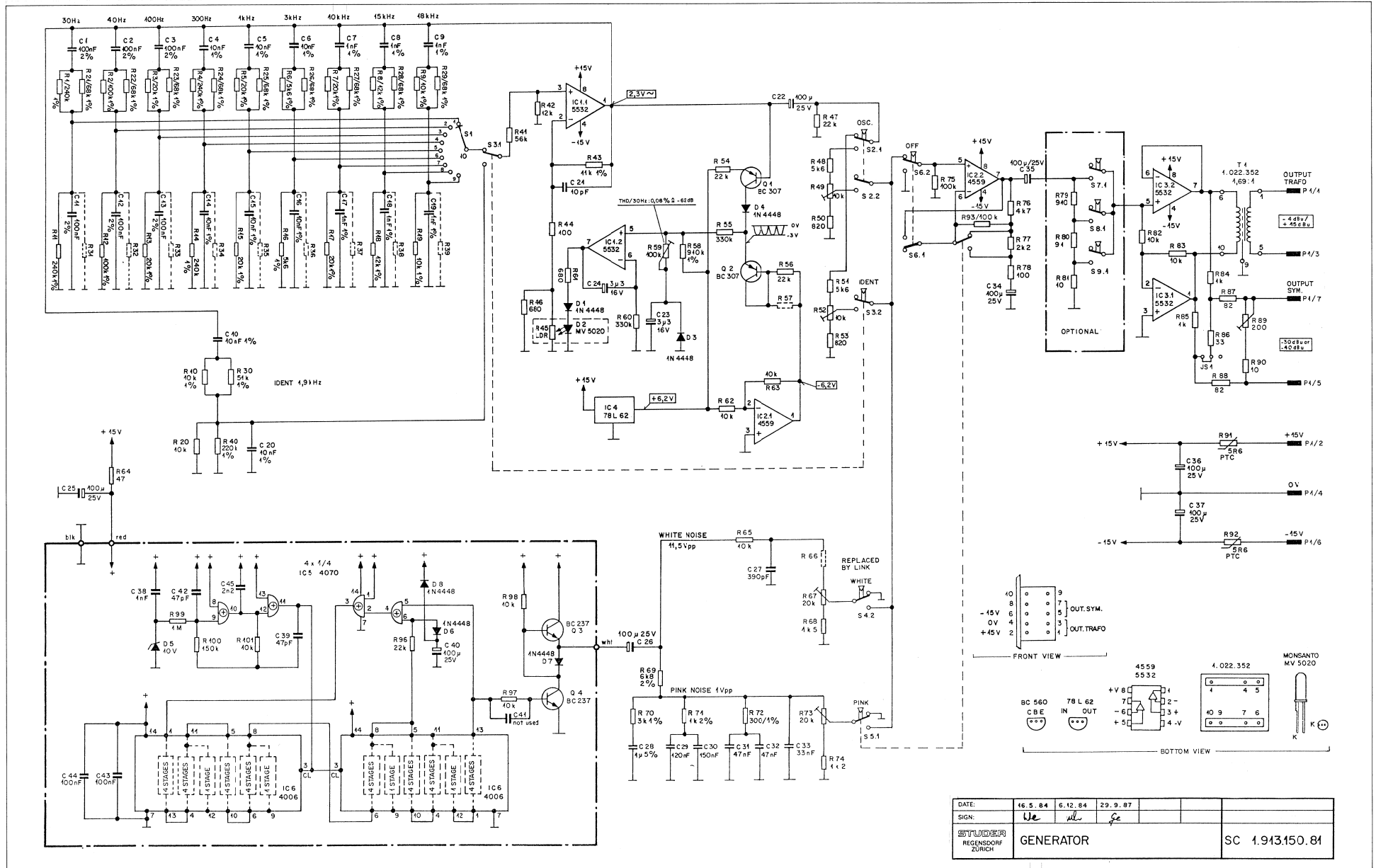
## SIGN. / INDICATION UNIT 1.913.142.00

- Switch Board 1.913.140.22



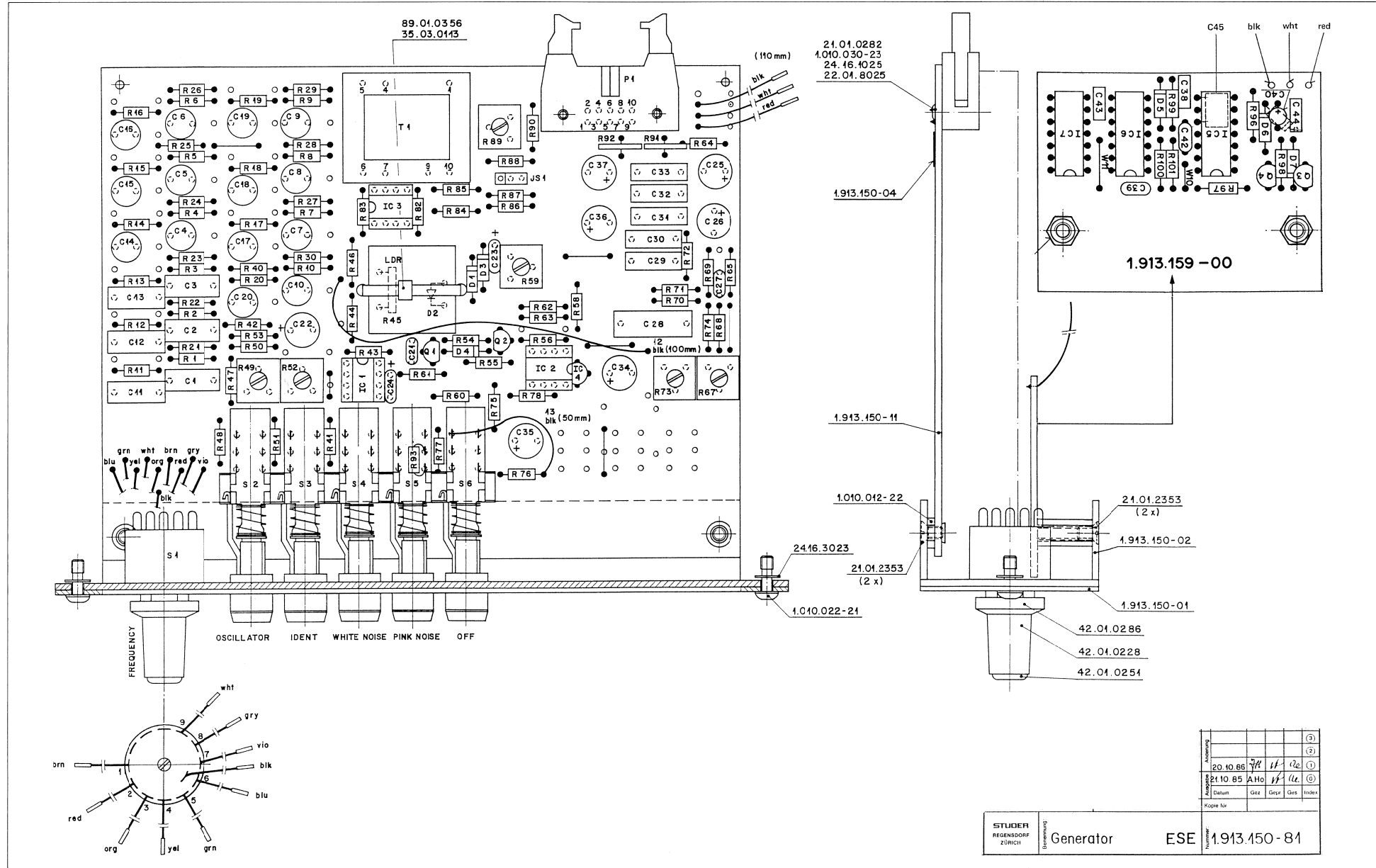
Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
P.....4	54.01.0430		LEISTE 10 POL CIS WINKEL	
P.....5	54.14.2013		STECKER 26 P ,AU, WINKEL	
P.....6	54.14.2012		STECKER 16 P ,AU, WINKEL	
Q.....1	50.03.0350	J-112		A
Q.....2	50.03.0351	BC 927/25		
Q.....3	50.03.0436	BC 237 B	547 B,	550B,
Q.....4	50.03.0601	BC 560 C		A
Q.....5	50.03.0436	BC 237 B	547B,	550B,
Q.....6	50.03.0436	BC 237 B	547B,	550B,
R.....1	57.11.3104	10C K	1%,	0207, MF
R.....2	57.11.3151	150	1%,	0207, MF
R.....3	57.11.3561	560	1%,	0207, MF
R.....4	57.11.3182	1.8 K	1%,	0207, MF
R.....5	57.11.3000	0		0207, MF
R.....6	57.11.3561	560	1%,	0207, MF
R.....7	57.11.3104	10C K	1%,	0207, MF
R.....8	57.11.3561	560	1%,	0207, MF
R.....9	57.11.3332	3.3 K	1%,	0207, MF
R.....10	57.11.3101	100	1%,	0207, MF
R.....11	57.11.3100	10	1%,	0207, MF
R.....12	57.11.3103	10 K	1%,	0207, MF
R.....13	57.11.3333	33 K	1%,	0207, MF
R.....14	57.11.3102	1 K	1%,	0207, MF
R.....15	57.11.3106	10M	5%,	0207, MF
R.....16	57.11.3332	3.3 K	1%,	0207, MF
R.....17	57.11.3103	10 K	1%,	0207, MF
R.....18	57.11.3103	10 K	1%,	0207, MF
R.....19	57.11.3332	3.3 K	1%,	0207, MF
R.....20	57.11.3181	130	1%,	0207, MF
R.....21	57.11.3332	3.3 K	1%,	0207, MF
R.....22	57.11.3821	820	1%,	0207, MF
R.....23	57.11.3821	820	1%,	0207, MF
R.....24	57.11.3101	100	1%,	0207, MF
R.....25	57.11.3152	1.5 K	1%,	0207, MF
R.....26	57.11.3103	10 K	1%,	0207, MF
R.....27	57.11.3181	130	1%,	0207, MF
R.....28	57.11.3104	100 K	1%,	0207, MF
R.....29	57.11.3181	130	1%,	0207, MF
R.....30	57.11.3104	100 K	1%,	0207, MF
R.....31	57.11.3681	680	1%,	0207, MF
R.....32	57.11.3103	10 K	1%,	0207, MF
R.....33	57.11.3103	10 K	1%,	0207, MF
R.....34	57.11.3104	100 K	1%,	0207, MF
R.....35	57.11.3103	10 K	1%,	0207, MF
R.....36	57.11.3103	10 K	1%,	0207, MF
R.....37	57.11.3102	1 K	1%,	0207, MF
R.....38	57.11.3333	33 K	1%,	0207, MF
R.....39	57.11.3103	10 K	1%,	0207, MF
R.....40	57.11.3104	100 K	1%,	0207, MF
R.....41	57.11.3103	10 K	1%,	0207, MF
R.....42	57.11.3103	10 K	1%,	0207, MF
R.....43	57.11.3222	2.2 K	1%,	0207, MF
R.....44	57.11.3103	10 K	1%,	0207, MF
R.....45	57.11.3222	2.2 K	1%,	0207, MF
R.....46	57.11.3104	100 K	1%,	0207, MF
R.....47	57.11.3222	2.2 K	1%,	0207, MF
R.....48	57.11.3222	2.2 K	1%,	0207, MF
R.....49	57.11.3101	100	1%,	0207, MF
R.....50	57.92.1820	94 MA	60V, 50 OHM,	PTC
R.....51	57.92.1820	94 MA	60V, 50 OHM,	PTC
R.....61	57.11.3821	820	1%,	0207, MF
R.....62	57.11.3821	820	1%,	0207, MF
R.....63	57.11.3821	820	1%,	0207, MF
R.....64	57.11.3821	820	1%,	0207, MF
R.....65	57.11.3821	820	1%,	0207, MF
R.....66	57.11.3821	820	1%,	0207, MF
R.....67	57.11.3821	820	1%,	0207, MF
RA.....1	1.010.301.58		POT 5K LIN;	
S.....61	55.15.0112	1 TASTE	2°U, IMPULS PRINT	
S.....62	55.15.0112	1 TASTE	2°U, IMPULS PRINT	
S.....63	55.15.0112	1 TASTE	2°U, IMPULS PRINT	
S.....64	55.15.0112	1 TASTE	2°U, IMPULS PRINT	
S.....65	55.15.0113	1 TASTE	2°U, RAST, PRINT	
S.....66	55.15.0113	1 TASTE	2°U, RAST, PRINT	

AUDIO GENERATOR 1.913.150.81



DATE:	16.5.84	6.12.84	29.9.87		
SIGN:	We	ul	Sc		
STUDER REGENSDORF ZÜRICH	GENERATOR			SC 1.913.150.81	

AUDIO GENERATOR 1.913.150.81



20.10.86	7/11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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STUDER REGENSDORF ZÜRICH	Generator	ESE	1.913.150-81
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AUDIO GENERATOR 1.913.150.81

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
C....1		59.99.0254	100 nF	2%	PE	R....18	57.11.3123	12 kOhm	1% 0.25W MF
C....2		59.99.0254	100 nF	2%	PE	R....19	57.11.3103	10 kOhm	1% 0.25W MF
C....3		59.99.0254	100 nF	2%	PE	R....20	57.11.3103	10 kOhm	1% 0.25W MF
C....4		59.05.1103	10 nF	2%	PE				
C....5		59.05.1103	10 nF	2%	PE	R....21	57.11.3683	68 kOhm	1% 0.25W MF
C....6		59.05.1103	10 nF	2%	PE	R....22	57.11.3683	68 kOhm	1% 0.25W MF
C....7		59.05.1102	1 nF	2%	PE	R....23	57.11.3683	68 kOhm	1% 0.25W MF
C....8		59.05.1102	1 nF	2%	PE	R....24	57.11.3683	68 kOhm	1% 0.25W MF
C....9		59.05.1102	1 nF	2%	PE	R....25	57.11.3683	68 kOhm	1% 0.25W MF
C....10		59.05.1103	10 nF	2%	PE	R....26	57.11.3683	68 kOhm	1% 0.25W MF
						R....27	57.11.3683	68 kOhm	1% 0.25W MF
C....11		59.99.0254	100 nF	2%	PE	R....28	57.11.3683	68 kOhm	1% 0.25W MF
C....12		59.99.0254	100 nF	2%	PE	R....29	57.11.3683	68 kOhm	1% 0.25W MF
C....13		59.99.0254	100 nF	2%	PE	R....30	57.11.3513	51 kOhm	1% 0.25W MF
C....14		59.05.1103	10 nF	2%	PE				
C....15		59.05.1103	10 nF	2%	PE	R....31		not used	1% 0.25W MF
C....16		59.05.1103	10 nF	2%	PE	R....32		not used	1% 0.25W MF
C....17		59.05.1102	1 nF	2%	PE	R....33		not used	1% 0.25W MF
C....18		59.05.1102	1 nF	2%	PE	R....34		not used	1% 0.25W MF
C....19		59.05.1102	1 nF	2%	PE	R....35		not used	1% 0.25W MF
C....20		59.05.1103	10 nF	2%	PE	R....36		not used	1% 0.25W MF
						R....37		not used	1% 0.25W MF
						R....38		not used	1% 0.25W MF
C....21		59.34.1100	10 pF	5%	CE	R....39		not used	1% 0.25W MF
C....22		59.22.5101	100 uF	-20%	16V EL	R....40	57.11.4224	220 kOhm	5% 0.25W MF
C....23		59.26.2339	3.3 uF	-20%	16V SAL				
C....24		59.26.2339	3.3 uF	-20%	16V SAL				
C....25		59.22.5101	100 uF	-20%	16V EL	R....41	57.11.4563	56 kOhm	5% 0.25W MF
C....26		59.22.5101	100 uF	-20%	16V EL	R....42	57.11.3123	12 kOhm	1% 0.25W MF
C....27		59.34.5391	390 pF		CE	R....43	57.11.3113	11 kOhm	2% 0.25W MF
C....28		59.02.0105	1 uF	5%	PC	R....44	57.11.4101	100 Ohm	5% 0.25W MF
C....29		59.02.2124	120 nF	5%	PC	R....45	57.99.0135	1 kOhm	LDR heimann
C....30		59.02.2154	150 nF	5%	PC	R....46	57.11.4681	680 Ohm	5% 0.25W MF
						R....47	57.11.4223	22 kOhm	5% 0.25W MF
C....31		59.02.5473	47 nF	5%	PC	R....48	57.11.4562	5.6 kOhm	5% 0.25W MF
C....32		59.02.5473	47 nF	5%	PC	R....49	58.01.8103	10 kOhm	10% 0.50W trimming resistor
C....33		59.02.5433	33 nF	5%	PC	R....50	57.11.4821	820 Ohm	5% 0.25W MF
C....34		59.22.5101	100 uF	-20%	16V EL				
C....35		59.22.5101	100 uF	-20%	16V EL	R....51	57.11.4562	5.6 kOhm	5% 0.25W MF
C....36		59.22.5101	100 uF	-20%	16V EL	R....52	58.01.8103	10 kOhm	10% 0.50W trimming resistor
C....37		59.22.5101	100 uF	-20%	16V EL	R....53	57.11.4821	820 Ohm	5% 0.25W MF
(10) C....38		59.06.5102	1 nF	10%	PE	R....54	57.11.4223	22 kOhm	5% 0.25W MF
(10) C....39		59.34.2470	47 pF	5%	CE	R....55	57.11.4334	330 kOhm	5% 0.25W MF
(10) C....40		59.26.9109	1 uF	-20%	SAL	R....56	57.11.4223	22 kOhm	5% 0.25W MF
						R....57		not used	
(10) C....41			not used			R....58	57.11.3914	910 kOhm	1% 0.25W MF
(10) C....42		59.34.2470	47 pF	5%	CE	R....59	58.01.8104	100 kOhm	10% 0.50W trimming resistor
(10) C....43		59.06.5104	100 nF	20%	PE	R....60	57.11.4334	330 kOhm	5% 0.25W MF
(10) C....44		59.06.5104	100 nF	20%	PE				
D....1		50.04.0125	1N4448			R....61	57.11.4681	680 Ohm	5% 0.25W MF
D....2		50.04.2104	MV5020	red		R....62	57.11.4103	10 kOhm	5% 0.25W MF
D....3		50.04.0125	1N4448		Gl, Lix	R....63	57.11.4103	10 kOhm	5% 0.25W MF
D....4		50.04.0125	1N4448		any	R....64	57.11.4470	47 Ohm	5% 0.25W MF
(10) D....5		50.04.1108	Z 5.6V	400mW	any	R....65	57.11.4103	10 kOhm	5% 0.25W MF
(10) D....6		50.04.0125	1N4448		any	R....66		link	
(10) D....7		50.04.0125	1N4448		any	R....67	58.01.8203	20 kOhm	10% 0.50W trimming resistor
						R....68	57.11.4152	1.5 kOhm	5% 0.25W MF
IC....1		50.09.0105	NE5532 N	dual op. amp.	Ti, Sig, Ra	R....69	57.11.4682	6.8 kOhm	2% 0.25W MF
IC....2		50.09.0107	RC4559 N	dual op. amp.	Ti, Sig, Ra	R....70	57.11.3302	3 kOhm	1% 0.25W MF
IC....3		50.09.0105	NE5532 N	dual op. amp.	Ti, Sig, Ra	R....71	57.11.4102	1 kOhm	2% 0.25W MF
IC....4		50.10.0101	78L62	6.2V	Fc	R....72	57.11.3301	300 Ohm	2% 0.25W MF
(10) IC....5		50.07.0070	CD4070	2-input EXDR	Fc, Mot	R....73	58.01.8203	20 kOhm	10% 0.50W trimming resistor
(10) IC....6		50.07.1006	CD4006	18 bit SHIFT-REGISTER	Fc, Mot	R....74	57.11.4122	1.2 kOhm	5% 0.25W MF
(10) IC....7		50.07.1006	CD4006	18 bit SHIFT-REGISTER	Fc, Mot	R....75	57.11.4104	100 kOhm	5% 0.25W MF
						R....76	57.11.4472	4.7 kOhm	2% 0.25W MF
P....7		54.14.2011	10 pin		Yamaichi	R....77	57.11.4222	2.2 kOhm	2% 0.25W MF
						R....78	57.11.4101	100 Ohm	2% 0.25W MF
Q....1		50.03.0496	BC 560	PNP IC>100mA, B>100	any	R....79		910 Ohm	1% 57113911 option
Q....2		50.03.0496	BC 560	PNP IC>100mA, B>100	any	R....80		91 Ohm	1% 57113910 option
(10) Q....3		50.03.0436	BC 237	NPN IC>100mA, B>100	any				
(10) Q....4		50.03.0436	BC 237	NPN IC>100mA, B>100	any	R....81		10 Ohm	1% 57113100 option
						R....82	57.11.4103	10 kOhm	5% 0.25W MF
R....1		57.11.3244	240 kOhm	1% 0.25W MF		R....83	57.11.4103	10 kOhm	5% 0.25W MF
R....2		57.11.3104	100 kOhm	1% 0.25W MF		R....84	57.11.4102	1 kOhm	2% 0.25W MF
R....3		57.11.3203	20 kOhm	1% 0.25W MF		R....85	57.11.4102	1 kOhm	2% 0.25W MF
R....4		57.11.3244	240 kOhm	1% 0.25W MF		R....86	57.11.4330	33 Ohm	2% 0.25W MF
R....5		57.11.3203	20 kOhm	1% 0.25W MF		R....87	57.11.4820	82 Ohm	2% 0.25W MF
R....6		57.11.3562	5.6 kOhm	1% 0.25W MF		R....88	57.11.4820	82 Ohm	2% 0.25W MF
R....7		57.11.3203	20 kOhm	1% 0.25W MF		R....89	58.01.8201	200 Ohm	10% 0.50W trimming resistor
R....8		57.11.3123	12 kOhm	1% 0.25W MF		R....90	57.11.4100	10 Ohm	5% 0.25W MF
R....9		57.11.3103	10 kOhm	1% 0.25W MF					
R....10		57.11.3103	10 kOhm	1% 0.25W MF		R....91	57.99.0209	5.6 Ohm	PTC Philips Nr. 2322 662 91005
						R....92	57.99.0209	5.6 Ohm	PTC Philips Nr. 2322 662 91005
						R....93	57.11.4104	100 kOhm	5% 0.25W MF
R....11		57.11.3244	240 kOhm	1% 0.25W MF		(10) R....94		not exist	
R....12		57.11.3104	100 kOhm	1% 0.25W MF		(10) R....95		not exist	
R....13		57.11.3203	20 kOhm	1% 0.25W MF		(10) R....96	57.11.4223	22 kOhm	2% 0.25W MF
R....14		57.11.3244	240 kOhm	1% 0.25W MF		(10) R....97	57.11.4103	10 kOhm	2% 0.25W MF
R....15		57.11.3203	20 kOhm	1% 0.25W MF		(10) R....98	57.11.4103	10 kOhm	2% 0.25W MF
R....16		57.11.3562	5.6 kOhm	1% 0.25W MF		(10) R....99	57.11.4105	1 MOhm	5% 0.25W MF
R....17		57.11.3203	20 kOhm	1% 0.25W MF					





## AUDIO GENERATOR 1.913.150.81

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER
(10)	R...100	57.11.4154	150 kOhm 2% 0.25W MF	
(10)	R...101	57.11.4103	10 kOhm 2% 0.25W MF	
S.....1	55.13.0025		1*9 rotary-switch	St
S.....2	55.15.0005		2*U 2u gold	
S.....3				
S.....4			2*U see S 2	
S.....5			2*U see S 2	
S.....6			2*U see S 2	
S.....7			2*U 2u gold option	
S.....8			2*U see S 7 option	
S.....9			2*U see S 7 option	
T.....1	1.022.352.00		output trafo 1.69:1	St

CE = Ceramic, CF = Carbon Film, EL = Electrolytic, MF = Metal Film, PE = Polyester, PP = Polypropylen,  
PS = Polystyrol, SAL = Solid Aluminium Lacquard

MANUFACTURERS: Bu = Burndy, Ex = Exar, Fc = Fairchild, GI = General Instrument,  
HP = Hewlett Packard, ITT = Intermetall, Mot = Motorola,  
NS = National Semiconductors, Ph = Philips, Ra = Raytheon, Sig = Signetics,  
Six = Siliconix, St = Studer, TI = Texas Instrument, CK = C&K

1.913.150.81 Generator AE 85/11/12 (00)

END  
→

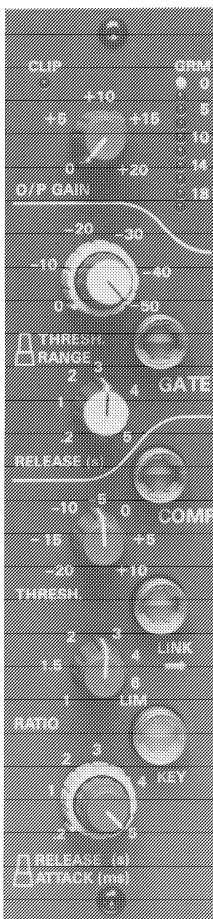
## Compressor/Limiter/Noise gate

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## 1. General:



The Compressor/Limiter/Noise gate unit 1.913.155 can be installed in the instrument panel of the mixing console versions 900, 963 and 970. The unit can be routed to any input or output channel by using the insert points (insert patch panel).

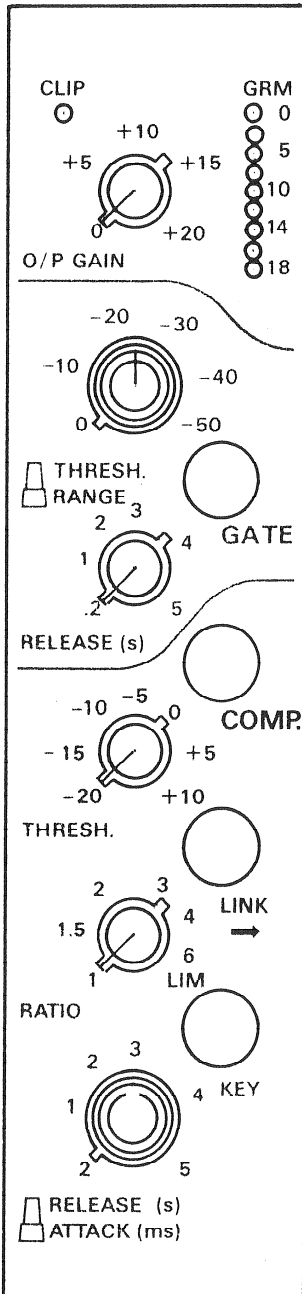
The main applications of this unit are twofold:

- The Limiter/Compressor part allows a compression of the dynamic range including the limitation of the maximum output level by an adjustable limiter threshold. Attack and decay times are adjustable; the decay characteristic is additionally determined by the program structures to avoid unwanted pumping effects.
- The noise gate reduces the basic noise of connected sources in program intermissions by reducing the gain of the channel if a preset value is undershot. Further applications can be found in drum and bass recordings where a noise gate can be used to produce a dry sound with high presence character.

The use of STUDER VCA's enables a high S/N ratio with minimal distortion.

COMPRESSOR / LIMITER / NOISE GATE

2. Operating elements



**General:**

CLIP: Overload LED

LED threshold: 2 dB below limiter threshold.

GRM: Gain reduction meter, shows gain reduction of compressor/noise gate path in dB.

GAIN: Potentiometer for increasing the output level up to 20 dB.

**Noise gate:**

GATE: Key to activate the noise gate.

THRESH: Noise gate threshold, adjustable in the range of 0 to - 50 dB.

RANGE: Noise gate gain reduction, adjustable in the range of 0 to - 50dB.

RELEASE: Time between the undershooting of the noise gate threshold and the start of the noise gate action. Adjustable range: 0.2 to 5 seconds. (see fig. 1)

**Compressor / Limiter:**

COMPR.: Key to activate the compressor.

LINK: Control voltage coupling with the adjacent compressor/ limiter/noise gate unit on the right hand side. The higher voltage of either one takes control over both.

KEY: Key to activate the AC input voltage at the auxiliary input KEY to control the VCA gain. Applications: De-essing, voice-over, delayed gate. (see fig. 4)

THRESH: Compressor threshold, adjustable range - 20 to + 10 dB. (see fig. 2)

RATIO: Compression ratio, adjustable range 1:1 (no compression effect) to 20:1 (limiter effect).

ATTACK: Compressor attack time. Adjustable range 0.2 to 5 ms. (see fig. 3)

RELEASE: Compressor decay time. The scale refers to a static 6 dB gain reduction and LIM setting of ratio. The actual decay time is program dependent and optimized, thus differences to the pot position may occur. (see fig. 3)

3. Noise Gate: Release time diagram

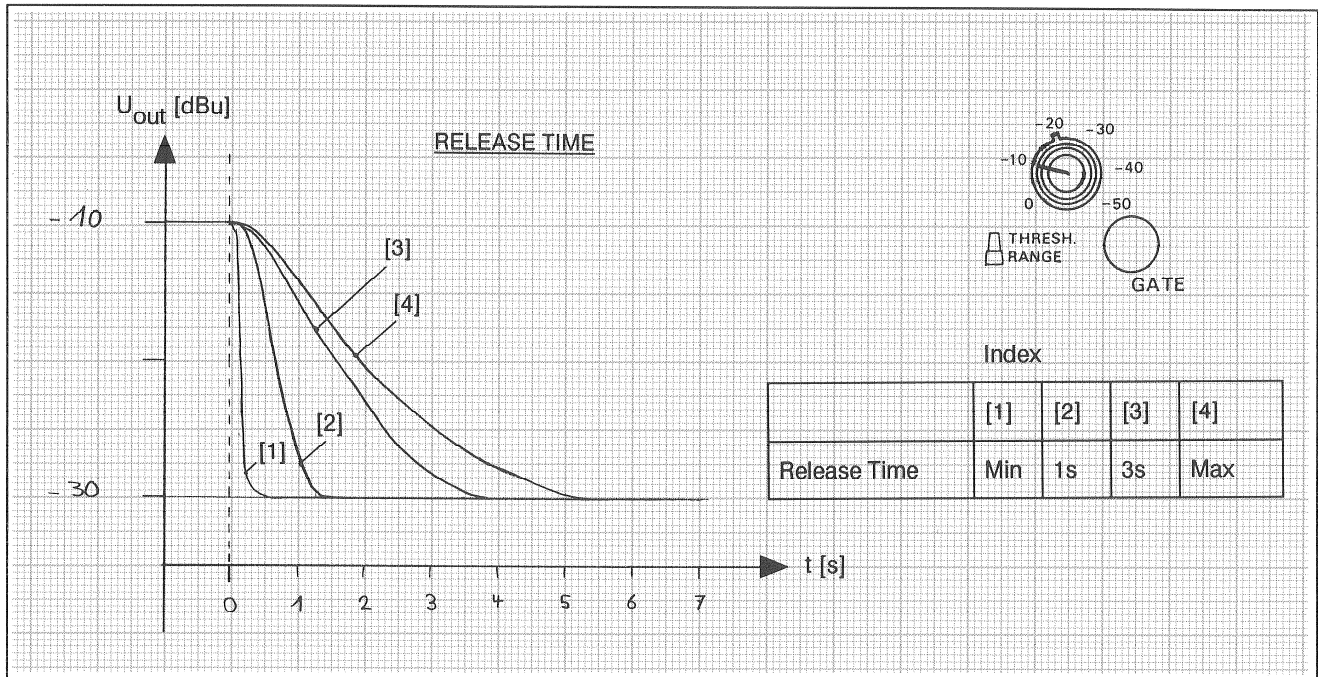


Fig. 1: Four different release time characteristics at a threshold of -10dBu and a noise gate gain reduction range of -20dBu.

4. Compressor / Limiter: Threshold range diagram

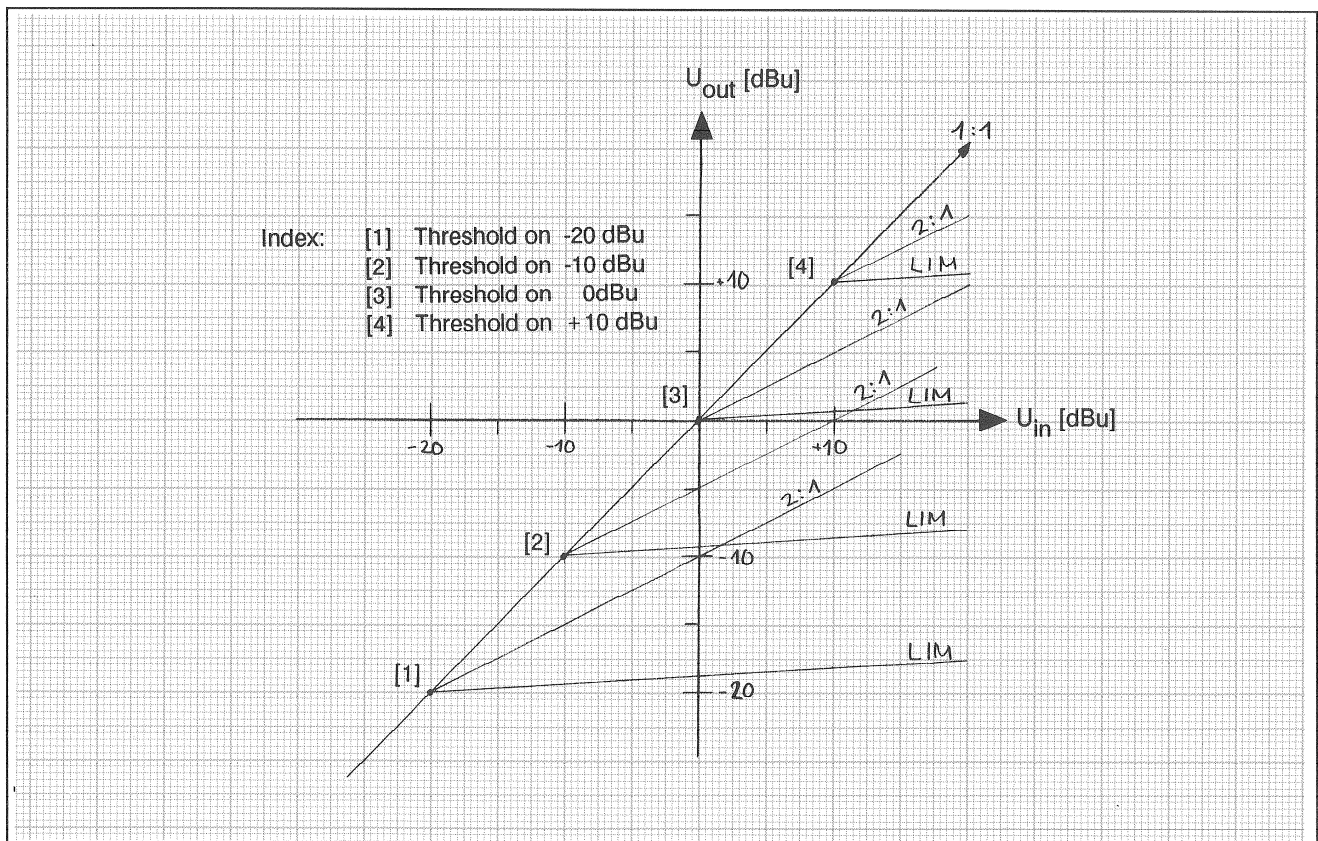


Fig. 2: Compressor threshold at four different input voltage levels ( $U_{in}$ ).

5. Compressor / Limiter: Attack and release time

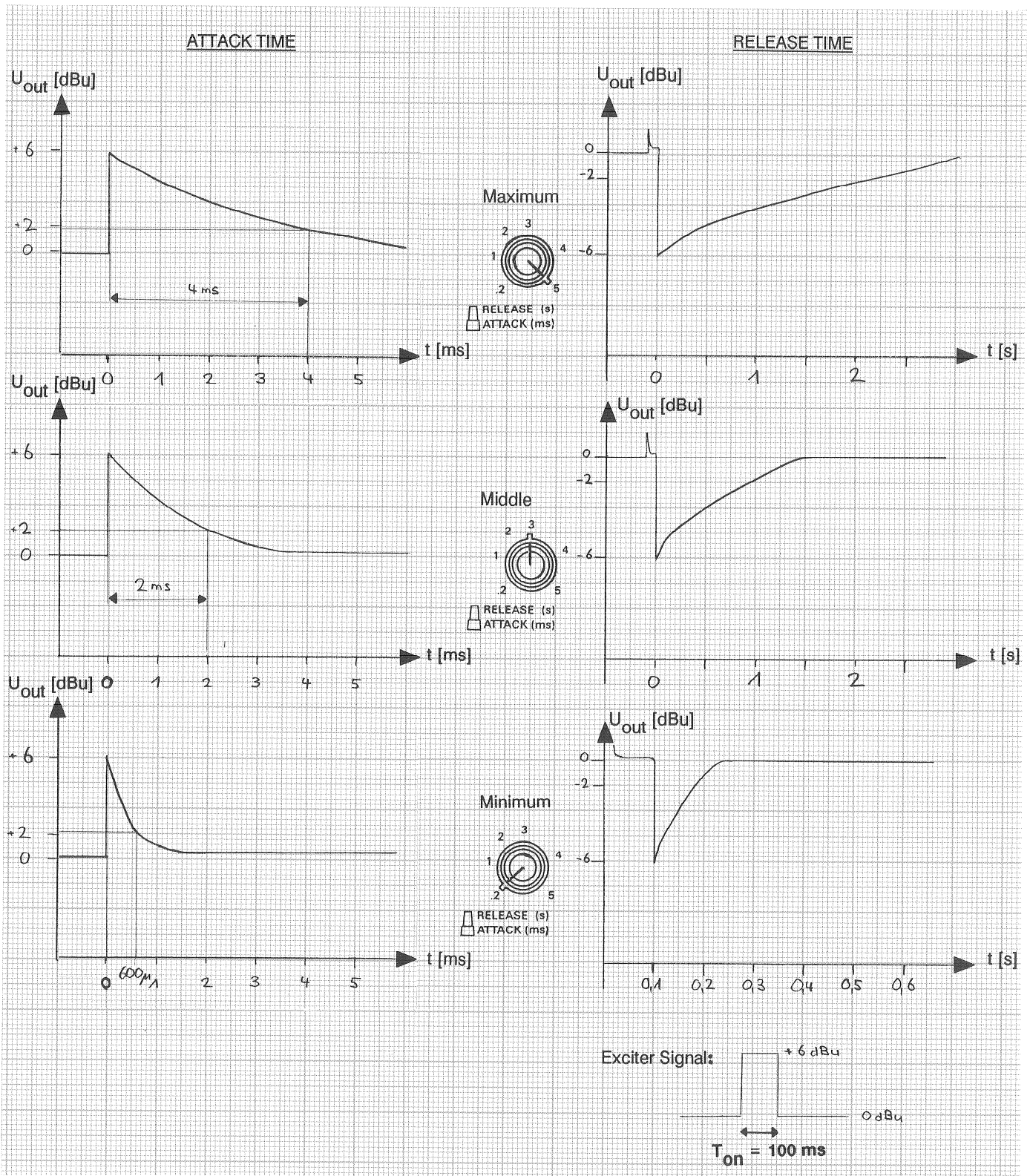


Fig. 3: The compressor/ limiter - characteristics at three different values of the attack- and release time.

## 6. Block diagram

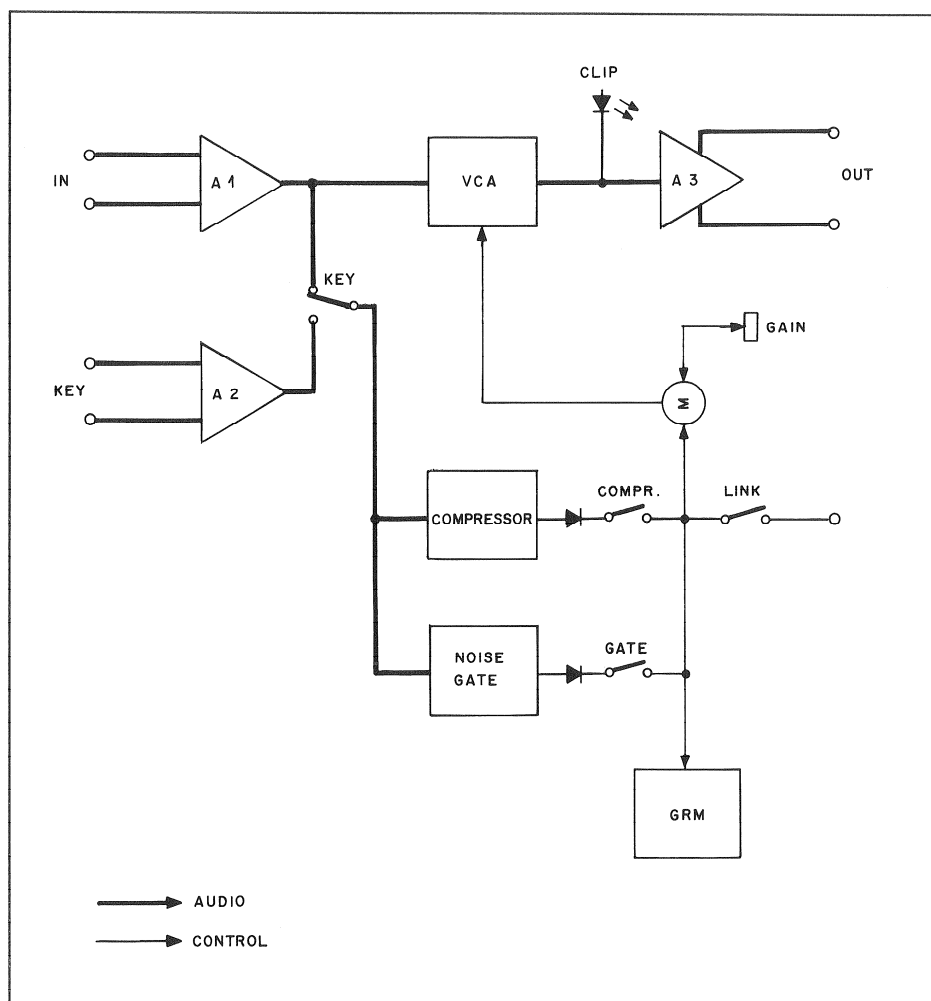


Fig. 4

## 7. Technical data:

<b>Current consumption:</b>	$\pm 15\text{ V:}$	typ. 86 mA, max. 130 mA
	$-6\text{ V:}$	typ. 10 mA, max. 20 mA
<b>Frequency response:</b>	$\leq 0.3\text{ dB}$	30 to 15.000 Hz
<b>Noise level:</b>	$\leq -95\text{ dBu}$	with gain 0 dB and noise gate off.
	$\leq -100\text{ dBu}$	with gain 0 dB and noise gate on.
<b>Distortion:</b>	$\leq -60\text{ dB}$	with input +16 dBu, output 0 dBu, threshold 0 dB, compressor on, Ratio LIM, max release time, in the range of 30 to 15.000 Hz.
<b>Adjustments:</b>	No service adjustments required.	

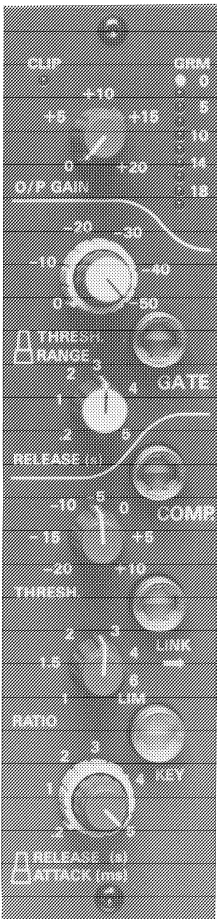
## Kompressor / Limiter / Noise gate

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## 1. Allgemeines



Die Kompressor / Limiter / Noise-gate Baugruppe Nr. 1.913.155 kann ins Instrumentenpanel der Mischpulte STUDER 900, 963 und 970 eingebaut werden. Unter Benützung der Einschleifpunkte (Insert patch panel) kann die Einheit auf jeden gewünschten Ein- oder Ausgangskanal geschaltet werden.

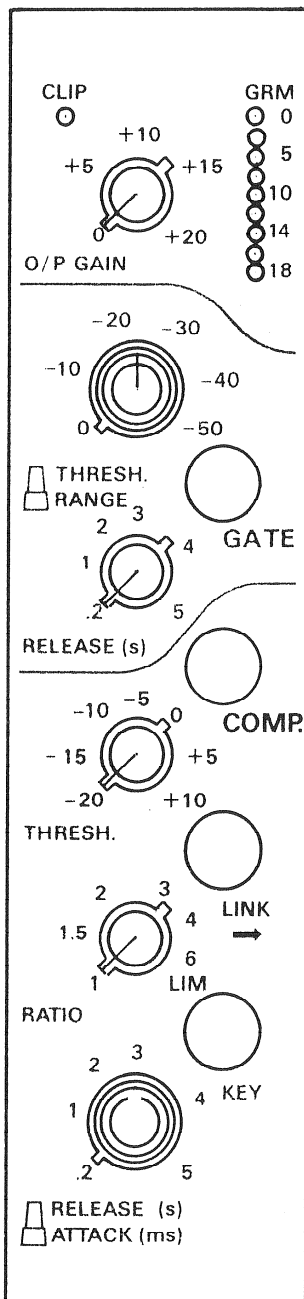
Die Baugruppe dient folgenden Hauptanwendungen:

- Der Begrenzer / Kompressor Teil erlaubt eine Kompression des Dynamikbereichs in wählbarem Ausmass. Der verstellbare Schwellenwert (threshold) ermöglicht die Begrenzung des maximalen Ausgangspegels. Die Ansprech- und Rücklaufzeiten sind frei wählbar. Um unerwünschte Pumpeffekte zu verhindern, wird die Rücklaufzeit zusätzlich von der Programmstruktur beeinflusst.
- Das Noise-gate vermindert das Grundgeräusch zugeschalteter Quellen bei Programmunterbrüchen. Die Verstärkung des betreffenden Kanals wird reduziert, sobald ein vorgewählter Signalpegel unterschritten wird. Weitere Anwendungen bieten sich bei Schlagzeug- und Bass - Aufnahmen um einen trockenen Klang mit hoher Präsenz zu erzielen.

Aus der Verwendung von STUDER VCA's resultieren der hohe Geräuschspannungsabstand und die minimalen Verzerrungen.

## COMPRESSOR / LIMITER / NOISE GATE

## 2. Bedienungselemente

**Allgemein:**

CLIP: Übersteuerungs - Leuchtdiode

LED Schwellenwert: 2dB unterhalb der Begrenzerschwelle.

GRM: (Gain reduction meter) Anzeigeelement für die Verstärkungsreduktion des Kompressor / Noise-gate Signalweges. (in dB )

GAIN: Potentiometer zur Anpassung des Ausgangspegels bis 20 dB.

**Noise-gate:**

GATE.: Diese Drucktaste schaltet die Noise-gate Funktion ein bzw. aus.

THRESH.: Noise-gate Einsatzschwelle, einstellbar im Bereich von 0 bis -50dB.

RANGE: Verstärkungsreduktion des Noise-gate, einstellbar im Bereich von 0 bis -50 dB

RELEASE: Intervall vom Zeitpunkt des Unterschreitens der Noise-gate Einsatzschwelle bis zum Erreichen der vollen Noise-gate Funktion. Es ist zwischen 0,2 und 5 Sekunden einstellbar. (vgl. Fig. 1)

**Kompressor / Begrenzer:**

COMPR.: Drucktaste zur Aktivierung der Kompressor / Begrenzer Funktion.

LINK: Koppelung der Kompressor/Begrenzer/Noise-gate Funktionen mit der rechts benachbarten Einheit. Dabei kontrolliert die jeweils höhere Steuerungspannung beide Einheiten.

KEY: Diese Umschalttaste verwendet die Spannung des Hilfseingangs KEY für die Steuerung der VCA Verstärkung. Anwendungen: 'De-essing' (Hochtonbegrenzung), 'Voice-over' (Pegelregelung von Hintergrundmusik durch Sprechersignal), Gate mit Verzögerung.

THRESH.: Einsatzschwelle des Begrenzers einstellbar von -20 bis +10 dB. (vgl. Fig. 2)

RATIO: Das Kompressionsverhältnis [  $U_{in}/U_{out}$  ] ist einstellbar von 1:1 (keine Kompressionswirkung) bis 20:1 (Begrenzerwirkung).

ATTACK: Kompressor Ansprechzeit. Einstellbereich von 0,2 bis 5 Sekunden. (vgl. Fig. 3)

RELEASE: Kompressor Rücklaufzeit. Die Skala bezieht sich auf eine konstante Verstärkungsreduktion von 6dB bei Limitereinstellung des Ratioreglers. Die wirkliche Rücklaufzeit ist programmabhängig und optimiert. Es können demzufolge Unterschiede zur Reglerposition auftreten. (vgl. Fig. 3)



3. Noise-gate: Ansprechzeit Charakteristik

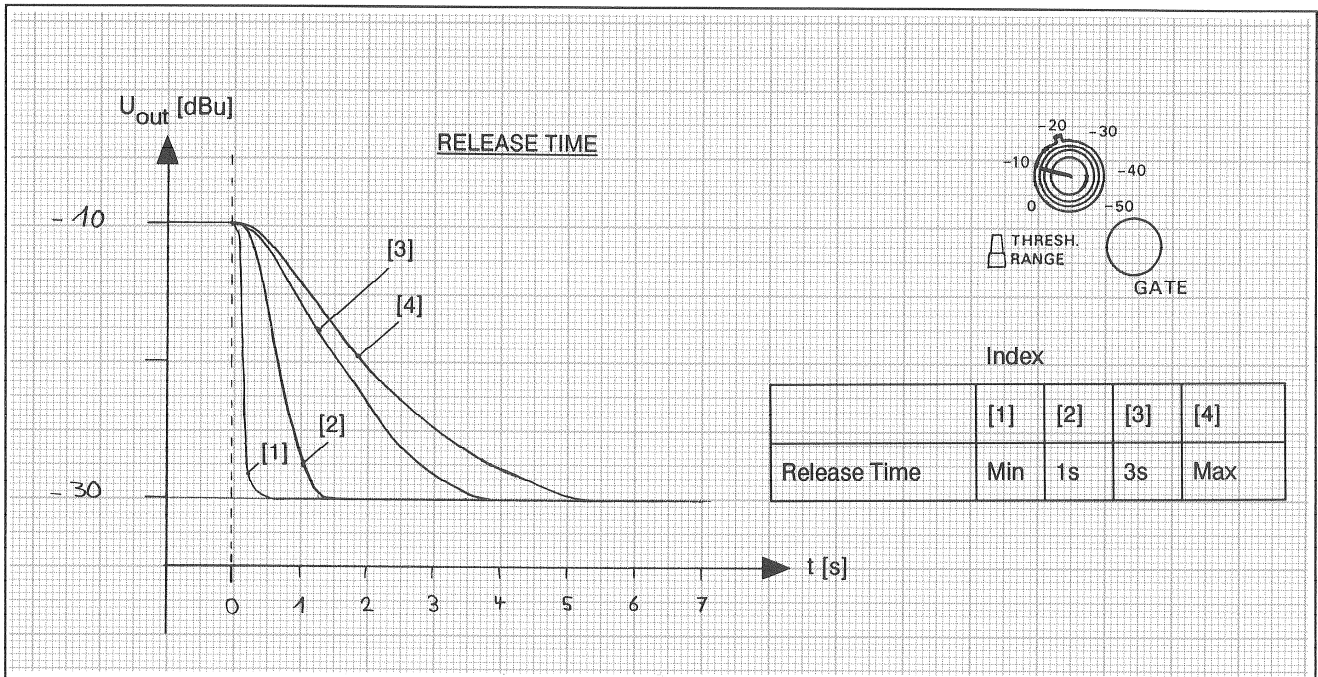


Fig. 1: Vier unterschiedliche Einstellungen der Ansprechzeit bei einem Schwellenwert von -10dBu und einer Verstärkungsreduktion (Range) von -20dBu.

4. Kompressor / Limiter: Schwellenwert Diagramm

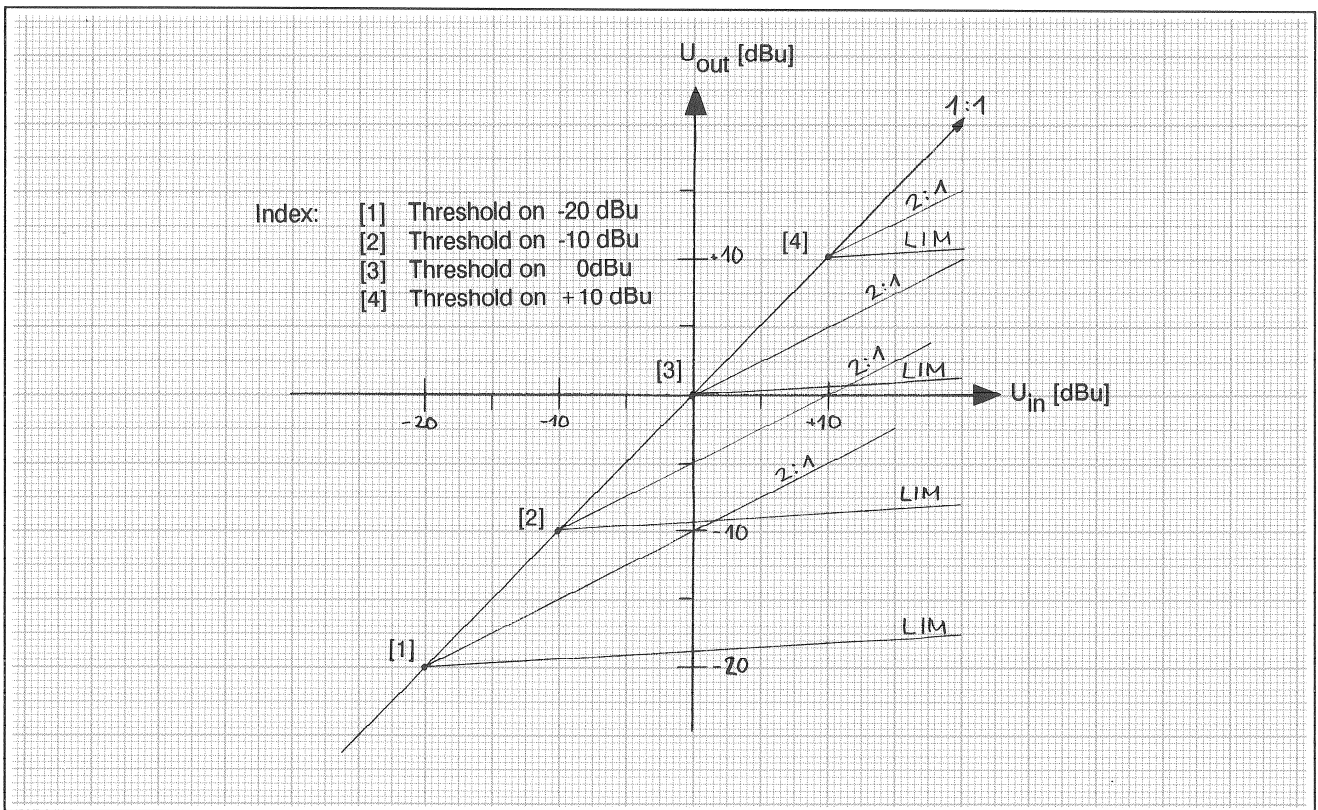


Fig. 2: Wirkung des Kompressors bei vier verschiedenen Schwellenwerten. Das Kompressionsverhältnis (Ratio) ist jeweils schwach (2:1) und maximal (Limiter) gewählt.

COMPRESSOR / LIMITER / NOISE GATE

5. Kompressor Limiter: Ansprech- und Rücklaufzeit

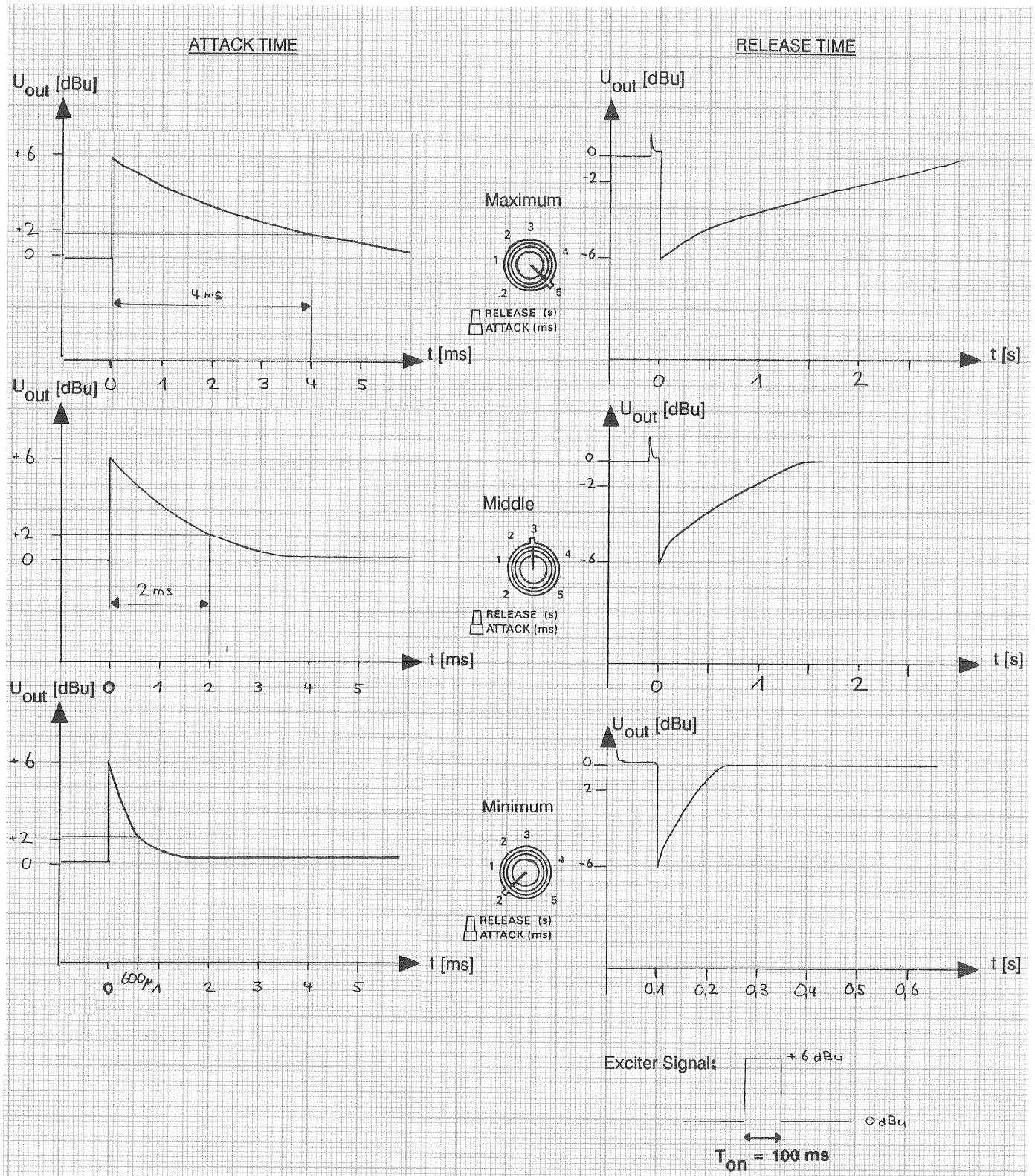


Fig. 3: Charakteristik des Kompressor / Begrenzers bei drei unterschiedlichen Werten der Ansprech- und Rücklaufzeit.

## 6. Blockdiagramm

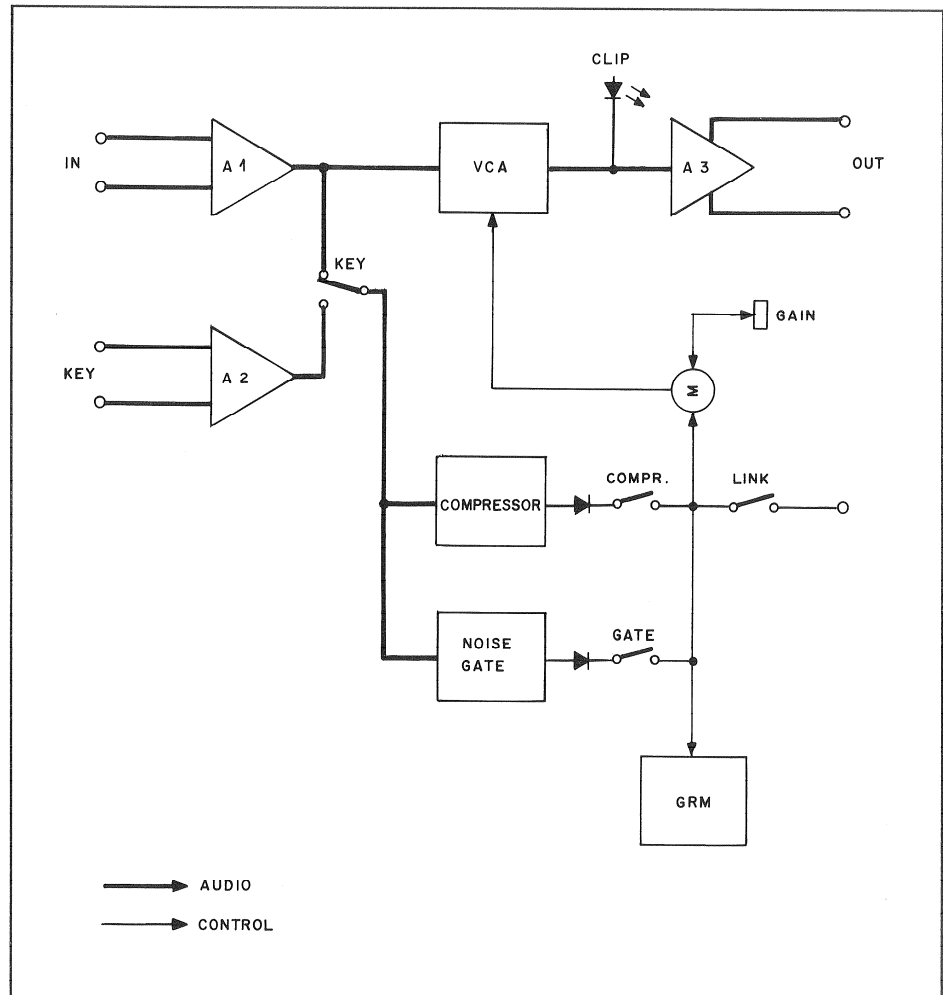


Fig. 4

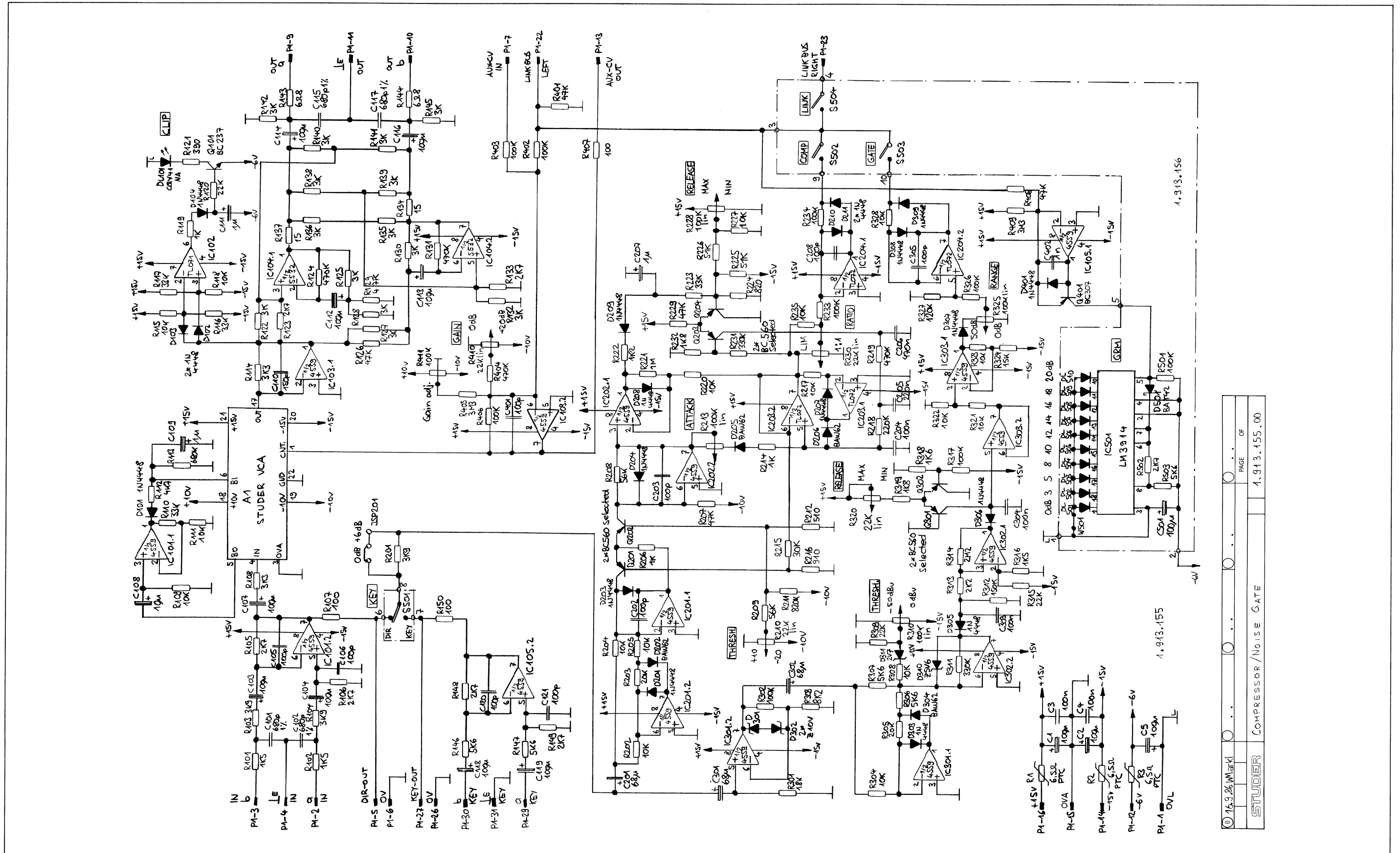
## 7. Technische Daten

<b>Stromaufnahme:</b>	$\pm 15\text{ V}$ : $- 6\text{ V}$	typ. 86mA, max. 130mA, typ. 10mA, max. 20mA,
<b>Frequenzgang:</b>	$\leq 0,3\text{dB}$	30 bis 15'000Hz
<b>Rauschpegel:</b>	$\leq -95\text{dBu}$ $\leq -100\text{dBu}$	bei Verstärkung 0dB und Noise-gate ausgeschaltet bei Verstärkung 0dB und Noise-gate eingeschaltet
<b>Verzerrungen:</b>	$\leq -60\text{dB}$	im Bereich von 30 bis 15'000Hz unter den Bedingungen: Eingang +16dBu; Ausgang 0dBu; Threshold 0dB; Kompressor ein; Ratio LIM; Release maximal;
<b>Abgleich:</b>	Nicht erforderlich.	

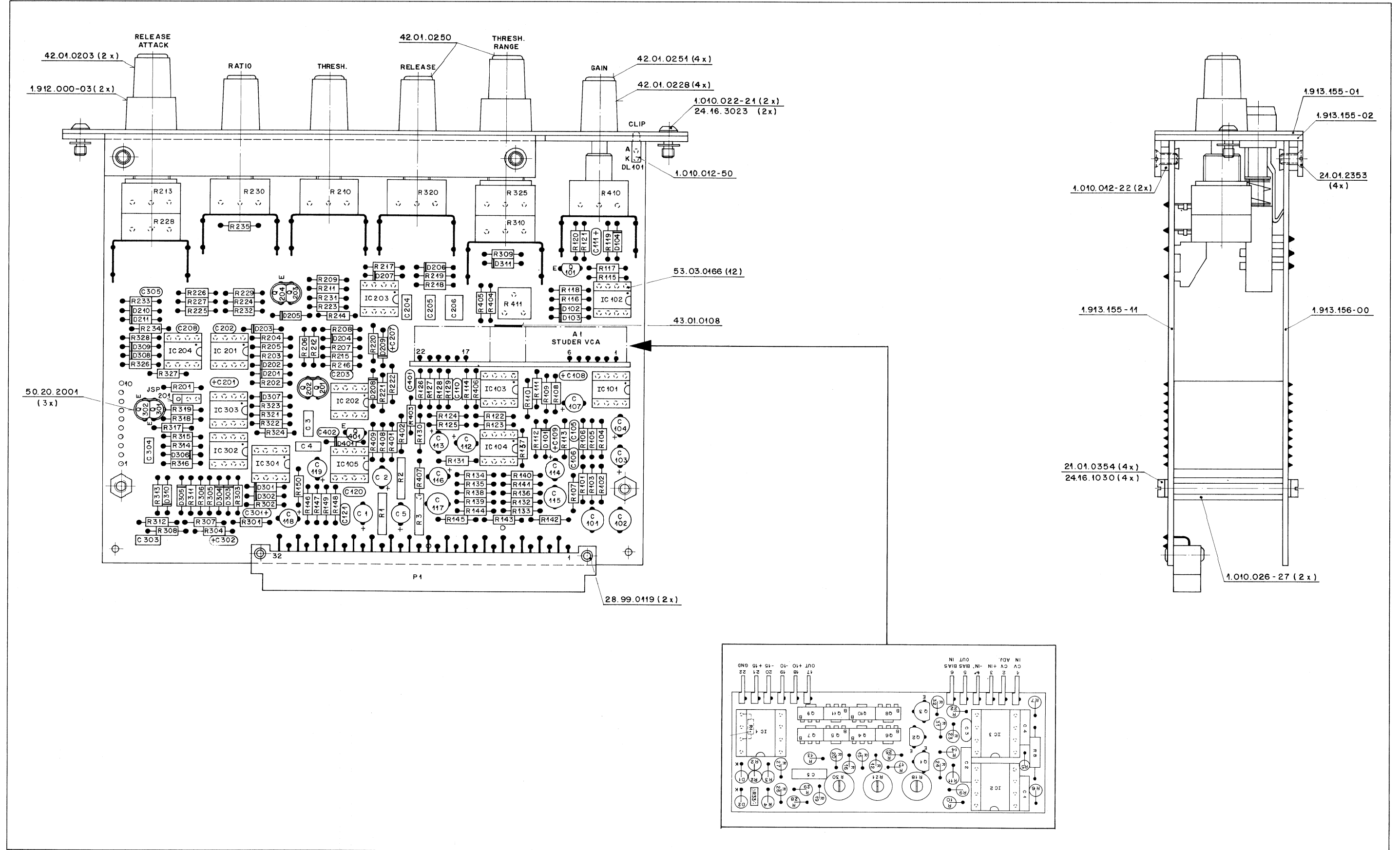
8. Circuit diagrams / Schemateil

COMPRESSOR / LIMITER / NOISE GATE

Compressor / Limiter / Noise gate 1.913.155



Compressor / Limiter / Noise gate 1.913.155



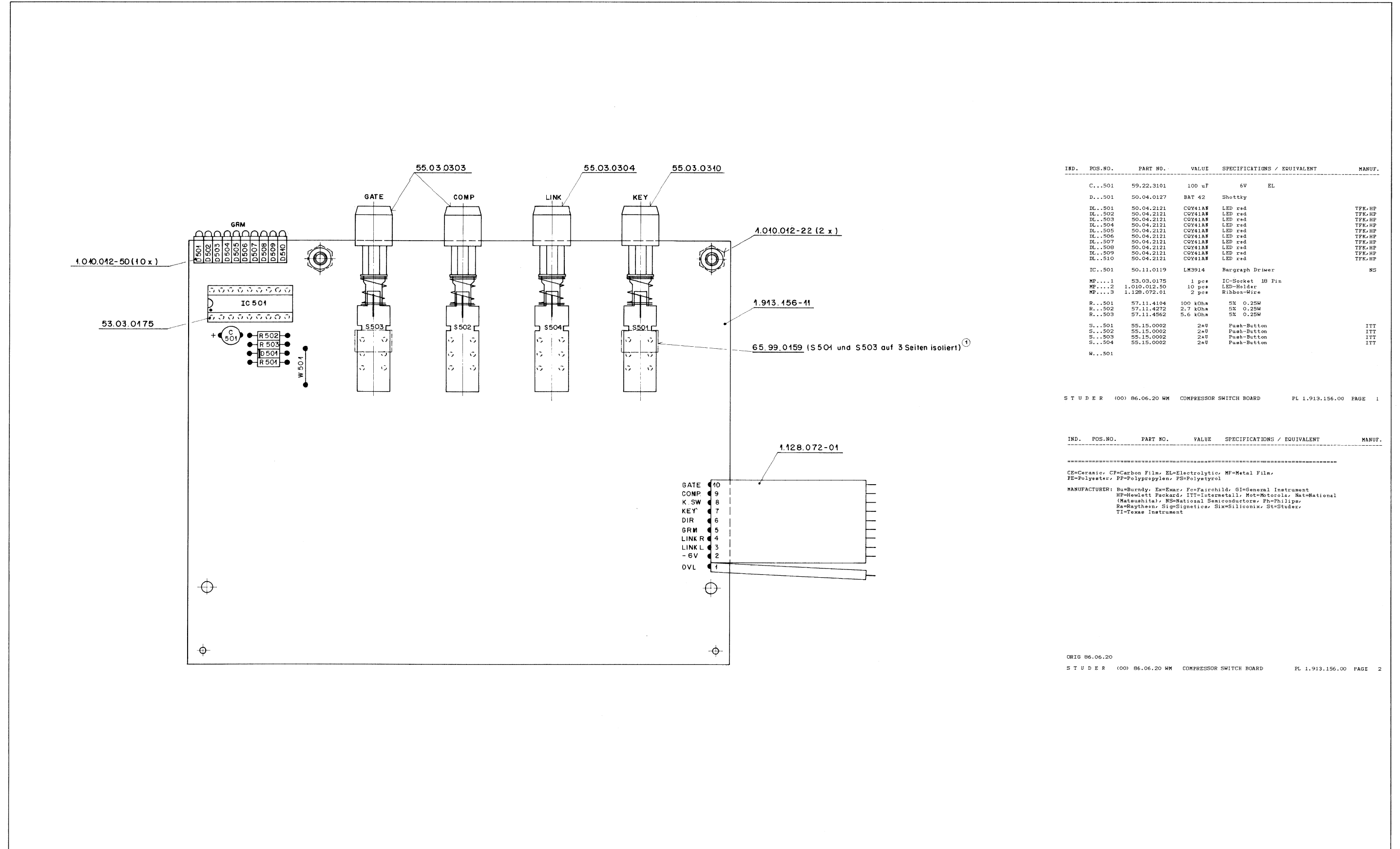
COMPRESSOR / LIMITER / NOISE GATE

Compressor / Limiter / Noise gate 1.913.155

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.	IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.	IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.	
(00)	A....1	1.010.110.50		Studer-VCA	St	R...102	57.11.3152	1.5 kOhm	1X	0.25W		R...328	57.11.4103	10 kOhm	5X	0.25W		
(02)	A....1	1.911.290.00		VCA-BOARD	St	R...103	57.11.3392	3.9 kOhm	1X	0.25W		R...401	57.11.4473	47 kOhm	2X	0.25W		
(03)	A....1	1.911.290.01		VCA BOARD	St	R...104	57.11.3392	3.9 kOhm	1X	0.25W		R...402	57.11.4104	100 kOhm	2X	0.25W		
C....1	59.22.5220	22 uF	-20X	16V EL		R...105	57.11.3272	2.7 kOhm	1X	0.25W		R...403	57.11.4104	100 kOhm	2X	0.25W		
C....2	59.22.5220	22 uF	-20X	16V EL		R...106	57.11.3272	2.7 kOhm	1X	0.25W		R...404	57.11.4474	470 kOhm	2X	0.25W		
C....3	59.06.5104	100 nF	10X	PE		R...107	57.11.4101	100 Ohm	5X	0.25W		R...405	57.11.5335	3.3 MOhm	5X	0.25W		
C....4	59.06.5104	100 nF	10X	PE		R...108	57.11.4332	3.3 kOhm	5X	0.25W		R...406	57.11.4104	100 kOhm	2X	0.25W		
C....5	59.22.5220	22 uF	-20X	16V EL		R...109	57.11.4103	10 kOhm	5X	0.25W		R...407	57.11.4101	100 Ohm	5X	0.25W		
C...101	59.05.1681	680 pF	1X	500V PF		R...110	57.11.4103	10 kOhm	5X	0.25W		R...408	57.11.4473	47 kOhm	2X	0.25W		
C...102	59.05.1681	680 pF	1X	500V PF		R...111	57.11.4333	3.3 kOhm	5X	0.25W		R...409	57.11.5335	3.3 MOhm	5X	0.25W		
C...103	59.22.3101	100 uF	-20X	10V EL		R...112	57.11.4472	4.7 kOhm	5X	0.25W		R...410	1.010.014.58	22 kOhm	10X	lin	variable resistor	St
C...104	59.22.3101	100 uF	-20X	10V EL		R...113	57.11.4634	680 kOhm	5X	0.25W		R...411	59.01.8104	100 kOhm	10X	variable resistor	PMG	
C...105	59.34.4101	100 pF		CE		R...114	57.11.4332	3.3 kOhm	5X	0.25W								
C...106	59.34.4101	100 pF		CE		R...115	57.11.4103	10 kOhm	5X	0.25W								
C...107	59.22.3101	100 uF	-20X	10V EL		R...116	57.11.4333	3.3 kOhm	5X	0.25W								
C...108	59.26.2100	10 uF		16V SAL		R...117	57.11.4333	3.3 kOhm	5X	0.25W								
C...109	59.26.9109	1 uF		16V SAL		R...118	57.11.4103	10 kOhm	5X	0.25W								
C...110	59.34.4151	150 pF		CE		R...119	57.11.4102	1 kOhm	5X	0.25W								
C...111	59.26.9109	1 uF		16V SAL		R...120	57.11.4223	22 kOhm	5X	0.25W								
C...112	59.22.3101	100 uF	-20X	10V EL		R...121	57.11.4391	390 Ohm	5X	0.25W								
C...113	59.22.3101	100 uF	-20X	10V EL		R...122	57.11.3302	3 kOhm	1X	0.25W								
C...114	59.22.3101	100 uF	-20X	10V EL		R...123	57.11.3272	2.7 kOhm	1X	0.25W								
C...115	59.05.1681	680 pF	1X	500V PF		R...124	57.11.4474	470 kOhm	2X	0.25W								
C...116	59.22.3101	100 uF	-20X	10V EL		R...125	57.11.3302	3 kOhm	1X	0.25W								
C...117	59.05.1681	680 pF	1X	500V PF		R...126	57.11.3973	47 kOhm	1X	0.25W								
C...118	59.22.3101	100 uF	-20X	10V EL		R...127	57.11.3302	3 kOhm	1X	0.25W								
C...119	59.22.3101	100 uF	-20X	10V EL		R...128	57.11.3302	3 kOhm	1X	0.25W								
C...120	59.34.4101	100 pF		CE		R...129	57.11.4273	47 kOhm	1X	0.25W								
C...121	59.34.4101	100 pF		CE		R...130	57.11.3302	3 kOhm	1X	0.25W								
C...201	59.26.0680	68 uF		6V SAL		R...131	57.11.4474	470 kOhm	2X	0.25W								
C...202	59.34.4101	100 pF		CE		R...132	57.11.1302	3 kOhm	1X	0.25W								
C...203	59.34.4101	100 pF		CE		R...133	57.11.3272	2.7 kOhm	1X	0.25W								
C...204	59.06.5104	100 nF	10X	PE		R...134	57.11.3150	15 Ohm	1X	0.25W								
C...205	59.06.5224	220 nF	10X	PE		R...135	57.11.3302	3 kOhm	1X	0.25W								
C...206	59.06.5474	470 nF	10X	PE		R...136	57.11.3302	3 kOhm	1X	0.25W								
C...207	59.26.9109	1 uF		16V SAL		R...137	57.11.3150	15 Ohm	1X	0.25W								
C...208	59.34.4101	100 pF		CE		R...138	57.11.3302	3 kOhm	1X	0.25W								
C...301	59.26.0680	68 uF		6V SAL														
C...302	59.26.0680	68 uF		6V SAL														
C...303	59.06.5104	100 nF	10X	PE														
C...304	59.06.5104	100 nF	10X	PE														
C...305	59.34.4101	100 pF		CE														
C...401	59.34.4101	100 pF		CE														
C...402	59.32.4102	1 nF		CE														
D...101	50.04.0125	1N4448		any		R...139	57.11.3302	3 kOhm	1X	0.25W								
D...102	50.04.0125	1N4448		any		R...140	57.11.3302	3 kOhm	1X	0.25W								
D...103	50.04.0125	1N4448		any		R...141	57.11.3302	3 kOhm	1X	0.25W								
D...104	50.04.0125	1N4448		any		R...142	57.11.3302	3 kOhm	1X	0.25W								
D...201	50.04.0125	1N4448		any		R...143	57.11.3689	6.8 Ohm	1X	0.25W								
D...202	50.04.0132	BNW 62		any		R...144	57.11.3689	6.8 Ohm	1X	0.25W								
D...203	50.04.0125	1N4448		any		R...145	57.11.3302	3 kOhm	1X	0.25W								
D...204	50.04.0125	1N4448		any		R...146	57.11.3562	5.6 kOhm	1X	0.25W								
D...205	50.04.0132	BNW 62		any		R...147	57.11.3562	5.6 kOhm	1X	0.25W								
D...206	50.04.0132	BNW 62		any		R...148	57.11.3272	2.7 kOhm	1X	0.25W								
D...207	50.04.0125	1N4448		any		R...149	57.11.3272	2.7 kOhm	1X	0.25W								
D...208	50.04.0125	1N4448		any		R...150	57.11.4101	100 Ohm	5X	0.25W								
D...209	50.04.0125	1N4448		any		R...201	57.11.4392	3.9 kOhm	2X	0.25W								
D...210	50.04.0125	1N4448		any		R...202	57.11.3103	10 kOhm	1X	0.25W								
D...211	50.04.0125	1N4448		any		R...203	57.11.3203	20 kOhm	1X	0.25W								
D...301	50.04.1114	Z 10 V		any		R...204	57.11.3103	10 kOhm	1X	0.25W								
D...302	50.04.1114	Z 10 V		any		R...205	57.11.3103	10 kOhm	1X	0.25W								
D...303	50.04.0125	1N4448		any		R...206	57.11.4102	1 kOhm	2X	0.25W								
D...304	50.04.0132	BNW 62		any		R...207	57.11.3473	47 kOhm	1X	0.25W								
D...305	50.04.0125	1N4448		any		R...208	57.11.4563	56 kOhm	2X	0.25W								
D...306	50.04.0125	1N4448		any		R...209	57.11.4563	56 kOhm	2X	0.25W								
D...307	50.04.0125	1N4448		any		R...210	1.010.014.58	22 kOhm	10X	lin	variable resistor	St						
D...308	50.04.0125	1N4448		any		R...211	57.11.4824	820 Ohm	2X	0.25W								
D...309	50.04.0125	1N4448		any		R...212	57.11.3511	510 Ohm	1X	0.25W								
D...310	50.04.1114	Z 10 V		any		R...213	1.010.023.58	100 kOhm	10X	lin	variable resistor	St						
D...311	50.04.1114	Z 10 V		any		R...214	57.11.4102	10 kOhm	5X	0.25W								
D...401	50.04.0125	1N4448		any		R...215	57.11.3303	30 kOhm	1X	0.25W								
D...402	50.04.0125	1N4448		any		R...216	57.11.3911	910 Ohm	1X	0.25W								
D...403	50.04.0125	1N4448		any		R...217	57.11.4103	10 kOhm	5X	0.25W								
D...404	50.04.0125	1N4448		any		R...218	57.11.4224	220 kOhm	5X	0.25W								
D...405	50.04.0125	1N4448		any		R...219	57.11.4474	470 kOhm	5X	0.25W								
D...406	50.04.0125	1N4448		any		R...220	57.11.4103	10 kOhm	5X	0.25W								
D...407	50.04.0125	1N4448		any		R...221	57.11.4105	1 MOhm	5X	0.								

COMPRESSOR / LIMITER / NOISE GATE

Compressor Switch Board 1.913.156



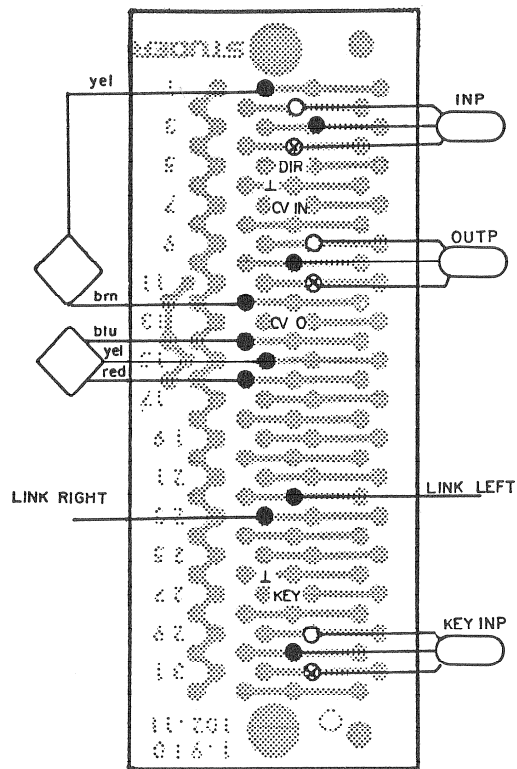
IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
C...	501	59.22.3101	100 uF	6V EL	
D...	501	50.04.0127	BAT 42	Shottky	
DL...	501	50.04.2121	COV41A8	LED red	TFK/HP
DL...	502	50.04.2121	COV41A8	LED red	TFK/HP
DL...	503	50.04.2121	COV41A8	LED red	TFK/HP
DL...	504	50.04.2121	COV41A8	LED red	TFK/HP
DL...	505	50.04.2121	COV41A8	LED red	TFK/HP
DL...	506	50.04.2121	COV41A8	LED red	TFK/HP
DL...	507	50.04.2121	COV41A8	LED red	TFK/HP
DL...	508	50.04.2121	COV41A8	LED red	TFK/HP
DL...	509	50.04.2121	COV41A8	LED red	TFK/HP
DL...	510	50.04.2121	COV41A8	LED red	TFK/HP
IC...	501	50.11.0119	LM3914	Bargraph Driver	NS
MP...	1	53.03.0175	1 pcs	IC-Socket 18 Pin	
MP...	2	1.010.012.50	10 pcs	LED-Holder	
MP...	3	1.128.072.01	2 pcs	Ribbon-Wire	
R...	501	57.11.4104	100 kOhm	5% 0.25W	
R...	502	57.11.4272	2.7 kOhm	5% 0.25W	
R...	503	57.11.4562	5.6 kOhm	5% 0.25W	
S...	501	55.15.0002	2xU	Push-Button	ITT
S...	502	55.15.0002	2xU	Push-Button	ITT
S...	503	55.15.0002	2xU	Push-Button	ITT
S...	504	55.15.0002	2xU	Push-Button	ITT
W...	501				

S T U D E R (00) 86.06.20 WM COMPRESSOR SWITCH BOARD PL 1.913.156.00 PAGE 1

IND.	POS.NO.	PART NO.	VALUE	SPECIFICATIONS / EQUIVALENT	MANUF.
-----					
CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film,					
PE=Polyester, PP=Polypolyphen, PS=Polystyrol					
MANUFACTURER: Bu=Burrndy, Ex=Emar, Fo=Fairchild, GI=General Instrument					
HP=Hewlett Packard, ITT=Intertechnology, Mo=Motorola, Nat=National					
(Matsushita), NS=National Semiconductors, Ph=Philips,					
Ra=Raytheon, Sig=Signetics, Six=Siliconix, St=Studer,					
TI=Texas Instrument					

ORIG 86.06.20  
S T U D E R (00) 86.06.20 WM COMPRESSOR SWITCH BOARD PL 1.913.156.00 PAGE 2

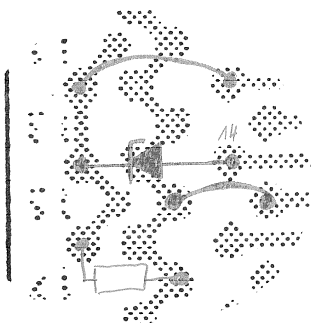
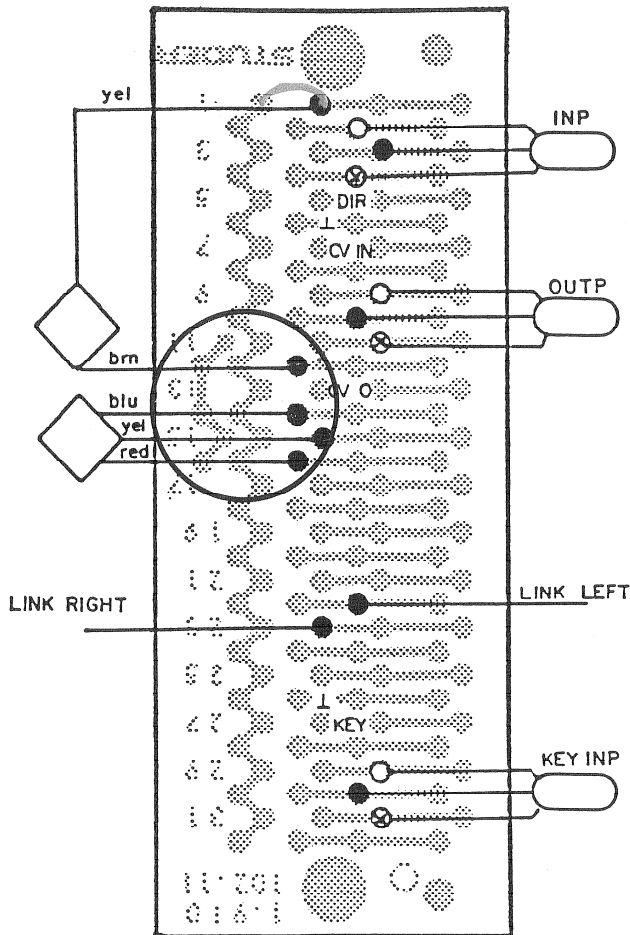
LIM./COMPR./NOISE G.  
1.913.155



P



LIM./COMPR./NOISE G.  
1.913.155

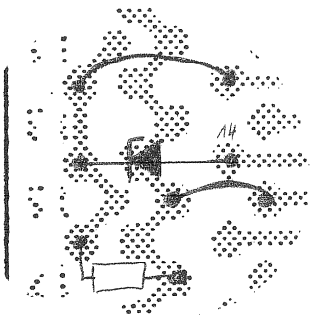
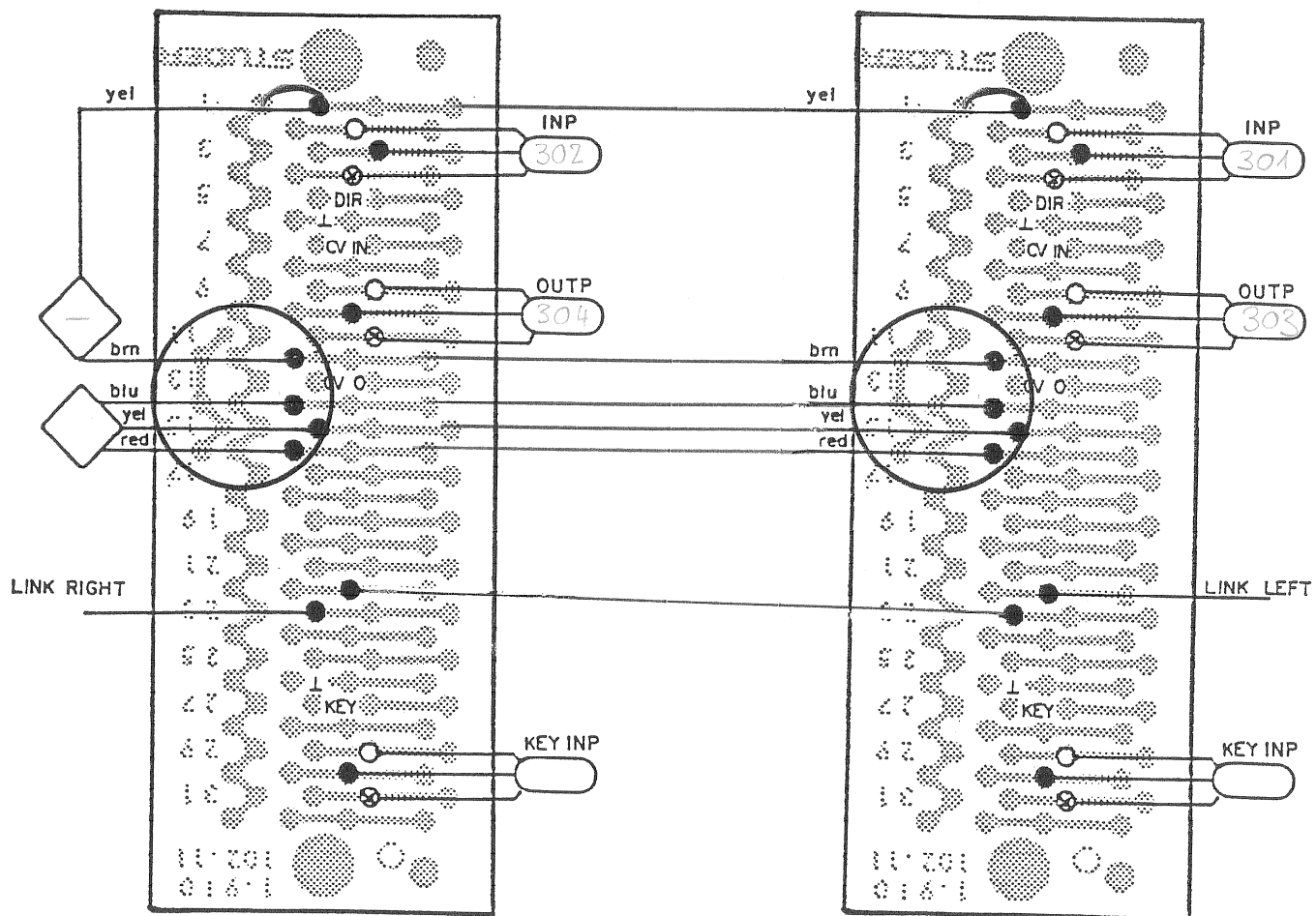


$R = 1k2 \Omega$   
 $ZD = 9V1 \quad 1,3W$

08.02.99	Zd	..	..	..	..
		Print 1.910.102.M			PAGE OF
STUDER		Limiter Compressor			

LIM./COMPR./NOISE G.  
1.913.155

LIM./COMPR./NOISE G.  
1.913.155

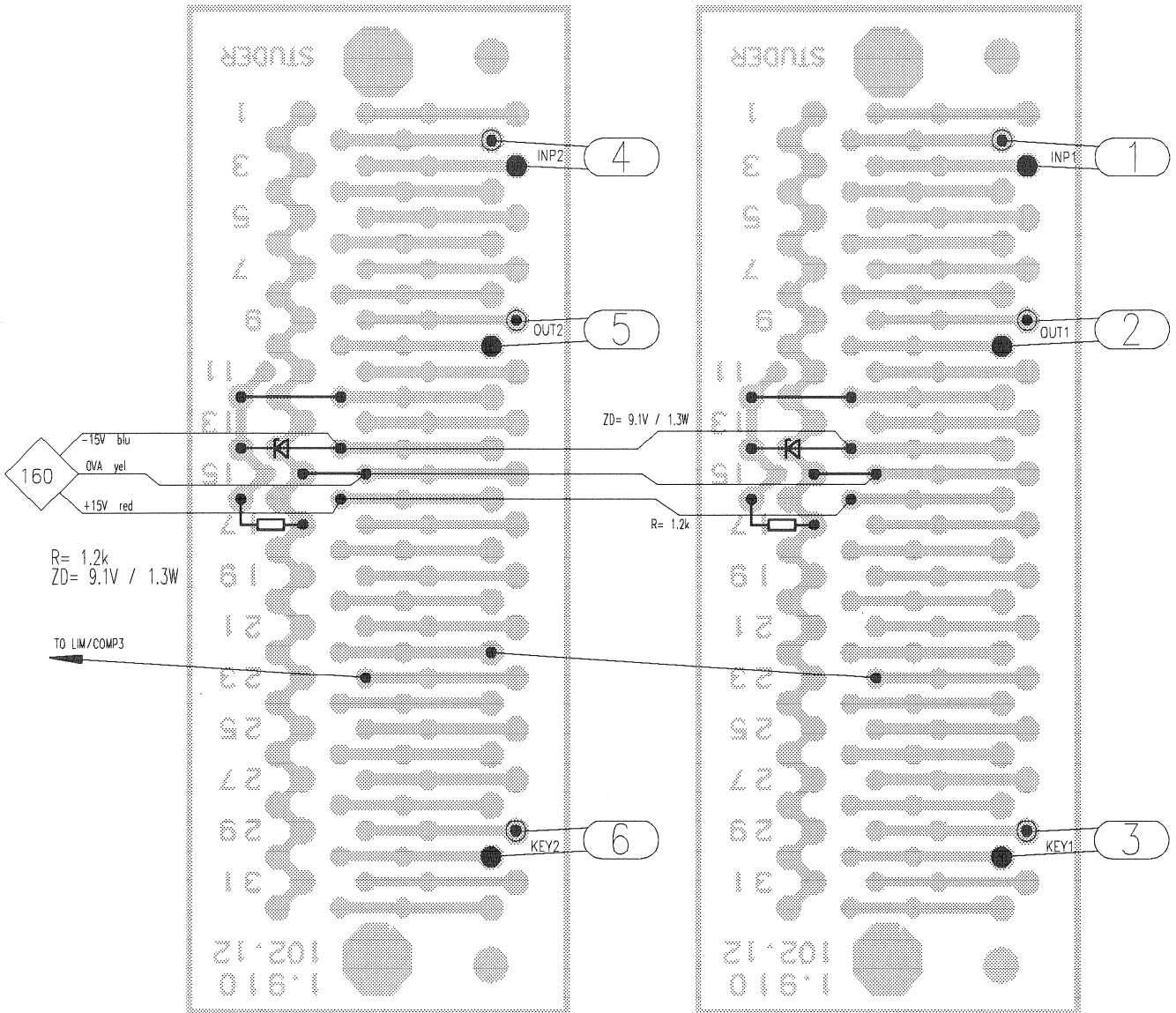


$R = 1k2 \Omega$   
 $ZD = 9VA \ 1,3W$

①	..	○	..	○	..	○	..	○	..
			Print 1.510.102.11					PAGE	OF
STUDER		Limiter Compressor							

LIMITER / COMPRESSOR 2

LIMITER / COMPRESSOR 1

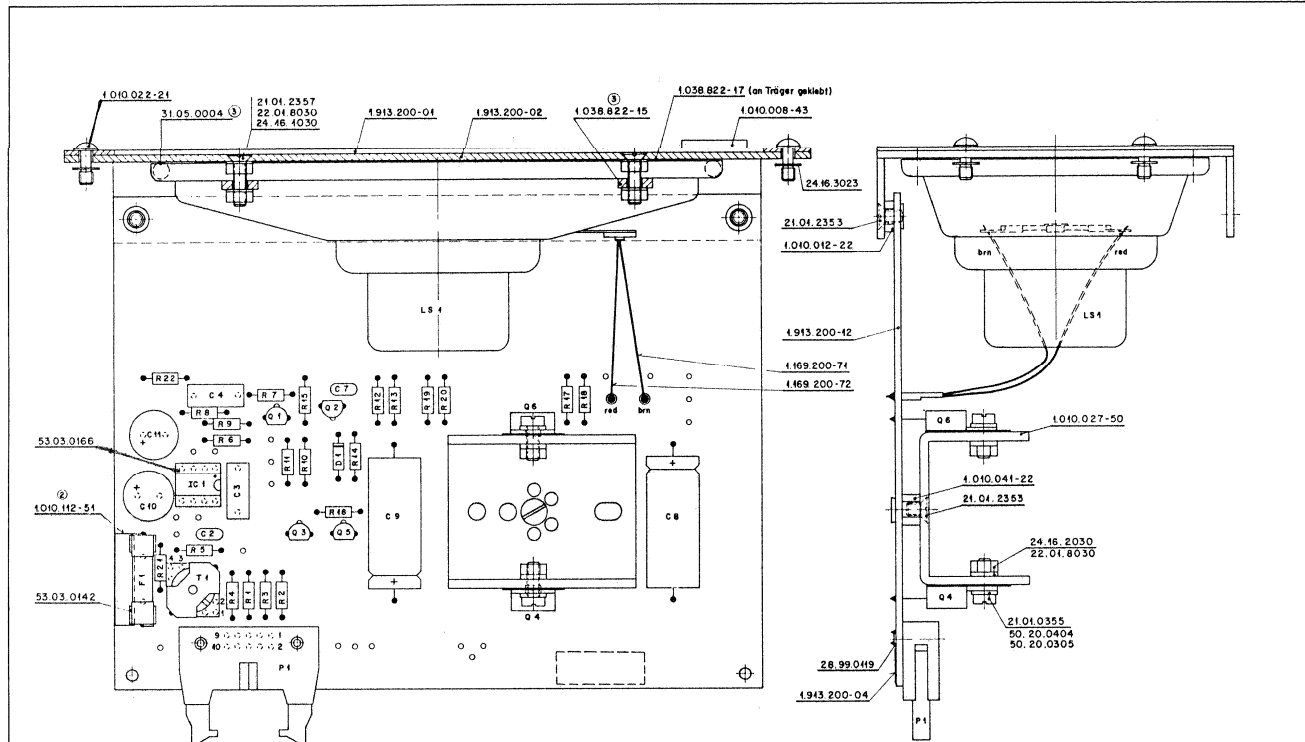


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07.06.00 / GY			
91010212lc_w	MUSTER		Page 1 of 1
<b>STUDER</b> REGENSDORF SWITZERLAND	LIMITER / COMPRESSOR		MUSTER



PFL AMPLIFIER 1.913.200.00



Form No.	016	1.6.85	A.Hg.	17
DNr. Ser.	6.11.84	A.Hg.	18	18
Abmessung	4.1 B4	A.Hg.	19	19
Zugehörige Unterlagen	Fragest.überanz	Multib.	29.11.82	A.Hg.
PL	1	2:1	20	20
Erstellt durch			21	21
Skizze Nr.			22	22
STUDER MISCHKONSOLE ZÜRICH		PFL- Amplifier		1.913.200.00

INDX POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
C 1				
C 2	59.34.4221	220 pF		CER
C 3	59.12.2224	0,22 µF	5%	PE
C 4	59.12.2224	0,22 µF	5%	PE
C 5				
C 6				
C 7	59.34.2470	47 pF		CER
C 8	59.25.3102	1000 µF	16V	EL
C 9	59.25.3102	1000 µF	16V	EL
C 10	59.22.4221	220 µF	16V	EL
C 11	59.22.4221	220 µF	16V	EL
D 1	50.04.0125	1N4448		SI
F 1	51.01.0114	500 pA	SB	
IC 1	50.09.0107	KC 4553	DUAL	OPA Ro
LS 1	71.01.0108	15 Ω	3W	Ph
Q 1	50.03.0515	BC 307B	PNP LF all purpose	SI omg
Q 2	50.03.0436	BC 239B	NPN LF all purpose	SI omg
Q 3	50.03.0436	BC 239B	NPN LF all purpose	SI omg
Q 4	50.03.0345	2N6476	PNP Power TO 220	SI A
Q 5	50.03.0515	BC 307B	PNP LF all purpose	SI omg
Q 6	50.03.0344	2N6474	NPN Power TO 220	K
R 1	57.11.3562	5,6k	1%	
R 2	57.11.3562	5,6k	1%	
R 3	57.11.3562	5,6k	1%	
R 4	57.11.3562	5,6k	1%	
R 5	57.11.4103	10k		
R 6	57.11.4472	4,7k	2%	
R 7	57.11.4472	4,7k	2%	
R 8	57.11.4472	2,7k	2%	
R 9	57.11.4472	4,7k	2%	
R 10	57.11.3562	5,6k		
R 11	57.11.3562	5,6k		
R 12	57.11.4222	2,2k		
R 13	57.11.4222	2,2k		
R 14	57.11.4470	4,7k		
R 15	57.11.4223	2,2k		
R 16	57.11.4470	4,7k		
R 17	57.11.4229	2,2k		
R 18	57.11.4229	2,2k		
R 19	57.11.4229	2,2k		
R 20	57.11.4229	2,2k		
R 21	57.11.3562	5,6k	1%	
R 22	57.11.3432	4,3k	1%	
T 1	1.022.243	A: A	Input Trans	ST

INDX POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
INDX	DATE	NAME		
①				
②				
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④				
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STUDER	PFL AMPLIFIER	1.913.200.00	PAGE 2 OF 2	

KORRELATOR

Der Korrelator zeigt die Phasenkorrelation einer Stereoaufnahme an.

Die Phasenkorrelation ist die gegenseitige Beziehung der Phasen beider Kanäle.

Wenn die Signale beider Kanäle gleichphasig sind, z.B. bei Monoaufnahmen, zeigt das Korrelationsinstrument +1 an; wenn sie gegenphasig ( $+180^\circ$ ) sind, zeigt das Instrument -1 an. Bei einem Stereo-Programm wird ein Mittelwert von gleich- und gegenphasigen Signalen angezeigt.

Stereoprogramme weisen normalerweise einen positiven Korrelationswert auf, vorzugsweise um +0,5. Negative Werte zeigen eine Phasenvertauschung im System an.

ANWENDUNGEN, DIE EINEN KORRELATOR ERFORDERN:Monokompatibilität von Stereoprogrammen

Damit eine stereophone Aufnahme auch monophon abgehört werden kann, muss die Korrelation überwacht werden.

Gegenphasige Anteile führen zu partiellen Auslöschungen.

Tiefe Frequenzen auf Stereo-Schallplatten

Die Abtastfähigkeit eines Abtastsystems ist für vertikale Auslenkung viel geringer als für horizontale Auslenkung.

Gegenphasige Signale mit hohem Pegel und tiefen Frequenzen weisen eine grosse vertikale Auslenkung auf und müssen deshalb vermieden werden.

Modulation von FM-Stereosendern

Die FM-Strecke Sender-Empfänger ist sehr empfindlich auf übermässig hohe Frequenzdifferenz-Signale. Es entstehen dabei unzulässige Verzerrungen.

CORRELATOR

The correlator indicates the phase correlation of a stereo program.

The phase correlation is the mutual relation of the phases on both channels.

If the signals of both channels are in phase, e.g. in a mono production, the correlation instrument indicates +1, if they are phased inversely ( $+180^\circ$ ), the instrument indicates -1. The correlator always indicates the average of in-phase and antiphase signals of a stereo production.

Stereo programs normally show a positive correlation value, preferably around +0.5. Negative values indicate that the phase in the system is inverted.

APPLICATION WHICH REQUIRE A CORRELATORMono compatibility of stereo programs

To ensure that a stereo recording can also be reproduced in mono mode it is necessary to monitor the correlation.

No phased-inversed components are allowed because they partially cancel during monophonic reproduction.

Low frequencies on stereo records

The tracking capability of a cartridge is much lower for vertical excursion than for horizontal excursion.

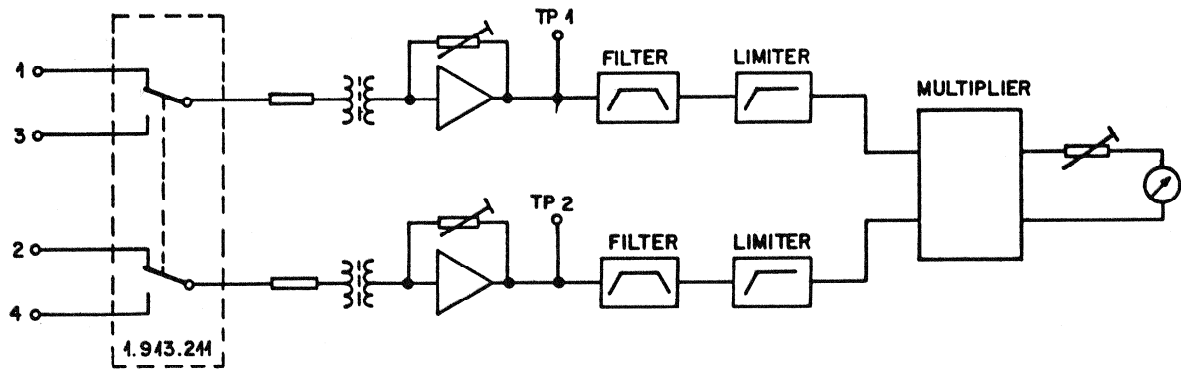
Antiphase signals with high levels and low frequencies result in high vertical excursion and should, therefore, be avoided.

Modulation from FM stereo transmitters

The FM path from the transmitter to the receiver is very sensitive to excessively high frequency-difference signals. They produce unacceptable distortion.

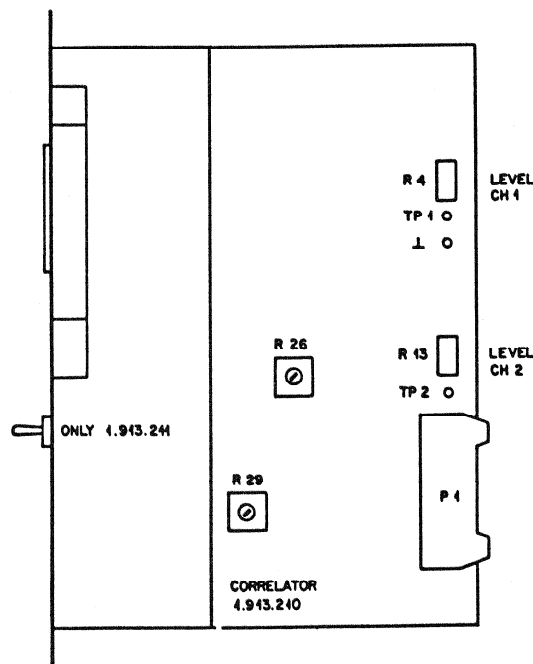
Blockschaltbild

Block Diagram



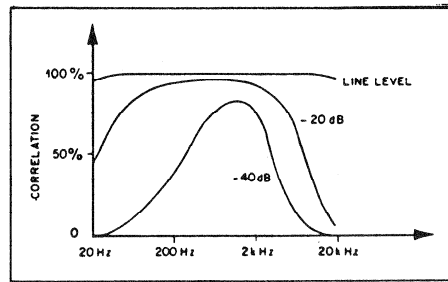
Abgleich

Calibration



1. An beiden Eingängen wird ein gleichphasiges 1 kHz-Signal mit Leitungspegel eingespiesen. R4 bzw. R13 so einstellen, dass an den Messpunkten TP1 bzw. TP2 ein Pegel von 100 mV AC gegen ⊥ (Masse) erscheint.
2. Eingangspegel um 50 dB verringern. KO an den Ausgang 6 oder 9 von IC3 gegen Masse ⊥ anschliessen. Die Amplituden beider Halbwellen mit R29 auf gleiche Höhe einstellen.
3. Eingangspegel wieder auf Leitungspegel einstellen. Mit R26 den Zeiger des Anzeigeinstrumentes auf +1 einstellen.
4. Einen der beiden Eingänge umpolen. Das Messinstrument soll -1 anzeigen.
5. Anzeigen gemäss Fig A kontrollieren.

1. Feed both inputs with an in-phase signal (1 kHz, line level). Adjust R4 and R13 in such a manner that 100 mV AC appear at both test points TP1 or TP2, against ground.
2. Reduce the input level by 50 dB. Connect oscilloscope to pin 6 or 9 of IC3 to ground. With R29 adjust the amplitudes of both half-waves to equal height.
3. Restore input level to line level. With R26 adjust the pointer of the meter to +1.
4. Reverse the polarity of one of the inputs. The meter should indicate -1.
5. Check meter readings according to Fig. A.



EINGANG	30 Hz	1 kHz	15 kHz
Leitungspegel = A	0,95	1	0,95
A + 20 dB	~1	1	~1
A - 20 dB	0,6	~1	0,5

INPUT	30 Hz	1 kHz	15 kHz
Line level = A	0,95	1	0,95
A + 20 dB	~1	1	~1
A - 20 dB	0,6	~1	0,5

TECHNISCHE DATEN

Eingang

symmetrisch und erdfrei  
 Eingangsimpedanz 20 Hz ... 20 kHz: >10 kOhm  
 Eingangspegel, einstellbar: +6 ... +15 dBu

Filter

Hochpass 6 dB/Oktave:  $f_u$ . ca. 340 Hz  
 Tiefpass 12 dB/Oktave:  $f_o$ . ca. 3,4 kHz

Ausgang

Ausgangsstrom für Instrumente, einstellbar  $\pm$  300  $\mu$ A

Temperatureinfluss

Fehler bei 0° C ... 50° C, bezüglich Raumtemperatur: +3 ... -1 %

Stromaufnahme bei  $\pm$  15 V: ca. 15 mA

Mechanische Daten

Frontplatte dunkelgrau gespritzt  
 Abmessung Frontplatte 170 x 180 mm  
 Tiefe 135 mm  
 Gewicht 390 gr

SPECIFICATIONS

Input

Balanced and floating  
 Input impedance 20 Hz ... 20 kHz: 10 kOhm  
 Input level, variable: + 6 ... + 15 dBu

Filter

High-pass 6 dB/octave:  $f_1$  approx. 340 Hz  
 Low-pass 12 dB/octave:  $f_u$ . approx. 3.4 kHz

Output

Output current for instruments, variable  
 $\pm$  300  $\mu$ A.

Influence of temperature

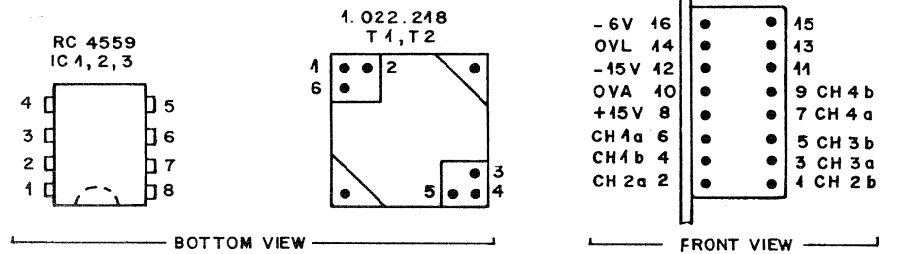
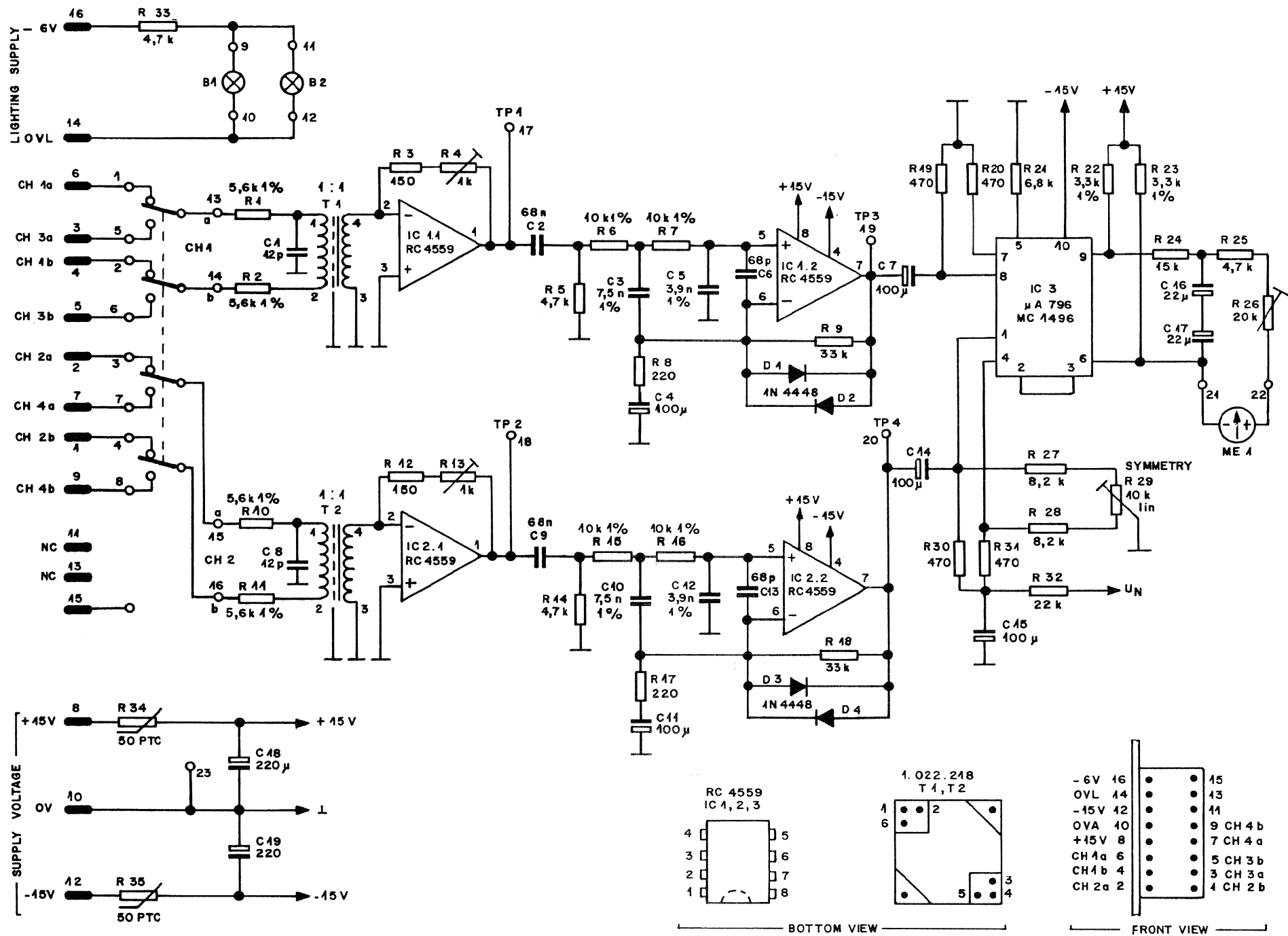
Error at 0 C ... 50 C, relative to room temperature: + 3 ... - 1 %.

Connected load at  $\pm$  15 V: approx. 15 mA

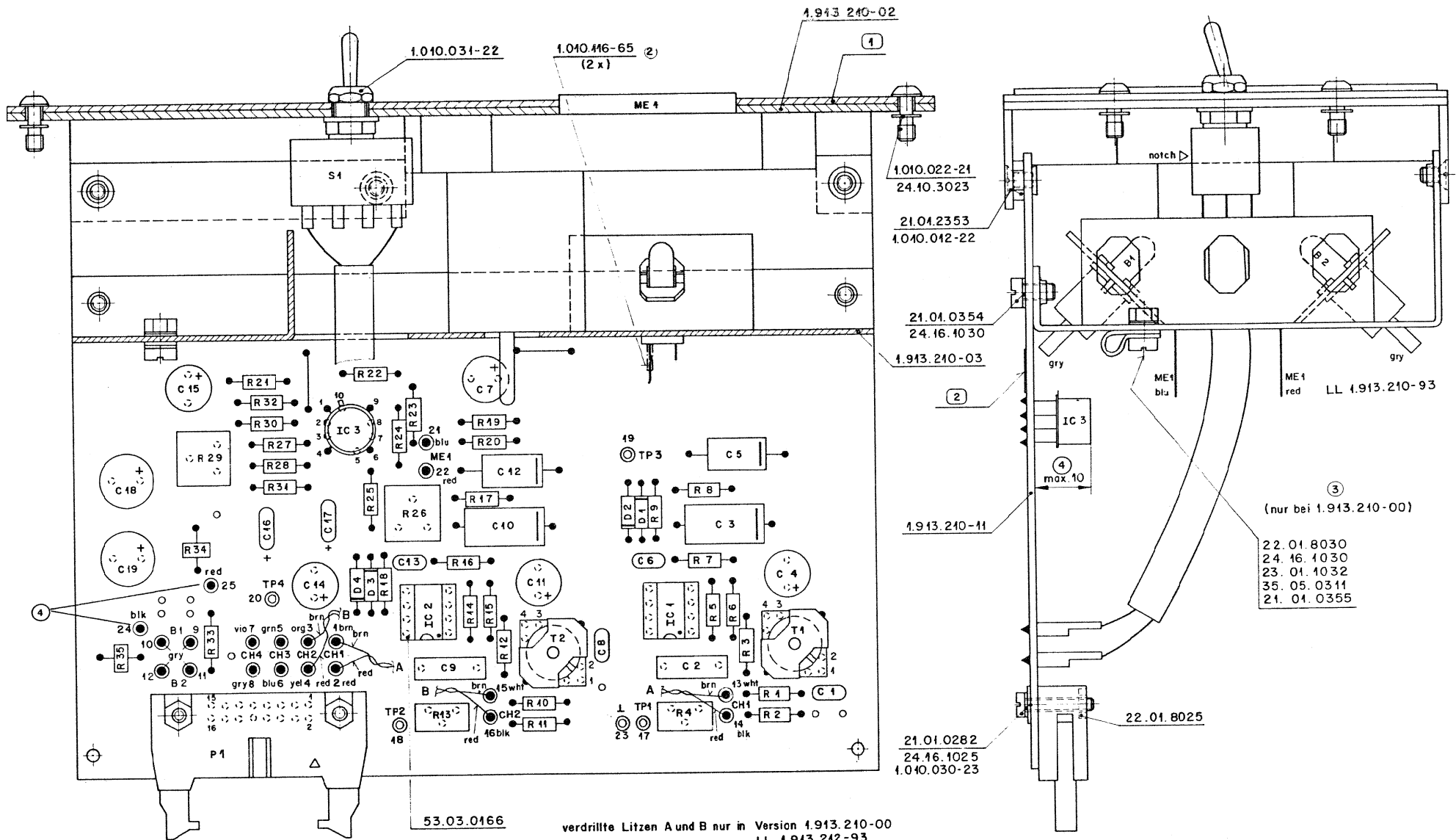
Physical data

Front panel laquered charcoal grey  
 Dimensions of front panel 170 x 180 mm  
 Depth 135 mm  
 Weight 390 g

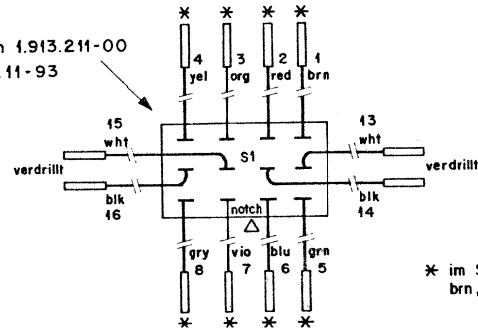




DATE:	18.10.82		
SIGN:	[Signature]		
STUDER REGENSDORF ZÜRICH	CORRELATOR 2CH/4CH		SC 1.913.210/211



nur in Version 1.913.211-00  
LL 1.913.211-93



verdrillte Litzen A und B nur in Version 1.913.210-00  
LL 1.913.212-93

Gilt für :	(1)	(2)	
2 CH	1.913.210-00	1.913.210-01	1.913.210-04
4 CH	1.913.211-00	1.913.211-01	1.913.211-04

\* im Schlauch 65.03.0146:  
brn, red, org, yel, grn, blu, vio, gry

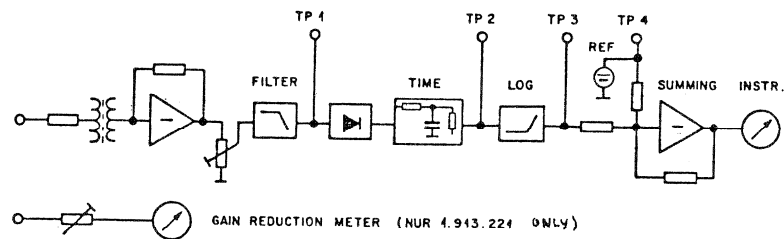
Werkstoff	Norm-Nr.:	Gute:	30.1188	A Ho	V	V	④		
	DIN-Bez.:	Beh.:						12.11.86 A.Ho	V
Zugehörige Unterlagen:	Abmessung:	Freimasstoleranz:	Maßstab:	Ausgabe	Datum	Gez.	Gepr.	Ges.	Index
	PL	+							
Ersatz für:	Ersetzt durch:		Kopie für:						
<b>STUDBEREGENDORF</b> ZÜRICH		<b>Bearbeitung: CORRELATOR</b> <b>2 CH / 4 CH</b>			Nummer: <b>1.913.210-00</b>				



## PEAK PROGRAM METER

Aussteuerungsmesser mit symmetrisch, erd-freiem Eingang. Dynamisches Verhalten gemäss IEC / DIN Normen.

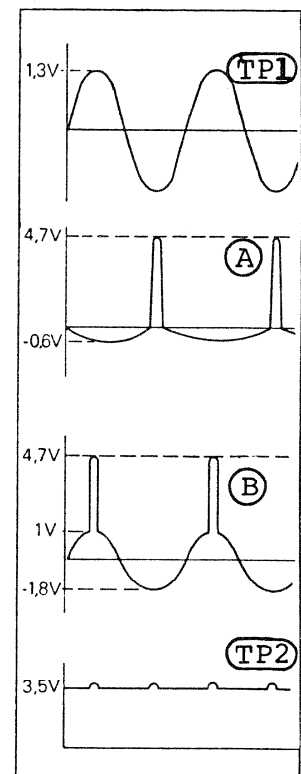
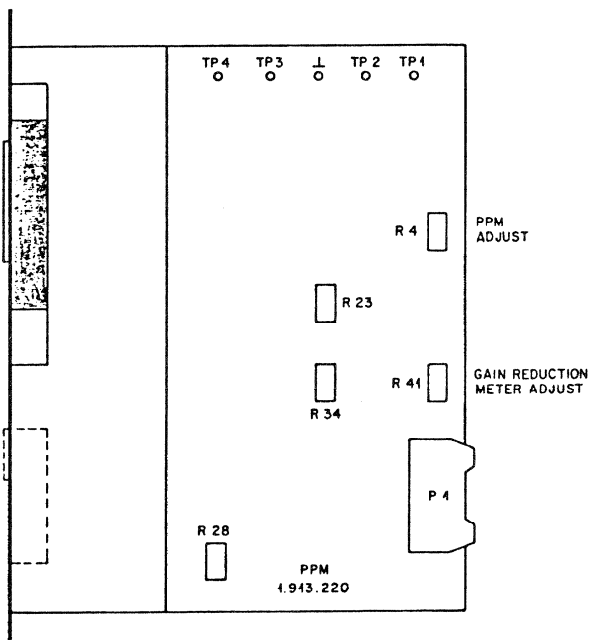
## Blockschaltbild



## PEAK PROGRAM METER

Level indicator with balanced and floating input. Dynamic response according to IEC / DIN standards.

## Block Diagram



## Abgleich

- 1) Leitungspegel + 6 ... + 15 dB 1 kHz am Eingang.
- 2) + 3,5 V an TP2 mit R4 (Pegel PPM)
- 3) 0 dB am Instrument mit R28
- 4) - 30 dB am Instrument mit R34
- 5) - 40 dB am Instrument mit R23

## Calibration

- 1) Line level +6 ... +15 dB 1 kHz at input
- 2) +3.5 V at TP2, adjust with R4 (level PPM)
- 3) 0 dB at instrument adjust with R28
- 4) -30 dB at instrument adjust with R34
- 5) -40 dB at instrument adjust with R23

Die mechanische Nullstellung des Messwerkes liegt bei Referenzanzeige 0 dB. Für Pegel, deren Anzeige 0 ... + 6 dB ergibt, wechselt die Polarität der Ausgangsspannung am Verstärker 4.2.

The mechanical zero position of the instrument corresponds to the reference indication 0 dB. For levels which give a deflection of 0 ... +6 dB on the scale, the amplifier 4.2 changes the polarity of the output voltage.

TECHNISCHE DATEN

Eingangsempfindlichkeit für Referenzanzeige (0 dB):  
+ 6 dBu ... + 15 dBu  
Eingangsimpedanz >10 kOhm

Anzeigebereich:  
- 40 dB ... + 6 dB

Genauigkeit bei 20° C, 1 kHz  
- 40 dB ... + 6 dB: ± 0,5 dB

Frequenzgang bei Referenzanzeige 0° C ... 50° C,  
31,5 Hz ... 15 kHz: ± 0,5 dB

Temperatureinfluss bei Referenzanzeige, 1 kHz,  
0° C ... 50° C: < Fehler 0,5 dB

Dynamisches Verhalten:

Überschwingen: ≤ 1 dB

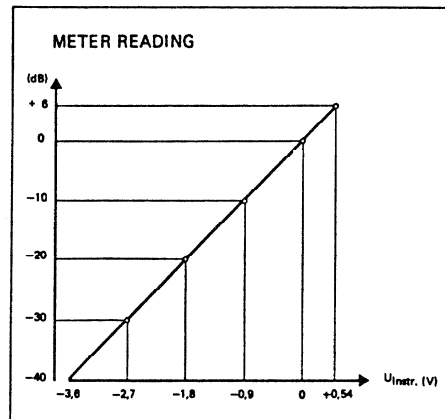
Ansprechzeit auf  
- 1 dB + 0,5 dB: 10 ms  
- 4 dB ± 1 dB: 3 ms

Rücklaufzeit 0 ... - 20 dB: 1,7 s ± 0,3 s

Stromaufnahme bei ± 15 V: Ca 15 mA

MECHANISCHE DATEN

Frontplatte dunkelgrau gespritzt  
Abmessungen Frontplatte 170 x 80 mm  
Tiefe 135 mm  
Gewicht 360 gr



SPECIFICATIONS

Input sensitivity for reference indication (0 dB):  
+6 dBu ... +15 dBu  
Input impedance >10 kOhm

Indicating range  
-40 dB ... +6 dB

Accuracy at 20° C, 1 kHz  
-40 dB ... +6 dB: ± 0.5 dB

Frequency response at reference indication  
0° C ... 50° C  
31.5 Hz ... 15 kHz: ± 0.5 dB

Influence of temperature at reference indication,  
1 kHz 0° C ... 50° C: error 0.5 dB

Dynamic response:

Overswing: 1 dB

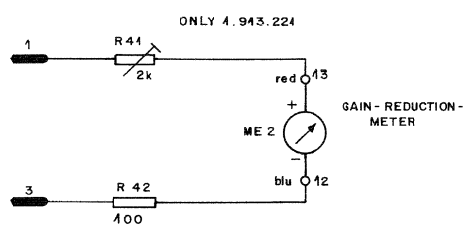
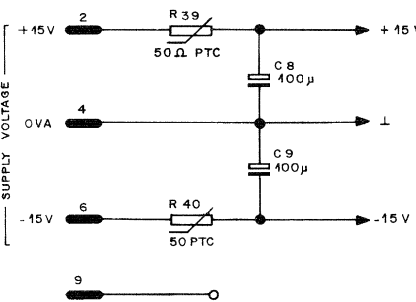
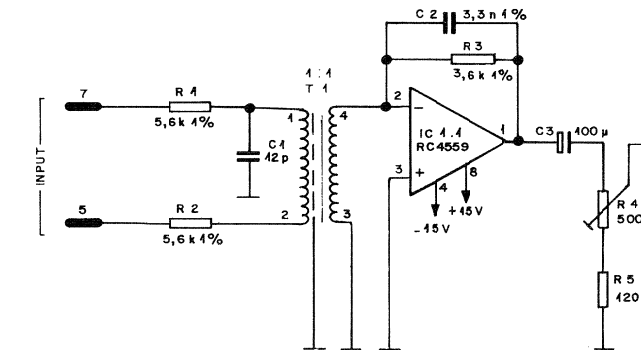
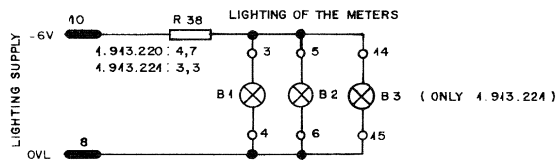
Attack time to  
-1 dB + 0.5 dB: 10 ms  
-4 dB ± 1 dB: 3 ms

Return time 0 ... -20 dB: 1.7 s ± 0.3 s

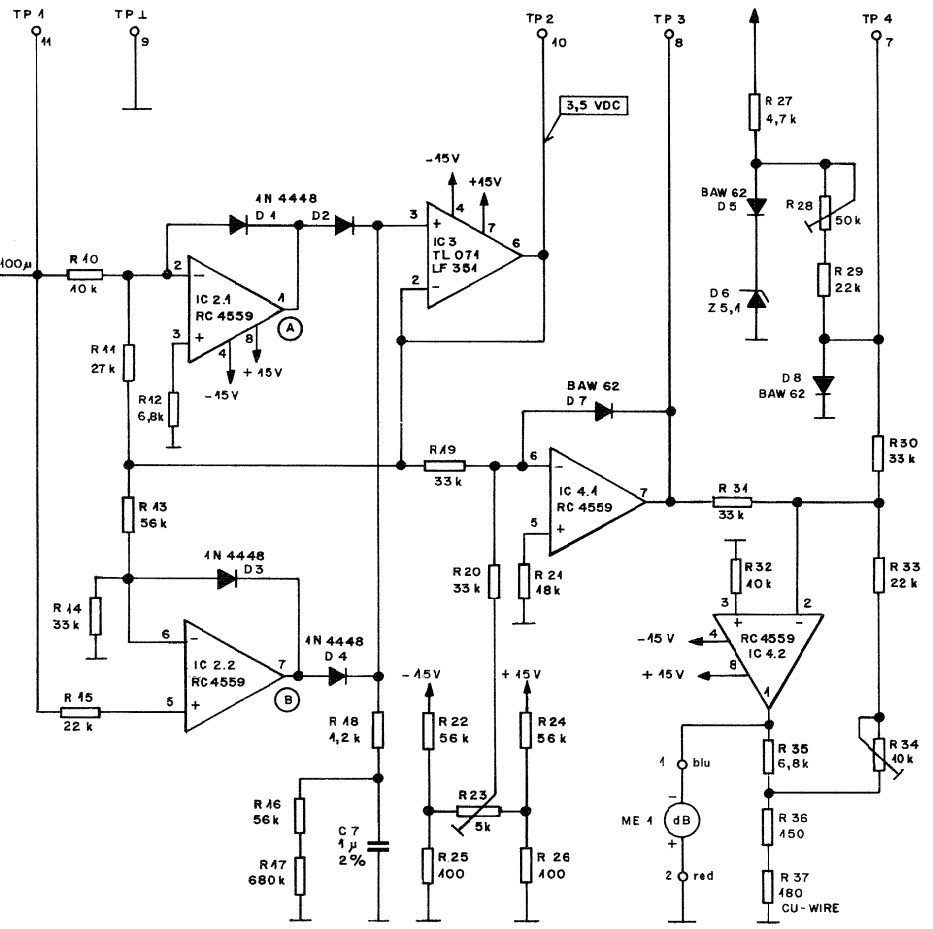
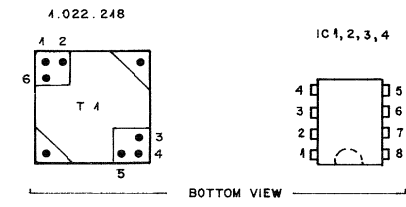
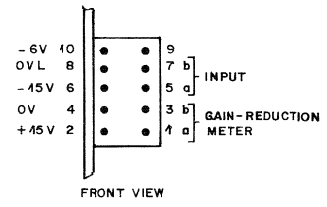
Connected load at ± 15 V: approx. 15 mA

PHYSICAL DATA

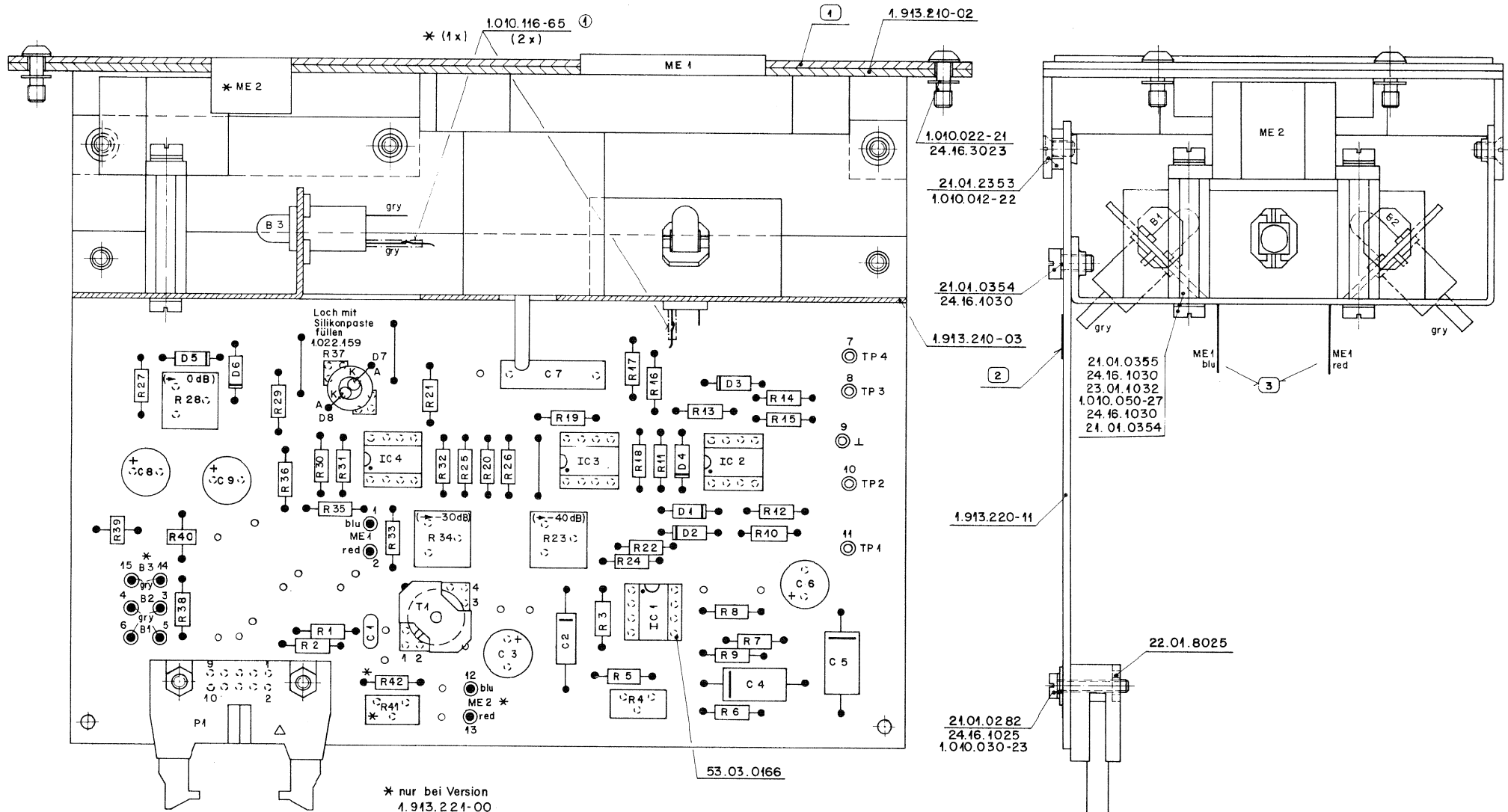
Front panel laquered charcoal grey  
Dimensions of front panel 170 x 80 mm  
Depth 135 mm  
Weight 360 g



- ADJUSTMENT :**
- 3,5 V DC AT TP 2 - R 4
  - 0 dB AT ME 1 - R 28
  - 30 dB AT ME 1 - R 34
  - 40 dB AT ME 1 - R 23



DATE	21.10.82		
SIGN	<i>Mly</i>		
REGENSCHORF ZÜRICH	PEAK PROGRAMME METER	SC 1.913.220/221	



Gültig für	1	2	3
1.913.220-00	1.913.210-01	1.913.220-04	1.913.210-93
1.913.221-00	1.913.221-01	1.913.221-04	1.913.221-93

Werkstoff Norm-Nr DIN-Bez. Abmessung	Gute		Anmerkung 10.12.84 A.Ho <i>MM</i> <i>VR</i>
	Oberfläche Ben.		
Zugehörige Unterlagen PL	Freimasstoleranz	Maßstab 2:1	Ausgabe 11.2.83 A.Ho <i>MM</i> <i>VR</i>
Ersatz für	Ersetzt durch	Kopie für Datum Gez Gepr Gcs Index	
Benennung <b>STUDER</b> REGENDORF ZÜRICH		Peak Programme Meter 1.913.220-00	

INDI	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	C1	59.34.1120	12pF	5%	
	C2	59.12.7332	3,3nF	1%	
	C3	59.22.5101	100μF	16V	
	C4	59.12.9102	1 nF	1%	
	C5	59.12.9102	1nF	1%	
	C6	59.22.5101	100μF	16V	
	C7	59.99.0508	1 μF	2%	
	C8	59.22.5101	100μF	16V	
	C9	59.22.5101	100μF	16V	
	D1	50.04.0125	1N4448		any
	D2	50.04.0125	1N4448		any
	D3	50.04.0125	1N4448		any
	D4	50.04.0125	1N4448		any
	D5	50.04.0132	BAW62		only PH
	D6	50.04.1112	ZPD 5,1	5,1V at 5mA, 5%	ITT
	D7	50.04.0132	BAW62		only PH
	D8	50.04.0132	BAW62		only PH
	IC1	50.09.0107	RC4559NB		RA, TI
	IC2	50.09.0107	RC4559NB		RA, TI
	IC3	50.09.0103	TL071CP	LF351N	TI, N
	IC4	50.09.0107	RC4559NB		RA, TI
	ME1	1.913.001.01		Peak Programme Meter	
	ME2	1.169.900.02		Gain-Reduction-Meter (only 1.913.221)	

INDI	DATE	NAME		
④			PH Philips	N National Sem.
③			RA Raytheon	
②			TI Texas Instr.	
①			also valid for PPM with	
○	20-8-81	<i>NY</i>	gain reduction meter 1.913.221	
<b>STUDER</b>	PEAK PROGRAMME METER	1.913.220	PAGE 1 OF 3	

INDI	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R1	57.11.3562	5,6k	1%	
	R2	57.11.3562	5,6k	1%	
	R3	57.11.3362	3,6k	1%	
	R4	58.01.7501	500	TRIM	
	R5	57.11.4121	120		
	R6	57.11.3752	7,5k	1%	
	R7	57.11.3912	9,1k	1%	
	R8	57.11.3152	1,5k	1%	
	R9	57.11.3102	1k	1%	
	R10	57.11.4103	10k		
	R11	57.11.4273	27k		
	R12	57.11.4682	6,8k		
	R13	57.11.4563	56k		
	R14	57.11.4333	33k		
	R15	57.11.4223	22k		
	R16	57.11.4563	56k		
	R17	57.11.4684	680k	2%	
	R18	57.11.4122	1,2k		
	R19	57.11.4333	33k		
	R20	57.11.4333	33k		
	R21	57.11.4183	18k		
	R22	57.11.4563	56k		
	R23	58.01.8502	5k	TRIM	
	R24	57.11.4563	56k		
	R25	57.11.4101	100		
	R26	57.11.4101	100		
	R27	57.11.4472	4,7k		
	R28	58.01.8503	50k	TRIM	
	R29	57.11.4223	22k		
	R30	57.11.4333	33k		

INDI	DATE	NAME		
④				
③				
②				
①				
○	20-8-81	<i>NY</i>		
<b>STUDER</b>	PEAK PROGRAMME METER	1.913.220	PAGE 2 OF 3	

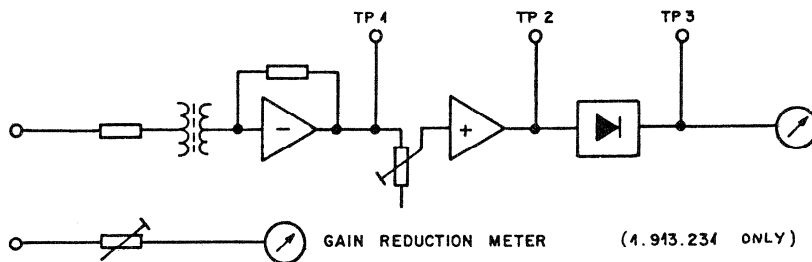
INDI	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R31	57.11.4333	33k		
	R32	57.11.4103	10k		
	R33	57.11.4223	22k		
	R34	58.01.8103	10k	TRIM	
	R35	57.11.4682	6,8k		
	R36	57.11.4151	150		
	R37	1.022.159.00	180	Cu-Wire	STUDER
	R38	57.11.4479	47Ω	1.913.221 : 3,3Ω	
	R39	57.99.0206	50Ω	PTC	
	R40	57.99.0206	50Ω	PTC	
	R41	58.01.7202	2k	TRIM only 1.913.221	
	R42	57.11.4101	100	only 1.913.221	
	T1	1.022.218.00	1:1	Input Trafo	STUDER
	B1	51.02.0144	6V, 30mA	Lamp	
	B2	51.02.0144	6V, 30mA	Lamp	
	B3	51.02.0144	6V, 30mA	Lamp	
	P1	54.14.2011		Connector	
	X1C	53.03.0166		IC-Socket 8pins	

INDI	DATE	NAME		
④				
③				
②				
①				
○	20-8-81	<i>NY</i>		
<b>STUDER</b>	PEAK PROGRAMME METER	1.913.220	PAGE 3 OF 3	



VU-METER

VU-Meter mit symmetrisch, erdfreiem und hochohmigem Eingang. Dynamische Daten gemäss IEC.

BlockschaltbildEinmessen:

TP1: Variabel (0,1 V ... 0,35 Veff)

TP2: 1 Veff

TP3: - 3,6 V p Vollweg-Gleichrichtung

Mit R4 kann die Referenzanzeige (0 VU) für Eingangssignale zwischen 0 dBu und +10 dBu eingestellt werden.

Calibration

TP1: Variable (0.1 V ... 0.35 Veff)

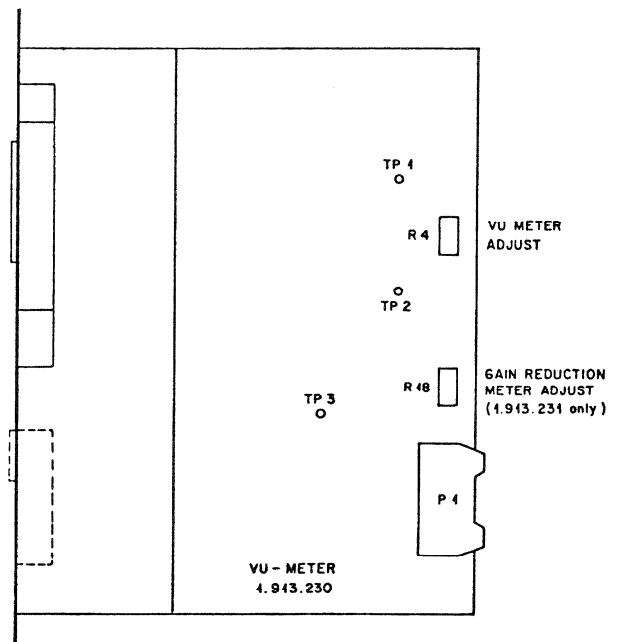
TP2: 1 Veff

TP3: -3.6V p full-wave rectification

The reference indication (0 VU) for input signals between 0 dBu and +10 dBu can be adjusted with R4.

VU-Meter

VU-meter with balanced, floating and high-impedance input. Dynamic response according to IEC.

Block diagramTECHNISCHE DATEN

Eingangsempfindlichkeit für Referenzanzeige (0 VU)	0 dBu ... +10 dBu
Eingangsimpedanz	> 10 kOhm
Anzeigebereich	- 20 VU ... + 3 VU
Genauigkeit bei 20°C, 1 kHz, -10 VU ... +3 VU	± 0,5 VU
Frequenzgang für Referenzanzeige 0°C ... 50°C, 31,5 Hz ... 15 kHz	± 0,5 VU
Ansprechzeit auf - 1 VU	207 ms ± 30 ms
Speisung	+ 15 V 10 mA - 15 V 10 mA - 6 V 60 mA (90 mA)

MECHANISCHE DATEN

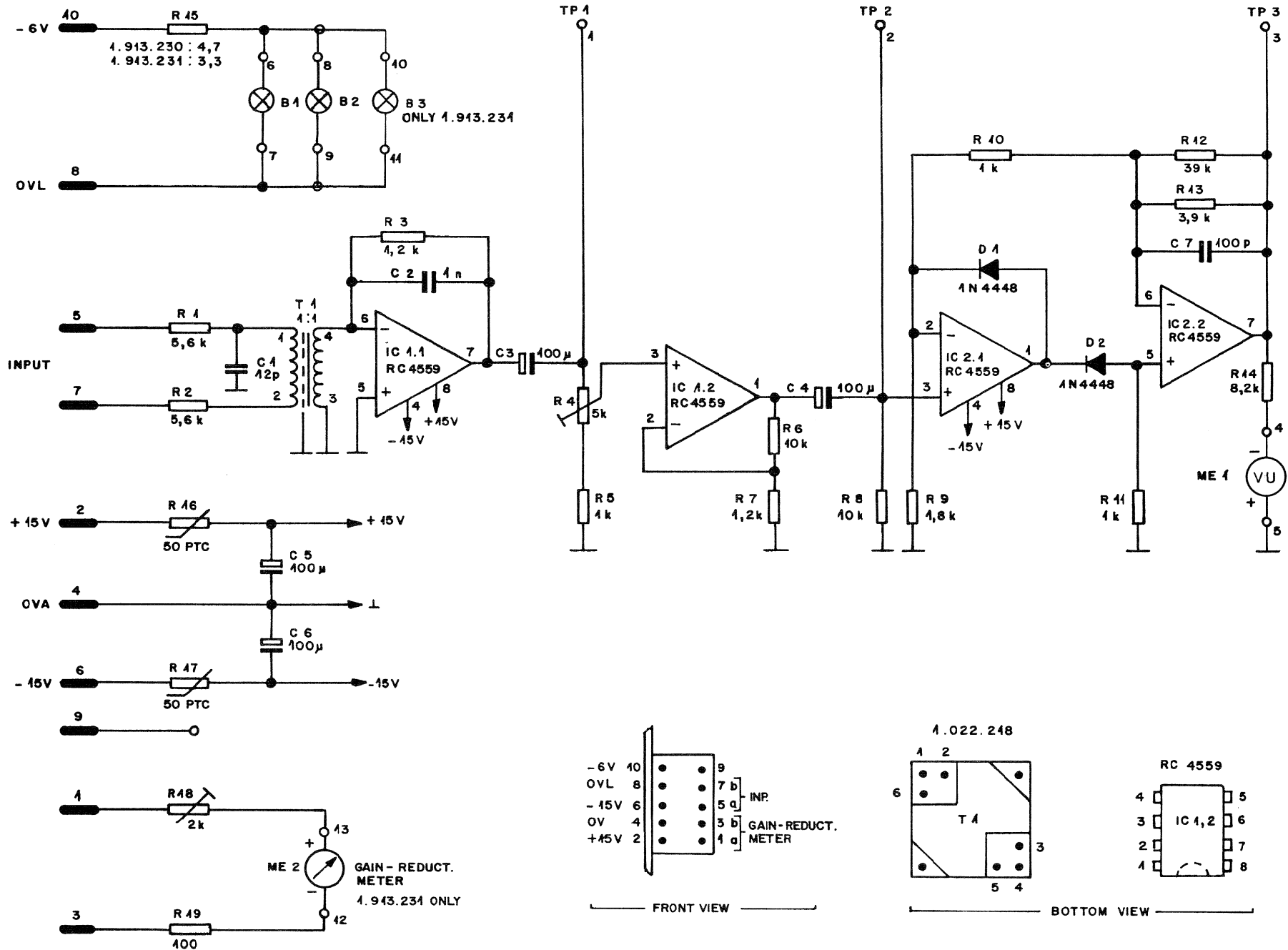
Frontplatte dunkelgrau gespritzt	
Abmessungen Frontplatte	170 x 80 mm
Tiefe	135 mm
Gewicht	310 gr

SPECIFICATIONS

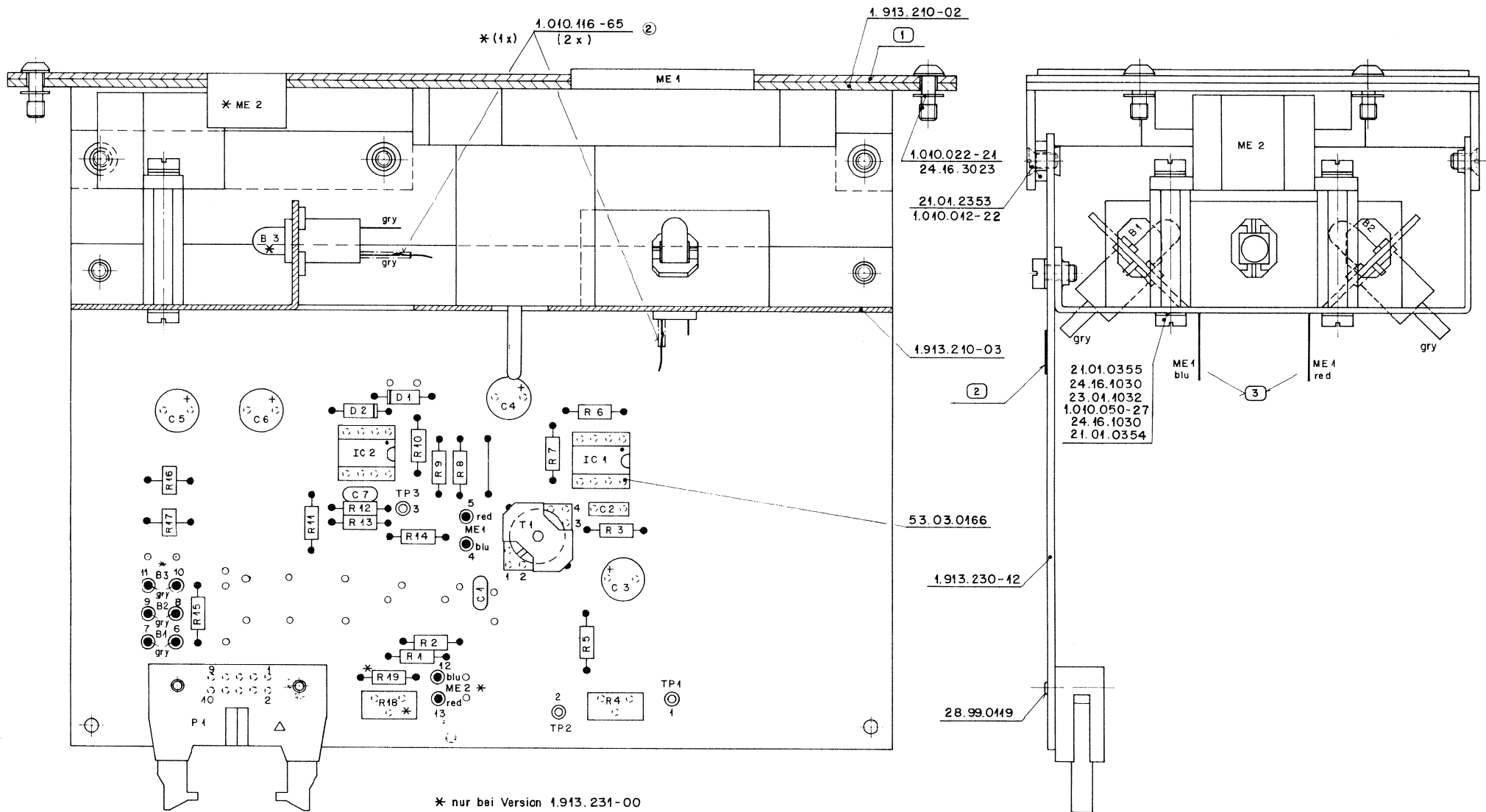
Input sensitivity for reference indication (0 VU)	0 dBu ... +10 dBu
Input impedance	>10 kOhm
Indicating range	-20 VU ... + 3 VU
Accuracy at 20°C, 1 kHz, -10 VU ... +3 VU	±0.5 VU
Frequency response for reference 0°C ... 50°C, 31.5 Hz ... 15 kHz	±0.5 VU
Attack time to -1 VU	207 ms ±30 ms
Supply	+15 V 10mA -15 V 10mA - 6 V 60mA (90mA)

PHYSICAL DATA

Front panel sprayed charcoal grey	
Dimension of front panel	170 x 80mm
Depth	135mm
Weight	310 g



DATE:	10.10.88	0.1.93				
SIGN:	<i>[Signature]</i>	<i>[Signature]</i>				
STUDEF REGENSDORF ZÜRICH			VU-METER			SC 1.913.230/231



Gültig für :	①	②	③
1.913.230-00	1.913.210-01	1.913.230-04	1.913.210-93
1.913.231-00	1.913.221-01	1.913.231-04	1.913.221-93

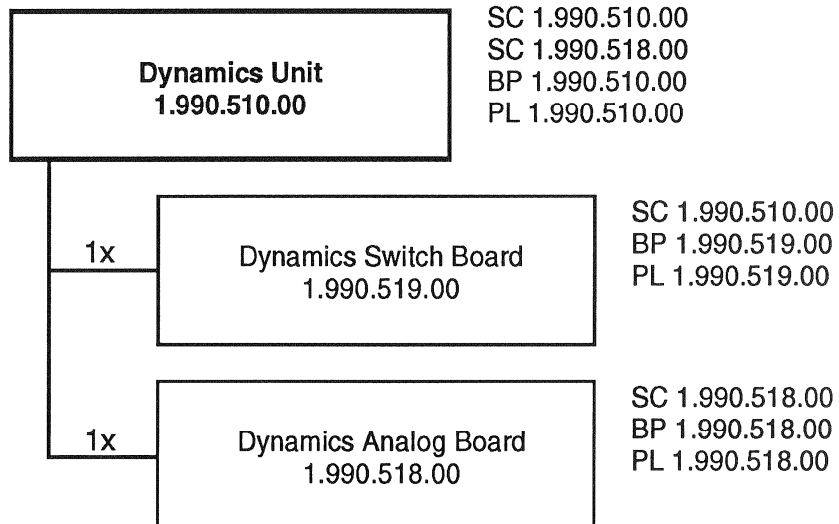
Weisstoff	Norm-Nr.:			Oberfläche	Güte:			Änderung	③
	DIN-Bez.:				Beh.:				②
Abmessung:				Freimasstoleranz:		Maßstab:			①
Zugehörige Unterlagen:				+		2:1			④
PL				Datum		Gez.	Gepr.	Ges.	Index
Ersatz für:				Ersetzt durch:				Kopie für:	
STUDER REGENSDORF ZÜRICH		Benennung:		VU-Meter		Nummer:		1.913.230-00	

INDI	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	C1	59.34.1120	12 pF	5%	
	C2	59.06.0102	1 nF	10%	
	C3	59.22.5101	100 $\mu$ F	$\geq 16V$	
	C4	59.22.5101	100 $\mu$ F	$\geq 16V$	
	C5	59.22.5101	100 $\mu$ F	$\geq 16V$	
	C6	59.22.5101	100 $\mu$ F	$\geq 16V$	
	C7	59.34.4101	100 pF	5%	
	D1	50.04.0125	1N4448		any
	D2	50.04.0125	1N4448		any
	IC1	50.09.0107	RC4559NB	Dual OP AMP	Ro, TI
	IC2	50.09.0107	RC4559NB	Dual OP AMP	Ro, TI
	R1	57.11.3562	5.6 k	1%	
	R2	57.11.3562	5.6 k	1%	
	R3	57.11.4122	12k		
	R4	58.01.7502	5k	TRIM-POTM.	
	R5	57.11.4102	1k		
	R6	57.11.4103	10k		
	R7	57.11.4122	12k		
	R8	57.11.4103	10k		
	R9	57.11.4182	18k		
	R10	57.11.4102	1k		
	R11	57.11.4102	1k		
	R12	57.11.4393	39k		
	R13	57.11.4392	39k		
	R14	57.11.4822	8.2k		

INDI	DATE	NAME		
④			Ro Raytheon	
③			TI Texas Instr.	
②			also valid for VU-meter with	
①			gain reduction meter 1.913.231	
○	20-8-81	<i>MJ</i>		
<b>STUDER</b>		VU-METER	1.913.230	PAGE 1 OF 2

INDI	POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
	R15	57.11.4479	47 $\Omega$	1.913.231: 3,3 $\Omega$ (57.11.4339)	
	R16	57.99.0206	50	PTC PHILIPS 2.322.661.91002	
	R17	57.99.0206	50	PTC PHILIPS 2.322.661.91002	
	R18	58.01.7202	2k	Trim-Pot. (only 1.913.231)	
	R19	57.11.4101	100	(only 1.913.231)	
	T1	1.022.218.00	1:1	Input Trafo	
	B1	51.02.0144	6V, 30mA	Lamp	
	B2	51.02.0144	6V, 30mA	Lamp	
	ME1	1.913.001.02		VU-Meter	
	ME2	1.169.900.02		Gain-Reduction Meter (only 1.913.231)	
	P1	54.14.2011		Connector 10 pins	
	X1C	53.03.0166		IC-Socket 8pins DIP	
	B9	51.02.0144	6V, 30mA	Lamp (only 1.913.231)	

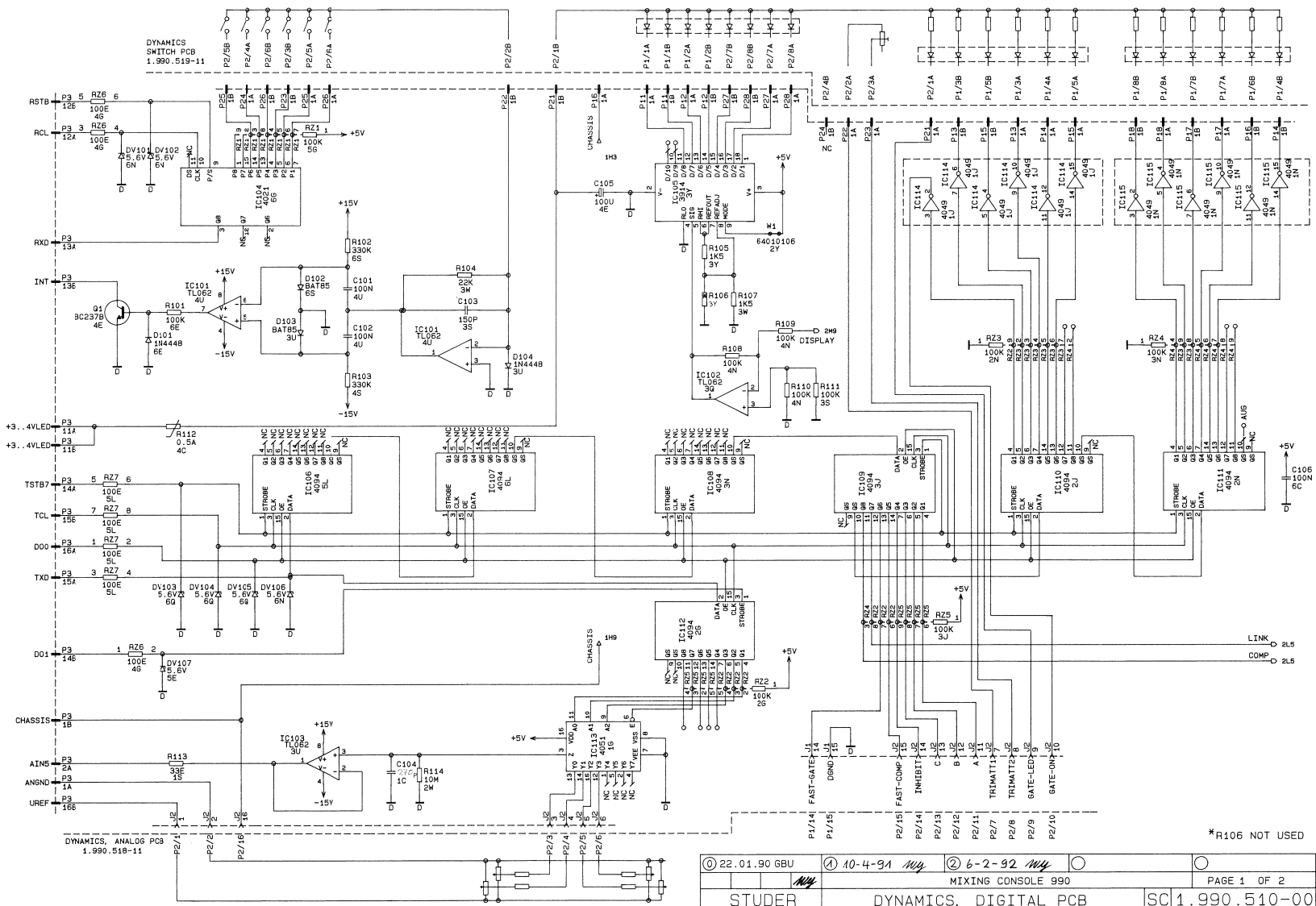
INDI	DATE	NAME		
④				
③				
②			also valid for VU-meter with	
①			gain reduction meter 1.913.231	
○	20-8-81	<i>MJ</i>		
<b>STUDER</b>		VU-METER	1.913.230	PAGE 2 OF 2

**Dynamics Unit****1.990.510.00**

SC: Schema      Circuit Diagram  
BP: Bestückungsplan    PCB Layout  
PL: Positionsliste    Positional List

DYNAMICS, DIGITAL PCB

1.990.510.00

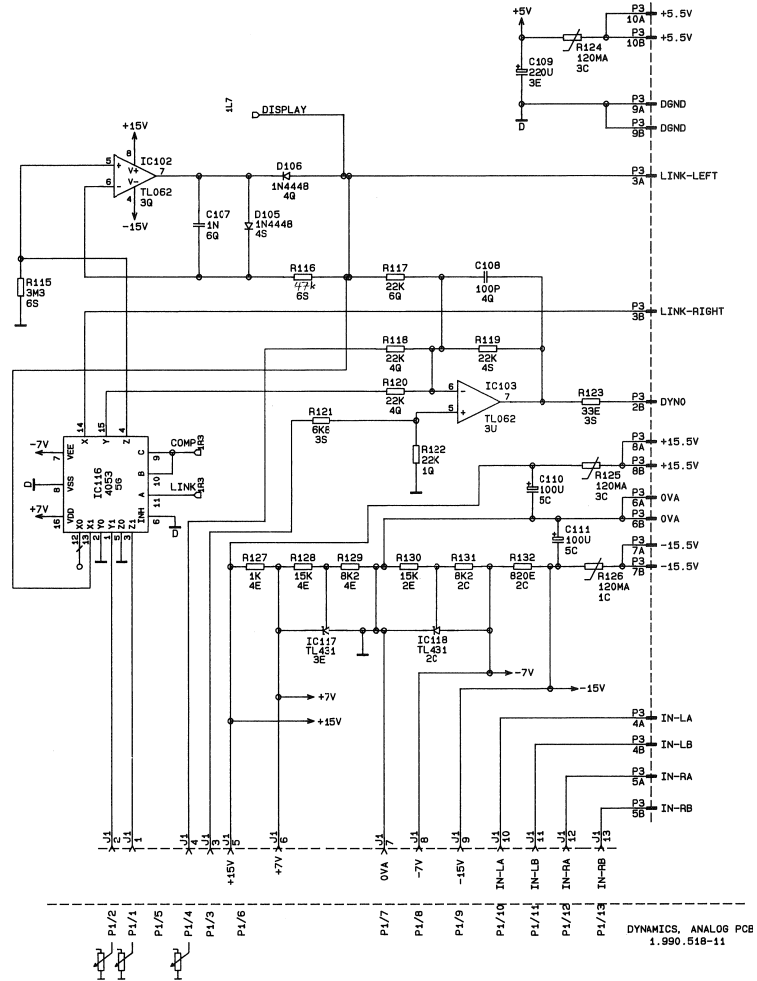


22.01.90 GBU	10-4-91	6-2-92	
MIXING CONSOLE 990			PAGE 1 OF 2
STUDER	DYNAMICS, DIGITAL PCB		SC 1.990.510-00

DYNAMICS, DIGITAL PCB



1.990.510.00



© 22.01.90	GBU	① 10-4-91 <i>NY</i>	② 6-2-92 <i>NY</i>	○
MIXING CONSOLE 990			PAGE 2 OF 2	
STUDER	DYNAMICS, DIGITAL PCB		SC	1.990.510-00

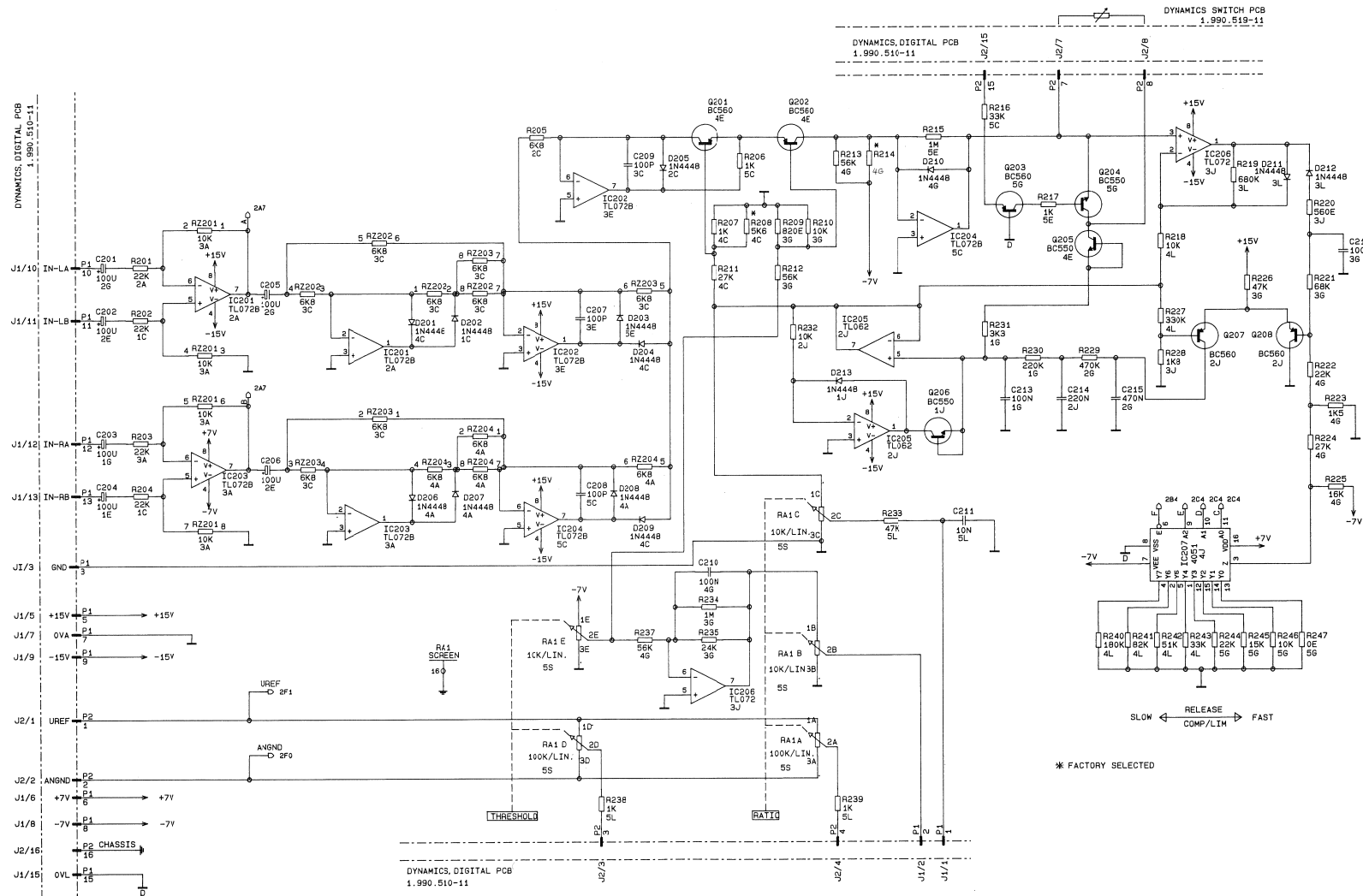




DYNAMICS ANALOG PCB



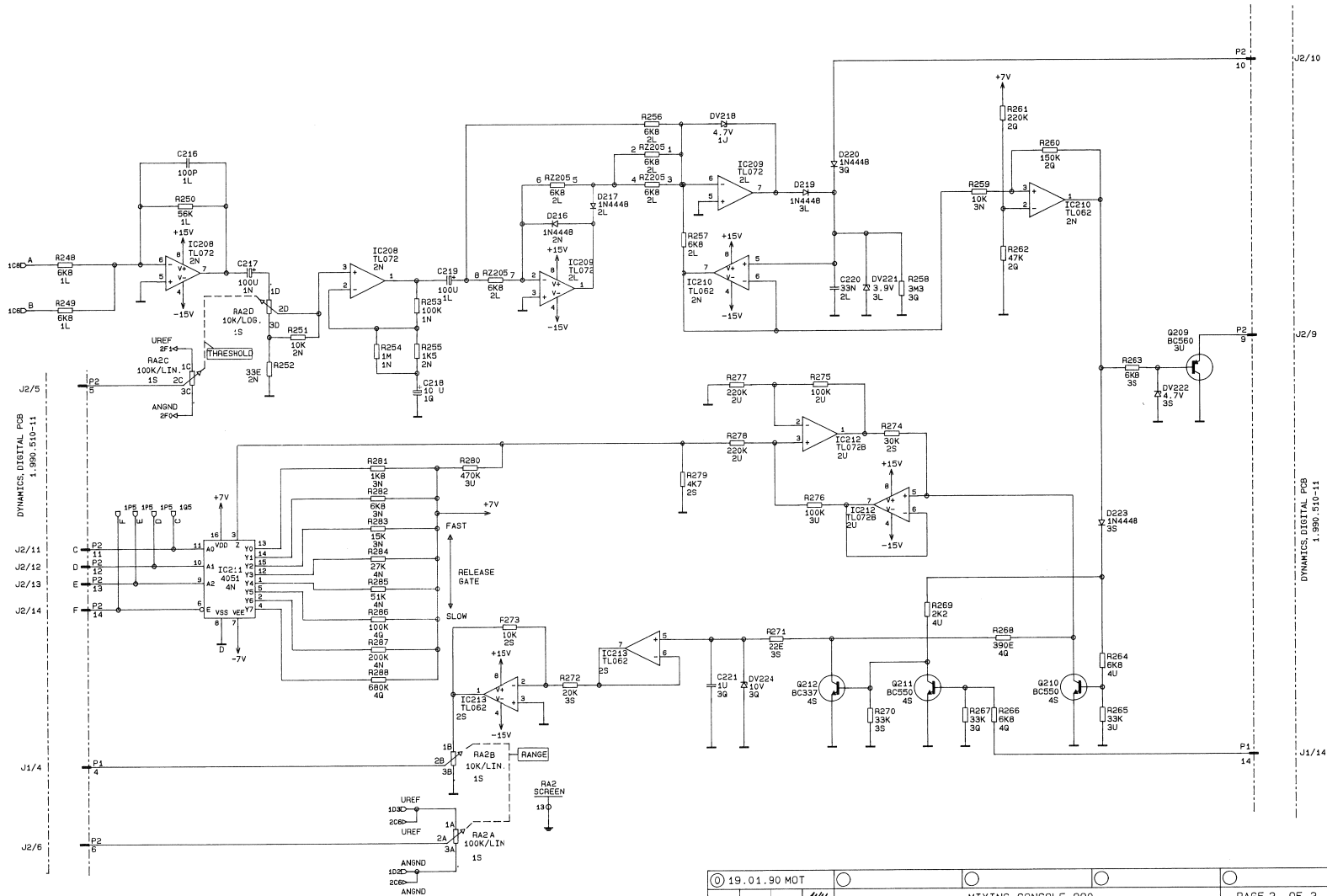
1.990.518.00



© 19.01.90 MOT	MIXING CONSOLE 990	PAGE 1 OF 2
STUDER	DYNAMICS ANALOG PCB	SC 1.990.518-00

DYNAMICS ANALOG PCB

1.990.518.00

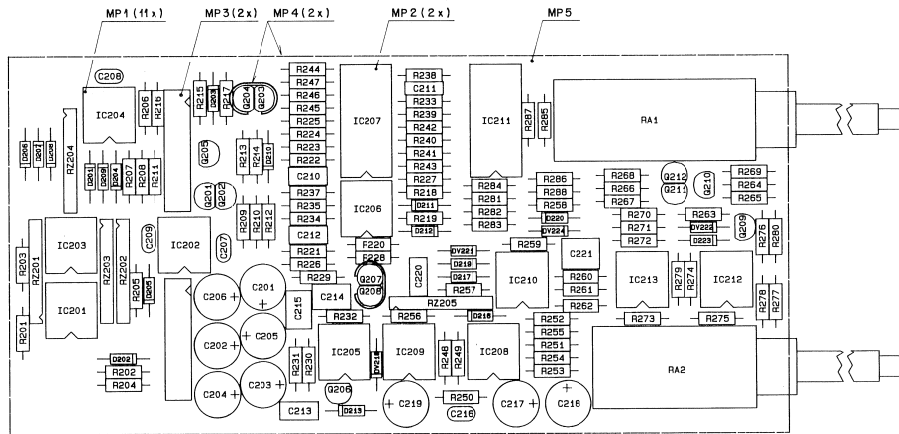


© 19.01.90 MDT			
		MIXING CONSOLE 990	PAGE 2 OF 2
STLDER		DYNAMICS ANALOG PCB	SC 1.990.518-00

DYNAMICS ANALOG BOARD ESE



1.990.518.00



Abkürzung	Erklärung
3.4.90	4/1/1/1/1/1
Datum	Gez. Gepr. Ges. Index

Kopie für:  
 Nummer: 1.990.518-00

STUDER  
 REGENSCHWIFF  
 ZÜRICH

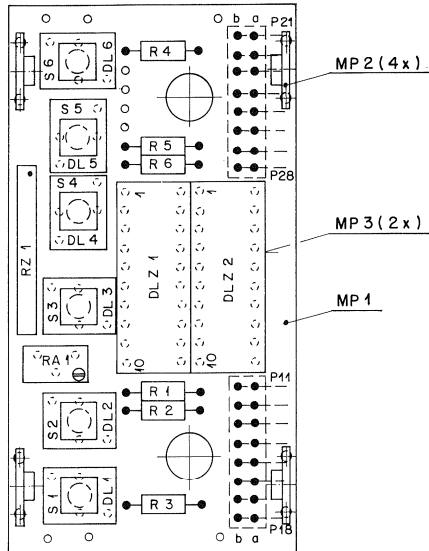
Bestellnummer: **DYNAMICS ANALOG BOARD ESE**

Nummer: **1.990.518-00**

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
C...	201	59.22.5101	100 uF 25V	EL	R...	222	57.11.3223	22 kOhm		
C...	202	59.22.5101	100 uF 25V	EL	R...	223	57.11.3152	1.5 kOhm		
C...	203	59.22.5101	100 uF 25V	EL	R...	224	57.11.3273	27 kOhm		
C...	204	59.22.5101	100 uF 25V	EL	R...	225	57.11.3163	16 kOhm		
C...	205	59.22.5101	100 uF 25V	EL	R...	226	57.11.3473	47 kOhm		
C...	206	59.22.5101	100 uF 25V	EL	R...	227	57.11.3334	330 kOhm		
C...	207	59.34.4101	100 pF	CER	R...	228	57.11.3182	1.8 kOhm		
C...	208	59.34.4101	100 pF	CER	R...	229	57.11.3474	470 kOhm		
C...	209	59.34.4101	100 pF	CER	R...	230	57.11.3224	220 kOhm		
C...	210	59.06.5104	100 nF	5%	PE	R...	231	57.11.3332	3.3 kOhm	
C...	211	59.06.5103	10 nF	5%	PE	R...	232	57.11.3103	10 kOhm	
C...	212	59.06.5104	100 nF	5%	PE	R...	233	57.11.3473	47 kOhm	
C...	213	59.06.5104	100 nF	5%	PE	R...	234		not installed	
C...	214	59.06.5224	220 nF	5%	PE	R...	235	57.11.3243	24 kOhm	
C...	215	59.06.5474	470 nF	5%	PE	R...	237	57.11.3563	56 kOhm	
C...	216	59.34.4101	100 pF	CER	R...	238	57.11.3102	1 kOhm		
C...	217	59.22.5101	100 uF 25V	EL	R...	239	57.11.3102	1 kOhm		
C...	218	59.22.8100	10 uF 63V	EL	R...	240	57.11.3184	180 kOhm		
C...	219	59.22.5101	100 uF 25V	EL	R...	241	57.11.3823	82 kOhm		
C...	220	59.06.5333	33 nF	5%	PE	R...	242	57.11.3313	51 kOhm	
C...	221	59.06.5105	1 uF 5%	PE	R...	243	57.11.3333	33 kOhm		
R...	201	50.04.0125	1M4448	any	R...	244	57.11.3223	22 kOhm		
R...	202	50.04.0125	1M4448	any	R...	245	57.11.3153	15 kOhm		
R...	203	50.04.0125	1M4448	any	R...	246	57.11.3103	10 kOhm		
R...	204	50.04.0125	1M4448	any	R...	247	57.11.3000	0 Ohm		
R...	205	50.04.0125	1M4448	any	R...	248	57.11.3682	6.8 kOhm		
R...	206	50.04.0125	1M4448	any	R...	249	57.11.3682	6.8 kOhm		
R...	207	50.04.0125	1M4448	any	R...	250	57.11.3563	56 kOhm		
R...	208	50.04.0125	1M4448	any	R...	251	57.11.3103	10 kOhm		
R...	209	50.04.0125	1M4448	any	R...	252	57.11.3330	33 Ohm		
R...	210	50.04.0125	1M4448	any	R...	253	57.11.3104	100 kOhm	not installed	
R...	211	50.04.0125	1M4448	any	R...	254				
R...	212	50.04.0125	1M4448	any	R...	255	57.11.3152	1.5 kOhm		
R...	213	50.04.0125	1M4448	any	R...	256	57.11.3682	6.8 kOhm		
R...	216	50.04.0125	1M4448	any	R...	257	57.11.3682	6.8 kOhm		
R...	217	50.04.0125	1M4448	any	R...	258	57.11.5335	3.3 MOhm		
R...	218	50.04.1122	4.7V	Z-diode	R...	259	57.11.3103	10 kOhm		
R...	219	50.04.0125	1M4448	any	R...	260	57.11.3154	150 kOhm		
R...	220	50.04.0125	1M4448	any	R...	261	57.11.3224	220 kOhm		
R...	221	50.04.1101	3.9V	Z-diode	R...	262	57.11.3473	47 kOhm		
R...	222	50.04.1122	4.7V	Z-diode	R...	263	57.11.3682	6.8 kOhm		
R...	223	50.04.0125	1M4448	any	R...	264	57.11.3682	6.8 kOhm		
R...	224	50.04.1134	10V	Z-diode	R...	265	57.11.3333	33 kOhm		
IC...	201	50.09.0121	T10728	dual FEI-op-amp.	Ph,Mot,TI	R...	266	57.11.3682	6.8 kOhm	
IC...	202	50.09.0121	T10728	dual FEI-op-amp.	Ph,Mot,TI	R...	267	57.11.3333	33 kOhm	
IC...	203	50.09.0121	T10728	dual FEI-op-amp.	Ph,Mot,TI	R...	268	57.11.3391	390 Ohm	
IC...	204	50.09.0121	T10728	dual FEI-op-amp.	Ph,Mot,TI	R...	269	57.11.3222	22 kOhm	
IC...	205	50.09.0115	T1062	dual FEI-op-amp.	Ph,Mot,TI	R...	270	57.11.3333	33 kOhm	
IC...	206	50.09.0101	T1072	8-channel analog mux/demux	Ph,Mot,RCA	R...	271	57.11.3220	22 Ohm	
IC...	207	50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA	R...	272	57.11.3203	20 kOhm	
IC...	208	50.09.0101	T1072	dual FEI-op-amp.	Ph,Mot,TI	R...	273	57.11.3103	10 kOhm	
IC...	209	50.09.0101	T1072	dual FEI-op-amp.	Ph,Mot,TI	R...	274	57.11.3303	30 kOhm	
IC...	210	50.09.0115	T1062	dual FEI-op-amp.	Ph,Mot,TI	R...	275	57.11.3104	100 kOhm	
IC...	211	50.07.0051	CD4051	8-channel analog mux/demux	Ph,Mot,RCA	R...	276	57.11.3104	100 kOhm	
IC...	212	50.09.0121	T10728	dual FEI-op-amp.	Ph,Mot,TI	R...	277	57.11.3224	220 kOhm	
IC...	213	50.09.0115	T1062	dual FEI-op-amp.	Ph,Mot,TI	R...	278	57.11.3224	220 kOhm	
MP...	1	53.03.0166	11 pcs	IC-socket 8 pin		R...	279	57.11.3472	4.7 kOhm	
MP...	2	53.03.0166	2 pcs	IC-socket 16 pin		R...	280	57.11.3474	470 kOhm	
MP...	3	1.023.391.60	2 pcs	Verbindungslabel mit Stecker 16p		R...	281	57.11.3182	1.8 kOhm	
MP...	4	50.20.2001	2 pcs	CTip		R...	282	57.11.3682	6.8 kOhm	
MP...	5	1.990.518.11	1 pcs	PCB		R...	283	57.11.3153	15 kOhm	
R...	201	50.43.0600	BC560	PNP selected E6310	ST	R...	284	57.11.3273	27 kOhm	
R...	202	50.43.0600	BC560	PNP selected E6310	ST	R...	285	57.11.3513	51 kOhm	
R...	203	50.03.0600	BC560	PNP	ST	R...	286	57.11.3104	100 kOhm	
R...	204	50.03.0499	BC550	NPN	ST	R...	287	57.11.3204	200 kOhm	
R...	205	50.03.0499	BC550	NPN	ST	R...	288	57.11.3684	680 kOhm	
R...	206	50.03.0499	BC550	NPN	ST	RA...	1	1.010.036.58		
R...	207	50.43.0600	BC560	PNP selected E6310	ST	RA...	2	1.010.037.58		
R...	208	50.43.0600	BC560	PNP selected E6310	ST	RZ...	201	57.88.2103	4*10kOhm	
R...	209	50.03.0600	BC560	PNP	ST	RZ...	202	57.88.2682	4*6.8kOhm	
R...	210	50.03.0499	BC550	NPN	ST	RZ...	203	57.88.2682	4*6.8kOhm	
R...	211	50.03.0499	BC550	NPN	ST	RZ...	204	57.88.2682	4*6.8kOhm	
R...	212	50.03.0516	BC337	NPN 800mA	ST	RZ...	205	57.88.2682	4*6.8kOhm	
R...	201	57.11.3223	22 kOhm			R...	211	57.11.3273	27 kOhm	
R...	202	57.11.3223	22 kOhm			R...	212	57.11.3563	56 kOhm	
R...	203	57.11.3223	22 kOhm			R...	213	57.11.3563	56 kOhm	
R...	204	57.11.3223	22 kOhm			R...	214		factory selected	
R...	205	57.11.3682	6.8 kOhm			R...	215	57.11.3105	1 MOhm	
R...	206	57.11.3102	1 kOhm			R...	216	57.11.3333	33 kOhm	
R...	207	57.11.3102	1 kOhm			R...	217	57.11.3102	1 kOhm	
R...	208	57.11.3563	5.6 kOhm			R...	218	57.11.3103	10 kOhm	
R...	209	57.11.3821	820 Ohm			R...	219	57.11.3684	680 kOhm	
R...	210	57.11.3103	10 kOhm			R...	220	57.11.3561	560 Ohm	
R...	211	57.11.3273	27 kOhm			R...	221	57.11.3683	68 kOhm	
R...	212	57.11.3563	56 kOhm							
R...	213	57.11.3563	56 kOhm							
R...	214									
R...	215	57.11.3105	1 MOhm							
R...	216	57.11.3333	33 kOhm							
R...	217	57.11.3102	1 kOhm							
R...	218	57.11.3103	10 kOhm							
R...	219	57.11.3684	680 kOhm							
R...	220	57.11.3561	560 Ohm							

DYNAMICS SWITCH BOARD

1.990.519.00



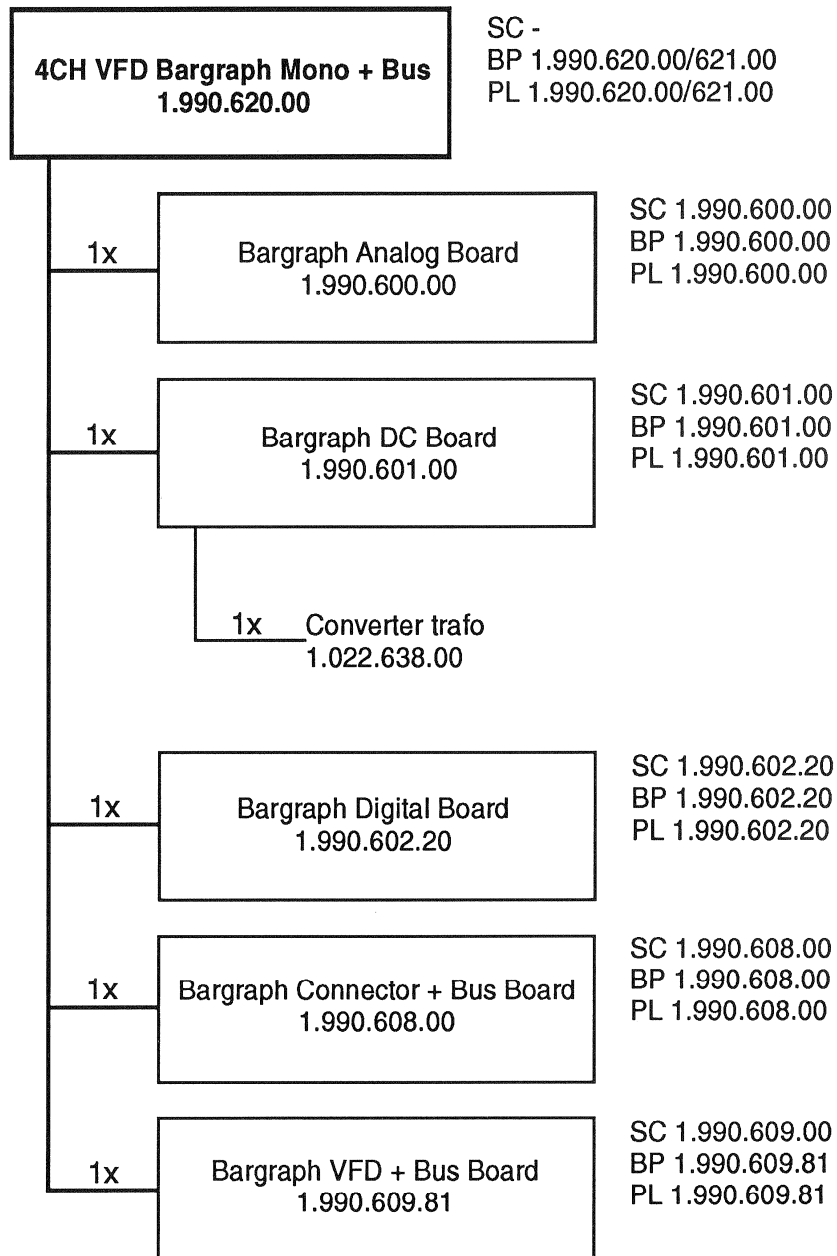
Änderung	③
②	
①	
3.4.90	
Datum	Gez. Gepr. Ges. Index
Kopie für	
Nummer	1.990.519-00

STUDER REGENSDORF ZÜRICH	Bezeichnung <b>DYNAMICS SWITCH BOARD</b>	Nummer <b>1.990.519-00</b>
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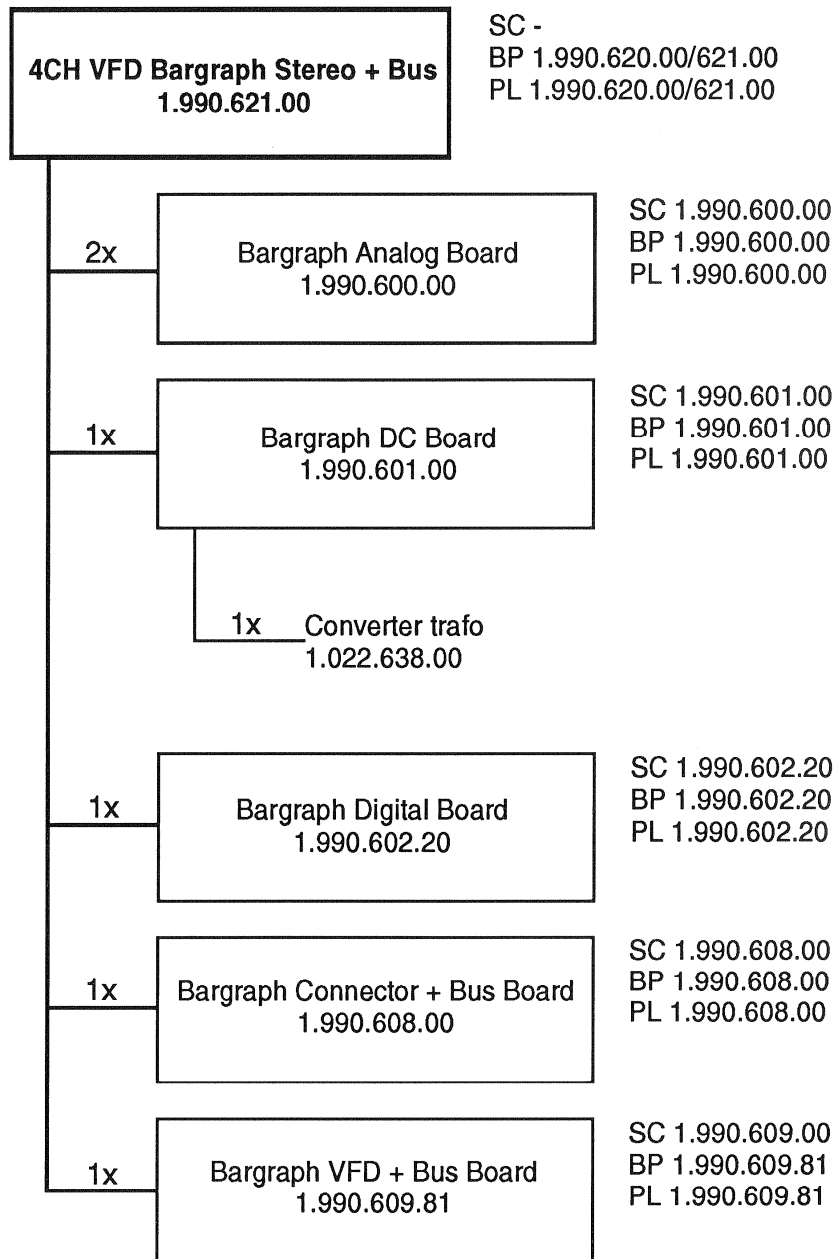
Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
DLZ...1	50.04.2161	10*D green	MV54164 (GI)	GI,HP
DLZ...2	50.04.2150	10*D red	MV57164 (GI)	GI,HP
R....1	57.11.3101	100 Ohm	0207 MF	
R....2	57.11.3101	100 Ohm	0207 MF	
R....3	57.11.3101	100 Ohm	0207 MF	
R....4	57.11.3101	100 Ohm	0207 MF	
R....5	57.11.3101	100 Ohm	0207 MF	
R....6	57.11.3101	100 Ohm	0207 MF	
RA....1	58.05.1104	100 kOhm	adjustable	
RZ....1	57.88.4101		SIP9 8*100 Ohm	
S....1	55.15.0622		red, LED red	
S....2	55.15.0604		colourless, LED yel	
S....3	55.15.0604		colourless, LED yel	
S....4	55.15.0602		colourless, LED red	
S....5	55.15.0604		colourless, LED yel	
S....6	55.15.0622		red, LED red	
MP....1	1.990.519.11	1 pcs	PCB	
MP....2	1.990.100.05	4 pcs	Querprinthalter	
MP....3	53.99.0135	2 pcs	XIC DIL20P ultra low prof.	

MANUFACTURER: GI-General Instruments, HP-Hewlett-Packard

1.990.519.00 DYNAMICS SWITCH BOARD WY 90.01.1000

**4CH VFD Bargraph Mono + Bus****1.990.620.00**

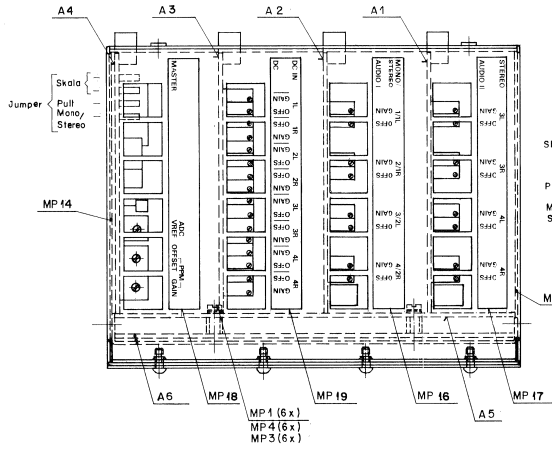
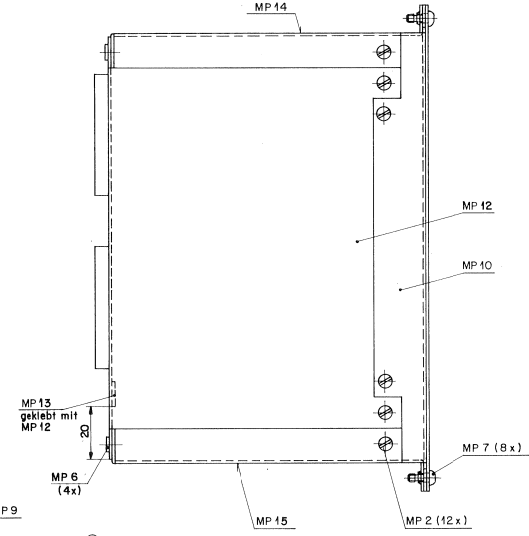
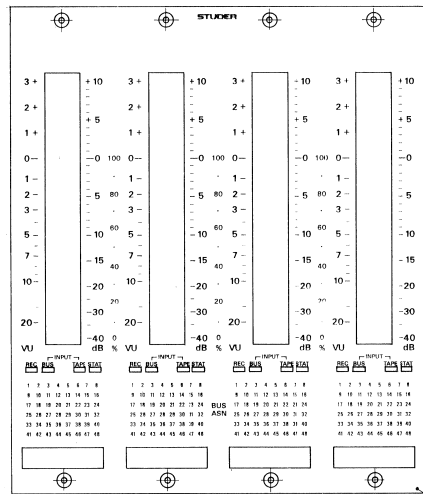
SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

**4CH VFD Bargraph Stereo + Bus****1.990.621.00**

SC: Schema      Circuit Diagram  
 BP: Bestückungsplan    PCB Layout  
 PL: Positionsliste      Positional List

4CH BAR-GRAPH STEREO + BUS

1.990.621.00



Anordnung der Jumper 54.01.0021 auf dem Digitalprint A4

	1.990.620.00	1.990.621.00	1.990.622.00	1.990.623.00	1.990.624.00	1.990.625.00	1.990.626.00	1.990.627.00
Mono 990								
Stereo 990								
Mono N 9								
Stereo N 9								
Mono IEC								
Stereo IEC								
Mono EBU								
Stereo EBU								

Abrechnung					③
	3.6.94	1.1%	1.1%	1.1%	①
Abzahlplan	21.6.90	1.1%	1.1%	1.1%	②
Datum	Gez.	Gepr.	Gas	Index	

STUDER  
REGENSDORF  
ZÜRICH

4 CH BAR-GRAPH  
STEREO + BUS

1.990.621-00

Ad	..POS.	..REF.No.	DESCRIPTION	MANUFACTURER
A.....1		0	not used	
A.....2	1.990.600.00		Bar-Graph Analog Board	St
A.....3	1.990.601.00		Bar-Graph DC Board	St
04 A.....4	1.990.602.21		Bar-Graph Digital Board	St
A.....5	1.990.605.00		Bar-Graph Connector+Bus Board	St
02 A.....6	1.990.609.81		Bar-Graph VFD+Bus Board	St
MP.....1	21.01.0353	0006 pcs	Z-Schr. , ZN , M3 * 5	
MP.....2	21.01.2352	0012 pcs	S-Schr. , ZN , M3 * 4	
01 MP.....3	23.01.1032	0006 pcs	U-Scheibe D 3.2/6 * 0.5	
01 MP.....4	24.16.1030	0006 pcs	Rippscheibe D 3.2/5.5	
MP.....5	0		not exist	
MP.....6	28.31.0005	0004 pcs	Blindniete D 3.2 * 6.1	
MP.....7	1.010.022.21	0008 pcs	Linsenschraube IS spez. M3 * 8 sw	
MP.....8	1.010.080.43	0001 pcs	Software Version Schild	
MP.....9	1.990.620.01	0001 pcs	Frontschild 1 VFD Bar-Graph + Bus	
MP.....10	1.990.620.02	0001 pcs	Traeger VFD Bar-Graph + Bus	
MP.....11	1.990.620.04	0000 pcs	Studer-Nr.-Etikette 10 * 20	
MP.....12	1.990.620.05	0001 pcs	Mantel VFD Bar-Graph + Bus	
MP.....13	1.990.620.06	0001 pcs	Distanzstreifen	
MP.....14	1.990.620.08	0002 pcs	Isolation Mantel VFD Bar-Graph	
MP.....15	1.990.620.09	0002 pcs	Strimmantel VFD Bar-Graph	
MP.....16	1.990.620.21	0001 pcs	Schild Potm. Beschr. AUDIO 1	
MP.....17	0		not exist	
MP.....18	1.990.620.23	0001 pcs	Schild Potm. Beschr. MASTER	
MP.....19	1.990.620.24	0001 pcs	Schild Potm. Beschr. DC	
03 MP.....20	54.01.0021	0002 pcs	Jumper Bruecke	

Index 1: U-Scheiben und Rippscheiben dazu.  
Index 2: Aenderung von 1.990.609.00 nach 1.990.609.81  
Index 3: Uebertragung der Jumperbruecken von 1.990.602.20  
Index 4: 1.990.602.21 neue SW

MANUFACTURER St=Studer

1.990.620.00	4CH BAR-GRAPH MONO+BUS (990)	VOL90/02/0600
1.990.620.00	4CH BAR-GRAPH MONO+BUS (990)	VOL90/05/0801
1.990.620.00	4CH BAR-GRAPH MONO+BUS (990)	VOL90/06/2702
1.990.620.00	4CH BAR-GRAPH MONO+BUS (990)	VOL91/06/2603
1.990.620.00	4CH BAR-GRAPH MONO+BUS (990)	FR194/04/2804

Ad	..POS.	..REF.No.	DESCRIPTION	MANUFACTURER
A.....1	1.990.600.00		Bar-Graph Analog Board	St
A.....2	1.990.600.00		Bar-Graph Analog Board	St
A.....3	1.990.601.00		Bar-Graph DC Board	St
04 A.....4	1.990.602.21		Bar-Graph Digital Board	St
A.....5	1.990.605.00		Bar-Graph Connector+Bus Board	St
02 A.....6	1.990.609.81		Bar-Graph VFD+Bus Board	St
MP.....1	21.01.0353	0006 pcs	Z-Schr. , ZN , M3 * 5	
MP.....2	21.01.2352	0012 pcs	S-Schr. , ZN , M3 * 4	
01 MP.....3	23.01.1032	0006 pcs	U-Scheibe D 3.2/6 * 0.5	
01 MP.....4	24.16.1030	0006 pcs	Rippscheibe D 3.2/5.5	
MP.....5	0		not exist	
MP.....6	28.31.0005	0004 pcs	Blindniete D 3.2 * 6.1	
MP.....7	1.010.022.21	0008 pcs	Linsenschraube IS spez. M3 * 8 sw	
MP.....8	1.010.080.43	0001 pcs	Software Version Schild	
MP.....9	1.990.620.01	0001 pcs	Frontschild 1 VFD Bar-Graph + Bus	
MP.....10	1.990.620.02	0001 pcs	Traeger VFD Bar-Graph + Bus	
MP.....11	1.990.621.04	0000 pcs	Studer-Nr.-Etikette 10 * 20	
MP.....12	1.990.620.05	0001 pcs	Mantel VFD Bar-Graph + Bus	
MP.....13	1.990.620.06	0001 pcs	Distanzstreifen	
MP.....14	1.990.620.08	0002 pcs	Isolation Mantel VFD Bar-Graph	
MP.....15	1.990.620.09	0002 pcs	Strimmantel VFD Bar-Graph	
MP.....16	1.990.620.21	0001 pcs	Schild Potm. Beschr. AUDIO 1	
MP.....17	1.990.620.22	0001 pcs	Schild Potm. Beschr. AUDIO 2	
MP.....18	1.990.620.23	0001 pcs	Schild Potm. Beschr. MASTER	
MP.....19	1.990.620.24	0001 pcs	Schild Potm. Beschr. DC	
03 MP.....20	54.01.0021	0002 pcs	Jumper Bruecke	

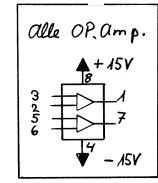
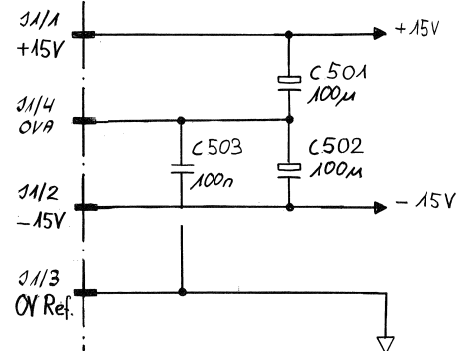
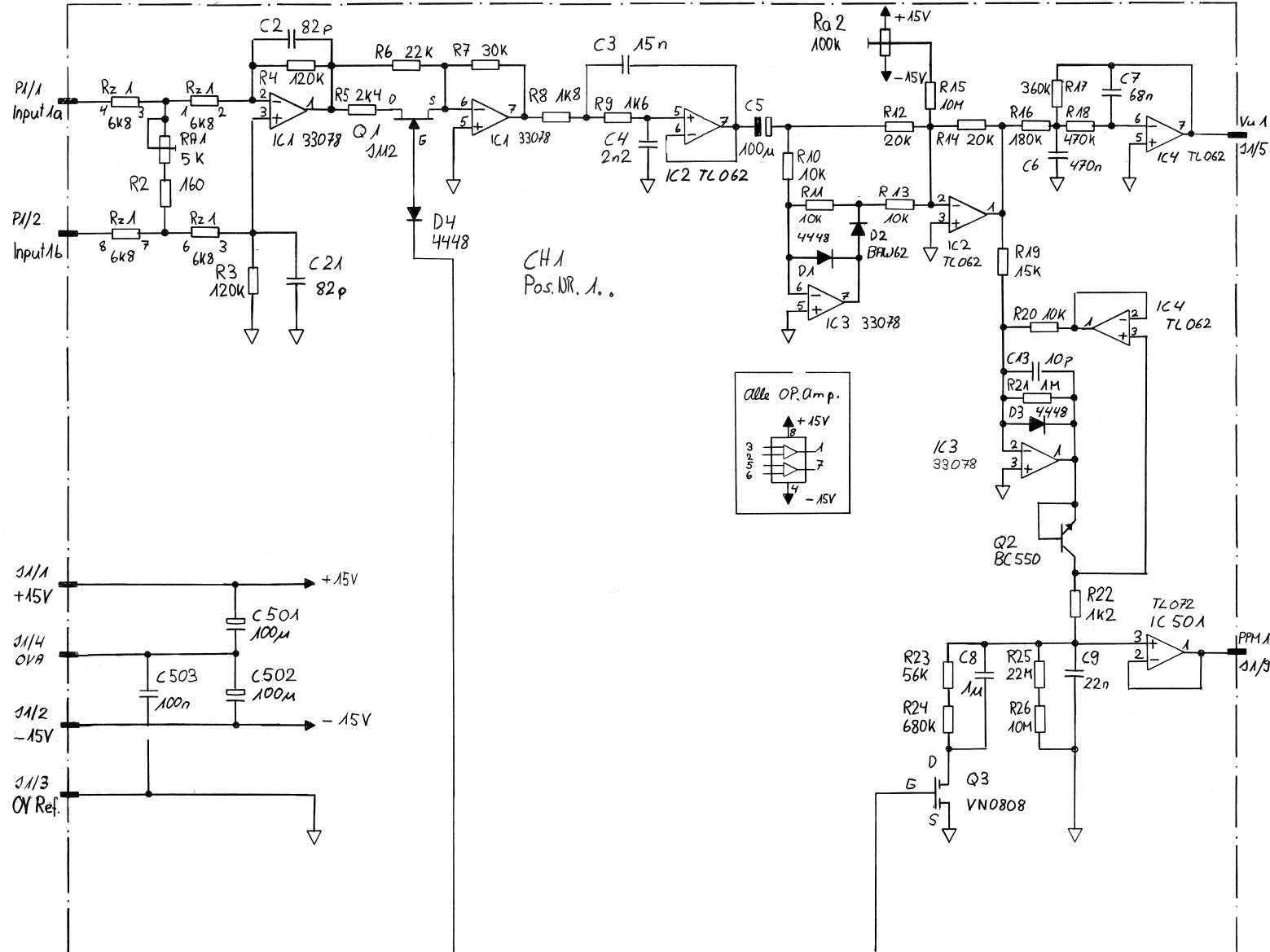
Index 1: U-Scheiben und Rippscheiben dazu.  
Index 2: Aenderung von 1.990.609.00 nach 1.990.609.81  
Index 3: Uebertragung der Jumperbruecken von 1.990.602.20  
Index 4: 1.990.602.21 neue SW

MANUFACTURER St=Studer

1.990.621.00	4CH BAR-GRAPH STEREO+BUS (990)	VOL90/02/0600
1.990.621.00	4CH BAR-GRAPH STEREO+BUS (990)	VOL90/05/0801
1.990.621.00	4CH BAR-GRAPH STEREO+BUS (990)	VOL90/06/2702
1.990.621.00	4CH BAR-GRAPH STEREO+BUS (990)	VOL91/06/2603
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ANALOG BOARD

1.990.600.00



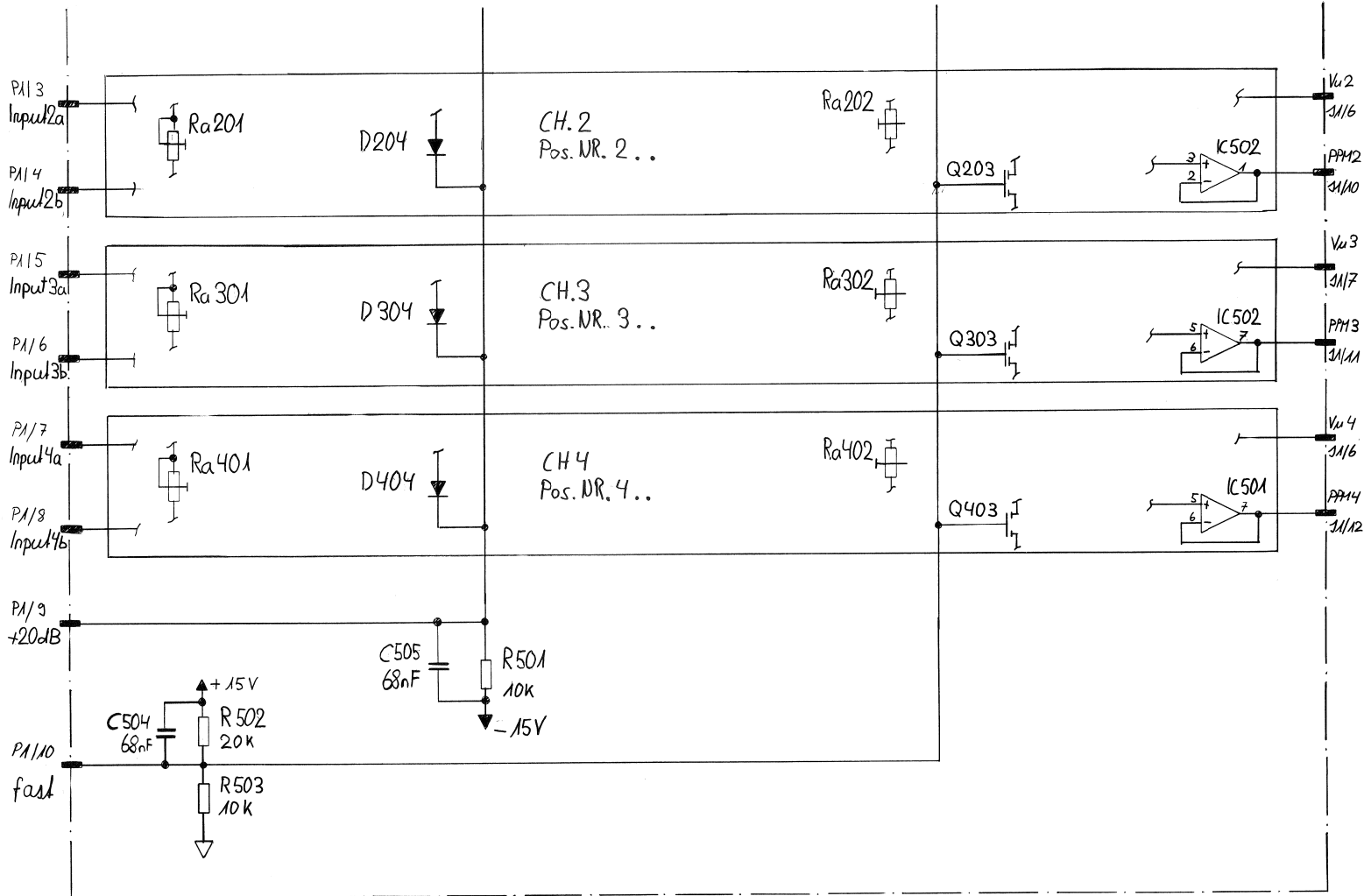
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STUDER	ANALOG BOARD	1.990.600.00



ANALOG BOARD



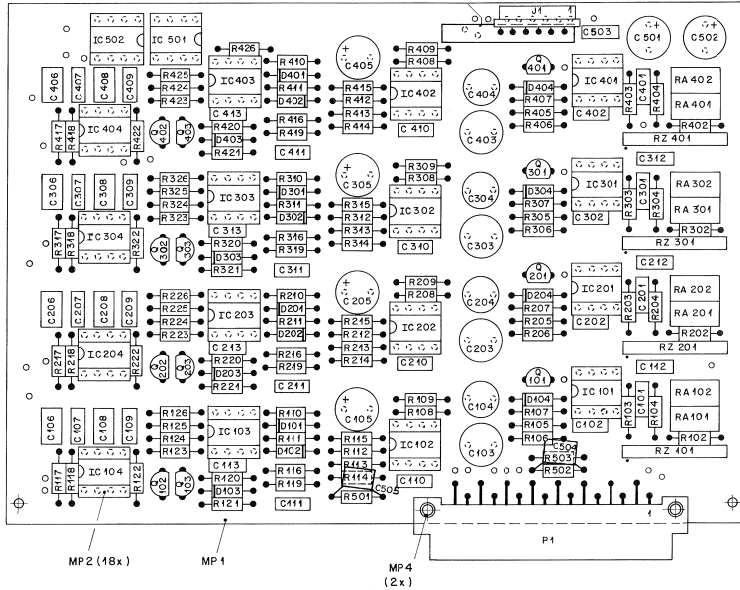
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18.12.89 Emi	11.9.90 Emi	PAGE 2 OF 2	1.990.600.00
STUDER		ANALOG BOARD	

BAR-GRAPH ANALOG BOARD ESE

1.990.600.00

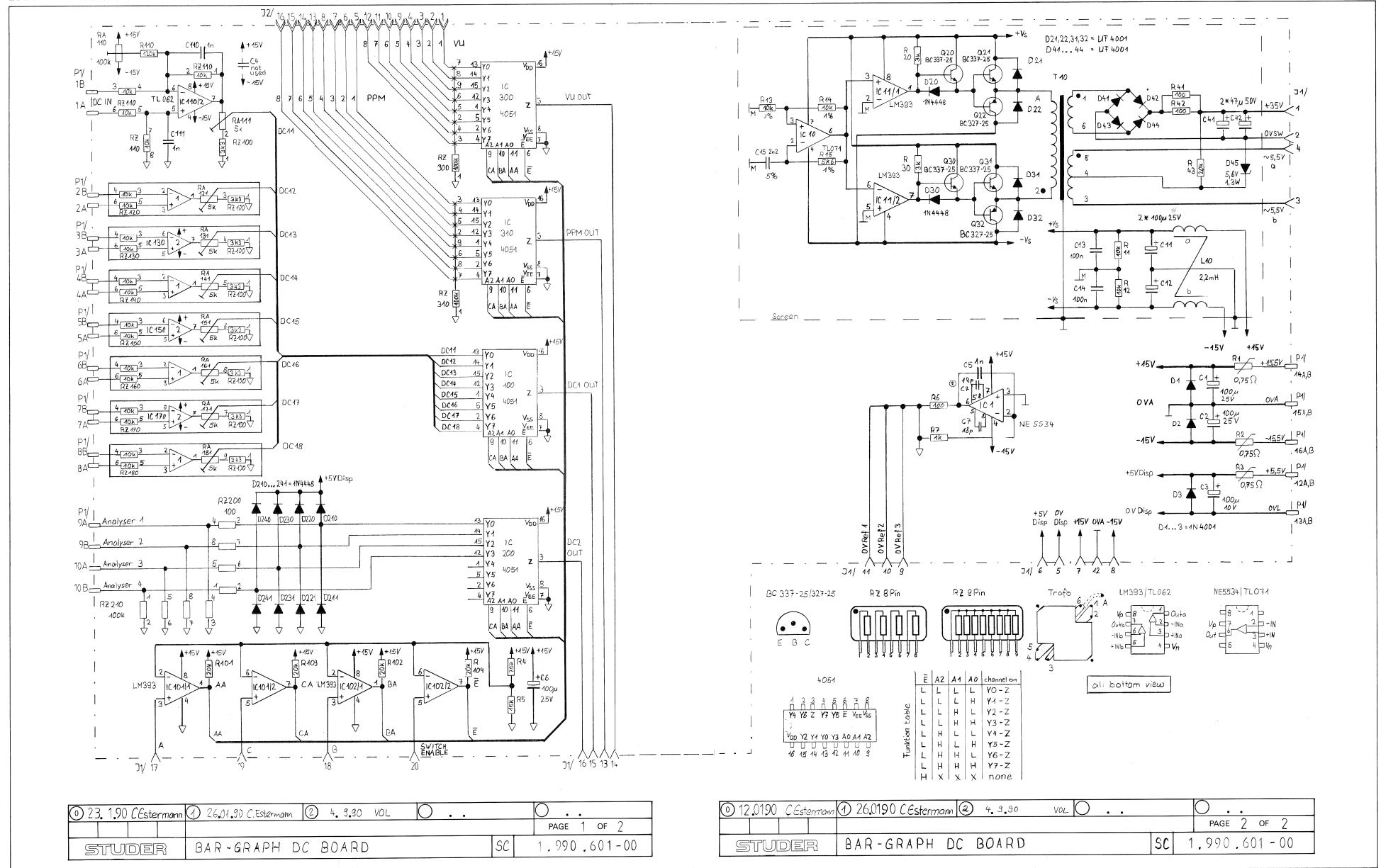


STUDER REGENBOGEN ZÜRICH		BARGRAPH ANALOG BOARD ESE		1.990.600-00	
Date: 13. 90		Gepr.:		Index:	
Kopie für:					

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
B...	301	50.04.0125	1N4448		R...	225	57.11.6226	22 Mohm	5% 0.25W MF
B...	302	50.04.0132	8W 6Z		R...	226	57.11.5106	10 Mohm	5% 0.25W MF
B...	303	50.04.0125	1N4448		R...	302	57.11.3161	160 Ohm	1% 0.25W MF
B...	304	50.04.0125	1N4448		R...	303	57.11.3124	120 Kohm	1% 0.25W MF
B...	401	50.04.0125	1N4448		R...	304	57.11.3124	120 Kohm	1% 0.25W MF
B...	402	50.04.0132	8W 6Z		R...	305	57.11.3242	2.4 Kohm	1% 0.25W MF
B...	403	50.04.0125	1N4448		R...	306	57.11.3223	22 Kohm	1% 0.25W MF
B...	404	50.04.0125	1N4448		R...	307	57.11.3303	30 Kohm	1% 0.25W MF
B...	101	50.09.0117	MC33078P	Motorola	R...	308	57.11.3132	1.3 Kohm	1% 0.25W MF
B...	102	50.09.0119	TL 062	Ti,Tho	R...	309	57.11.3162	1.6 Kohm	1% 0.25W MF
B...	103	50.09.0117	MC33078P	Motorola	R...	310	57.11.3103	10 Kohm	1% 0.25W MF
B...	104	50.09.0119	TL 062	Ti,Tho	R...	311	57.11.3103	10 Kohm	1% 0.25W MF
B...	201	50.09.0117	MC33078P	Motorola	R...	312	57.11.3203	20 Kohm	1% 0.25W MF
B...	202	50.09.0119	TL 062	Ti,Tho	R...	313	57.11.3103	10 Kohm	1% 0.25W MF
B...	203	50.09.0117	MC33078P	Motorola	R...	314	57.11.3203	20 Kohm	1% 0.25W MF
B...	204	50.09.0119	TL 062	Ti,Tho	R...	315	57.11.5106	10 Mohm	5% 0.25W MF
B...	301	50.09.0117	MC33078P	Motorola	R...	316	57.11.3184	180 Kohm	1% 0.25W MF
B...	302	50.09.0119	TL 062	Ti,Tho	R...	317	57.11.3364	360 Kohm	1% 0.25W MF
B...	303	50.09.0117	MC33078P	Motorola	R...	318	57.11.3474	470 Kohm	1% 0.25W MF
B...	304	50.09.0119	TL 062	Ti,Tho	R...	319	57.11.3153	15 Kohm	1% 0.25W MF
B...	401	50.09.0117	MC33078P	Motorola	R...	320	57.11.3103	10 Kohm	1% 0.25W MF
B...	402	50.09.0119	TL 062	Ti,Tho	R...	321	57.11.3105	1 Mohm	5% 0.25W MF
B...	403	50.09.0117	MC33078P	Motorola	R...	322	57.11.3122	1.2 Kohm	1% 0.25W MF
B...	404	50.09.0119	TL 062	Ti,Tho	R...	323	57.11.3563	56 Kohm	1% 0.25W MF
B...	501	50.09.0121	TL 072	Ti,Tho	R...	324	57.11.3684	680 Kohm	1% 0.25W MF
B...	502	50.09.0121	TL 072	Ti,Tho	R...	325	57.11.6226	22 Mohm	5% 0.25W MF
J...	1	54.14.5532	12 Pol. Micro Hatch (Stecker)		R...	326	57.11.5106	10 Mohm	5% 0.25W MF
P...	1	54.11.2007	16 Pol. Euro (Stecker)		R...	402	57.11.3161	160 Ohm	1% 0.25W MF
Q...	101	50.03.0350	J 112 N-JFET	NS,Mot,Six	R...	403	57.11.3124	120 Kohm	1% 0.25W MF
Q...	102	50.03.0493	BC 550 NPN	any	R...	404	57.11.3242	2.4 Kohm	1% 0.25W MF
Q...	103	50.03.1505	VN8088 V-MosFET	Fe,Six	R...	405	57.11.3223	22 Kohm	1% 0.25W MF
Q...	201	50.03.0350	J 112 N-JFET	NS,Mot,Six	R...	406	57.11.3303	30 Kohm	1% 0.25W MF
Q...	202	50.03.0493	BC 550 NPN	any	R...	407	57.11.3184	180 Kohm	1% 0.25W MF
Q...	203	50.03.1505	VN8088 V-MosFET	Fe,Six	R...	408	57.11.3364	360 Kohm	1% 0.25W MF
Q...	301	50.03.0350	J 112 N-JFET	NS,Mot,Six	R...	409	57.11.3474	470 Kohm	1% 0.25W MF
Q...	302	50.03.0493	BC 550 NPN	any	R...	410	57.11.3103	10 Kohm	1% 0.25W MF
Q...	303	50.03.1505	VN8088 V-MosFET	Fe,Six	R...	411	57.11.3103	10 Kohm	1% 0.25W MF
Q...	401	50.03.0350	J 112 N-JFET	NS,Mot,Six	R...	412	57.11.3105	1 Mohm	5% 0.25W MF
Q...	402	50.03.0493	BC 550 NPN	any	R...	413	57.11.3122	1.2 Kohm	1% 0.25W MF
Q...	403	50.03.1505	VN8088 V-MosFET	Fe,Six	R...	414	57.11.3563	56 Kohm	1% 0.25W MF
R...	102	57.11.3161	160 Ohm	1% 0.25W MF	R...	415	57.11.5106	10 Mohm	5% 0.25W MF
R...	103	57.11.3124	120 Kohm	1% 0.25W MF	R...	416	57.11.3184	180 Kohm	1% 0.25W MF
R...	104	57.11.3124	120 Kohm	1% 0.25W MF	R...	417	57.11.3364	360 Kohm	1% 0.25W MF
R...	105	57.11.3242	2.4 Kohm	1% 0.25W MF	R...	418	57.11.3474	470 Kohm	1% 0.25W MF
R...	106	57.11.3223	22 Kohm	1% 0.25W MF	R...	419	57.11.3153	15 Kohm	1% 0.25W MF
R...	107	57.11.3303	30 Kohm	1% 0.25W MF	R...	420	57.11.3103	10 Kohm	1% 0.25W MF
R...	108	57.11.3132	1.3 Kohm	1% 0.25W MF	R...	421	57.11.3105	1 Mohm	5% 0.25W MF
R...	109	57.11.3162	1.6 Kohm	1% 0.25W MF	R...	422	57.11.3122	1.2 Kohm	1% 0.25W MF
R...	110	57.11.3103	10 Kohm	1% 0.25W MF	R...	423	57.11.3563	56 Kohm	1% 0.25W MF
R...	111	57.11.3103	10 Kohm	1% 0.25W MF	R...	424	57.11.3684	680 Kohm	1% 0.25W MF
R...	112	57.11.3203	20 Kohm	1% 0.25W MF	R...	425	57.11.6226	22 Mohm	5% 0.25W MF
R...	113	57.11.3103	10 Kohm	1% 0.25W MF	R...	426	57.11.5106	10 Mohm	5% 0.25W MF
R...	114	57.11.3203	20 Kohm	1% 0.25W MF	R...	501	57.11.3103	10 Kohm	1% 0.25W MF
R...	115	57.11.5106	10 Mohm	5% 0.25W MF	R...	502	57.11.3203	20 Kohm	1% 0.25W MF
R...	116	57.11.3184	180 Kohm	1% 0.25W MF	R...	503	57.11.3103	10 Kohm	1% 0.25W MF
R...	117	57.11.3364	360 Kohm	1% 0.25W MF	RA...	101	58.05.0502	5 Kohm	10% Cermet 22 Umdrehungen
R...	118	57.11.3474	470 Kohm	1% 0.25W MF	RA...	102	58.05.0104	100 Kohm	10% Cermet 22 Umdrehungen
R...	119	57.11.3153	15 Kohm	1% 0.25W MF	RA...	201	58.05.0502	5 Kohm	10% Cermet 22 Umdrehungen
R...	120	57.11.3103	10 Kohm	1% 0.25W MF	RA...	202	58.05.0104	100 Kohm	10% Cermet 22 Umdrehungen
R...	121	57.11.3105	1 Mohm	5% 0.25W MF	RA...	301	58.05.0502	5 Kohm	10% Cermet 22 Umdrehungen
R...	122	57.11.3122	1.2 Kohm	1% 0.25W MF	RA...	302	58.05.0104	100 Kohm	10% Cermet 22 Umdrehungen
R...	123	57.11.3563	56 Kohm	1% 0.25W MF	RA...	401	58.05.0502	5 Kohm	10% Cermet 22 Umdrehungen
R...	124	57.11.3684	680 Kohm	1% 0.25W MF	RA...	402	58.05.0104	100 Kohm	10% Cermet 22 Umdrehungen
R...	125	57.11.6226	22 Mohm	5% 0.25W MF	RZ...	101	57.88.2682	6.8 Kohm	5% resistor network
R...	126	57.11.5106	10 Mohm	5% 0.25W MF	RZ...	201	57.88.2682	6.8 Kohm	5% resistor network
R...	202	57.11.3161	160 Ohm	1% 0.25W MF	MP...	1	1.990.600.11	0001 pcs	Bar-Graph Analog PCB
R...	203	57.11.3124	120 Kohm	1% 0.25W MF	MP...	2	53.03.0166	0018 pcs	IC-Socket, DIL 8
R...	204	57.11.3124	120 Kohm	1% 0.25W MF	MP...	3	43.01.0108	0001 pcs	Ese Schütz
R...	205	57.11.3242	2.4 Kohm	1% 0.25W MF	MP...	4	28.59.0119	0002 pcs	Niete 02.5*9*0.15
R...	206	57.11.3223	22 Kohm	1% 0.25W MF	MP...	5	1.990.600.04	0000 pcs	Numerenticket
R...	207	57.11.3303	30 Kohm	1% 0.25W MF	MP...	6	1.990.600.01	0001 pcs	Isolierunterlagen Micro Hatch
R...	208	57.11.3132	1.3 Kohm	1% 0.25W MF					
R...	209	57.11.3162	1.6 Kohm	1% 0.25W MF					
R...	210	57.11.3103	10 Kohm	1% 0.25W MF					
R...	211	57.11.3103	10 Kohm	1% 0.25W MF					
R...	212	57.11.3203	20 Kohm	1% 0.25W MF					
R...	213	57.11.3103	10 Kohm	1% 0.25W MF					
R...	214	57.11.3203	20 Kohm	1% 0.25W MF					
R...	215	57.11.5106	10 Mohm	5% 0.25W MF					
R...	216	57.11.3184	180 Kohm	1% 0.25W MF					
R...	217	57.11.3364	360 Kohm	1% 0.25W MF					
R...	218	57.11.3474	470 Kohm	1% 0.25W MF					
R...	219	57.11.3153	15 Kohm	1% 0.25W MF					
R...	220	57.11.3103	10 Kohm	1% 0.25W MF					
R...	221	57.11.3105	1 Mohm	5% 0.25W MF					
R...	222	57.11.3122	1.2 Kohm	1% 0.25W MF					
R...	223	57.11.3563	56 Kohm	1% 0.25W MF					
R...	224	57.11.3684	680 Kohm	1% 0.25W MF					

BAR-GRAPH DC BOARD

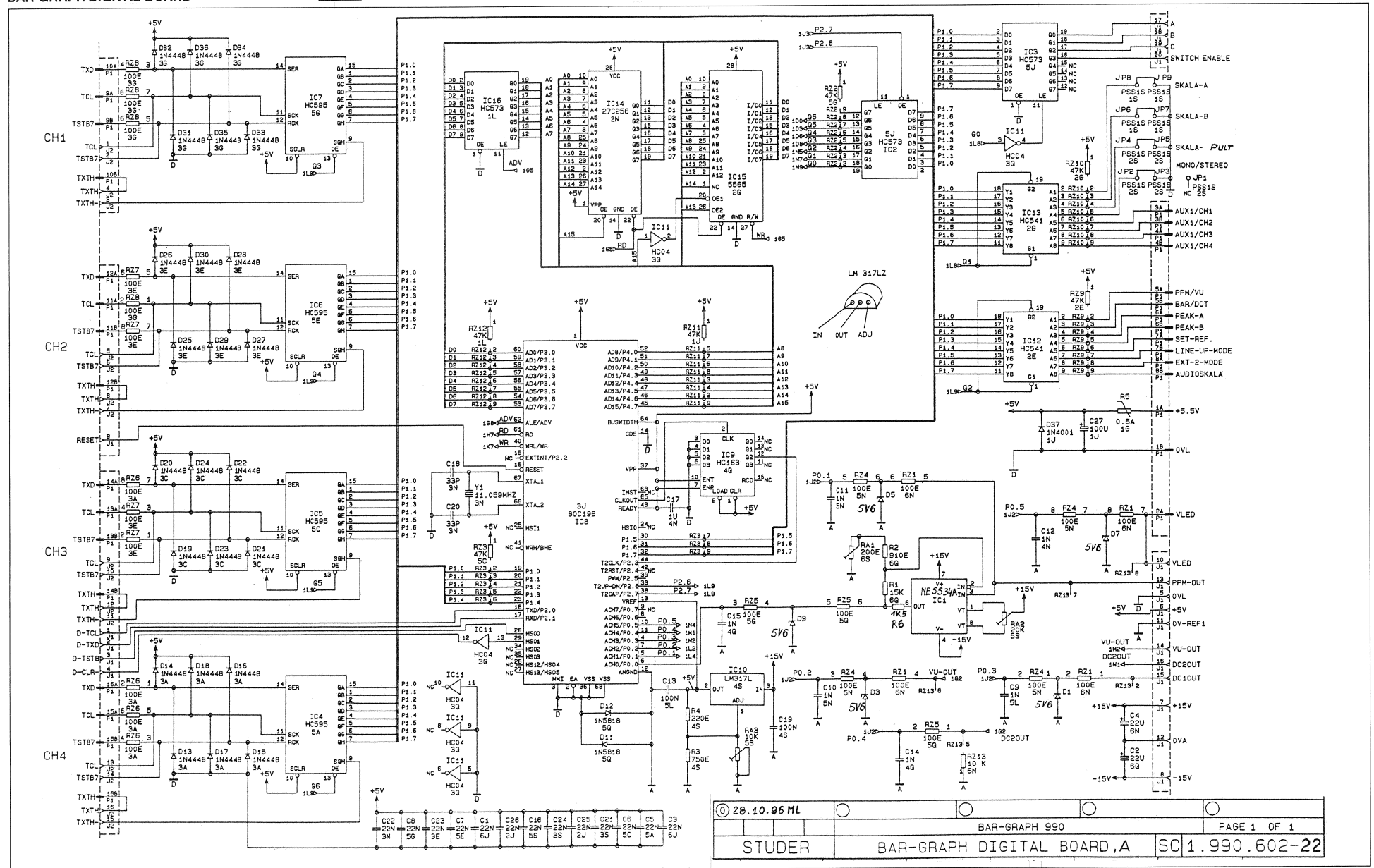
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BAR-GRAPH DIGITAL BOARD

1.990.602.22

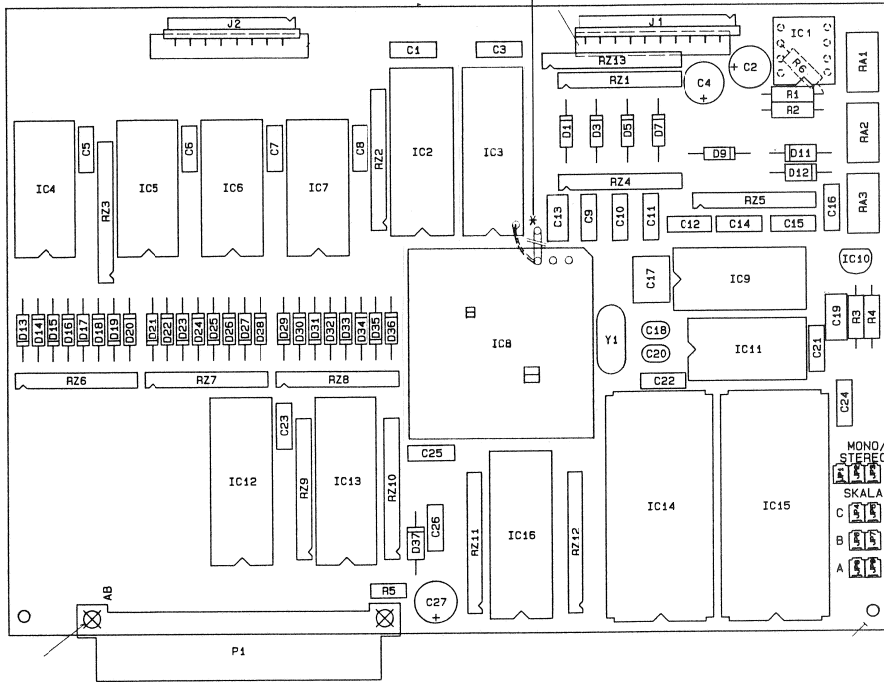


BAR-GRAPH DIGITAL BOARD

1.990.602.22



Cut track to IC8 pin 14  
and add wire on solder side  
between IC3 pin 1 and IC8  
pin 14.



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 2	59.22.6220	22u		EL 35V, 20%, RMS
0	C 3	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 4	59.22.6220	22u		EL 35V, 20%, RMS
0	C 5	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 6	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 7	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 8	59.06.0223	22n		PETP, 63V, 10%, RMS
0	C 9	59.06.0102	1n0		PETP, 63V, 10%, RMS
0	C 10	59.06.0102	1n0		PETP, 63V, 10%, RMS
0	C 11	59.06.0102	1n0		PETP, 63V, 10%, RMS
0	C 12	59.06.0102	1n0		PETP, 63V, 10%, RMS
0	C 13	59.05.0104	100n		PETP, 63V, 10%, RMS
0	C 14	59.05.0102	1n0		PETP, 63V, 10%, RMS
0	C 15	59.05.0102	1n0		PETP, 63V, 10%, RMS
0	C 16	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 17	59.05.0105	1u0		PETP, 50V, 10%, RMS
0	C 18	59.34.2330	33p		CER 63V, 5%, N150
0	C 19	59.05.0104	100n		PETP, 63V, 10%, RMS
0	C 20	59.34.2330	33p		CER 63V, 5%, N150
0	C 21	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 22	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 23	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 24	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 25	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 26	59.05.0223	22n		PETP, 63V, 10%, RMS
0	C 27	59.22.3101	100u		EL 10V, 20%, RMS
0	D 1	50.04.1108	5V6		Zener, 5%, 0.5W, DO-35
0	D 2	not used			
0	D 3	50.04.1108	5V6		Zener, 5%, 0.5W, DO-35
0	D 4	not used			
0	D 5	50.04.1108	5V6		Zener, 5%, 0.5W, DO-35
0	D 6	not used			
0	D 7	50.04.1108	5V6		Zener, 5%, 0.5W, DO-35
0	D 8	not used			
0	D 9	50.04.1108	5V6		Zener, 5%, 0.5W, DO-35
0	D 10	not used			
0	D 11	50.04.0512	1N5818		D 1N 5818, 1N 5819,
0	D 12	50.04.0512	1N5818		D 1N 5818, 1N 5819,
0	D 13	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 14	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 15	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 16	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 17	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 18	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 19	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 20	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 21	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 22	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 23	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 24	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 25	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 26	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 27	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 28	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 29	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 30	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 31	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 32	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 33	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 34	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 35	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 36	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0	D 37	50.04.0122	1N4001		1A, DO-41
0	IC 1	50.05.0244	NE5534AN		IC 5534 ANB, NE 5534 SAN, A
0	IC 2	50.17.1573	74HC573		IC ... 74 HC 573, A
0	IC 3	50.17.1573	74HC573		IC ... 74 HC 573, A
0	IC 4	50.17.1595	74HC595		IC ... 74 HC 595, A
0	IC 5	50.17.1595	74HC595		IC ... 74 HC 595, A
0	IC 6	50.17.1595	74HC595		IC ... 74 HC 595, A
0	IC 7	50.17.1595	74HC595		IC ... 74 HC 595, A
0	IC 8	50.63.0003	80C195		N 80 C 195 KB-16
0	IC 9	50.17.1163	74HC163		IC ... 74 HC 163, A
0	IC 10	50.10.0108	LM317L		IC LM 317 L Z,
0	IC 11	50.17.1004	74HC04		IC ... 74 HC 04, A
0	IC 12	50.17.1541	74HC541		IC ... 74 HC 541, A
0	IC 13	50.17.1541	74HC541		IC ... 74 HC 541, A
0	IC 14	50.14.2004	27C256		IC 27 C 256 - 25, A
0	IC 15	50.14.0133	5565		BAR-GRAPH 990 0493 1.990.699.21
0	IC 16	50.17.1573	74HC573		IC ... 74 HC 573, A
0	J 1	54.14.5540	20p		J PCB-BUCHSE WINKEL 20 P
0	J 2	54.14.5536	16p		J PCB-BUCHSE WINKEL 16 P

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	26.99.0119	2 pcs		ROHRNETE D 2.5*0.15* 9
0	MP 2	43.01.0108		Label	ESE-WARNschild
0	MP 3	1.101.00122			TEXT-ETIK 5*20 HARDWARE 22
0	MP 4	1.990.600.01			ISOLIERUNTERLAGE MICRO-MATCH
0	MP 5	1.990.602.04			NR-ETIKETTE 5 * 20
0	MP 6	1.990.602.11			BARGRAPH DIGITAL PCB
0	MP 7	1.990.699.01			TEXT-ETIKETTE 10 * 20
0	MP 8	54.01.0020	9 pcs	1p	Pin 0.63*0.63
0	P 1	54.11.2013	32p		EU-BK 2*16p
0	R 1	57.11.3153	15k		MF, 1%, 0207
0	R 2	57.11.3911	910R		MF, 1%, 0207
0	R 3	57.11.3751	750R		MF, 1%, 0207
0	R 4	57.11.3221	220R		MF, 1%, 0207
0	R 5	57.92.7013	0.5A		POLY-PTC, 60V
0	R 6	57.11.3152	1k5		MF, 1%, 0207
0	RA 1	58.01.9201	200R		Cermet, 10%, 0.5W, vertical
0	RA 2	58.01.9203	20k		Cermet, 10%, 0.5W, vertical
0	RA 3	58.01.9103	10k		Cermet, 10%, 0.5W, vertical
0	RZ 1	57.88.2101	4*100R		2%, SIP 8
0	RZ 2	57.88.4473	8*47k		2%, SIP 9
0	RZ 3	57.88.4473	8*47k		2%, SIP 9
0	RZ 4	57.88.2101	4*100R		2%, SIP 8
0	RZ 5	57.88.2101	4*100R		2%, SIP 8
0	RZ 6	57.88.2101	4*100R		2%, SIP 8
0	RZ 7	57.88.2101	4*100R		2%, SIP 8
0	RZ 8	57.88.2101	4*100R		2%, SIP 8
0	RZ 9	57.88.4473	8*47k		2%, SIP 9
0	RZ 10	57.88.4473	8*47k		2%, SIP 9
0	RZ 11	57.88.4473	8*47k		2%, SIP 9
0	RZ 12	57.88.4473	8*47k		2%, SIP 9
0	RZ 13	57.88.4103	8*10k		2%, SIP 9
0	XIC 1	53.03.0165	8p		DIL 0.3", lot, gerade
0	XIC 2	53.03.0165	20p		DIL 0.3", lot, gerade
0	XIC 3	53.03.0165	20p		DIL 0.3", lot, gerade
0	XIC 4	53.03.0168	16p		DIL 0.3", lot, gerade
0	XIC 5	53.03.0168	16p		DIL 0.3", lot, gerade
0	XIC 6	53.03.0168	16p		DIL 0.3", lot, gerade
0	XIC 7	53.03.0168	16p		DIL 0.3", lot, gerade
0	XIC 8	53.03.2268	PLCC86p		PLCC-Socket 68p
0	XIC 9	53.03.0168	16p		DIL 0.3", lot, gerade
0	XIC 11	53.03.0167	14p		DIL 0.3", lot, gerade
0	XIC 12	53.03.0165	20p		DIL 0.3", lot, gerade
0	XIC 13	53.03.0165	20p		DIL 0.3", lot, gerade
0	XIC 14	53.03.0173	28p		DIL 0.6", lot, gerade
0	XIC 15	53.03.0173	28p		DIL 0.6", lot, gerade
0	XIC 16	53.03.0165	20p		DIL 0.3", lot, gerade
0	Y 1	89.01.1004	11.059MHz		Y 11.059 MHz, RW 43

End of List

Comments:

STUDER  
REGENDORF  
ZÜRICH

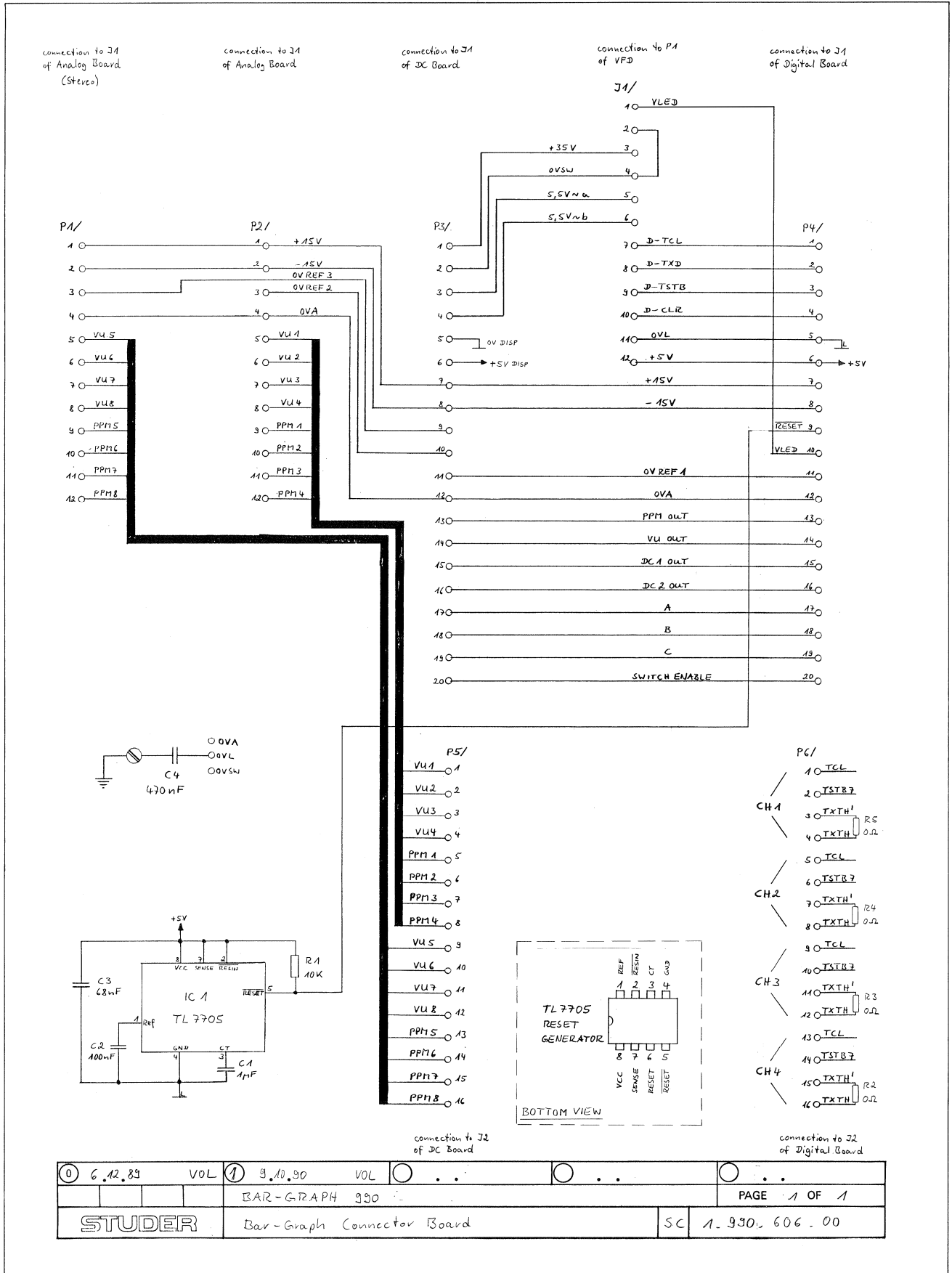
Bargraph Digital Board  
ESE

1.990.602-22

BAR-GRAPH CONNECTOR BOARD



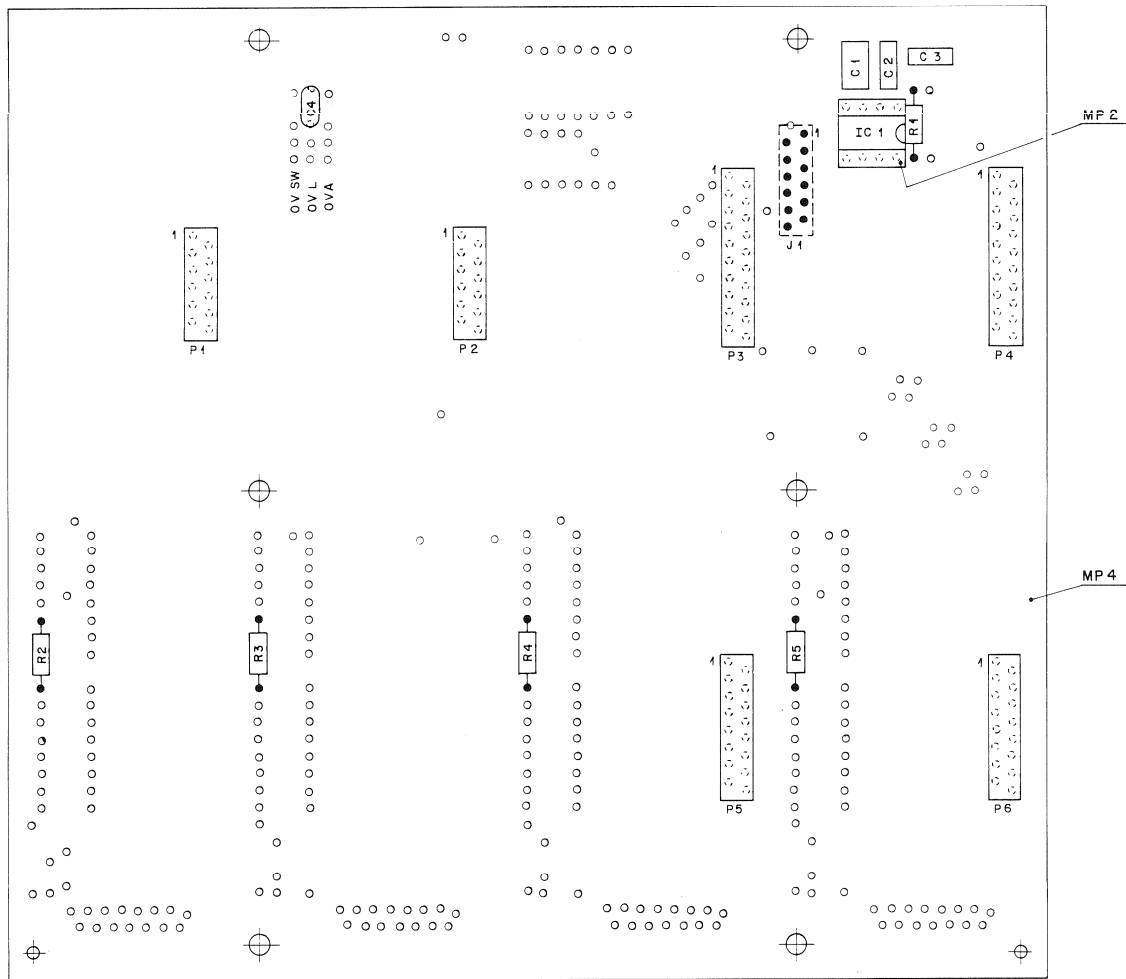
1.990.606.00



① 6.12.83	VOL	① 9.10.90	VOL	① . . .	① . . .
BAR-GRAPH 990				PAGE 1 OF 1	
STUDER			Bar-Graph Connector Board		SC 1.990.606.00

BAR-GRAPH CONNECTOR BOARD

1.990.606.00



Ersatz für:		Ersetzt durch:	
STUDER REGENSDORF ZÜRICH		BARGRAPH CONNECTOR BOARD ESE	
Ausgabe		Anforderung	
8.6.90		VOL.	
Datum	Gez.	Gepr.	Ges. Index
Kopie für:		Nummer:	
		1.990.606-00	

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
C.....1	59.06.0105	1 uF	10% PE	
C.....2	59.06.0104	100 nF	10% PE	
C.....3	59.06.0683	68 nF	10% PE	
C.....4	59.32.1152	1.5 nF	CER 400V	
01 C.....4	59.06.0474	470 nF	10% PE	
IC.....1	50.11.0122	TL7705ACP	Reset generator	SGS, TI
J.....1	54.14.5512		Micro-Match, 12 pin	AMP
P.....1	54.14.5582		Micro-Match, 12 pin	AMP
P.....2	54.14.5582		Micro-Match, 12 pin	AMP
P.....3	54.14.5590		Micro-Match, 20 pin	AMP
P.....4	54.14.5590		Micro-Match, 20 pin	AMP
P.....5	54.14.5586		Micro-Match, 16 pin	AMP
P.....6	54.14.5586		Micro-Match, 16 pin	AMP
R.....1	57.11.3103	10 kOhm	1%	
R.....2	57.11.3000	0 Ohm		
R.....3	57.11.3000	0 Ohm		
R.....4	57.11.3000	0 Ohm		
R.....5	57.11.3000	0 Ohm		
MP....1	43.01.0108	0001 pcs	ESE-Warnschild	
MP....2	53.03.0166	0001 pcs	IC-Sockel, DIL 8	
MP....3	1.990.606.04	0000 pcs	Nr.-Etikette 5 * 20	
MP....4	1.990.608.11	0001 pcs	Bar-Graph Connector+Bus PCB	St

9.10.90 Index 1) Aenderung bei: C4

PE = polyester

MANUFACTURER AMP-AMP Incorporated, SGS=SGS/Thomson, St=Studer, TI=Texas Instruments

1.990.606.00 BAR-GRAPH CONNECTOR BOARD VOL90/02/0600

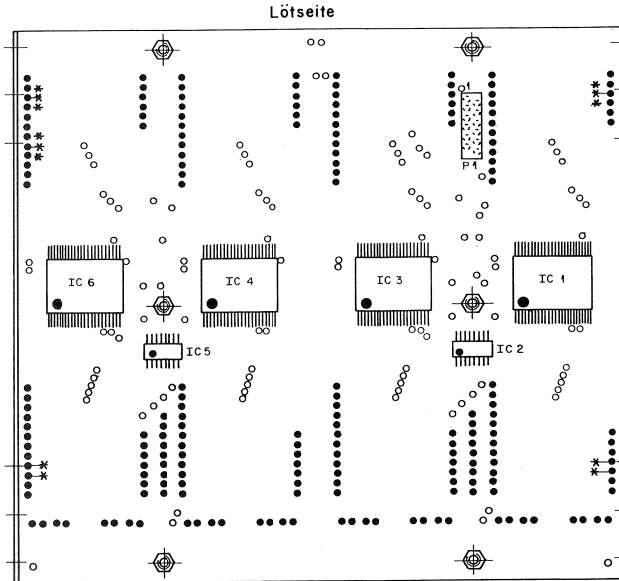
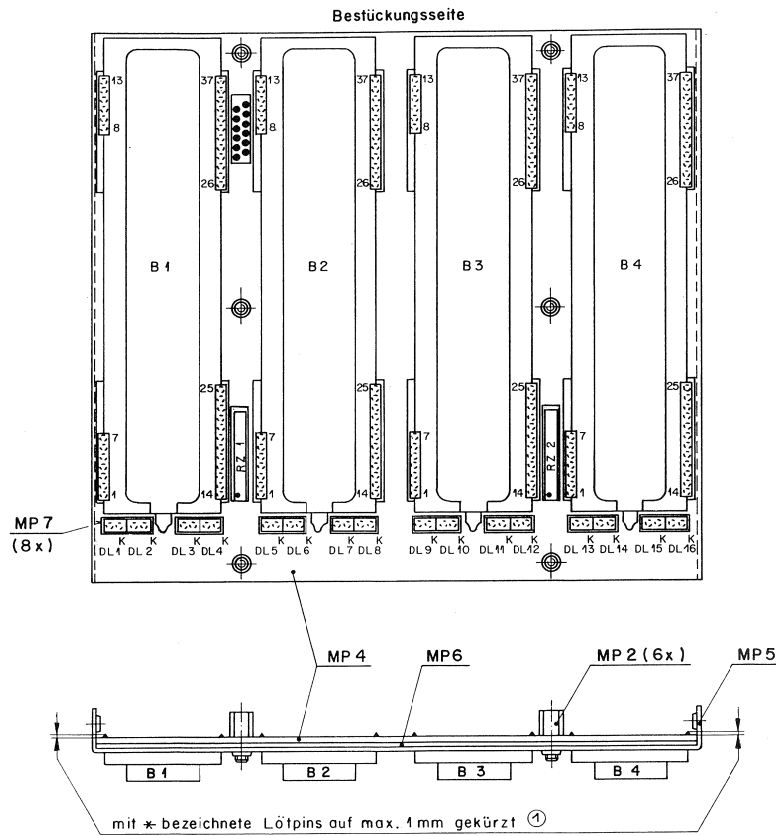
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BAR-GRAPH VFD BOARD



1.990.607.81



Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
B...	1	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B...	2	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B...	3	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B...	4	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
DL...	1	50.04.2119	MV5124A	LED, red	GI
DL...	2	50.04.2118	MV53124A	LED, yellow	GI
DL...	3	50.04.2146	MV54124A	LED, green	GI
DL...	4	50.04.2118	MV53124A	LED, yellow	GI
DL...	5	50.04.2119	MV5124A	LED, red	GI
DL...	6	50.04.2118	MV53124A	LED, yellow	GI
DL...	7	50.04.2146	MV54124A	LED, green	GI
DL...	8	50.04.2118	MV53124A	LED, yellow	GI
DL...	9	50.04.2119	MV5124A	LED, red	GI
DL...	10	50.04.2118	MV53124A	LED, yellow	GI
DL...	11	50.04.2146	MV54124A	LED, green	GI
DL...	12	50.04.2118	MV53124A	LED, yellow	GI
DL...	13	50.04.2119	MV5124A	LED, red	GI
DL...	14	50.04.2118	MV53124A	LED, yellow	GI
DL...	15	50.04.2146	MV54124A	LED, green	GI
DL...	16	50.04.2118	MV53124A	LED, yellow	GI
IC...	1	50.62.0005	MSC11626SK	VFD driver	OKI
IC...	2	50.62.1595	74 HC 595	8 bit shift register (SMD)	NS, TI
IC...	3	50.62.0005	MSC11626SK	VFD driver	OKI
IC...	4	50.62.0005	MSC11626SK	VFD driver	OKI
IC...	5	50.62.1595	74 HC 595	8 bit shift register (SMD)	NS, TI
IC...	6	50.62.0005	MSC11626SK	VFD driver	OKI
P...	1	54.14.5582		Micro-Match, 12 pin	AMP
RZ...	1	57.88.4101	100 Ohm	2% ,8"	
RZ...	2	57.88.4101	100 Ohm	2% ,8"	
MP...	1	43.01.0108	0001 pcs	ESE-Marsenschild	
MP...	2	1.010.123.27	0006 pcs	Gewindeboizen M3/M3 * 6.5	
MP...	3	1.990.607.04	0000 pcs	Nr.-Etikette 5 * 20	
MP...	4	1.990.607.12	0001 pcs	Bar-Graph VFD PCB	St
MP...	5	1.913.420.03	0001 pcs	Chassis VFD Bar-Graph	
MP...	6	1.913.420.07	0001 pcs	Isolation VFD-Bar-Graph	
MP...	7	1.990.620.10	0008 pcs	Unterlage 2" LED VFD Bar-Graph	

MANUFACTURER AMP=AMP Incorporated, GI=General Instruments, NS=National Semiconductors, OKI=OKI Semiconductors, St=Studer, TI=Texas Instruments

1.990.607.81 BAR-GRAPH VFD BOARD VOL90/05/0900

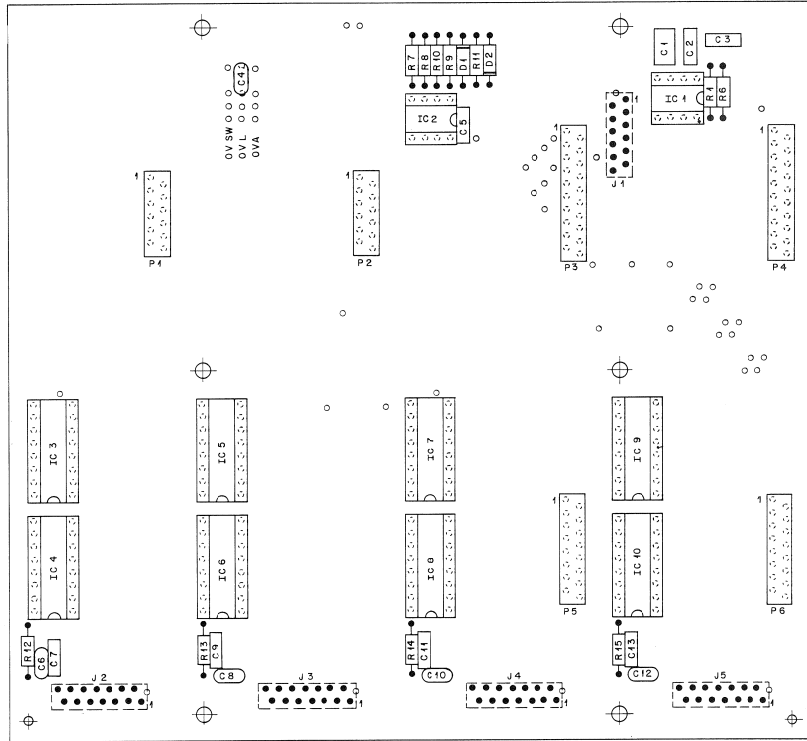
STUDER REGENSDORF ZÜRICH	Bestandteil <b>BAR-GRAPH VFD BOARD ESE</b>	Nummer: <b>1.990.607-81</b>
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Änderung									
4.9.92									
6.6.90									
Datum	Gez.	Gepr.	Ges.	Index					

Kopie für:

BAR-GRAPH CONNECTOR + BUS BOARD

1.990.608.00



Ad	POS	REF. No.	DESCRIPTION	MANUFACTURER
C....1		59.06.0105	1 uF 10% PE	
C....2		59.06.0104	100 nF 10% PE	
C....3		59.06.0683	68 nF 10% PE	
C....4		59.32.1182	1.5 nF CER 400V	
C....5		59.06.0474	470 nF 10% PE	
C....6		59.06.0683	68 nF 10% PE	
C....7		59.34.4101	100 pF 5% CER	
C....8		59.06.0683	68 nF 10% PE	
C....9		59.34.4101	100 pF 5% CER	
C....10		59.06.0683	68 nF 10% PE	
C....11		59.34.4101	100 pF 5% CER	
C....12		59.06.0683	68 nF 10% PE	
C....13		59.06.0683	68 nF 10% PE	
D....1		50.04.0125	1N4448	ITT, Mot, Phi, Tf, SGS any
D....2		50.04.1904	BZX 85 5.6V	ITT, Mot, Phi, Tf, SGS any
IC....1		50.11.0122	TL7705ACP	Reset generator SGS, TI
IC....2		50.09.0103	TL 071 CP	Single FET op-amp TI
IC....3		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....4		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....5		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....6		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....7		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....8		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....9		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
IC....10		50.17.1595	74 HC 595	8 bit shift register NS, SGS, TI
J....1		54.14.5512	Micro-Match, 12 pin	AMP
J....2		54.14.5514	Micro-Match, 14 pin	AMP
J....3		54.14.5514	Micro-Match, 14 pin	AMP
J....4		54.14.5514	Micro-Match, 14 pin	AMP
J....5		54.14.5514	Micro-Match, 14 pin	AMP
P....1		54.14.5582	Micro-Match, 12 pin	AMP
P....2		54.14.5582	Micro-Match, 12 pin	AMP
P....3		54.14.5590	Micro-Match, 20 pin	AMP
P....4		54.14.5590	Micro-Match, 20 pin	AMP
P....5		54.14.5586	Micro-Match, 16 pin	AMP
P....6		54.14.5586	Micro-Match, 16 pin	AMP
R....1		57.11.3103	10 kOhm 1%	
R....2		0	not used	
R....3		0	not used	
R....4		0	not used	
R....5		0	not used	
R....6		57.11.3103	10 kOhm 1%	
R....7		57.11.3114	110 kOhm 1%	
R....8		57.11.3363	36 kOhm 1%	
R....9		57.11.3183	18 kOhm 1%	
R....10		57.11.3513	51 kOhm 1%	
R....11		57.11.3471	470 Ohm 1%	
R....12		57.11.3101	100 Ohm 1%	
R....13		57.11.3101	100 Ohm 1%	
R....14		57.11.3101	100 Ohm 1%	
R....15		57.11.3101	100 Ohm 1%	
MP....1		43.01.0108	0001 pcs	ESE-Warnschild
MP....2		53.03.0166	0002 pcs	IC-Soeket, DIL 8
MP....3		53.03.0168	0008 pcs	IC-Soeket, DIL 16
MP....4		1.990.608.04	0000 pcs	Nr.-Etiketete 5 * 20
MP....5		1.990.608.11	0001 pcs	Bar-Graph Connector+Bus PCB

9.10.90 Index 1) Aenderung bei: C4

CER = ceramic, PE = polyester

MANUFACTURER AMP=AMP Incorporated, ITT=Intermetall  
 Not=Motorola, NS=National Semi-conductors  
 Phi=Philips, SGS=SGS/Thomson, St=Studer,  
 Tf=Telefunken, TI=Texas Instruments

1.990.608.00 BAR-GRAPH CONNECTOR+BUS BOARD VOL90/02/0600

1.990.608.00 BAR-GRAPH CONNECTOR+BUS BOARD HOR90/10/0901

Autoren					
Datum	8.6.90	SAZ	GEK	INDEX	
Kopie Nr:					

STUDER  
 REGENSBERG  
 ZÜRICH

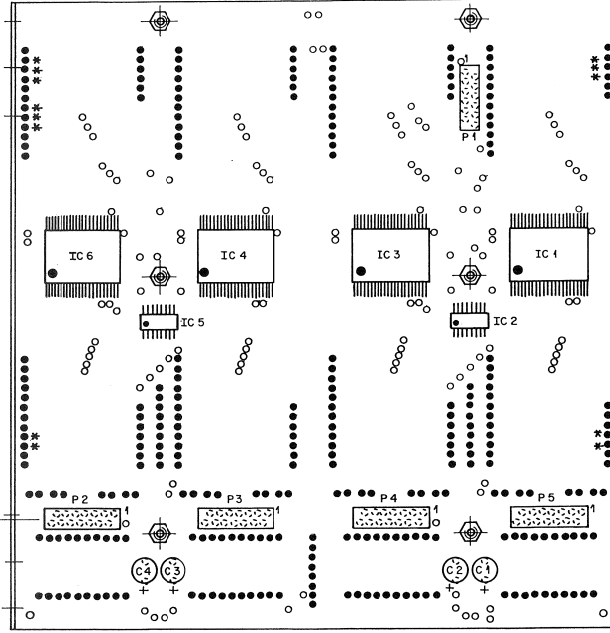
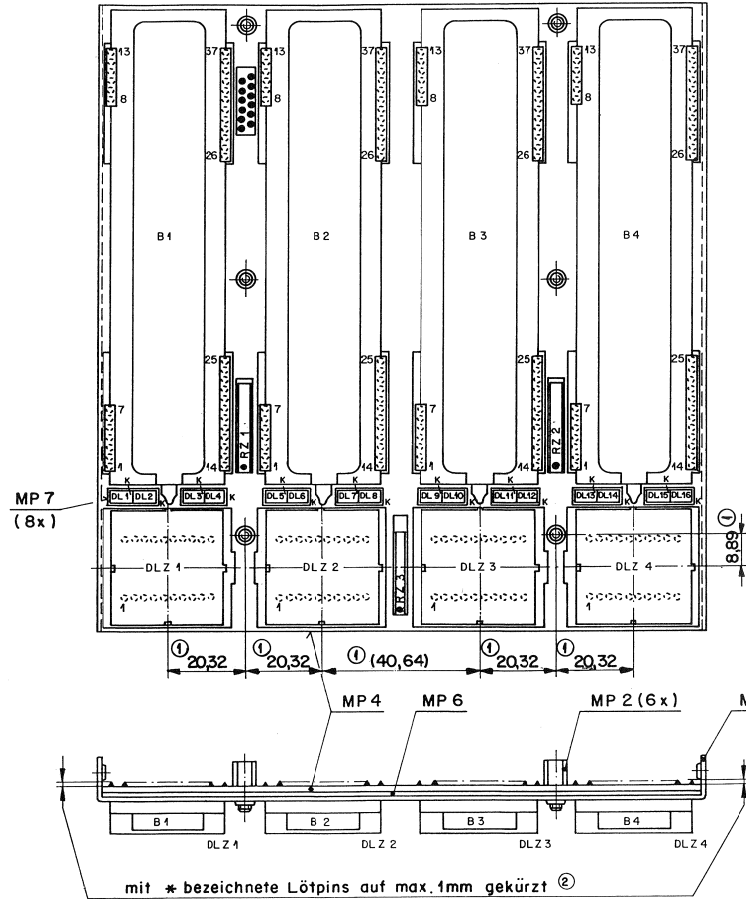
Bestell-Nr. **BARGRAPH CONNECTOR + BUS BOARD ESE**  
 Nummer **1.990.608-00**

BAR-GRAPH VFD + BUS BOARD

1.990.609.81

Bestückungsseite

Lötseite



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
B....1	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B....2	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B....3	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
B....4	73.01.0300	F6202SA2	Fluorescent bargraph display	Itron
C....1	59.22.3101	100 uF	10V EL	
C....2	59.22.3101	100 uF	10V EL	
C....3	59.22.3101	100 uF	10V EL	
C....4	59.22.3101	100 uF	10V EL	
DL...1	50.04.2119	MV5124A	LED, red	GI
DL...2	50.04.2118	MV5124A	LED, yellow	GI
DL...3	50.04.2146	MV5124A	LED, green	GI
DL...4	50.04.2118	MV5124A	LED, yellow	GI
DL...5	50.04.2119	MV5124A	LED, red	GI
DL...6	50.04.2118	MV5124A	LED, yellow	GI
DL...7	50.04.2146	MV5124A	LED, green	GI
DL...8	50.04.2118	MV5124A	LED, yellow	GI
DL...9	50.04.2119	MV5124A	LED, red	GI
DL...10	50.04.2118	MV5124A	LED, yellow	GI
DL...11	50.04.2146	MV5124A	LED, green	GI
DL...12	50.04.2118	MV5124A	LED, yellow	GI
DL...13	50.04.2119	MV5124A	LED, red	GI
DL...14	50.04.2118	MV5124A	LED, yellow	GI
DL...15	50.04.2146	MV5124A	LED, green	GI
DL...16	50.04.2118	MV5124A	LED, yellow	GI
DIZ...1	73.01.0400	PD 1165	8*8 dot matrix display	Sie
DIZ...2	73.01.0400	PD 1165	8*8 dot matrix display	Sie
DIZ...3	73.01.0400	PD 1165	8*8 dot matrix display	Sie
DIZ...4	73.01.0400	PD 1165	8*8 dot matrix display	Sie
IC....1	50.62.0005	MSC11626SK	VFD driver	OKI
IC....2	50.62.1595	74 HC 595	8 bit shift register (SMD)	NS, TI
IC....3	50.62.0005	MSC11626SK	VFD driver	OKI
IC....4	50.62.0005	MSC11626SK	VFD driver	OKI
IC....5	50.62.1595	74 HC 595	8 bit shift register (SMD)	NS, TI
IC....6	50.62.0005	MSC11626SK	VFD driver	OKI
P....1	54.14.5582		Micro-Match, 12 pin	AMP
P....2	54.14.5584		Micro-Match, 14 pin	AMP
P....3	54.14.5584		Micro-Match, 14 pin	AMP
P....4	54.14.5584		Micro-Match, 14 pin	AMP
P....5	54.14.5584		Micro-Match, 14 pin	AMP
RZ...1	57.88.4101	100 Ohm	2% ,8"	
RZ...2	57.88.4101	100 Ohm	2% ,8"	
RZ...3	57.88.2332	3,3 kOhm	2% ,4"	
MP...1	43.01.0108	0001 pcs	ESE-Warnschild	
MP...2	1.010.123.27	0006 pcs	Gewindeboizen M3/M3 * 6,5	
MP...3	1.990.609.04	0000 pcs	Nr.-Etikette 5 * 20	
MP...4	1.990.609.12	0001 pcs	Bar-Graph VFD+Bus PCB	St
MP...5	1.990.620.03	0001 pcs	Chassis VFD Bar-Graph + Bus	
MP...6	1.990.620.07	0001 pcs	Isolation VFD Bar-Graph + Bus	
MP...7	1.990.620.10	0008 pcs	Unterlage 2*LED VFD Bar-Graph	

EL = electrolytic  
 MANUFACTURER AMP=AMP Incorporated, GI=General Instruments, NS=National Semiconductors, OKI=OKI Semiconductors, Sie=Siemens, St=Studer, TI=Texas Instruments  
 1.990.609.81 BAR-GRAPH VFD+BUS BOARD VOL90/05/0900

4.9.92	FA	W	W	③
27.8.91	CH	SA	W	②
7.6.90	AB	B	Vol	①
Datum	Gez	Gepr	Ges	Index

STUDER REGENSDORF ZÜRICH

BAR-GRAPH VFD+BUS BOARD ESE

1.990.609-81

## Schemata / Circuit Diagrams

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### EU card rack

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#### Circuit diagrams, component layouts, and parts lists:

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* Basis PCB (1x1.914.5xx).....	1.914.500.00
* Line Amplifier MSC.....	1.914.501.00
* High Level Input w. Trafo MSC .....	1.914.502.81
* 0 Ohm Amplifier → 530 MSC .....	1.914.503.00
* High Level Input Trafoless MSC .....	1.914.504.81
* 3 W Amplifier MSC.....	1.914.505.00
* Microphone Amplifier w. Trafo MSC .....	1.914.506.81
* Microphone Amplifier (Electret) MSC .....	1.914.507.81
* High Level Input with VCA MSC .....	1.914.514.00
* VCA w. Bal. In- and Output MSC .....	1.914.515.00
* VCA Module MSC .....	1.914.518.81
* Limiter Control to VCA MSC .....	1.914.519.81
* Call Generator 1900 Hz MSC .....	1.914.520.00
* Call Decoder 20...60 Hz MSC.....	1.914.521.00
* Call Decoder 1900 Hz MSC.....	1.914.522.00
* Relay 2 u 6 V MSC .....	1.914.523.00
* Relay 2 u 24 V MSC .....	1.914.524.00
* Relay 2 u 6 V Low Noise MSC.....	1.914.525.00
* Relay 2 u 24 V Low Noise MSC.....	1.914.526.00
* VCA w. 3 Contr. Inp. MSC .....	1.914.528.00
* Universal P.C. MSC .....	1.914.529.00
* 0 Ohm Input MSC .....	1.914.530.00
* High Level Input w. Trafo (PFL Opt) MSC.....	1.914.531.00
* Flip-Flop MSC .....	1.914.532.00

\* This information is supplied according to the customer's requirements

\* Diese Informationen werden kundenspezifisch bestückt

* 90° Filter MSC .....	1.914.533.00
* Dual VOX Detector MSC .....	1.914.534.00
* Tel Trafo Unit MSC .....	1.914.536.00
* Mic Amp. with Limiter MSC .....	1.914.539.00
* Fader-VCA Control Voltage IF MSC .....	1.914.540.00
Stabilizer 5/24 V .....	1.915.106.00
* Stabilizer -24 V/+48 V .....	1.915.107.00
Stabilizer 5/24 V 5 A .....	1.915.108.00
Diodes/Power Alarm 2 Board .....	1.915.109.00
Power Supply LED 3-6 V .....	1.915.111.81
Power Alarm/Fail 4 Board .....	1.915.112.00
Monitor Amplifier A .....	1.915.304.00
* Distr. Amp. 1 Inp/6 Out .....	1.915.307.81
* Distr. Amp. 1 Inp/4 Out .....	1.915.308.81
* 5 W Power Amplifier .....	1.915.410.00
* 5 W Power Amplifier w. Input Trafo .....	1.915.411.00
* 5 W Amp. w. Mute Switch .....	1.915.412.00
* 5 W Amp. w. Trafo + Mute .....	1.915.413.00
* 5 W Amp. w. VCA .....	1.915.414.00
* 5 W Amp. w. Inp. Trafo + VCA .....	1.915.415.00
* 40 W Power Amp. Trafoless Inp. ....	1.915.440.00
* 40 W Power Amp. w. Input Trafo .....	1.915.441.00
5/1 Switch A .....	1.915.601.81
- Monitor Relays	
4/2 Switch A .....	1.915.602.81
- Monitor Relays	
* Fader Start Relays 9 A .....	1.915.603.81
* Relays 8/1 A Mono (8 In/1 Out) .....	1.915.605.00
* Bistabil Relays 5/1 A Mono .....	1.915.607.00

\* This information is supplied according to the customer's requirements

\* Diese Informationen werden kundenspezifisch bestückt

* Bistabil Relays 5/1 A Stereo .....	1.915.608.00
* Dual Limiter .....	1.915.700.00
* Telephone Hybrid .....	1.915.760.81
* Telephone Relays .....	1.915.762.81
* Telephone Hybrid with Noise Gate .....	1.915.764.00
* Current Adjust to Hybrid Unit .....	1.915.765.00
MSC Mother Board .....	1.915.770.00
* Microphone Amplifier "900 A" .....	1.915.780.00
* Stereo Bal. Amplifier w. Trafo .....	1.915.904.81
* 4 Ch Bal. Amp. Trafoless 6 dB .....	1.915.914.00
* 4 Ch Bal. Amp. Trafoless 16 dB .....	1.915.915.00
* Dual Line Amplifier (Low Z) .....	1.915.922.00
* Stereo Bal. Amp. w. Insert Switch .....	1.915.924.00
* Studio Relays .....	1.916.001.00
* Relays Unit (4 x 2 u) .....	1.916.002.00
* 32 Ch Bus Selector .....	1.917.110.00
* Monitor Mix Amplifier .....	1.917.300.00
* Monitoring Amplifier (Film/HDTV) .....	1.917.305.00
* Monitor Relays 8*2/2 .....	1.917.601.00
* Signal I/O Interface .....	1.917.611.00

\* This information is supplied according to the customer's requirements

\* Diese Informationen werden kundenspezifisch bestückt

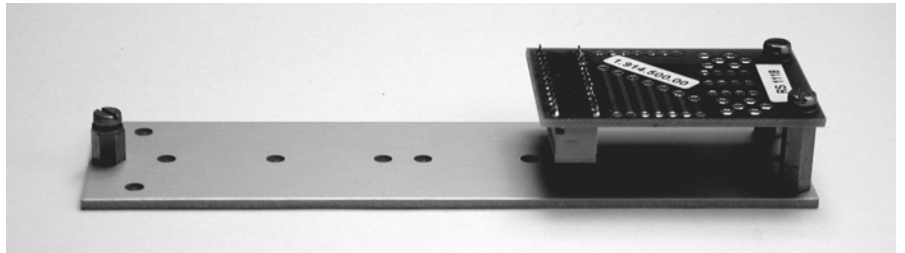
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**Motherboard for 1 MS-Card**

1.914.500

If only one MS-card is used, this motherboard is helpful for both mechanical and electrical interfacing. It consists of an aluminium mounting base (135 × 36 mm) and a small PCB with a connector for the MS-card; for wiring, this PCB contains solder terminals.

**Note:** For installation of up to four MS-cards, there is a second, Euro-card format motherboard available (1.915.770) that can be installed into an Euro-card rack.

**Ordering Information**

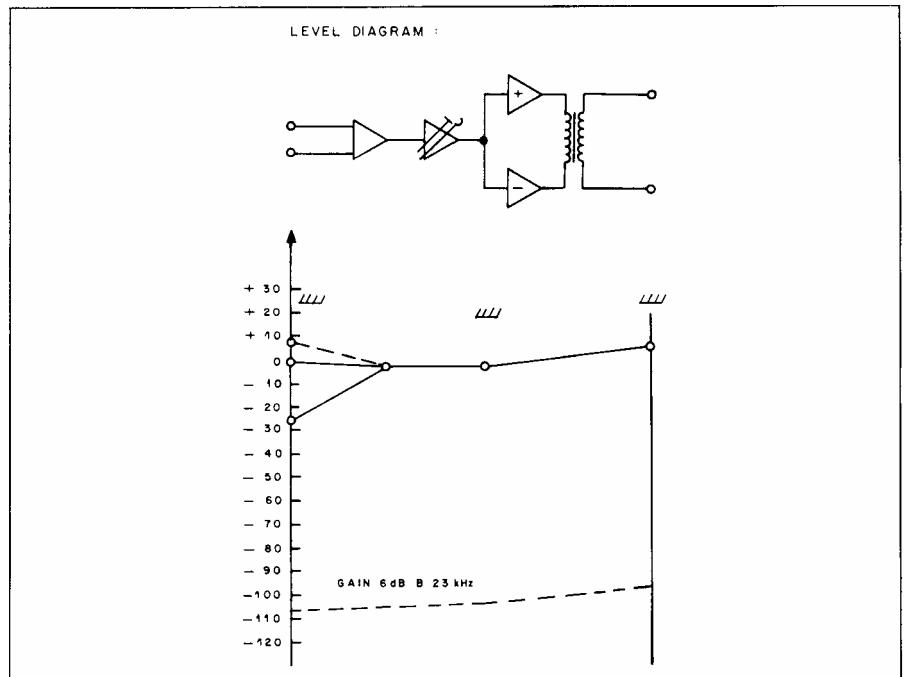
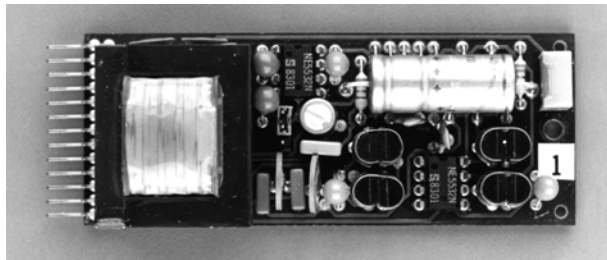
Motherboard for 1 MS-card

1.914.500.xx

Line Output Amplifier

1.914.501

Designed for operation at a nominal line level of +6 dBu (1.55 V<sub>rms</sub>), this amplifier can handle levels of up to +24 dBu (12.3 V<sub>rms</sub>), providing an excellent overload margin without the risk of clipping. A unique circuit around the primary of the amplifier's output transformer ensures excellent frequency response performance throughout the audible range. Fine and coarse gain adjustment is provided which allows to accommodate input levels in the range from -22...+8 dBu for a nominal +6 dBu output.

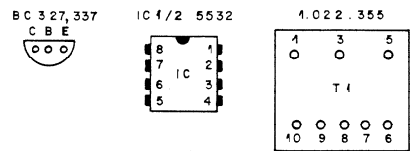
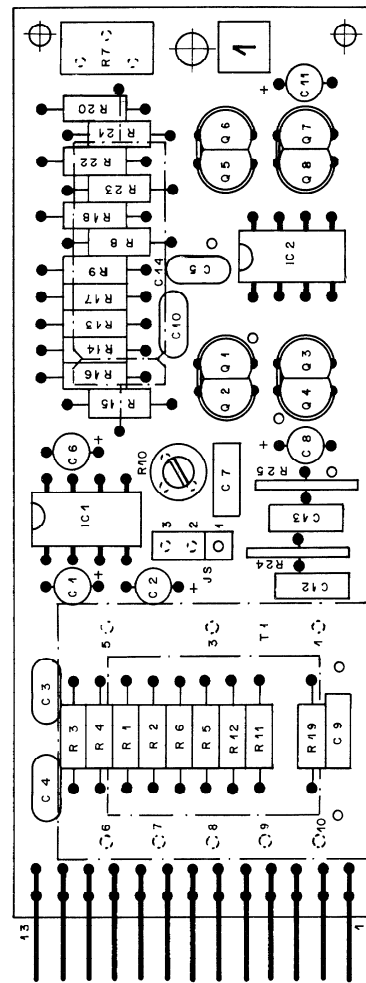
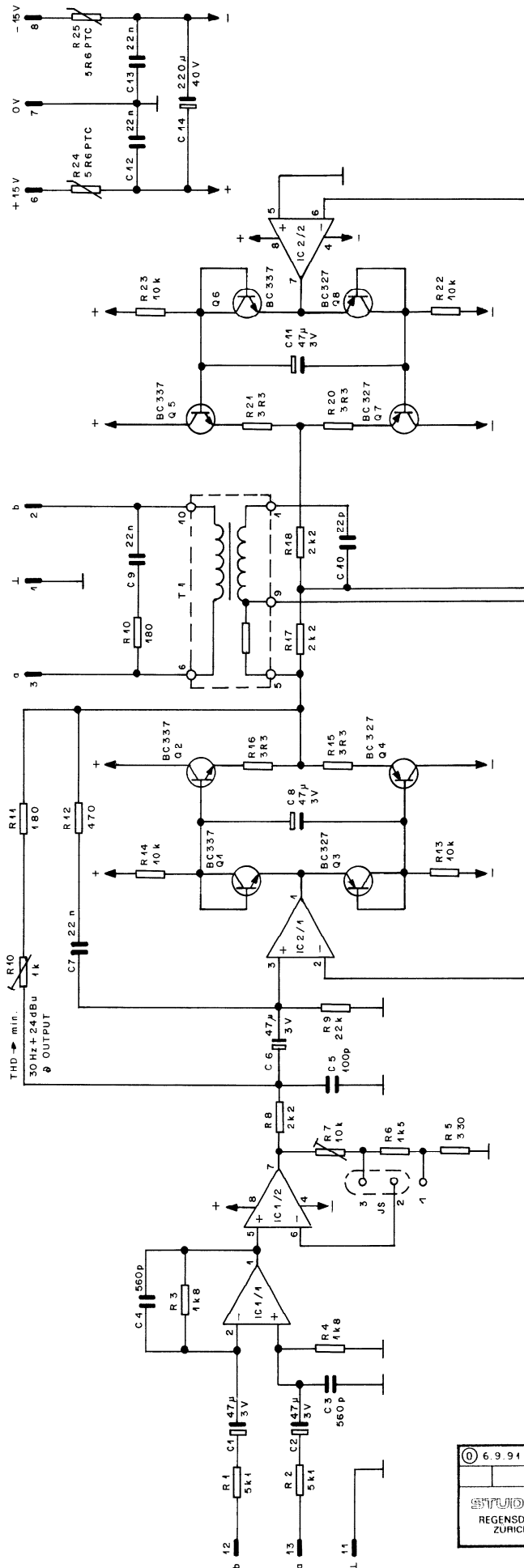




Technical Specifications

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<b>Input:</b>	Impedance	> <b>10 k<math>\Omega</math></b> , electronically balanced (transformerless)
	Overload point	<b>+24 dBu</b>
<b>Output:</b>	Impedance	< <b>50 <math>\Omega</math></b> , balanced and floating
	Minimum load	<b>200 <math>\Omega</math></b>
	Maximum level	<b>+24 dBu</b>
	Gain	<b>-2 dB...+28 dB</b> ; adjustment: coarse 0 or 15 dB, fine -2 dB...+13 dB
	Frequency response	<b><math>\pm 0.2</math> dB</b> , 30 Hz...16 kHz
	THD	< <b>0.01%</b> , 30 Hz...16 kHz
	Equivalent input noise	< <b>-106 dB</b> , linear, at 6 dB gain
<b>Supply:</b>		<b><math>\pm 15</math> V</b> (25 mA idling; max. 170 mA at +24 dBu into 200 $\Omega$ )
<b>Dimensions:</b>		<b>MS-card</b> , 34 $\times$ 85 mm
<b>Ordering Information:</b>	Line output amplifier	1.914.501.xx



BOTTOM VIEW

PIN	(A)	(B)	(C)	(D)
INP a	13	1	7	24
INP b	12	2	8	22
⊥	11	3	9	23
OUT a	3	4	10	24
OUT b	2	5	11	25
⊥	4	6	13	26
+ 15V	6	16		
0V	7	15		
-15V	8	14		

 REGENSDORF ZÜRICH	LINE AMPLIFIER (NR 1)	SC 1.914.501.00
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MSC LINE AMPLIFIER

Ad	POS	REF.No.	DESCRIPTION			MANUFACTURER
①	C....1	59.30.1470	47µ	3V	TA	
①	C....2	59.30.1470	47µ	3V	TA	
	C....3	59.34.5561	560pF	5%	CER	
	C....4	59.34.5561	560pF	5%	CER	
	C....5	59.34.4101	100pF		CER	
	C....6	59.30.1470	47µF	3V	TA	
	C....7	59.06.0222	2200pF		PE	
	C....8	59.30.1470	47µF	3V	TA	
	C....9	59.06.0223	0,022µF		PE	
	C....10	59.34.2220	22pF		CER	
	C....11	59.30.1470	47µF	3V	TA	
	C....12	59.06.0223	0,022µF		PE	
	C....13	59.06.0223	0,022µF		PE	
	C....14	59.25.5221	220µF	40V	EL	
	IC....1	50.09.0105	NE5532	XR5532 DUAL OP LOW NOISE		SIG/EX
	IC....2	50.09.0105	NE5532	XR5532 DUAL OP LOW NOISE		SIG/EX
	JSJ	54.01.0021	JUMPER JACK			
	JSP	54.01.0020	JUMPER PLUG 3PIN			
	Q....1	50.03.0516	BC337	NPN IC 0,8A	] MATCHED	ST
	Q....2	50.03.0516	BC337	NPN IC 0,8A		ST
	Q....3	50.03.0625	BC327	PNP IC 0,8A	] MATCHED	ST
	Q....4	50.03.0625	BC327	PNP IC 0,8A		ST
	Q....5	50.03.0516	BC337	NPN IC 0,8A	] MATCHED	ST
	Q....6	50.03.0516	BC337	NPN IC 0,8A		ST
	Q....7	50.03.0625	BC327	PNP IC 0,8A	] MATCHED	ST
	Q....8	50.03.0625	BC327	PNP IC 0,8A		ST
	R....1	57.11.3512	5k1	1%		
	R....2	57.11.3512	5k1	1%		
	R....3	57.11.3182	1k8	1%		
	R....4	57.11.3182	1k8	1%		
	R....5	57.11.4331	330			
	R....6	57.11.4152	1k5			
	R....7	58.11.9103	10k	TRIM LIN		
	R....8	57.11.4222	2k2			
	R....9	57.11.4223	22k			
	R....10	58.11.6102	1k	TRIM LIN		
	R....11	57.11.4681	680			
	R....12	57.11.4471	470			
	R....13	57.11.4103	10k			
	R....14	57.11.4103	10k			
	R....15	57.11.4339	3,3			
	R....16	57.11.4339	3,3			
	R....17	57.11.4222	2k2			
	R....18	57.11.4222	2k2			
	R....19	57.11.4181	180			
	R....20	57.11.4339	3,3			
	R....21	57.11.4339	3,3			
	R....22	57.11.4103	10k			
	R....23	57.11.4103	10k			
	R....24	57.11.0209	5,6	PTC		PH
	R....25	57.11.0209	5,6	PTC		PH
		50.20.2001		CLIP		
	T....1	1.022.355.00		LINE OUTPUT TRAFO		ST

CER=Ceramic, EL=Electrolytic, PE=Polyester, TA=Tantalum

MANUFACTURER: ST=Studer, SIG=Signetics, EX=Exar, PH=Philips

1.914.501.00 LINE AMPLIFIER (Nr. 1)

FRI 06/06/83

1.914.501.00 LINE AMPLIFIER (Nr. 1)

① FRI 17/11/83

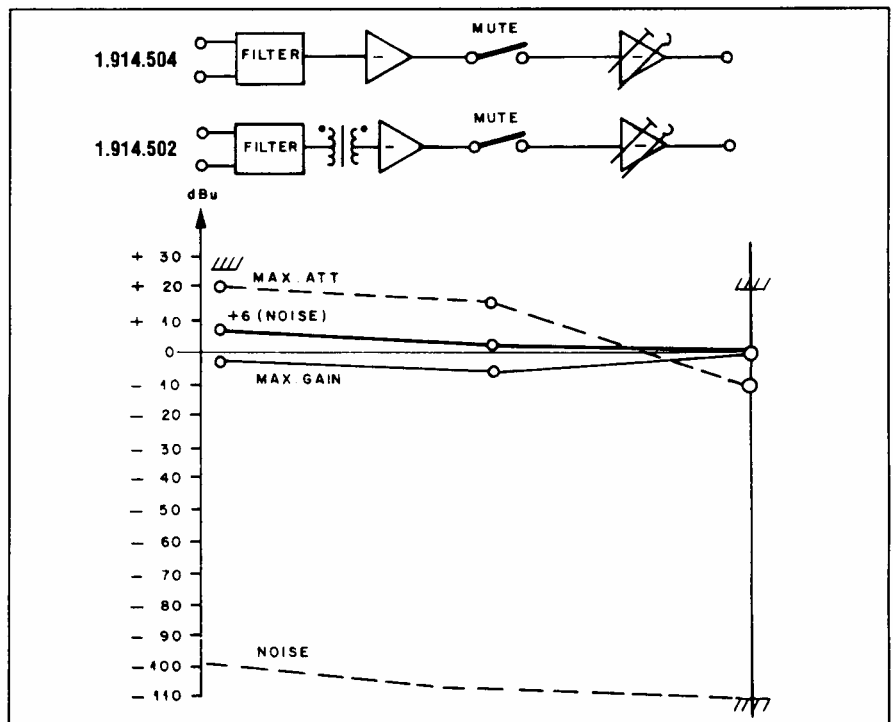
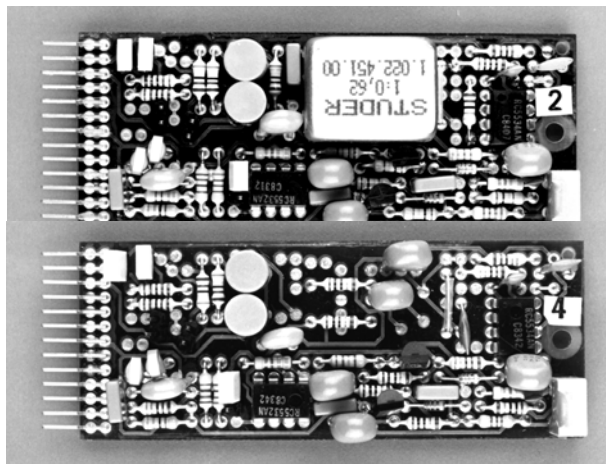
END



High-Level Input Amplifier

1.914.502/504

Basically, this is an amplifier with near 0 dB gain for high-level applications, yet with additional features, such as remote muting facility, RF input filter, and choice of two input and output impedances. The input configuration is balanced, whereas the output is unbalanced. Jumpers in the primary of the input circuit permit selection of either high-impedance operation with RF filter or a 0-Ω input without filter, for summing-bus applications. The combining (mixing) resistors have to be added externally. By switching pin3 of the amplifier's 13-pin plug to ground (via a corresponding connection on the motherboard) the amplifier may be muted from a remote point. If only 20 dB level reduction is desirable instead of muting, this can be programmed by connecting a resistor across two solder points.



The amplifier may be used, for example, to work into a 600 Ω load, or into the input of a 0-Ω input amplifier of another summing circuit.

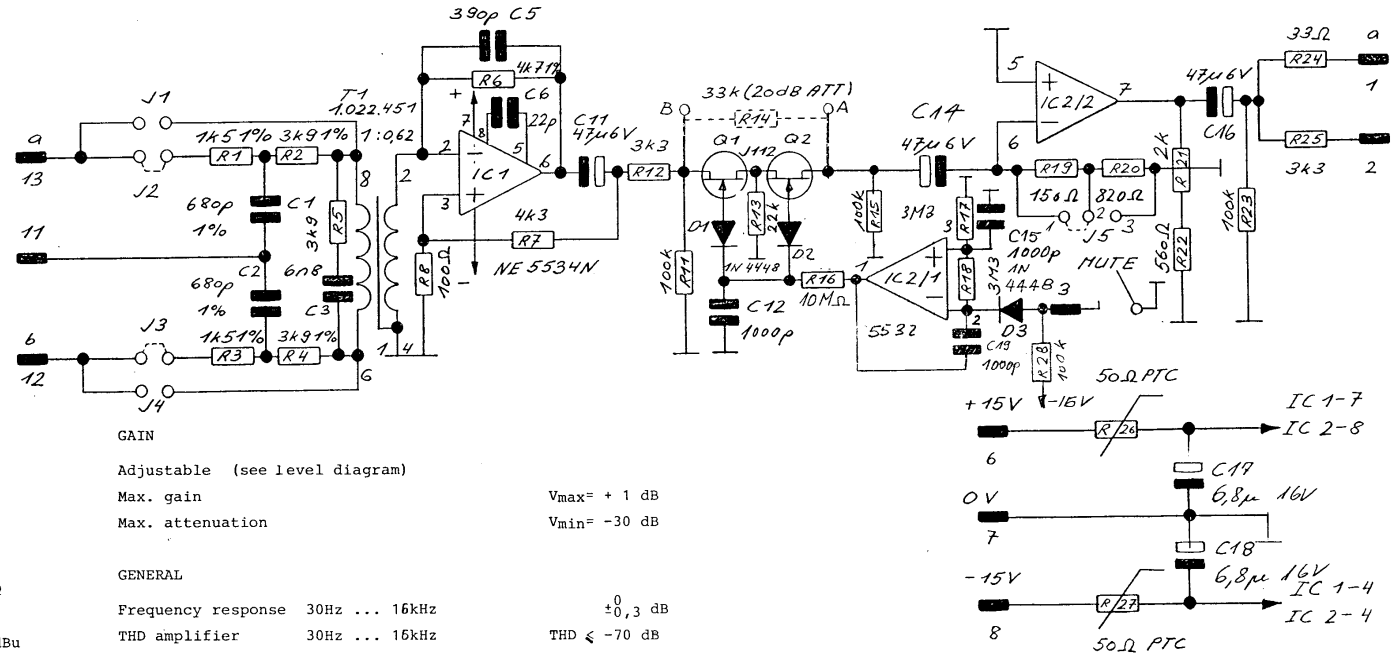
If transformerless yet balanced input configuration is desired, an MSC amplifier with basically the same performance characteristics is available as well. Refer to the ordering information below.

### Technical Specifications

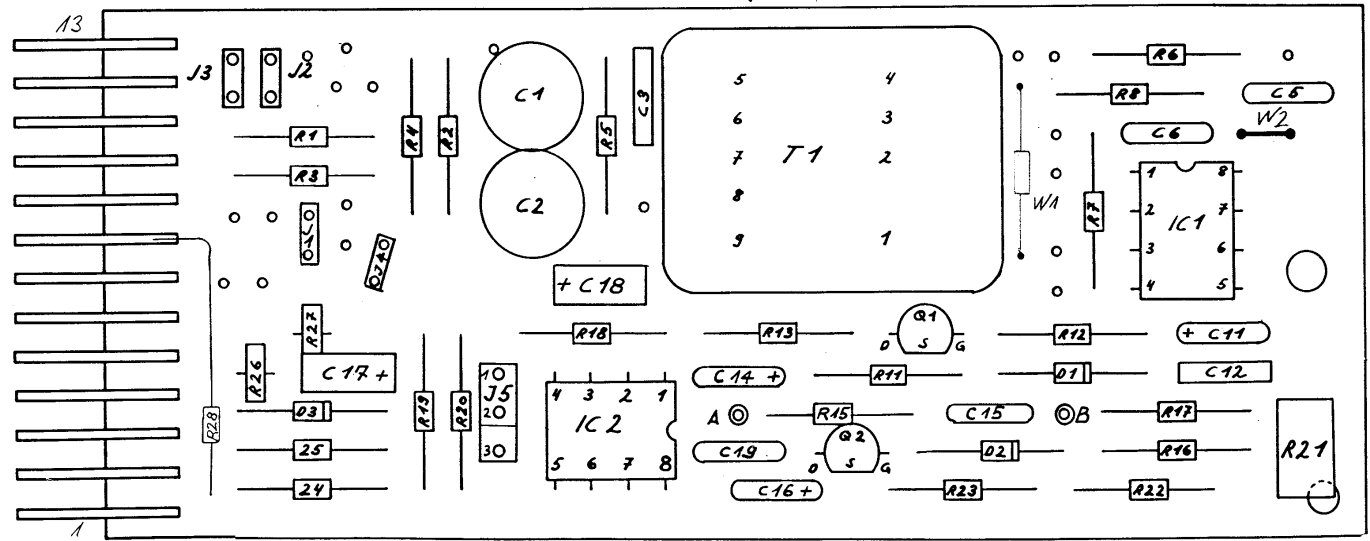
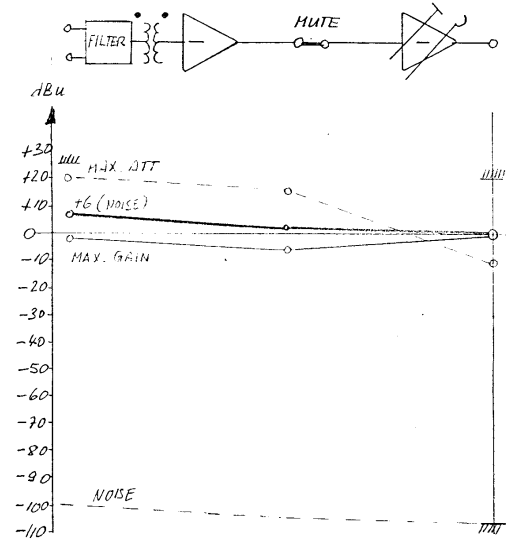
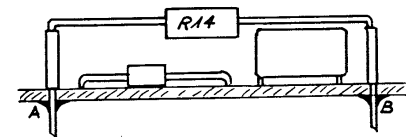
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<b>Input:</b>	Impedance	> <b>10 k<math>\Omega</math></b> (transformer- or electronically balanced versions available; input with RF filter; 0- $\Omega$ input selectable with jumpers)
	Common mode rejection	> <b>50 dB</b>
	Overload point	<b>+24 dBu</b> (12.3 V <sub>rms</sub> )
<b>Output:</b>	Impedance	<b>33 <math>\Omega</math></b> (pin1), unbalanced
	Minimum load	<b>600 <math>\Omega</math></b>
	Maximum level	<b>+20 dBu</b> (7.75 V <sub>rms</sub> )
	Impedance	<b>3.3 k<math>\Omega</math></b> (pin2), unbalanced, for 0- $\Omega$ operation
	Maximum gain	<b>1 dB</b>
	Maximum attenuation	<b>30 dB</b>
	Frequency response	<b><math>\pm 0.3</math> dB</b> , 30 Hz...16 kHz
	THD	<b>&lt; 0.03%</b> , 30 Hz...16 kHz
	Equivalent input noise	<b>-100 dBu</b> , unweighted, at 6 dB attenuation
	Programmable attenuation	<b>20 dB</b> (resistor 33 k $\Omega$ across muting circuit)
<b>Supply:</b>		<b><math>\pm 15</math> V</b> (11 mA idling)
<b>Dimensions:</b>		<b>MS-card</b> , 34 $\times$ 85 mm
<b>Ordering Information:</b>	High level input amp with transformer-balanced input	1.914.502.xx
	High level input amp with electronically balanced input	1.914.504.xx

CIS		EURO 32 P			
	PIN	(a)	(b)	(c)	(d)
IN a	13	1	7	21	27
IN b	12	2	8	22	28
IN L	11	3	9	23	29
	10				
-15V	8	14			
0 V	7	15			
+15V	6	16			
	5				
MUTE I	3	4	10	24	30
OUT (3K3)	2	5	11	25	31
OUT	1	6	13	26	32



OPTION  
33k (20 dB Attenuation)



**HL Input Amp, transformer-balanced 1.914.502.81 ( 1)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1681	680p	PP, 1%, 630V					
0	C 2	59.05.1681	680p	PP, 1%, 630V					
0	C 3	59.06.5682	6n8	PETP, 63V, 5%, RM5					
0	C 5	59.34.5391	390p	CER 63V, 5%, N1500					
0	C 6	59.34.2220	22p	CER 63V, 5%, N150					
0	C 11	59.26.0470	47u	SAL 6.3V 20%					
0	C 12	59.32.4102	1n0	CER 20%, 50V					
0	C 13	not used	1n0	PETP, 63V, 10%, RM5					
0	C 14	59.26.0470	47u	SAL 6.3V 20%					
0	C 15	59.06.0102	1n0	PETP, 63V, 10%, RM5					
0	C 16	59.26.0470	47u	SAL 6.3V 20%					
0	C 17	59.26.2689	6u8	SAL 16V 20%					
0	C 18	59.26.2689	6u8	SAL 16V 20%					
0	C 19	59.06.0102	1n0	PETP, 63V, 10%, RM5					
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	IC 1	50.05.0244	5534A	Single Op-amp, low noise					
0	IC 2	50.09.0106	5532A	Dual Op-Amp, low noise					
0	J 1	54.01.0021	Jumper	0.63*0.63mm, Au					
0	J 2	54.01.0021	Jumper	0.63*0.63mm, Au					
0	J 3	54.01.0021	Jumper	0.63*0.63mm, Au					
0	P 1	54.01.0273	13p	Stecker CIS parallelsteck					
0	P 2	54.01.0020	11 pcs 1p	Pin, 1reihig, gerade					
0	Q 1	50.03.0350	J112	JFET N-Channel					
0	Q 2	50.03.0350	J112	JFET N-Channel					
0	R 1	57.11.3152	1k5	MF, 1%, 0207					
0	R 2	57.11.3392	3k9	MF, 1%, 0207					
0	R 3	57.11.3152	1k5	MF, 1%, 0207					
0	R 4	57.11.3392	3k9	MF, 1%, 0207					
0	R 5	57.11.3392	3k9	MF, 1%, 0207					
0	R 6	57.11.3472	4k7	MF, 1%, 0207					
0	R 7	57.11.3432	4k3	MF, 1%, 0207					
0	R 8	57.11.3101	100R	MF, 1%, 0207					
0	R 11	57.11.3104	100k	MF, 1%, 0207					
0	R 12	57.11.3332	3k3	MF, 1%, 0207					
0	R 13	57.11.3223	22k	MF, 1%, 0207					
0	R 14	not used	33k	MF, 1%, 0207					
				<i>optional (20 dB attenuation)</i>					
0	R 15	57.11.3104	100k	MF, 1%, 0207					
0	R 16	57.11.5106	10M	MF, 5%, 0207					
0	R 17	57.11.5335	3M3	MF, 5%, 0207					
0	R 18	57.11.5335	3M3	MF, 5%, 0207					
0	R 19	57.11.3151	150R	MF, 1%, 0207					
0	R 20	57.11.3821	820R	MF, 1%, 0207					
0	R 21	58.01.9202	2k0	Cermet, 10%, 0.5W, vertical					
0	R 22	57.11.3561	560R	MF, 1%, 0207					
0	R 23	57.11.3104	100k	MF, 1%, 0207					
0	R 24	57.11.3330	33R	MF, 1%, 0207					
0	R 25	57.11.3332	3k3	MF, 1%, 0207					
0	R 26	57.99.0206	50R	PTC, 25V, 0.5W					
0	R 27	57.99.0206	50R	PTC, 25V, 0.5W					
0	R 28	57.11.3104	100k	MF, 1%, 0207					
0	T 1	1.022.451.00	1:0.62	EINGANGSTRAFO 1 : 0,62					
1	W 1	57.11.3000	0R0	MF, 0207					
1	W 2	64.01.0106	0,6mm	Schaltdraht Cu					

End of List

Comments:

(01) W1, W2 added

STUDER

HL INPUT AMP. BALANCED (NR4)

300

1.914.504.81

PAGE 1 OF 1

①	19.4.8545
②	8.2.9398
③	14.10.8545

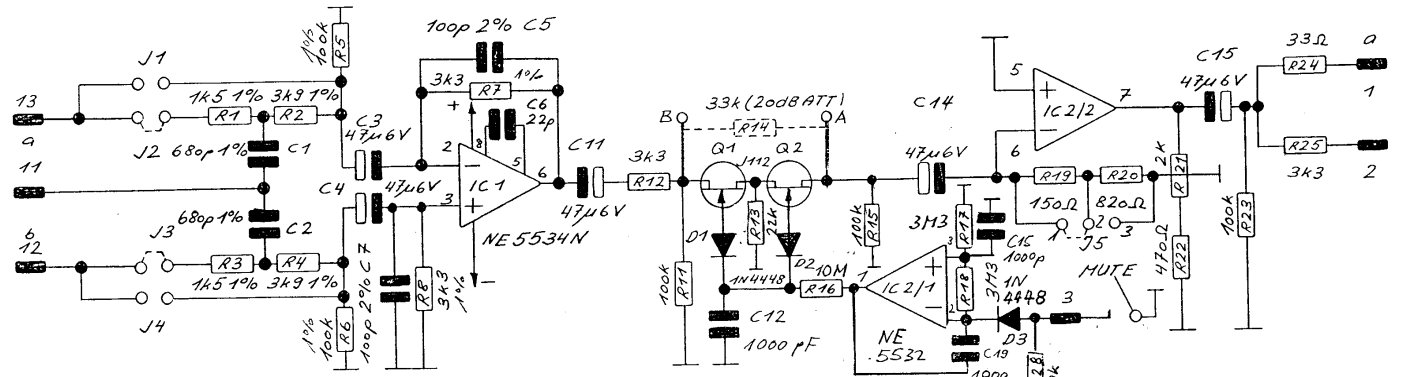
CIS		EURO 32 P			
	PIN	(a)	(b)	(c)	(d)
INa	13	1	7	21	27
INb	12	2	8	22	28
IN L	11	3	9	23	29
	10				
-15V	8	14			
0 V	7	15			
+15V	6	16			
	5				
	4				
MUTE	3	4	10	24	30
OUT(3k3)	2	5	11	25	31
OUT	1	6	13	26	32

INPUT

Balanced, RF-filter  
 Input impedance  $R_i > 10 \text{ k}\Omega$   
 0  $\Omega$  input with jumper  
 Max. input level  $U_{in} = +24 \text{ dBu}$   
 Source impedance  $R_s \leq 200 \Omega$

OUTPUT

Max. output level  $U_{out} = +20 \text{ dBu}$   
 Output impedance pin 1  $R_{out} = 33 \Omega$   
 Load  $R_L \geq 600 \Omega$   
 Output impedance pin 2 (to a 0  $\Omega$  amp.)  $R_{out} = 3 \text{ k}\Omega$



GAIN

Adjustable (see level diagram)

Max. gain

Max. attenuation

$V_{max} = +1 \text{ dB}$

$V_{min} = -30 \text{ dB}$

GENERAL

Frequency response 30Hz ... 16kHz

$\pm 0,3 \text{ dB}$

THD amplifier 30Hz ... 16kHz

THD  $\leq 80 \text{ dB}$

Noise (B 23kHz), gain -6 dB

$U_{NOISE} = -107 \text{ dBu}$

ATTENUATOR

Mute switch, with resistor programmable to an attenuator of 20 dB

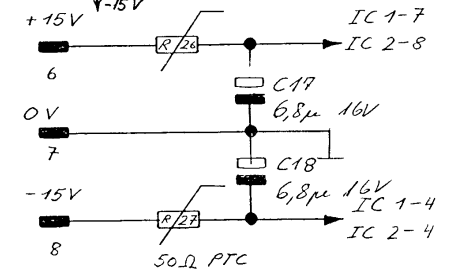
SUPPLY

Supply voltage

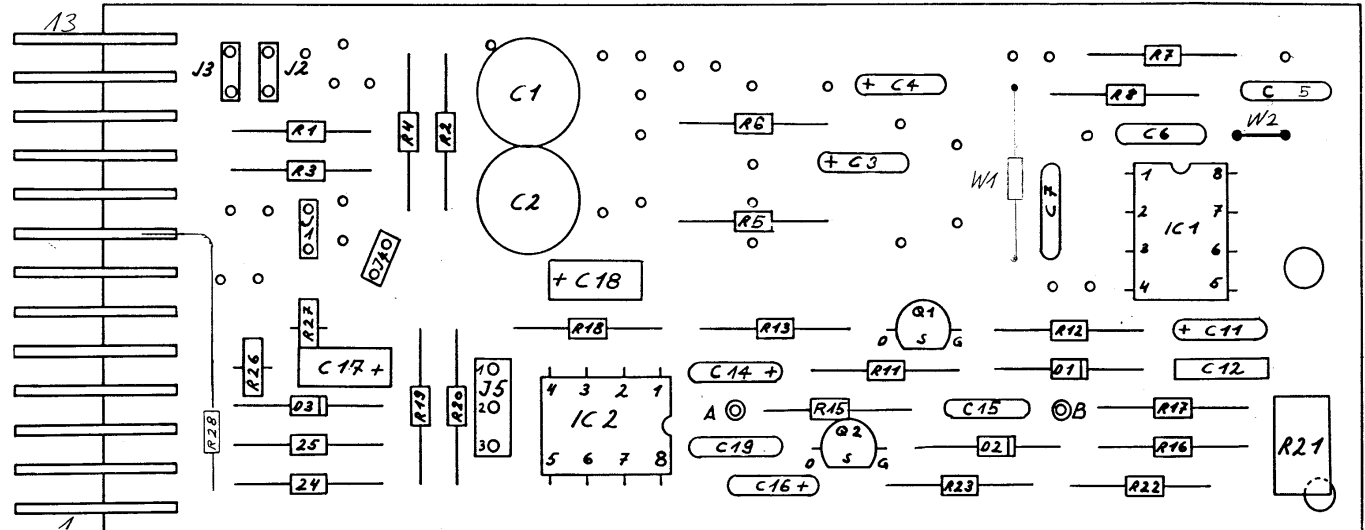
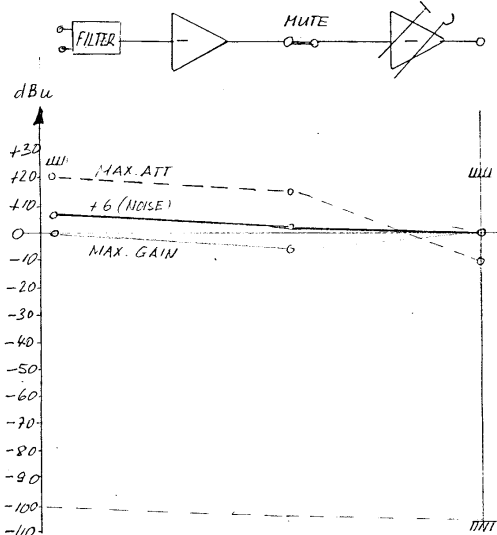
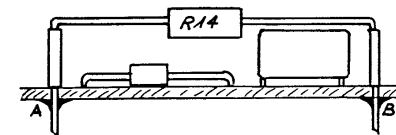
$U = \pm 15 \text{ V}$

Idle current

$I = 11 \text{ mA}$



OPTION  
33k (20 dB Attenuation)





**HL Input Amp, electronically balanced 1.914.504.81 ( 1)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.05.1681	680p	PP, 1%, 630V					
0	C 2	59.05.1681	680p	PP, 1%, 630V					
0	C 3	59.26.0470	47u	SAL 6.3V 20%					
0	C 4	59.26.0470	47u	SAL 6.3V 20%					
0	C 5	59.34.2101	100p	CER 63V, 5%, N150					
0	C 6	59.34.2220	22p	CER 63V, 5%, N150					
0	C 7	59.34.2101	100p	CER 63V, 5%, N150					
0	C 11	59.26.0470	47u	SAL 6.3V 20%					
0	C 12	59.32.4102	1n0	CER 20%, 50V					
0	C 14	59.26.0470	47u	SAL 6.3V 20%					
0	C 15	59.06.0102	1n0	PETP, 63V, 10%, RM5					
0	C 16	59.26.0470	47u	SAL 6.3V 20%					
0	C 17	59.26.2689	6u8	SAL 16V 20%					
0	C 18	59.26.2689	6u8	SAL 16V 20%					
0	C 19	59.06.0102	1n0	PETP, 63V, 10%, RM5					
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	D 2	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35					
0	IC 1	50.05.0244	5534A	Single Op-amp, low noise					
0	IC 2	50.09.0106	5532A	Dual Op-Amp, low noise					
0	J 1	54.01.0021	Jumper	0.63*0.63mm, Au					
0	J 2	54.01.0021	Jumper	0.63*0.63mm, Au					
0	J 3	54.01.0021	Jumper	0.63*0.63mm, Au					
0	P 1	54.01.0273	13p	Stecker CJS parallelsteck					
0	P 2	54.01.0020	9 pcs	1p					
0	Q 1	50.03.0350	J112	JFET N-Channel					
0	Q 2	50.03.0350	J112	JFET N-Channel					
0	R 1	57.11.3152	1k5	MF, 1%, 0207					
0	R 2	57.11.3392	3k9	MF, 1%, 0207					
0	R 3	57.11.3152	1k5	MF, 1%, 0207					
0	R 4	57.11.3392	3k9	MF, 1%, 0207					
0	R 5	57.11.3104	100k	MF, 1%, 0207					
0	R 6	57.11.3104	100k	MF, 1%, 0207					
0	R 7	57.11.3332	3k3	MF, 1%, 0207					
0	R 8	57.11.3332	3k3	MF, 1%, 0207					
0	R 11	57.11.3104	100k	MF, 1%, 0207					
0	R 12	57.11.3332	3k3	MF, 1%, 0207					
0	R 13	57.11.3223	22k	MF, 1%, 0207					
0	R 14	not used	33k	MF, 1%, 0207					
				<i>optional (20 dB attenuation)</i>					
0	R 15	57.11.3104	100k	MF, 1%, 0207					
0	R 16	57.11.5106	10M	MF, 5%, 0207					
0	R 17	57.11.5335	3M3	MF, 5%, 0207					
0	R 18	57.11.5335	3M3	MF, 5%, 0207					
0	R 19	57.11.3151	150R	MF, 1%, 0207					
0	R 20	57.11.3821	820R	MF, 1%, 0207					
0	R 21	58.01.9202	2k0	Cermet, 10%, 0.5W, vertical					
0	R 22	57.11.3471	470R	MF, 1%, 0207					
0	R 23	57.11.3104	100k	MF, 1%, 0207					
0	R 24	57.11.3330	33R	MF, 1%, 0207					
0	R 25	57.11.3332	3k3	MF, 1%, 0207					
0	R 26	57.99.0206	50R	PTC, 25V, 0.5W					
0	R 27	57.99.0206	50R	PTC, 25V, 0.5W					
1	R 28	57.11.3104	100k	MF, 1%, 0207					
1	W 1	57.11.3000	0R0	MF, 0207					
1	W 2	64.01.0106	0.6mm	Schalt draht Cu					

End of List

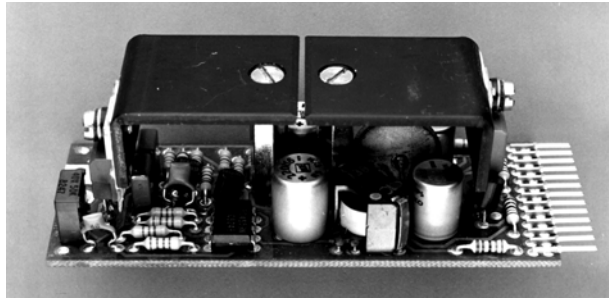
Comments:

(01) R28, W1, W2 added

## Loudspeaker Amplifier

1.914.505

This low-power amplifier on a modular sub-card is designed to drive a 10...15  $\Omega$  speaker. Power output is about 2...3 W. As can be concluded from this specification, the amplifier is not intended for high-quality monitoring. It will be ideally suited, however, for pre-fader listening and similar applications. The amplifier's input is balanced and floating, with adjustable gain.



## Technical Specifications

Input impedance	> <b>10 k<math>\Omega</math></b> , balanced and floating (with transformer)
Nominal power output	<b>2 W</b> into 15 $\Omega$
Power output	<b>25 mW...2.5 W</b> into 15 $\Omega$ , with 0 dBu input
Distortion	< <b>0.5%</b> at 2 W < <b>0.15%</b> at 500 mW
S/N	<b>99 dB</b> , ref. to 2 W at max. gain
Frequency response	<b>-0.5 dB</b> at 15 kHz
High pass filter	<b>150 Hz</b> , 12 dB/oct.

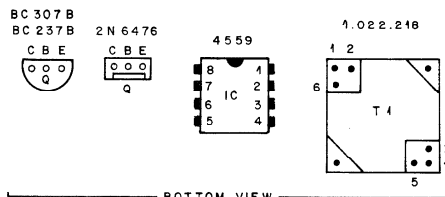
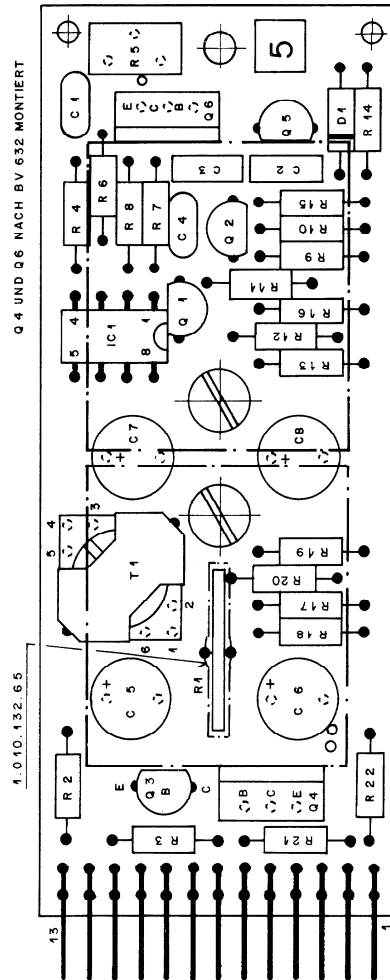
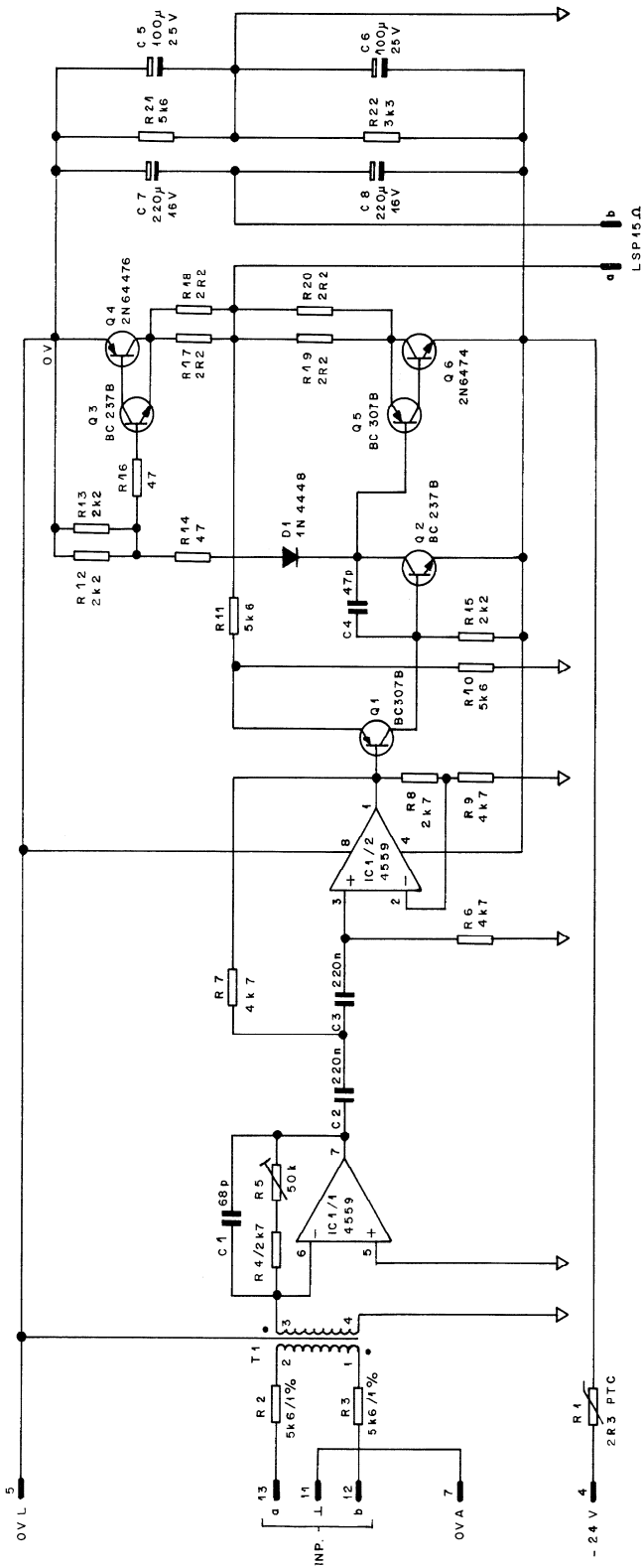
**Supply:** -24 V (40 mA idling, max. 220 mA fully driven)

**Dimensions:** MS-card, 34  $\times$  85 mm

**Ordering Information:** Loudspeaker amplifier

1.914.505.xx

MSC SPEAKER AMPLIFIER



CIS	PIN	EURO 32 PIN			
		(a)	(b)	(c)	(d)
INP a	43	1	7	21	27
INP b	42	2	8	22	28
(L)	41	3	9	23	29
	40				
	9				
(L)	8				
	7				
	6				
0V	5	19			
-24V	4	20			
OUT a	3	4	10	24	30
OUT b	2	5	11	25	31
	1				

13. 9. 91			
<b>STUDER</b> REGENSDORF ZÜRICH	<b>LSP AMPLIFIER</b> 3 W (NR. 5)	1.914.505.00	

MSC SPEAKER AMPLIFIER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
	C....1	59.34.4680	68pF	CER
	C....2	59.06.0224	0,22µF	PE
	C....3	59.06.0224	0,22µF	PE
Ⓞ	C....4	59.34.2470	47pF	CER
	C....5	59.22.5101	100µF 25V	EL
	C....6	59.22.5101	100µF 25V	EL
	C....7	59.22.4221	220µF 16V	EL
	C....8	59.22.4221	220µF 16V	EL
	D....1	50.04.0125	1N4448	
	IC....1	50.09.0107	RC4559	
	P....1	54.01.0273	13P	CIS
	Q....1	50.03.0515	BC307B	
	Q....2	50.03.0436	BC237B	
	Q....3	50.03.0436	BC237B	
	Q....4	50.03.0345	2N6476	
	Q....5	50.03.0515	BC307B	
	Q....6	50.03.0344	2N6474	
	R....1	57.99.0210	2,3kΩ	PTC
	R....2	57.11.3562	5,6kΩ	
	R....3	57.11.3562	5,6kΩ	
	R....4	57.11.4272	2,7kΩ	
	R....5	58.01.9503	50kΩ	PMG
	R....6	57.11.4472	4,7kΩ	
	R....7	57.11.4472	4,7kΩ	
	R....8	57.11.4272	2,7kΩ	
	R....9	57.11.4472	4,7kΩ	
	R....10	57.11.3562	5,6kΩ	
	R....11	57.11.3562	5,6kΩ	
	R....12	57.11.4222	2,2kΩ	
	R....13	57.11.4222	2,2kΩ	
	R....14	57.11.4470	47Ω	
	R....15	57.11.4222	2,2kΩ	
	R....16	57.11.4470	47Ω	
	R....17	57.11.4229	2,2Ω	
	R....18	57.11.4229	2,2Ω	
	R....19	57.11.4229	2,2Ω	
	R....20	57.11.4229	2,2Ω	
	R....21	57.11.3562	5,6kΩ	
	R....22	57.11.4332	3,3kΩ	
	T....1	1.022.218.00	1:1	

CER=Ceramic, PE=Polyester, EL=Electrolytic, PTC=Pos. Temp. Coif., PMG=Cermet

1.914.505.00 LSP AMPLIFIER 3W (Nr. 5) P. Casutt 07/09/83

1.914.505.00 LSP AMPLIFIER 3W (Nr. 5) Ⓞ A. Ho 30/11/83

END



Microphone Pre-Amplifiers

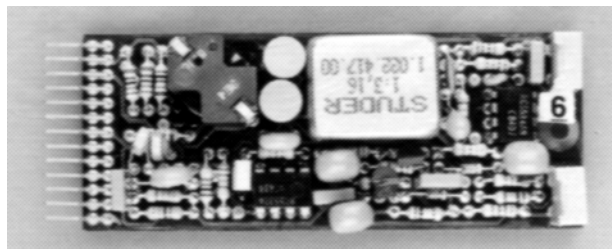
1.914.506/507

Two different microphone pre-amplifiers are available, for dynamic or condenser microphones, and for electret microphones. Both offer high gain and low noise, as is required for microphone pre-amplification.

1.914.506 features a balanced and floating input. It is designed for dynamic or condenser microphones with a source impedance of 200 Ω or less. An RF filter is incorporated at the input transformer's primary. Furthermore, the input is equipped with the resistors required for phantom powering of condenser microphones.

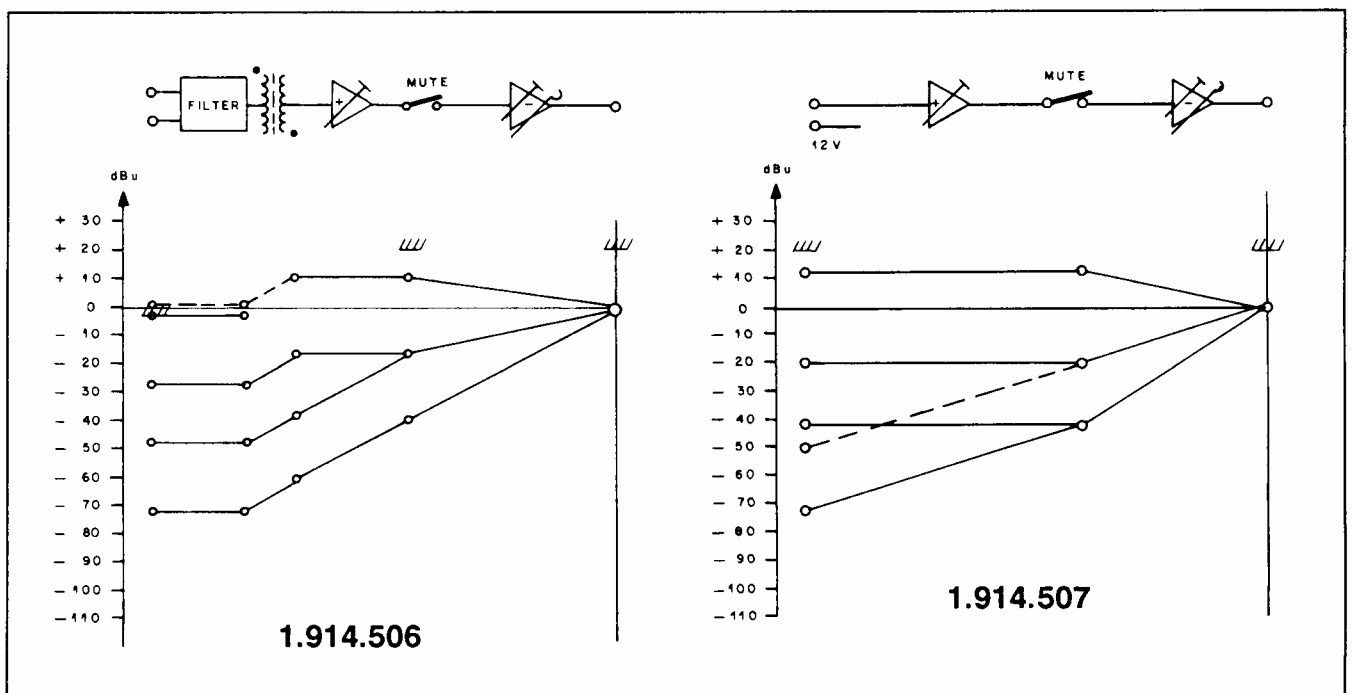
1.914.507 is designed for unbalanced electret microphones requiring a 12 V supply.

A wide range of input levels can be accommodated (see level diagram).



By using the same solid-state switching circuit as can be found in the line and high-level amplifiers, remote muting or activation of a fixed amount of attenuation are possible as well.

The amplifier's two outputs are unbalanced, with impedances of 3.3 kΩ or 33 Ω, respectively.

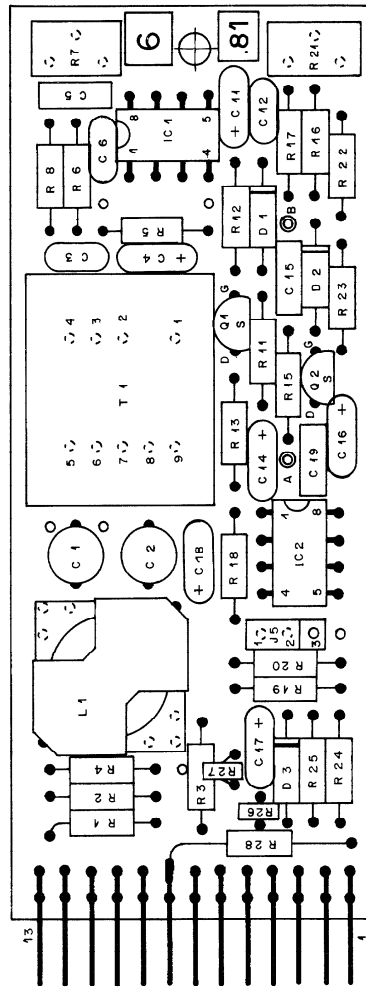
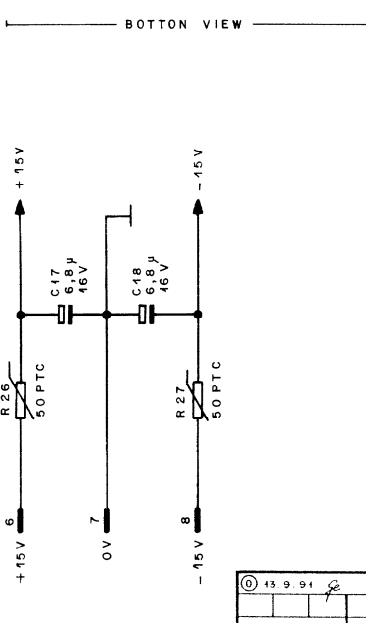
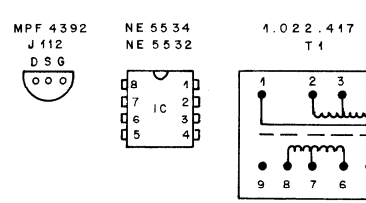
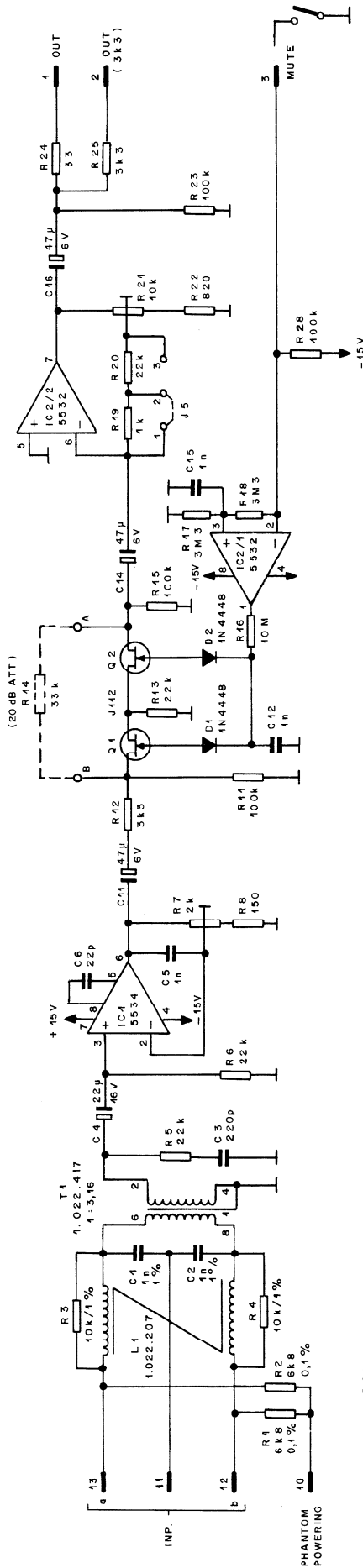


Technical Specifications

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<b>Input:</b>	Transformer-balanced and floating, with RF filter	(1.914.506)
	Unbalanced, with RF filter and electret supply	(1.914.507)
Impedance	> <b>1 k<math>\Omega</math></b> , for microphones with an impedance of 200 $\Omega$ or less.	
Max. input level	-2 <b>dBu</b> (615 mV <sub>rms</sub> ); THD at 30 Hz: approx. 1%	
Common mode rejection	> <b>60 dB</b> , unbalanced, to ground	
<b>Output:</b>		
Max. level	<b>+20 dBu</b> (7.75 V <sub>rms</sub> )	
Nominal level	<b>0 dBu</b> (0.775 V <sub>rms</sub> )	
Impedance	<b>33 <math>\Omega</math></b> (pin1)	
	<b>3.3 k<math>\Omega</math></b> (pin2; to a 0- $\Omega$ amp.)	
Minimum load	<b>600 <math>\Omega</math></b>	
Max. gain	<b>71 dB</b> (see level diagram)	
Frequency response	<b><math>\pm 0.5</math> dB</b> , 30 Hz...16 kHz	
THD	< <b>0.3%</b> , 30 Hz...16 kHz at 20 dB gain	
Noise figure, linear	< <b>4.5 dB</b> , input terminated with 200 $\Omega$	
<b>Supply:</b>	<b><math>\pm 15</math> V</b> (11 mA idling)	
	<b>+48 V</b> (1.914.506, only if phantom powering required)	
<b>Dimensions:</b>	<b>MS-card</b> , 34 $\times$ 85 mm	
<b>Ordering Information:</b>	<ul style="list-style-type: none"><li>• Microphone pre-amplifier for dynamic microphones</li><li>• Microphone pre-amplifier for electret microphones</li></ul>	1.914.506.xx 1.914.507.xx

MSC MICROPHONE PRE-AMP.



CIS	PIN	EURO 32 PIN			
		(A)	(B)	(C)	(D)
IN a	13	4	7	24	27
IN b	12	2	8	22	28
IN L	11	3	9	23	29
PHANTOM	10	47	17	18	18
	9				
-15V	8	14			
0V	7	15			
+15V	6	16			
	5				
	4				
MUTE	3	4	10	24	30
OUT (3k3)	2	5	11	25	31
OUT	1	6	13	26	32

## MICROPHONE PRE-AMP. MSC

Ad	POS.	REF.No.	DESCRIPTION			MANUFACTURER
C	...	1	59.05.1102	1000pF	630V 1%	PP
C	...	2	59.05.1102	1000pF	630V 1%	PP
C	...	3	59.34.4221	220pF		CER
C	...	4	59.30.4220	22pF	16V	TA
C	...	5	59.06.0102	1000pF		PE
C	...	6	59.34.2220	22pF		CER
C	...	11	59.26.0470	47pF	6,3V	SAL
C	...	12	59.32.4102	1000pF		CER
C	...	13				
C	...	14	59.26.0470	47pF	6,3V	SAL
C	...	15	59.06.0102	1000pF		PE
C	...	16	59.26.0470	47pF	6,3V	SAL
C	...	17	59.26.2689	6,8pF	16V	SAL
C	...	18	59.26.2689	6,8pF	16V	SAL
C	...	19	59.06.0102	1000pF		PE
D	...	1	50.04.0125	1N4448		
D	...	2	50.04.0125	1N4448		
D	...	3	50.04.0125	1N4448		
IC	...	1	50.05.0244	NES534AN	LOW NOISE OP AMP	SIG
IC	...	2	50.09.0106	NES532AN	DUAL LOW NOISE OP AMP	SIG
J	...	5	54.01.0021		JUMPER	
L	...	1	1.022.207.00		HF SYM. COIL	ST
P			54.01.0273	13PIN	CIS	
P (J5)			54.01.0020	PIN	JUMPER PLUG	
Q	...	1	50.03.0350	J112	N	N-FET
Q	...	2	50.03.0350	J112	N	N-FET
R	...	1	57.99.0250	6,8kΩ	0,1%	
R	...	2	57.99.0250	6,8kΩ	0,1%	
R	...	3	57.11.3103	10kΩ	1%	
R	...	4	57.11.3103	10kΩ	1%	
R	...	5	57.11.4123	12kΩ		
R	...	6	57.11.4223	22kΩ		
R	...	7	58.01.9202	2kΩ	POT	
R	...	8	57.11.4151	150		
R	...	11	57.11.4104	100kΩ		
R	...	12	57.11.4332	3,3kΩ		
R	...	13	57.11.4223	22kΩ		
R	...	14	57.11.4333	33kΩ	OPTIONAL (20dB ATT)	
R	...	15	57.11.4104	100kΩ		
R	...	16	57.11.5106	10MΩ		
R	...	17	57.11.5335	3,3MΩ	5%	
R	...	18	57.11.5335	3,3MΩ	5%	
R	...	19	57.11.4102	1kΩ		
R	...	20	57.11.4223	22kΩ		
R	...	21	58.01.9103	10kΩ	POT	
R	...	22	57.11.4821	820Ω		
R	...	23	57.11.4104	100kΩ		
R	...	24	57.11.4330	33Ω		
R	...	25	57.11.4332	3,3kΩ		
R	...	26	57.99.0206	50Ω	PTC	PH
R	...	27	57.99.0206	50Ω	PTC	PH
R	...	28	57.11.4104	100kΩ		
T	...	1	1.022.417.00	1:3,16	TRAFO	ST

CER=Ceramic, PE=Polystyrene, SAL=Solid Aluminium, PP=Polypropylen, TA=Tantalum

MANUFACTURER: ST=Studer, SIG=Signetics, PH=Philips

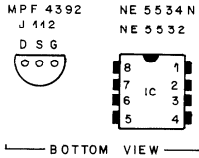
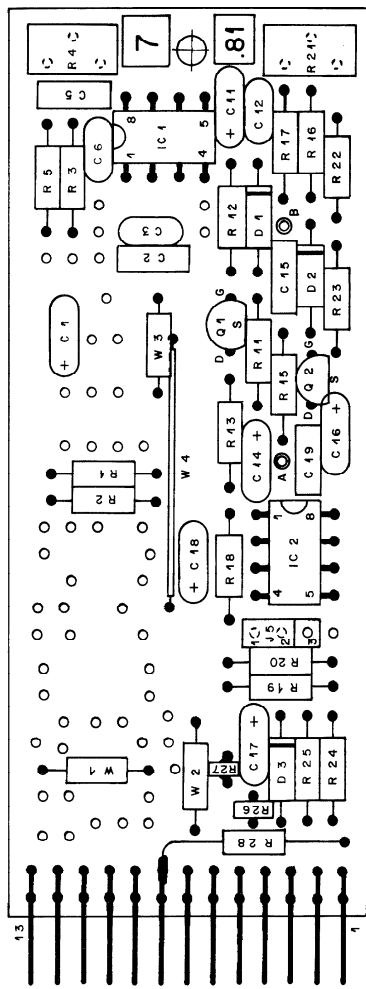
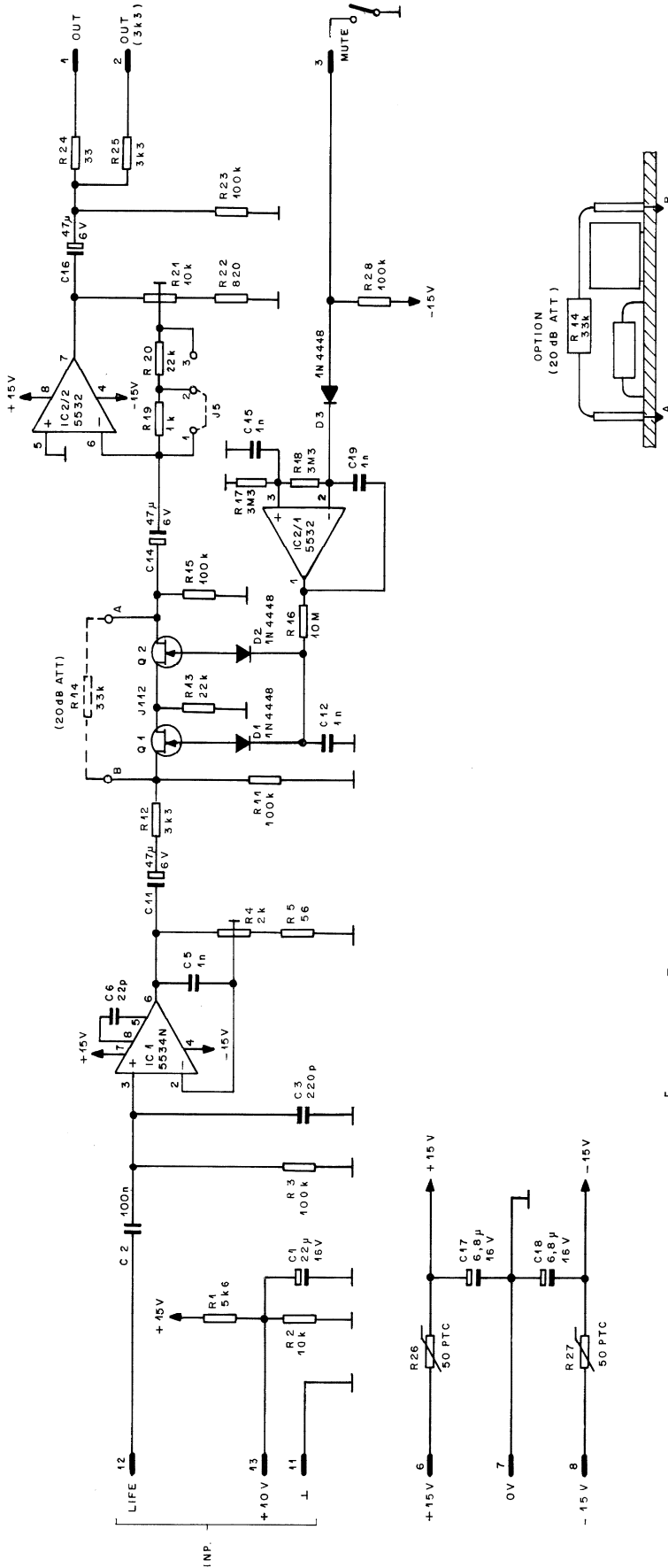
1.914.506.81 MIC. AMPLIFIER, FLOATING (Nr. 6)

FRI 19/04/85

END

→





C15	PIN	(a)	(b)	(c)	(d)
+ 10 V	13	1	7	21	27
IN	12	2	8	22	28
IN L	11	3	9	23	29
	10				
	9				
- 15 V	8	14			
0 V	7	15			
+ 45 V	6	16			
	5				
	4				
MUTE	3	4	10	24	30
OUT(3k3)	2	5	11	25	31
OUT	1	6	13	26	32

12.9.91			
STUDER REGENSDORF ZÜRICH	ELECTRET MIC. AMP. (NR. 7)	1.914.507.81	

## MICROPHONE PRE-AMP. MSC

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C	...	1	59.30.4220 22 $\mu$ F 16V	TA
C	...	2	59.06.5104 0,1 $\mu$ F 63V	PE
C	...	3	59.34.4221 220pF	CER
C	...	5	59.06.0102 1000pF	PE
C	...	6	59.34.2220 22pF	CER
C	...	11	59.26.0470 47 $\mu$ F 6,3V	SAL
C	...	12	59.32.4102 1000p	CER
C	...	13		
C	...	14	59.26.0470 47 $\mu$ F 6,3V	SAL
C	...	15	59.06.0102 1000pF	PE
C	...	16	59.26.0470 47 $\mu$ F 6,3V	SAL
C	...	17	59.26.2689 6,8 $\mu$ F 16V	SAL
C	...	18	59.26.2689 6,8 $\mu$ F 16V	SAL
C	...	19	59.06.0102 1000pF	PE
D	...	1	50.04.0125 1N4448	
D	...	2	50.04.0125 1N4448	
① D	...	3	50.04.0125 1N4448	
IC	...	1	50.05.0244 NE5534AN LOW NOISE OP AMP	SIG
IC	...	2	50.09.0106 NE5532AN DUAL LOW NOISE OP AMP	SIG
J	...	5	54.01.0021 JUMPER	
P			54.01.0273 13PIN CIS	
P (J5)			54.01.0020 PIN JUMPER PLUG	
Q	...	1	50.03.0350 J112 N-FET	
Q	...	2	50.03.0350 J112 N-FET	
R	...	1	57.11.4562 5,6k $\Omega$	
R	...	2	57.11.4103 10k $\Omega$	
R	...	3	57.11.4104 100k $\Omega$	
R	...	4	58.01.9202 2k $\Omega$ POT	
R	...	5	57.11.4560 56 $\Omega$	
R	...	11	57.11.4104 100k $\Omega$	
R	...	12	57.11.4332 3,3k $\Omega$	
R	...	13	57.11.4223 22k $\Omega$	
R	...	14	57.11.4333 33k $\Omega$ OPTIONAL (20dB ATT)	
R	...	15	57.11.4104 100k $\Omega$	
R	...	16	57.11.5106 10M $\Omega$	
R	...	17	57.11.5335 3,3M $\Omega$ 5%	
R	...	18	57.11.5335 3,3M $\Omega$ 5%	
R	...	19	57.11.4102 1k $\Omega$	
R	...	20	57.11.4223 22k $\Omega$	
R	...	21	58.01.9103 10k $\Omega$ POT	
R	...	22	57.11.4821 820 $\Omega$	
R	...	23	57.11.4104 100k $\Omega$	
R	...	24	57.11.4330 33 $\Omega$	
R	...	25	57.11.4332 3,3k $\Omega$	
R	...	26	57.99.0206 50 $\Omega$ PTC	PH
R	...	27	57.99.0206 50 $\Omega$ PTC	PH
R	...	28	57.11.4104 100k $\Omega$	
① W	...	1	57.11.4000 0 $\Omega$ LINK	
① W	...	2	57.11.4000 0 $\Omega$ LINK	
① W	...	3	57.11.4000 0 $\Omega$ LINK	
① W	...	4	57.11.4000 WIRE	

CER=Ceramic, PE=Polystyrene, SAL=Solid Aluminium, TA=Tantalum

MANUFACTURER: SIG=Signetics, PH=Philips

1.914.507.81 ELECTRET MIC AMP (Nr. 7)

FRI 19/04/85

1.914.507.81 ELECTRET MIC AMP (Nr. 7)

① FRI 14/10/85

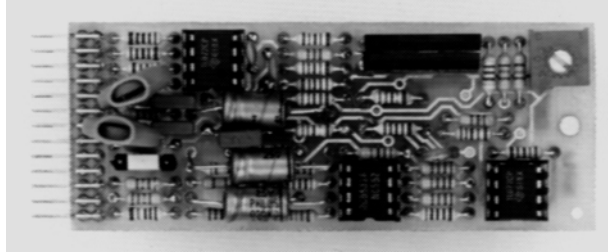
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## VCA with Electronically Balanced Connections

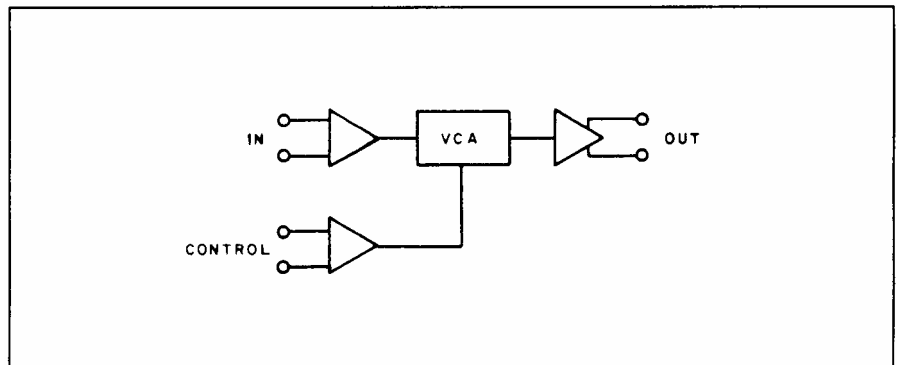
1.914.515

In contrast to the VCA module 1.914.518/528, this assembly features electronically balanced input and output.



It is intended for use in balanced audio systems for a variety of applications, especially when gain is to be controlled from a remote point. It will be useful in audio-video post-production work where suitable DC ramps can control cross-fades, voice-overs, etc. Its high overload margin and its exceptionally low noise and distortion performance make it the perfect choice for high-quality audio applications.

By connecting the gain control terminals of a number of VCAs to a common potentiometer or fader, several audio channels may thus be controlled simultaneously.

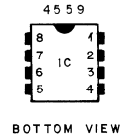
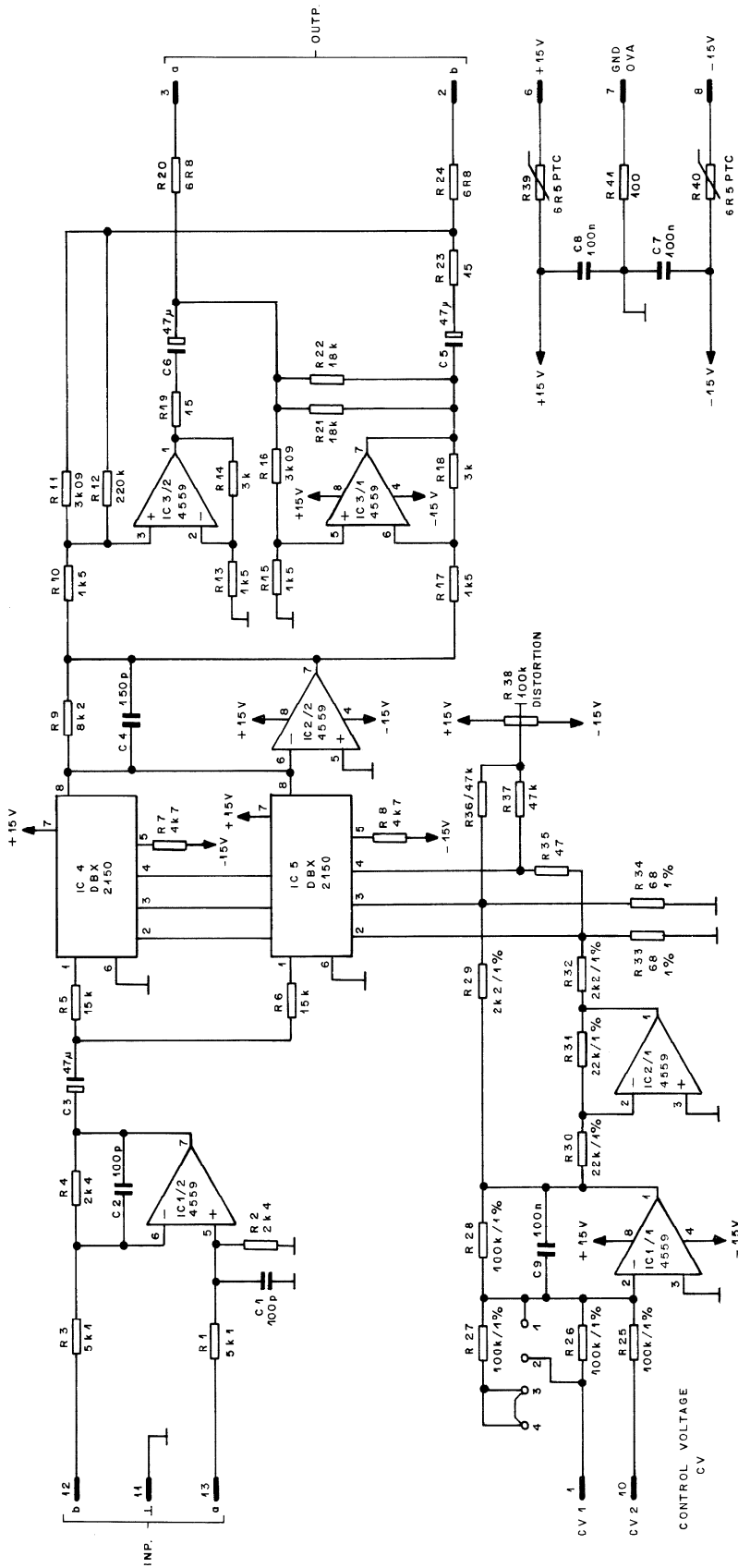


Two control inputs provide VCA gain control from two different remote points

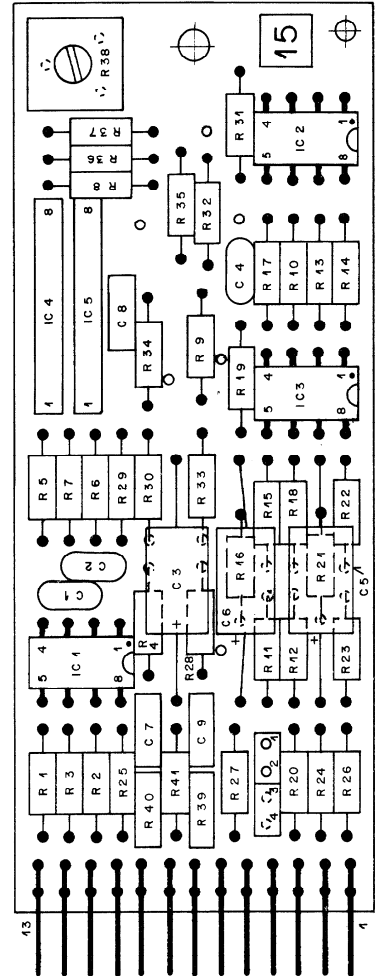
Technical Specifications

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<b>Input:</b>	Impedance	<b>≥ 10 kΩ</b> , electronically balanced
	Clipping point	<b>+24 dBu</b>
<b>Output:</b>		Electronically balanced
	Recommended load	<b>≥ 2 kΩ</b>
	Maximum level	<b>+24 dBu</b>
	Frequency response	<b>-0.5 dB</b> , 30 Hz...15 kHz
	Gain/attenuation range	<b>+40...-100 dB</b> , with ext. control
Control input: pin1; gain tracking		<b>0 V = unity gain;</b> <b>1 dB/μA</b> ; jumper 1-2 <b>20 dB/V</b> ; jumper 2-3 <b>10 dB/V</b> ; jumper 3-4
Control input: pin10; gain tracking		<b>10 dB/V</b>
	THD	<b>&lt; 0.1%</b>
	Equivalent input noise	<b>-93 dBu @ unity gain</b>
<b>Supply:</b>		<b>±15 V (25 mA)</b>
<b>Dimensions:</b>		<b>MS-card</b> , 34 × 85 mm
<b>Ordering Information:</b>	VCA with electronically balanced input and output	1.914.515.xx



CIS	PIN	EURO 32 PIN			
		(a)	(b)	(c)	(d)
INP a	13	1	7	24	27
INP b	12	2	8	22	28
+	11	3	9	23	29
CV 2	10	17	17	18	18
-15V	7	14			
OVA	7	45			
+15V	6	16			
	5				
	4				
OUT a	3	4	10	24	30
OUT b	2	5	11	25	31
CV 1	1	6	13	26	32



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STUDER REGENSDORF ZURICH	BAL. AMP. WITH VCA	1.914.515.00	

MSC VCA

Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

C.....1	59.34.4101	100 pF		CER	
C.....2	59.34.4101	100 pF		CER	
C.....3	59.25.3470	47 pF		ALU	
C.....4	59.34.4151	150 pF		CER	
C.....5	59.25.3470	47 pF		ALU	
C.....6	59.25.3470	47 pF		ALU	
C.....7	59.06.5104	100 nF		PE	
C.....8	59.06.5104	100 nF		PE	
C.....9	59.06.5104	100 nF		PE	
JS....1	54.01.0020		JUMPER PLUG 4-PIN		
JP....1	54.01.0021		JUMPER JACK		
IC....1	50.09.0107	RC4559	dual op. amp.		Ra, NE
IC....2	50.09.0107	RC4559	dual op. amp.		Ra, NE
IC....3	50.09.0107	RC4559	dual op. amp.		Ra, NE
IC....4	50.11.0140	2150A	VCA		DBX
IC....5	50.11.0140	2150A	VCA		DBX
P.....1	54.01.0273	13 PIN		CIS	
R.....1	57.11.3512	5.1 kOhm	1% 0.25W	MF	
R.....2	57.11.3242	2.4 kOhm	1% 0.25W	MF	
R.....3	57.11.3512	5.1 kOhm	1% 0.25W	MF	
R.....4	57.11.3242	2.4 kOhm	1% 0.25W	MF	
R.....5	57.11.3153	15 kOhm	1% 0.25W	MF	
R.....6	57.11.3153	15 kOhm	1% 0.25W	MF	
R.....7	57.11.4472	4.7 kOhm	5% 0.25W	MF	
R.....8	57.11.4472	4.7 kOhm	5% 0.25W	MF	
R.....9	57.11.3822	8.2 kOhm	1% 0.25W	MF	
R.....10	57.11.3152	1.5 kOhm	1% 0.25W	MF	
R.....11	57.39.3091	3.09kOhm	1% 0.25W	MF	
R.....12	57.11.4224	220 kOhm	2% 0.25W	MF	
R.....13	57.11.3152	1.5 kOhm	1% 0.25W	MF	
R.....14	57.11.3302	3.0 kOhm	1% 0.25W	MF	
R.....15	57.11.3152	1.5 kOhm	1% 0.25W	MF	
R.....16	57.39.3091	3.09kOhm	1% 0.25W	MF	
R.....17	57.11.3152	1.5 kOhm	1% 0.25W	MF	
R.....18	57.11.3302	3.0 kOhm	1% 0.25W	MF	
R.....19	57.11.3150	15 Ohm	1% 0.25W	MF	
R.....20	57.11.3689	6.8 Ohm	1% 0.25W	MF	
R....21	57.11.3183	18 kOhm	1% 0.25W	MF	
R....22	57.11.3183	18 kOhm	1% 0.25W	MF	
R....23	57.11.3150	15 Ohm	1% 0.25W	MF	
R....24	57.11.3689	6.8 Ohm	2% 0.25W	MF	
R....25	57.11.3104	100 kOhm	1% 0.25W	MF	
R....26	57.11.3104	100 kOhm	1% 0.25W	MF	
R....27	57.11.3104	100 kOhm	1% 0.25W	MF	
R....28	57.11.3104	100 kOhm	1% 0.25W	MF	
R....29	57.11.3222	2.2 kOhm	1% 0.25W	MF	
R....30	57.11.3223	22 kOhm	1% 0.25W	MF	
R....31	57.11.3223	22 kOhm	1% 0.25W	MF	
R....32	57.11.3222	2.2 kOhm	1% 0.25W	MF	
R....33	57.11.3680	68 Ohm	1% 0.25W	MF	
R....34	57.11.3680	68 Ohm	1% 0.25W	MF	
R....35	57.11.4470	47 Ohm	2% 0.25W	MF	
R....36	57.11.4473	47 kOhm	2% 0.25W	MF	
R....37	57.11.4473	47 kOhm	2% 0.25W	MF	
R....38	58.01.8104	100 kOhm	10% 0.5 W	PMG trimming resistor	
R....39	57.92.1271	6.5 Ohm	PTC	Philips Nr.2322	662 12711
01 R....39	57.92.7013	0.75 Ohm	I-Hold 0.5A	R-PTC	
R....40	57.92.1271	6.5 Ohm	PTC	Philips Nr.2322	662 12711
01 R....40	57.92.7013	0.75 Ohm	I-Hold 0.5A	R-PTC	
R....41	57.11.4101	100 Ohm	2% 0.25W	MF	

(01) 89/11/02 - Improvement of distance PTC - R

CER=Ceramic, PE=Polyester, SAL=Solid Aluminium  
MF=Metal Film, PMG=Cermet

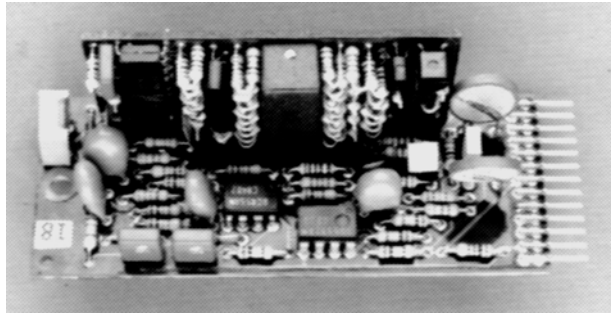
MANUFACTURER: Ex=Exar, NE=NEC, Ph=Philips, Ra=Raytheon,  
Sig=Signetics, St=Studer,

1.914.515.00 BAL AMP WITH VCA SE 87/07/0100  
1.914.515.00 BAL AMP WITH VCA TA 89/11/0201

## VCA with 1 or 3 Control Ports

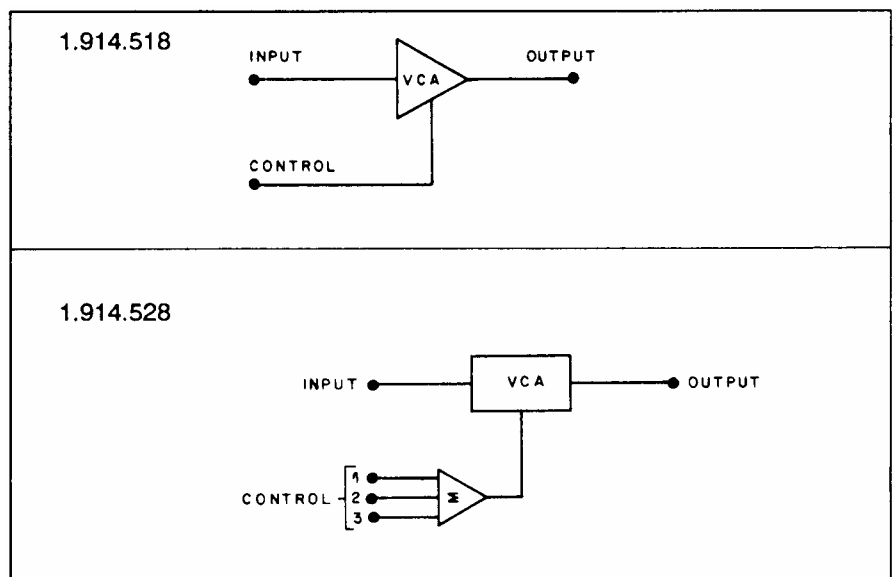
1.914.518/528

Within the range of modular sub-cards, two more VCAs are available. Voltage controlled amplifiers are ideally suited for applications such as remote level control, level limiting (in combination with the voltage processor 1.914.519) or for automatic “voice-over” circuits, when driven by suitable ramp generators. These VCAs offer outstandingly low noise and harmonic distortion.



For best performance, they should be operated at a level of 0 dBu. Gain pre-selection is possible on the 1.914.518 version, allowing gain/attenuation ranges either from +10 to -90 dB or from +40 to -70 dB, using an external potentiometer.

The 1.914.528 VCA card differs in that it is equipped with three external control inputs, providing gain control from three different locations.

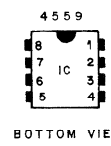
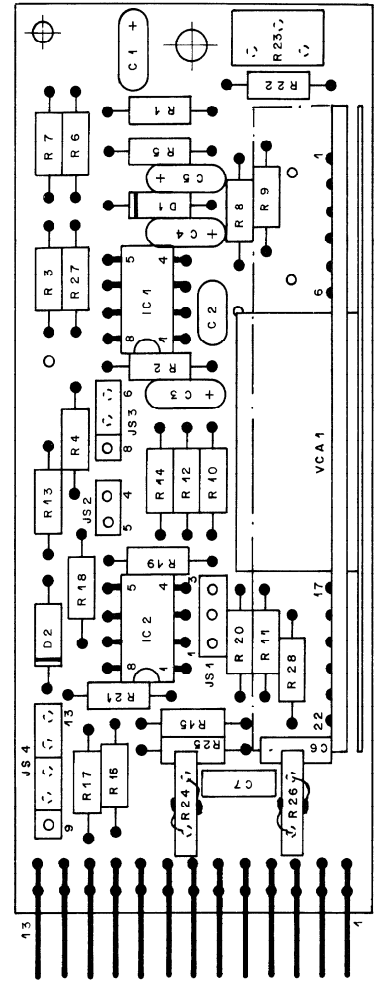
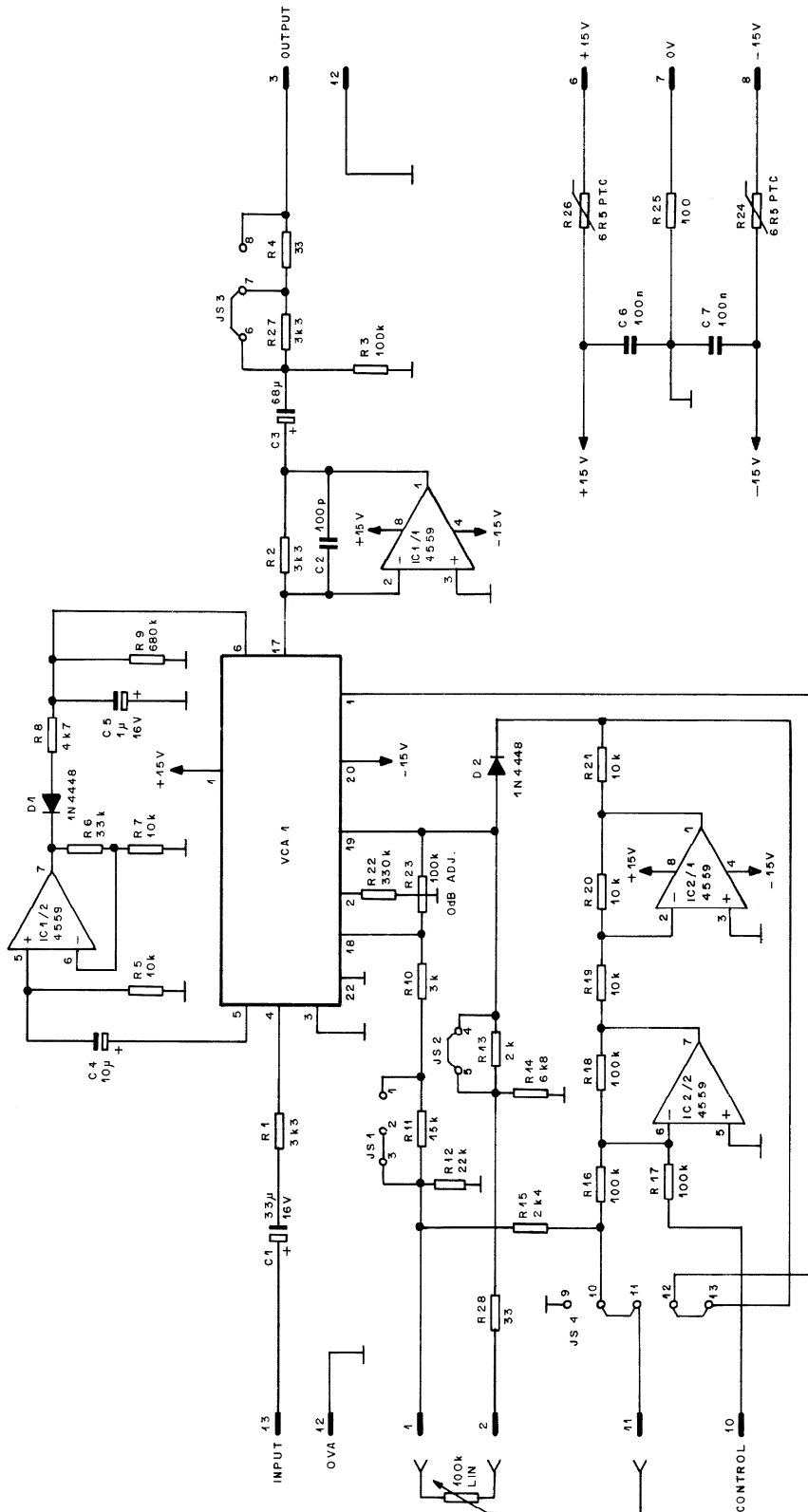


Technical Specifications

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<b>Input:</b>	Impedance	> <b>3 k<math>\Omega</math></b>	
	Clipping point	<b>+20 dBu</b>	
<b>Output:</b>	Impedance	<b>33 <math>\Omega</math> or 3.3 k<math>\Omega</math></b> , selectable	
	Max. level	<b>+20 dBu</b>	
	Recommended load	<b><math>\geq 2</math> k<math>\Omega</math></b>	
	Frequency response	<b>-0.5 dB</b> , 30 Hz...16 kHz	
	External gain control	<b>+40...-90 dB</b> (1.914.518.xx) <b>+40...-100 dB</b> (1.914.528.xx)	
Gain/attenuation range (pot. meter)		<b>+40...-60 dB / +10...-70 dB / +10...-90 dB</b> (1.914.518.xx only, jumper-selectable)	
	Gain tracking	<b>10 dB/V</b>	
	THD	<b>&lt; 0.1%</b>	
	Equivalent input noise	<b>-102 dBu</b>	
<b>Supply:</b>		<b><math>\pm 15</math> V</b> (40 mA)	
<b>Dimensions:</b>		<b>MS-card</b> , 34 $\times$ 85 mm	
<b>Ordering Information:</b>	Voltage controlled amplifier with 1 control port		1.914.518.xx
	Voltage controlled amplifier with 3 control ports		1.914.528.xx





BOTTOM VIEW

CIS	PIN			
	(1)	(2)	(3)	(4)
INPUT	13	1	7	21
L(INP./OUTP.)	12	2	8	22
LIN POT TAP	11	3	9	23
LEVEL CONTR.	10	17	17	48
-15V	9	14		
0V	7	15		
+15V	5	16		
OUTPUT	3	4	10	24
LIN POT 100k	2	5	11	25
LIN POT 100k	1	6	13	26

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STUDER REGENSDORF ZÜRICH	VCA UNIT		1.914.518.81

MSC VCA

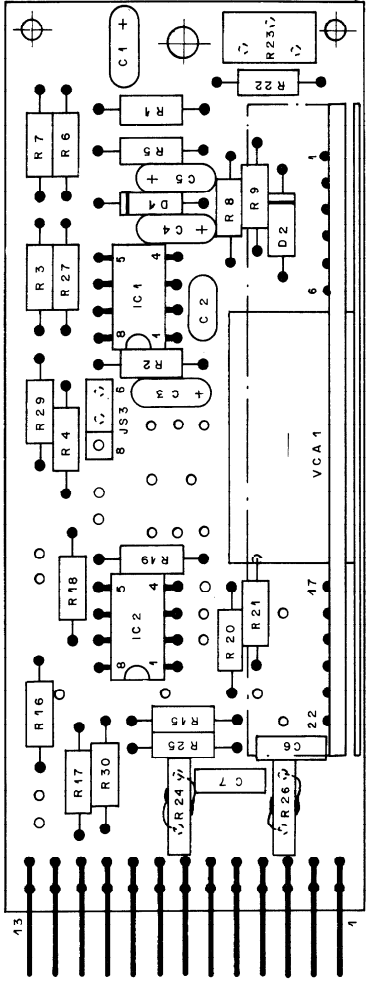
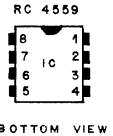
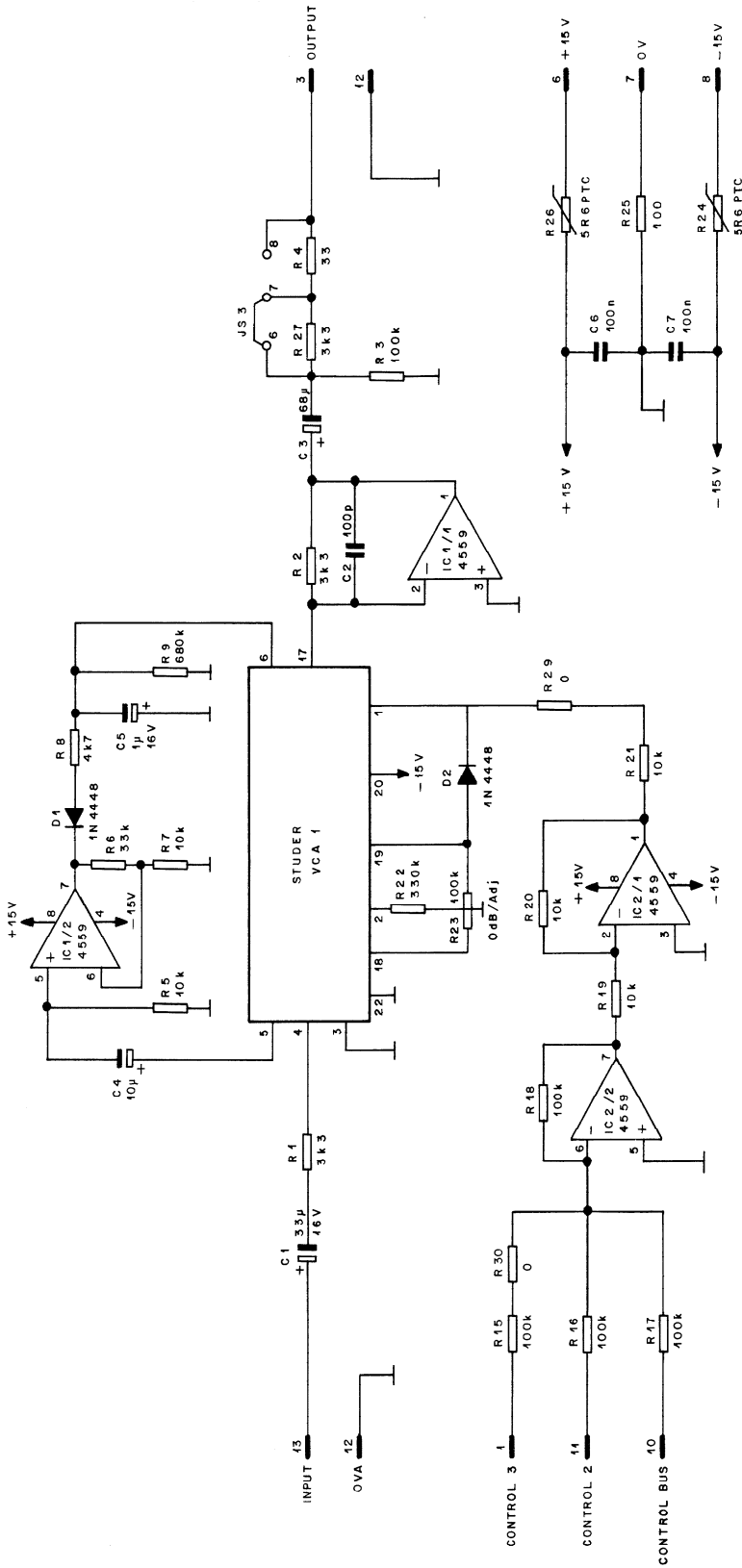
Ad	POS	REF.No	DESCRIPTION	MANUFACTURER
	A....1	1.010.110.50	Studer VCA	St
01	A....1	1.911.290.00	VCA-BOARD	St
02	A....1	1.911.290.81	VCA BOARD	St
	C....1	59.26.1330	33 uF	SAL
	C....2	59.34.4101	100 pF	CER
	C....3	59.26.0680	68 uF	SAL
	C....4	59.26.2100	10 uF	SAL
	C....5	59.26.9109	1 uF	SAL
	C....6	59.06.5104	100 nF	PE
	C....7	59.06.5104	100 nF	PE
	D....1	50.04.0125	1N4448	any
	D....2	50.04.0125	1N4448	any
	JS....1	54.01.0020	JUMPER PLUG 3-PIN	
	JS....2	54.01.0020	JUMPER PLUG 2-PIN	
	JS....3	54.01.0020	JUMPER PLUG 3-PIN	
	JS....4	54.01.0020	JUMPER PLUG 5-PIN	
	JP....1	54.01.0021	JUMPER JACK	
	JP....2	54.01.0021	JUMPER JACK	
	JP....3	54.01.0021	JUMPER JACK	
	JP....4	54.01.0021	JUMPER JACK	
	IC....1	50.09.0107	RC4559	dual op. amp.
	IC....2	50.09.0107	RC4559	dual op. amp.
	P....1	54.01.0273	13 PIN	CIS
	R....1	57.11.4332	3.3 kOhm	5% 0.25W MF
	R....2	57.11.4332	3.3 kOhm	5% 0.25W MF
	R....3	57.11.4104	100 kOhm	5% 0.25W MF
	R....4	57.11.4330	33 Ohm	5% 0.25W MF
	R....5	57.11.4103	10 kOhm	5% 0.25W MF
	R....6	57.11.4333	33 kOhm	5% 0.25W MF
	R....7	57.11.4103	10 kOhm	5% 0.25W MF
	R....8	57.11.4472	4.7 kOhm	5% 0.25W MF
	R....9	57.11.4684	680 kOhm	5% 0.25W MF
	R....10	57.11.3302	3.0 kOhm	2% 0.25W MF
	R....11	57.11.4153	15 kOhm	2% 0.25W MF
	R....12	57.11.3242	2.4 kOhm	2% 0.25W MF
	R....13	57.11.3202	2 kOhm	2% 0.25W MF
	R....14	57.11.4682	6.8 kOhm	5% 0.25W MF
	R....15	57.11.4223	22 kOhm	5% 0.25W MF
	R....16	57.11.4104	100 kOhm	2% 0.25W MF
	R....17	57.11.4104	100 kOhm	2% 0.25W MF
	R....18	57.11.4104	100 kOhm	2% 0.25W MF
	R....19	57.11.4103	10 kOhm	2% 0.25W MF
	R....20	57.11.4103	10 kOhm	2% 0.25W MF
	R....21	57.11.4103	10 kOhm	5% 0.25W MF
	R....22	57.11.4334	330 kOhm	5% 0.25W MF
	R....23	58.01.9104	100 kOhm	10% 0.5 W PMG trimming resistor
	R....24	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711
	R....25	57.11.4101	100 Ohm	5% 0.25W MF
	R....26	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711
	R....27	57.11.4332	3.3 kOhm	5% 0.25W MF
	R....28	57.11.4330	33 Ohm	5% 0.25W MF

- (1) 89/01/13 A1 VCA 1.010.110.50 replaced by 1.911.290.00
- (2) 90/01/17 A1 VCA 1.911.290.00 replaced by 1.911.290.81

CER=Ceramic, PE=Polyester, SAL=Solid Aluminium Lacquard  
 MF=Metal Film, PMG=Cermet

MANUFACTURER: Ex=Exar, NE=NEC, Ph=Philips, Ra=Raytheon,  
 Sig=Signetics, St=Studer,

1.914.518.81	VCA UNIT	SE 86/11/0500
1.914.518.81	VCA UNIT	SE 89/01/1301
1.914.518.81	VCA UNIT	WY 90/01/1702



CIS	PIN	EURO 32 PIN			
		(a)	(b)	(c)	(d)
INPUT	13	1	7	21	27
┘ IN / OUT	12	2	8	22	28
CONTROL 2	11	3	9	23	29
CONTROL BUS	40	17	17	18	18
- 15V	9				
0V	8	14			
+ 15V	7	15			
	6	16			
	5				
	4				
OUTPUT	3	4	10	24	30
	2	5	11	25	31
CONTROL 3	1	6	13	26	32

<p>STUDER REGENSDORF ZÜRICH</p>	VCA UNIT / 3 CONTROL	1.914.528.00
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VCA MSC

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
A....1	1.010.110.50		Studer VCA	St
01 A....1	1.911.290.00		VCA-BOARD	St
02 A....1	1.911.290.81		VCA-BOARD	St
C....1	59.26.1330	33 uF	SAL	
C....2	59.34.4101	100 pF	CER	
C....3	59.26.0680	68 uF	SAL	
C....4	59.26.2100	10 uF	SAL	
C....5	59.26.9109	1 uF	SAL	
C....6	59.06.5104	100 nF	PE	
C....7	59.06.5104	100 nF	PE	
D....1	50.04.0125	1N4448		any
D....2	50.04.0125	1N4448		any
JS...3	54.01.0020		JUMPER PLUG 3-PIN	
JP...1	54.01.0021		JUMPER JACK	
IC...1	50.09.0107	RC4559	dual op. amp.	Ra,NE
IC...2	50.09.0107	RC4559	dual op. amp.	Ra,NE
P....1	54.01.0273	13 PIN	CIS	
R....1	57.11.4332	3.3 kOhm	5% 0.25W MF	
R....2	57.11.4332	3.3 kOhm	5% 0.25W MF	
R....3	57.11.4104	100 kOhm	5% 0.25W MF	
R....4	57.11.4330	33 Ohm	5% 0.25W MF	
R....5	57.11.4103	10 kOhm	5% 0.25W MF	
R....6	57.11.4333	33 kOhm	5% 0.25W MF	
R....7	57.11.4103	10 kOhm	5% 0.25W MF	
R....8	57.11.4472	4.7 kOhm	5% 0.25W MF	
R....9	57.11.4684	680 kOhm	5% 0.25W MF	
R...15	57.11.4104	100 kOhm	2% 0.25W MF	
R...16	57.11.4104	100 kOhm	2% 0.25W MF	
R...17	57.11.4104	100 kOhm	2% 0.25W MF	
R...18	57.11.4104	100 kOhm	2% 0.25W MF	
R...19	57.11.4103	10 kOhm	2% 0.25W MF	
R...20	57.11.4103	10 kOhm	2% 0.25W MF	
R...21	57.11.4103	10 kOhm	5% 0.25W MF	
R...22	57.11.4334	330 kOhm	5% 0.25W MF	
R...23	58.01.9104	100 kOhm	10% 0.5 W PMG trimming resistor	
R...24	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711	
R...25	57.11.4101	100 Ohm	5% 0.25W MF	
R...26	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711	
R...27	57.11.4332	3.3 kOhm	5% 0.25W MF	
R...29	57.11.4000	0 Ohm		
R...30	57.11.4000	0 Ohm		

- (1) 89/01/13 A1 VCA 1.010.110.50 replaced by 1.911.290.00
- (2) 90/01/17 A1 VCA 1.911.290.00 replaced by 1.911.290.81

CER=Ceramic, PE=Polyester, SAL=Solid Aluminium  
 MF=Metal Film, PMG=Cermet

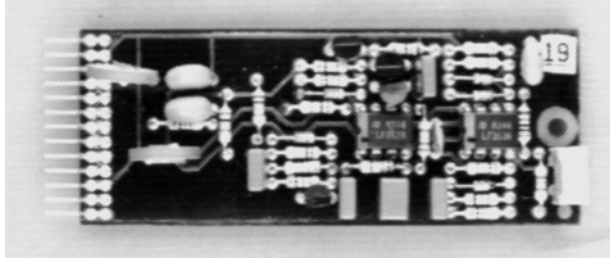
MANUFACTURER: Ex=Exar, NE=NEC, Ph=Philips, Ra=Raytheon,  
 Sig=Signetics, St=Studer.

1.914.528.00	VCA UNIT / 3 CONTROL	SE 86/10/2800
1.914.528.00	VCA UNIT / 3 CONTROL	SE 89/01/1301
1.914.528.00	VCA UNIT / 3 CONTROL	WY 90/01/1702

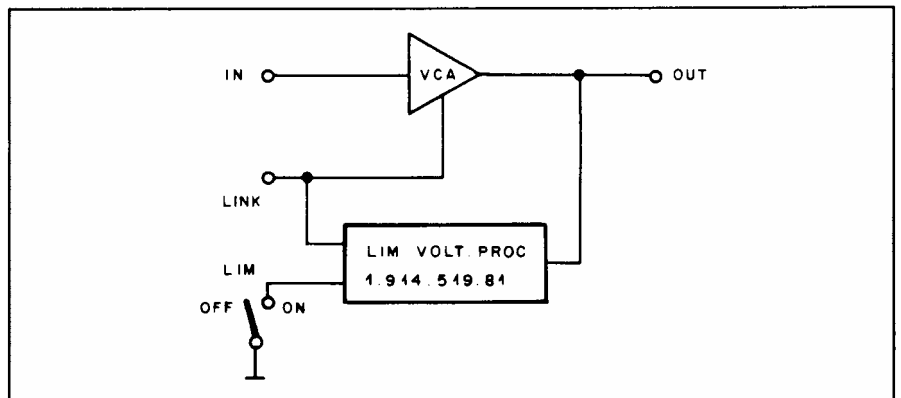
## Limiter Voltage Processor

1.914.519

Together with this voltage processor, the VCAs 1.914.518/528 can perform as signal level limiters.



The processor's threshold can be set within a wide range of levels, so that limiting action becomes effective at a desired level within a range of  $-15$  to  $+15$  dBu. Limiting action attacks within 1 ms, whereas release can vary from 50 ms to 5 s, depending on the program's energy content. This means that no audible "pumping" action – which is often associated with such a device – will occur. After the cessation of loud passages, amplification will recover only slowly. For stereo applications, a two-channel set-up (VCAs and voltage processor) can be linked, so that identical amounts of gain reduction will take place simultaneously in both channels.

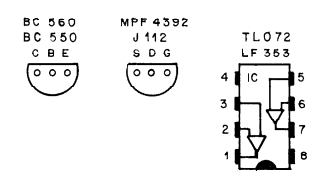
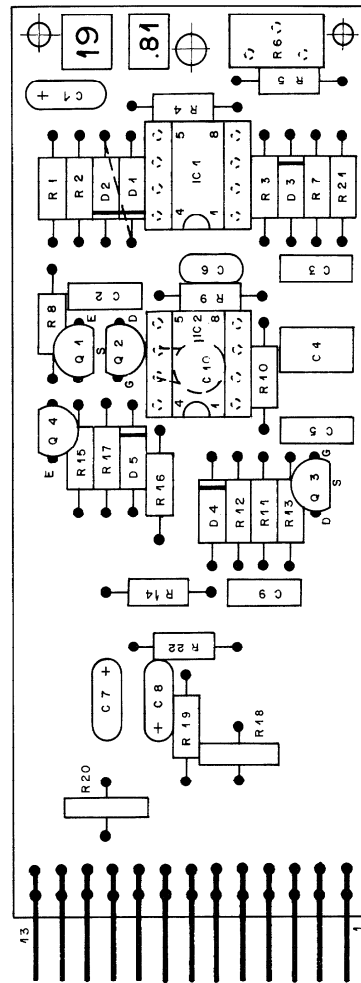
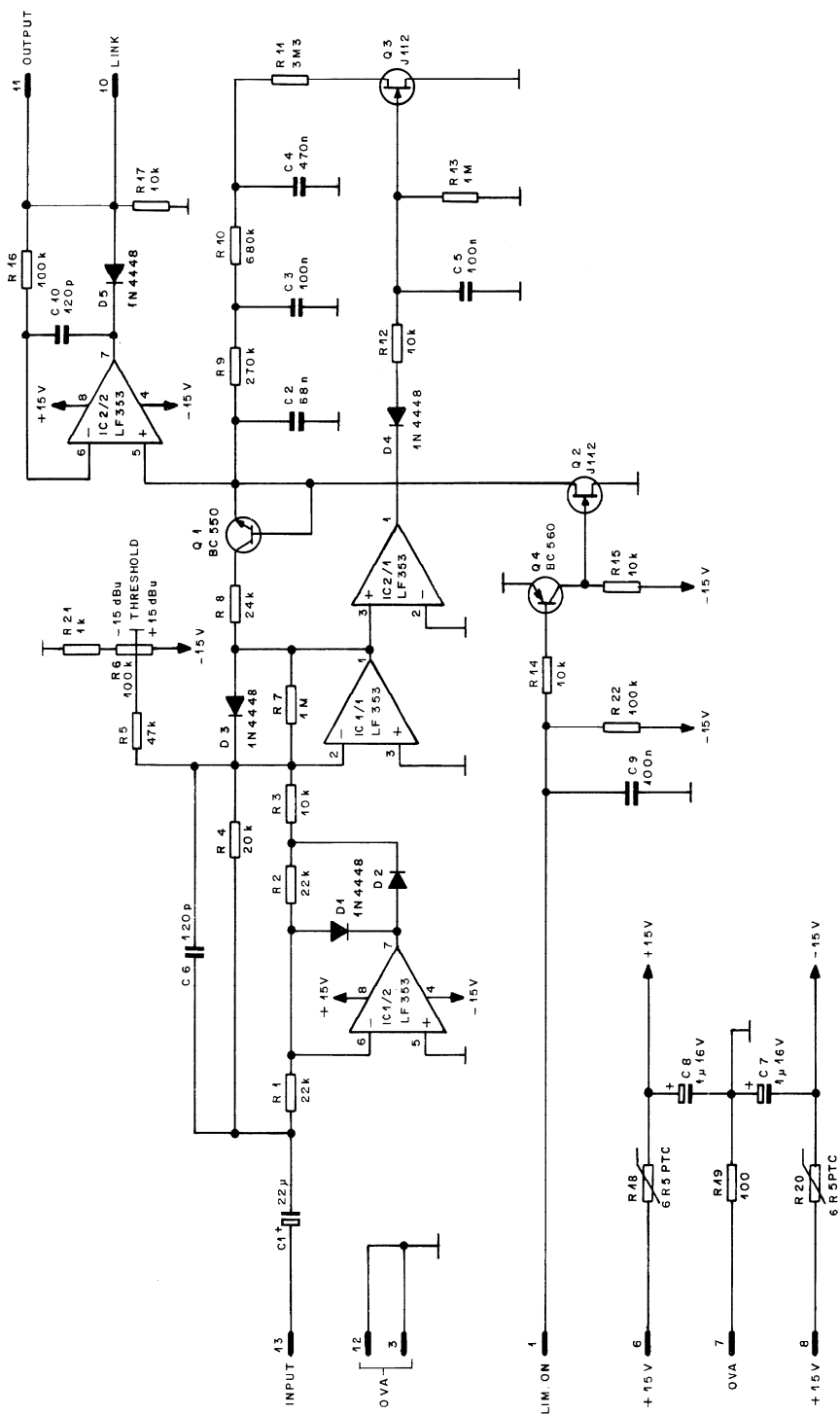


The input of the voltage processor has to be wired to the output of the VCA. The processor's output, when connected to the VCA's control terminal, will effect the necessary gain reduction so that a limiting characteristic is obtained. The limiting threshold is adjustable in a wide range. Remote on/off switching of the limiter function is possible.

Technical Specifications

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<b>Limiter:</b>	Input impedance	<b><math>\geq 10 \text{ k}\Omega</math></b>	
	Max. input level	<b>+20 dBu</b>	
	Frequency range	<b>30 Hz...16 kHz</b>	
	Output voltage	<b>0...-13 V<sub>DC</sub></b>	
	Threshold level	<b>-15 dBu...+15 dBu</b>	
	Attack time	<b>1 ms</b>	
	Release time	<b>50 ms...5 s, program-dependent</b>	
	Compression ratio	<b>20:1, in conjunction with a VCA</b>	
<b>Supply:</b>		<b><math>\pm 15 \text{ V}</math> (10 mA)</b>	
<b>Dimensions:</b>		<b>MS-card, 34 × 85 mm</b>	
<b>Ordering Information:</b>	Limiting voltage processor		1.914.519.xx



BOTTOM VIEW

CIS	PIN	EURO 32 PIN			
		(A)	(B)	(C)	(D)
INPUT	13	1	7	21	27
I (INP./OUTP.)	12	2	8	22	28
OUTPUT	11	3	9	23	29
LINK	10	17	17	18	18
	9				
-15 V	8				
0V	7				
+15 V	6				
	5				
	4				
L (LIM ON)	3	4	10	24	30
	2	5	11	25	31
LIM ON	1	6	13	26	32

© 16.9.94				
<b>STUDER</b> REGENSDORF ZÜRICH	<b>LIMITER VOLTAGE PROCESSOR</b>			1.914.519.81

MSC LIMITER

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
C.....1	59.26.1220	22 uF	SAL	
C.....2	59.06.0683	68 nF	PE	
C.....3	59.06.5104	100 nF	PE	
C.....4	59.06.5474	470 nF	PE	
C.....5	59.06.5104	100 nF	PE	
C.....6	59.34.4121	120 pF	CER	
C.....7	59.26.9109	1 uF	SAL	
C.....8	59.26.9109	1 uF	SAL	
C.....9	59.06.5104	100 nF	PE	
C.....10	59.34.4121	120 pF	CER	
D.....1	50.04.0125	1N4448		any
D.....2	50.04.0125	1N4448		any
D.....3	50.04.0125	1N4448		any
D.....4	50.04.0125	1N4448		any
D.....5	50.04.0125	1N4448		any
IC.....1	50.09.0101	TL 072	dual op. amp. low noise	NS, TI
IC.....2	50.09.0101	TL 072	dual op. amp. low noise	NS, TI
P.....1	54.01.0273	13 PIN	CIS	
Q.....1	50.03.0497	BC 550	NPN IC>100mA, B>100	any
Q.....2	50.03.0350	J 112	N-JFET	NS, Mot, Six
Q.....3	50.03.0350	J 112	N-JFET	NS, Mot, Six
Q.....4	50.03.0496	BC 560	PNP IC>100mA, B>100	any
R.....1	57.11.4223	22 kOhm	2% 0.25W MF	
R.....2	57.11.4223	22 kOhm	2% 0.25W MF	
R.....3	57.11.4103	10 kOhm	2% 0.25W MF	
R.....4	57.11.3203	20 kOhm	2% 0.25W MF	
R.....5	57.11.4473	47 kOhm	5% 0.25W MF	
R.....6	58.01.9104	100 kOhm	10% 0.50W PMG trimming resistor	
R.....7	57.11.4106	1 MOhm	5% 0.25W MF	
R.....8	57.11.3243	24 kOhm	5% 0.25W MF	
R.....9	57.11.4274	270 kOhm	5% 0.25W MF	
R.....10	57.11.4684	680 kOhm	5% 0.25W MF	
R.....11	57.11.4335	3.3 MOhm	5% 0.25W MF	
R.....12	57.11.4103	10 kOhm	5% 0.25W MF	
R.....13	57.11.4105	1 MOhm	5% 0.25W MF	
R.....14	57.11.4103	10 kOhm	5% 0.25W MF	
R.....15	57.11.4103	10 kOhm	5% 0.25W MF	
R.....16	57.11.4104	100 kOhm	5% 0.25W MF	
R.....17	57.11.4103	10 kOhm	5% 0.25W MF	
R.....18	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711	
R.....19	57.11.4101	100 Ohm	5% 0.25W MF	
R.....20	57.92.1271	6.5 Ohm	PTC Philips Nr.2322 662 12711	
R.....21	57.11.4102	1 kOhm	5% 0.25W MF	
R.....22	57.11.4104	100 kOhm	5% 0.25W MF	

CER=Ceramic, PE=Polyester, SAL=Solid Aluminium  
 MF=Metal Film, PMG=Cermet

MANUFACTURER: Mot=Motorola, NS=National Semiconductors  
 Six=Siliconix, TI=Texas Instruments

1.914.519.81 LIM VOLTAGE PROCESSOR WM 86.21.1100



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**1900 Hz Signal Generator**

1.914.520

This signal generator produces a stable frequency of 1900 Hz to establish communication on outside broadcast lines, as specified in the EBU/CCIR recommendations.



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**Technical Specifications**

Frequency	<b>1900 Hz</b> (adjustable)
Distortion	<b>&lt; 1%</b>
Output level	<b>-15...+6 dBu</b> (adjustable)
Output	<b>balanced and floating</b>
Output Impedance, out 1	<b>&lt; 15 Ω</b>
out 2	<b>600 Ω</b>
Minimum load	<b>200 Ω</b>

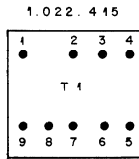
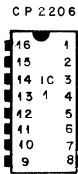
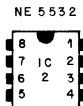
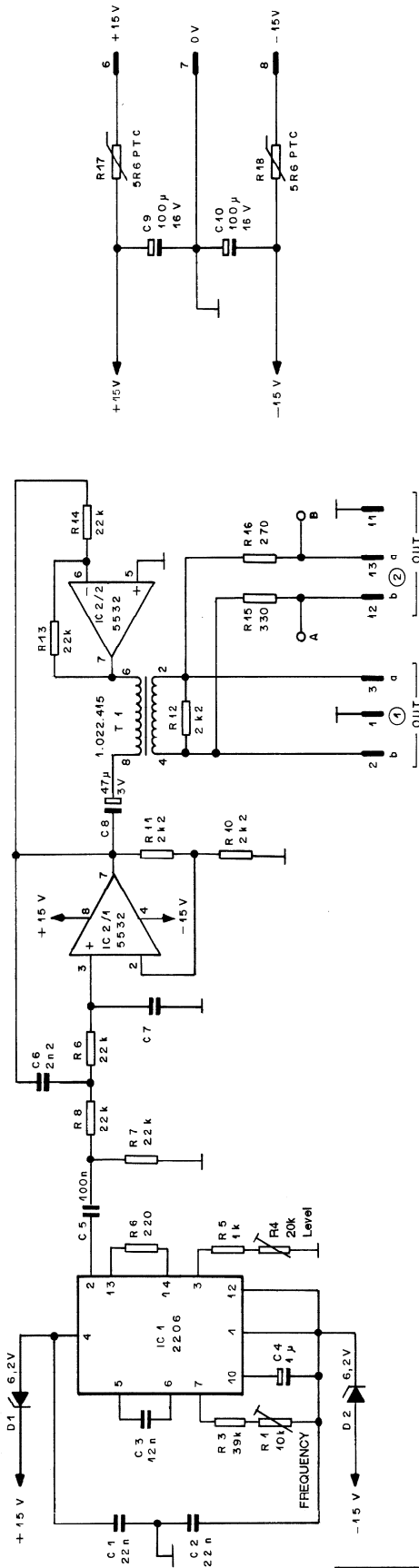
**Supply:** ±15 V (20 mA)

**Dimensions:** MS-card, 34 × 85 mm

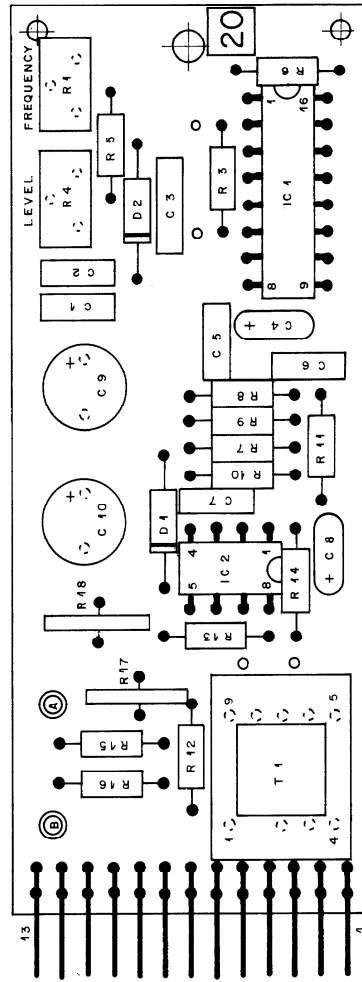
**Ordering Information:** 1900 Hz signal generator

1.914.520.xx

MSC 1900 HZ GENERATOR



CIS	PIN	EURO 32 PIN			
		(a)	(b)	(c)	(d)
OUT a	13	1	7	24	27
OUT b	12	2	8	22	28
L	11	3	9	23	29
	10				
	9				
-15 V	8	14			
0 V	7	15			
+15 V	6	16			
	5				
	4				
OUT a	3	4	10	24	30
OUT b	2	5	11	25	31
L	1	6	13	26	32



18.9.91			
STUDER REGENSDORF ZÜRICH	SIGNAL GENERATOR (NR. 20)	1.914.520.00	

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	
C	...	1	59.06.0223	0,022µF PE	
C	...	2	59.06.0223	0,022µF PE	
C	...	3	59.99.0220	0,012µF PE	
C	...	4	59.26.9109	1µF 40V	
C	...	5	59.06.0104	0,1µF	
C	...	6	59.06.5222	2200pF PE	
C	...	7	59.06.5222	2200pF PE	
C	...	8	59.26.0470	47µF 6,3V SAL	
C	...	9	59.22.4101	100µF 16V EL	
C	...	10	59.22.4101	100µF 16V EL	
D	...	1	50.04.1511	6,2V 1,3W Zener	
D	...	2	50.04.1511	6,2V 1,3W Zener	
IC	...	1	50.11.0108	2206CP DIL 16	
IC	...	2	50.09.0105	NE5532 DIP 8	
P	...		54.01.0273	13P CIS	
R	...	1	58.01.9103	10kΩ TRIM	
R	...	3	57.11.4393	39kΩ	
R	...	4	58.01.9203	20kΩ TRIM	
R	...	5	57.11.4102	1kΩ	
⓪	R	...	6	57.11.4221	220kΩ
R	...	7	57.11.4223	22kΩ	
R	...	8	57.11.4223	22kΩ	
R	...	9	57.11.4223	22kΩ	
R	...	10	57.11.4222	2,2kΩ	
R	...	11	57.11.4222	2,2kΩ	
R	...	12	57.11.4222	2,2kΩ	
R	...	13	57.11.4223	22kΩ	
R	...	14	57.11.4223	22kΩ	
⓪	R	...	15	57.11.4331	330kΩ
⓪	R	...	16	57.11.4271	270kΩ
R	...	17	57.99.0209	5,6kΩ 2322 662 91005	
R	...	18	57.99.0209	5,6kΩ 2322 662 91005	
T	...	1	1.022.415.00	1:2	

PE=Polyester, SAL=Solid Aluminium, EL=Electrolytic

MANUFACTURER: EX=Exar, SIG=Signetics, ST=Studer, PH=Philips

1.914.520.00 SIGNAL GENERATOR (Nr. 20) P. Casutt 14/07/83

1.914.520.00 SIGNAL GENERATOR (Nr. 20) ⓪ FRI 01/09/83

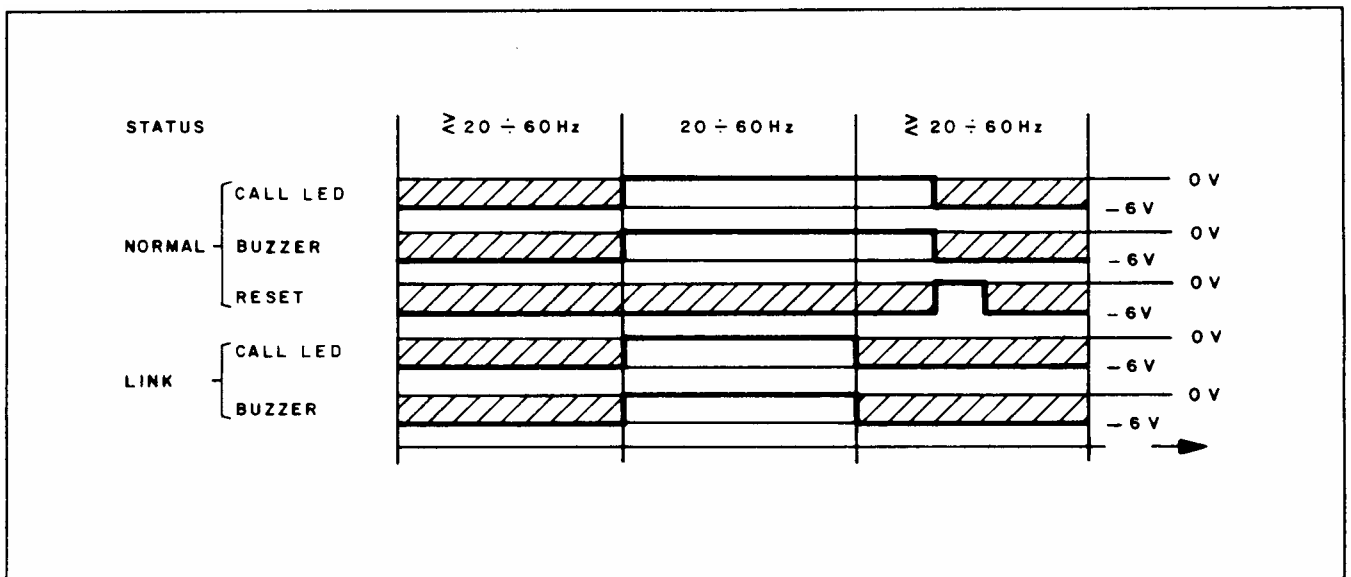
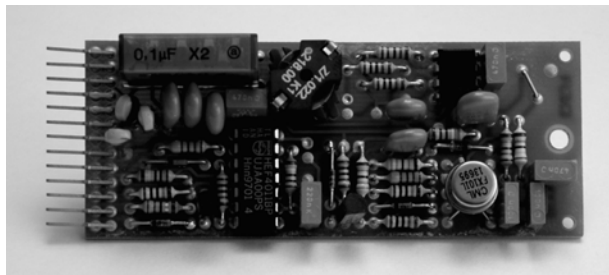
END

→

Call Decoder 20...60 Hz

1.914.521

This assembly features a call receiver for the ringing frequency on telephone lines (20...60 Hz). The receiver can activate an optical and/or an acoustical signal generated by an external buzzer (not supplied). In normal mode the buzzer will be on until reset. In linked mode the signal lasts only as long as a call is detected.



Technical Specifications

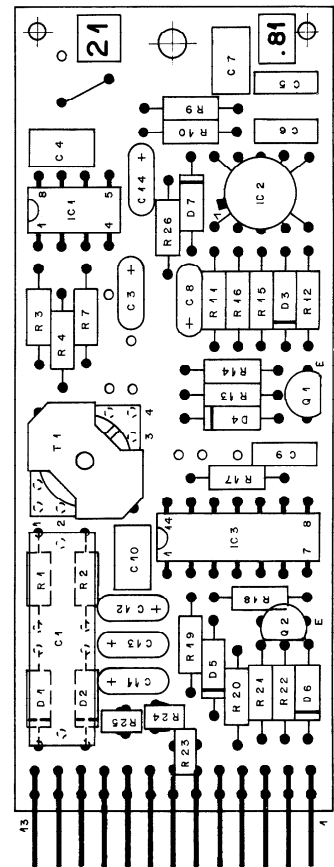
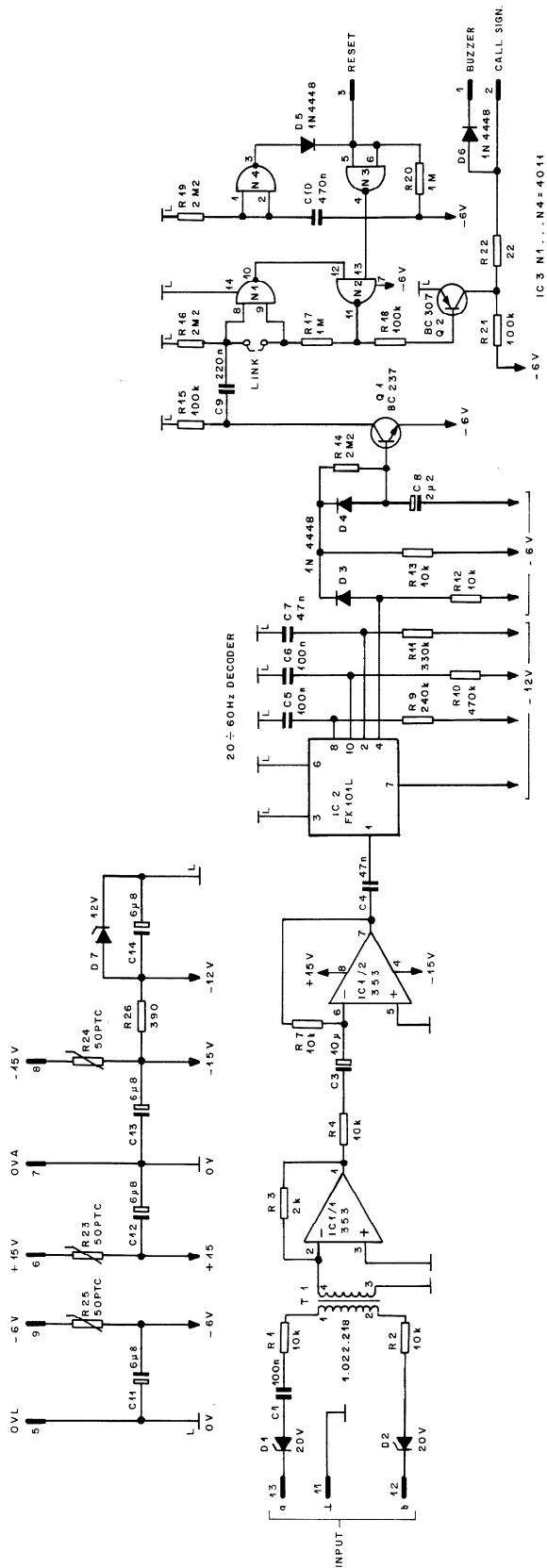
**Input:** **balanced, floating; no DC**  
 Impedance **> 20 kΩ**  
 Frequency **20...60 Hz**  
 Min. level **17 V<sub>rms</sub>**  
 Nominal level **70 V<sub>rms</sub>**

**Supply:** **+15 V (5 mA); -15 V (10 mA); -6 V (2 mA)**

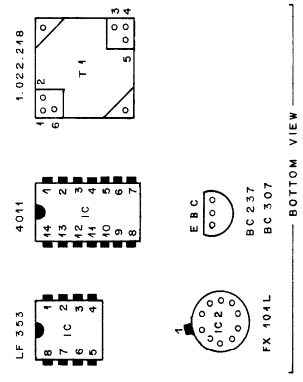
**Dimensions:** **MS-card, 34 × 85 mm**

**Ordering Information:** **Call decoder 20...60 Hz**

1.914.521.xx



CIS	PIN	EURO 32-PIN
INPUT a	13	1
INPUT b	12	2
-6V	11	3
0V	10	4
+6V	9	5
RESET	8	6
CALL SIGN	7	7
BUZZER	6	8



21.9.94	STUDER REGENSDORF ZÜRICH	20 ÷ 60 Hz DECODER (NR. 21)	1.914.521.00
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MSC CALL DECODER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C	...	1	59.99.0453 0,1µF 250V Rifa	MP
C	...	3	59.26.2100 10µF 16V	SAL
C	...	4	59.06.5474 0,47µF	PE
C	...	5	59.06.5104 0,1µF	PE
C	...	6	59.06.5104 0,1µF	PE
C	...	7	59.06.5474 0,47µF	PE
C	...	8	59.26.5229 2,2µF 25V	SAL
C	...	9	59.06.0224 0,22µF	PE
C	...	10	59.06.5474 0,47µF	PE
C	...	11	59.26.2689 6,8µF 16V	SAL
C	...	12	59.26.2689 6,8µF 16V	SAL
C	...	13	59.26.2689 6,8µF 16V	SAL
C	...	14	59.26.2689 6,8µF 16V	SAL
D	...	1	50.04.1109 20V 400mW Zener	
D	...	2	50.04.1109 20V 400mW Zener	
D	...	3	50.04.0125 1N4448	
D	...	4	50.04.0125 1N4448	
D	...	5	50.04.0125 1N4448	
D	...	6	50.04.0125 1N4448	
D	...	7	50.04.1117 12V 400mW Zener	
IC	...	1	50.09.0101 LF353N DIP 8	
IC	...	2	50.07.0032 FX101L	CML
IC	...	3	50.07.1011 4011BPC DIL 14	
P			54.01.0273 13P CIS	
Q	...	1	50.03.0436 BC237B NPN	
Q	...	2	50.03.0515 BC307B PNP	
R	...	1	57.11.4103 10kΩ	
R	...	2	57.11.4103 10kΩ	
R	...	3	57.11.3202 2kΩ	
R	...	4	57.11.4103 10kΩ	
R	...	7	57.11.4103 10kΩ	
R	...	9	57.11.3244 240kΩ	
R	...	10	57.11.4474 470kΩ	
R	...	11	57.11.4334 330kΩ	
R	...	12	57.11.4103 10kΩ	
R	...	13	57.11.4103 10kΩ	
R	...	14	57.11.5225 2,2MΩ	
R	...	15	57.11.4104 100kΩ	
R	...	16	57.11.5225 2,2MΩ	
R	...	17	57.11.4105 1MΩ	
R	...	18	57.11.4104 100kΩ	
R	...	19	57.11.5225 2,2MΩ	
R	...	20	57.11.4105 1MΩ	
R	...	21	57.11.4104 100kΩ	
R	...	22	57.11.4220 22Ω	
R	...	23	57.99.0206 50Ω PTC	{ 2322 660 91008 Philips Typ YS 822 ITT PTH 608D 470M 050 Murata
R	...	24	57.99.0206 50Ω PTC	
R	...	25	57.99.0206 50Ω PTC	
R	...	26	57.11.4391 390kΩ	
T	...	1	1.022.218.00 1:1	ST

PE=Polyester, SAL=Solid Aluminium

MANUFACTURER: CML=Consumer Microcircuit LTD, ST=Studer

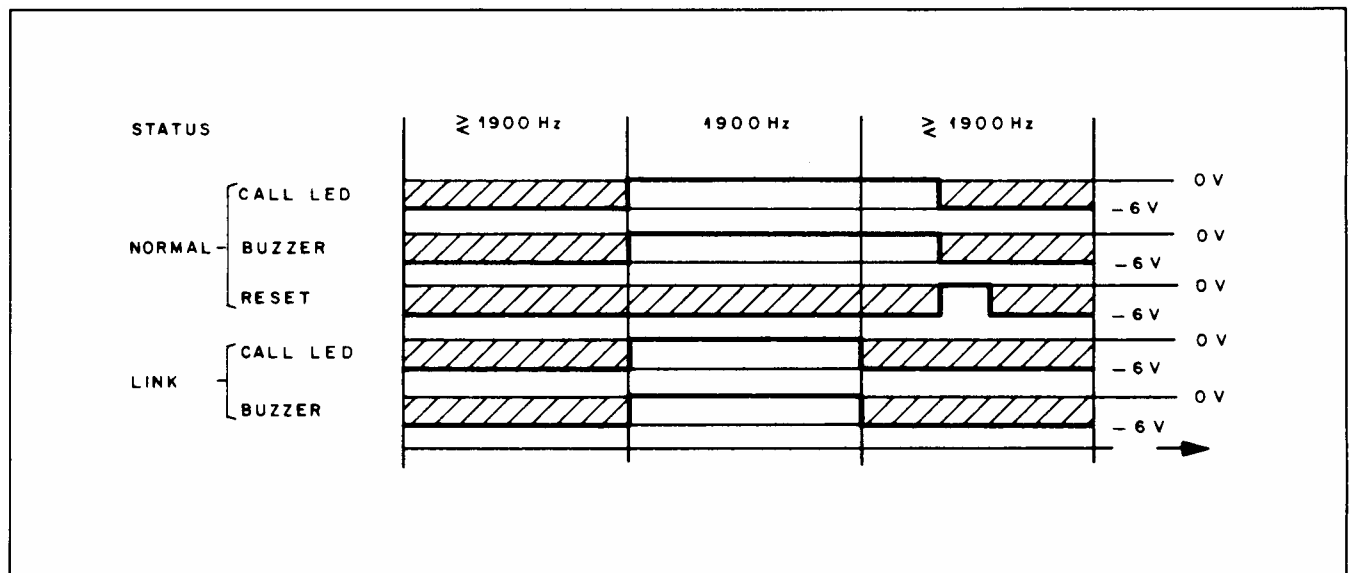
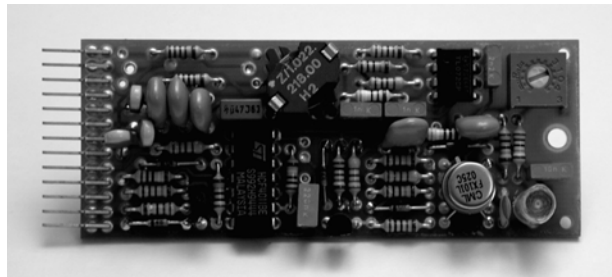
1.914.521.00 20=60HZ DECODER (Nr. 21) FRI 23/08/83

1.914.521.00 20=60HZ DECODER (Nr. 21) ① FRI 01/09/83

1.914.521.00 20=60HZ DECODER (Nr. 21) ② FRI 18/06/84

END  
→

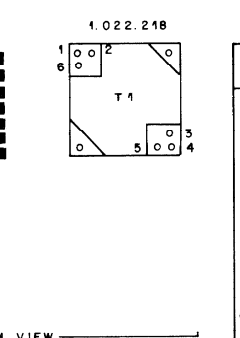
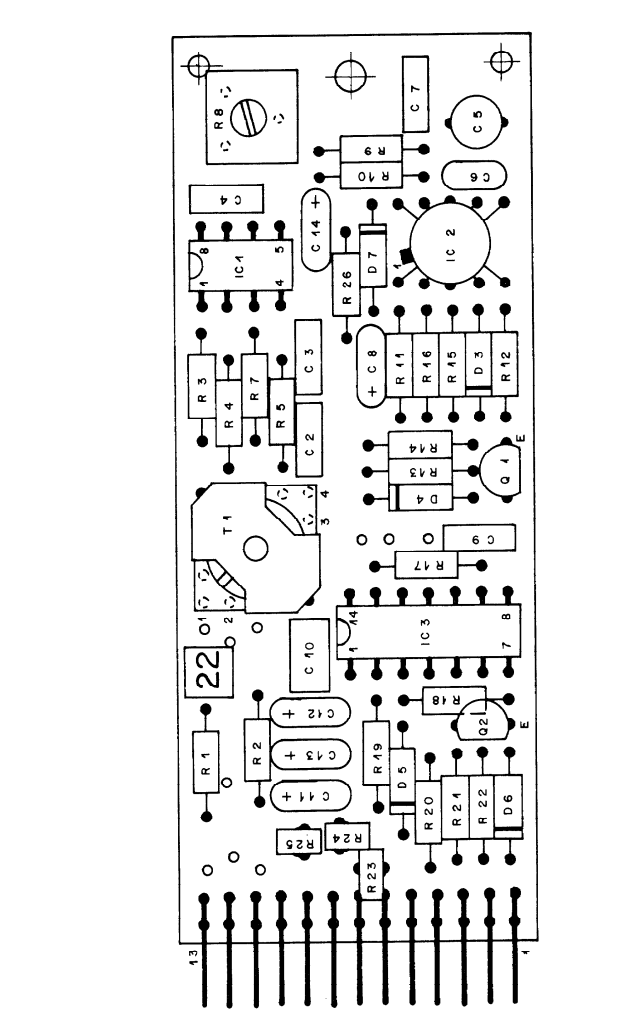
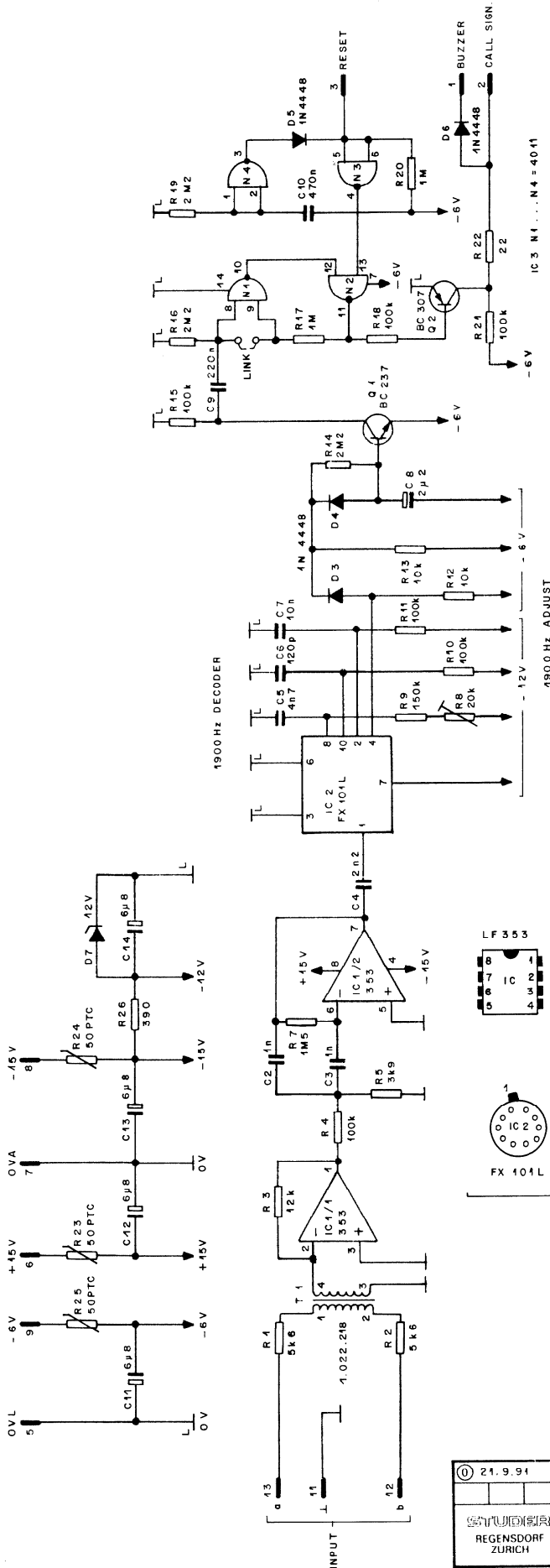
This card contains a call receiver for the standardized 1900 Hz call frequency on OB lines. It is tuned to respond to 1900 Hz  $\pm$ 1 %. The receiver can be switched either to activate an optical or an acoustical signal for the duration of the 1900 Hz call (linked mode), or the acoustical signal can be selected to remain activated until reset (normal mode). The acoustical signal can be generated by an external buzzer (not supplied).



Technical Specifications

- Input:** **balanced, floating; no DC**  
 Frequency **1900 Hz,  $\pm$ 1%**  
 Impedance **> 10 k $\Omega$**   
 Min. level **-30 dBu**  
 Nominal level **+24 dBu**
- Supply:** **+15 V (5 mA); -15 V (10 mA); -6 V (2 mA)**  
 Insulation rating **500 V<sub>DC</sub>**
- Dimensions:** **MS-card, 34  $\times$  85 mm**
- Ordering Information:** **Call decoder 1900 Hz**

1900Hz CALL-DECODER MSC



CIS	PIN	EURO 32 PIN			
		(a)	(b)	(c)	(d)
INPUT a	13	1	7	21	27
INPUT b	12	2	8	22	28
L	11	3	9	23	29
	10				
-6V	9	12			
-15V	8	14			
OVA	7	15			
+15V	6	16			
OVL	5	19			
	4				
RESET	3	4	10	24	30
CALL SIGN	2	5	11	25	31
BUZZER	1	6	13	26	32

21.9.91		<b>1900 Hz DECODER (NR.22)</b>	<b>1.914.522.00</b>
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**Call Decoder 1900 Hz 1.914.522.00 ( 1)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 2	59.06.0102	1n0	PETP, 63V, 10%, RM5
0	C 3	59.06.0102	1n0	PETP, 63V, 10%, RM5
0	C 4	59.06.0222	2n2	PETP, 63V, 10%, RM5
0	C 5	59.05.2472	4n7	PP, 2.5%, 63V
0	C 6	59.34.4121	120p	CER 63V, 5%, N750
0	C 7	59.06.0103	10n	PETP, 63V, 10%, RM5
0	C 8	59.26.5229	2u2	SAL, 20%, 25V
0	C 9	59.06.0224	220n	PETP, 63V, 10%, RM5
0	C 10	59.06.5474	470n	PETP, 63V, 5%, RM5
0	C 11	59.26.2689	6u8	SAL 16V 20%
0	C 12	59.26.2689	6u8	SAL 16V 20%
0	C 13	59.26.2689	6u8	SAL 16V 20%
0	C 14	59.26.2689	6u8	SAL 16V 20%
0	D 3	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 4	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 5	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 6	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 7	50.04.1117	12V	Zener, 5%, 0.5W, DO-35
0	IC 1	50.09.0101	TL072	Dual op-amp biFET
0	IC 2	50.07.0032	FX101	IC FX-101 L, ,A
1	IC 3	50.07.1011	4011	Quad 2-inp NAND
0	P 1	54.01.0273	13p	Stecker CIS parallelsteck
0	Q 1	50.03.0515	BC307B	PNP 100mA 45V
0	Q 2	50.03.0436	BC237B	NPN 100mA 45V
0	R 1	57.11.3562	5k6	MF, 1%, 0207
0	R 2	57.11.3562	5k6	MF, 1%, 0207
0	R 3	57.11.3123	12k	MF, 1%, 0207
0	R 4	57.11.3104	100k	MF, 1%, 0207
0	R 5	57.11.3392	3k9	MF, 1%, 0207
0	R 7	57.11.5155	1M5	MF, 5%, 0207
0	R 8	58.01.8203	20k	Cermet, 10%, 0.5W, horizontal
0	R 9	57.11.3154	150k	MF, 1%, 0207
0	R 10	57.11.3104	100k	MF, 1%, 0207
0	R 11	57.11.3104	100k	MF, 1%, 0207
0	R 12	57.11.3103	10k	MF, 1%, 0207
0	R 13	57.11.3103	10k	MF, 1%, 0207
0	R 14	57.11.5225	2M2	MF, 5%, 0207
0	R 15	57.11.3104	100k	MF, 1%, 0207
1	R 16	57.11.5225	2M2	MF, 5%, 0207
0	R 17	57.11.3105	1M0	MF, 1%, 0207
0	R 18	57.11.3104	100k	MF, 1%, 0207
1	R 19	57.11.5225	2M2	MF, 5%, 0207
0	R 20	57.11.3105	1M0	MF, 1%, 0207
0	R 21	57.11.3104	100k	MF, 1%, 0207
0	R 22	57.11.3220	22R	MF, 1%, 0207
0	R 23	57.99.0206	50R	PTC, 25V, 0.5W
0	R 24	57.99.0206	50R	PTC, 25V, 0.5W
0	R 25	57.99.0206	50R	PTC, 25V, 0.5W
0	R 26	57.11.3391	390R	MF, 1%, 0207
0	T 1	1.022.218.00	1 : 1	EINGANGSTRAFO 1 : 1

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
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End of List

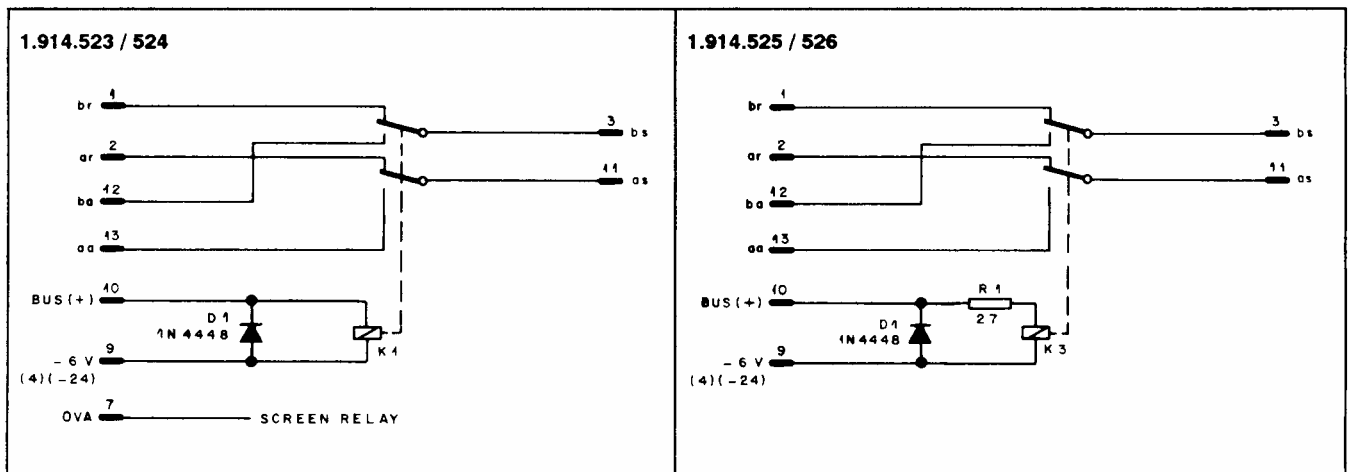
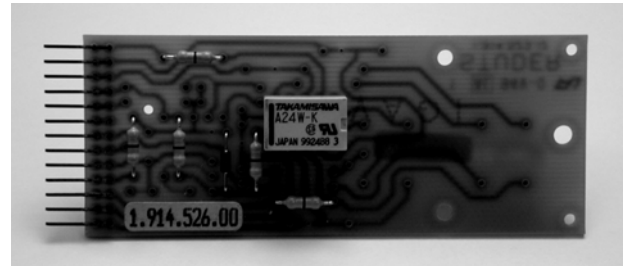
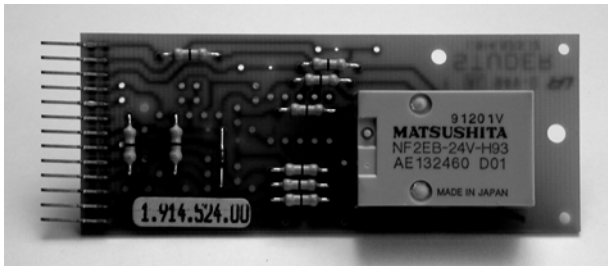
Comments:

(01) IC3, R16, R19 changed

Relay Sub-Cards

1.914.523/524/525/526

Audio signal routing or enabling/disabling of certain circuit sections is often effected best using relays. The Modular Sub-Card System, therefore, offers a selection of four relays on individual circuit boards. Because only one relay can be accommodated on one MS-Card, several cards (or a card from the Euro-card range) will be required if more complex switching has to be realized.



The relays offer double pole/double throw switching with non-shorting contacts, and coils rated for either 6 V<sub>DC</sub> or 24 V<sub>DC</sub> operation. A diode is wired across the relay coil in all versions to suppress interfering back-EMF when de-energizing the relay.

For studio applications where the mechanical click produced by the relay's armature is objectionable, a low-noise type is available.

No.	Coil	Contact Rating	
1.914.523	6 V <sub>DC</sub> / 137 Ω	220 V / 2 A / 60 W	
1.914.524	24 V <sub>DC</sub> / 2.0 kΩ	220 V / 2 A / 60 W	
* 1.914.525	5 V <sub>DC</sub> / 135 Ω	100 V / 0.5 A / 30 W	(R1 = 27 Ω for 6 V operation)
* 1.914.526	24 V <sub>DC</sub> / 2.6 kΩ	100 V / 0.5 A / 30 W	(R1 = 0 Ω)
* Low-noise relays			

**Dimensions:**

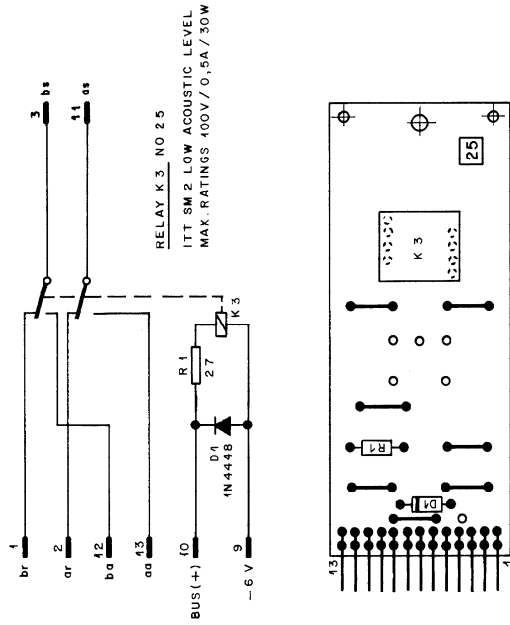
**MS-card, 34 × 85 mm**

**Ordering Information:**

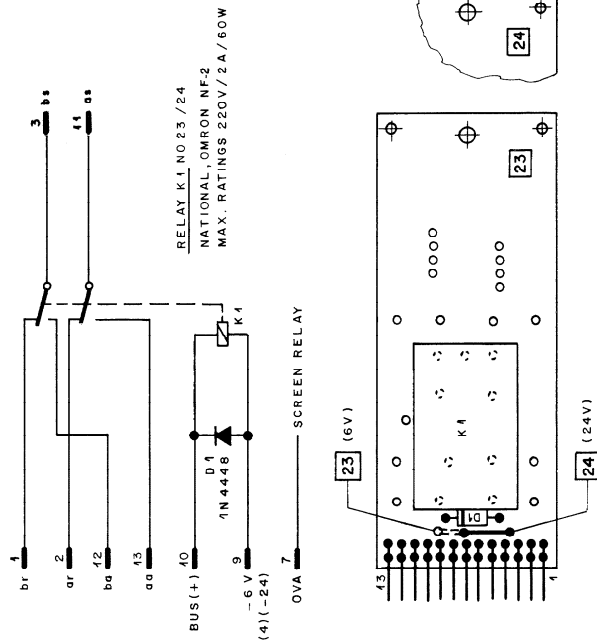
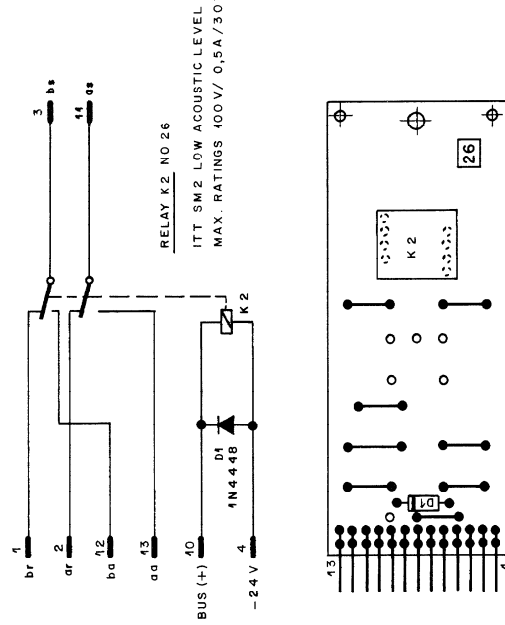
MSC relay 6 V <sub>DC</sub>	1.914.523.xx
MSC relay 24 V <sub>DC</sub>	1.914.524.xx
MSC relay 6 V <sub>DC</sub> ; low-noise	1.914.525.xx
MSC relay 24 V <sub>DC</sub> ; low-noise	1.914.526.xx

MSC RELAYS

RELAY 6V LN



RELAY 24V LN



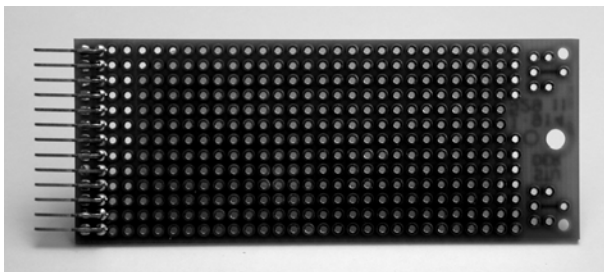
CIS	PIN	EURO 32 P			
		(a)	(b)	(c)	(d)
aa	43	1	7	21	27
ba	42	2	8	22	28
aa	41	3	9	23	29
BUS	40	17	47	18	18
-6V	9	42			
	8	7			
	6	6			
	5	5	20		
-24V	4	4	10	24	30
bs	3	3	4	11	25
ar	2	5	6	13	26
br	1	1	13	26	32

2.10.94 <b>STUDER</b> REGENSDORF ZÜRICH	RELAY BOARD 2 U		24V LN	1.914.526.00
			6V LN	1.914.525.00
			24V	1.914.524.00
			6V	1.914.523.00

## Breadboarding Card

1.914.529

This experimental board is an empty plug-in PCB compatible with the MSC system. It offers a punched 0.1" grid (2.54 × 2.54 mm) for individual component placement.

**Ordering Information:**

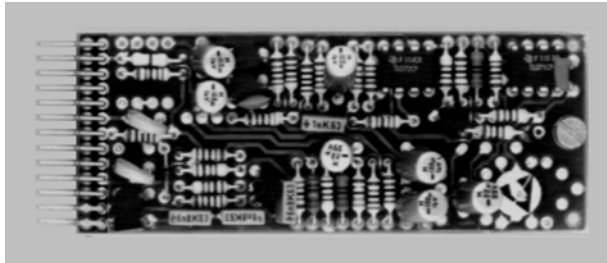
Breadboarding card

1.914.529.xx

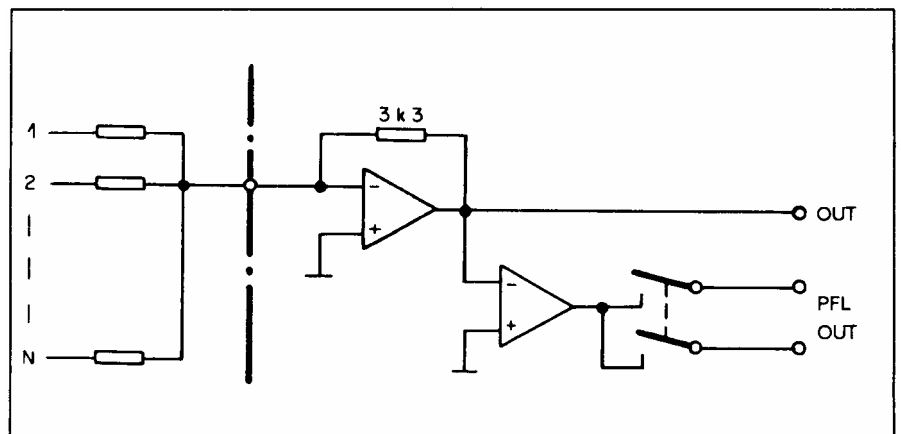
0- $\Omega$  Input Amplifier with PFL Facility

1.914.530

This amplifier with its characteristic input impedance of less than 1  $\Omega$  finds its application as a summing amplifier. A multitude of unbalanced sources can thus be mixed with a high degree of effective isolation between the individual inputs.



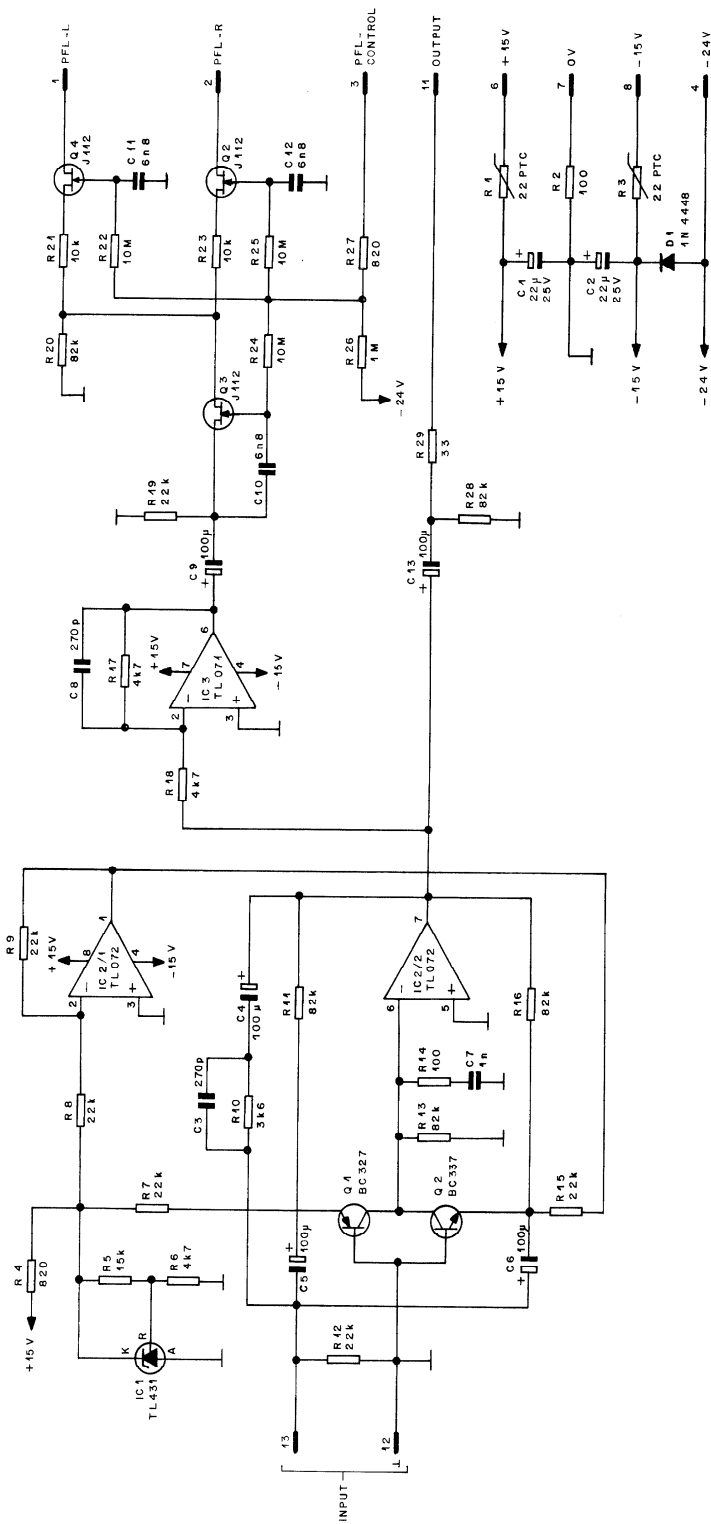
When using 3.3 k $\Omega$  resistors as combining (mixing) resistors in series with each source feeding the summing bus, gain will be unity (0 dB), i.e., the amplifier's output level will be equal to the level of the signal source ahead of the combining resistor. The amplifier's output is unbalanced, with low impedance. Additional outputs for monitoring (or pre-listening) can be activated via solid-state switches by remote control.



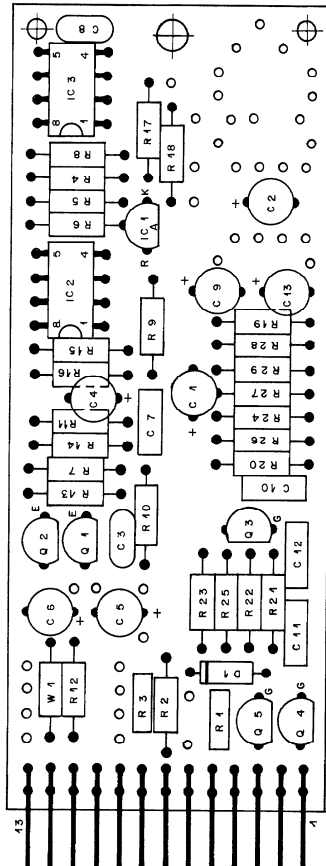
## Technical Specifications

<b>Input:</b>	Max. current	<b>2.5 mA<sub>rms</sub></b> for max. output swing
	Current for 0 dBu	<b>234.2 <math>\mu</math>A</b> ; 0 dBu output ( $\approx$ 3.3 k $\Omega$ at the input for unity gain)
<b>Output:</b>	Impedance	<b>33 <math>\Omega</math></b>
	Max. output swing	<b>+20 dBu</b>
	Load	<b><math>\geq</math> 600 <math>\Omega</math></b> @ max. output swing
	Frequency response	<b><math>\pm</math>0.3 dBu</b> , 30 Hz...16 kHz
	THD	<b>&lt; -75 dB</b> , 30 Hz...16 kHz
	Noise voltage at the output	<b>-110 dBu</b> , input terminated with 3.3 k $\Omega$ , bandwidth 23 kHz
	Noise figure, 12 inputs	<b>F &lt; 2 dB</b> $\approx$ R <sub>S</sub> = 275 $\Omega$
<b>Supply:</b>		<b>+15 V</b> (11 mA idling); <b>-15 V</b> (7 mA idling)
<b>Dimensions:</b>		<b>MS-card</b> , 34 $\times$ 85 mm
<b>Ordering Information:</b>		Zero- $\Omega$ input amplifier (PFL facility)

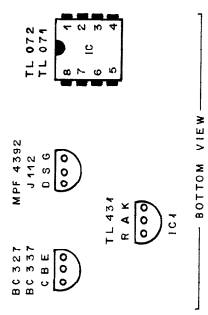
1.914.530.xx



SCHILDER 43.01.0108 / 1.914.530-04 AUFGEKLEBT NACH FABRIKATIONSMUSTER.



CIS	PIN	EURO 32 PIN
INPUT	43	1
OV (INPUT)	42	2
OUTPUT	41	3
	40	4
-15V	6	14
0V	7	15
+15V	6	16
	5	17
-24V	4	20
PFL CONTRBUS	3	4
PFL RIGHTBUS	2	5
PFL LEFTBUS	1	6
		13
		14
		15
		16
		17
		18
		19
		20
		21
		22
		23
		24
		25
		26
		27
		28
		29
		30
		31
		32



© 24.9.91	STUDER REGENSDORF ZÜRICH	0-Ω-INPUT WITH PFL	ESE	1.914.530.00
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MSC 0Ω-INPUT

Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
C.....1		59.22.5220	22 uF 25V EL	
C.....2		59.22.5220	22 uF 25V EL	
C.....3		59.34.4271	270 pF CER	
C.....4		59.22.3101	100 uF 10V EL	
C.....5		59.22.3101	100 uF 10V EL	
C.....6		59.22.3101	100 uF 10V EL	
C.....7		59.06.0102	1 nF PE	
C.....8		59.34.4271	270 pF CER	
C.....9		59.22.3101	100 uF 10V EL	
C.....10		59.06.0682	6.8 nF PE	
C.....11		59.06.0682	6.8 nF PE	
C.....12		59.06.0682	6.8 nF PE	
C.....13		59.22.3101	100 uF 10V EL	
D.....1		50.04.0125	1N4448	any
IC....1		50.10.0106	TL431CLP voltage regulator	TI, Mot
IC....2		50.09.0101	TL072 dual op.amp.	TI
IC....3		50.09.0103	TL071 dual op.amp.	TI
P.....1		54.01.0273	CIS, 13 pin	
Q.....1		50.03.0625	BC327 PNP, low noise	
Q.....2		50.03.0516	BC337 NPN, low noise	
Q.....3		50.03.0350	J112 N-J-FET	NS, Mot, Six
Q.....4		50.03.0350	J112 N-J-FET	NS, Mot, Six
Q.....5		50.03.0350	J112 N-J-FET	NS, Mot, Six
R.....1		57.92.1121	22 Ohm PTC	
R.....2		57.11.4101	100 Ohm	
R.....3		57.92.1121	22 Ohm PTC	
R.....4		57.11.4821	820 Ohm	
R.....5		57.11.4153	15 kOhm	
R.....6		57.11.4472	4.7 kOhm	
R.....7		57.11.4223	22 kOhm	
R.....8		57.11.4223	22 kOhm	
R.....9		57.11.4223	22 kOhm	
R.....10		57.11.3362	3.6 kOhm	
R.....11		57.11.4823	82 kOhm	
R.....12		57.11.4223	22 kOhm	
R.....13		57.11.4823	82 kOhm	
R.....14		57.11.4101	100 Ohm	
R.....15		57.11.4223	22 kOhm	
R.....16		57.11.4823	82 kOhm	
R.....17		57.11.4472	4.7 kOhm	
R.....18		57.11.4472	4.7 kOhm	
R.....19		57.11.4223	22 kOhm	
R.....20		57.11.4823	82 kOhm	
R.....21		57.11.4103	10 kOhm	
R.....22		57.11.5106	10 MOhm	
R.....23		57.11.4103	10 kOhm	
R.....24		57.11.5106	10 MOhm	
R.....25		57.11.5106	10 MOhm	
R.....26		57.11.4105	1 MOhm	
R.....27		57.11.4821	820 Ohm	
R.....28		57.11.4823	82 kOhm	
R.....29		57.11.4330	33 Ohm	
W.....1		57.11.4000	0 Ohm	

CER = ceramic, EL = electrolytic, PE = polyester

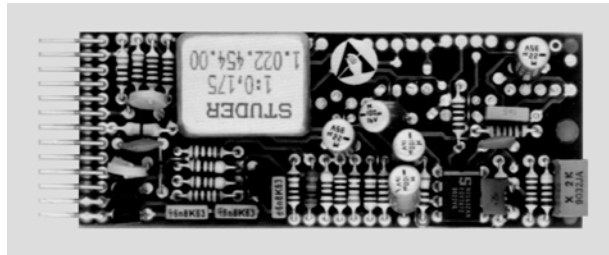
MANUFACTURER Mot=Motorola, NS=National Semiconductor, Six=Siliconics, TI=Texas Instruments

1.914.530.00 0-OHM INPUT WITH PFL WY 87/06/1800

## High-Level Input with PFL Facility

1.914.531

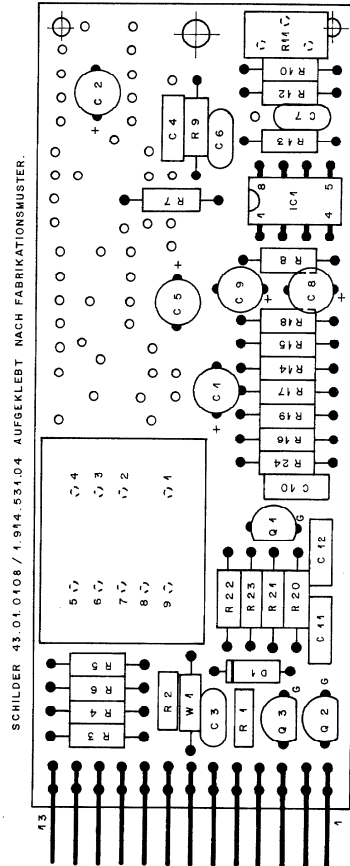
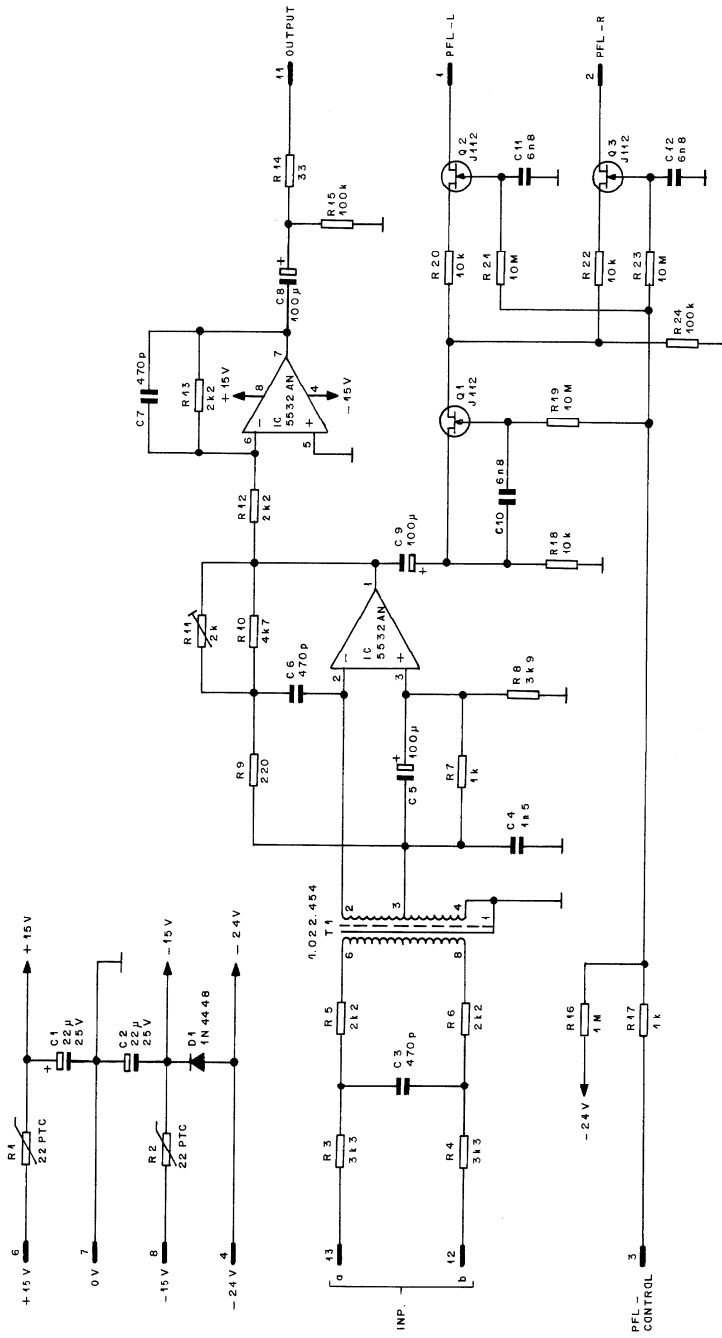
This compact high-level input amplifier features a balanced and floating input stage. The output is unbalanced, with low impedance and low distortion up to +24 dBu. An additional PFL monitoring facility is electronically switchable (FET).



## Technical Specifications

<b>Input:</b>	Balanced and floating
Impedance	> <b>10 k<math>\Omega</math></b>
Max. level	<b>+26 dBu</b>
CMRR	> <b>110 dB @ 50 Hz</b> > <b>110 dB @ 16 kHz</b>
<b>Output:</b>	Unbalanced
Impedance	<b>33 <math>\Omega</math></b>
Load	<b><math>\geq 600 \Omega</math> @ max. output swing</b>
Max. output swing	<b>+20 dBu</b>
Gain	<b>-1.4...-17.8 dB</b>
Frequency response	<b><math>\pm 0.3</math> dB, 30 Hz...16 kHz</b>
THD	<b>&lt; -85 dB, 30 Hz...16 kHz</b>
Noise voltage	<b>&lt; -107 dBu, gain -6 dB, bandwidth 23 kHz</b>
<b>Supply:</b>	<b><math>\pm 15</math> V (10 mA idling)</b>
<b>Dimensions:</b>	<b>MS-card, 34 <math>\times</math> 85 mm</b>
<b>Ordering Information:</b>	HL input with PFL <span style="float: right;">1.914.531.xx</span>

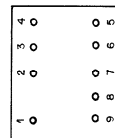




SCHILDER 43.01.0108 / 1.914.531.04 AUFGEKLEBT NACH FABRIKATIONSMUSTER.

CIS	PIN	EURO 32 PIN
INPUT a	13	1
INPUT b	12	2
OUTPUT	11	3
	10	4
-45V	9	44
0V	8	45
+15V	7	46
	6	
-24V	5	
PFL SIGN. BUS	4	20
PFL RIGHT BUS	3	40
PFL LEFT BUS	2	51
	1	61
		71
		81
		91
		101
		111
		121
		131
		141
		151
		161
		171
		181
		191
		201
		211
		221
		231
		241
		251
		261
		271
		281
		291
		301
		311
		321

1.022.454  
T1



AN 5532



MPF 4392  
030



BOTTOM VIEW

25.9.94	STUDER REGENSDORF ZURICH	HL INPUT WITH PFL	ESE	1.914.531.00
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MSC HL INPUT WITH PFL

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER
C....1	59.22.5220	22 uF	25V EL	
C....2	59.22.5220	22 uF	25V EL	
C....3	59.34.5471	470 pF	CER	
C....4	59.06.5152	1.5 nF	PE	
C....5	59.22.3101	100 uF	10V EL	
C....6	59.34.5471	470 pF	CER	
C....7	59.34.5471	470 pF	CER	
C....8	59.22.3101	100 uF	10V EL	
C....9	59.22.3101	100 uF	10V EL	
C....10	59.06.0682	6.8 nF	PE	
C....11	59.06.0682	6.8 nF	PE	
C....12	59.06.0682	6.8 nF	PE	
D....1	50.04.0125	1N4448		any
IC....1	50.09.0106	NE5532AN	dual op.amp. low noise	Sig
P....1	54.01.0273		CIS, 13 pin	
Q....1	50.03.0350	J112	N-J-FET	NS, Mot, Six
Q....2	50.03.0350	J112	N-J-FET	NS, Mot, Six
Q....3	50.03.0350	J112	N-J-FET	NS, Mot, Six
R....1	57.92.1121	22 Ohm	PTC	
R....2	57.92.1121	22 Ohm	PTC	
R....3	57.11.3332	3.3 kOhm	1%	
R....4	57.11.3332	3.3 kOhm	1%	
R....5	57.11.3222	2.2 kOhm	1%	
R....6	57.11.3222	2.2 kOhm	1%	
R....7	57.11.4102	1 kOhm		
R....8	57.11.4392	3.9 kOhm		
R....9	57.11.4221	220 Ohm		
R....10	57.11.4472	4.7 kOhm		
R....11	58.01.9202	2 kOhm	trim potm.	
R....12	57.11.3222	2.2 kOhm		
R....13	57.11.3222	2.2 kOhm		
R....14	57.11.4330	33 Ohm		
R....15	57.11.4104	100 kOhm		
R....16	57.11.4105	1 MOhm		
R....17	57.11.4102	1 kOhm		
R....18	57.11.4103	10 kOhm		
R....19	57.11.5106	10 MOhm		
R....20	57.11.4103	10 kOhm		
R....21	57.11.5106	10 MOhm		
R....22	57.11.4103	10 kOhm		
R....23	57.11.5106	10 MOhm		
R....24	57.11.4104	10 kOhm		
T....1	1.022.454.00		input trafo	
W....1	57.11.4000	0 Ohm		

CER = ceramic, EL = electrolytic, PE = polyester

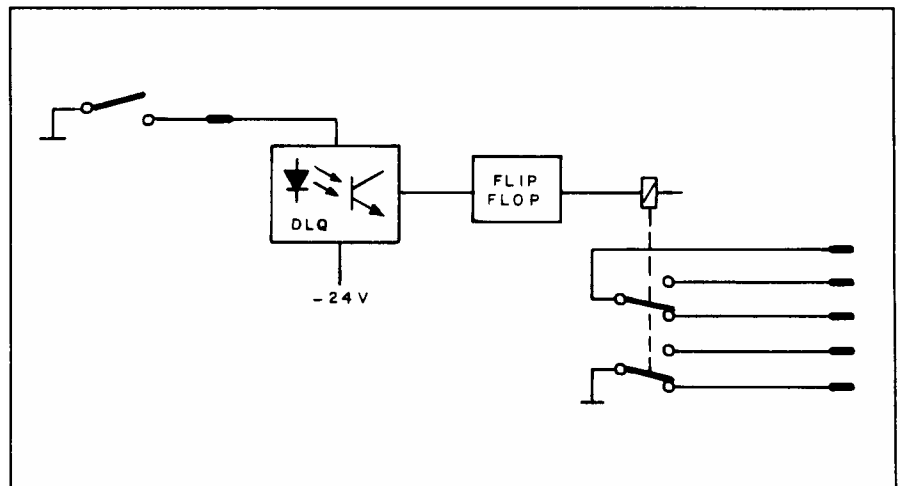
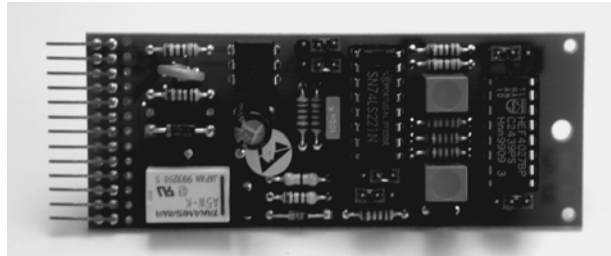
MANUFACTURER Mot=Motorola, NS=National Semiconductor, Six=Siliconics, TI=Texas Instruments, Sig=Signetics

1.914.531.00 HL-INPUT WITH PFL WY 87/06/1800

Flip-flop Unit

1.914.532

The Flip-flop Unit consists of a relay with two DPDT contacts and a flip-flop circuit with a control input (opto-coupler). A ground pulse from a non-latching switch applied to the input activates the relay. A next ground pulse will deactivate it again.



Technical Specifications

**Input:** floating, with opto-coupler

**Relay contacts:** Max. rating 100 V/0.5 A/30 W

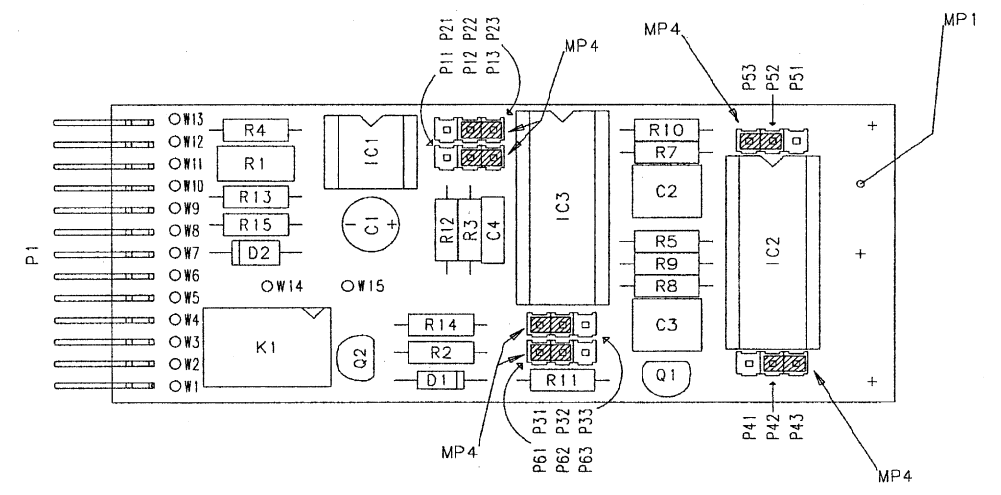
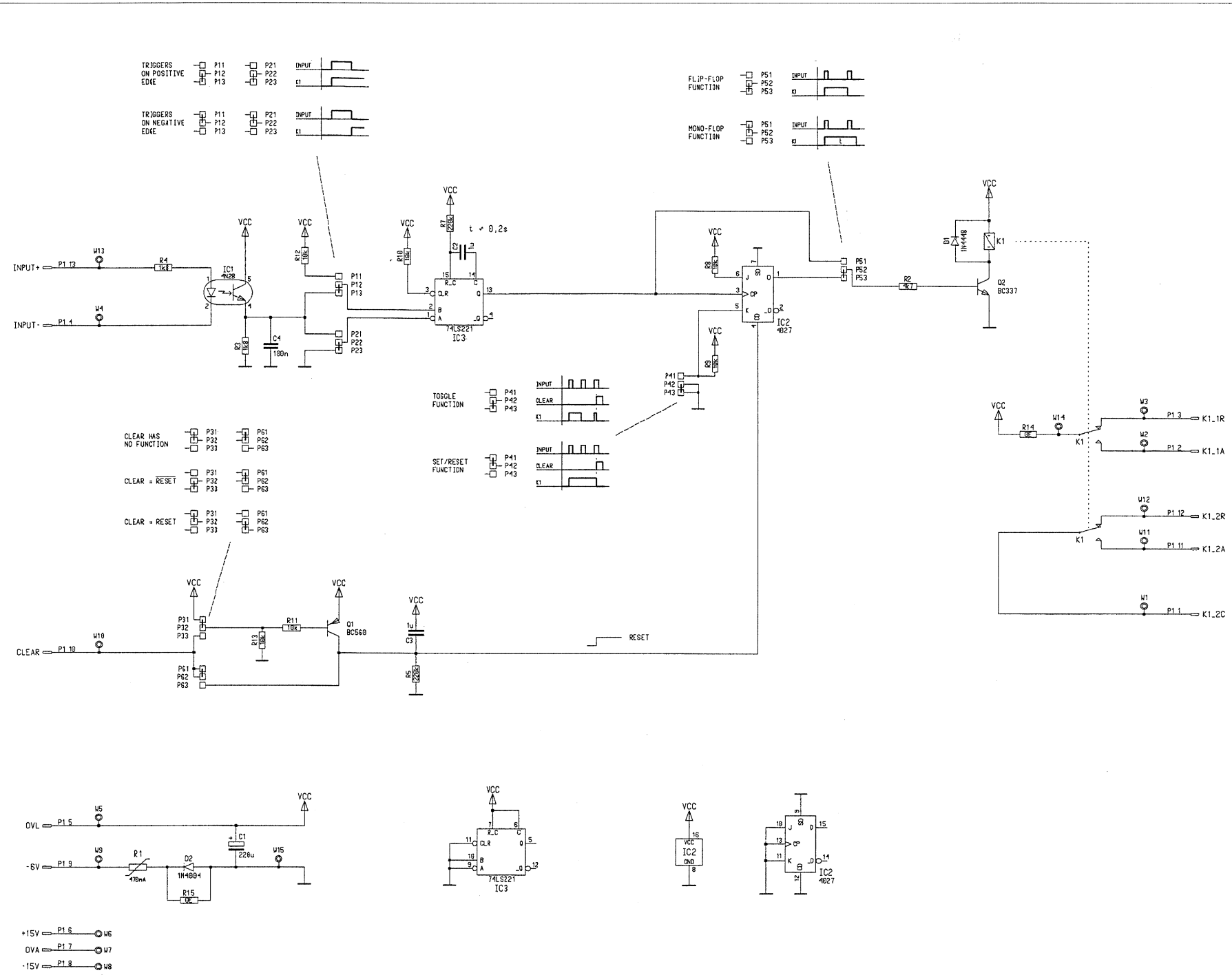
**Supply:** -6 V for logic  
-24 V for opto-coupler

**Dimensions:** MS-card, 34 × 85 mm

**Ordering Information:** Flip-flop unit

1.914.532.xx

MSC FLIP FLOP

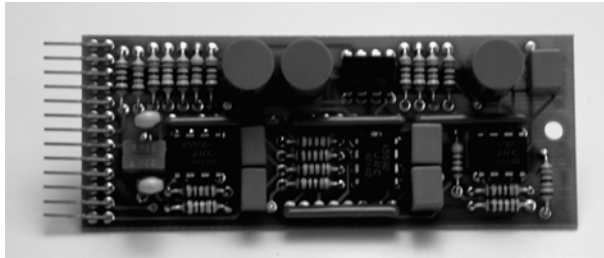


Qty.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.22.3003	220u	EL 10V, 20%, RM5
0	C 2	59.06.0105	1u0	PETP, 50V, 10%, RM5
0	C 3	59.06.0105	1u0	PETP, 50V, 10%, RM5
0	C 4	59.06.0104	100n	PETP, 63V, 10%, RM5
0	D 1	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 2	50.04.0105	1N4004	D 1 N 4004 ... 1 N 4007
0	IC 1	50.99.0126	4N26	Optocoupler
0	IC 2	50.07.0027	4027	IC .. 4027 .. A
0	IC 3	50.06.0221	74LS221	IC SN 74 LS 221 N
0	K 1	56.04.0198	2u	5V 125V 2A Ag/Au
0	MP 1	1.914.532.12	mp	FLIP-FLOP PCB
0	MP 2	1.914.532.04	mp	NR-ETIKETTE 5 * 20
0	MP 3	43.01.0108	mp	Label ESE-WARNSCHILD
0	MP 4	54.01.0021	6 pcs	Jumper 0.63 * 0.63mm
0	P 1	54.01.0273	13-P	P LEISTE 13 POL CIS WINKEL
0	P 11	54.01.0020	1p	Pin 0.63*0.63
0	P 12	54.01.0020	1p	Pin 0.63*0.63
0	P 13	54.01.0020	1p	Pin 0.63*0.63
0	P 21	54.01.0020	1p	Pin 0.63*0.63
0	P 22	54.01.0020	1p	Pin 0.63*0.63
0	P 23	54.01.0020	1p	Pin 0.63*0.63
0	P 31	54.01.0020	1p	Pin 0.63*0.63
0	P 32	54.01.0020	1p	Pin 0.63*0.63
0	P 33	54.01.0020	1p	Pin 0.63*0.63
0	P 41	54.01.0020	1p	Pin 0.63*0.63
0	P 42	54.01.0020	1p	Pin 0.63*0.63
0	P 43	54.01.0020	1p	Pin 0.63*0.63
0	P 51	54.01.0020	1p	Pin 0.63*0.63
0	P 52	54.01.0020	1p	Pin 0.63*0.63
0	P 53	54.01.0020	1p	Pin 0.63*0.63
0	P 61	54.01.0020	1p	Pin 0.63*0.63
0	P 62	54.01.0020	1p	Pin 0.63*0.63
0	P 63	54.01.0020	1p	Pin 0.63*0.63
0	Q 1	50.03.0601	BC560C	BC 560 C
0	Q 2	50.03.0340	BC337-25	800mA, 45V, NPN
0	R 1	57.92.1391	470mA	PTC, 30V, 2.5 Ohm
0	R 2	57.11.3472	4k7	MF, 1%, 0207
0	R 3	57.11.3182	1k8	MF, 1%, 0207
0	R 4	57.11.3182	1k8	MF, 1%, 0207
0	R 5	57.11.3224	220k	MF, 1%, 0207
0	R 7	57.11.3224	220k	MF, 1%, 0207
0	R 8	57.11.3103	10k	MF, 1%, 0207
0	R 9	57.11.3103	10k	MF, 1%, 0207
0	R 10	57.11.3103	10k	MF, 1%, 0207
0	R 11	57.11.3103	10k	MF, 1%, 0207
0	R 12	57.11.3103	10k	MF, 1%, 0207
0	R 13	57.11.3103	10k	MF, 1%, 0207
0	R 14	57.11.3000	DR0	MF, 0207
0	R 15	not used	DR0	MF, 0207
0	XIC 2	53.03.0168	16p	DIL 0.3", lot. gerade
0	XIC 3	53.03.0168	16p	DIL 0.3", lot. gerade

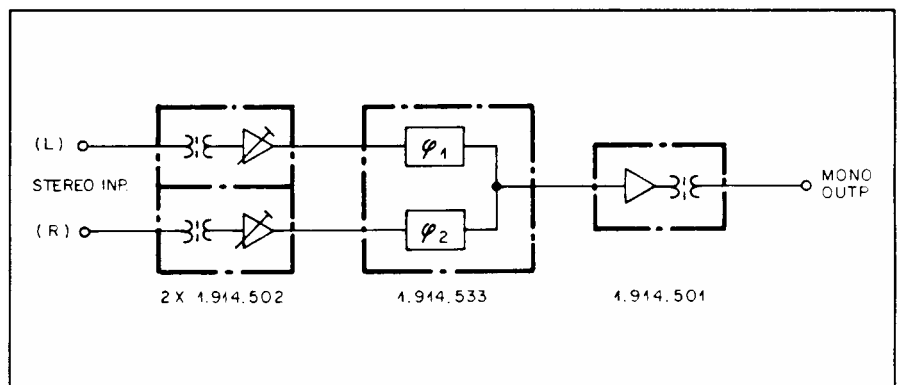
## 90° Filter

1.914.533

This active 90° filter is used to form a monophonic signal from the left and right channel of stereo signals. Simple mixing of the left and right channel will not produce a mono signal of satisfactory quality, but results in an emphasis of the center information. By summing the stereo signals in a 90° phase-shifted manner, this undesirable effect can be avoided.



The 90° filter consists of two all-pass filter chains, producing a uniform 90° phase difference across the whole audio range. The left and the right stereo signals are each passed through one of these filters and added at the filter's output. Doubling of equally-phased signal components as well as canceling of opposite-phased components is thus avoided.



The filter circuits are of unbalanced configuration. For this reason a summing circuit usually consists of two high-level amplifiers with balanced inputs (1.914.502), one 90° filter, and one high-level output amplifier (1.914.501), all accommodated on one MSC motherboard, as shown in the diagram above.

The gain of this combination can be adjusted. A correlated stereo input of equal level in both channels will provide a mono signal of identical level. With only one input channel (left or right), the mono output level will be lower by 3 dB.

Since the 90° filter with its input and output cards can be realized on a single, Euro-card size MSC motherboard, it can possibly be combined with other Audio Components, such as limiters and isolation amplifiers. Such stereo-to-mono combinations are in use at various radio stations to feed the stereo programs to the monophonic AM-transmitter in a correctly summed manner.

Technical Specifications

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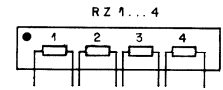
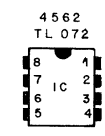
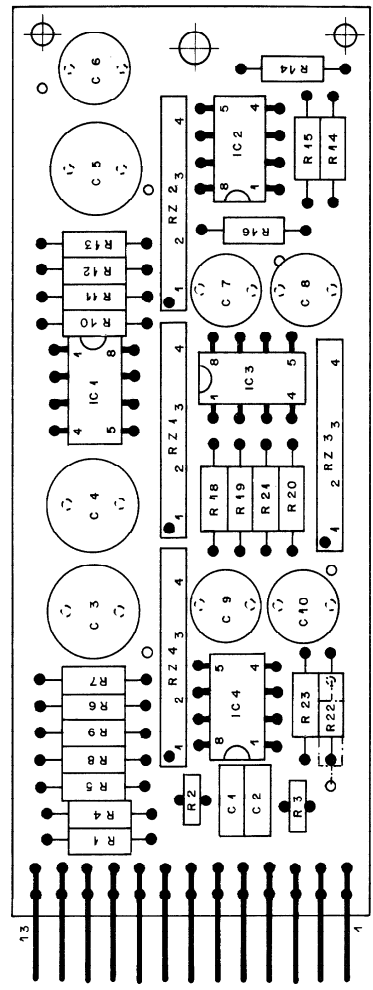
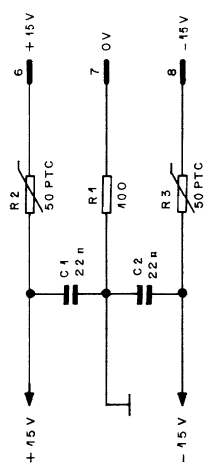
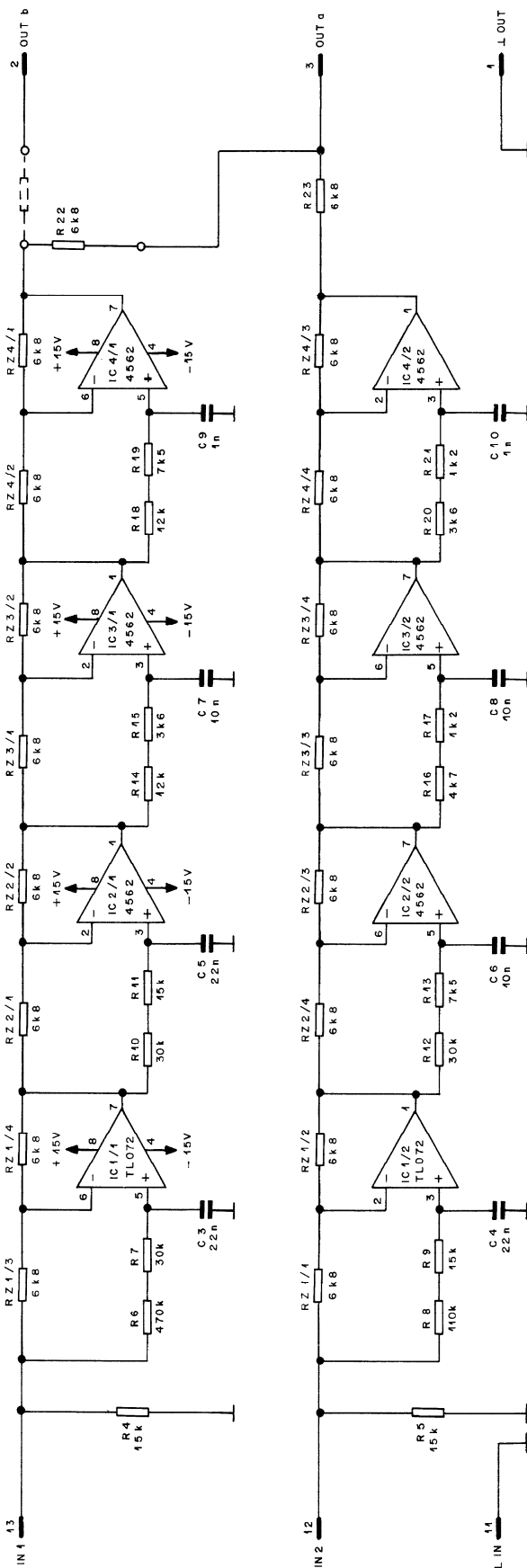
<b>Input:</b>	Max. level	<b>+20 dBu</b>
	Impedance	<b>4 k<math>\Omega</math></b>
<b>Output:</b>	Max. level	<b>+20 dBu</b>
	Impedance	<b>6.8 k<math>\Omega</math></b>
	Frequency response	<b>30 Hz...16 kHz, <math>\pm</math>0.3 dB</b>
	Phase	<b>90° <math>\pm</math>3°; 30 Hz...16 kHz</b>
	THD	<b><math>\leq</math> -80 dB</b>
	Noise	<b>&lt; -95 dBu</b>

**Supply:**  $\pm$ 15 V (18 mA idling)

**Dimensions:** **MS-card**, 34  $\times$  85 mm

**Ordering Information:** 90° filter stereo/mono

1.914.533.xx



BOTTOM VIEW

CIS	PIN	EURO 32 PIN			
		(A)	(B)	(C)	(D)
IN 1	13	1	7	21	27
IN 2	12	2	8	22	28
⊥	11	3	9	23	29
	10				
	9				
-15 V	8	14			
0 V	7	15			
+15 V	6	16			
	5				
	4				
OUT a	3	4	10	24	30
OUT b	2	5	11	25	31
⊥	1	6	13	26	32

© 26.9.94 <b>STUDER</b> REGENSDORF ZÜRICH	<b>90 DEGREE FILTER</b>	1.914.533.00
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MSC 90° FILTER

Ad ..POS... ..REF.No... DESCRIPTION.....MANUFACTURER

C....1	59.06.0223	22 nF		PE	
C....2	59.06.0223	22 nF		PE	
C....3	59.05.1223	22 nF 1%		PP	
C....4	59.05.1223	22 nF 1%		PP	
C....5	59.05.1223	22 nF 1%		PP	
C....6	59.05.1103	10 nF 1%		PP	
C....7	59.05.1103	10 nF 1%		PP	
C....8	59.05.1103	10 nF 1%		PP	
C....9	59.05.1102	1 nF 1%		PP	
C....10	59.05.1102	1 nF 1%		PP	
IC....1	50.09.0101	TL072	dua1 op.amp.		TI
01 IC....2	50.09.0107	RC4559	dua1 op.amp.		Ra
01 IC....3	50.09.0107	RC4559	dua1 op.amp.		Ra
01 IC....4	50.09.0107	RC4559	dua1 op.amp.		Ra
P....1	54.01.0273		CIS, 13 pin		
R....1	57.11.3101	100 Ohm			
R....2	57.99.0206	50 Ohm	PTC		
R....3	57.99.0206	50 Ohm	PTC		
R....4	57.11.3153	15 kOhm			
R....5	57.11.3153	15 kOhm			
R....6	57.11.3474	470 kOhm	1%		
R....7	57.11.3303	30 kOhm	1%		
R....8	57.11.3114	110 kOhm	1%		
R....9	57.11.3153	15 kOhm	1%		
R....10	57.11.3303	30 kOhm	1%		
R....11	57.11.3153	15 kOhm	1%		
R....12	57.11.3303	30 kOhm	1%		
R....13	57.11.3752	7.5 kOhm	1%		
R....14	57.11.3123	12 kOhm	1%		
R....15	57.11.3362	3.6 kOhm	1%		
R....16	57.11.3472	4.7 kOhm	1%		
R....17	57.11.3122	1.2 kOhm	1%		
R....18	57.11.3123	12 kOhm	1%		
R....19	57.11.3752	7.5 kOhm	1%		
R....20	57.11.3362	3.6 kOhm	1%		
R....21	57.11.3122	1.2 kOhm	1%		
R....22	57.11.3682	6.8 kOhm	1%		
R....23	57.11.3682	6.8 kOhm	1%		
RZ....1	57.88.2682	6.8 kOhm		Resistor-Network	
RZ....2	57.88.2682	6.8 kOhm		Resistor-Network	
RZ....3	57.88.2682	6.8 kOhm		Resistor-Network	
RZ....4	57.88.2682	6.8 kOhm		Resistor-Network	

PE = polyester, PP = polypropylen

(01) 90/06/21 IC 2...4 RC 4562 replaced by RC 4559

MANUFACTURER TI=Texas Instruments, Ra=Raytheon

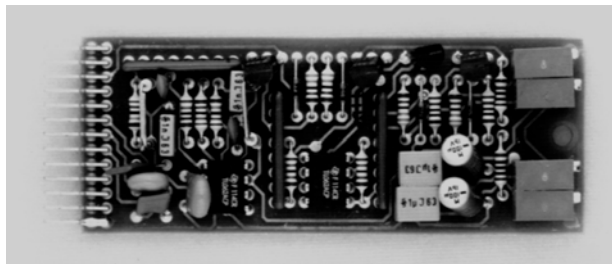
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 1.914.533.00 90 DEGREE FILTER FRI90/06/2101



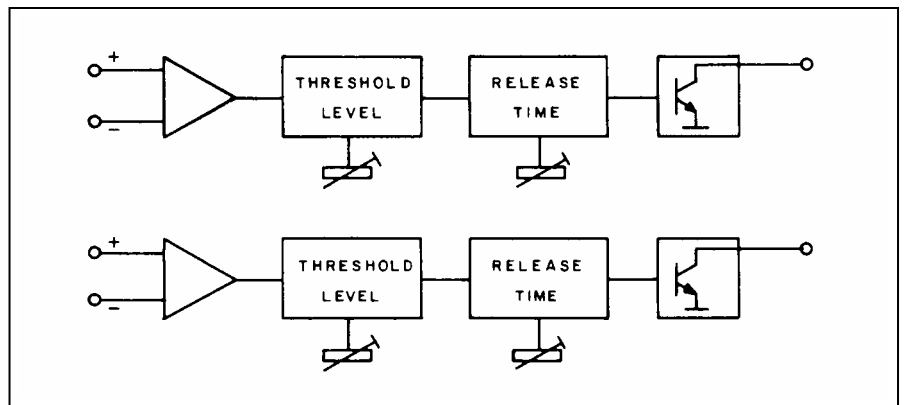
Dual Vox Detector

1.914.534

The Dual Vox Detector card contains two adjustable threshold level detector circuits. Threshold level (−22 dBu...+16 dBu) and release time (0.2 s...10 s) are separately adjustable for two audio channels. These adjustments are effected very precisely with multi-turn trimmer potentiometers.



The high-impedance audio input is balanced. The open-collector output is prepared to activate a relay or an alarm device. A possible application of this card would be to detect incoming modulation.



Technical Specifications

**Inputs:**

Impedance	<b>Electronically balanced</b> <b>≥ 10 kΩ</b>
Max. level	<b>+24 dBu</b> (0 dBu ≙ 0,775 V <sub>rms</sub> )
Frequency response	<b>75 Hz...12 kHz, −3 dB</b>
Threshold level	<b>−22 dBu...+16 dBu</b>
Attack time	<b>100 ms</b>
Release time	<b>200 ms...10 s</b>
Hysteresis	<b>≤ 1 dB</b>

**Outputs:**

**Open-collector;** U<sub>CE</sub> ≤ +45 V; I<sub>max</sub> ≤ 100 mA

**Supply:**

**±15 V** (≤ 15 mA / 4 mA idling)

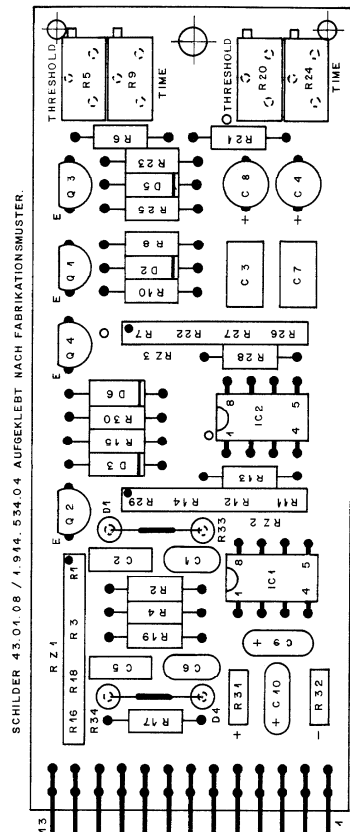
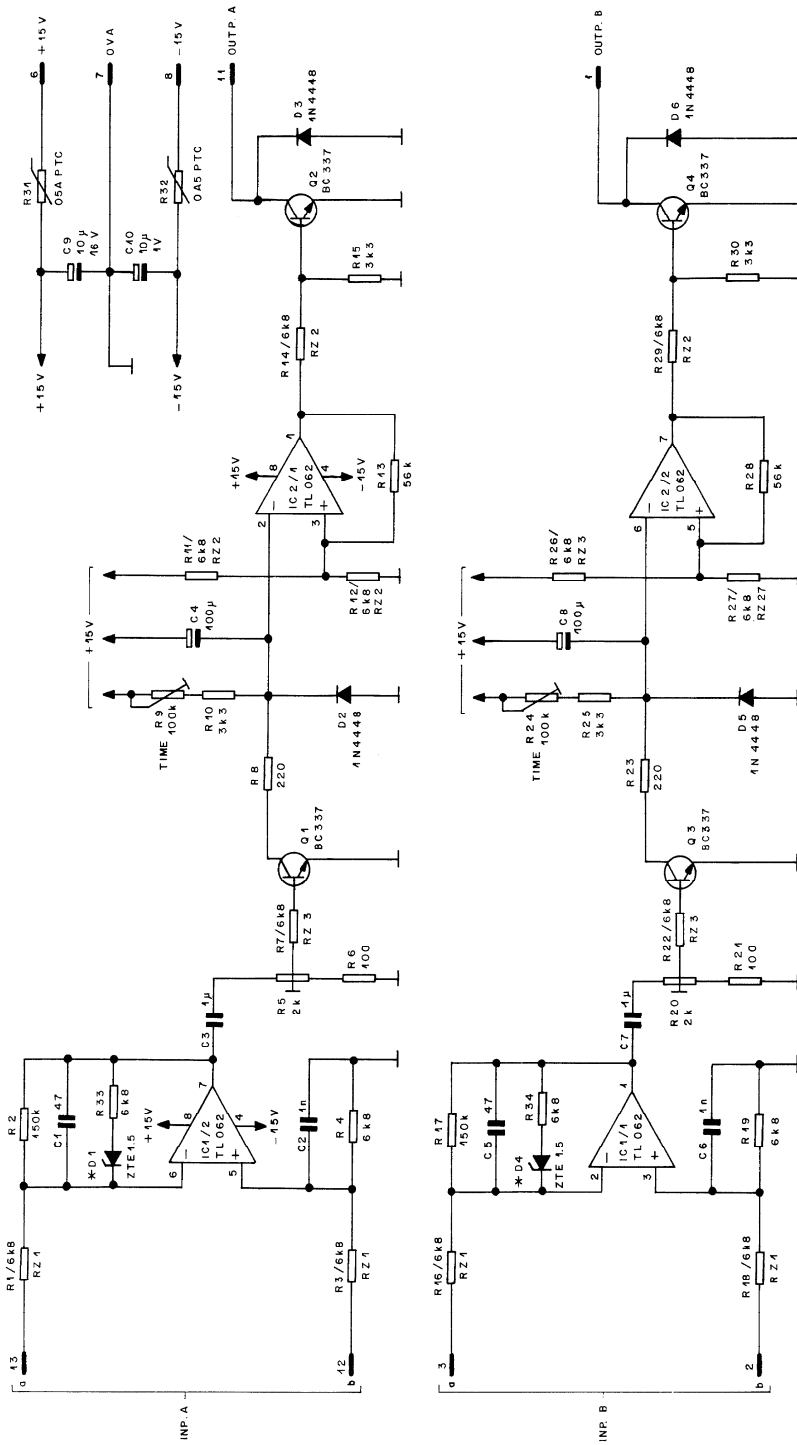
**Dimensions:**

**MS-card, 34 × 85 mm**

**Ordering Information:**

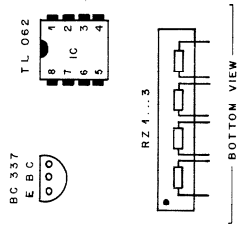
Dual vox detector

1.914.534.xx



\* CATHODE RING CONNECTED TO THE POSITIVE VOLTAGE OF THE VOLTAGE.

CIS	PIN	EURO 32 PIN
INPUT A a	13	1
INPUT B b	12	2
OUTPUT	11	3
	10	4
-15V	8	14
OVA	7	15
+15V	6	16
	5	17
INPUT A a	3	4
INPUT B b	2	5
OUTPUT A	1	6
		13
		26
		32



27.9.94			
STUDER REGENSDORF ZÜRICH	THRESHOLD LEVEL DETECTOR	ESE	1.914.534.00

MSC DUAL VOX DETECTOR

Ad	POS	REF.No	DESCRIPTION	MANUFACTURER	
01	C....1	59.34.2470	47 pF 63V	CER 5%	
01	C....2	59.34.5102	1000 pF 63V	PE 5%	
	C....3	59.06.5105	1 uF	PE 5%	
	C....4	59.22.3101	100 uF 10V	EL	
01	C....5	59.34.2470	47 pF 63V	CER 5%	
01	C....6	59.06.5102	1000 pF 63V	PE 5%	
	C....7	59.06.5105	1 uF	PE 5%	
	C....8	59.22.3101	100 uF 10V	EL	
	C....9	59.26.2100	10 uF 16V	EL	
	C....10	59.26.2100	10 uF 16V	EL	
01	D....1	50.99.0183	ZTE1.5	1.5V ZENER	ITT
	D....2	50.04.0125	1N4448		any
	D....3	50.04.0125	1N4448		any
01	D....4	50.99.0183	ZTE1.5	1.5V ZENER	ITT
	D....5	50.04.0125	1N4448		any
	D....6	50.04.0125	1N4448		any
	IC....2	50.09.0119	TL062	dual op.amp.	TI
	IC....3	50.09.0119	TL062	dual op.amp.	TI
	P....1	54.01.0273		CIS, 13 pin	
	Q....1	50.03.0516	BC337	NPN	any
	Q....2	50.03.0516	BC337	NPN	any
	Q....3	50.03.0516	BC337	NPN	any
	Q....4	50.03.0516	BC337	NPN	any
	R....1	.	6.8 kOhm	RZ 1	
01	R....2	57.11.3154	150 kOhm		
	R....3	.	6.8 kOhm	RZ 1	
01	R....4	57.11.3682	6.8 kOhm		
	R....5	58.05.0202	2 kOhm	Trim 10%	
	R....6	57.11.3101	100 Ohm		
	R....7	.	6.8 kOhm	RZ 3	
	R....8	57.11.3221	220 Ohm		
	R....9	58.05.0104	100 kOhm	Trim 10%	
	R....10	57.11.3332	3.3 kOhm		
	R....11	.	6.8 kOhm	RZ 2	
	R....12	.	6.8 kOhm	RZ 2	
	R....13	57.11.3563	56 kOhm		
	R....14	.	6.8 kOhm	RZ 2	
	R....15	57.11.3332	3.3 kOhm		
	R....16	.	6.8 kOhm	RZ 1	
01	R....17	57.11.3154	150 kOhm	1%	
	R....18	.	6.8 kOhm	RZ 1	
01	R....19	57.11.3682	6.8 kOhm		
	R....20	58.05.0202	2 kOhm	Trim 10%	
	R....21	57.11.3101	100 Ohm		
	R....22	.	6.8 kOhm	RZ 3	
	R....23	57.11.3221	220 Ohm		
	R....24	58.05.0104	100 kOhm	Trim 10%	
	R....25	57.11.3332	3.3 kOhm		
	R....26	.	6.8 kOhm	RZ 3	
	R....27	.	6.8 kOhm	RZ 3	
	R....28	57.11.3563	56 kOhm		
	R....29	.	6.8 kOhm	RZ 2	
	R....30	57.11.3332	3.3 kOhm		
	R....31	57.92.7001	0.3 Ohm	PTC .5A	
	R....32	57.92.7001	0.3 Ohm	PTC .5A	
01	R....33	57.11.3682	6.8 kOhm		
01	R....34	57.11.3682	6.8 kOhm		
	RZ....1	57.88.2682	6.8 kOhm	R. Network 4*6.8k	
	RZ....2	57.88.2682	6.8 kOhm	R. Network 4*6.8k	
	RZ....3	57.88.2682	6.8 kOhm	R. Network 4*6.8k	

(01) update

(02) old name: THRESHOLD DETECTOR

CER = ceramic, EL = electrolytic, PE = polyester

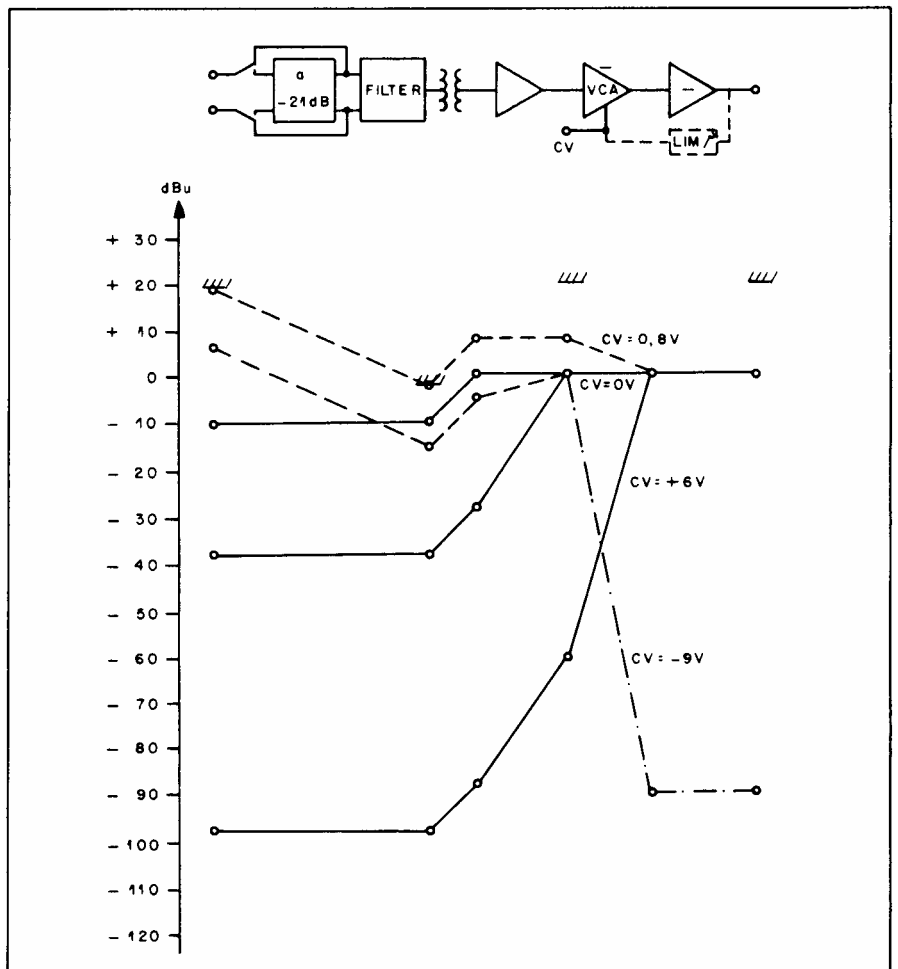
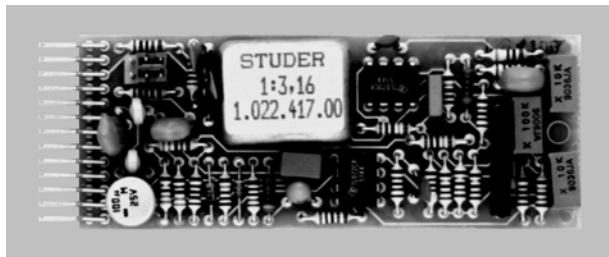
MANUFACTURER Mot=Motorola, NS=National Semiconductor, Six=Siliconics, TI=Texas Instruments

1.914.534.00 THRESHOLD LEVEL DETECTOR FRI88/06/1800  
 1.914.534.00 THRESHOLD LEVEL DETECTOR FRI88/09/0701  
 1.914.534.00 DUAL VOX DETECTOR (POS) FRI88/10/2702

Microphone Amplifier with Limiter

1.914.539

This assembly combines a microphone amplifier and a VCA limiter circuit with adjustable threshold level and program-depending release time. The input is balanced and floating, the output is unbalanced and with low impedance. Gain control is effected internally with a trimmer potentiometer, or externally with a gain-control DC voltage. A jumper-selectable pad reduces the input level by 21 dB.

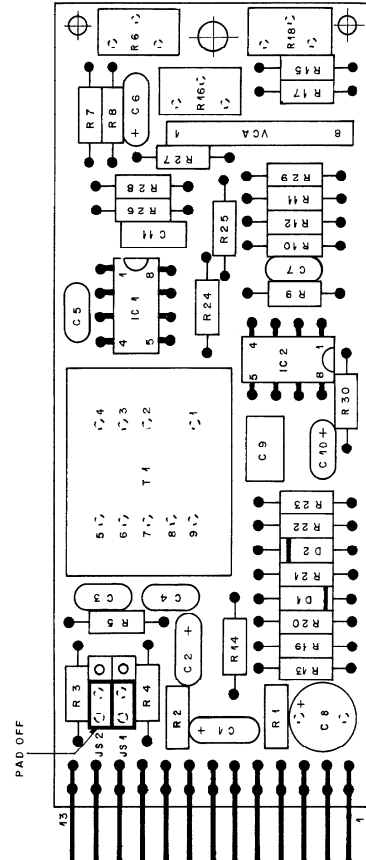
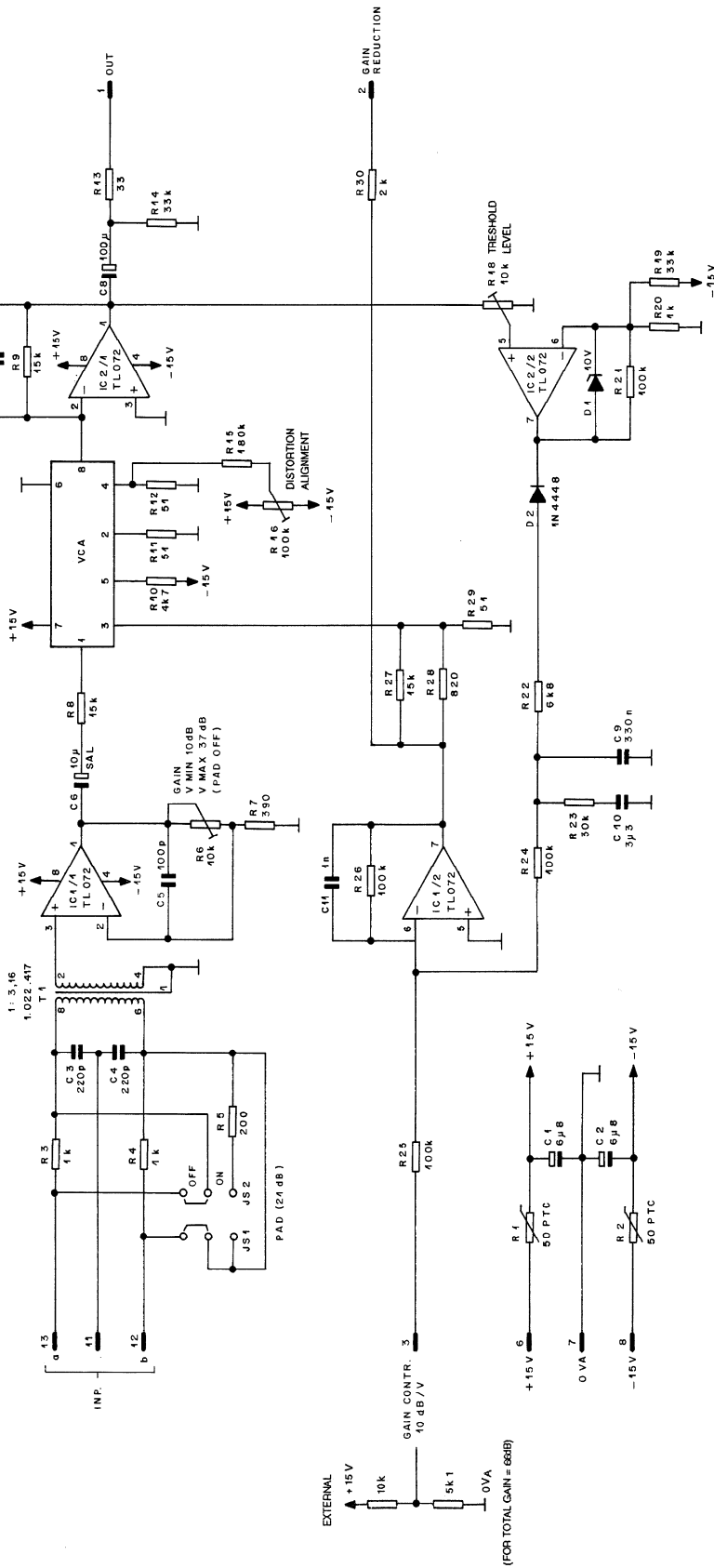


The operation of the limiter circuit can be monitored at the gain reduction output, if an appropriate instrument (GRM) is connected.

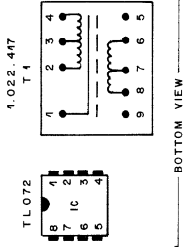
This card is ideally suited for talkback applications.

## Technical Specifications

<b>Input:</b>	Impedance	> <b>1 k<math>\Omega</math></b> , balanced, floating
	Max. level	<b>-2 dBu</b> (THD at 30 Hz $\leq$ 1%) <b>+19 dBu</b> , pad on
	Pad (attenuation)	<b>-21 dB</b> , jumper-selectable
	CMRR	> <b>60 dB</b> @ 16 kHz
	Source impedance	<b><math>\leq</math> 200 <math>\Omega</math></b>
<b>Output:</b>	Max. level	<b>+20 dBu</b>
	Impedance	<b>33 <math>\Omega</math></b>
	Load	<b><math>\geq</math> 2 k<math>\Omega</math></b>
	Gain adjust ( $v_1$ )	<b>min. +10 dB</b> , VCA = 0 dB; pad off
		<b>max. +37 dB</b> , VCA = 0 dB; pad off
		<b>min. -11 dB</b> , VCA = 0 dB; pad on
		<b>max. +16 dB</b> , VCA = 0 dB; pad on
	Gain control characteristics ( $v_2$ )	<b>10 dB/V</b>
DC range	<b>-10...+6 V</b> , pin3: gain control input	
Total gain	<b><math>v_{tot} = v_1 + v_2</math></b>	
Max. attenuation	<b>&gt; 90 dB</b>	
<b>General:</b>	Frequency response	<b><math>\pm</math>0.5 dB</b> , 30 Hz...16 kHz
	THD	<b><math>\leq</math> -50 dB</b> , 20 dB gain; 30 Hz...16 kHz
	Noise voltage	<b>-95 dBu</b> , pad on; 0 dB gain
	Noise figure	<b>F ~ 10 dB</b> , bandwidth = 23 kHz; 60 dB gain; $R_s = 200 \Omega$ ; pad off
<b>Limiter:</b>	Threshold level	<b>-7...+20 dBu</b>
	Attack time	<b>0.5 ms</b>
	Release time	<b>50 ms...1 s</b> , program-dependent
	Compression ratio	<b>10:1</b> @ 1 kHz
<b>Supply:</b>		<b><math>\pm</math>15 V</b> (25 mA)
<b>Ordering Information:</b>	Microphone amplifier with limiter	1.914.539.xx



CIS	PIN	EURO 32 PIN
IN a	13	1
IN b	42	2
IN L	41	3
	40	9
-15V	9	14
0VA	7	15
+15V	6	16
	5	
GC	4	40
GRM	2	5
OUT	1	13
		28
		27
		26
		25
		24
		23
		22
		21
		20
		19
		18
		17
		16
		15
		14
		13
		12
		11
		10
		9
		8
		7
		6
		5
		4
		3
		2
		1



4.10.91	STUDER REGENSDORF ZÜRICH	MIC. AMPLIFIER WITH LIMITER	1.914.539.00
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MSC MIC AMP / LIMITER

Ad ..POS.. ..REF.No... DESCRIPTION.....MANUFACTURER

C....1	59.26.2689	6.8 uF	16V	SAL		
C....2	59.26.2689	6.8 uF	16V	SAL		
C....3	59.34.4221	220 pF	63V	CER	5%	
C....4	59.34.4221	220 pF	63V	CER	5%	
C....5	59.34.4101	100 pF	63V	CER	5%	
C....6	59.26.5100	10 uF	25V	SAL		
C....7	59.34.4101	100 pF	63V	CER	5%	
C....8	59.22.4101	100 uF	16V	EL		
C....9	59.06.0334	330 nF	63V	PETP	10%	
C....10	59.30.6339	3.3 uF	35V	TA	20%	
C....11	59.06.0102	1 nF	63V	PETP	10%	
D....1	50.04.1114	BZX55-C10	Z 10V	0.4W		any
D....2	50.04.0125	1N4448	diode			any
IC....1	50.09.0101	TL072 CP	dual op.amp.	bifET		TI
IC....2	50.09.0101	TL072 CP	dual op.amp.	bifET		TI
IC....3	50.11.0140	dbx2150 A	VCA			dBx
JS....1	54.01.0021	Jumper	Au			
JS....2	54.01.0021	Jumper	Au			
MP....1	43.01.0108	ESE	ESE warning			
P....1	54.01.0273	13 PIN	CIS			
P....2	54.11.0136	2*3 PIN	Stiftleiste			
PCB...1	1.914.539.11		empty PCB			St
R....1	57.99.0206	50 Ohm	PTC			
R....2	57.99.0206	50 Ohm	PTC			
R....3	57.11.3102	1 kOhm				
R....4	57.11.3102	1 kOhm				
R....5	57.11.3201	200 Ohm				
R....6	58.01.9103	10 kOhm	variable resistor	10%	PGM	
R....7	57.11.3391	390 Ohm				
R....8	57.11.3153	15 kOhm				
R....9	57.11.3153	15 kOhm				
R....10	57.11.3472	4.7 kOhm				
R....11	57.11.3510	51 Ohm				
R....12	57.11.3510	51 Ohm				
R....13	57.11.3330	33 Ohm				
R....14	57.11.3333	33 kOhm				
R....15	57.11.3184	180 kOhm				
R....16	58.01.9104	100 kOhm	variable resistor	10%	PGM	
R....17	57.11.3102	1 kOhm				
R....18	58.01.9103	10 kOhm	variable resistor	10%	PGM	
R....19	57.11.3333	33 kOhm				
R....20	57.11.3102	1 kOhm				
R....21	57.11.3104	100 kOhm				
R....22	57.11.3682	6.8 kOhm				
R....23	57.11.3303	30 kOhm				
R....24	57.11.3104	100 kOhm				
R....25	57.11.3104	100 kOhm				
R....26	57.11.3104	100 kOhm				
R....27	57.11.3153	15 kOhm				
R....28	57.11.3821	820 Ohm				
R....29	57.11.3510	51 Ohm				
R....30	57.11.3202	2 kOhm				
T....1	1.022.417.00	1:3.16	input-transformer			St

CER = ceramic, EL = electrolytic, PETP = polyester  
SAL = solid aluminium, TA = tantal

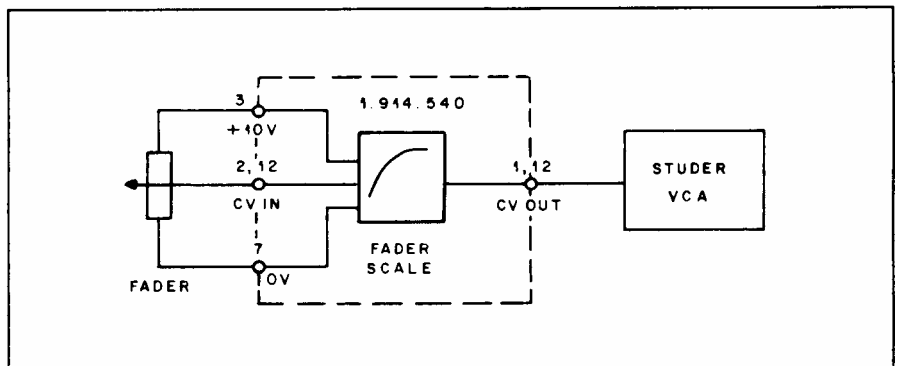
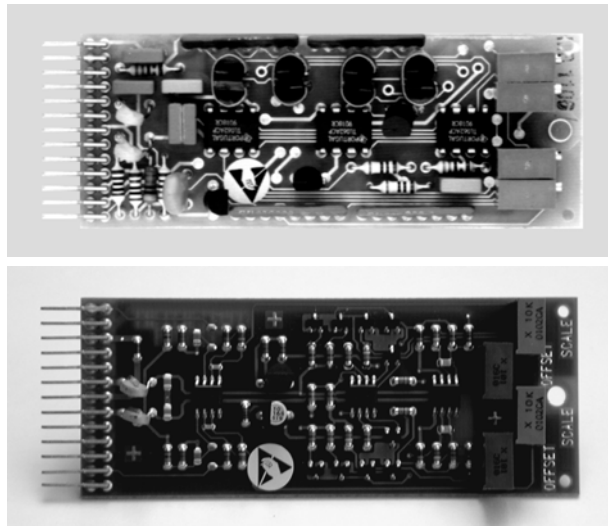
MANUFACTURER dBx= dBx-Incorp., St= Studer, TI= Texas Instruments

1.914.539.00 MIC.AMPLIFIER WITH LIMITER HOR20/11/9000

Dual Fader/VCA Control Voltage Interface

1.914.540 /541

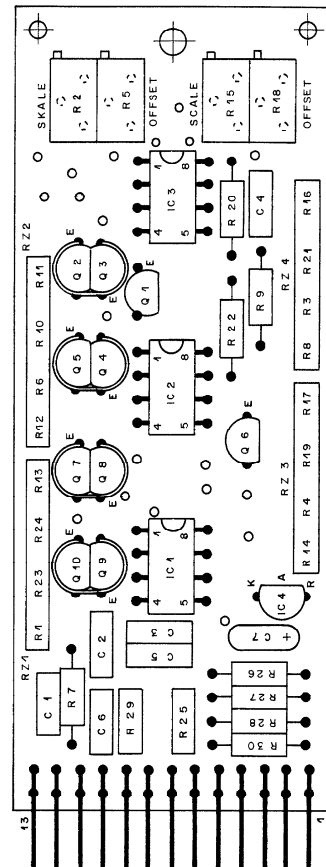
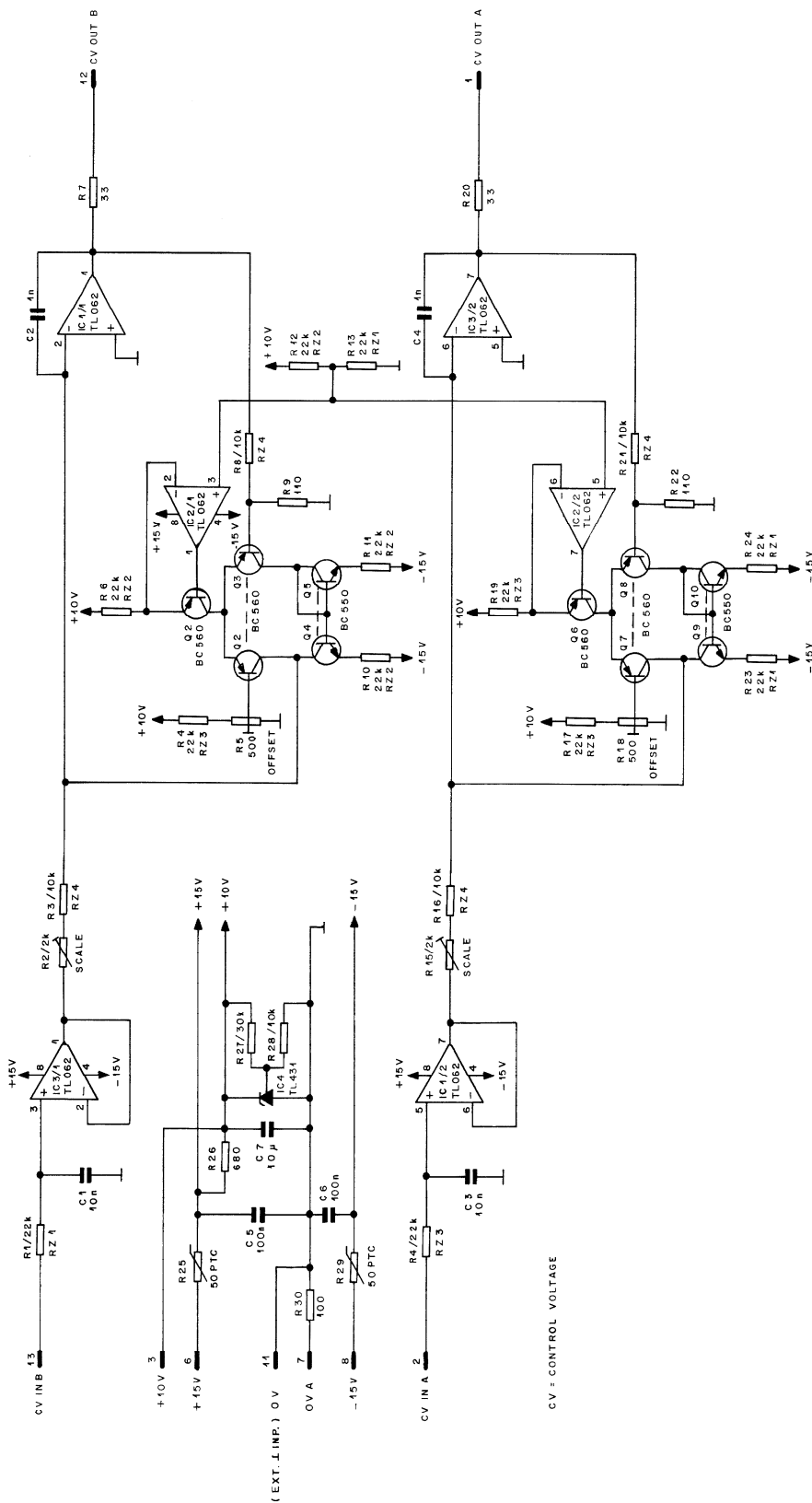
These interfaces are used to convert the voltage of a linear fader to the non-linear dB scale of a Studer VCA. One card processes two channels. It is available in two versions: 540.xx (0...+10 V<sub>DC</sub> control voltage), and 541.xx (+5...0 V<sub>DC</sub> control voltage). A regulated +10 V<sub>DC</sub> reference voltage is generated on-board. The DC from the fader's wiper is connected to the input. Offset and scale alignment is performed with on-board trimmer potentiometers for matching the VCA gain to the dB scale of the fader.



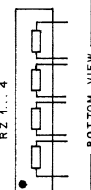
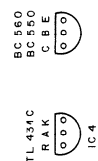
Technical Specifications

		<b>1.914.540.xx</b>	<b>1.914.541.xx</b>
<b>Input:</b>	Impedance	> 1 MΩ, unbalanced	100 kΩ, unbalanced
	Level range	0...+10 V	+5...0 V
<b>Output:</b>	Impedance	33 Ω, unbalanced	33 Ω, unbalanced
	Control range	+1 V...-10 V	+1 V...-10 V
<b>Supply:</b>		±15 V (15 mA)	
<b>Dimensions:</b>		MS-card, 34 × 85 mm	
<b>Ordering Information:</b>		Fader/VCA control interface	1.914.540.xx
		Fader/VCA control interface	1.914.541.xx





CIS	PIN	EURO	52 PIN
CV IN B	43	1	27
CV OUT B	42	2	28
OV (CV)	41	3	23
	10	9	29
-15.5V	8	14	
0VA	7	15	
+15.5V	6	16	
	5		
+10V (FADER)	4	4	30
CV IN A	3	5	31
CV OUT A	1	1	26
			32



7 10 91	STUDER REGENSDORF ZÜRICH	FADER / VCA CV INTERFACE BOARD	1.914.540.00
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MSC FADER / VCA INTERFACE

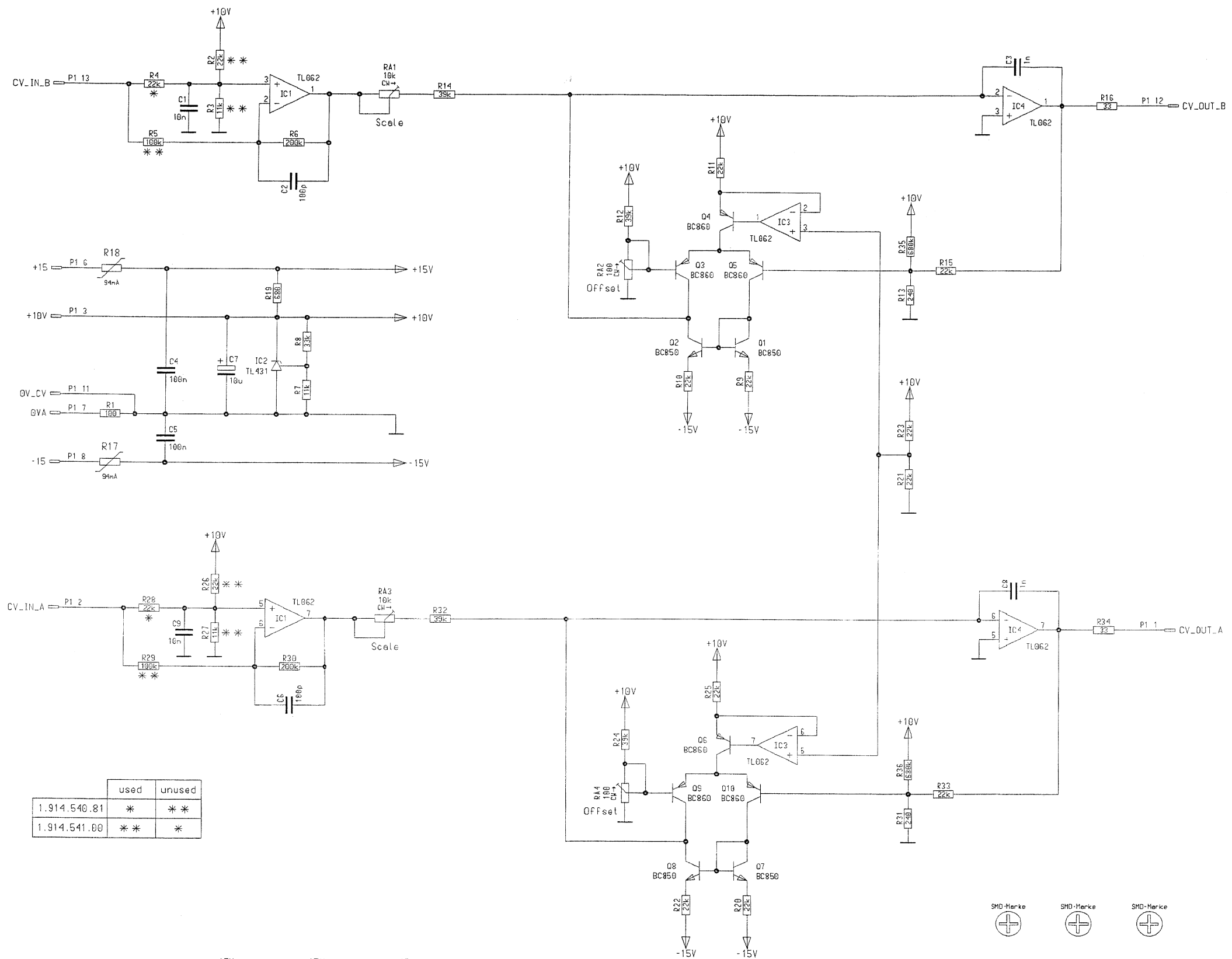
Ad	..POS..	...REF.No...	DESCRIPTION.....	MANUFACTURER
C....1	59.06.0103	10 nF	63V PE 10%	
C....2	59.06.0102	1 nF	63V PE 10%	
C....3	59.06.0103	10 nF	63V PE 10%	
C....4	59.06.0102	1 nF	63V PE 10%	
C....5	59.06.0104	0.1 uF	63V PE 10%	
C....6	59.06.0104	0.1 uF	63V PE 10%	
C....7	59.26.2100	10 uF	16V SAL	
IC....1	50.09.0119	TL062 ACP	dual op.amp.	TI
IC....2	50.09.0119	TL062 ACP	dual op.amp.	TI
IC....3	50.09.0119	TL062 ACP	dual op.amp.	TI
IC....4	50.10.0106	TL431 CLP	shunt regulator	TI
MP....1	50.20.2001	CLIP	2 * TO 92	
MP....2	50.20.2001	CLIP	2 * TO 92	
MP....3	50.20.2001	CLIP	2 * TO 92	
MP....4	50.20.2001	CLIP	2 * TO 92	
MP....5	43.01.0108	ESE	ESE warning	
P....1	54.01.0273	13 PIN	CIS	
PCB...1	1.914.540.11		empty PCB	St
Q....1	50.03.0496	BC560	PNP	Sie
Q....2	50.03.0600	BC560	PNP E6310	Sie see note 1
Q....3	50.03.0600	BC560	PNP E6310	Sie see note 1
Q....4	50.03.0524	BC550	NPN E6310	Sie see note 1
Q....5	50.03.0524	BC550	NPN E6310	Sie see note 1
Q....6	50.03.0496	BC560	PNP	Sie
Q....7	50.03.0600	BC560	PNP E6310	Sie see note 1
Q....8	50.03.0600	BC560	PNP E6310	Sie see note 1
Q....9	50.03.0524	BC550	NPN E6310	Sie see note 1
Q....10	50.03.0524	BC550	NPN E6310	Sie see note 1
R....1	58.05.0104	100 kOhm	multi-turn 10%	
R....2	58.05.0501	500 Ohm	multi-turn 10%	
R....3	57.11.3330	33 Ohm		
R....4	57.11.3241	240 Ohm		
R....5	58.05.0104	100 kOhm	multi-turn 10%	
R....6	58.05.0501	500 Ohm	multi-turn 10%	
R....7	57.11.3330	33 Ohm		
R....8	57.11.3241	240 Ohm		
R....9	57.92.1820	42 Ohm	PTC	
R....10	57.11.3681	680 Ohm		
R....11	57.11.3303	30 kOhm		
R....12	57.11.3103	10 kOhm		
R....13	57.92.1820	42 Ohm	PTC	
R....14	57.11.3101	100 Ohm		
RZ....1	57.88.2223	22 kOhm	network 4 * 22k	
RZ....2	57.88.2223	22 kOhm	network 4 * 22k	
RZ....3	57.88.2223	22 kOhm	network 4 * 22k	
RZ....4	57.88.2223	22 kOhm	network 4 * 22k	

SAL = electrolytic, PE = polyester

MANUFACTURER TI=Texas Instruments, Sie=Siemens, St=Studer

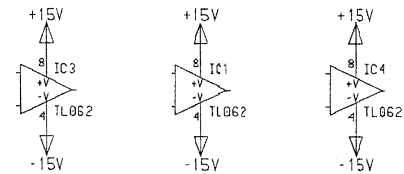
Note 1: Q2,Q3,Q4,Q5,Q7,Q8,Q9,Q10 must fulfill BV 678 I

1.914.540.00 FADER/VCA CV INTERFACE BOARD HOR16/11/9000

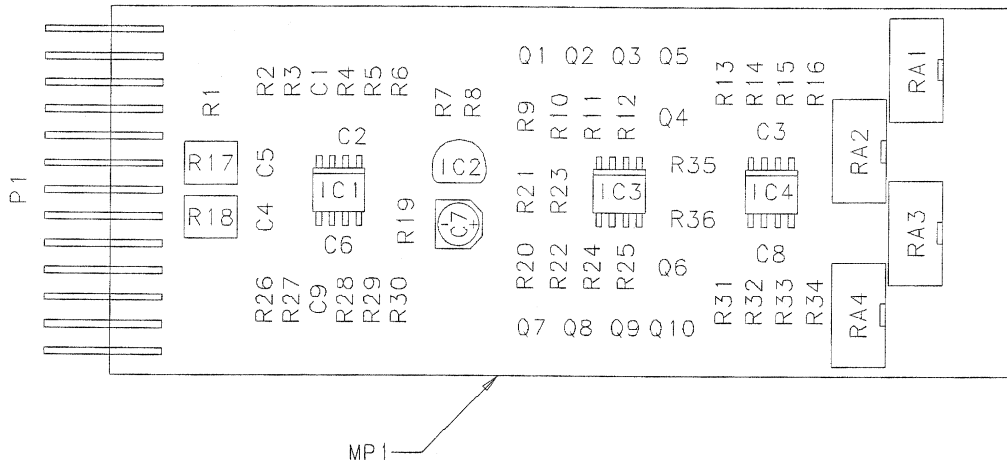


	used	unused
1.914.540.81	*	**
1.914.541.00	**	*

NC P1 4  
 NC P1 5  
 NC P1 9  
 NC P1 10



SMD-Merke (+) SMD-Merke (+) SMD-Merke (+)



Accompanying documents: Zugehörige Unterlagen: PL		General tolerance: Freimasstoleranz:		Scale: Masstab: 1.5:1		Edition Ausgabe	17.04.2000	ZT	ML	RL	(0)
Substitute for: Ersatz fuer:						Date Datum	Viso Gez.	Checked Gepr.	Seen Ges.	Index	
<b>STUDER</b> REGENSDORF		Description: Benennung:		FADER/VCA INTERFACE TYPE2 FADER/VCA CV INTERFACE		Page: Seite:	1 / 1	Number: Nummer:	1.914.541.00	1.914.540.81	

**Dual Fader/VCA Control Voltage IF 1.914.541.00 ( 0)**

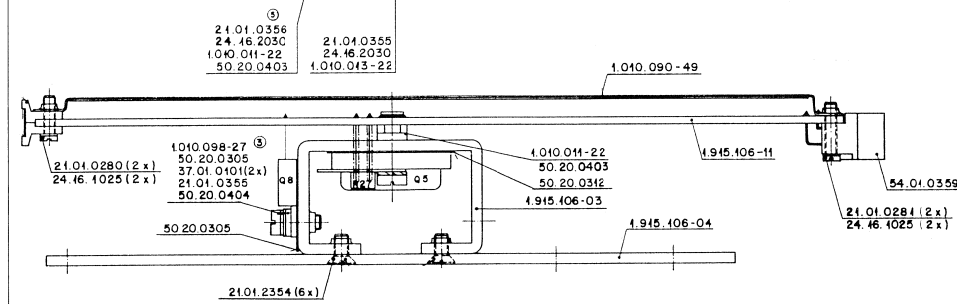
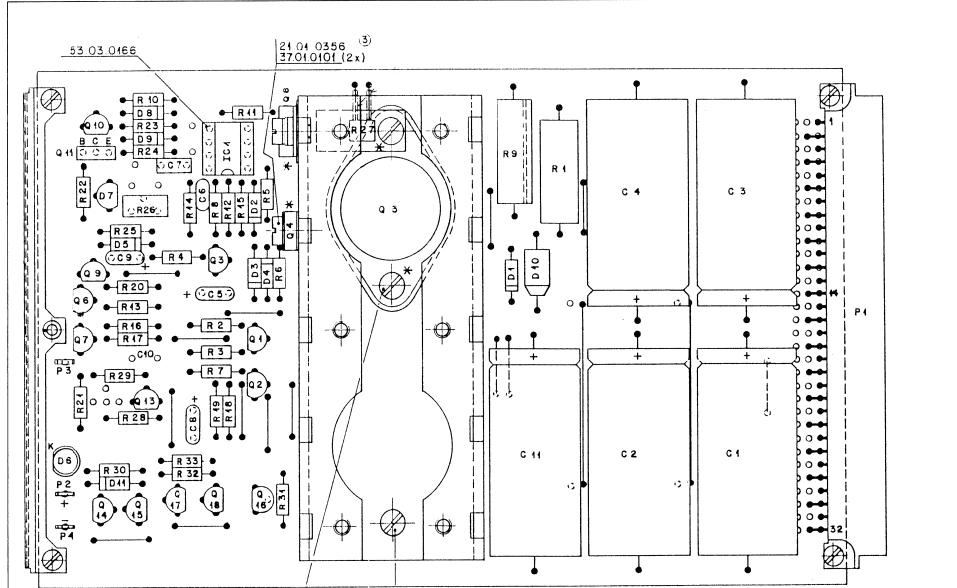
Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805				
0	C 2	59.60.2249	1 pce	100p	CER 50V, 5%, C0G, 0603				
0	C 3	59.60.2373	1 pce	1n0	CER 50V, 5%, C0G, 0805				
0	C 4	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805				
0	C 5	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805				
0	C 6	59.60.2249	1 pce	100p	CER 50V, 5%, C0G, 0603				
0	C 7	59.68.0065	1 pce	10u	EL 16V, 4.0*5.7				
0	C 8	59.60.2373	1 pce	1n0	CER 50V, 5%, C0G, 0805				
0	C 9	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805				
0	IC 1	50.61.0201	1 pce	TL062	Dual FET Op-Amp				
0	IC 2	50.10.0106	1 pce	TL431	Shunt regulator				
0	IC 3	50.61.0201	1 pce	TL062	Dual FET Op-Amp				
0	IC 4	50.61.0201	1 pce	TL062	Dual FET Op-Amp				
0	MP 1	1.914.541.11	1 pce		FADER/VCA INTERFACE2 PCB				
0	MP 2	1.914.541.04	1 pce		NR.-ETIKETTE 5 * 20				
0	MP 3	43.01.0108	1 pce	Label	ESE-Warnschild				
0	P 1	54.01.0273	1 pce	13p	Stecker CIS parallelsteck				
0	Q 1	50.60.0002	1 pce	BC850C	NPN 45V 100mA SOT 23				
0	Q 2	50.60.0002	1 pce	BC850C	NPN 45V 100mA SOT 23				
0	Q 3	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	Q 4	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	Q 5	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	Q 6	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	Q 7	50.60.0002	1 pce	BC850C	NPN 45V 100mA SOT 23				
0	Q 8	50.60.0002	1 pce	BC850C	NPN 45V 100mA SOT 23				
0	Q 9	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	Q 10	50.60.1002	1 pce	BC860C	PNP 45V 100mA SOT 23				
0	R 1	57.60.1101	1 pce	100R	MF, 1%, 0204, E24				
0	R 2	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 3	57.60.1113	1 pce	11k	MF, 1%, 0204, E24				
0	R 4	not used	1 pce	22k	MF, 1%, 0204, E24				
0	R 5	57.60.1104	1 pce	100k	MF, 1%, 0204, E24				
0	R 6	57.60.1204	1 pce	200k	MF, 1%, 0204, E24				
0	R 7	57.60.1113	1 pce	11k	MF, 1%, 0204, E24				
0	R 8	57.60.1333	1 pce	33k	MF, 1%, 0204, E24				
0	R 9	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 10	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 11	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 12	57.60.1393	1 pce	39k	MF, 1%, 0204, E24				
0	R 13	57.60.1241	1 pce	240R	MF, 1%, 0204, E24				
0	R 14	57.60.1393	1 pce	39k	MF, 1%, 0204, E24				
0	R 15	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 16	57.60.1330	1 pce	33R	MF, 1%, 0204, E24				
0	R 17	57.92.1820	1 pce	94mA	PTC 60V				
0	R 18	57.92.1820	1 pce	94mA	PTC 60V				
0	R 19	57.60.1681	1 pce	680R	MF, 1%, 0204, E24				
0	R 20	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 21	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 22	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 23	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 24	57.60.1393	1 pce	39k	MF, 1%, 0204, E24				
0	R 25	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 26	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 27	57.60.1113	1 pce	11k	MF, 1%, 0204, E24				
0	R 28	not used	1 pce	22k	MF, 1%, 0204, E24				
0	R 29	57.60.1104	1 pce	100k	MF, 1%, 0204, E24				
0	R 30	57.60.1204	1 pce	200k	MF, 1%, 0204, E24				
0	R 31	57.60.1241	1 pce	240R	MF, 1%, 0204, E24				
0	R 32	57.60.1393	1 pce	39k	MF, 1%, 0204, E24				
0	R 33	57.60.1223	1 pce	22k	MF, 1%, 0204, E24				
0	R 34	57.60.1330	1 pce	33R	MF, 1%, 0204, E24				
0	R 35	57.60.1684	1 pce	680k	MF, 1%, 0204, E24				
0	R 36	57.60.1684	1 pce	680k	MF, 1%, 0204, E24				
0	RA 1	58.01.9103	1 pce	10k	Cermet, 10%, 0.5W, vertical				
0	RA 2	58.01.9101	1 pce	100R	Cermet, 10%, 0.5W, vertical				
0	RA 3	58.01.9103	1 pce	10k	Cermet, 10%, 0.5W, vertical				
0	RA 4	58.01.9101	1 pce	100R	Cermet, 10%, 0.5W, vertical				

End of List

Comments:



STABILIZER 5/24V 1.915.106.00



INDI POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
C 1	59.25.5222	2200 µF	40V	EL
C 2	59.25.5222	2200 µF	40V	EL
C 3	59.25.5222	2200 µF	40V	EL
C 4	59.25.5222	2200 µF	40V	EL
C 5	59.26.5473	4,7 µF	25 V	SAL
C 6	59.34.4101	100 pF		CER
C 7	59.26.0104	0,1 µF		PE
C 8	59.26.3479	4,7 µF	25V	SAL
C 9	59.26.0470	4,7 µF	6,3V	SAL
C 10				
C 11	59.25.4272	2200 µF	25V	EL
D 1	50.04.0115	1N4004	1A	
D 2	50.04.0125	1N4448		
D 3	50.04.0125	1N4448		
D 4	50.04.0125	1N4448		
D 5	50.04.1120	2PD438	54	
D 6	50.04.2411	MY5753	LED CH4-28+2	MS/CM
D 7	50.10.0106	TL430	µ R 430 CLP	IC THF
D 8	50.04.0125	1N4448		
D 9	50.04.0125	1N4448		
D 10	50.04.0507	MS502	3A/30V	
D 11	50.04.0125	1N4448		
IC 1	50.03.0113	TL071	LF364 SINGLE FET OPA	TI/IL

INDI	DATE	NAME	MS - Monsanto
①		EL - Electrolytic	
②		SAL - Solid Aluminium	
③	28.11.81	PE - Polyester	TI - Texas Instruments
④	22.6.83	CER - CERAMIC	N - National
⑤	22.7.81	F - Fairchild	F - Fairchild

STUDER Stabilizer 5 ÷ 24V 1.915.106.00 PAGE 1 OF 3

INDI POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
Q 1	50.03.0515	BC307B	PNP (General purpose 0,1A/100V 240V	MS/CM
Q 2	50.03.0515	BC307B	PNP	
Q 3	50.03.0515	BC307B	PNP	
Q 4	50.03.0510	BD135K	NPN min 1A/100V	MS/CM
Q 5	50.03.0342	2N4534	NPN min 400mA/200V	W
Q 6	50.03.0515	BC307B	PNP	
Q 7	50.03.0515	BC307B	PNP	
Q 8	50.19.0126	T 2800	TRIAL 8 A SC146 D	RI/GE
Q 9	50.03.0515	BC307B	PNP	
Q 10	50.03.0436	BC237B	NPN (General purpose 0,1A/100V 240V	MS/CM
Q 11	50.03.0495	BD135K	NPN P min 2W	MS/CM
Q 12				
Q 13	50.03.0515	BC307B	PNP	
Q 14	50.03.0436	BC237B	NPN	
Q 15	50.03.0515	BC307B	PNP	
Q 16	50.03.0515	BC307B	PNP	
Q 17	50.03.0436	BC237B	NPN	
Q 18	50.03.0515	BC307B	PNP	
R 1	57.56.5108	0,1 Ω	4W	
R 2	57.11.4102	1,8 k	2%	
R 3	57.11.4103	10 k		
R 4	57.11.4103	10 k		
R 5	57.11.4279	3,7 Ω		
R 6	57.11.4102	1 k		
R 7	57.11.4103	10 k		
R 8	57.11.4102	1 k		
R 9	57.56.5278	0,27 Ω	4W	

INDI	DATE	NAME	N - Nippon
①			
②			
③	28.11.81		R - RCA
④	22.6.83		S - Siemens
⑤	22.7.81		T - Telefunken
⑥	22.7.81		GE - General Electric

STUDER Stabilizer 5 ÷ 24V 1.915.106.00 PAGE 2 OF 3

INDI POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
R 10	57.11.4101	180 Ω		
R 11	57.11.4102	1 k		
R 12	57.11.4102	1 k		
R 13	57.11.4103	10 k		
R 14	57.11.4102	1,8 k		
R 15	57.11.4103	10 k		
R 16	57.11.4251	510 Ω	2%	
R 17	57.11.4101	180 Ω	2%	
R 18	57.11.4103	68 k	2%	
R 19	57.11.4302	3,9 k	2%	
R 20	57.11.4105	1 M		
R 21	57.11.4101	180 Ω		
R 22	57.11.4562	5,6 k		
R 23	57.11.4103	10 k		
R 24	57.11.4470	47 Ω		
R 25	57.11.4153	15 k		
R 26	58.04.7103	10 k	L111 10% CERMET	
R 27	57.99.0803	470 k	10% NTC	Sie
R 28	57.11.4332	3,3 k		
R 29	57.11.4279	3,7 Ω		
R 30	57.11.4103	10 k		
R 31	57.11.4104	100 k		
R 32	57.11.4104	100 k		
R 33	57.11.4109	100 k		

INDI	DATE	NAME	Sie - Siemens
①			
②			
③	28.11.81		
④	22.6.83		
⑤	22.7.81		

STUDER Stabilizer 5 ÷ 24V 1.915.106.00 PAGE 3 OF 3

14.1.93	JK	14	11	①
10.4.80	JK	8	11	①
5.6.87	JK	14	11	①
10.1.86	AHG	14	11	①
4.5.84	AHG	14	11	①
4.4.84	AHG	14	11	①
3.8.81	Ho	14	11	①

Kopie Nr.:

STUDER REGENSDORF ZÜRICH

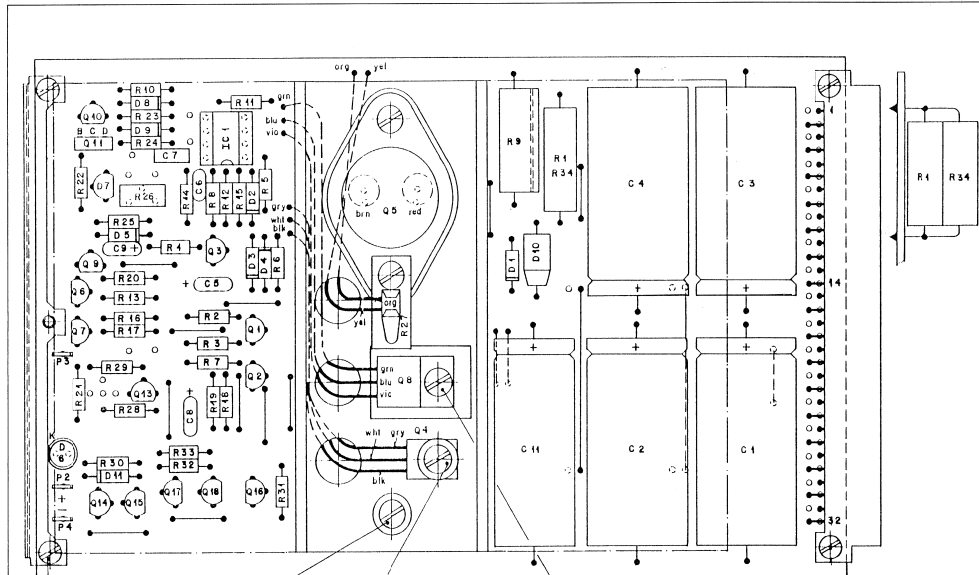
Stabilizer 5 ÷ 24V

1.915.106-00





STABILIZER 5/24V 5A 1.915.108.00



INDX POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
C 1	59.25.5222	2200 µF	40V	EL
C 2	59.25.5222	2200 µF	40V	EL
C 3	59.25.5222	2200 µF	40V	EL
C 4	59.25.5222	2200 µF	40V	EL
C 5	59.26.5679	4,7 µF	25 V	SAL
C 6	59.34.4101	100 pF		CER
C 7	59.06.0104	0,1 µF		PE
C 8	59.26.5679	4,7 µF	25V	SAL
C 9	59.26.0470	44 µF	6,3V	SAL
C 10				
C 11	59.25.4222	2200 µF	25V	EL
D 1	50.04.0115	1N4004	1A	
D 2	50.04.0125	1N4448		
D 3	50.04.0125	1N4448		
D 4	50.04.0125	1N4448		
D 5	50.04.1120	ZPD 4,3V	5%	
DL 6	50.04.2411	NY5253	LED CMA-25FB WSKM	
D 7	50.10.0106	TL 430	µA 430 CLP	IC T1/F
D 8	50.04.0125	1N4448		
D 9	50.04.0125	1N4448		
D 10	50.04.0507	MR502	3A/30V	
D 11	50.04.0125	1N4448		
IC 1	50.09.0123	7L071	LF351 SINGLE FET OPA	T1/N

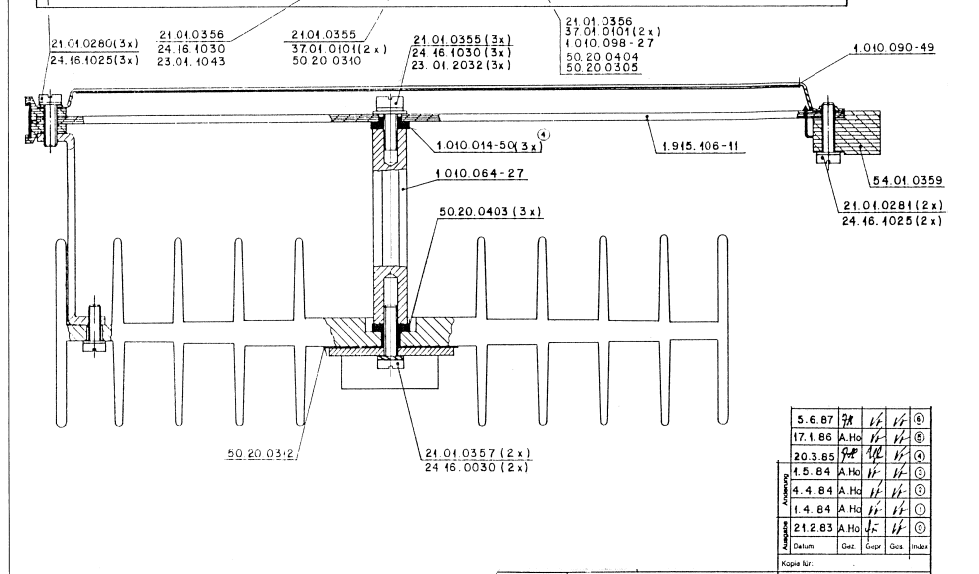
INDX	DATE	NAME	CL - Electrolytic	MS - Mansanto
①			SAL - Solid Aluminium <td>CM - Chicago Miniatur </td>	CM - Chicago Miniatur
②	28.11.74		PE - Polyester <td>TI - Texas Instruments </td>	TI - Texas Instruments
③	22.6.83		CER - CERAMIC <td>N - National </td>	N - National
④	22.11.82			F - Fairchild

STUDER STABILIZER 5 ÷ 24V/5A 1.915.108.00 page 3 of 3

INDX POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
Q 1	50.03.0515	BC307B	PNP (General purpose, 0,1A/10V 240V	SKH
Q 2	50.03.0515	BC307B	PNP	
Q 3	50.03.0515	BC307B	PNP	
Q 4	50.03.0510	BD135C	PNP min 1A/10V	MS/T
Q 5	50.03.0342	2N563A	NPN min 100/min 200V	M
Q 6	50.03.0515	BC307B	PNP	
Q 7	50.03.0515	BC307B	PNP	
Q 8	50.03.0184	T 2300	TRIAC 8 A SC 146 D	8/GF
Q 9	50.03.0515	BC307B	PNP	
Q 10	50.03.0515	BC307B	PNP	
Q 11	50.03.0436	BC239B	NPN (General purpose, 0,1A/100V 40V	MS/T
Q 12				
Q 13	50.03.0515	BC307B	PNP	
Q 14	50.03.0436	BC239B	NPN	
Q 15	50.03.0515	BC307B	PNP	
Q 16	50.03.0515	BC307B	PNP	
Q 17	50.03.0436	BC239B	NPN	
Q 18	50.03.0515	BC307B	PNP	
R 1	57.56.5108	0,1 Ω	4W	
R 2	57.11.4182	1,8 k	2%	
R 3	57.11.4103	10 k		
R 4	57.11.4103	10 k		
R 5	57.11.4279	2,7 Ω		
R 6	57.11.4102	1 k		
R 7	57.11.4103	10 k		
R 8	57.11.4102	1 k		
R 9	57.56.5108	0,1 Ω	4W	

INDX	DATE	NAME	M - Motorola
①			R - RCA
②	28.11.74		S - Siemens
③	22.6.83		T - Telefunken
④	22.11.82		GE - General Electric

STUDER Stabilizer 5 ÷ 24V/5A 1.915.108.00 page 2 of 3



INDX POS NO	PART NO	VALUE	SPECIFICATIONS/EQUIVALENT	MFR
R 10	57.11.4184	180 Ω		
R 11	57.11.4102	1 k		
R 12	57.11.4102	1 k		
R 13	57.11.4103	10 k		
R 14	57.11.4103	10 k		
R 15	57.11.4103	10 k		
R 16	57.11.4564	510 Ω	2%	
R 17	57.11.4181	180 Ω	2%	
R 18	57.11.4643	68 k	2%	
R 19	57.11.4322	3,9 k	2%	
R 20	57.11.4165	1 M		
R 21	57.11.4181	180 Ω		
R 22	57.11.4562	5,6 k		
R 23	57.11.4183	18 k		
R 24	57.11.4470	47 Ω		
R 25	57.11.4153	16 k		
R 26	58.01.7413	20 k		
R 27	57.53.0803	+70%	LIN 11% CERMET	Si
R 28	57.11.4232	3,3 k	+10% NTC	
R 29	57.11.4279	2,7 Ω		
R 30	57.11.4104	100 k		
R 31	57.11.4114	100 k		
R 32	57.11.4104	100 k		
R 33	57.11.4184	100 k		
R 34	57.56.5108	0,1 Ω	4W	

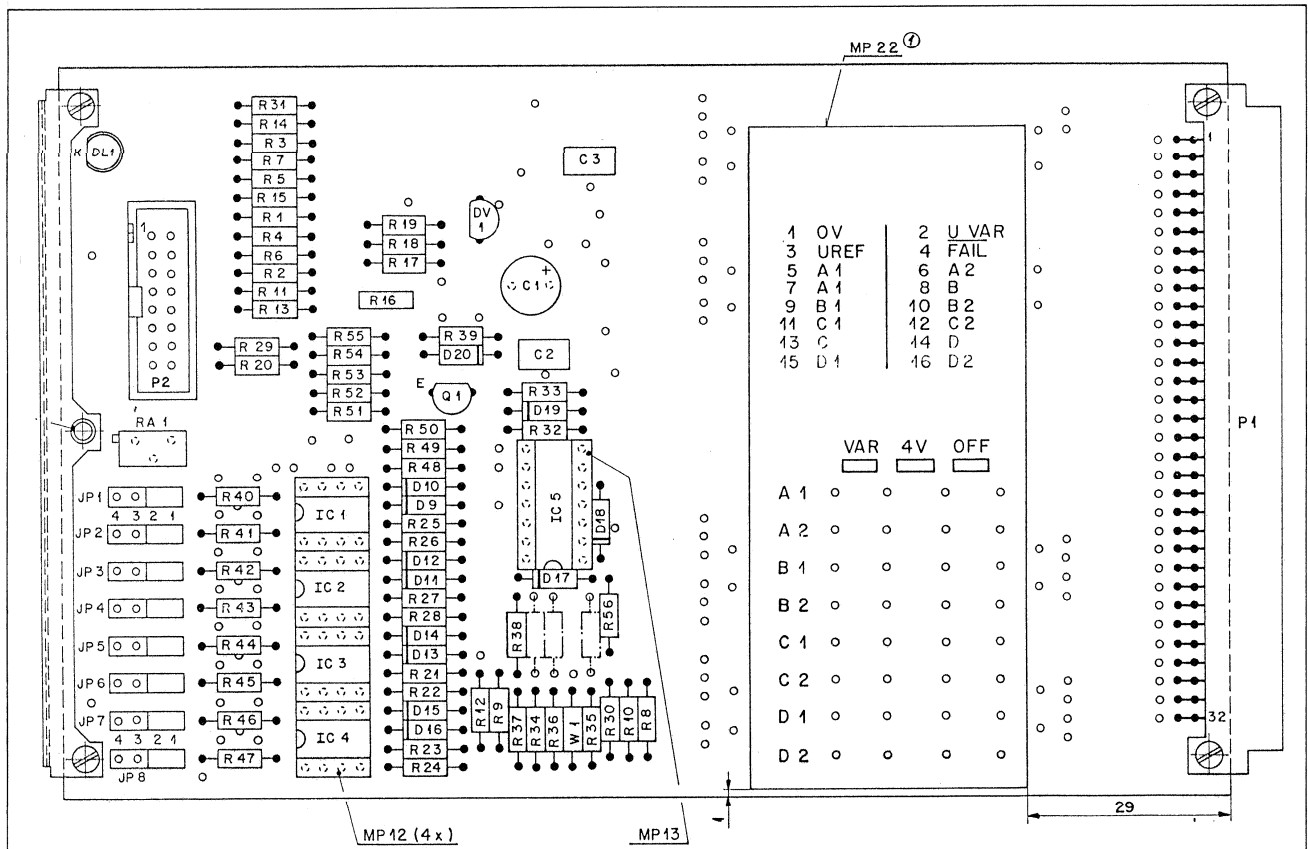
INDX	DATE	NAME	Si - Siemens
①			
②	28.11.74		
③	22.6.83		
④	22.11.82		

STUDER Stabilizer 5 ÷ 24V/5A 1.915.108.00 page 3 of 3

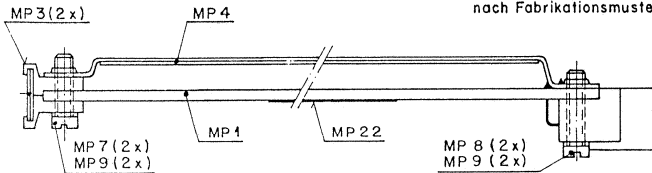
STUDER REGENSDORF ZÜRICH Stabilizer 5÷24V/5A 1.915.108-00



DIODES / POWER ALARM 2 BOARD 1.915.109.00



ESE-Warnschild aufgeklebt nach Fabrikationsmuster.



STUDER  
REGNSDORF  
ZÜRICH

Bestimmung: **DIODES / POWER ALARM 2 BOARD ESE**

Nummer: **1.915.109-00**

Industrie					③
26.3.91	04	B	A	H	①
30.11.90	10	B	n	S	②
Datum	Gez	Gepr	Gas	Index	
Kopie für:					

Ad	..POS.	..REF.No.	DESCRIPTION	MANUFACTURER
01	C....1	59.22.4221	100 uF	EL 16V
	C....1	59.22.4221	220 uF	EL 16V
	C....2	59.06.5474	470 nF	PE
	C....3	59.06.5474	470 nF	PE
D....9	50.04.0127	BAT 85		
D....10	50.04.0127	BAT 85		
D....11	50.04.0127	BAT 85		
D....12	50.04.0127	BAT 85		
D....13	50.04.0127	BAT 85		
D....14	50.04.0127	BAT 85		
D....15	50.04.0127	BAT 85		
D....16	50.04.0127	BAT 85		
D....17	50.04.0125	1N4448	75V 100mA	
D....18	50.04.0125	1N4448	75V 100mA	
D....19	50.04.0125	1N4448	75V 100mA	
D....20	50.04.0125	1N4448	75V 100mA	
DL....1	50.04.2111	Led red		
DV....1	50.10.0106	TL 431	ref	
IC....1	50.05.0283	LM 393	dual voltage comparator	
IC....2	50.05.0283	LM 393	dual voltage comparator	
IC....3	50.05.0283	LM 393	dual voltage comparator	
IC....4	50.05.0283	LM 393	dual voltage comparator	
IC....5	50.07.0008	4093	quad 2 input nand	
JJ....1	54.01.0021	8 pcs	jumper jack	
JP....1	54.01.0020	32 pcs	jumper pin	
P....1	54.11.2004		2*32 pol eurostecker	
P....2	54.14.2002		16 pol Stecker	
Q....1	50.03.0340	BC 337	npn 800mA	



DIODES / POWER ALARM 2 BOARD 1.915.109.00

Ad	..POS..	..REF.No...	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No...	DESCRIPTION.....	MANUFACTURER
R....1		57.11.3102	1 kOhm 1% 0.25W MF		R....52		57.11.3104	100 kOhm 1% 0.25W MF	
R....2		57.11.3102	1 kOhm 1% 0.25W MF		01 R....52		57.11.3103	10 kOhm 1% 0.25W MF	
R....3		57.11.3102	1 kOhm 1% 0.25W MF		R....53		57.11.3104	100 kOhm 1% 0.25W MF	
R....4		57.11.3102	1 kOhm 1% 0.25W MF		01 R....53		57.11.3103	10 kOhm 1% 0.25W MF	
R....5		57.11.3102	1 kOhm 1% 0.25W MF		R....54		57.11.3104	100 kOhm 1% 0.25W MF	
R....6		57.11.3102	1 kOhm 1% 0.25W MF		01 R....54		57.11.3103	10 kOhm 1% 0.25W MF	
R....7		57.11.3102	1 kOhm 1% 0.25W MF		R....55		57.11.3104	100 kOhm 1% 0.25W MF	
R....8		57.11.3102	1 kOhm 1% 0.25W MF		01 R....55		57.11.3103	10 kOhm 1% 0.25W MF	
R....9		57.11.3102	1 kOhm 1% 0.25W MF		R....56		57.11.3104	100 kOhm 1% 0.25W MF	
R....10		57.11.3102	1 kOhm 1% 0.25W MF						
R....11		57.11.3102	1 kOhm 1% 0.25W MF		RA....1		58.05.0502	5 kOhm	trimpoti
R....12		57.11.3102	1 kOhm 1% 0.25W MF		W....1		57.11.3000	0 Ohm	
R....13		57.11.3102	1 kOhm 1% 0.25W MF		MP....1		1.915.109.11	1 pcs	Print
R....14		57.11.3102	1 kOhm 1% 0.25W MF		MP....2		1.915.109.01	1 pcs	Bez. Streifen 6.3*91
R....15		57.11.3102	1 kOhm 1% 0.25W MF		MP....3		1.010.006.33	2 pcs	Griffhaelften
R....16		57.92.1121	22 Ohm PTC		MP....4		1.010.090.49	1 pcs	Abschirmblech
R....17		57.11.3221	220 Ohm 1% 0.25W MF		MP....5		1.010.096.49	1 pcs	Klarsicht Schild
R....18		57.11.3202	2 kOhm 1% 0.25W MF		MP....6		28.21.1380	1 pcs	Rohrniete D2.5/6
R....19		57.11.3332	3.3 kOhm 1% 0.25W MF		MP....7		21.01.0280	2 pcs	Z - Schraube M2.5*8
01 R....19		57.11.3103	10 kOhm 1% 0.25W MF		MP....8		21.01.0281	2 pcs	Z - Schraube M2.5*10
R....20		57.11.3512	5.1 kOhm 1% 0.25W MF		MP....9		24.16.1025	4 pcs	Rippenscheibe D2.7/5
R....21		57.11.3102	1 kOhm 1% 0.25W MF		MP...10		43.01.0108	1 pcs	ESE-Warnschild
01 R....21		57.11.3332	3.3 kOhm 1% 0.25W MF		MP...11		0	1 pcs	
R....22		57.11.3102	1 kOhm 1% 0.25W MF		MP...12		53.03.0166	4 pcs	IC-Sockel 8 Pin
01 R....22		57.11.3332	3.3 kOhm 1% 0.25W MF		MP...13		53.03.0167	1 pcs	IC-Sockel 16 Pin
R....23		57.11.3102	1 kOhm 1% 0.25W MF		MP...22		1.915.109.02	1 pcs	Klebschild fuer Jumper
01 R....23		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....24		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....24		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....25		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....25		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....26		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....26		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....27		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....27		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....28		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....28		57.11.3332	3.3 kOhm 1% 0.25W MF						
R....29		57.11.3102	1 kOhm 1% 0.25W MF						
01 R....29		57.11.3103	10 kOhm 1% 0.25W MF						
R....30		57.11.3103	10 kOhm 1% 0.25W MF						
R....31		57.11.3102	1 kOhm 1% 0.25W MF						
R....32		57.11.3474	470 kOhm 1% 0.25W MF						
R....33		57.11.3103	10 kOhm 1% 0.25W MF						
R....34		57.11.3101	100 Ohm 1% 0.25W MF						
R....35		57.11.3101	100 Ohm 1% 0.25W MF						
R....36		57.11.3101	100 Ohm 1% 0.25W MF						
R....37		57.11.3101	100 Ohm 1% 0.25W MF						
R....38		57.11.3103	10 kOhm 1% 0.25W MF						
R....39		57.11.3103	10 kOhm 1% 0.25W MF						
R....40		57.11.3105	1 MOhm 1% 0.25W MF						
R....41		57.11.3105	1 MOhm 1% 0.25W MF						
R....42		57.11.3105	1 MOhm 1% 0.25W MF						
R....43		57.11.3105	1 MOhm 1% 0.25W MF						
R....44		57.11.3105	1 MOhm 1% 0.25W MF						
R....45		57.11.3105	1 MOhm 1% 0.25W MF						
R....46		57.11.3105	1 MOhm 1% 0.25W MF						
R....47		57.11.3105	1 MOhm 1% 0.25W MF						
R....48		57.11.3104	100 kOhm 1% 0.25W MF						
01 R....48		57.11.3103	10 kOhm 1% 0.25W MF						
R....49		57.11.3104	100 kOhm 1% 0.25W MF						
01 R....49		57.11.3103	10 kOhm 1% 0.25W MF						
R....50		57.11.3104	100 kOhm 1% 0.25W MF						
01 R....50		57.11.3103	10 kOhm 1% 0.25W MF						
R....51		57.11.3104	100 kOhm 1% 0.25W MF						
01 R....51		57.11.3103	10 kOhm 1% 0.25W MF						

MP....1	1.915.109.11	1 pcs	Print	Studer
MP....2	1.915.109.01	1 pcs	Bez. Streifen 6.3*91	Studer
MP....3	1.010.006.33	2 pcs	Griffhaelften	Studer
MP....4	1.010.090.49	1 pcs	Abschirmblech	Studer
MP....5	1.010.096.49	1 pcs	Klarsicht Schild	
MP....6	28.21.1380	1 pcs	Rohrniete D2.5/6	
MP....7	21.01.0280	2 pcs	Z - Schraube M2.5*8	
MP....8	21.01.0281	2 pcs	Z - Schraube M2.5*10	
MP....9	24.16.1025	4 pcs	Rippenscheibe D2.7/5	
MP...10	43.01.0108	1 pcs	ESE-Warnschild	
MP...11	0	1 pcs		
MP...12	53.03.0166	4 pcs	IC-Sockel 8 Pin	
MP...13	53.03.0167	1 pcs	IC-Sockel 16 Pin	
MP...22	1.915.109.02	1 pcs	Klebschild fuer Jumper	

01 Behebung folgender Fehler:  
Wenn die Karte kalt ist, wird ein Alarm ausgeloeost.  
Unterlagen anpassen.

CER=Ceramic,	EL =Elektrolyt
MF =Metal Film,	PE =Polyesterfolien

MANUFACTURER : \*

- Fe =Ferranti
- NE =Nippon Electronic Corp.
- NS =National Semiconductors
- Ra =Raytheon
- Six=Siliconix
- Tho=Thomson
- Ti =Texas Instrument

1.915.109.00	DIODES/POWER ALARM 2 BOARD	SE 90/03/1000
1.915.109.00	DIODES/POWER ALARM 2 BOARD	SE 91/03/2601





POWER SUPPLY LED 3V...6V 1.915.111.81

Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C....1	59.06.0104	100 nF	PE	
C....2	59.06.0104	1000 uF	ALU 40V	
C....3	59.29.4472	4700 uF	EL 40V	
C....4	59.06.0153	15 nF	PE	
C....5	59.06.0222	2.2 nF	PE	
C....6	59.06.0222	2.2 nF	PE	
C....7	59.06.0222	2.2 nF	PE	
C....8	59.29.1107	10000 uF	EL 10V	
C....9	59.22.6102	1000 uF	ALU	
C....10	59.06.0104	100 nF	PE	
C....11	59.06.0104	100 nF	PE	
C....12	59.06.0104	100 nF	PE	
C....13	59.06.0104	100 nF	PE	
C....14	59.06.0104	100 nF	PE	
C....15	59.06.0104	100 nF	PE	
C....16	59.26.2150	15 uF	ALU 16V dry	
C....17	59.26.2150	15 uF	ALU 16V dry	
C....18	59.26.2150	15 uF	ALU 16V dry	
C....19	59.26.2150	15 uF	ALU 16V dry	
C....20	59.26.2150	15 uF	ALU 16V dry	
C....21	59.26.2150	15 uF	ALU 16V dry	
C....22	59.26.2150	15 uF	ALU 16V dry	
C....23	59.26.2150	15 uF	ALU 16V dry	
C....24	59.26.2150	15 uF	ALU 16V dry	
C....25	59.26.2150	15 uF	ALU 16V dry	
C....26	59.26.2150	15 uF	ALU 16V dry	
C....27	59.26.2150	15 uF	ALU 16V dry	
C....28	59.06.0222	2.2 nF	PE	
C....29	59.34.1181	180 pF	CER	
C....30	59.06.0104	100 nF	PE	
C....31	59.06.0104	100 nF	PE	
C....32	59.06.0103	10 nF	PE	
C....33	59.06.0334	330 nF	PE	
C....34	59.06.0334	330 nF	PE	
C....35	59.26.2150	15 uF	ALU 16V dry	
C....36	59.06.0104	100 nF	PE	
D....1	50.04.0138	UF4004		
D....2	50.04.0138	UF4004		
D....3	50.04.0517	BYV 32	dual diode 2*10A	
D....4	50.04.0517	BYV 32	dual diode 2*10A	
D....5	50.04.0125	1M4448		
D....6	50.04.1108	Z 5.6V		
DL....1	50.04.2113	MV5453	LED 5mm green	
DL....2	50.04.2111	MV5753	LED 5mm red	
DLQ....1	50.04.3200	CNY17	single optoisolator	GI
DLQ....2	50.04.3200	CNY17	single optoisolator	GI
F....1	51.01.0125	6.3A	fuse	
IC....1	50.05.0283	LM393	dual comparator	NS
IC....2	50.10.0106	TL431C	shunt voltage regulator	TI
IC....3	50.10.0108	LM317	series voltage regulator	NS
IC....4	50.10.0113	UC3843	current mode PWM controller	UN
L....1	1.022.640.00	38 uH	SA	STUDER
L....2	1.022.641.00	22 uH	dual coil 2*5A	STUDER
L....3	1.022.642.00	1.6 mH	dual coil 2*10A	STUDER
MP....1	1.915.111.12	1 pcs	Power Supply Led 3-6V PCB	STUDER
MP....2	50.20.3005	1 pcs	heat-sink black 1.8 K/M	STUDER
MP....3	0	not used		
MP....4	0	not used		
MP....5	50.20.0305	4 pcs	Glimmerscheibe	
MP....6	50.20.0404	4 pcs	Isolierdurchfuehrung	
MP....7	53.03.0106	1 pcs	fuse holder 10A	
MP....8	1.915.111.93	1 pcs	LL Power Supply Led 3-6V	
MP....9	53.03.0166	2 pcs	IC-socket 8 pins	
MP....10	1.010.012.50	3 pcs	LED-clip (2LED INTIC)	
MP....11	1.915.111.01	1 pcs	Abdeckhaube Bestueckseite	STUDER
MP....12	1.915.111.02	1 pcs	Abdeckhaube Loetseite	STUDER
MP....13	21.53.0352	8 pcs	Z Schraube M3*4 (Abdeckhaube)	
MP....14	1.915.111.04	1 pcs	Bez. Streifen 6.3*9	
MP....15	1.010.096.49	1 pcs	Klarsichtschild	
MP....16	38.21.1380	3 pcs	Rohrniete D2.2*5*6.5	
MP....17	28.99.0119	2 pcs	Rohrniete D 2.5*9	
MP....18	24.16.1030	11 pcs	Rippenscheibe M3	
MP....19	1.010.006.33	2 pcs	Griffhaelfte	
MP....20	37.01.0101	8 pcs	Tellerfeder	
MP....21	21.01.0356	4 pcs	Z Schraube M3*10 (Halbleiterm.)	
MP....22	1.010.098.27	4 pcs	Distanzhulse D 3.1/7*2.3	
MP....23	1.915.111.03	1 pcs	Isolation 138*89 selbstklebend	
MP....25	1.010.088.27	3 pcs	Distanzhulse D 3.2/7 * 35	
MP....26	21.53.0357	3 pcs	Z-Schraube M3*2	
MP....27	0	not used		
MP....28	55.03.0158	23 mm	Isolierschlauch (R6)	
MP....30	1.010.123.51	1 pcs	Test-Eckleiste 9*20 (T 6.3A)	
MP....31	54.02.0320	2 pcs	Flachstecker (Tp1, Tp2)	
MP....32	1.915.111.05	1 pcs	Klebschild (Poti Led Tp)	
P....1	54.11.2004	32 pins	Eurocard connector	
Q....1	50.03.1509	IRF 540	power MOS-FET	GE
Q....2	50.03.1509	IRF 540	power MOS-FET	GE
Q....3	50.03.0340	BC 337	NPN standard	
Q....4	50.03.0351	BC 327	PNP standard	
Q....5	50.03.0523	ZTX 651	NPN 2A	
Q....6	50.03.0352	ZTX 751	PNP 2A	
Q....7	50.03.0340	BC 337	NPN standard	



POWER SUPPLY LED 3V...6V 1.915.111.81

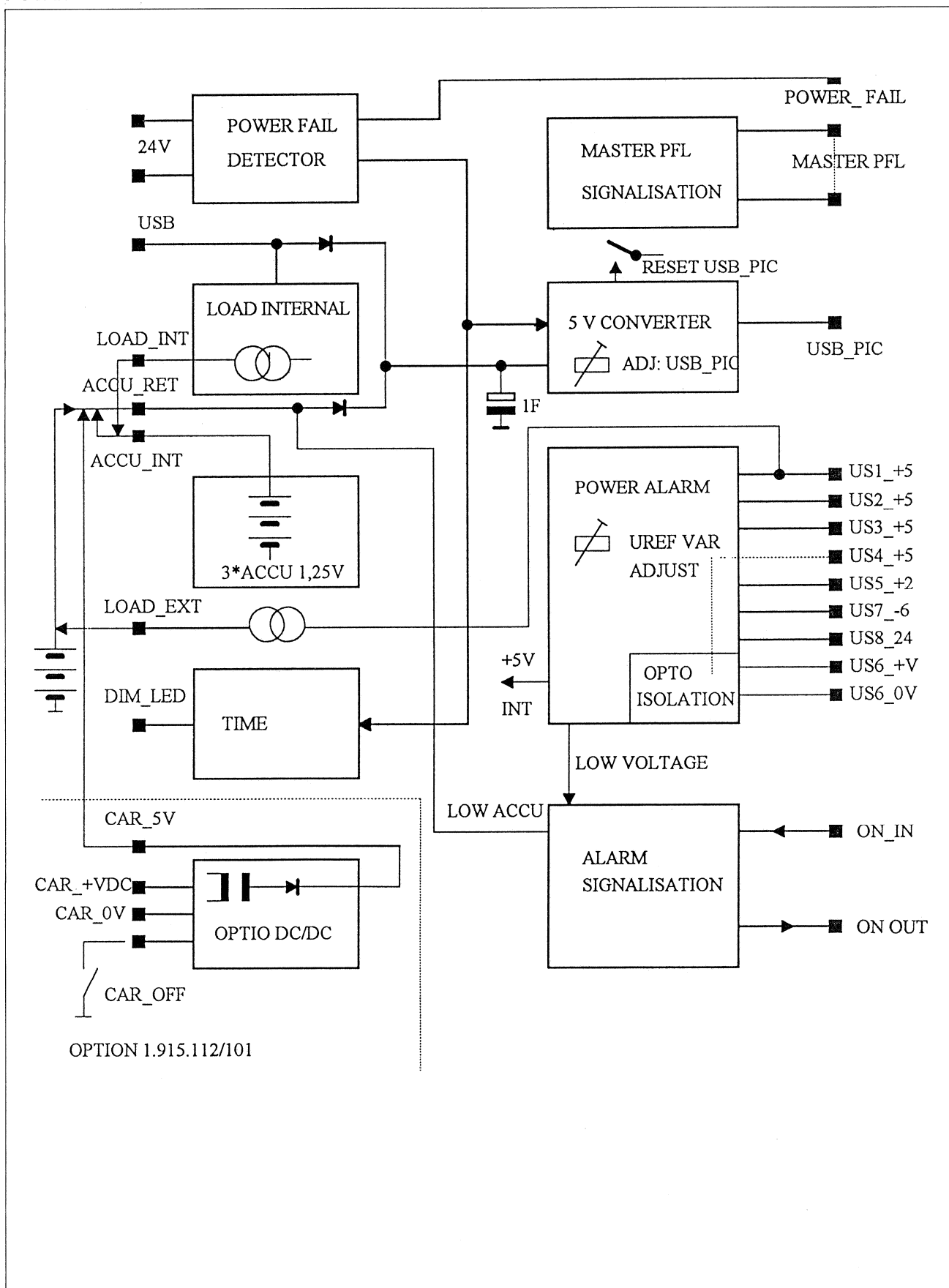
Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
Q....8		50.03.0340	BC 337 NPN standard	
R....1		57.11.3102	1 kOhm	
R....2		57.11.3102	1 kOhm	
R....3		57.11.3220	22 Ohm	
R....4		57.11.3220	22 Ohm	
R....5		57.56.2020	20 mOhm	3W small L (10nH)
R....6		57.56.2050	50 mOhm	3W small L (10nH)
R....7		57.11.3120	12 Ohm	
R....8		57.11.3102	1 kOhm	5%
R....9		57.11.3103	10 kOhm	5%
R....10		57.11.3362	3.6 kOhm	
R....11		57.11.3220	22 Ohm	
R....12		57.11.3682	6.8 kOhm	
R....13		57.11.3220	22 Ohm	
R....14		57.11.3682	6.8 kOhm	
R....15		57.11.3561	560 Ohm	
R....16		57.11.3682	6.8 kOhm	
R....17		57.11.3103	10 kOhm	5%
R....18		57.11.3684	680 kOhm	5%
R....19		57.11.3103	10 kOhm	
R....20		57.11.3102	1 kOhm	
R....21		57.11.3102	1 kOhm	
R....22		57.11.3104	100 kOhm	
R....23		57.11.3162	1.6 kOhm	
R....24		57.11.3391	390 Ohm	
R....25		57.11.3104	100 kOhm	
R....26		57.11.3561	560 Ohm	
R....27		57.11.3241	240 Ohm	
R....28		57.11.3682	6.8 kOhm	
R....29		57.11.3000	0 Ohm	
R....30		57.11.3682	6.8 kOhm	
R....31		57.11.3682	6.8 kOhm	1%
R....32		57.11.3162	1.6 kOhm	1%
R....33		57.11.3181	180 Ohm	1%
R....34		57.11.3202	2 kOhm	1%
R....35		57.11.3151	150 Ohm	1%
R....36		57.11.3362	3.6 kOhm	1%
R....37		57.11.3561	560 Ohm	1%
R....38		57.11.3682	6.8 kOhm	1%
R....39		57.11.3563	56 kOhm	1%
R....40		57.11.3682	6.8 kOhm	
R....41		57.11.3682	6.8 kOhm	
R....42		57.11.3241	240 Ohm	
R....43		57.11.3682	6.8 kOhm	
R....44		57.11.3682	6.8 kOhm	1%
R....45		58.01.9102	1 kOhm	trimmer
R....46		57.11.3682	6.8 kOhm	1%
R....47		57.11.3104	100 kOhm	1%
R....48		57.11.3104	100 kOhm	1%
R....49		57.11.3202	2 kOhm	
R....50		57.11.3202	2 kOhm	
R....51		57.11.3102	1 kOhm	
R....52		57.11.3151	150 Ohm	
R....53		57.99.0220	16 kOhm	NTC
R....54		57.11.3102	1 kOhm	
R....55		57.11.3102	1 kOhm	
T.....1		1.022.639.00	Schalttrafo Power Supply 3 - 6V	STUDER

PE=Polyester, EL=Electrolytic, ALU=Aluminium, CER=Ceramic

MANUFACTURER: NS=National Semiconductors, TI=Texas Instrument  
 GI=General Instruments, UN=Unitrod,  
 GE=General Electric,

1.915.111.81 POWER SUPPLY LED 3-6V SE 92/01/2400

**BLOCK DIAGRAM**  
**POWER ALARM / FAIL 4 BOARD 1.915.112.00**

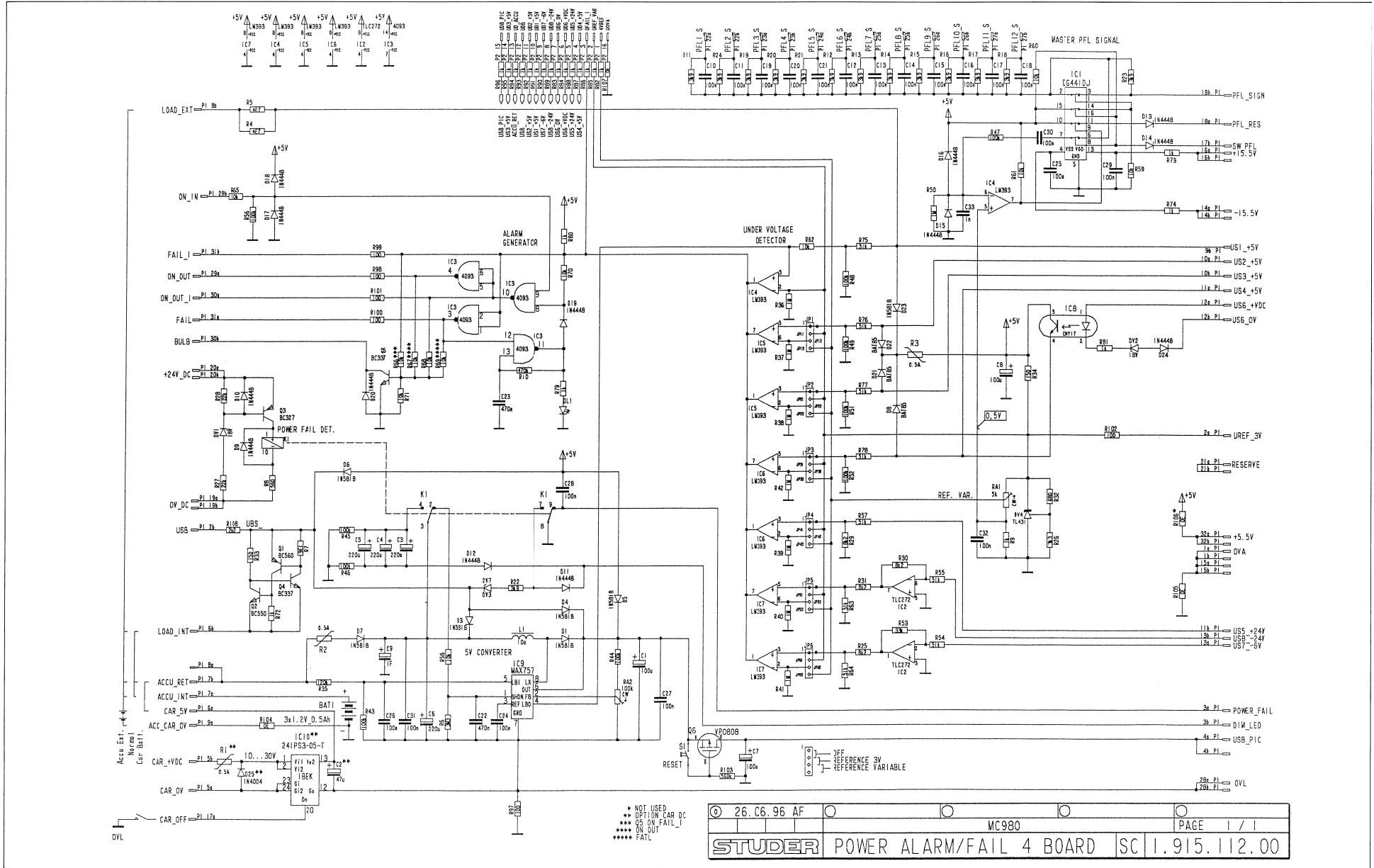


OPTION 1.915.112/101

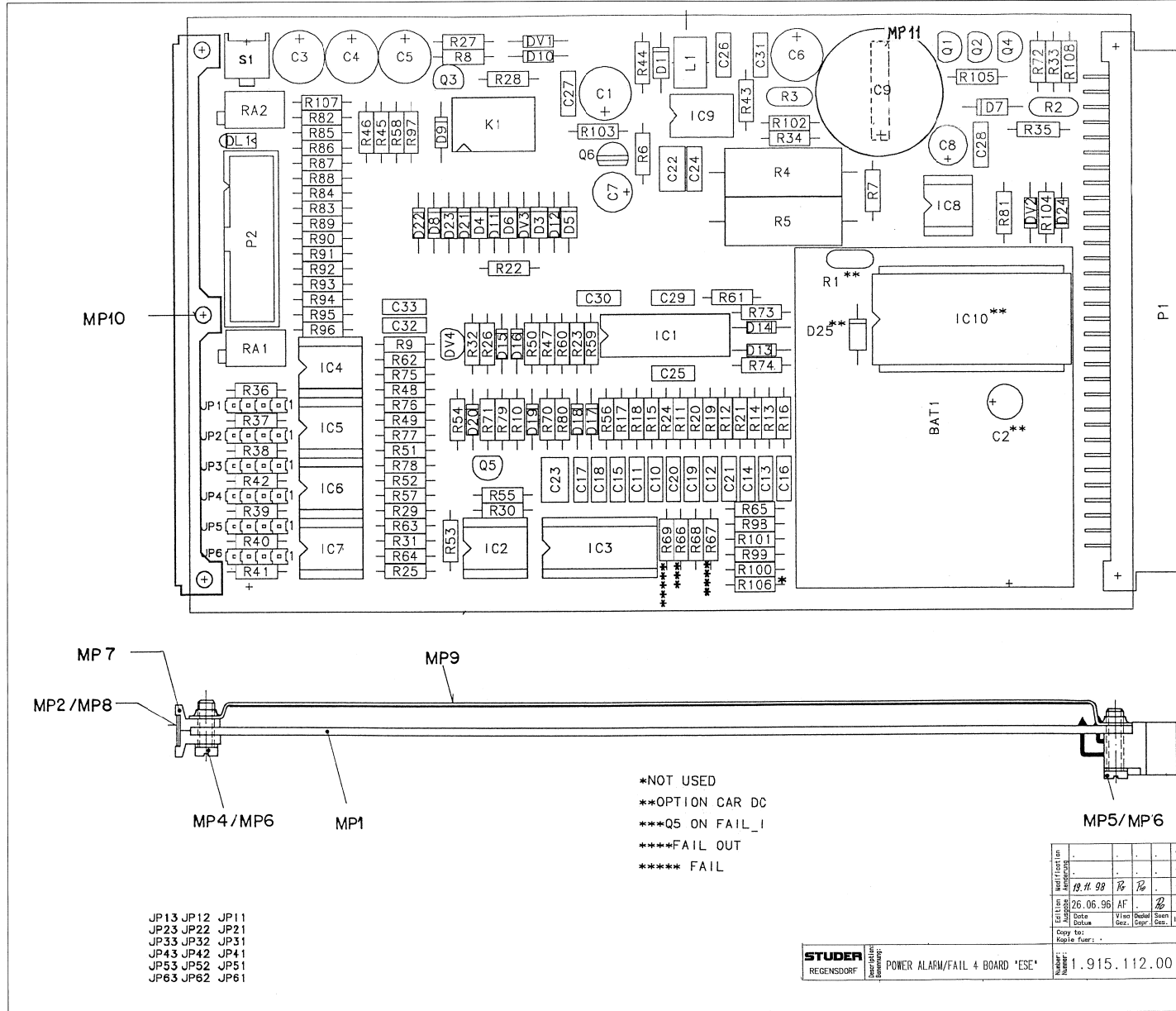




POWER ALARM / FAIL 4 BOARD 1.915.112.00



POWER ALARM / FAIL 4 BOARD 1.915.112.00



\*NOT USED  
 \*\*OPTION CAR DC  
 \*\*\*Q5 ON FAIL\_I  
 \*\*\*\*FAIL OUT  
 \*\*\*\*\* FAIL

JP13 JP12 JP11  
 JP23 JP22 JP21  
 JP33 JP32 JP31  
 JP43 JP42 JP41  
 JP53 JP52 JP51  
 JP63 JP62 JP61

STUDER  
 REGENSDORF  
 POWER ALARM/FAIL 4 BOARD \*ESE\*  
 1.915.112.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	BAT 1	89.01.2701		BATTERIEHALTER 3 X UM3
0	C 1	59.22.5101	100u	EL 25V, 20%, rad RMS
0	C 2	not used	100u	EL 10V, 20%, rad RMS
0	C 3	59.22.3221	220u	EL 10V, 20%, rad RMS
0	C 4	59.22.3221	220u	EL 10V, 20%, rad RMS
0	C 5	59.22.3221	220u	EL 10V, 20%, rad RMS
0	C 6	59.22.3221	220u	EL 10V, 20%, rad RMS
0	C 7	59.22.3101	100u	EL 10V, 20%, rad RMS
0	C 8	59.22.3101	100u	EL 10V, 20%, rad RMS
0	C 9	59.22.1105	1F	EL 5.5V, 20%, rad
0	C 10	59.06.5104	100n	PETP, 5%, 63V
0	C 11	59.06.5104	100n	PETP, 5%, 63V
0	C 12	59.06.5104	100n	PETP, 5%, 63V
0	C 13	59.06.5104	100n	PETP, 5%, 63V
0	C 14	59.06.5104	100n	PETP, 5%, 63V
0	C 15	59.06.5104	100n	PETP, 5%, 63V
0	C 16	59.06.5104	100n	PETP, 5%, 63V
0	C 17	59.06.5104	100n	PETP, 5%, 63V
0	C 18	59.06.5104	100n	PETP, 5%, 63V
0	C 19	59.06.5104	100n	PETP, 5%, 63V
0	C 20	59.06.5104	100n	PETP, 5%, 63V
0	C 21	59.06.5104	100n	PETP, 5%, 63V
0	C 22	59.06.0474	470n	PETP, 10%, 63V
0	C 23	59.06.0474	470n	PETP, 10%, 63V
0	C 24	59.06.0104	100n	PETP, 10%, 63V
0	C 25	59.06.0104	100n	PETP, 10%, 63V
0	C 26	59.06.0104	100n	PETP, 10%, 63V
0	C 27	59.06.0104	100n	PETP, 10%, 63V
0	C 28	59.06.0104	100n	PETP, 10%, 63V
0	C 29	59.06.0104	100n	PETP, 10%, 63V
0	C 30	59.06.0104	100n	PETP, 10%, 63V
0	C 31	59.06.0104	100n	PETP, 10%, 63V
0	C 32	59.06.0104	100n	PETP, 10%, 63V
0	C 33	59.06.0102	1n0	PETP, 10%, 63V
0	D 1	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 3	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 4	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 5	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 6	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 7	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 8	50.04.0127	BAT85	D BAT 85
0	D 9	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 10	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 11	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 12	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 13	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 14	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 15	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 16	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 17	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 18	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 19	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 20	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 21	50.04.0127	BAT85	D BAT 85
0	D 22	50.04.0127	BAT85	D BAT 85
0	D 23	50.04.0512	1N5818	D 1N 5818, 1N 5818,
0	D 24	50.04.0125	1N4448	75V, 150mA, 4ns, DO-35
0	D 25	not used	1N4004	D 1N 4004 ... 1N 4007
				** OPTION CAR DC
0	DL 1	50.04.2107	555-2007	DL 555-2007, RT
0	DV 1	50.04.1122	18V	Zener, 5%, 0.5W, DO-35
0	DV 2	50.04.1122	18V	Zener, 5%, 0.5W, DO-35
0	DV 3	50.04.1106	2V7	Zener, 5%, 0.5W, DO-35
0	DV 4	50.10.0106	TL431	IC TL 431 CLP,
0	IC 1	50.19.0300	DG211CJ-2	IC DG 441 DJ .. A
0	IC 2	50.09.0122	TLC272	IC TLC 272 CP, TS 272 CN A
0	IC 3	50.07.0008	4093	IC .. 4093 .. A
0	IC 4	50.05.0283	LM393	Dual Comparator
0	IC 5	50.05.0283	LM393	Dual Comparator
0	IC 6	50.05.0283	LM393	Dual Comparator
0	IC 7	50.05.0283	LM393	Dual Comparator
0	IC 8	50.04.3200	CNY17	DLQ CNY 17-2, CNY 17-2Z,
0	IC 9	50.10.0123	MAX757	MAX757 CPA
0	IC 10	not used		unbekanntes Bauteil IBEK 24 IPS 3-06-T ** OPTION CAR DC



POWER ALARM / FAIL 4 BOARD 1.915.112.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	JP 1	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 26	57.11.3332	3k3	MF, 1%, 0207
0	JP 2	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 27	57.11.3223	22k	MF, 1%, 0207
0	JP 3	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 28	57.11.3223	22k	MF, 1%, 0207
0	JP 4	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 29	57.11.3822	8k2	MF, 1%, 0207
0	JP 5	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 30	57.11.3822	8k2	MF, 1%, 0207
0	JP 6	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 31	57.11.3822	8k2	MF, 1%, 0207
0	JP 11	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 32	57.11.3681	680R	MF, 1%, 0207
0	JP 12	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 33	57.11.3151	150R	MF, 1%, 0207
0	JP 13	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 34	57.11.3151	150R	MF, 1%, 0207
0	JP 21	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 35	57.11.3124	120k	MF, 1%, 0207
0	JP 22	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 36	57.11.3105	1M0	MF, 1%, 0207
0	JP 23	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 37	57.11.3105	1M0	MF, 1%, 0207
0	JP 31	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 38	57.11.3105	1M0	MF, 1%, 0207
0	JP 32	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 39	57.11.3105	1M0	MF, 1%, 0207
0	JP 33	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 40	57.11.3105	1M0	MF, 1%, 0207
0	JP 41	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 41	57.11.3105	1M0	MF, 1%, 0207
0	JP 42	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 42	57.11.3105	1M0	MF, 1%, 0207
0	JP 43	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 43	57.11.3104	100k	MF, 1%, 0207
0	JP 51	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 44	57.11.3104	100k	MF, 1%, 0207
0	JP 52	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 45	57.11.3104	100k	MF, 1%, 0207
0	JP 53	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 46	57.11.3104	100k	MF, 1%, 0207
0	JP 61	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 47	57.11.3104	100k	MF, 1%, 0207
0	JP 62	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 48	57.11.3104	100k	MF, 1%, 0207
0	JP 63	54.01.0020	1-P	P STIFT .63*.63, H=5.8/3.4	0	R 49	57.11.3104	100k	MF, 1%, 0207
0	JPJ 1	54.01.0021	Jumper	0.63 * 0.63mm	0	R 50	57.11.3105	1M0	MF, 1%, 0207
0	JPJ 2	54.01.0021	Jumper	0.63 * 0.63mm	0	R 51	57.11.3104	100k	MF, 1%, 0207
0	JPJ 3	54.01.0021	Jumper	0.63 * 0.63mm	0	R 52	57.11.3104	100k	MF, 1%, 0207
0	JPJ 4	54.01.0021	Jumper	0.63 * 0.63mm	0	R 53	57.11.3104	100k	MF, 1%, 0207
0	JPJ 5	54.01.0021	Jumper	0.63 * 0.63mm	0	R 54	57.11.3104	100k	MF, 1%, 0207
0	JPJ 6	54.01.0021	Jumper	0.63 * 0.63mm	0	R 55	57.11.3513	51k	MF, 1%, 0207
0	K 1	56.04.0197	2U	K 24 V 2*U , 125V/ 2 A, AG/AU	0	R 56	57.11.3104	100k	MF, 1%, 0207
0	L 1	62.03.0001	10uH	L 10 U , 1 A, FILTER	0	R 57	57.11.3513	51k	MF, 1%, 0207
0	MP 1	1.915.112.11	1 pce	Power Alarm/Fail PCB	0	R 58	57.11.3103	10k	MF, 1%, 0207
0	MP 2	1.915.112.01	1 pce	BEZ.STREIFEN 6,3 * 91	0	R 59	57.11.3103	10k	MF, 1%, 0207
0	MP 3	43.01.0108	1 pce	Label ESE-WARNschild	0	R 60	57.11.3103	10k	MF, 1%, 0207
0	MP 4	21.01.0280	2 pcs	M2.5*8 Z - Schraube Zn gb chr	0	R 61	57.11.3103	10k	MF, 1%, 0207
0	MP 5	21.01.0281	2 pcs	M2.5*10 Z - Schraube Zn gb chr	0	R 62	57.11.3103	10k	MF, 1%, 0207
0	MP 6	24.18.1025	4 pcs	RIPPENSCHLEIBE D 2.7/5	0	R 63	57.11.3513	51k	MF, 1%, 0207
0	MP 7	1.010.006.33	2 pcs	Handle GRIFFHAELFTE	0	R 64	57.11.3513	51k	MF, 1%, 0207
0	MP 8	1.010.096.49	1 pce	- KLARSICHTSCHILD	0	R 65	57.11.3103	10k	MF, 1%, 0207
0	MP 9	1.010.090.49	1 pce	Screen ABSCHIRMUNG KOMPLETT	0	R 66	not used	10k	MF, 1%, 0207
0	MP 10	28.21.1380	3 pcs	2.25*6.5 Rohrmiete Ms blank	0	R 67	not used	10k	MF, 1%, 0207
1	MP 11	1.911.323.01	pce	TRAFU-UNTERLAGE 1/2 Stück	0	R 68	57.11.3103	10k	MF, 1%, 0207
0	P 1	54.11.2004	64-P	P EU-B 2 * 32	0	R 69	not used	10k	MF, 1%, 0207
0	P 2	54.14.2102	16-P	P STECKER 16 P,AU,VR,GERADE	0	R 70	57.11.3103	10k	MF, 1%, 0207
0	Q 1	50.03.0601	BC560C	BC 560 C	0	R 71	57.11.3103	10k	MF, 1%, 0207
0	Q 2	50.03.0407	BC550C	BC 550 C	0	R 72	57.11.3102	1k0	MF, 1%, 0207
0	Q 3	50.03.0351	BC327-25	PNP, 800mA	0	R 73	57.11.3102	1k0	MF, 1%, 0207
0	Q 4	50.03.0340	BC337-25	BC 337-25,	0	R 74	57.11.3102	1k0	MF, 1%, 0207
0	Q 5	50.03.0340	BC337-25	BC 337-25,	0	R 75	57.11.3513	51k	MF, 1%, 0207
0	Q 6	50.03.1554	VP0808M	VP 0808 M	0	R 76	57.11.3513	51k	MF, 1%, 0207
0	R 1	not used	0.5A	POLY- PTC, 60V ** OPTION CAR DC	0	R 77	57.11.3513	51k	MF, 1%, 0207
0	R 2	57.92.7013	0.5A	POLY- PTC, 60V	0	R 78	57.11.3513	51k	MF, 1%, 0207
0	R 3	57.92.7013	0.5A	POLY- PTC, 60V	0	R 79	57.11.3102	1k0	MF, 1%, 0207
0	R 4	57.56.5479	4R7	WW, 10%, 4 W	0	R 80	57.11.3102	1k0	MF, 1%, 0207
0	R 5	57.56.5479	4R7	WW, 10%, 4 W	0	R 81	57.11.3102	1k0	MF, 1%, 0207
0	R 6	57.11.5335	3M3	MF, 5%, 0207	0	R 82	57.11.3102	1k0	MF, 1%, 0207
0	R 7	57.11.3919	8R2	MF, 1%, 0207	0	R 83	57.11.3102	1k0	MF, 1%, 0207
0	R 8	57.11.3561	560R	MF, 1%, 0207	0	R 84	57.11.3102	1k0	MF, 1%, 0207
0	R 9	57.11.3102	1k0	MF, 1%, 0207	0	R 85	57.11.3102	1k0	MF, 1%, 0207
0	R 10	57.11.3474	470k	MF, 1%, 0207	0	R 86	57.11.3102	1k0	MF, 1%, 0207
0	R 11	57.11.3392	3k9	MF, 1%, 0207	0	R 87	57.11.3102	1k0	MF, 1%, 0207
0	R 12	57.11.3392	3k9	MF, 1%, 0207	0	R 88	57.11.3102	1k0	MF, 1%, 0207
0	R 13	57.11.3392	3k9	MF, 1%, 0207	0	R 89	57.11.3102	1k0	MF, 1%, 0207
0	R 14	57.11.3392	3k9	MF, 1%, 0207	0	R 90	57.11.3102	1k0	MF, 1%, 0207
0	R 15	57.11.3392	3k9	MF, 1%, 0207	0	R 91	57.11.3102	1k0	MF, 1%, 0207
0	R 16	57.11.3392	3k9	MF, 1%, 0207	0	R 92	57.11.3102	1k0	MF, 1%, 0207
0	R 17	57.11.3392	3k9	MF, 1%, 0207	0	R 93	57.11.3102	1k0	MF, 1%, 0207
0	R 18	57.11.3392	3k9	MF, 1%, 0207	0	R 94	57.11.3102	1k0	MF, 1%, 0207
0	R 19	57.11.3392	3k9	MF, 1%, 0207	0	R 95	57.11.3102	1k0	MF, 1%, 0207
0	R 20	57.11.3392	3k9	MF, 1%, 0207	0	R 96	57.11.3102	1k0	MF, 1%, 0207
0	R 21	57.11.3392	3k9	MF, 1%, 0207	0	R 97	57.11.3101	100R	MF, 1%, 0207
0	R 22	57.11.3392	3k9	MF, 1%, 0207	0	R 98	57.11.3101	100R	MF, 1%, 0207
0	R 23	57.11.3392	3k9	MF, 1%, 0207	0	R 99	57.11.3101	100R	MF, 1%, 0207
0	R 24	57.11.3392	3k9	MF, 1%, 0207	0	R 100	57.11.3101	100R	MF, 1%, 0207
0	R 25	57.11.3332	3k3	MF, 1%, 0207	0	R 101	57.11.3101	100R	MF, 1%, 0207
					0	R 102	57.11.3101	100R	MF, 1%, 0207
					1	R 103	57.11.3564	560k	MF, 1%, 0207
					0	R 104	57.11.3000	0R0	MF, 0207



## POWER ALARM / FAIL 4 BOARD 1.915.112.00

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	R 105	57.11.3000	0R0	MF, 0207
1	R 106	not used	0R0	MF, 0207
0	R 107	57.11.3000	0R0	MF, 0207
1	R 108	57.11.3220	22R	MF, 1%, 0207
0	RA 1	58.05.0502	5k	10%, 0.5W, Cermet
0	RA 2	58.05.0104	100k	10%, 0.5W, Cermet
0	S 1	55.15.1004	1*a	S TASTE, 1*A,IMPULS,90 GRD
0	XIC 1	53.03.0168	16p	DIL 0.3", lötl, gerade
0	XIC 2	53.03.0166	8p	DIL 0.3", lötl, gerade
0	XIC 3	53.03.0167	14p	DIL 0.3", lötl, gerade
0	XIC 4	53.03.0166	8p	DIL 0.3", lötl, gerade
0	XIC 5	53.03.0166	8p	DIL 0.3", lötl, gerade
0	XIC 6	53.03.0166	8p	DIL 0.3", lötl, gerade
0	XIC 7	53.03.0166	8p	DIL 0.3", lötl, gerade
0	XIC 8	53.03.0164	6p	DIL 0.3", lötl, gerade
0	XIC 9	53.03.0166	8p	DIL 0.3", lötl, gerade

----- End of List -----

**Comments**

(1) 19.11.1998 Reset-function adjustment

## Pin assignment

## POWER ALARM/FAIL 4 BOARD 1.915.112.00

## Connector P1 (to EURO card rack)

P	NO	NAME	REMARK	TYPE
P	01A	0VA	Audio ground	
P	01B	0VA	Audio ground	
P	02A	UREF_4V	Reference voltage, 4 VDC, Ri = 100 Ω	
P	02B	USB	Stand-by power from supply, 4.5...5 V	
P	03A	POWER_FAIL	No power; contact closed to 0 V (ground)	
P	03B	DIM_LED	No power; LED supply DIM 1.915.111.81	Alarm pin P1_25
P	04A	USB_PIC	Stand by power for PIC, 5 VDC	
P	04B	USB_PIC	Stand by power for PIC, 5 VDC	
P	05A	CAR_0V	Converter MELCHER IBEK 24 IPS 3 - 05 - T	floating
P	05B	CAR_+VDC	DC/DC insulation 500 VRMS, 10...33 V	floating
P	06A	CAR_5V	MELCHER DC/DC converter output, 5 VDC	C
P	06B	LOAD_INT	Charging current for internal rechargeable battery	A B
P	07A	ACCU_INT	Internal rechargeable battery	A
P	07B	ACCU_RET	Return voltage from int./ext. rechargeable battery; car	A B C
P	08A	ACCU_RET	Return voltage from int./ext. rechargeable battery; car	A B C
P	08B	LOAD_EXT	External rechargeable battery, 3 x 1.25 V, +	B
P	09A	ACC_CAR_0V	External rechargeable battery or car battery ground	(B) (C)
P	09B	US1_+5V	+5 V supply voltage to be supervised	ref. to ground
P	10A	US2_+5V	+5 V supply voltage to be supervised	ref. to ground
P	10B	US3_+5V	+5 V supply voltage to be supervised	ref. to ground
P	11A	US4_+5V	+5 V supply voltage to be supervised or US6	ref. to ground
P	11B	US5_+24V	+24 V supply voltage to be supervised	ref. to ground
P	12A	US6_+VDC	+XY V supply voltage to be supervised or US4	floating
P	12B	US6_0V	+XY 0 V supply voltage to be supervised or US4	floating
P	13A	US7_-6V	-6 V supply voltage to be supervised	ref. to ground
P	13B	US8_-24V	-24 V supply voltage to be supervised	ref. to ground
P	14A	-15.5V	Audio supply, -	
P	14B	-15.5V	Audio supply, -	
P	15A	0VA	Audio ground	
P	15B	0VA	Audio ground	
P	16A	+15.5V	Audio supply, +	
P	16B	+15.5V	Audio supply, +	
P	17A	CAR_OFF	PIN to 0 V -> power off	optional (C)
P	17B	SW_PFL	to PFL mode switch 0 V = mutually released	PFL system
P	18A	PFL_RES	PFL reset BUS 5 V = reset	PFL system
P	18B	PFL_SIGN	to sense PFL	PFL system
P	19A	0V_DC	Power fail DC voltage input ground	floating
P	19B	0V_DC	Power fail DC voltage input ground	floating
P	20A	+24V_DC	Power fail DC voltage input, +24 V, unregulated	floating
P	20B	+24V_DC	Power fail DC voltage input, +24 V, unregulated	floating
P	21A	RESERVE		
P	21B	RESERVE		
P	22A	PFL1_S	PFL signal from master unit 1	PFL system
P	22B	PFL2_S	PFL signal from master unit 2	PFL system
P	23A	PFL3_S	PFL signal from master unit 3	PFL system
P	23B	PFL4_S	PFL signal from master unit 4	PFL system
P	24A	PFL5_S	PFL signal from master unit 5 (Film)	PFL system
P	24B	PFL6_S	PFL signal from master unit 6 (Film)	PFL system
P	25A	PFL7_S	PFL signal from master unit A (not connected)	PFL system
P	25B	PFL8_S	PFL signal from master unit B (not connected)	PFL system
P	26A	PFL9_S	PFL signal from master unit C (not connected)	PFL system
P	26B	PFL10_S	PFL signal from master unit D (not connected)	PFL system
P	27A	PFL11_S	PFL signal from master unit E (not connected)	PFL system
P	27B	PFL12_S	PFL signal from master unit F (not connected)	PFL system
P	28A	0VL	Logic ground	
P	28B	0VL	Logic ground	
P	29A	ON_OUT	ON signal to LED indicator	Alarm system
P	29B	ON_IN	ON signal from power supply	Alarm system
P	30A	ON_OUT_I	ON_OUT, inverted	Alarm system
P	30B	BULB	Output (open collector)	Alarm system
P	31A	FAIL	Failure on board	Alarm system
P	31B	FAIL_I	Failure on board, inverted	Alarm system
P	32A	+5.5V	Logic supply, +	
P	32B	+5.5V	Logic supply, +	

## Pin assignment

## POWER ALARM/FAIL 4 BOARD 1.915.112.00

## Diagnostics connector (P2)

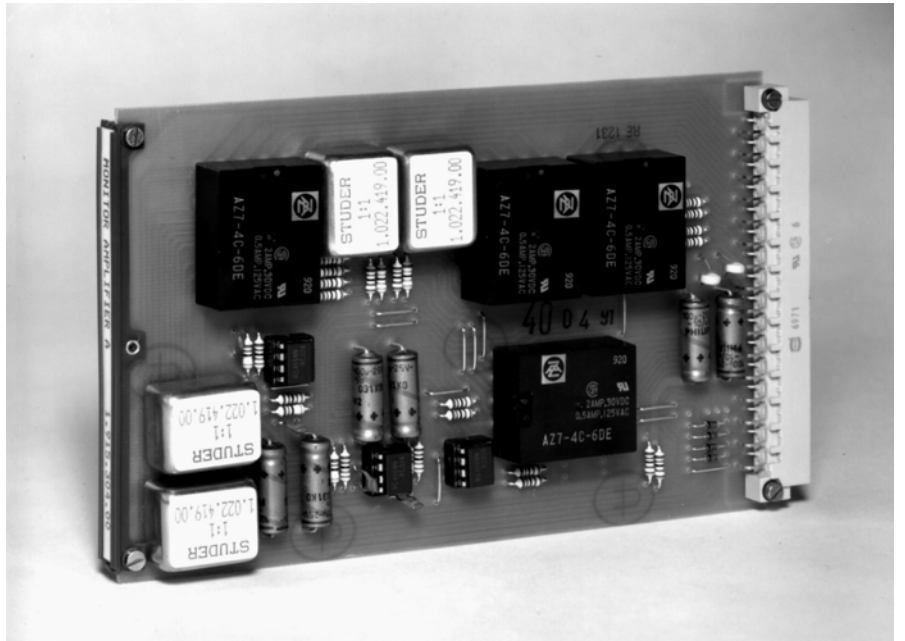
16-pin connector for measuring important voltages; decoupled via 1k $\Omega$  resistors.

P16B	NO	NAME	REMARK	TYPE
P	1	0VA	Analog ground	DC
P	2	4V REF	Ref. voltage, Ri = 1 k $\Omega$	DC
P	3	UREF_VAR	Ref. voltage, variable, Ri = 1 k $\Omega$	DC
P	4	FAIL_I	Comparator output	DC
P	5	UD4_+5V	+5 V supply voltage to be supervised, or UD6	DC
P	6	UD5_+24V	+24 V supply voltage to be supervised	DC
P	7	UD6_+VDC	+XY 0 V supply voltage to be supervised, or UD4	DC
P	8	UD6_0V	+XY V supply voltage to be supervised, or UD4	DC
P	9	UD8_-24V	-24 V supply voltage to be supervised	DC
P	10	UD7_-6V	-6 V supply voltage to be supervised	DC
P	11	UD1_+5V	+5 V supply voltage to be supervised	DC
P	12	UD2_+5V	+5 V supply voltage to be supervised	DC
P	13	UDB	Stand-by voltage from power supply	DC
P	14	UD_ACCU	Rechargeable battery voltage, 3.6 VDC	DC
P	15	UD3_+5V	+5 V supply voltage to be supervised	DC
P	16	UDB_PIC	Constant PIC stand-by voltage, 4.5...5 VDC	DC

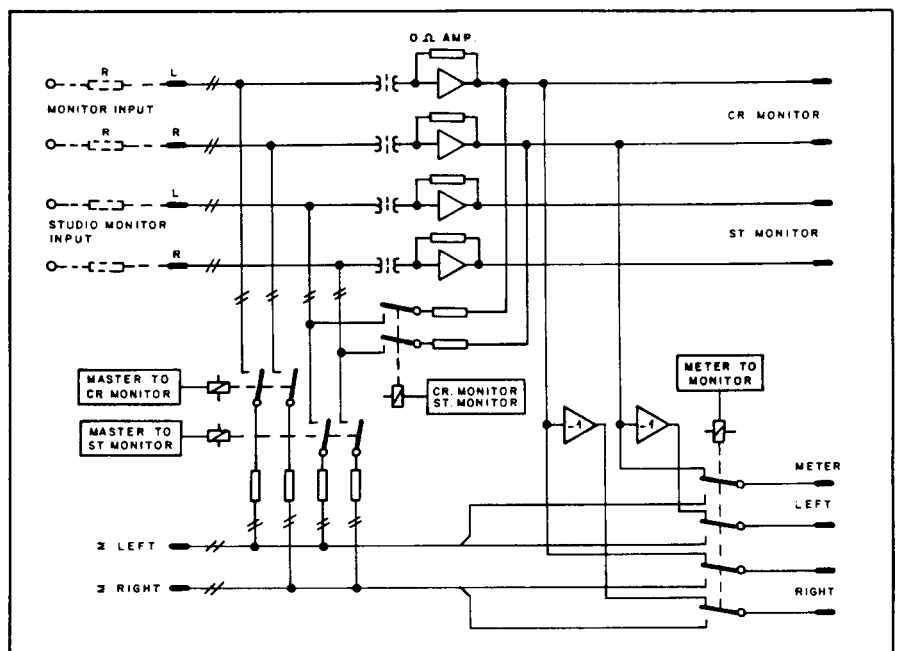
Monitor Amplifier and Switching Relays (Studio/CR)

1.915.304

The circuit on this Euro-card is designed to form part of an audio monitoring system. The card is narrower than most others, i.e., 4 M units only. It contains four amplifiers, each presenting a 0-Ω input impedance, two metering amplifiers, and four relays for audio switching.



Two stereo signal inputs from a combination of sources (with suitable isolation resistors at the output of each source) can thus be summed for Control Room (CR) and Studio Monitoring, for example. In addition, the signal from the stereo master can be assigned to either monitor line and, if needed, CR monitoring and studio monitoring can be paralleled. A further circuit permits switchover of level meters from the master bus to the CR monitor line. The relays are designed for 6 V<sub>DC</sub> operation.

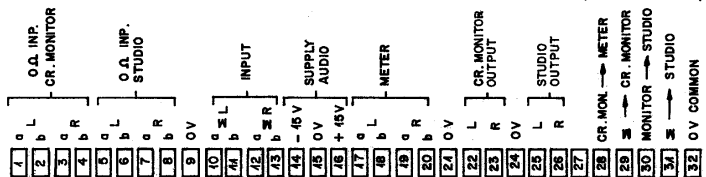
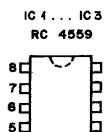
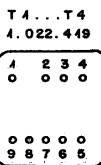
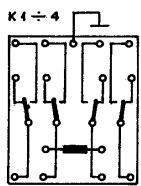
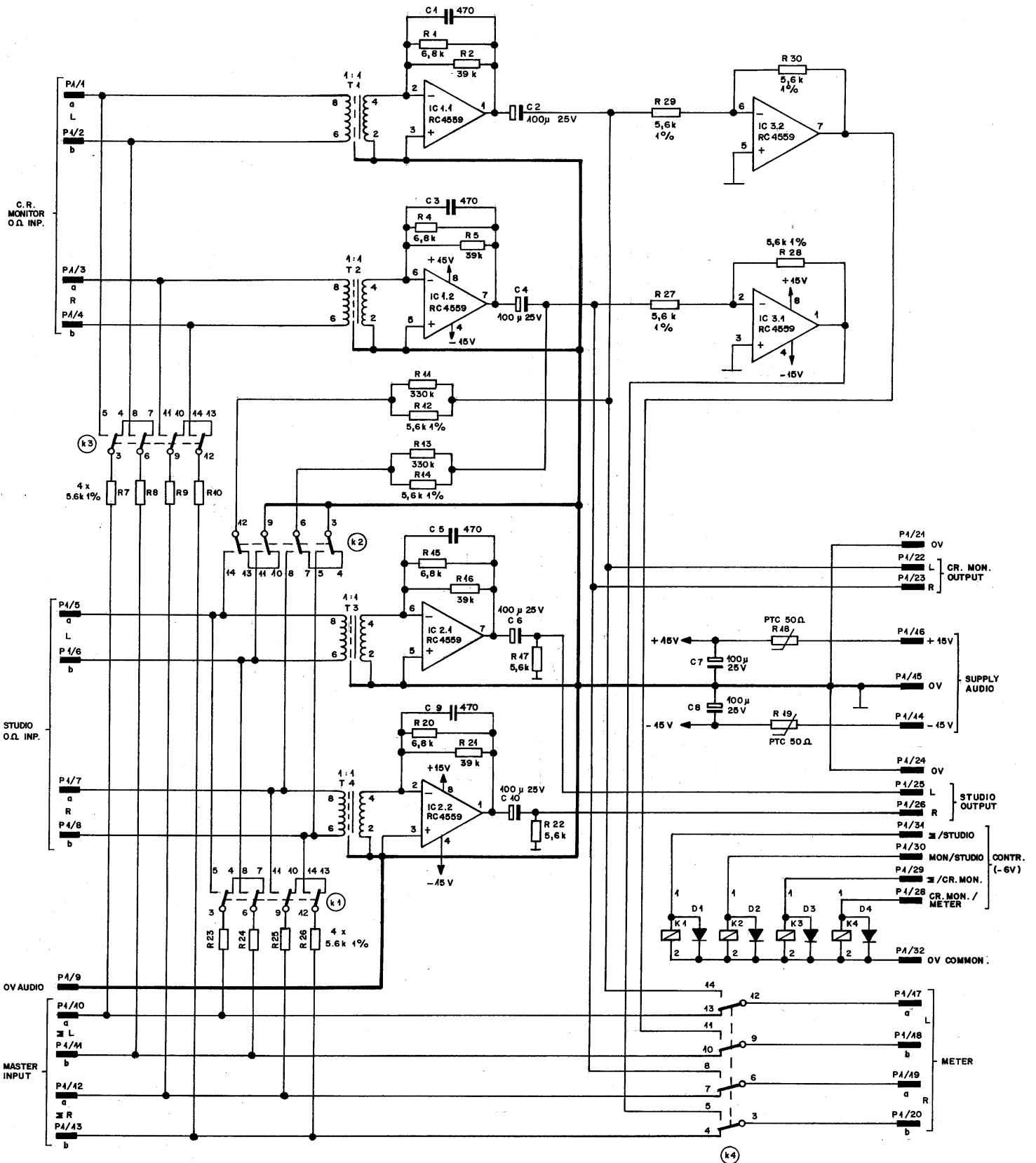


Technical Specifications

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<b>Inputs:</b>		<b>balanced and floating</b> (for CR monitor and studio monitor)
	Impedance	<b>&gt; 10 k<math>\Omega</math></b>
	Maximum level	<b>+24 dBu</b>
<b>Outputs:</b>		<b>unbalanced</b> (for CR monitor and studio monitor)
	Impedance	<b>&lt; 3 <math>\Omega</math></b>
	Maximum level	<b>+20 dBu</b> into 1 k $\Omega$
	Maximum load	<b>1 k<math>\Omega</math></b>
<b>Meter outputs:</b>		<b>push-pull</b>
	Maximum level	<b>+24 dBu</b>
	Frequency response	<b><math>\pm 0.5</math> dB, 30 Hz...16 kHz</b>
	THD	<b>&lt; 0.1%, @ +6 dBu input, 30 Hz...16 kHz</b>
	S/N	<b>105 dB, 20 Hz...23 kHz</b>
<b>Supply:</b>		<b><math>\pm 15</math> V (20 mA)</b>
<b>Dimensions:</b>	Euro-card	<b>100 <math>\times</math> 160 mm, 4M units wide (19 mm)</b>
	Connector system	<b>DIN 41612, type B</b>
	Weight	<b>approx. 270 g</b>
<b>Ordering Information:</b>		Monitor amplifier and switching relay
		1.915.304.xx

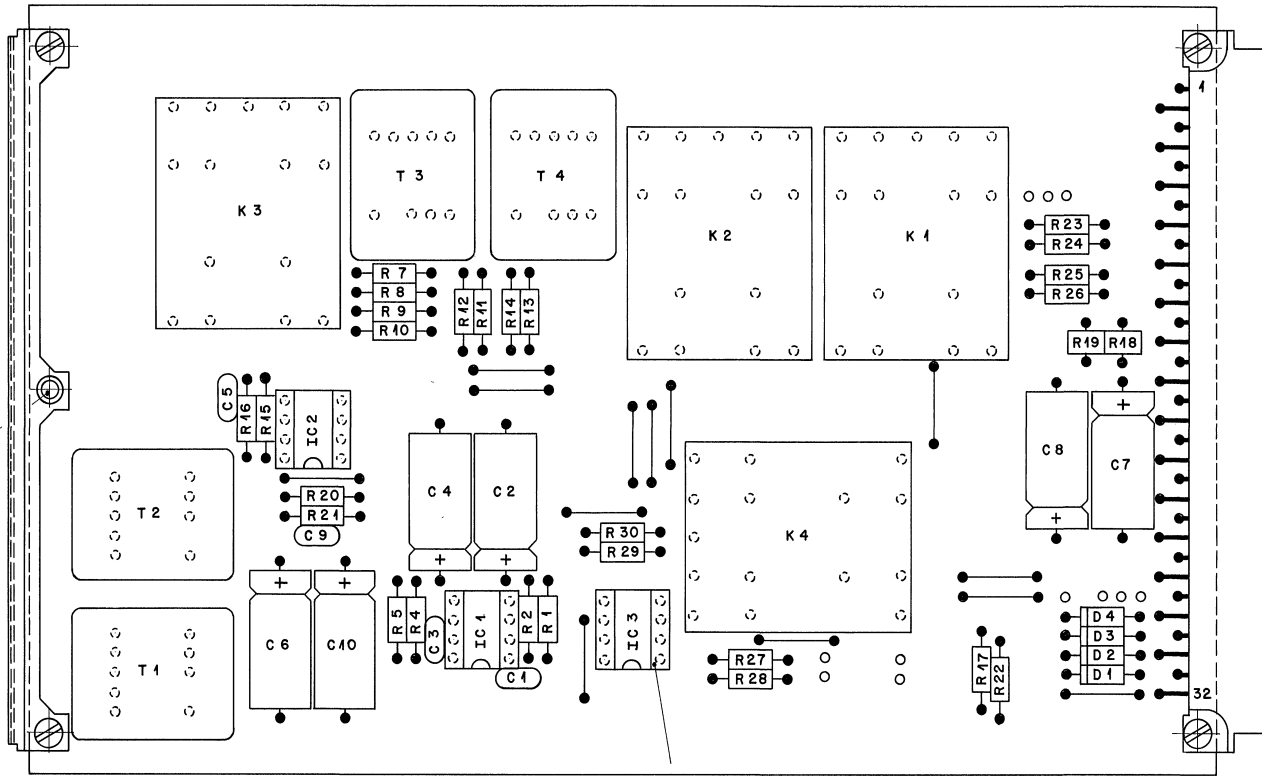




BOTTOM VIEW

DATE:	20.11.81		
SIGN:	<i>[Signature]</i>		
<b>STUDER</b> REGENSDORF ZÜRICH	<b>MONITOR AMPLIFIER A</b>		<b>SC. 1.915.304</b>

28.24.4380



53.03.0166 (3x)

4.010.006-33

4.010.090-49

4.010.096-49  
1.915.304-01

54.01.0359

21.01.0280 (2x)  
24.16.4025 (2x)

1.915.304-11

21.01.0281 (2x)  
24.16.4025 (2x)

MONITOR AMPLIFIER A  
1.915.304-00

Ausgabe	4.4.84	A.Ho	/h	/h	③
	8.10.81	Ho	/h	/h	①
Datum	Gez.	Gepr.	Ges.	Index	
Kopie für:					
STUDEF REGENSDORF ZÜRICH	Benennung: Monitor Amplifier A				1.915.304-00

**Monitor Amp 1.915.304.00 ( 0)**

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.32.4471	1 pce	470p	CER , 20%, 50V
0 C 2	59.25.4101	1 pce	100u	EL 25V 20% axial
0 C 3	59.32.4471	1 pce	470p	CER , 20%, 50V
0 C 4	59.25.4101	1 pce	100u	EL 25V 20% axial
0 C 5	59.32.4471	1 pce	470p	CER , 20%, 50V
0 C 6	59.25.4101	1 pce	100u	EL 25V 20% axial
0 C 7	59.25.4101	1 pce	100u	EL 25V 20% axial
0 C 8	59.25.4101	1 pce	100u	EL 25V 20% axial
0 C 9	59.32.4471	1 pce	470p	CER , 20%, 50V
0 C 10	59.25.4101	1 pce	100u	EL 25V 20% axial
0 D 1	50.04.0125	1 pce	1N4448	75V, 150mA, 4ns, DO-35
0 D 2	50.04.0125	1 pce	1N4448	75V, 150mA, 4ns, DO-35
0 D 3	50.04.0125	1 pce	1N4448	75V, 150mA, 4ns, DO-35
0 D 4	50.04.0125	1 pce	1N4448	75V, 150mA, 4ns, DO-35
0 IC 1	50.09.0107	1 pce	4559	Dual Op-Amp
0 IC 2	50.09.0107	1 pce	4559	Dual Op-Amp
0 IC 3	50.09.0107	1 pce	4559	Dual Op-Amp
0 K 1	56.04.0146	1 pce	4*u	6V, 220V/2A, PCB
0 K 2	56.04.0146	1 pce	4*u	6V, 220V/2A, PCB
0 K 3	56.04.0146	1 pce	4*u	6V, 220V/2A, PCB
0 K 4	56.04.0146	1 pce	4*u	6V, 220V/2A, PCB
0 R 1	57.11.3682	1 pce	6k8	MF, 1%, 0207
0 R 2	57.11.3393	1 pce	39k	MF, 1%, 0207
0 R 4	57.11.3682	1 pce	6k8	MF, 1%, 0207
0 R 5	57.11.3393	1 pce	39k	MF, 1%, 0207
0 R 7	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 8	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 9	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 10	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 11	57.11.3334	1 pce	330k	MF, 1%, 0207
0 R 12	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 13	57.11.3334	1 pce	330k	MF, 1%, 0207
0 R 14	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 15	57.11.3682	1 pce	6k8	MF, 1%, 0207
0 R 16	57.11.3393	1 pce	39k	MF, 1%, 0207
0 R 17	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 18	57.99.0206	1 pce	50R	PTC, 25V, 0.5W
0 R 19	57.99.0206	1 pce	50R	PTC, 25V, 0.5W
0 R 20	57.11.3682	1 pce	6k8	MF, 1%, 0207
0 R 21	57.11.3393	1 pce	39k	MF, 1%, 0207
0 R 22	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 23	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 24	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 25	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 26	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 27	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 28	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 29	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 R 30	57.11.3562	1 pce	5k6	MF, 1%, 0207
0 T 1	1.022.419.00	1 pce		EINGANGSTRAFO 1:1
0 T 2	1.022.419.00	1 pce		EINGANGSTRAFO 1:1
0 T 3	1.022.419.00	1 pce		EINGANGSTRAFO 1:1
0 T 4	1.022.419.00	1 pce		EINGANGSTRAFO 1:1

Idx. Pos.	Part No.	Qty.	Type/Val.	Description
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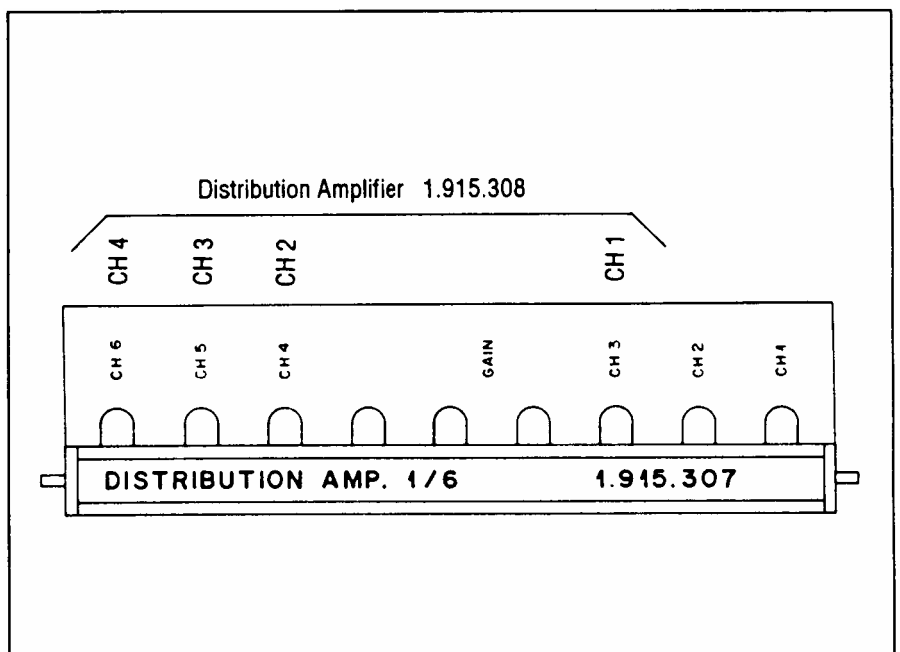
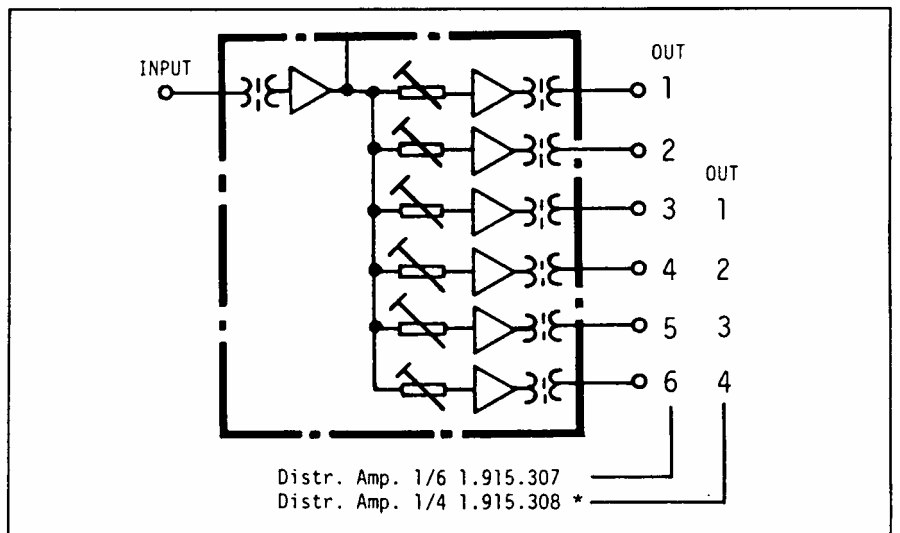
End of List

Comments:

Distribution Amplifier

1.915.307/308

The distribution amplifier cards offer splitting of one input to four or six individually adjustable outputs (versions 1.915.308 or 1.915.307, respectively). The input and all outputs are transformer-balanced and floating. These cards satisfy any complex requirement of signal routing and distribution.

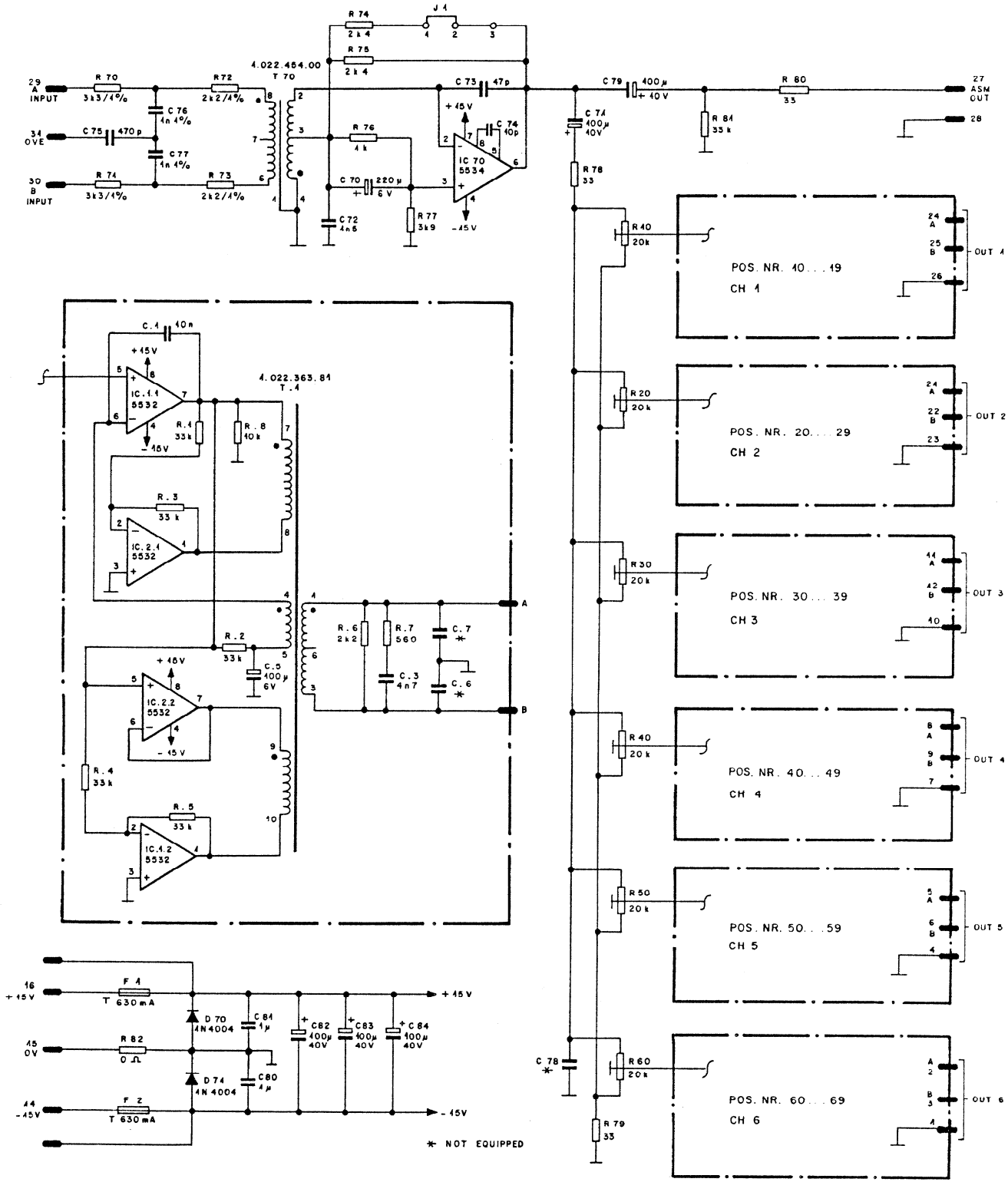


Technical Specifications

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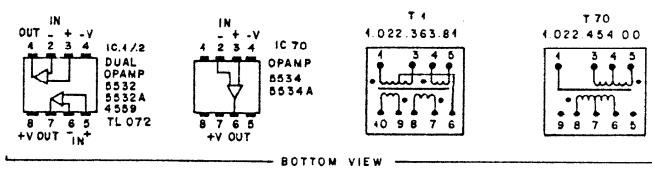
<b>General:</b>	Frequency range	<b>31.5 Hz...16 kHz</b>
	Frequency response	<b>+0.2/-0.5 dB</b> , $R_L = 300 \Omega$
<b>Input:</b>		<b>balanced and floating</b>
	Impedance	<b><math>\geq 10 \text{ k}\Omega</math></b>
	Symmetry	<b><math>\geq 60 \text{ dB}</math></b>
	Gain, adjustable	<b>-20...+10 dB</b> (Jumper 2-3: +6 dB Gain)
<b>Outputs:</b>		<b>balanced and floating</b>
	Impedance	<b><math>\leq 40 \Omega</math></b>
	Maximum level	<b>+24 dBu</b> , $R_L = 600 \Omega$ /THD < 1%
		<b>+21 dBu</b> , $R_L = 200 \Omega$ /THD < 1%
	THD	<b><math>\leq 0.02\%</math></b> , +6 dBu/300 $\Omega$
	Output noise voltage	<b>-100 dBu</b> , 0 dB gain
<b>Supply:</b>		<b><math>\pm 15 \text{ V}_{\text{DC}}</math></b> (90 mA, all outputs +6 dBu, without load; 180 mA, all outputs +24 dBu into 300 $\Omega$ )
<b>Dimensions:</b>	Euro-card	<b>100 × 160 mm, 7 M units wide</b>
	Weight	<b>500 g</b> (1.915.308) <b>600 g</b> (1.915.307)
<b>Ordering Information:</b>		
<b>Euro-cards:</b>	<ul style="list-style-type: none"><li>• Distribution amplifier 1 to 6</li><li>• Distribution amplifier 1 to 4</li></ul>	1.915.307.xx 1.915.308.xx
<b>19"/1U standard products:</b>	<ul style="list-style-type: none"><li>• Distribution unit 2 × 1 in/4 out on XLR</li><li>• Distribution unit 3 × 1 in/4 out on XLR</li><li>• Distribution unit 2 × 1 in/6 out on XLR</li></ul>	75.700.89301 75.700.89302 75.700.89303

DISTRIBUTION AMPLIFIER



\* NOT EQUIPPED

- 11
- 20
- 30
- 41
- 50
- 60
- 71
- 80
- 90
- 101
- 110
- 120
- 13
- 14 -15V
- 15 0V
- 16 +15V
- 17
- 18
- 19
- 20
- 21 0
- 22 B
- 23 L
- 24 0
- 25 B
- 26 L
- 27 ASM. OUT
- 28 L
- 29 0
- 30 B
- 31 0VE
- 32



24.11.93 <i>fc</i>	12.4.94 <i>we</i>		
<b>STUDER</b> REGENSDORF ZÜRICH	DISTRIBUTION AMP. 1/6	SC 1.915.307-81	

DISTRIBUTION AMPLIFIER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
			not used						
01	C....11	59.06.0222	2.2 nF	PE	R....11	57.11.4333	33 kOhm	5% 0.25W	MF
	C....12	59.34.2470	47 pF	CER	R....12	57.11.4333	33 kOhm	5% 0.25W	MF
	C....13	59.06.0472	4.7 nF	PE	R....13	57.11.4333	33 kOhm	5% 0.25W	MF
	C....14	59.34.2470	47 pF	CER	R....14	57.11.4333	33 kOhm	5% 0.25W	MF
	C....15	59.22.3101	100 uF	ALU 10V	R....15	57.11.4333	33 kOhm	5% 0.25W	MF
	C....16	59.32.1680	68 pF	CER 400V	R....16	57.11.4222	2.2 kOhm	5% 0.25W	MF
	C....17			not used	R....17	57.11.4102	1 kOhm	5% 0.25W	MF
	C....21			not used	R....18	57.11.4103	10 kOhm	5% 0.25W	MF
01	C....21	59.06.0222	2.2 nF	PE	R....20	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor
	C....22	59.34.2470	47 pF	CER	R....21	57.11.4333	33 kOhm	5% 0.25W	MF
	C....23	59.06.0472	4.7 nF	PE	R....22	57.11.4333	33 kOhm	5% 0.25W	MF
	C....24	59.34.2470	47 pF	CER	R....23	57.11.4333	33 kOhm	5% 0.25W	MF
	C....25	59.22.3101	100 uF	ALU 10V	R....24	57.11.4333	33 kOhm	5% 0.25W	MF
	C....26	59.32.1680	68 pF	CER 400V	R....25	57.11.4333	33 kOhm	5% 0.25W	MF
	C....27			not used	R....26	57.11.4222	2.2 kOhm	5% 0.25W	MF
	C....31			not used	R....27	57.11.4102	1 kOhm	5% 0.25W	MF
01	C....31	59.06.0222	2.2 nF	PE	R....28	57.11.4103	10 kOhm	5% 0.25W	MF
	C....32	59.34.2470	47 pF	CER	R....30	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor
	C....33	59.06.0472	4.7 nF	PE	R....31	57.11.4333	33 kOhm	5% 0.25W	MF
	C....34	59.34.2470	47 pF	CER	R....32	57.11.4333	33 kOhm	5% 0.25W	MF
	C....35	59.22.3101	100 uF	ALU 10V	R....33	57.11.4333	33 kOhm	5% 0.25W	MF
	C....36	59.32.1680	68 pF	CER 400V	R....34	57.11.4333	33 kOhm	5% 0.25W	MF
	C....37			not used	R....35	57.11.4333	33 kOhm	5% 0.25W	MF
	C....41			not used	R....36	57.11.4222	2.2 kOhm	5% 0.25W	MF
01	C....41	59.06.0222	2.2 nF	PE	R....37	57.11.4102	1 kOhm	5% 0.25W	MF
	C....42	59.34.2470	47 pF	CER	R....38	57.11.4103	10 kOhm	5% 0.25W	MF
	C....43	59.06.0472	4.7 nF	PE	R....40	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor
	C....44	59.34.2470	47 pF	CER	R....41	57.11.4333	33 kOhm	5% 0.25W	MF
	C....45	59.22.3101	100 uF	ALU 10V	R....42	57.11.4333	33 kOhm	5% 0.25W	MF
	C....46	59.32.1680	68 pF	CER 400V	R....43	57.11.4333	33 kOhm	5% 0.25W	MF
	C....47			not used	R....44	57.11.4333	33 kOhm	5% 0.25W	MF
	C....51			not used	R....45	57.11.4333	33 kOhm	5% 0.25W	MF
01	C....51	59.06.0222	2.2 nF	PE	R....46	57.11.4222	2.2 kOhm	5% 0.25W	MF
	C....52	59.34.2470	47 pF	CER	R....47	57.11.4102	1 kOhm	5% 0.25W	MF
	C....53	59.06.0472	4.7 nF	PE	R....48	57.11.4103	10 kOhm	5% 0.25W	MF
	C....54	59.34.2470	47 pF	CER	R....50	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor
	C....55	59.22.3101	100 uF	ALU 10V	R....51	57.11.4333	33 kOhm	5% 0.25W	MF
	C....56	59.32.1680	68 pF	CER 400V	R....52	57.11.4333	33 kOhm	5% 0.25W	MF
	C....57			not used	R....53	57.11.4333	33 kOhm	5% 0.25W	MF
	C....61			not used	R....54	57.11.4333	33 kOhm	5% 0.25W	MF
01	C....61	59.06.0222	2.2 nF	PE	R....55	57.11.4333	33 kOhm	5% 0.25W	MF
	C....62	59.34.2470	47 pF	CER	R....56	57.11.4222	2.2 kOhm	5% 0.25W	MF
	C....63	59.06.0472	4.7 nF	PE	R....57	57.11.4102	1 kOhm	5% 0.25W	MF
	C....64	59.34.2470	47 pF	CER	R....58	57.11.4103	10 kOhm	5% 0.25W	MF
	C....65	59.22.3101	100 uF	ALU 10V	R....60	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor
	C....66	59.32.1680	68 pF	CER 400V	R....61	57.11.4333	33 kOhm	5% 0.25W	MF
	C....67			not used	R....62	57.11.4333	33 kOhm	5% 0.25W	MF
	C....70	59.22.4221	220 uF	ALU 6V	R....63	57.11.4333	33 kOhm	5% 0.25W	MF
	C....71	59.22.4101	100 uF	ALU 10V	R....64	57.11.4333	33 kOhm	5% 0.25W	MF
	C....72	59.06.0152	1.5 nF	CER	R....65	57.11.4333	33 kOhm	5% 0.25W	MF
	C....73	59.34.2470	47 pF	CER	R....66	57.11.4222	2.2 kOhm	5% 0.25W	MF
	C....74	59.34.4100	10 pF	CER	R....67	57.11.4102	1 kOhm	5% 0.25W	MF
	C....75	59.34.5471	470 pF	CER	R....68	57.11.4103	10 kOhm	5% 0.25W	MF
	C....76	59.05.1102	1 nF	1%	R....70	57.11.3332	3.3 kOhm	1% 0.25W	MF
	C....77	59.05.1102	1 nF	1%	R....71	57.11.3332	3.3 kOhm	1% 0.25W	MF
	C....79	59.22.4101	100 uF	ALU 10V	R....72	57.11.3222	2.2 kOhm	1% 0.25W	MF
	C....80	59.06.5105	1 uF	PE	R....73	57.11.3222	2.2 kOhm	1% 0.25W	MF
	C....81	59.06.5105	1 uF	PE	R....74	57.11.3242	2.4 kOhm	1% 0.25W	MF
	C....82	59.25.5101	100 uF	40V	R....75	57.11.3242	2.4 kOhm	1% 0.25W	MF
	C....83	59.25.5101	100 uF	40V	R....76	57.11.4102	1 kOhm	5% 0.25W	MF
	C....84	59.25.5101	100 uF	40V	R....77	57.11.4392	3.9 kOhm	5% 0.25W	MF
	D....70	50.04.0105	1N4004		R....78	57.11.4330	33 Ohm	5% 0.25W	MF
	D....71	50.04.0105	1N4004		R....79	57.11.4330	33 Ohm	5% 0.25W	MF
	F....1	51.01.0115	T 630mA /250V 5*20		R....80	57.11.4330	33 Ohm	5% 0.25W	MF
	F....2	51.01.0115	T 630mA /250V 5*20		R....81	57.11.4333	33 kOhm	5% 0.25W	MF
	IC...11	50.09.0106	NE5532AN	dual op. amp.	R....82	57.11.4000	0 Ohm	5% 0.25W	MF
	IC...12	50.09.0106	NE5532AN	dual op. amp.	T....10	1.022.363.00			output trafo
	IC...21	50.09.0106	NE5532AN	dual op. amp.	T....20	1.022.363.00			output trafo
	IC...22	50.09.0106	NE5532AN	dual op. amp.	T....30	1.022.363.00			output trafo
	IC...31	50.09.0106	NE5532AN	dual op. amp.	T....40	1.022.363.00			output trafo
	IC...32	50.09.0106	NE5532AN	dual op. amp.	T....50	1.022.363.00			output trafo
	IC...41	50.09.0106	NE5532AN	dual op. amp.	T....60	1.022.363.00			output trafo
	IC...42	50.09.0106	NE5532AN	dual op. amp.	T....70	1.022.454.00			input trafo
	IC...51	50.09.0106	NE5532AN	dual op. amp.					
	IC...52	50.09.0106	NE5532AN	dual op. amp.					
	IC...61	50.09.0106	NE5532AN	dual op. amp.					
	IC...62	50.09.0106	NE5532AN	dual op. amp.					
	IC...70	50.05.0244	NE5534AN	single op. amp.					
	JP....1	54.01.0021		JUMPER JACK					
	JS....1	54.01.0020		JUMPER PLUG 3-PIN					
	MP....1	53.03.0142	4 pcs	Fuse holder					
	MP....2	1.915.307.02	1 pcs	Abdeckwinkel					
	MP....3	1.915.307.05	1 pcs	Kuelblech					
	MP....4	1.022.400.03	1 pcs	Isolation T 70					
	R....10	58.01.9203	20 kOhm	10% 0.5 W					PMG trimming resistor

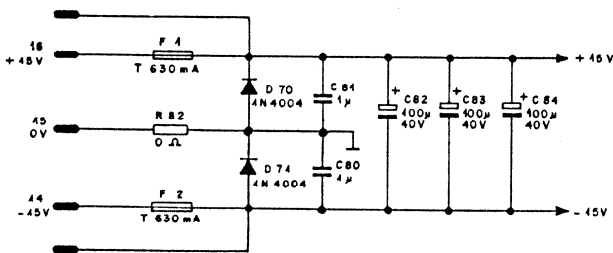
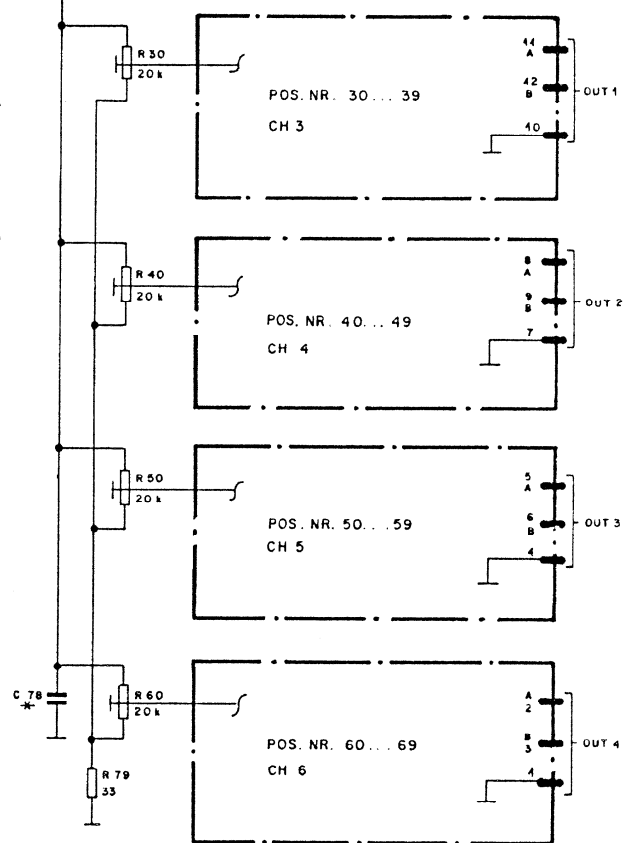
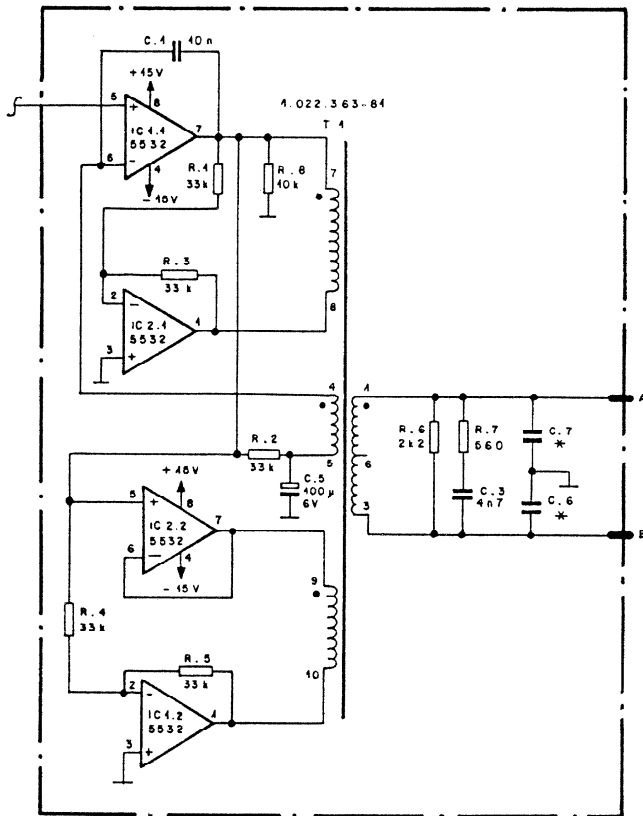
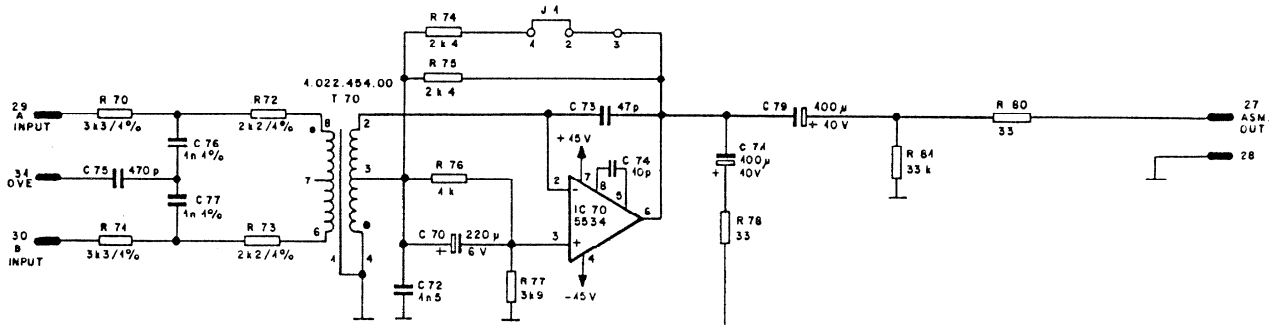
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CER=Ceramic, PE=Polyester  
MF=Metal Film, PMG=Cermet

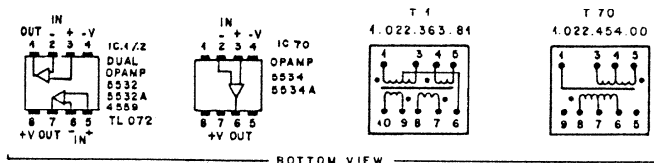
MANUFACTURER: Ex=Exar, NEC=Nippon Electric Corp., Ph=Philips, Ra=Rayth  
Sig=Signetics, St=Studer.

1.915.307.00 DISTRIBUTION AMP. 1/6 SE 87/09/0400  
1.915.307.00 DISTRIBUTION AMP. 1/6 SE 92/07/0201



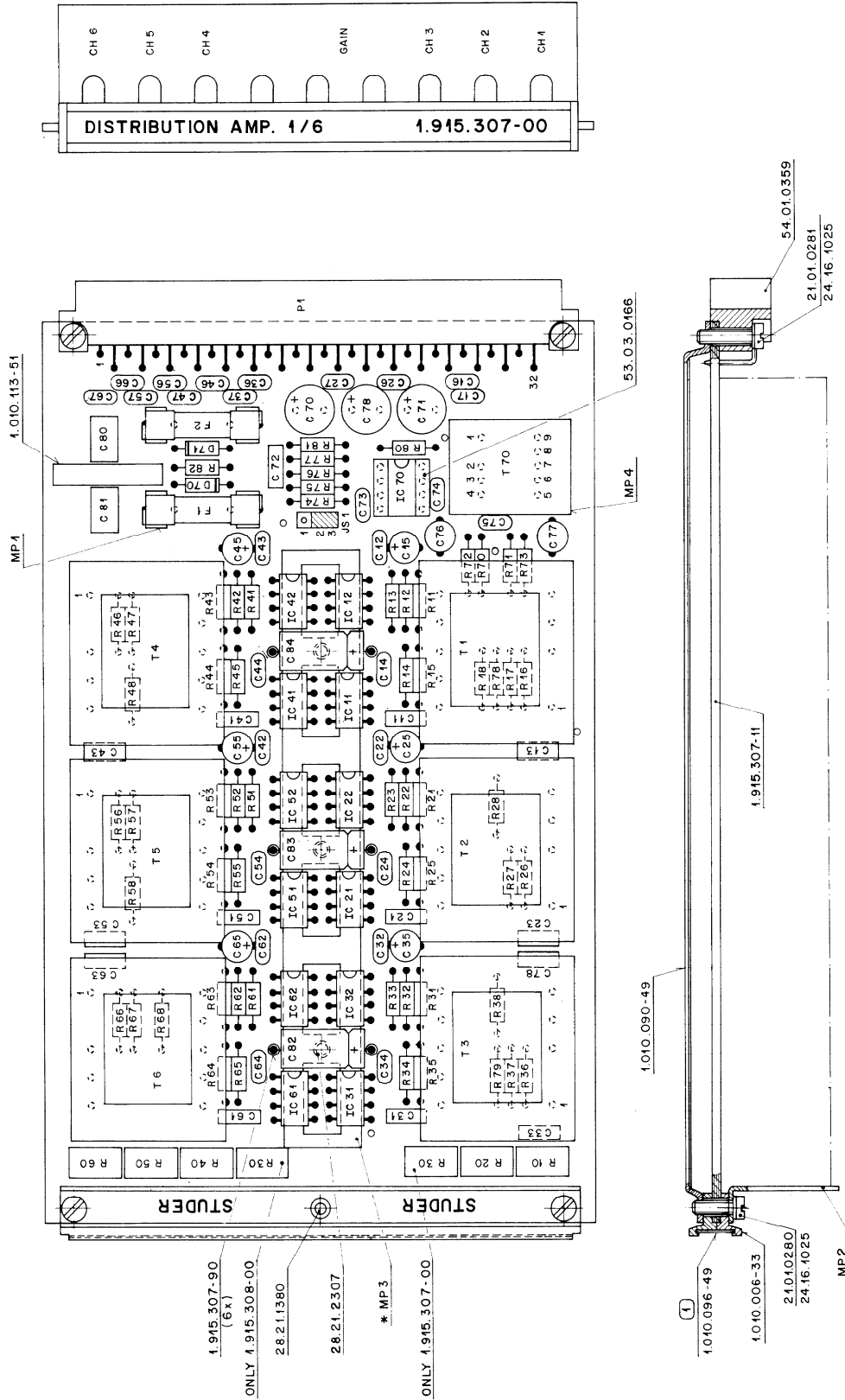
\* NOT EQUIPPED

- 1 a
- 2 a
- 3 b
- 4 l
- 5 a
- 6 b
- 7 l
- 8 a
- 9 b
- 10 l
- 11 a
- 12 b
- 13
- 14 -15V
- 15 0V
- 16 +15V
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27 ASM. OUT
- 28 l
- 29 a
- 30 b
- 31 0V
- 32



① 24.11.93	① 12.4.94	○	○	○
STUDER REGENSDORF ZÜRICH		DISTRIBUTION AMP 1/4		SC 1.915.308-81





Norm. Nr.	54
DIN-Bez.	2
Abmessung	1
Zugehörige Unterlagen	19.8.67 A Ho 4
PL, IL	2.1
Ersatz für	Küble für
Überfläche	Gez.   Gez.   Gez.   Index
Änderung	
Freigegeben	19.8.67 A Ho 4
Maßstab	2.1
Erstellt durch	
Benennung	DISTRIBUTION AMP. 1/6
Nummer	1.915.307-00

VALID FOR	NR. UNIT + PL	(1)
DISTR. AMP 1/6	1.915.307-00	1.915.307-01
DISTR. AMP 1/4	1.915.308-00	1.915.308-01

\* Zwischen IC 11/12 / 21/22/31/32 / 41/42/51/52/61/62 und Kühlblech MP3 Wärmeleitpaste 99.01.0506

DISTRIBUTION AMPLIFIER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
	C....31		not used		R....56	57.11.4222	2.2 kOhm	5% 0.25W MF	
01	C....31	59.06.0222	2.2 nF	PE	R....57	57.11.4102	1 kOhm	5% 0.25W MF	
	C....32	59.34.2470	47 pF	CER	R....58	57.11.4103	10 kOhm	5% 0.25W MF	
	C....33	59.06.0472	4.7 nF	PE	R....60	58.01.9203	20 kOhm	10% 0.5 W PMG trimming resistor	
	C....34	59.34.2470	47 pF	CER	R....61	57.11.4333	33 kOhm	5% 0.25W MF	
	C....35	59.22.3101	100 uF	ALU 10V	R....62	57.11.4333	33 kOhm	5% 0.25W MF	
	C....36	59.32.1680	68 pF	CER 400V	R....63	57.11.4333	33 kOhm	5% 0.25W MF	
	C....37		not used		R....64	57.11.4333	33 kOhm	5% 0.25W MF	
	C....41		not used		R....65	57.11.4333	33 kOhm	5% 0.25W MF	
01	C....41	59.06.0222	2.2 nF	PE	R....66	57.11.4222	2.2 kOhm	5% 0.25W MF	
	C....42	59.34.2470	47 pF	CER	R....67	57.11.4102	1 kOhm	5% 0.25W MF	
	C....43	59.06.0472	4.7 nF	PE	R....68	57.11.4103	10 kOhm	5% 0.25W MF	
	C....44	59.34.2470	47 pF	CER	R....70	57.11.3332	3.3 kOhm	1% 0.25W MF	
	C....45	59.22.3101	100 uF	ALU 10V	R....71	57.11.3332	3.3 kOhm	1% 0.25W MF	
	C....46	59.32.1680	68 pF	CER 400V	R....72	57.11.3222	2.2 kOhm	1% 0.25W MF	
	C....47		not used		R....73	57.11.3222	2.2 kOhm	1% 0.25W MF	
	C....51		not used		R....74	57.11.3242	2.4 kOhm	1% 0.25W MF	
01	C....51	59.06.0222	2.2 nF	PE	R....75	57.11.3242	2.4 kOhm	1% 0.25W MF	
	C....52	59.34.2470	47 pF	CER	R....76	57.11.4102	1 kOhm	5% 0.25W MF	
	C....53	59.06.0472	4.7 nF	PE	R....77	57.11.4392	3.9 kOhm	5% 0.25W MF	
	C....54	59.34.2470	47 pF	CER	R....78	57.11.4330	33 Ohm	5% 0.25W MF	
	C....55	59.22.3101	100 uF	ALU 10V	R....79	57.11.4330	33 Ohm	5% 0.25W MF	
	C....56	59.32.1680	68 pF	CER 400V	R....80	57.11.4330	33 Ohm	5% 0.25W MF	
	C....57		not used		R....81	57.11.4333	33 kOhm	5% 0.25W MF	
	C....61		not used		R....82	57.11.4000	0 Ohm	5% 0.25W MF	
01	C....61	59.06.0222	2.2 nF	PE	T....30	1.022.363.00		output trafo	
	C....62	59.34.2470	47 pF	CER	T....40	1.022.363.00		output trafo	
	C....63	59.06.0472	4.7 nF	PE	T....50	1.022.363.00		output trafo	
	C....64	59.34.2470	47 pF	CER	T....60	1.022.363.00		output trafo	
	C....65	59.22.3101	100 uF	ALU 10V	T....70	1.022.454.00		input trafo	
	C....66	59.32.1680	68 pF	CER 400V					
	C....67		not used						
	C....70	59.22.4221	220 uF	ALU 6V					
	C....71	59.22.4101	100 uF	ALU 10V					
	C....72	59.06.0152	1.5 nF	CER					
	C....73	59.34.2470	47 pF	CER					
	C....74	59.34.4100	10 pF	CER					
	C....75	59.34.5471	470 pF	CER					
	C....76	59.05.1102	1 nF	1%					
	C....77	59.05.1102	1 nF	1%					
	C....79	59.22.4101	100 uF	ALU 10V					
	C....80	59.06.5105	1 uF	PE					
	C....81	59.06.5105	1 uF	PE					
	C....82	59.25.5101	100 uF	40V					
	C....83	59.25.5101	100 uF	40V					
	C....84	59.25.5101	100 uF	40V					
	D....70	50.04.0105	1N4004						
	D....71	50.04.0105	1N4004						
	F....1	51.01.0115	T 630mA /250V 5*20						
	F....2	51.01.0115	T 630mA /250V 5*20						
	IC....31	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....32	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....41	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....42	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....51	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....52	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....61	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....62	50.09.0106	NE5532AN	dual op. amp.					Ra,NE
	IC....70	50.05.0244	NE5534AN	single op.amp.					Ra,NE
	JP....1	54.01.0021		JUMPER JACK					
	JS....1	54.01.0020		JUMPER PLUG 3-PIN					
	MP....1	53.03.0142	4 pcs	Fuse holder					
	MP....2	1.915.307.02	1 pcs	Abdeckwinkel					
	MP....3	1.915.307.05	1 pcs	Kuelblech					
	MP....4	1.022.400.03	1 pcs	Isolation T 70					
	R....30	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor				
	R....31	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....32	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....33	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....34	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....35	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....36	57.11.4222	2.2 kOhm	5% 0.25W	MF				
	R....37	57.11.4102	1 kOhm	5% 0.25W	MF				
	R....38	57.11.4103	10 kOhm	5% 0.25W	MF				
	R....40	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor				
	R....41	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....42	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....43	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....44	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....45	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....46	57.11.4222	2.2 kOhm	5% 0.25W	MF				
	R....47	57.11.4102	1 kOhm	5% 0.25W	MF				
	R....48	57.11.4103	10 kOhm	5% 0.25W	MF				
	R....50	58.01.9203	20 kOhm	10% 0.5 W	PMG trimming resistor				
	R....51	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....52	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....53	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....54	57.11.4333	33 kOhm	5% 0.25W	MF				
	R....55	57.11.4333	33 kOhm	5% 0.25W	MF				

CER=Ceramic, PE=Polyester, SAL=Solid Aluminium  
MF=Metal Film, PMG=Cermet

MANUFACTURER: Ex=Exar, NE=NEC, Ph=Philips, Ra=Raytheon,  
Sig=Signetics, St=Studer,

1.915.308.00 DISTRIBUTION AMP.1/4 SE 87/09/0400

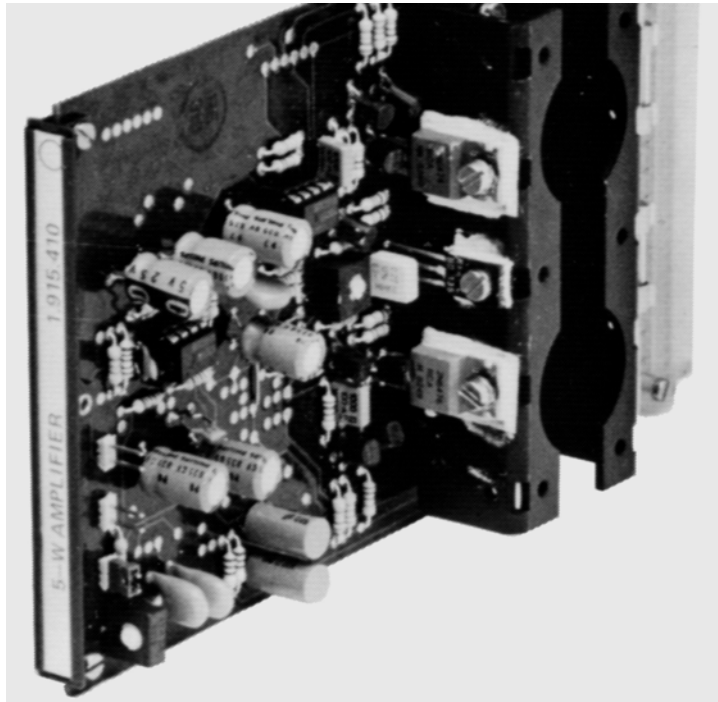
1.915.308.00 DISTRIBUTION AMP.1/4 SE 92/07/0201

END

## 5 W Power Amplifier

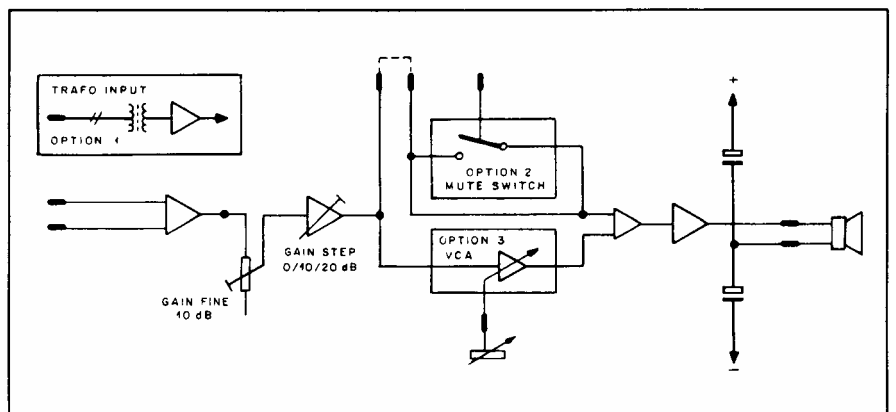
1.915.410/415

This amplifier on one Euro-card is designed for operation on a  $\pm 15$  V supply. It is capable of providing a power output of 5 W into a load of  $8 \Omega$ . With its low-to-medium power level, this amplifier is ideally suited for applications such as pre-listening or talkback speaker operation. Its output stage is protected by instantaneous output power limiting.



The standard version has an electronically balanced (transformerless) input. It is also available with the following options:

- Input balancing transformer
- Remote muting
- Remote gain control (VCA)
- Input balancing transformer plus remote muting
- Input balancing transformer plus remote gain control (VCA).



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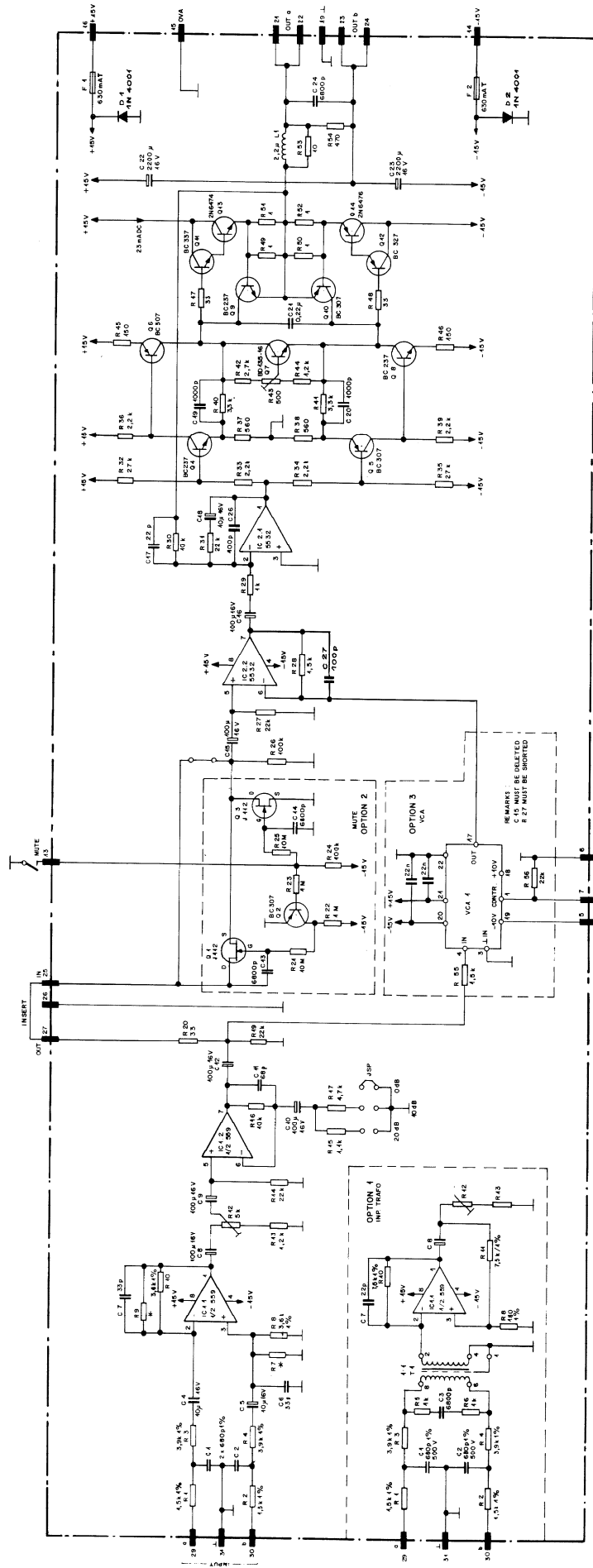
 Technical Specifications
 

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<b>Audio:</b>	Power output	<b>4 W/15 Ω</b> <b>5 W/8 Ω</b> <b>2.5 W/4 Ω</b> , continuous, sine wave
	THD	<b>&lt; 0.1%</b> @ rated output, 30 Hz...16 kHz
	Frequency response	<b>±0.5 dB</b> , 30 Hz...16 kHz
	Input impedance	<b>10 kΩ</b> , balanced
	Sensitivity	<b>-17...+16 dBu</b> (0.11...4.9 V <sub>rms</sub> ) for rated output
	Maximum input level	<b>+24 dBu</b> (12.3 V <sub>rms</sub> ) clipping point
	S/N	<b>100 dB</b> , linear to 23 kHz at normal operating gain (input +6 dBu) <b>85 dB</b> , at maximum gain
<b>Supply:</b>		<b>±15 V DC</b> (40 mA idling; 400 mA @ 5 W/8 Ω)
	Output stage quiescent current	<b>23 mA</b>
<b>Dimensions:</b>	Euro-card	<b>100 × 160 mm, 7M units wide</b>
	Weight	<b>approx. 210 g</b>

**Ordering Information:**

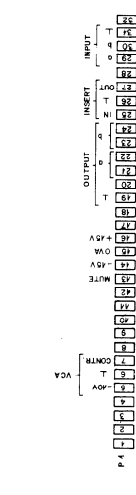
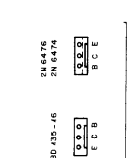
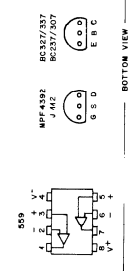
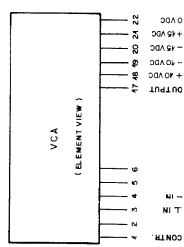
<b>5 W amplifier with</b>	• transformerless input	1.915.410.xx
	• input transformer	1.915.411.xx
	• transformerless input and remote muting facility	1.915.412.xx
	• input transformer and remote muting facility	1.915.413.xx
	• transformerless input and remote gain control (VCA)	1.915.414.xx
	• input transformer and remote gain control (VCA)	1.915.415.xx



4 R.T. 615 SELECTED FOR BEST COMMONMODE REJECTION

4 915. 50 RESISTOR

MUTE	410	4K
VCA	412	415
DIFF AMP	414	415



DATE:	15.5.82	17.4.83	8.1.85	10.8.85	10.8.85
SIGN:	Th	ML	ML	ML	ML
STUDER REVISIONS/DFW ZÜRICH	5 WATT AMPLIFIER				
					SC 1.915.410



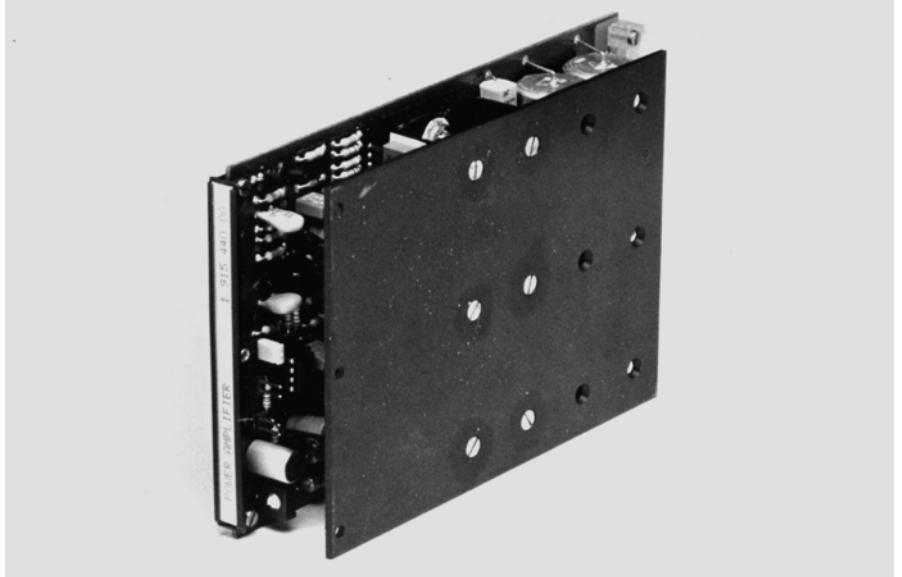
5W AUDIO AMPLIFIER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C	...	1	59.05.1681	680p 1% 500V PP	R	...	33	57.11.4222	2,2k
C	...	2	59.05.1681	680p 1% 500V PP	R	...	34	57.11.4222	2,2k
C	...	3		OPT 1	R	...	35	57.11.4273	27k
C	...	4	59.26.2100	10µ 16V SAL	R	...	36	57.11.4222	2,2k
C	...	5	59.26.2100	10µ 16V SAL	R	...	37	57.11.4561	560
C	...	6	59.34.2330	33p CER	R	...	38	57.11.4561	560
C	...	7	59.34.2330	33p CER	R	...	39	57.11.4222	2,2k
C	...	8	59.22.5101	100µ 16V EL	R	...	40	57.11.4332	3,3k
C	...	9	59.22.5101	100µ 16V EL	R	...	41	57.11.4332	3,3k
C	...	10	59.22.5101	100µ 16V EL	R	...	42	57.11.4272	2,7k
C	...	11	59.34.4680	68p CER	R	...	43	58.01.8501	500 TRIM
C	...	12	59.22.5101	100µ 16V EL	R	...	44	57.11.4122	1,2k
C	...	13		OPT 2	R	...	45	57.11.4151	150
C	...	14		OPT 2	R	...	46	57.11.4151	150
C	...	15	59.22.5101	100µ 16V EL	R	...	47	57.11.4330	33
C	...	16	59.22.5101	100µ 16V EL	R	...	48	57.11.4330	33
C	...	17	59.34.2220	22p CER	R	...	49	57.11.4109	1
C	...	18	59.26.2100	10µ 16V SAL	R	...	50	57.11.4109	1
C	...	19	59.06.0102	1000p PE	R	...	51	57.11.4109	1
C	...	20	59.06.0102	1000p PE	R	...	52	57.11.4109	1
C	...	21	59.06.0224	0,22µ PE	R	...	53	57.11.4100	10
C	...	22	59.25.3222	2200µ 16V EL	R	...	54	57.11.4471	470
C	...	23	59.25.3222	2200µ 16V EL	R	...	55		OPT 3
C	...	24	59.06.0682	6800p PE	R	...	56		OPT 3
C	...	25		OPT 3					
ⓐ	C	...	26	59.34.4101	100p CER	XF	53.03.0142		FUSE HOLDER
ⓑ	C	...	27	59.34.4101	100p CER	XIC	53.03.0166		8pDIL
F	...	1	51.01.0115	630mA SLOW BLOW 5*20					
F	...	2	51.01.0115	630mA SLOW BLOW 5*20					
IC	...	1	50.09.0107	4559 DUAL OP AMP	RA				OPTION 1
ⓐ	IC	...	2	50.09.0106	5532 DUAL OP AMP	SIG			
JSP			54.01.0020	PIN (2*)					
			54.01.0021	JUMPER					
L	...	1	1.068.614.00	2,2µH					
P	...	1	54.01.0359	32p EDGE CONN. TYBE B					
Q	...	1		OPT 2					
Q	...	2		OPT 2					
Q	...	3		OPT 2					
Q	...	4	50.03.0436	BC237B NPN GEN. PURPOSE					OPTION 2
Q	...	5	50.03.0515	BC307B PNP GEN. PURPOSE					
Q	...	6	50.03.0515	BC307B PNP GEN. PURPOSE					
Q	...	7	50.03.0495	BD135-16 NPN					
Q	...	8	50.03.0436	BC237B NPN GEN. PURPOSE					
Q	...	9	50.03.0436	BC237B NPN GEN. PURPOSE					
Q	...	10	50.03.0515	BC307B PNP GEN. PURPOSE					
Q	...	11	50.03.0340	BC337 NPN 800mA					
Q	...	12	50.03.0351	BC327 PNP 800mA					
Q	...	13	50.03.0344	2N6474 NPN	RCA				
Q	...	14	50.03.0345	2N6476 PNP	RCA				
R	...	1	57.11.3152	1,5k 1%					
R	...	2	57.11.3152	1,5k 1%					
R	...	3	57.11.3392	3,9k 1%					
R	...	4	57.11.3392	3,9k 1%					
R	...	5		OPT 1					
R	...	6		OPT 1					
R	...	7		SELECTED					
R	...	8	57.11.3362	3,6k 1%					
R	...	9		SELECTED					
R	...	10	57.11.3362	3,6k 1%					
R	...	11		OPT 1					
R	...	12	58.01.7502	5k TRIM					
R	...	13	57.11.4122	1,2k					
R	...	14	57.11.4223	22k					
R	...	15	57.11.3112	1,1k 1%					
R	...	16	57.11.4103	10k					
R	...	17	57.11.4472	4,7k					
R	...	18		NOT USED					
R	...	19	57.11.4223	22k					
R	...	20	57.11.4330	33					
R	...	21		OPT 2					
R	...	22		OPT 2					
R	...	23		OPT 2					
R	...	24		OPT 2					
R	...	25		OPT 2					
R	...	26	57.11.4104	100k					
R	...	27	57.11.4223	22k					
R	...	28	57.11.4152	1,5k					
R	...	29	57.11.4102	1k					
R	...	30	57.11.4103	10k					
R	...	31	57.11.4223	22k					
R	...	32	57.11.4273	27k					
R	...	33	57.11.4222	2,2k					
R	...	34	57.11.4222	2,2k					
R	...	35	57.11.4273	27k					
R	...	36	57.11.4222	2,2k					
R	...	37	57.11.4561	560					
R	...	38	57.11.4561	560					
R	...	39	57.11.4222	2,2k					
R	...	40	57.11.4332	3,3k					
R	...	41	57.11.4332	3,3k					
R	...	42	57.11.4272	2,7k					
R	...	43	58.01.8501	500 TRIM					
R	...	44	57.11.4122	1,2k					
R	...	45	57.11.4151	150					
R	...	46	57.11.4151	150					
R	...	47	57.11.4330	33					
R	...	48	57.11.4330	33					
R	...	49	57.11.4109	1					
R	...	50	57.11.4109	1					
R	...	51	57.11.4109	1					
R	...	52	57.11.4109	1					
R	...	53	57.11.4100	10					
R	...	54	57.11.4471	470					
R	...	55		OPT 3					
R	...	56		OPT 3					
XF			53.03.0142						FUSE HOLDER
XIC			53.03.0166						8pDIL
OPTIONS									
C	...	3	59.06.0682	6800p PE					OPTION 1
C	...	7	59.34.2220	22p CER					
R	...	5	57.11.4102	1k					
R	...	6	57.11.4102	1k					
R	...	8	57.11.3181	180 1%					
R	...	10	57.11.3752	7,5k 1%					
R	...	11	57.11.3752	7,5k 1%					
T	...	1	1.022.419.00	1:1					ST
			1.022.400.03						INSULATION
C	...	13	59.06.0682	6800p					OPTION 2
C	...	14	59.06.0682	6800p					
Q	...	1	50.03.0350	J112 ND FET				MPF4392	SIX, MOT
Q	...	2	50.03.0515	BC307 PNP GEN. PURPOSE					
Q	...	3	50.03.0350	J112 ND FET				MPF4392	SIX, MOT
R	...	21	57.11.6106	10M					
R	...	22	57.11.4105	1M					
R	...	23	57.11.4105	1M					
R	...	24	57.11.4104	100k					
R	...	25	57.11.6106	10M					
ⓐ	D	...	1	50.04.0122	1N4001				MOT
ⓑ	D	...	2	50.04.0122	1N4001				MOT
R	...	55	57.11.4152	1,5k					
R	...	56	57.11.4223	22k					
VCA	...	1	1.010.110.50						VOLTAGE CONTROLLED AMPL. ST
Additional Diodes see Page 6									
PP=Polypropylene, SAL= Solid Aluminium, CER=Ceramic, EL=Electrolytic, PE=Polyester									
MANUFACTURER: ST=Studer, MOT=Motorola, SIX=Siliconix, RA=Raytheon, SIG=Signetics									
1.915.410.00 5 WATT AMPLIFIER TH 14/04/82									
1.915.410.00 5 WATT AMPLIFIER ⓐ HO 04/11/83									
1.915.410.00 5 WATT AMPLIFIER ⓑ PA 18/04/85									
END									
→									

## 40 W Power Amplifier

1.915.440/441

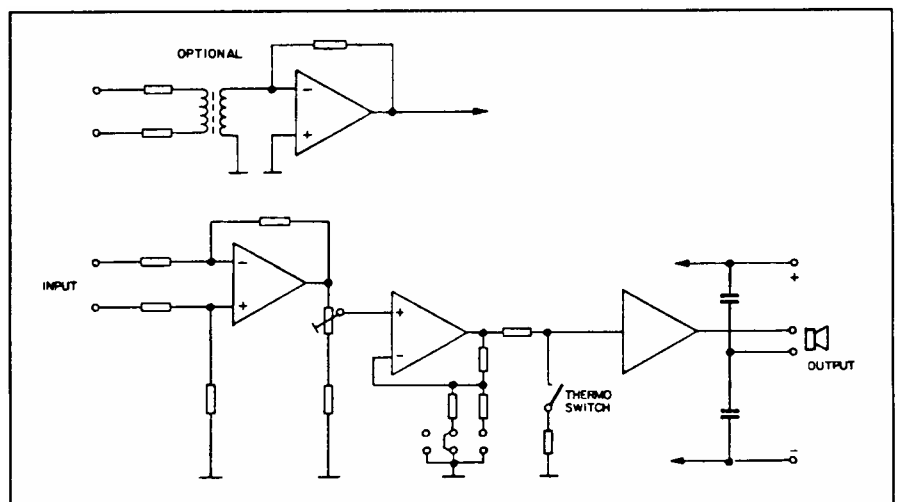
For applications where higher power level is needed, a 40 W amplifier has been realized on a Euro-card. Its width is 32 mm, which equals 7M widths approximately.



Power is supplied from a separate 45 V<sub>DC</sub> source, as is contained in the 19" mounting frame 1.918.120.xx. Two amplifier cards will fit into that frame, making it suitable for applications where stereophonic monitoring is required.

## Special Features

- Transformerless version with electronically balanced inputs standard
- Version with balanced and floating inputs available
- Output stage protected from overload by momentary power limiting
- Temperature sensing avoids thermal overload
- High-end frequency response limited to prevent transient intermodulation distortion
- Low distortion performance, even at low power output
- Operation with output transformer possible





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 Technical Specifications
 

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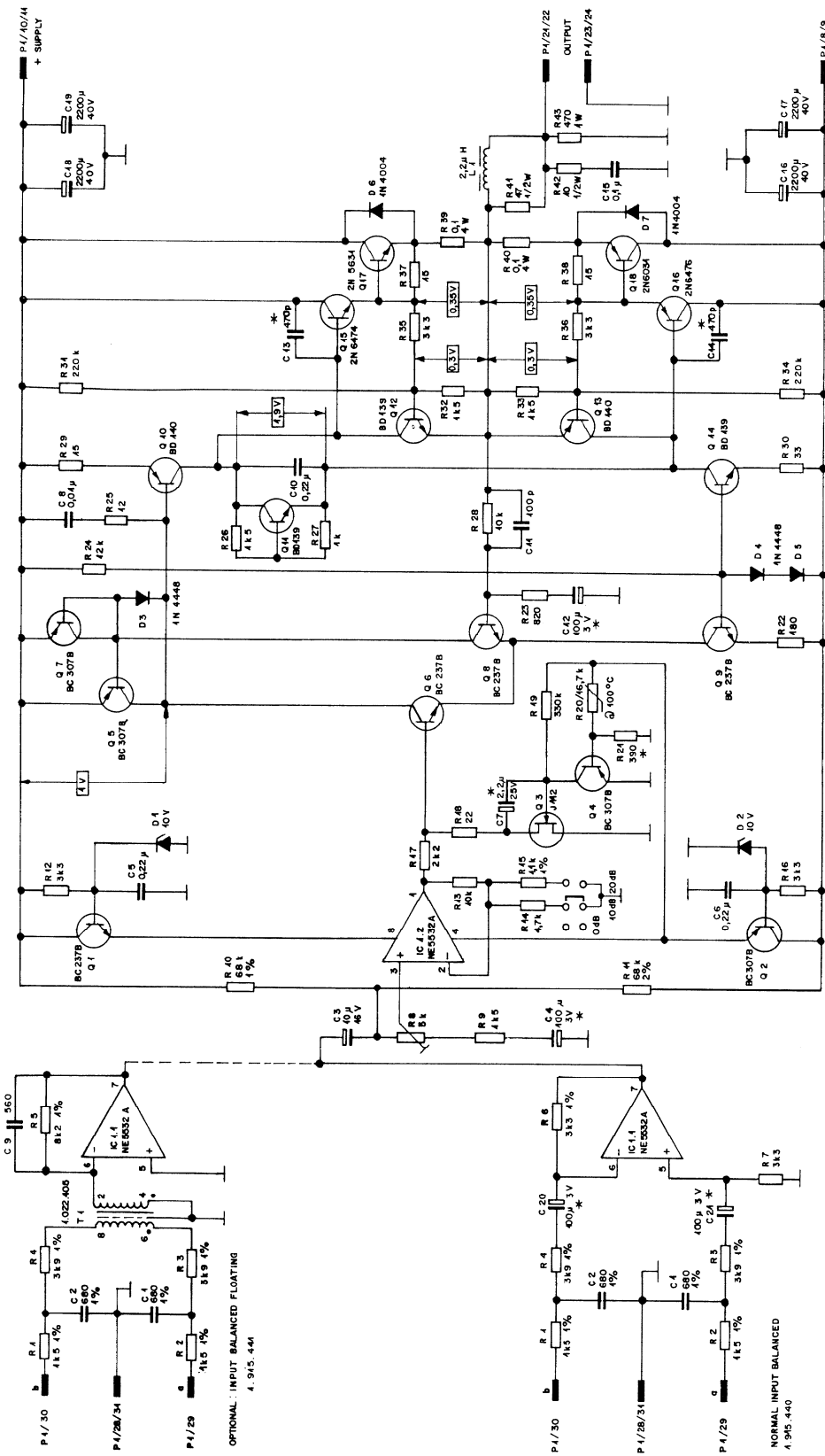
<b>Audio:</b>	Power output	<b>40 W/4 Ω</b> , continuous, sine-wave,
	THD	< <b>0.1 %</b> , 30 Hz...15 kHz (up to rated output)
	Output impedance	<b>0.1 Ω</b>
	Input impedance	<b>10 kΩ</b>
	Common mode rejection	> <b>50 dB</b> , 30 Hz...16 kHz (with input transformer)
	Input sensitivity	<b>-12...+18 dBu</b> (0.195...6.2 V <sub>rms</sub> ) for rated output (adjustable with jumper in three 10 dB-increments, plus fine-trim range of 12 dB)
	Frequency response	<b>+0.5/-1 dB</b> , 30 Hz...15 kHz
	S/N	<b>105 dB</b> @ maximum gain <b>90 dB</b> @ minimum gain

**Supply:** **45 V<sub>DC</sub>** (70 mA idling, 1.5 A @ 40 W/4 Ω)

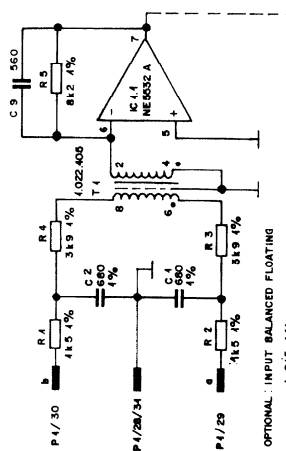
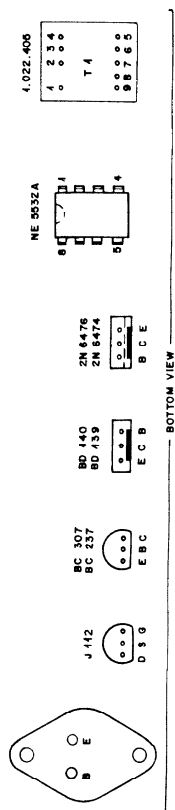
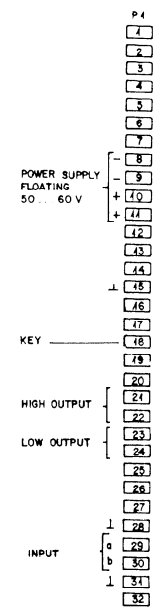
**Dimensions:** Euro-card **100 × 160 mm, 7M units wide**

**Ordering Information:**

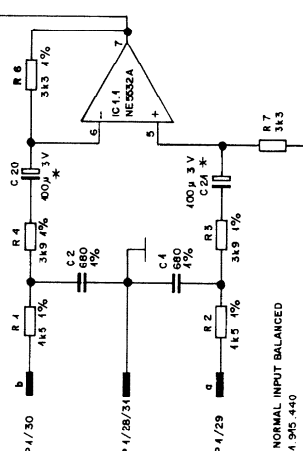
<b>Euro-cards</b>	• 40 W power amplifier with transformerless input	1.915.440.xx
	• 40 W power amplifier with input transformer	1.915.441.xx
<b>19"/1U standard products</b>		
<b>40 W power amplifier</b>	• Mono version, 19"/1U	75.700.80311
	• Stereo version, 19"/1U	75.700.80322
	• 19"/1U mounting frame (without amplifier cards)	1.918.120.xx



\* SEE MODIFICATION LIST



OPTIONAL INPUT BALANCED FLOATING  
4.945.441



NORMAL INPUT BALANCED  
4.945.440

DATE:	12.1.82	24.5.83	24.6.83	23.11.83	
SIGN:	<i>Jr</i>	<i>Me</i>	<i>We</i>	<i>We</i>	
<b>STUDER</b> REGENSDORF ZURICH	<b>POWER AMPLIFIER</b> OPTIONAL: INP. BALANCED FLOATING				<b>SC 1.915.440</b> 4.945.441



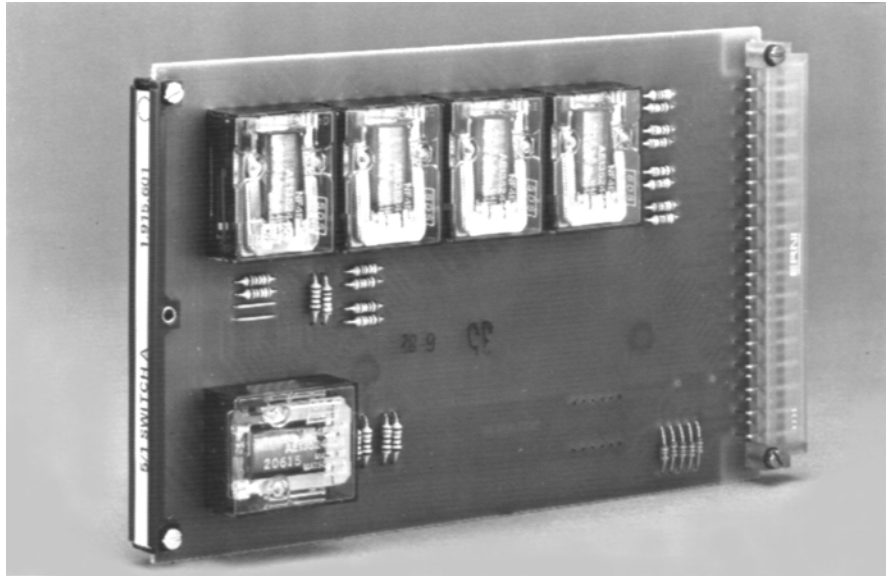
40W POWER AMPLIFIER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
	C . . . . 1	59.12.9681	680pF 500V 1%	PS	R . . . . 36	57.11.4332	3,3k		
	C . . . . 2	59.12.9681	680pF 500V 1%	PS	R . . . . 37	57.11.4150	15		
	C . . . . 3	59.26.2100	10pF 16V	SAL	R . . . . 38	57.11.4150	15		
Ⓢ	C . . . . 4	59.30.1101	100pF 3V	TA	R . . . . 39	57.56.5108	0,1	10%	4W WW
	C . . . . 5	59.06.0224	0,22pF	PE	R . . . . 40	57.56.5108	0,1	10%	4W WW
	C . . . . 6	59.06.0224	0,22pF	PE					
Ⓛ	C . . . . 7	59.26.5229	2,2pF 25V	SAL	R . . . . 41	57.11.4470	47		0,4W
	C . . . . 8	59.06.0103	0,01pF	PE	R . . . . 42	57.11.4100	10		0,4W
	C . . . . 9	59.34.5561	560pF	CER (1.915.441)	R . . . . 43	57.13.4471	470		1W
	C . . . . 10	59.06.0224	0,22pF	PE					
Ⓢ	C . . . . 11	59.34.4101	100pF	CER	T . . . . 1	1.022.405.00	1:1	INPUT TRANSFORMER	ST
Ⓢ	C . . . . 12	59.30.1101	100pF 3V	TA	<b>MODIFICATION LIST</b>				
Ⓢ	C . . . . 13	59.32.1471	470pF	CER	Ⓢ C . . . . 4	220pF → 100pF		QUALITY IMPROVEMENT	
Ⓢ	C . . . . 14	59.32.1471	470pF	CER	Ⓛ C . . . . 7	0,22pF → 2,2pF		BETTER INRUSH	
	C . . . . 15	59.06.0104	0,1pF	PE	Ⓢ C . . . . 12	100pF → 100pF		QUALITY IMPROVEMENT	
	C . . . . 16	59.25.5222	2200pF 40V	EL	Ⓢ C . . . . 13	560pF → 470pF		PRODUCTIONS REASONS	
	C . . . . 17	59.25.5222	2200pF 40V	EL	Ⓢ C . . . . 20	100pF → 100pF		QUALITY IMPROVEMENT	
	C . . . . 18	59.25.5222	2200pF 40V	EL	Ⓢ C . . . . 21	100pF → 100pF		QUALITY IMPROVEMENT	
	C . . . . 19	59.25.5222	2200pF 40V	EL	Ⓢ R . . . . 21	1kΩ → 390Ω		SWITCH OFF @ 100° C	
Ⓢ	C . . . . 20	59.30.1101	100pF 3V	TA (1.915.440)	Ⓢ R . . . . 31	100k → 220k		CURRENT LIMIT @ HIGHER IDLE VOLTAGES	
Ⓢ	C . . . . 21	59.30.1101	100pF 3V	TA (1.915.440)	Ⓢ R . . . . 34	100k → 220k		CURRENT LIMIT @ HIGHER IDLE VOLTAGES	
	D . . . . 1	50.04.1114	ZPD10V 10V @ 5mA		PS=Polystyrene, EL=Electrolytic, SAL=Solid Aluminium, PE=Polyester, CER=Ceramic, SI=Silicium, T=Tantalum				
	D . . . . 2	50.04.1114	ZPD10V 10V @ 5mA		WW=Wire Wound				
	D . . . . 3	50.04.0125	1N4448	SI	MANUFACTURER: PH=Philips, SIG=Signetics, SIX=Siiconix, SIE=Siemens, TI=Texas Instruments, R=RCA				
	D . . . . 4	50.04.0125	1N4448	SI	MOT=Motorola, N=National, ST=Studer				
	D . . . . 5	50.04.0125	1N4448	SI	Also Valid for: 1.915.441 Ⓛ				
	D . . . . 6	50.04.0105	1N4004 1,1V @ 1A	SI	1.915.440 POWER AMPLIFIER PA 09/06/81				
	D . . . . 7	50.04.0105	1N4004 1,1V @ 1A	SI	1.915.440 POWER AMPLIFIER Ⓛ VO 25/05/83				
	IC . . . . 1	50.09.0105	NE5532A DUAL OPA	SIG	1.915.440 POWER AMPLIFIER Ⓢ FRI 06/07/83				
	L . . . . 1	1.068.614.00	2,2pH	ST	1.915.440 POWER AMPLIFIER Ⓢ VO 23/11/83				
	Q . . . . 1	50.03.0436	BC237B NPN	PH, TI	1.915.440 POWER AMPLIFIER Ⓢ VO 23/09/91				
	Q . . . . 2	50.03.0515	BC307B PNP	PH, TI	END				
	Q . . . . 3	50.03.0350	J112 FET	SIX, N	→				
	Q . . . . 4	50.03.0515	BC307B PNP	PH, TI					
	Q . . . . 5	50.03.0515	BC307B PNP	PH, TI					
	Q . . . . 6	50.03.0436	BC237B NPN	PH, TI					
	Q . . . . 7	50.03.0515	BC307B PNP	PH, TI					
	Q . . . . 8	50.03.0436	BC237B NPN	PH, TI					
	Q . . . . 9	50.03.0436	BC237B NPN	PH, TI					
	Q . . . . 10	50.03.0452	BD140 PNP	PH, SIE					
	Q . . . . 11	50.03.0451	BD139 NPN	PH, SIE					
	Q . . . . 12	50.03.0451	BD139 NPN	PH, SIE					
	Q . . . . 13	50.03.0452	BD140 PNP	PH, SIE					
	Q . . . . 14	50.03.0451	BD139 NPN	PH, SIE					
	Q . . . . 15	50.03.0344	2N6474 NPN	R					
	Q . . . . 16	50.03.0345	2N6476 PNP	R					
	Q . . . . 17	50.03.0342	2N5631 NPN	MOT					
	Q . . . . 18	50.03.0343	2N6031 PNP	MOT					
	R . . . . 1	57.11.3152	1,5k 1%						
	R . . . . 2	57.11.3152	1,5k 1%						
	R . . . . 3	57.11.3392	3,9k 1%						
	R . . . . 4	57.11.3392	3,9k 1%						
	R . . . . 5	57.11.3822	8,2k 1% (1.915.441)						
	R . . . . 6	57.11.3332	3,3k 1% (1.915.440)						
	R . . . . 7	57.11.3332	3,3k 1% (1.915.440)						
	R . . . . 8	58.01.7502	5k 10% LIN						
	R . . . . 9	57.11.4152	1,5k						
	R . . . . 10	57.11.4683	68k						
	R . . . . 11	57.11.4683	68k						
	R . . . . 12	57.11.4332	3,3k						
	R . . . . 13	57.11.4103	10k 2%						
	R . . . . 14	57.11.4472	4,7k 2%						
	R . . . . 15	57.11.3112	1,1k 2%						
	R . . . . 16	57.11.4332	3,3k						
	R . . . . 17	57.11.4222	2,2k 2%						
	R . . . . 18	57.11.4220	22						
	R . . . . 19	57.11.4334	330k						
Ⓢ	R . . . . 20	57.99.0803	16,7k NTC	PH					
Ⓢ	R . . . . 21	57.11.4391	390						
	R . . . . 22	57.11.4181	180						
	R . . . . 23	57.11.4821	820						
	R . . . . 24	57.11.4123	12k						
	R . . . . 25	57.11.4120	12						
	R . . . . 26	57.11.4152	1,5k						
	R . . . . 27	57.11.4102	1k						
	R . . . . 28	57.11.4103	10k						
	R . . . . 29	57.11.4150	15						
	R . . . . 30	57.11.4330	33						
Ⓢ	R . . . . 31	57.11.4224	220k						
	R . . . . 32	57.11.4152	1,5k						
	R . . . . 33	57.11.4152	1,5k						
Ⓢ	R . . . . 34	57.11.4224	220k						
	R . . . . 35	57.11.4332	3,3k						

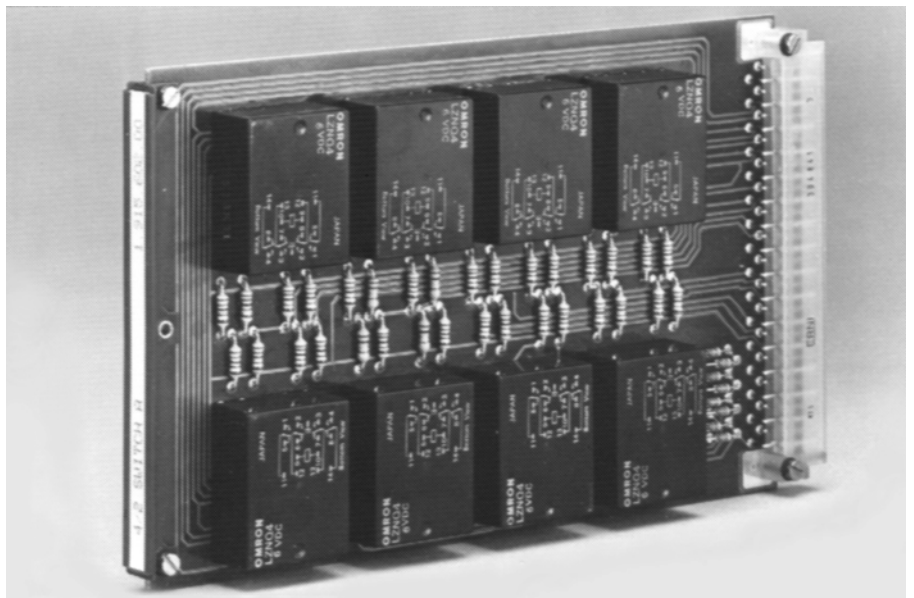
## Monitor Switching Relays

1.915.601/602

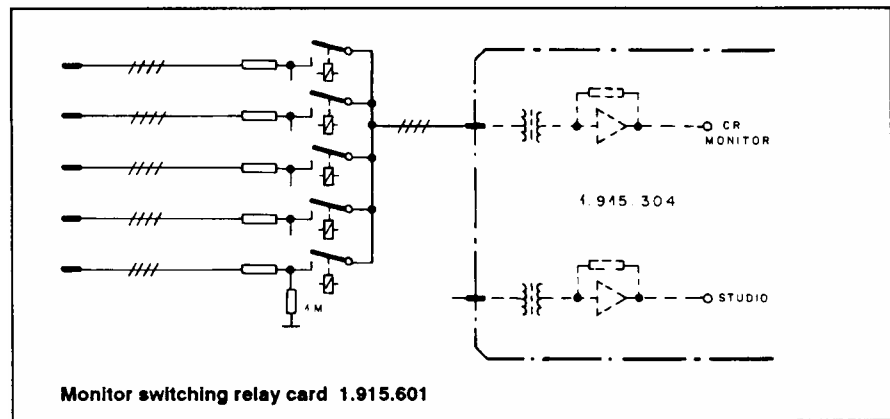
Two different monitor circuit switching cards are available. They are equipped with either five or eight relays for switching of a corresponding number of stereo sources to one or two stereo outputs in monitor circuits.



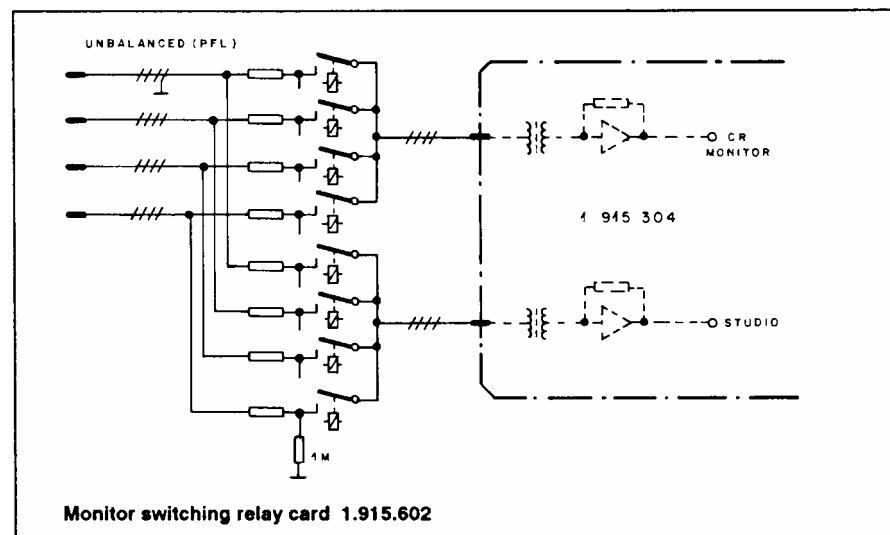
The relays are available with coil ratings of 6 V<sub>DC</sub> or 24 V<sub>DC</sub>, depending on the user's requirement. Click-suppressing diodes are wired across each relay coil. The relays are equipped with four double throw (change-over) contacts each.



Isolation of the monitor lines from external circuitry is achieved by 5.6 k $\Omega$  resistors in the "a" and "b" legs of each stereo line, thus a high impedance (bridging) load is presented to the outside source, even in de-energized (non-selected) status, when the respective pair of relay contacts shorts the lines after the respective isolation resistors. With a relay energized, the corresponding stereo pair is routed to a stereo bus available on four pins of the 32-contact edge connector (in case of the 5-input card 1.915.601.xx).



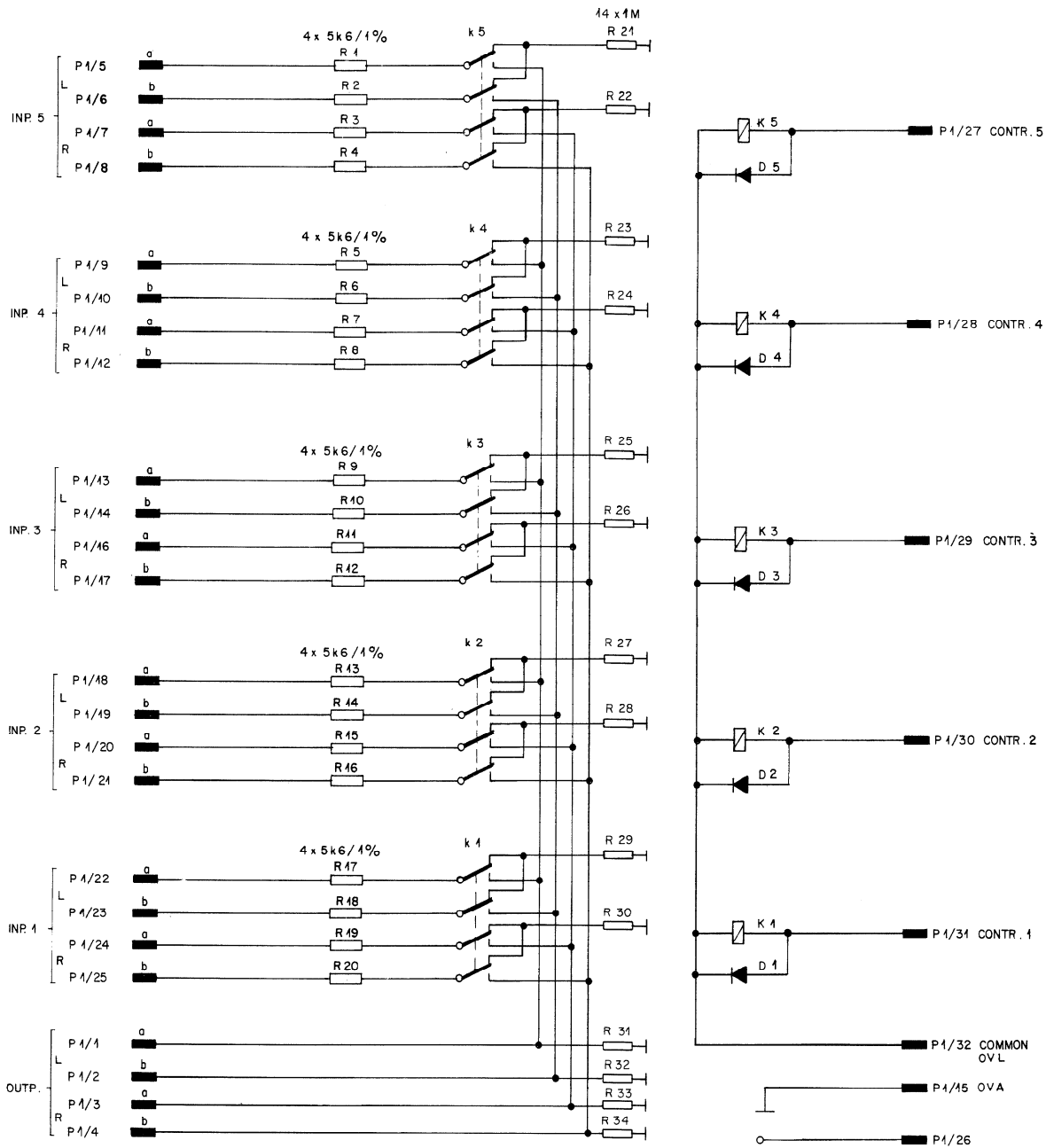
Card 1.915.602.xx features a similar circuit configuration with eight relays, to switch one unbalanced and three balanced stereo inputs. Two stereo buses appear on eight pins of the edge-connector; in this way, the four inputs can be switched to either one or to both outputs, such as may be the case with separate monitor circuits in the control room and in the studio.



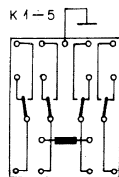
**Dimensions:** Euro-card **100 × 160 mm, 4 M units wide**  
**Weight** **approx. 250 g**

**Ordering Information:**

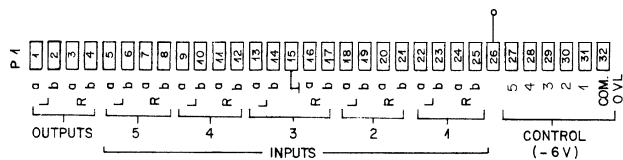
- Relay card, 5 IN/1 OUT 1.915.601.xx
- Relay card, 4 IN/2 OUT 1.915.602.xx



D 1 ... D 5 = 1N 4448

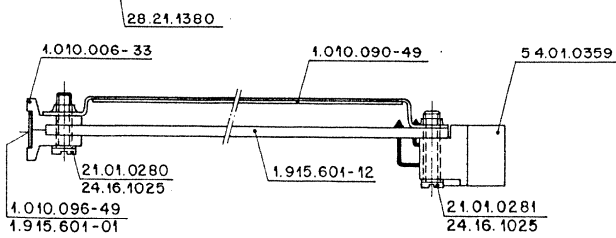
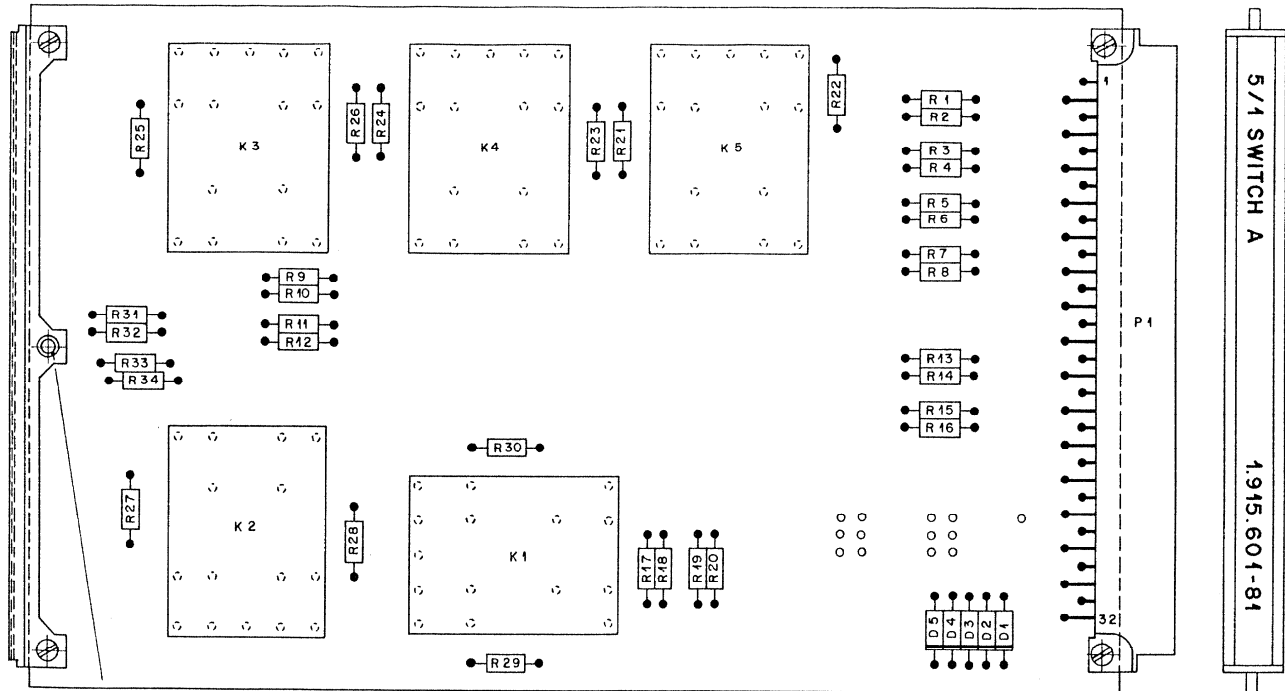


BOTTOM VIEW



DATE:	26.10.87		
SIGN:			
STUDER REGENSDORF ZÜRICH	5/1 SWITCH A MONITOR RELAYS	SC 1.915.601.81	

RELAYS



Werkstoff: DIN-Bez.:	Norm-Nr.:	Oberfläche:	Güte:	Ausgabe:	Angebr.	③
	Abmessung:		Beh.:			
Zugehörige Unterlagen:		Freimassoleranz:	Maßstab:	9.10.87	A.Ho	②
PL		±	2:1	Datum	Gez.	④
Ersatz für: 1.915.601-00		Ersetzt durch:		Kopie für:		
STUDER REGENSDORF ZÜRICH		Benennung: 5/1 SWITCH A		Nummer: 1.915.601-81		

Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER
D...	1	50.04.0125	1N4448	ANY
D...	2	50.04.0125	1N4448	ANY
D...	3	50.04.0125	1N4448	ANY
D...	4	50.04.0125	1N4448	ANY
D...	5	50.04.0125	1N4448	ANY
K...	1	56.04.0146	4U/6V	N/O
K...	2	56.04.0146	4U/6V	N/O
K...	3	56.04.0146	4U/6V	N/O
K...	4	56.04.0146	4U/6V	N/O
K...	5	56.04.0146	4U/6V	N/O
R...	1	57.11.3562	5,6k 1%	
R...	2	57.11.3562	5,6k 1%	
R...	3	57.11.3562	5,6k 1%	
R...	4	57.11.3562	5,6k 1%	
R...	5	57.11.3562	5,6k 1%	
R...	6	57.11.3562	5,6k 1%	
R...	7	57.11.3562	5,6k 1%	
R...	8	57.11.3562	5,6k 1%	
R...	9	57.11.3562	5,6k 1%	
R...	10	57.11.3562	5,6k 1%	
R...	11	57.11.3562	5,6k 1%	
R...	12	57.11.3562	5,6k 1%	
R...	13	57.11.3562	5,6k 1%	
R...	14	57.11.3562	5,6k 1%	
R...	15	57.11.3562	5,6k 1%	
R...	16	57.11.3562	5,6k 1%	
R...	17	57.11.3562	5,6k 1%	
R...	18	57.11.3562	5,6k 1%	
R...	19	57.11.3562	5,6k 1%	
R...	20	57.11.3562	5,6k 1%	
R...	21	57.11.4105	1M	
R...	22	57.11.4105	1M	
R...	23	57.11.4105	1M	
R...	24	57.11.4105	1M	
R...	25	57.11.4105	1M	
R...	26	57.11.4105	1M	
R...	27	57.11.4105	1M	

Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER
R...	28	57.11.4105	1M	
R...	29	57.11.4105	1M	
R...	30	57.11.4105	1M	
R...	31	57.11.4105	1M	
R...	32	57.11.4105	1M	
R...	33	57.11.4105	1M	
R...	34	57.11.4105	1M	

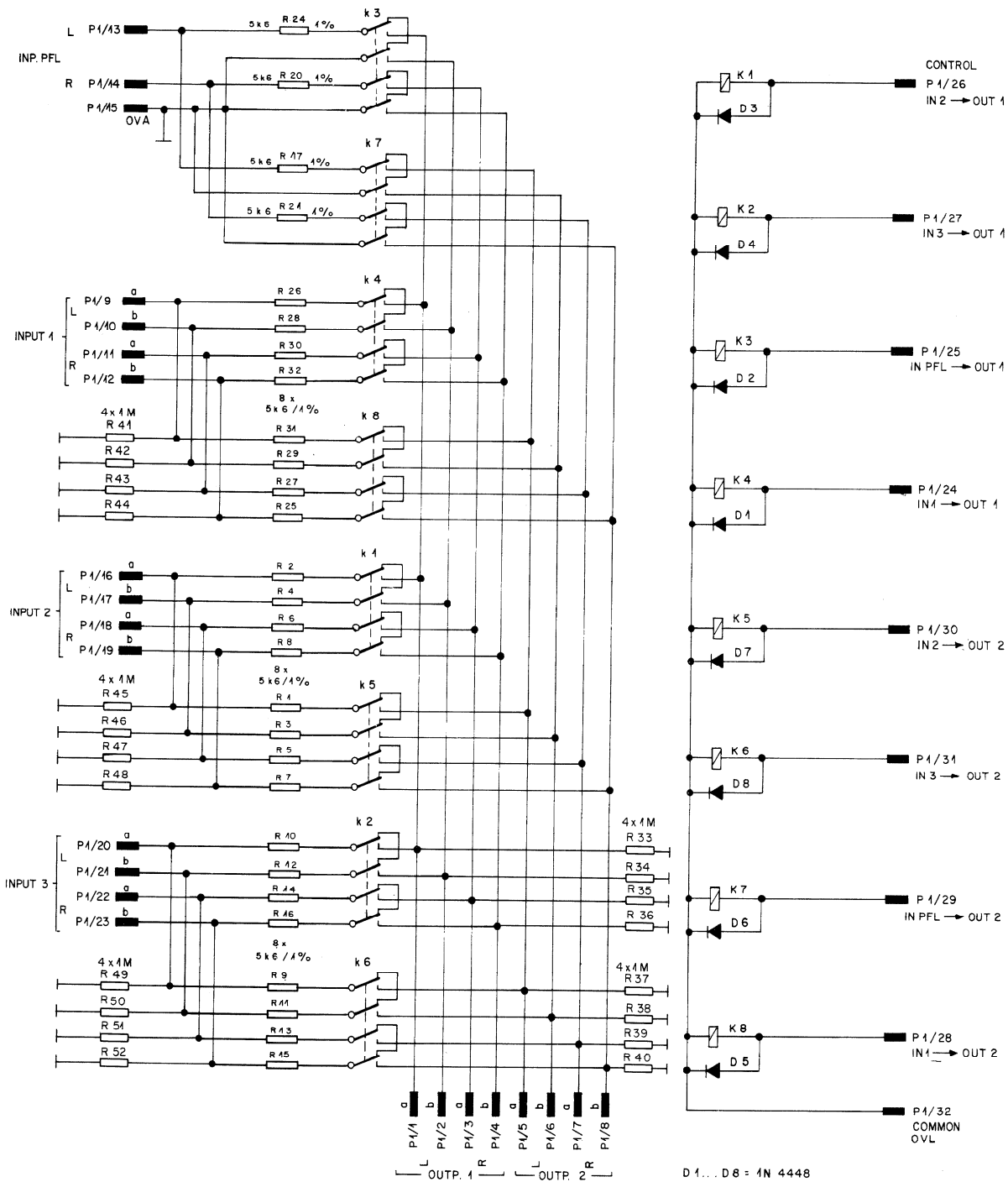
MANUFACTURER: N=National, O=Omron

1.915.601.81 5/1 SWITCH A

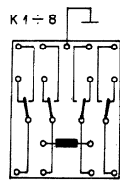
WY 14/10/87

END  
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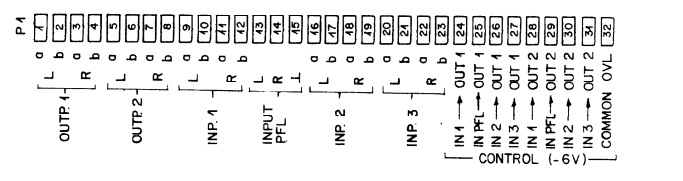




D 1... D 8 = 1N 4448

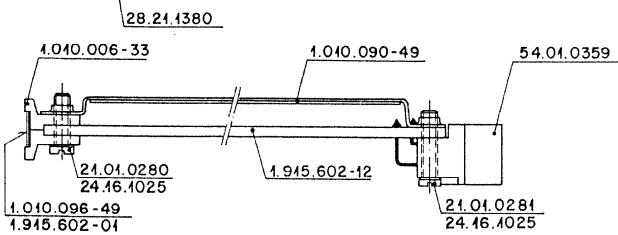
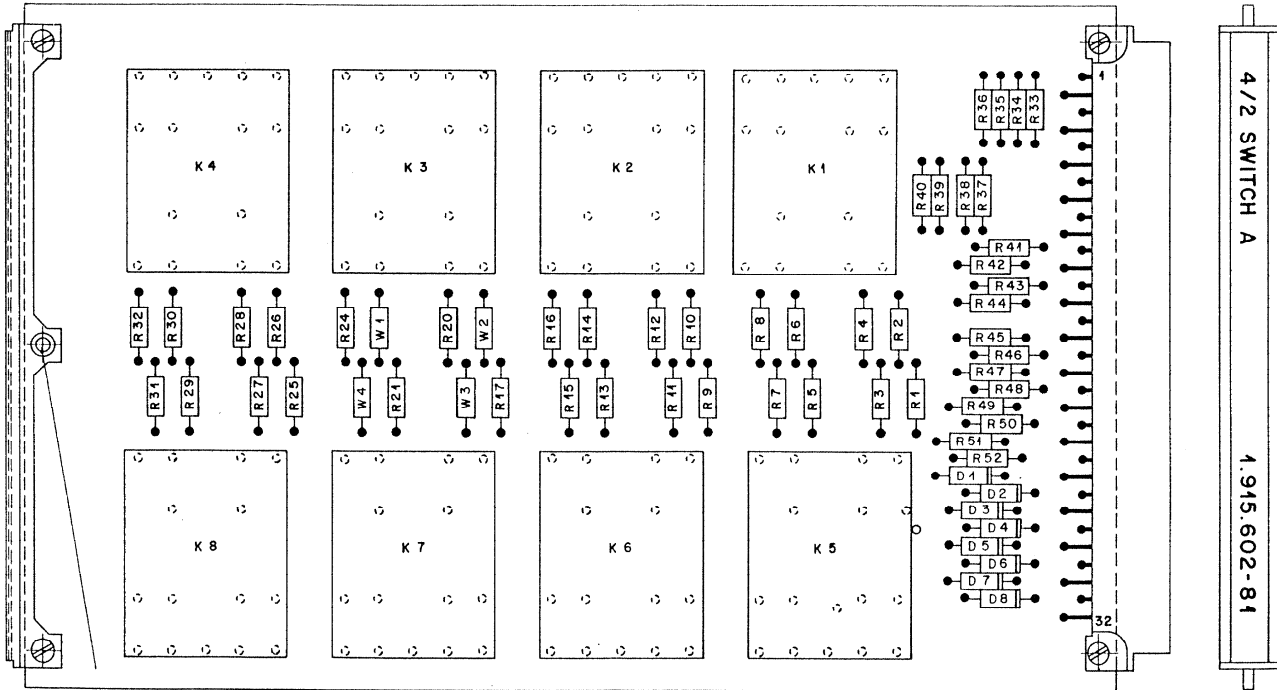


BOTTOM VIEW



DATE:	26.10.87			
SIGN:	<i>[Signature]</i>			
<b>STUDER</b> REGENSDORF ZÜRICH	<b>4/2 SWITCH A</b> MONITOR RELAYS			<b>SC 1.915.602.81</b>

RELAYS



Norm-Nr.:	Güte:	Änderung	③
DIN-Bez.:	Beh.:		②
Abmessung:			①
Zugehörige Unterlagen:	Freimasstoleranz:	Maßstab:	9.10.87 A.Ho. <i>S. My</i> ④
PL	±	2:1	Datum Gez. Gepr. Ges. Index
Ersatz für 1.945.602-00	Ersetzt durch:	Kopie für:	
STUDER REGENSDORF ZÜRICH	Benennung: <b>4/2 SWITCH A</b>	Nummer: <b>1.945.602-81</b>	

Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER
D. . . . .1		50.04.0125	1N4448	ANY
D. . . . .2		50.04.0125	1N4448	ANY
D. . . . .3		50.04.0125	1N4448	ANY
D. . . . .4		50.04.0125	1N4448	ANY
D. . . . .5		50.04.0125	1N4448	ANY
D. . . . .6		50.04.0125	1N4448	ANY
D. . . . .7		50.04.0125	1N4448	ANY
D. . . . .8		50.04.0125	1N4448	ANY
K. . . . .1		56.04.0146	4U/6V	N / O
K. . . . .2		56.04.0146	4U/6V	N / O
K. . . . .3		56.04.0146	4U/6V	N / O
K. . . . .4		56.04.0146	4U/6V	N / O
K. . . . .5		56.04.0146	4U/6V	N / O
K. . . . .6		56.04.0146	4U/6V	N / O
K. . . . .7		56.04.0146	4U/6V	N / O
K. . . . .8		56.04.0146	4U/6V	N / O
R. . . . .1		57.11.3562	5,6k 1% 28Stk.	
R. . . . .2		57.11.3562	5,6k 1% 28Stk.	
R. . . . .3		57.11.3562	5,6k 1% 28Stk.	
R. . . . .4		57.11.3562	5,6k 1% 28Stk.	
R. . . . .5		57.11.3562	5,6k 1% 28Stk.	
R. . . . .6		57.11.3562	5,6k 1% 28Stk.	
R. . . . .7		57.11.3562	5,6k 1% 28Stk.	
R. . . . .8		57.11.3562	5,6k 1% 28Stk.	
R. . . . .9		57.11.3562	5,6k 1% 28Stk.	
R. . . . .10		57.11.3562	5,6k 1% 28Stk.	
R. . . . .11		57.11.3562	5,6k 1% 28Stk.	
R. . . . .12		57.11.3562	5,6k 1% 28Stk.	
R. . . . .13		57.11.3562	5,6k 1% 28Stk.	
R. . . . .14		57.11.3562	5,6k 1% 28Stk.	
R. . . . .15		57.11.3562	5,6k 1% 28Stk.	
R. . . . .16		57.11.3562	5,6k 1% 28Stk.	
R. . . . .17		57.11.3562	5,6k 1% 28Stk.	
R. . . . .25		57.11.3562	5,6k 1% 28Stk.	
R. . . . .26		57.11.3562	5,6k 1% 28Stk.	
R. . . . .27		57.11.3562	5,6k 1% 28Stk.	
R. . . . .28		57.11.3562	5,6k 1% 28Stk.	
R. . . . .29		57.11.3562	5,6k 1% 28Stk.	

Ad.	POS.	REF.No.	DESCRIPTION	MANUFACTURER
R. . . . .30		57.11.3562	5,6k 1% 28Stk.	
R. . . . .31		57.11.3562	5,6k 1% 28Stk.	
R. . . . .32		57.11.3562	5,6k 1% 28Stk.	
R. . . . .33		57.11.3105	1M	
R. . . . .34		57.11.3105	1M	
R. . . . .35		57.11.3105	1M	
R. . . . .36		57.11.3105	1M	
R. . . . .37		57.11.3105	1M	
R. . . . .38		57.11.3105	1M	
R. . . . .39		57.11.3105	1M	
R. . . . .40		57.11.3105	1M	
R. . . . .41		57.11.3105	1M	
R. . . . .42		57.11.3105	1M	
R. . . . .43		57.11.3105	1M	
R. . . . .44		57.11.3105	1M	
R. . . . .45		57.11.3105	1M	
R. . . . .46		57.11.3105	1M	
R. . . . .47		57.11.3105	1M	
R. . . . .48		57.11.3105	1M	
R. . . . .49		57.11.3105	1M	
R. . . . .50		57.11.3105	1M	
R. . . . .51		57.11.3105	1M	
R. . . . .52		57.11.3105	1M	
W. . . . .1		57.11.3000	0-Ω	
W. . . . .2		57.11.3000	0-Ω	
W. . . . .3		57.11.3000	0-Ω	
W. . . . .4		57.11.3000	0-Ω	

MANUFACTURER: N=National, O=Omron

1.915.602.81 4/2 SWITCH A

WY 14/10/87

1.915.602.81 4/2 SWITCH A

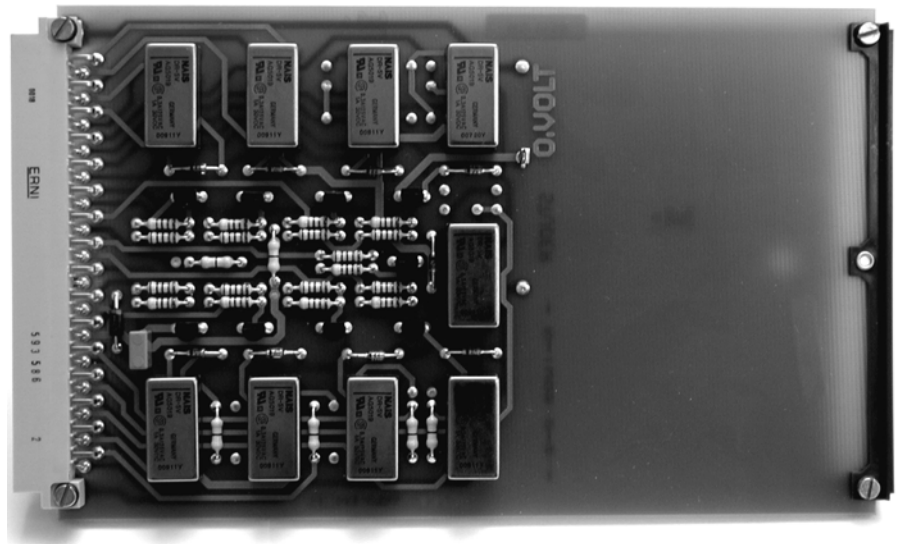
⊙ WY 22/05/89

END  
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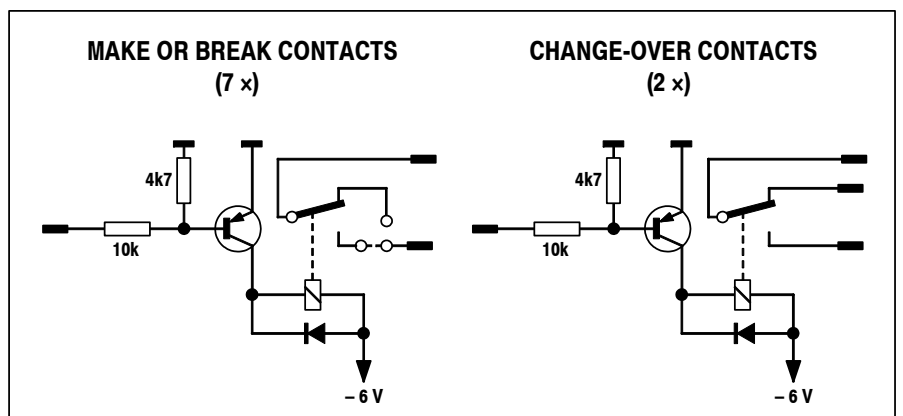
Transistor-Driven Relays (7+2)

1.915.603

This Euro-card is supplied with nine transistor-driven relays with single-pole, double-throw (SPDT) contacts. For two of the relays, both normally-open and normally-closed contacts are routed to the edge connector; for the remaining seven it is jumper-selectable whether the normally-open or the normally-closed contact is used.



The relays are designed for operation on 6 V<sub>DC</sub>, and each relay coil is bridged with a click-suppressing diode. PNP transistors in series with the coils are blocking the current flow, because each transistor is normally bi-ased off. By applying the output from the gate of an external control logic to the base of a transistor, it is switched into saturation, thereby energizing the respective relay. This arrangement of nine relays was designed for use in signaling systems within a studio installation; however, it may find its use for other applications as well.

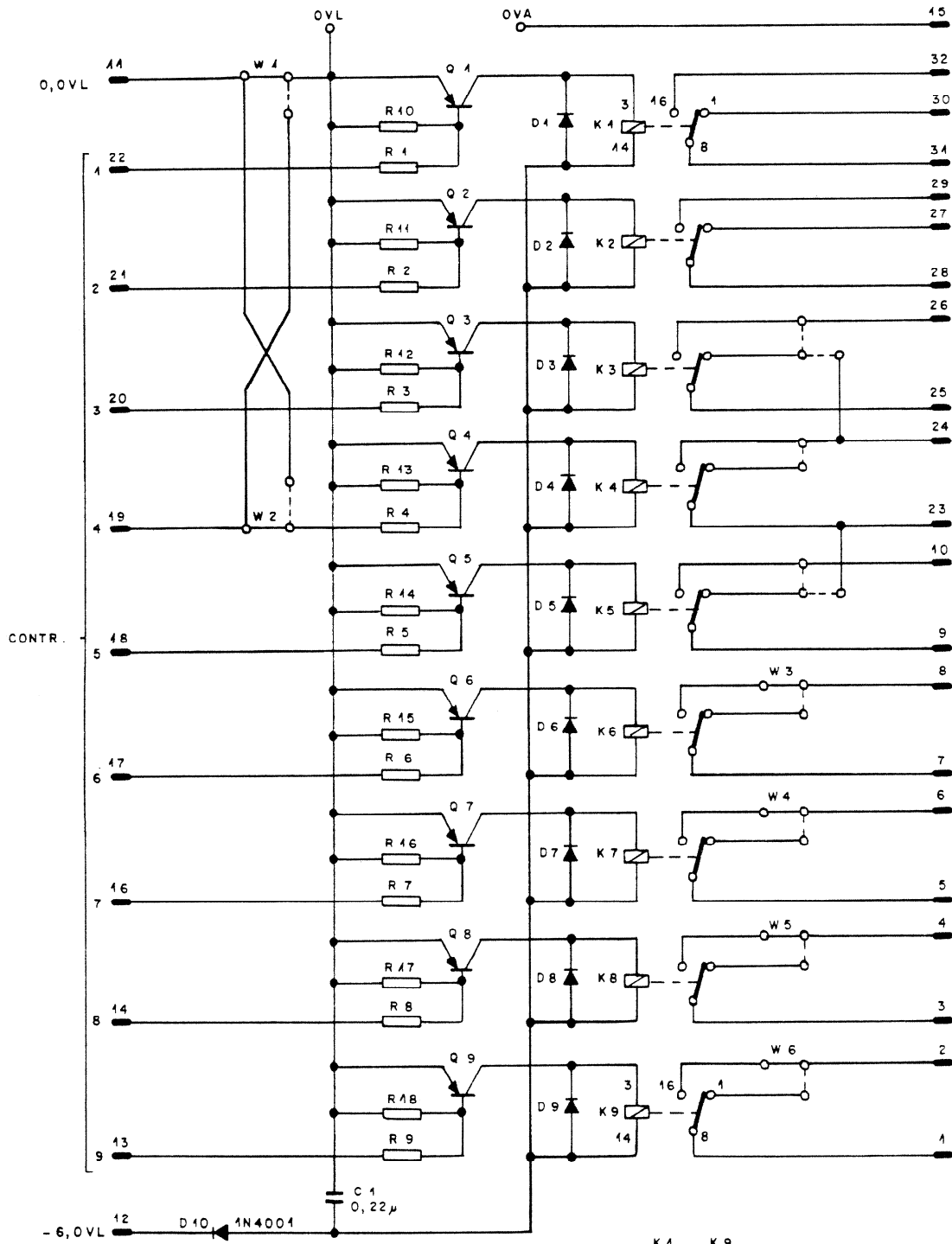


Polarity of the relay's supply voltage must be observed when utilizing this circuit.

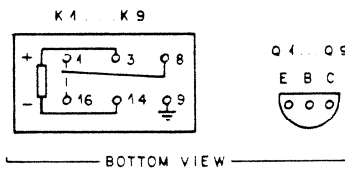
Technical Specifications

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<b>Contact Ratings:</b>		<b>max. 1 A/30 V<sub>DC</sub> or 0.3 A/125 V<sub>AC</sub></b>	
	<b>Note:</b>	<i>In this application 48 V must not be exceeded to avoid shock hazard.</i>	
	Switching power	<b>60 VA (AC)</b>	
		<b>100 W (DC)</b>	
<b>Dimensions:</b>	Euro-card	<b>100 × 160 mm, 4 M units wide</b>	
<b>Ordering Information:</b>	Transistor-driven relays		1.915.603.xx

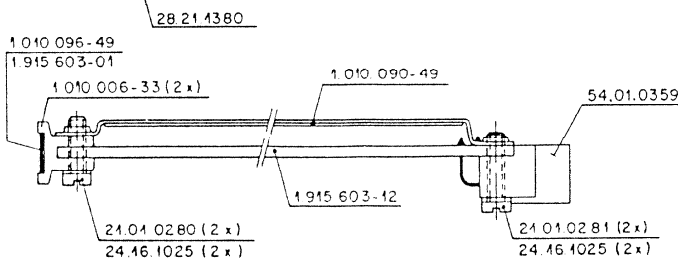
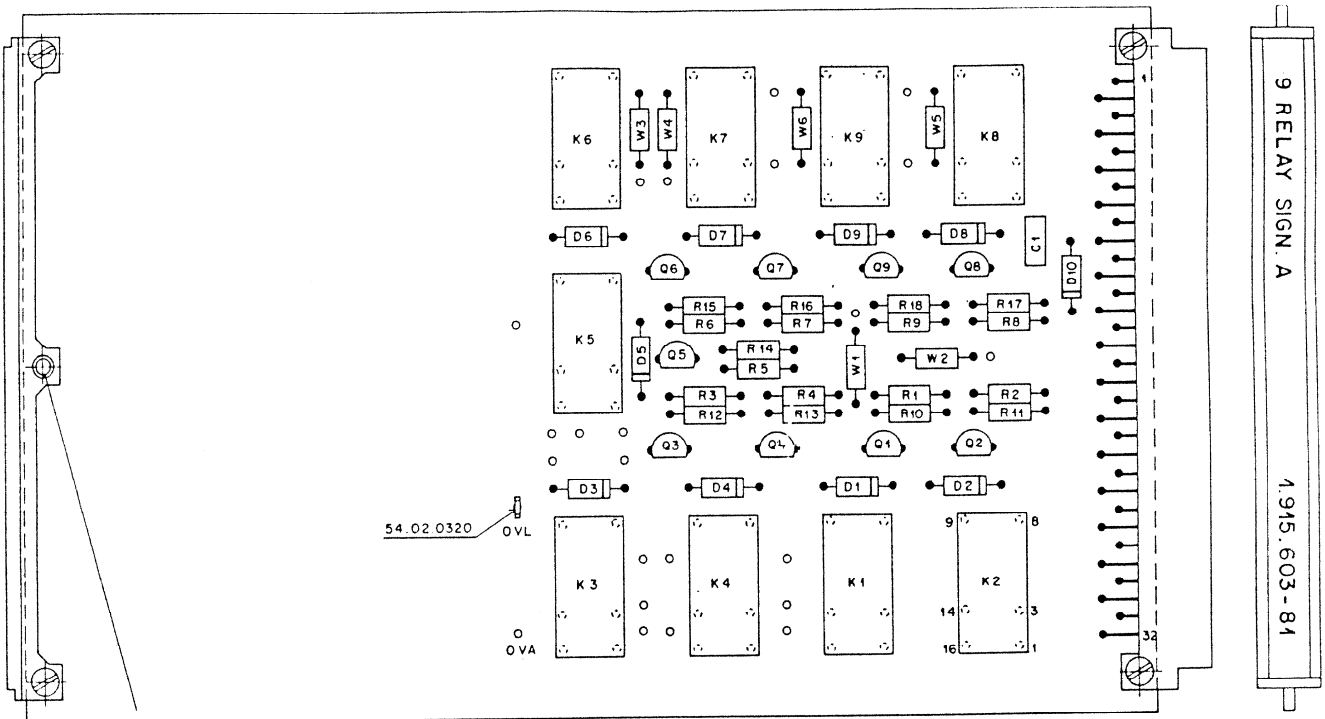


- R 1... R 9 = 10 k
- R 10... R 18 = 4 k 7
- D 1... D 9 = 1N 444 B
- Q 1... Q 9 = BC 560
- K 1... K 9 = DR - 5 V



① 24 11 92 <i>We</i> ○ ○ ○ ○	<b>STUDER</b> REGENS DÖRF ZÜRICH	<b>9 RELAYS SIGN. A</b>	<b>SC 1.915.603-81</b>
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RELAYS



Version	Norm-Nr.	Überf. Güte		
DIN-Bez.		Ben		
Abmessung				
Zugehörige Unterlagen	Freiwilligkeitsanz.	Maßstab	Nummer	30.992
PL	±	2 : 1	Datum	
Erstellt für	Erstellt durch	Kopie Nr.		
STUDER REGENSDORF ZÜRICH		Bezeichnung RELAYS UNIT 9 A SIGNALISATION		Nummer 1.915.603-81

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C	....1	59.06.0224	KONDENSATOR 0,22µ	
D	....1	50.04.0125	DIODE 1N 4448	
D	....2	50.04.0125	DIODE 1N 4448	
D	....3	50.04.0125	DIODE 1N 4448	
D	....4	50.04.0125	DIODE 1N 4448	
D	....5	50.04.0125	DIODE 1N 4448	
D	....6	50.04.0125	DIODE 1N 4448	
D	....7	50.04.0125	DIODE 1N 4448	
D	....8	50.04.0125	DIODE 1N 4448	
D	....9	50.04.0125	DIODE 1N 4448	
D	....10	50.04.0122	DIODE 1N 4001	
K	....1	56.04.0190	RELAYS DR-5V	
K	....2	56.04.0190	RELAYS DR-5V	
K	....3	56.04.0190	RELAYS DR-5V	
K	....4	56.04.0190	RELAYS DR-5V	
K	....5	56.04.0190	RELAYS DR-5V	
K	....6	56.04.0190	RELAYS DR-5V	
K	....7	56.04.0190	RELAYS DR-5V	
K	....8	56.04.0190	RELAYS DR-5V	
K	....9	56.04.0190	RELAYS DR-5V	
Q	....1	50.03.0601	TRANSISTOR BC 560	
Q	....2	50.03.0601	TRANSISTOR BC 560	
Q	....3	50.03.0601	TRANSISTOR BC 560	
Q	....4	50.03.0601	TRANSISTOR BC 560	
Q	....5	50.03.0601	TRANSISTOR BC 560	
Q	....6	50.03.0601	TRANSISTOR BC 560	
Q	....7	50.03.0601	TRANSISTOR BC 560	
Q	....8	50.03.0601	TRANSISTOR BC 560	
Q	....9	50.03.0601	TRANSISTOR BC 560	

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
R	....1	57.11.3103	WIDERSTAND 10K	
R	....2	57.11.3103	WIDERSTAND 10K	
R	....3	57.11.3103	WIDERSTAND 10K	
R	....4	57.11.3103	WIDERSTAND 10K	
R	....5	57.11.3103	WIDERSTAND 10K	
R	....6	57.11.3103	WIDERSTAND 10K	
R	....7	57.11.3103	WIDERSTAND 10K	
R	....8	57.11.3103	WIDERSTAND 10K	
R	....9	57.11.3103	WIDERSTAND 10K	
R	....10	57.11.3472	WIDERSTAND 4,7K	
R	....11	57.11.3472	WIDERSTAND 4,7K	
R	....12	57.11.3472	WIDERSTAND 4,7K	
R	....13	57.11.3472	WIDERSTAND 4,7K	
R	....14	57.11.3472	WIDERSTAND 4,7K	
R	....15	57.11.3472	WIDERSTAND 4,7K	
R	....16	57.11.3472	WIDERSTAND 4,7K	
R	....17	57.11.3472	WIDERSTAND 4,7K	
R	....18	57.11.3472	WIDERSTAND 4,7K	
W	....1	57.11.3000	0 OHM WIDERSTAND	
W	....2	57.11.3000	0 OHM WIDERSTAND	
W	....3	57.11.3000	0 OHM WIDERSTAND	
W	....4	57.11.3000	0 OHM WIDERSTAND	
W	....5	57.11.3000	0 OHM WIDERSTAND	
W	....6	57.11.3000	0 OHM WIDERSTAND	

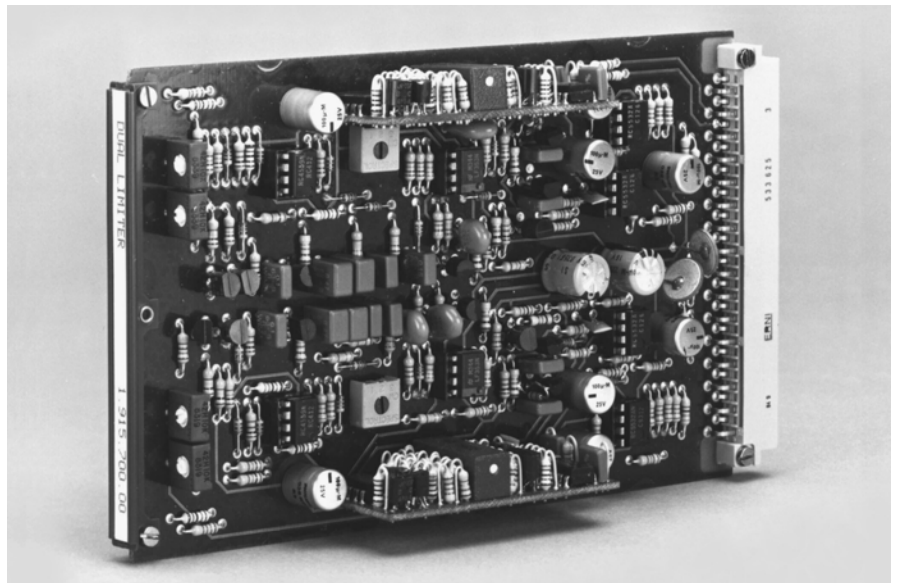
1.915.603.81 RELAY UNIT 9A 21/10/92

END

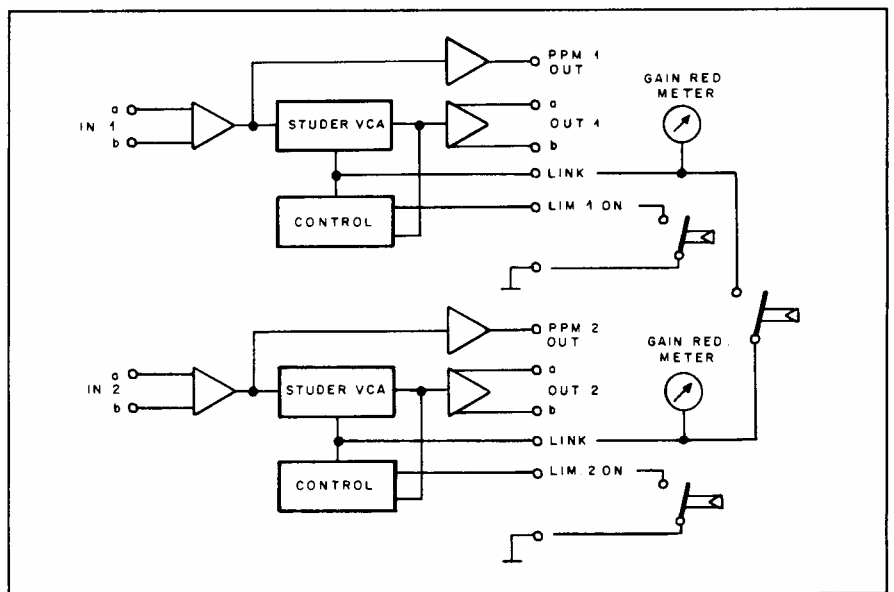
Dual Limiter

1.915.700

In sound work there are numerous situations where the signal amplitude has to be limited to a pre-determined level in order to prevent overloading of succeeding equipment, such as light modulators in film work, or radio transmitters. With this limiter, excessive levels are automatically reduced to a preset level, and, since regulation is controlled by the program's energy content, the performance of this limiter is free of any "pumping" effects. Gain reduction is achieved with a Studer Voltage Controlled Amplifier (VCA) which ensures low noise performance and negligible distortion.



Two identical, independent limiter circuits are contained on one Euro-card, plus additional, separate gain stages to drive peak program meters. The perfect tracking of the two VCAs makes this Dual Limiter suitable for stereo work as well, in which case a simple electrical connection is needed to link the units.



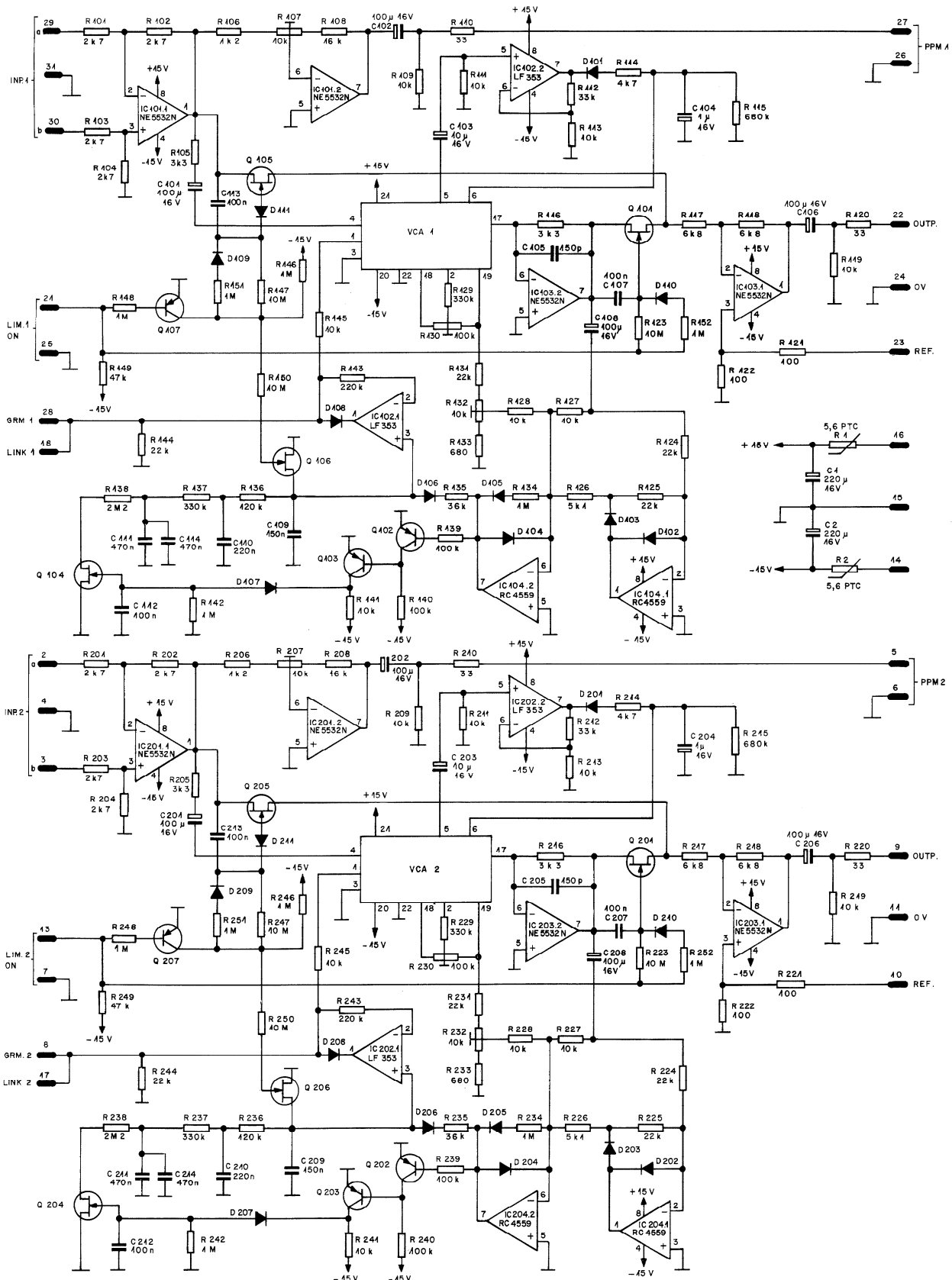
**Note:** Gain reduction meters (*not supplied*) can be connected to the LINK outputs as well, if required.

Technical Specifications

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<b>Input:</b>	Impedance	<b>5.4 k<math>\Omega</math></b> , balanced configuration <b>2.7 k<math>\Omega</math></b> , unbalanced configuration	
	Overload point	<b>+20 dBu</b> (7.75 V <sub>rms</sub> )	
<b>Output:</b>	Impedance	<b>&lt; 50 <math>\Omega</math></b> , unbalanced	
	Frequency response	<b>+0/-0.5 dB</b> , 30 Hz...15 kHz <b>+0/-3 dB</b> , 2 Hz...200 kHz	
	Gain	<b>0 dB</b> , limiter off	
	Output noise level	<b>-102 dBu</b> , Limiter on <b>-106 dBu</b> , Limiter off	
	Limiting ratio	<b>20:1</b>	
	Threshold	<b>-15 dBu...+3 dBu</b> , adjustable	
	Limited output level	<b>-14 dBu...+4 dBu</b> , depending on threshold setting	
	Attack time	<b>1 ms</b>	
	Release time	<b>50 ms...5 s</b> , program-dependent	
<b>PPM Section:</b>	Output impedance	<b>&lt; 50 <math>\Omega</math></b> , unbalanced	
	Maximum output level	<b>+20 dBu</b>	
	Gain	<b>2.5 dB...27 dB</b> , adjustable	
	Frequency response	<b>+0/-3 dB</b> , 2 Hz...200 kHz	
<b>Supply:</b>		<b><math>\pm 15</math> V</b> (100 mA)	
<b>Dimensions:</b>	Euro-card	<b>100 <math>\times</math> 160 mm</b> , 7 M units wide	
<b>Ordering Information:</b>		Dual limiter	1.915.700.xx

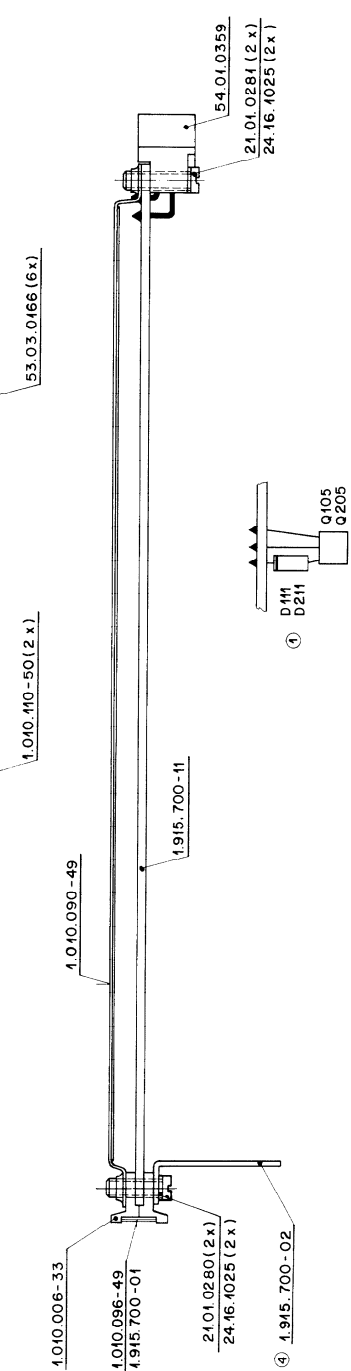
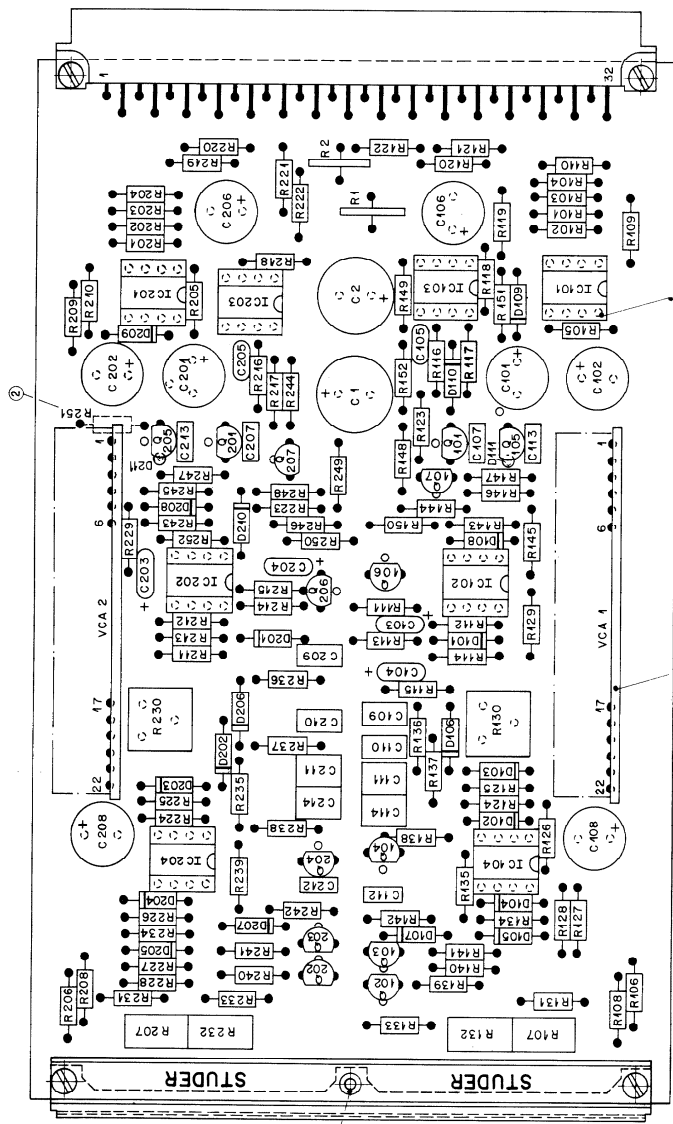
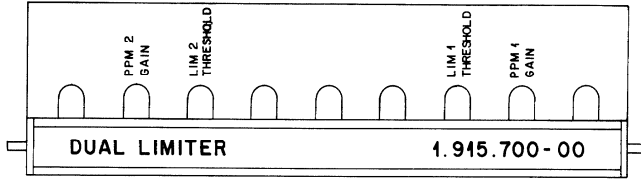




ALL DIODES 4N4448  
 ALL PNP BC 560  
 ALL FET J 412

DATE:	3.3.83	46.7.84			
SIGN:	<i>ml</i>	<i>ml</i>			
STUDER REGENSDORF ZÜRICH	DUAL LIMITER				SC 1.915.700

DUAL LIMITER



Norm.Nr.:	Werkstoff	20.12.84 A Ho	④
DN Bz.:	Güte:	4.4.84 A Ho	③
Almessung:	Beh.:	3.1.84 A Ho	③
Zugehörige Unterlagen:	Frmasachenaz:	14.12.82 A Ho	①
PL	Material:	18.9.82 Ho	①
Erstellt für:	Datum:	Gez.:	Inbx.
Erreicht durch:	2.1	Gepr.:	Gez.
Benennung:		1.915.700-00	
STUDER REGENSCHOPF ZÜRICH		Dual Limiter	

DUAL LIMITER

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C....1		59.22.4221	220µ 16V	EL	R...43		57.11.4224	220k	
C....2		59.22.4221	220µ 16V	EL	R...44		57.11.4223	22k	
C....1		59.22.4101	100µ 16V	EL	R...45		57.11.4103	10k	
C....2		59.22.4101	100µ 16V	EL	R...46		57.11.4105	1M	
C....3		59.26.2100	10µ 16V	EL, SAL	R...47		57.11.6106	10M	
C....4		59.26.5109	1µ 16V	EL, SAL	R...48		57.11.4105	1M	
C....5		59.34.4151	150p	CER	R...49		57.11.4473	47k	
C....6		59.22.4101	100µ 16V	EL	R...50		57.11.6106	10M	
C....7		59.06.5104	100n	PETP	R...51		57.11.4105	1M	
C....8		59.22.4101	100µ 16V	EL	R...52		57.11.4105	1M	
C....9		59.06.5154	150n	PETP					
C....10		59.06.5224	220n	PETP	Ⓞ VCA...1		1.911.290.81	STUDER VCA-BOARD	ST
C....11		59.06.5474	470n	PETP	Ⓞ VCA...2		1.911.290.81	STUDER VCA-BOARD	ST
C....12		59.06.5104	100n	PETP	XIC		53.03.0166	DIP8POL	
C....13		59.06.5104	100n	PETP					
C....14		59.06.5474	470n	PETP					
D....1		50.04.0125	1N4448	SI					
D....2		50.04.0125	1N4448	SI					
D....3		50.04.0125	1N4448	SI					
D....4		50.04.0125	1N4448	SI					
D....5		50.04.0125	1N4448	SI					
D....6		50.04.0125	1N4448	SI					
D....7		50.04.0125	1N4448	SI					
D....8		50.04.0125	1N4448	SI					
D....9		50.04.0125	1N4448	SI					
D....10		50.04.0125	1N4448	SI					
Ⓞ D....11		50.04.0125	1N4448	SI					
IC....1		50.09.0106	NE5532N	DUAL OP	XR5532N		SIG, EX		
IC....2		50.09.0101	LF353N	DUAL OP	TL072		N, TI		
IC....3		50.09.0106	NE5532N	DUAL OP	XR5532N		SIG, EX		
IC....4		50.09.0107	RC4559NB	DUAL OP			RA, TI		
Q....1		50.03.0350	J112	J-FET			SIX, N		
Q....2		50.03.0496	BC560	PNP			SIE		
Q....3		50.03.0496	BC560	PNP			SIE		
Q....4		50.03.0350	J112	J-FET			SIX, N		
Q....5		50.03.0350	J112	J-FET			SIX, N		
Q....6		50.03.0350	J112	J-FET			SIX, N		
Q....7		50.03.0496	BC560	PNP			SIE		
R....1		57.99.0209	5,6	PTC			PH		
R....2		57.99.0209	5,6	PTC			PH		
R....1		57.11.4272	2,7k	2%					
R....2		57.11.4272	2,7k	2%					
R....3		57.11.4272	2,7k	2%					
R....4		57.11.4272	2,7k	2%					
R....5		57.11.4332	3,3k	2%					
R....6		57.11.4122	1,2k						
R....7		58.01.7103	10k	10% LIN	PMG				
R....8		57.11.3163	16k						
R....9		57.11.4103	10k						
R....10		57.11.4330	33						
R....11		57.11.4103	10k						
R....12		57.11.4333	33k						
R....13		57.11.4103	10k						
R....14		57.11.4472	4,7k						
R....15		57.11.4684	680k						
R....16		57.11.4332	3,3k	2%					
R....17		57.11.4682	6,8k	2%					
R....18		57.11.4682	6,8k	2%					
R....19		57.11.4103	10k						
R....20		57.11.4330	33						
R....21		57.11.4101	100	2%					
R....22		57.11.4101	100	2%					
R....23		57.11.6106	10M						
R....24		57.11.4223	22k	2%					
R....25		57.11.4223	22k	2%					
R....26		57.11.3512	5,1k	2%					
R....27		57.11.4103	10k	2%					
R....28		57.11.4103	10k	2%					
R....29		57.11.4334	330k						
R....30		58.01.8104	100k	10% LIN	PMG				
R....31		57.11.4223	22k						
R....32		58.01.7103	10k	10% LIN	PMG				
R....33		57.11.4681	680						
R....34		57.11.4105	1M						
R....35		57.11.3363	36k						
R....36		57.11.4124	120k						
R....37		57.11.4334	330k						
R....38		57.11.5225	2,2M						
R....39		57.11.4104	100k						
R....40		57.11.4104	100k						
R....41		57.11.4103	10k						
R....42		57.11.4105	1M						

EL=Electrolytic, SAL=Solid Aluminium, CER=Ceramic, PETP=Polyester, SI=Silicium, PTC=Pos. Temp. Coif. PMG=Cermet

MANUFACTURER: SIG=Signetics, EX=Exar, N=National, TI=Texas Instruments, RA=Raytheon, SIX=Siliconix SIE=Siemens, PH=Philips, ST=Studer

1.915.700.00 DUAL LIMITER W. Markl 14/06/82

1.915.700.00 DUAL LIMITER Ⓞ W. Markl 14/12/82

1.915.700.00 DUAL LIMITER Ⓞ A. Ho 01/04/84

1.915.700.00 DUAL LIMITER Ⓞ VO 16/07/84

1.915.700.00 DUAL LIMITER Ⓞ PA 13/01/89

1.915.700.00 DUAL LIMITER Ⓞ WY 17/01/90

END  
→

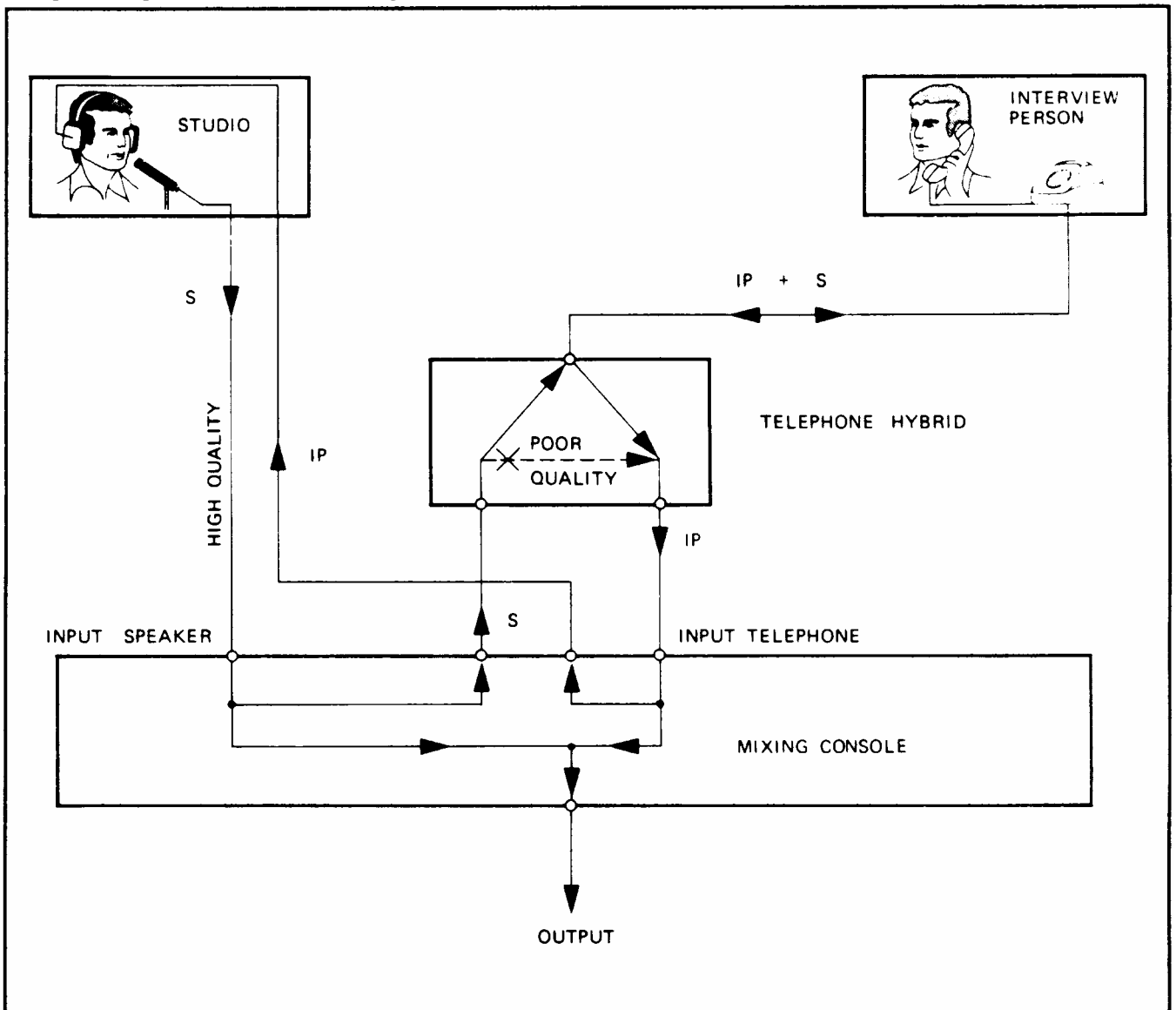
Telephone Hybrid

1.915.760/764

In order to record or transmit a conversation between the announcer in the studio and a person outside the studio being interviewed by telephone, the telephone line must be connected to the mixing console.

In such a case, the full conversation is transmitted, since both voice signals are carried on normal 2-wire telephone lines. However, also the voice of the announcer in the studio is then transmitted in telephone quality (300... 3400 Hz). By mixing the microphone signal of the announcer (in studio quality) to the conversation, the addition of the “good” and “poor” signals results in a distorted and untrue signal.

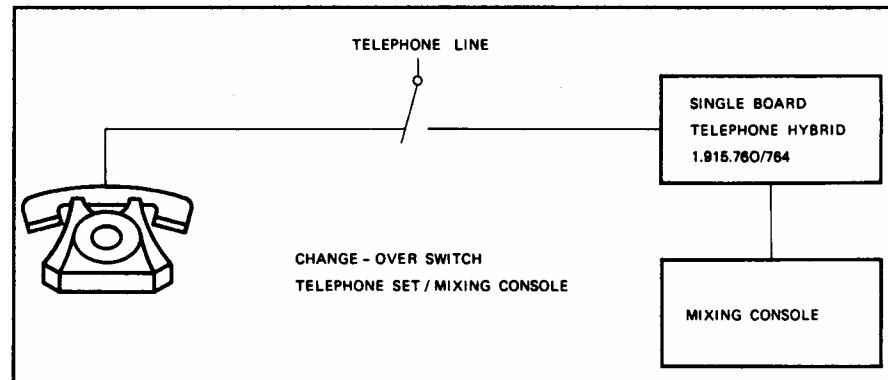
Principle of a telephone transmission via a mixing console



The telephone hybrid allows to greatly improve the quality of a telephone transmission by selectively suppressing the undesired “poor” announcer signal (side-tone attenuation). This side-tone attenuation is done in principle by a hybrid circuit which is a familiar feature in telephony.

The Studer telephone hybrid permits high-quality transmission of telephone conversations with the announcer in the studio. Apart from connecting it to the telephone line, the hybrid works automatically.

Maximum side-tone attenuation of the studio voice signal in the receiver line is achieved by automatically constituting a dummy load for the telephone line. This adjustment is performed electronically, the real (resistive) and imaginary (capacitive) components of the telephone line impedance being matched as near as possible. This automatic matching process begins as soon as an announcer signal is present.



Operation with a single Telephone Hybrid Board

The telephone set is used to establish a telephone connection (call). After switching over to the mixing console, the holding current for the subscriber's relay is maintained by a resistor on the hybrid board.

#### Versions:

A variety of 19" Telephone Hybrid units with one or two channels is available, consisting of the following versions:

- Standard version (ST) – 19"/1U Telephone Hybrid unit for direct connection to the telephone line and a relay to switch the telephone line from the telephone set to the hybrid.
- Noise gate version (NG) – same as standard version, equipped with a noise gate
- Current-adjustable version (CA) – same as standard version, but additionally featuring adjustable holding current for the telephone line.

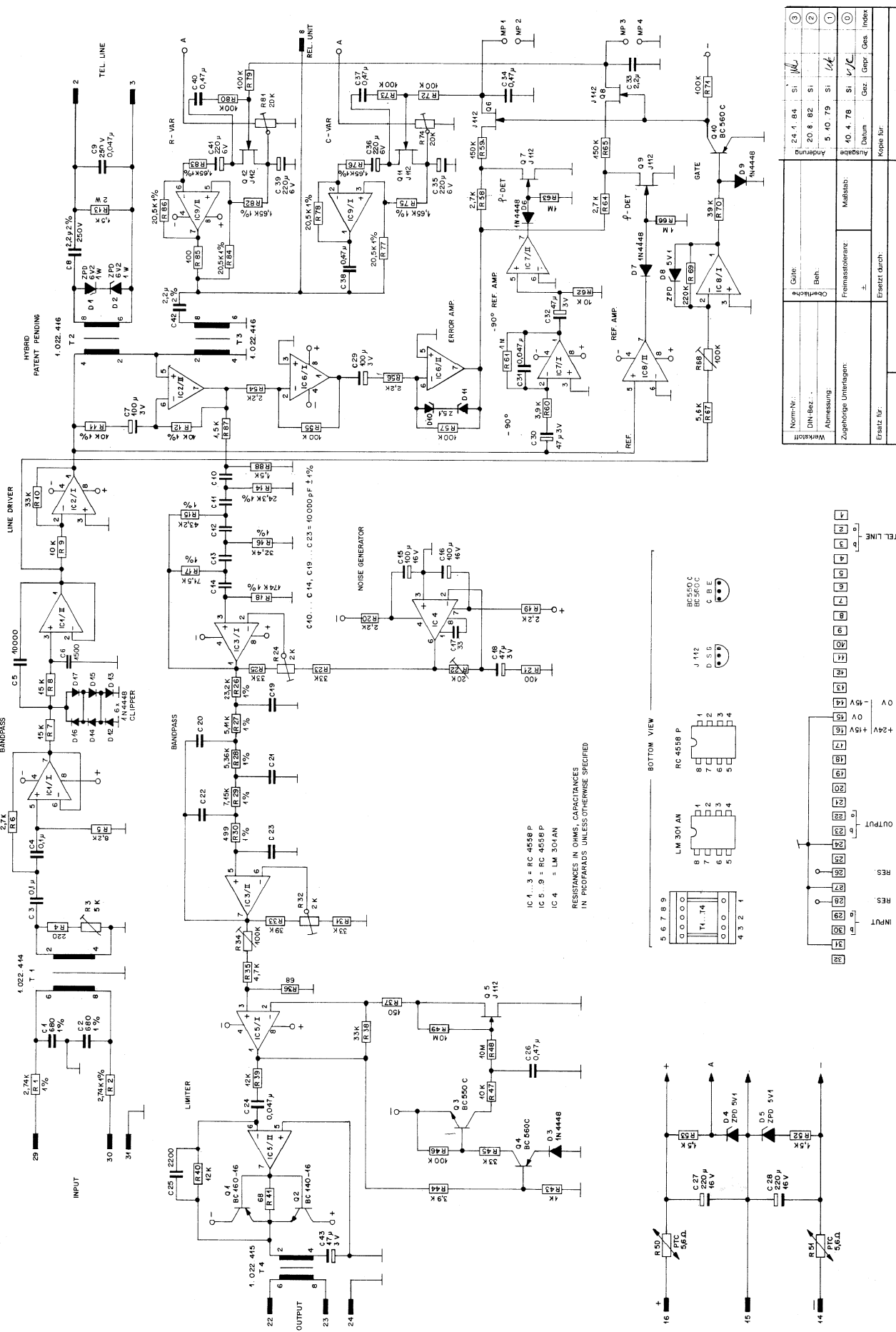
#### Ordering Information:

##### Euro-cards:

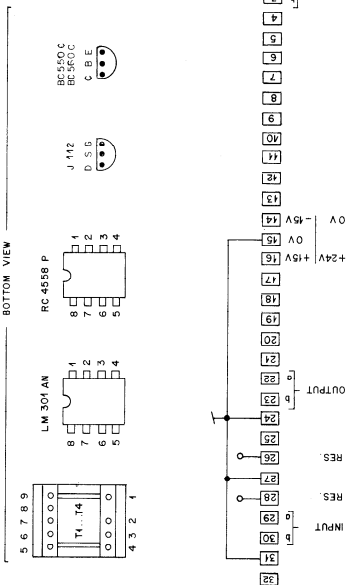
- Telephone hybrid card 1.915.760.xx
- Telephone hybrid card with noise gate 1.915.764.xx

##### 19" standard products:

- Telephone hybrid 1CH-ST 75.700.89118
- Telephone hybrid 2CH-ST 75.700.89228
- Telephone hybrid 1CH-NG 75.700.89114
- Telephone hybrid 2CH-NG 75.700.89224
- Telephone hybrid 1CH-CA 75.700.89116
- Telephone hybrid 2CH-CA 75.700.89226
- Telephone hybrid 1CH-CA/NG 75.700.89117
- Telephone hybrid 2CH-CA/NG 75.700.89227



RESISTANCES IN OHMS, CAPACITANCES IN MICROFARADS UNLESS OTHERWISE SPECIFIED



Norm-Nr.:	Güte:	24.1.84	Si	1	
DIN Bez.:	Beh.:	20.6.82	Si	2	
Abmessung:	Freiassensweise:	5.10.79	Si	1	
Zugehörige Unterlagen:	Maßstab:	10.4.78	Si	1	
Erstellt für:	Erstellt durch:	Kopie für			
Automatic Telephone Hybrid (Patent pending)					
STUDER REGENSDORF ZÜRICH				Nr.:	SC 1.915.760/81



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
	C....1	59.12.9681	680pF 1% 500V-	PS		R....4	57.11.4221	220	
	C....2	59.12.9681	680pF 1%	PS		R....5	57.11.4822	8,2k 2%	
	C....3	59.31.6104	0,1µF 10%	PE		R....6	57.11.4272	2,7k 2%	
	C....4	59.31.6104	0,1µF 10%	PE		R....7	57.11.4153	15k 2%	
	C....5	59.12.4103	0,01µF 5%	PE		R....8	57.11.4153	15k	
	C....6	59.11.6152	1500pF 5%	PC		R....9	57.11.4103	10k	
	C....7	59.22.4101	100µF 3V	EL		R....10	57.11.4333	33k	
①	C....8	1.915.760.03	2,2µF 1%	250V-	ST				
①③	C....9	59.31.8473	0,047µF 400V-	PE		R....11	57.39.1002	10k 1%	
	C....10	59.12.7103	0,01µF 1%	PS		R....12	57.39.1002	10k 1%	
	C....11	59.12.7103	0,01µF 1%	PS		R....13	57.56.5152	1,5k 2W	
	C....12	59.12.7103	0,01µF 1%	PS		R....14	57.39.2432	24,3k 1%	
	C....13	59.12.7103	0,01µF 1%	PS		R....15	57.39.4322	43,2k 1%	
	C....14	59.12.7103	0,01µF 1%	PS		R....16	57.39.3242	32,4k 1%	
	C....15	59.22.4101	100µF 16V	EL		R....17	57.39.7152	71,5k 1%	
	C....16	59.22.4101	100µF 16V	EL		R....18	57.39.1743	174k 1%	
	C....17	59.34.2330	33pF	CER		R....19	57.11.4222	2,2k	
	C....18	59.36.0470	47µF 3V	TA		R....20	57.11.4222	2,2k	
	C....19	59.12.7103	0,01µF 1%	PS		R....21	57.11.4101	100	
	C....20	59.12.7103	0,01µF 1%	PS		R....22	58.01.7203	20k LIN 10%	TR, SP
	C....21	59.12.7103	0,01µF 1%	PS		R....23	57.11.4333	33k 2%	
	C....22	59.12.7103	0,01µF 1%	PS		R....24	58.01.8202	2k LIN 10%	TR, SP
	C....23	59.12.7103	0,01µF 1%	PS		R....25	57.11.4333	33k 2%	
	C....24	59.12.4473	0,047µF	PE		R....26	57.39.2322	23,2k 1%	
	C....25	59.32.2222	2200pF	CER		R....27	57.39.5111	5,11k 1%	
	C....26	59.02.0474	0,47µF 5%	PC		R....28	57.39.5361	5,36k 1%	
	C....27	59.22.4221	220µF 16V	EL		R....29	57.39.7151	7,15k 1%	
	C....28	59.22.4221	220µF 16V	EL		R....30	57.39.4990	499 1%	
	C....29	59.22.4101	100µF 3V	EL		R....31	57.11.4333	33k 2%	
	C....30	59.36.0470	47µF 3V	TA		R....32	58.01.8202	2k LIN 10%	TR, SP
	C....31	59.12.4473	0,047µF	PE		R....33	57.11.4393	39k 2%	
	C....32	59.36.0470	47µF 3V	TA		R....34	58.01.7104	100k LIN 10%	TR, SP
	C....33	59.02.2225	2,2µF	PC		R....35	57.11.4472	4,7k	
①	C....34	59.02.0474	0,47µF	PE		R....36	57.11.4680	68	
	C....35	59.22.2221	220µF 6V	EL		R....37	57.11.4151	150	
	C....36	59.22.2221	220µF 6V	EL		R....38	57.11.4333	33k	
	C....37	59.02.0474	0,47µF	PC		R....39	57.11.4123	12k	
	C....38	59.02.0474	0,47µF	PC		R....40	57.11.4123	12k	
	C....39	59.22.2221	220µF	EL		R....41	57.11.4680	68	
	C....40	59.02.0474	0,47µF	PC		R....42			
	C....41	59.22.2221	220µF 6V	EL		R....43	57.11.4102	1k	
①	C....42	1.915.760.03	2,2µF 1%	250V-	ST	R....44	57.11.4392	3,9k	
	C....43	59.36.0470	47µF 3V	TA		R....45	57.11.4333	33k	
	D....1	50.04.1511	U <sub>2</sub> 6,2V	ZPD 6V2 1W		R....46	57.11.4104	100k	
	D....2	50.04.1511	U <sub>2</sub> 6,2V	ZPD 6V2 1W		R....47	57.11.4103	10k	
	D....3	50.04.0125	1N4448		SI	R....48	57.02.5106	10M	
	D....4	50.04.1112	U <sub>2</sub> 5,1V	ZPD 5V1 0,4W		R....49	57.02.5106	10M	
	D....5	50.04.1112	U <sub>2</sub> 5,1V	ZPD 5V1 0,4W		R....50	57.99.0209	5,6Ω PTC 2322 662 91005	PH
	D....6	50.04.0125	1N4448		SI	R....51	57.99.0209	5,6Ω PTC	PH
	D....7	50.04.0125	1N4448		SI	R....52	57.11.4152	1,5k	
	D....8	50.04.1112	U <sub>2</sub> 5,1V	ZPD 5V1 0,4W		R....53	57.11.4152	1,5k	
	D....9	50.04.0125	1N4448		SI	R....54	57.11.4222	2,2k	
②	D....10	50.04.1112	U <sub>2</sub> 5,1V	ZPD 5V1 0,4W		R....55	57.11.4104	100k	
	D....11	50.04.1112	U <sub>2</sub> 5,1V	ZPD 5V1 0,4W		R....56	57.11.4222	2,2k	
	D....12	50.04.0125	1N4448		SI	R....57	57.11.4104	100k	
	D....13	50.04.0125	1N4448		SI	R....58	57.11.4272	2,7k	
	D....14	50.04.0125	1N4448		SI	R....59	57.11.4154	150k	
	D....15	50.04.0125	1N4448		SI	R....60	57.11.4392	3,9k	
	D....16	50.04.0125	1N4448		SI	R....61	57.11.4105	1M	
	D....17	50.04.0125	1N4448		SI	R....62	57.11.4103	10k	
	D....18	50.04.0125	1N4448		SI	R....63	57.11.4105	1M	
	D....19	50.04.0125	1N4448		SI	R....64	57.11.4272	2,7k	
④	IC....1	50.09.0107	RC4559NB	DUAL OP AMP	TI, RA	R....65	57.11.4154	150k	
④	IC....2	50.09.0107	RC4559NB			R....66	57.11.4105	1M	
④	IC....3	50.09.0107	RC4559NB			R....67	57.11.4562	5,6k	
④	IC....4	50.05.0144	LM301AN	OP AMP	NS	R....68	58.01.7104	100k LIN 10%	TR, SP
④	IC....5	50.09.0107	RC4559NB			R....69	57.11.4224	220k	
④	IC....6	50.09.0107	RC4559NB			R....70	57.11.4393	39k	
④	IC....7	50.09.0107	RC4559NB			R....71	57.11.4104	10k	
④	IC....8	50.09.0107	RC4559NB			R....72	57.11.4104	100k	
④	IC....9	50.09.0107	RC4559NB			R....73	57.11.4104	100k	
	Q....1	50.03.0315	BC160-16		SIE, F	R....74	58.01.8203	20k LIN 10%	TR, SP
	Q....2	50.03.0316	BC140-16		SIE, F	R....75	57.39.1651	1,65k 1%	
	Q....3	50.03.0497	BC550-C		T, ITT	R....76	57.39.1651	1,65k 1%	
	Q....4	50.03.0496	BC560-C		T, ITT	R....77	57.39.2052	20,5k 1%	
	Q....5	50.03.0350	J112		SIX, NS	R....78	57.39.2052	20,5k 1%	
	Q....6	50.03.0350	J112		SIX, NS	R....79	57.11.4104	100k	
	Q....7	50.03.0350	J112		SIX, NS	R....80	57.11.4104	100k	
	Q....8	50.03.0350	J112		SIX, NS	R....81	58.01.8203	20k LIN 10%	TR, SP
	Q....9	50.03.0350	J112		SIX, NS	R....82	57.39.1651	1,65k 1%	
	Q....10	50.03.0496	BC560-C		T, ITT	R....83	57.39.1651	1,65k 1%	
	Q....11	50.03.0350	J112		SIX, NS	R....84	57.39.2052	20,5k 1%	
	Q....12	50.03.0350	J112		SIX, NS	R....85	57.11.4101	100 2%	
	R....1	57.39.2741	2,74k 1%			R....86	57.39.2052	20,5k 1%	
	R....2	57.39.2741	2,74k 1%			① R....87	57.02.5152	1,5k	
①	R....3	58.01.7502	5k LIN	TR, SP		① R....88	57.02.5152	1,5k	



## TEL. HYBRID

T. . . . 1	1.022.414	1:1	ST
T. . . . 2	1.022.416	1:1	ST
T. . . . 3	1.022.416	1:1	ST
T. . . . 4	1.022.415	1:2	ST

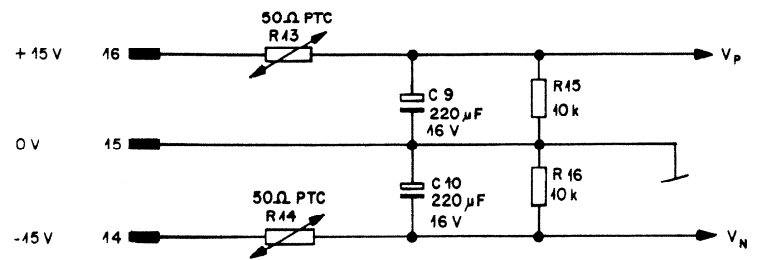
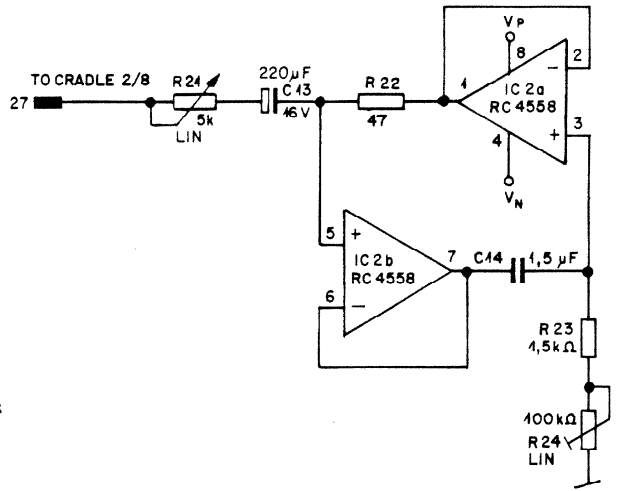
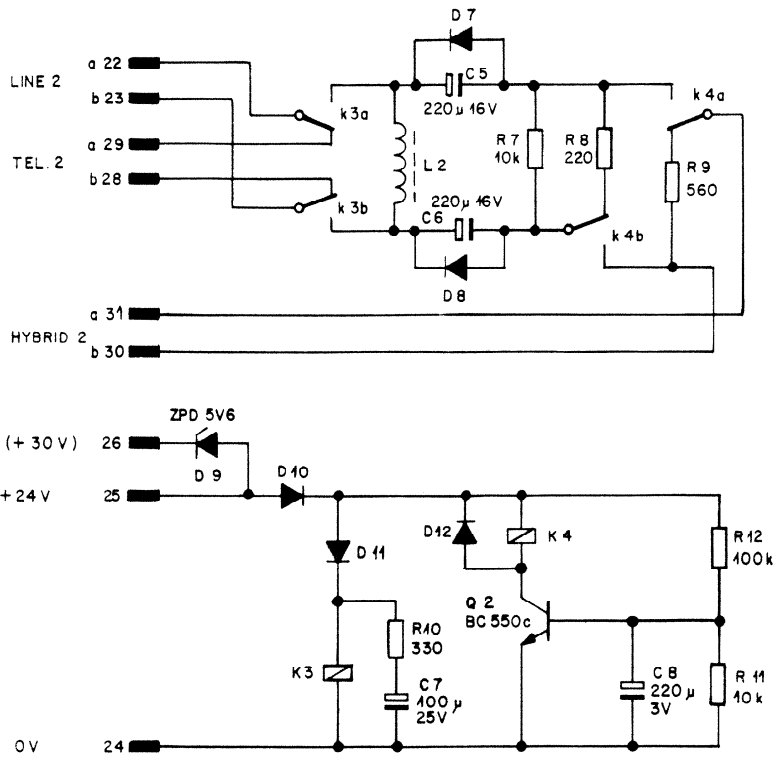
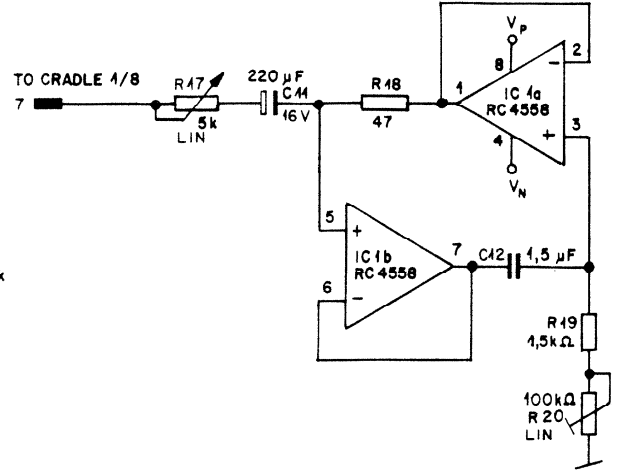
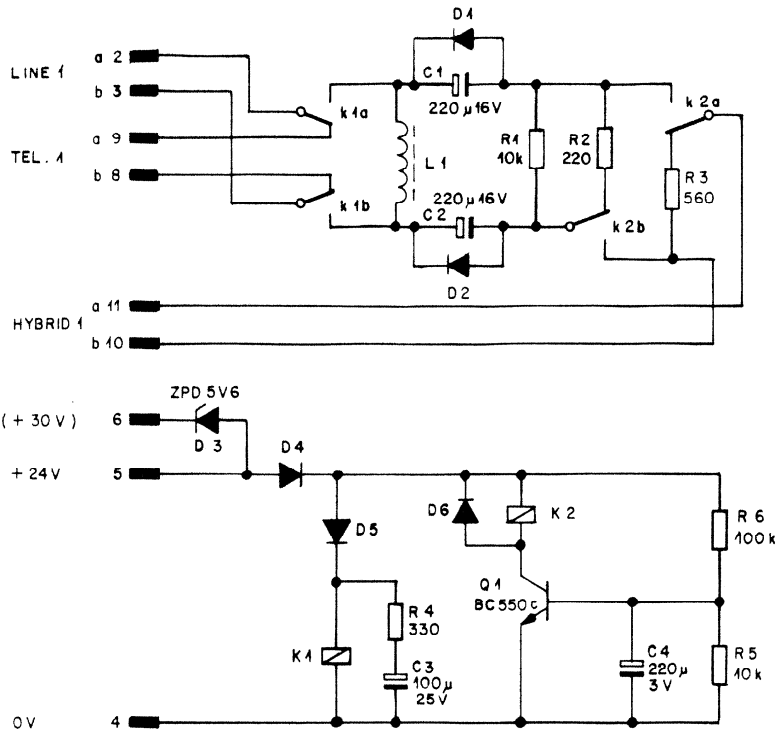
CER=Ceramic, EL=Electrolytic, TA=Tantalum, PE=Polyester, PS=Polystyrene, PC=Polycarbonate

MANUFACTURER: ST=Studer, PH=Philips, TR=TRW, SP=Spectrol, TI=Texas Instruments, RA=Raytheon  
NS=National Sem., SIX=Siliconix, T=Telefunken, SIE=Siemens, F=Fairchild

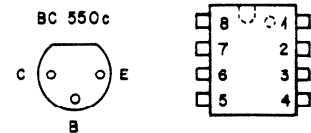
1.915.760.81 TELEPHONE HYBRID	FRI 14/03/78
1.915.760.81 TELEPHONE HYBRID	① FRI 06/11/78
1.915.760.81 TELEPHONE HYBRID	② HO 11/05/79
1.915.760.81 TELEPHONE HYBRID	③ HO 10/09/80
1.915.760.81 TELEPHONE HYBRID	④ VO 11/03/81
1.915.760.81 TELEPHONE HYBRID	⑤ VO 20/06/82

END

→

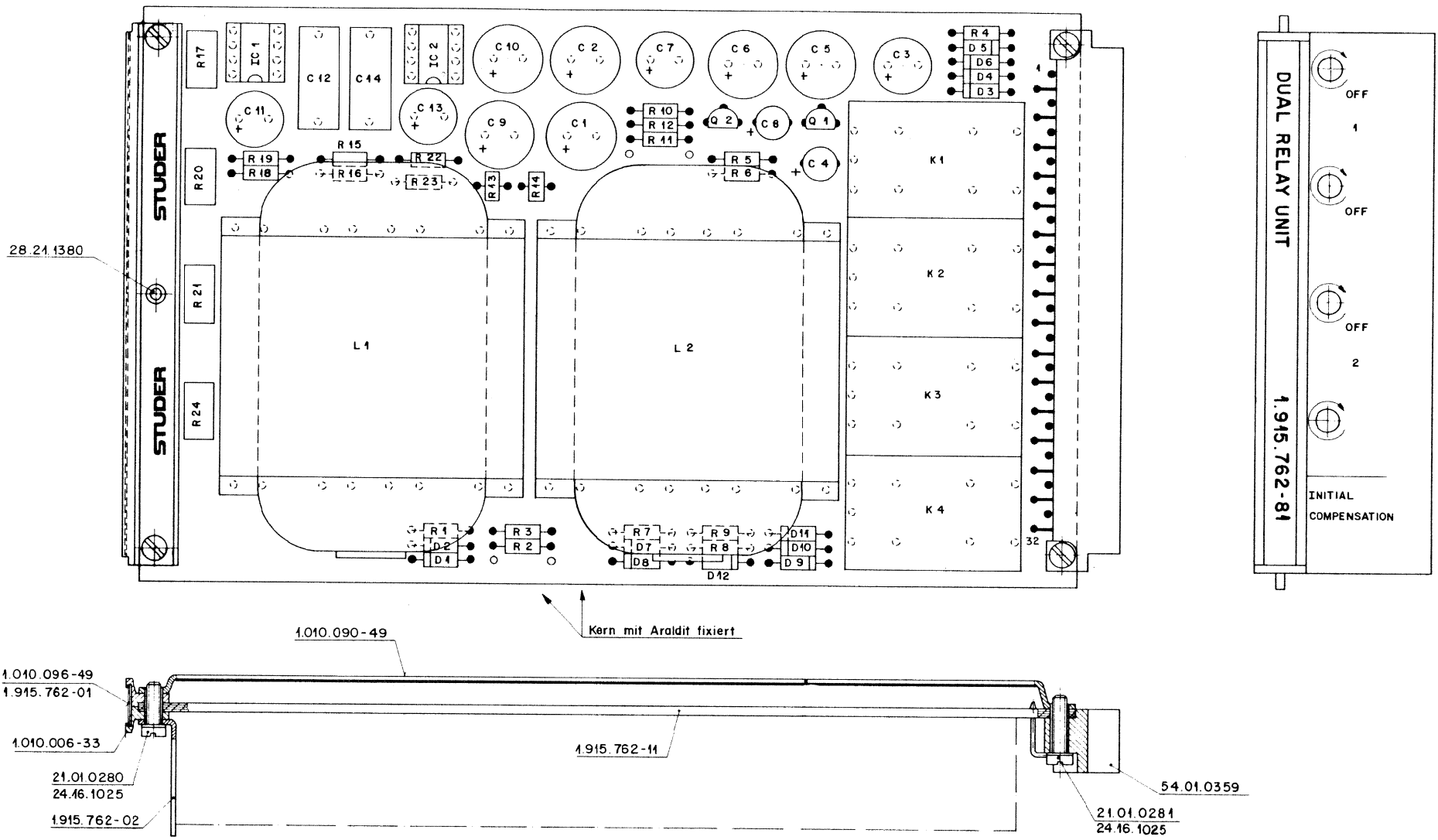


BOTTOM VIEW  
RC 4558



D = 1N 4448  
L1, L2 = 1.022.525

Ausgabe	16. 2. 79	Si	<i>[Signature]</i>	⊙
Datum		Gez.	Gepr.	Index
Ersatz für:	Ersetzt durch:		Kopie für:	
STUDER REGENSDORF ZÜRICH	Benennung: DUAL RELAY UNIT		Nummer: SC 1. 915. 762-81	

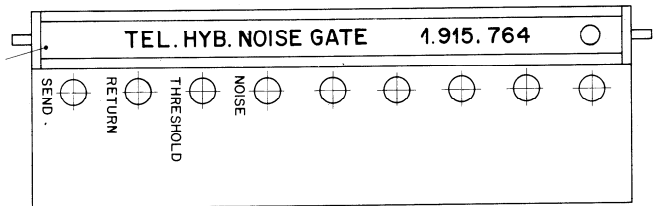
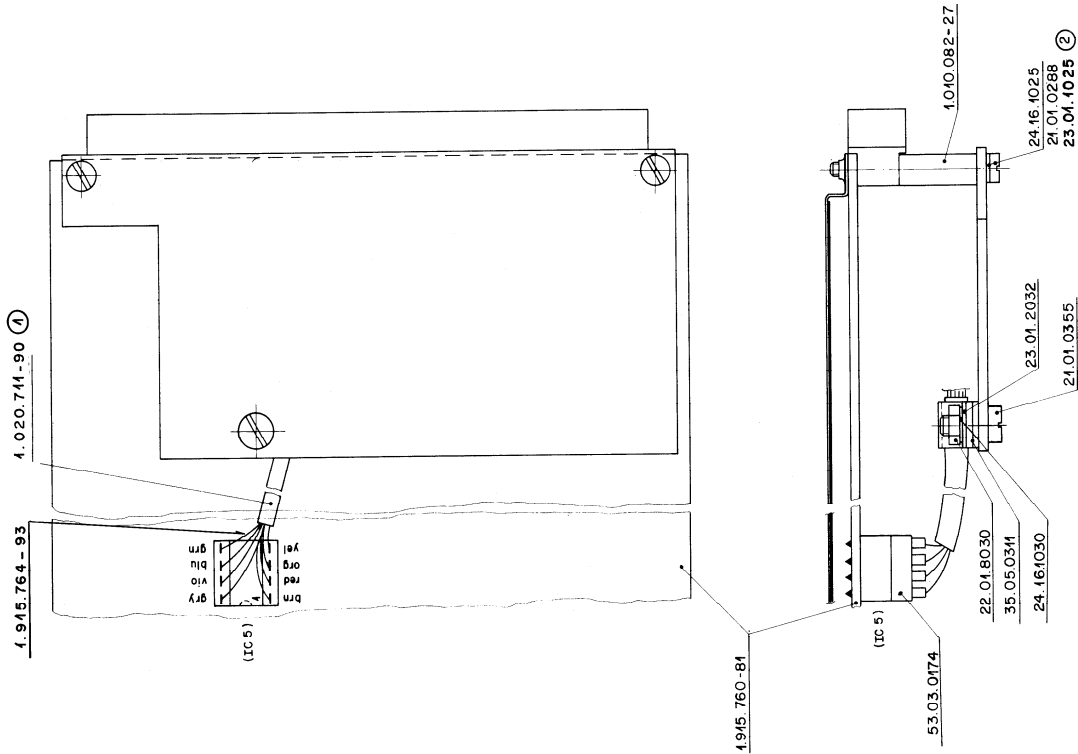


Werkstoff Norm Nr DIN-Bez Abmessung	Güte- Oberfläche Ben	Änderung 4.4.84 A.Ho <i>Vr Vr</i>	
Zugehörige Untertagen PL, AL	Freimasstoleranz	Maßstab 2:1	Ausgabe 18.7.79 Ho <i>Muy Vr</i> 0.
Ersatz für	Ersetzt durch	Datum Gez Gepr Ges Index	
STUDER REGENSDORF ZÜRICH		Kopie für	
Benennung Dual Relay Unit		Nummer 1.915.762-81	



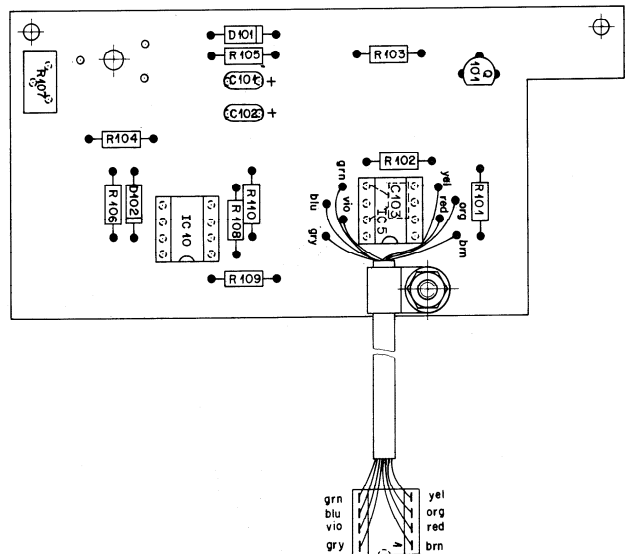


TEL. HYBRID



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C	101	59.26.2100	10µF 16V	EL
C	102	59.26.1479	4,7µF 10V	EL
⊙	C	103	59.32.1101	110pF CR
D	101	50.04.0125	IN4448	
D	102	50.04.1103	ZPD7V5	
IC	5	50.09.0107	RC4559	DUAL OP AMP
IC	10	50.09.0107	RC4559	DUAL OP AMP
Q	1	50.03.0436	BC237B	NPN
		53.03.0174		ADAPTER PLUG
		1.915.760.81		TEL. HYBRID KOMPL
		21.01.0355	M3x8	SCREW
		23.01.2032	7/3,2	WASHER
		22.01.8030	M3	NUT
		35.05.0311	4,8	BINDER
		21.01.0288	M2,5x25	SPACER
		1.010.082.27	3,2/5x13	SPACER
		1.915.764.01		LABEL
R	101	57.11.4334	330k	
R	102	57.11.4222	2,2k	
R	103	57.11.4683	68k	
R	104	57.11.4332	3,3k	
R	105	57.11.4224	220k	
R	106	57.11.4103	10k	
R	107	58.01.7104	100k	LIN
R	108	57.11.4561	560	
R	109	57.11.4104	100k	
R	110	57.11.4221	220	

TI, RA  
TI, RA  
PH, SIE, MOT  
ST  
ST



EL=Electrolytic

MANUFACTURER: ST=Studer, TI=Texas Instruments, RA=Raytheon, PH=Philips, SIE=Siemens, MOT=Motorola

1.915.764.00 TEL. HYBRID WITH NOISE GATE FRI 30/11/81  
1.915.764.00 TEL. HYBRID WITH NOISE GATE ⊙ VO 19/10/87

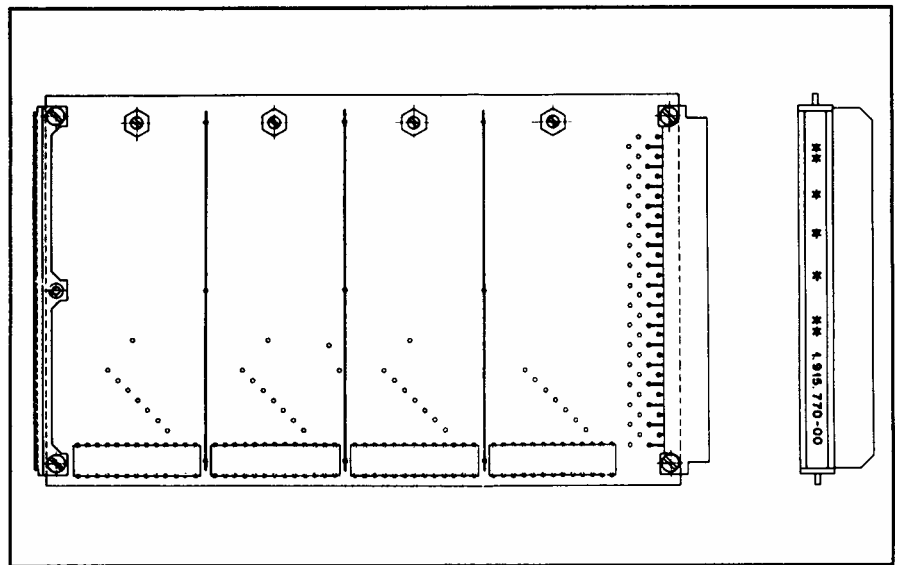
END  
→

Nom. Nr.	Guete	49.40.87	Si	Ge	31
Werkstoff	Übersicht	27.5.87	Si	Ge	27
WZ-Nr. Bez.	Beh.	3.6.86	Ho	Ge	1
Abmessung					
Zugehörige Unterlagen:	Freiabschleifanz	Maßstab			
PL, LL		2-4			
Ersetzt für	Ersetzt durch				
Kopie für					
STUDER REGENSDORF ZÜRICH	Telephon Hybrid with Noise Gate	1.915.764-00			

## Motherboard for 4 MS-Cards

1.915.770

The Modular Sub-Cards require a mounting base for mechanical and electrical installation. This motherboard for four MS-cards in standard Euro-card size easily integrates into the Studer audio components system; it carries 32 printed tracks from its edge connector to four small plug-in sockets. Each socket has 13 contacts; six of them are common supply lines, while another six are individual to each socket. Then there is a separate bus line for circuits 1 and 2, and another bus line for circuits 3 and 4. A motherboard for only one MS-card is available as well.



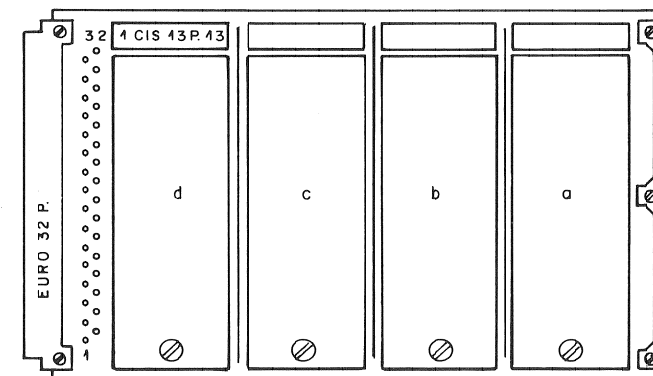
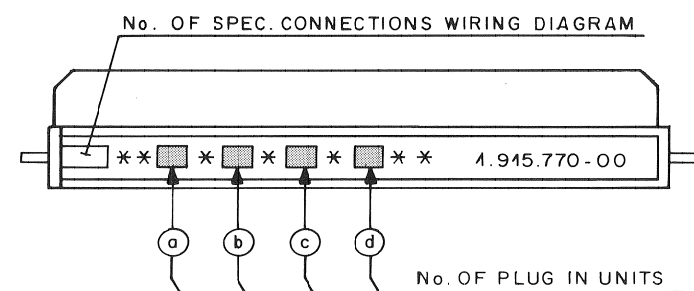
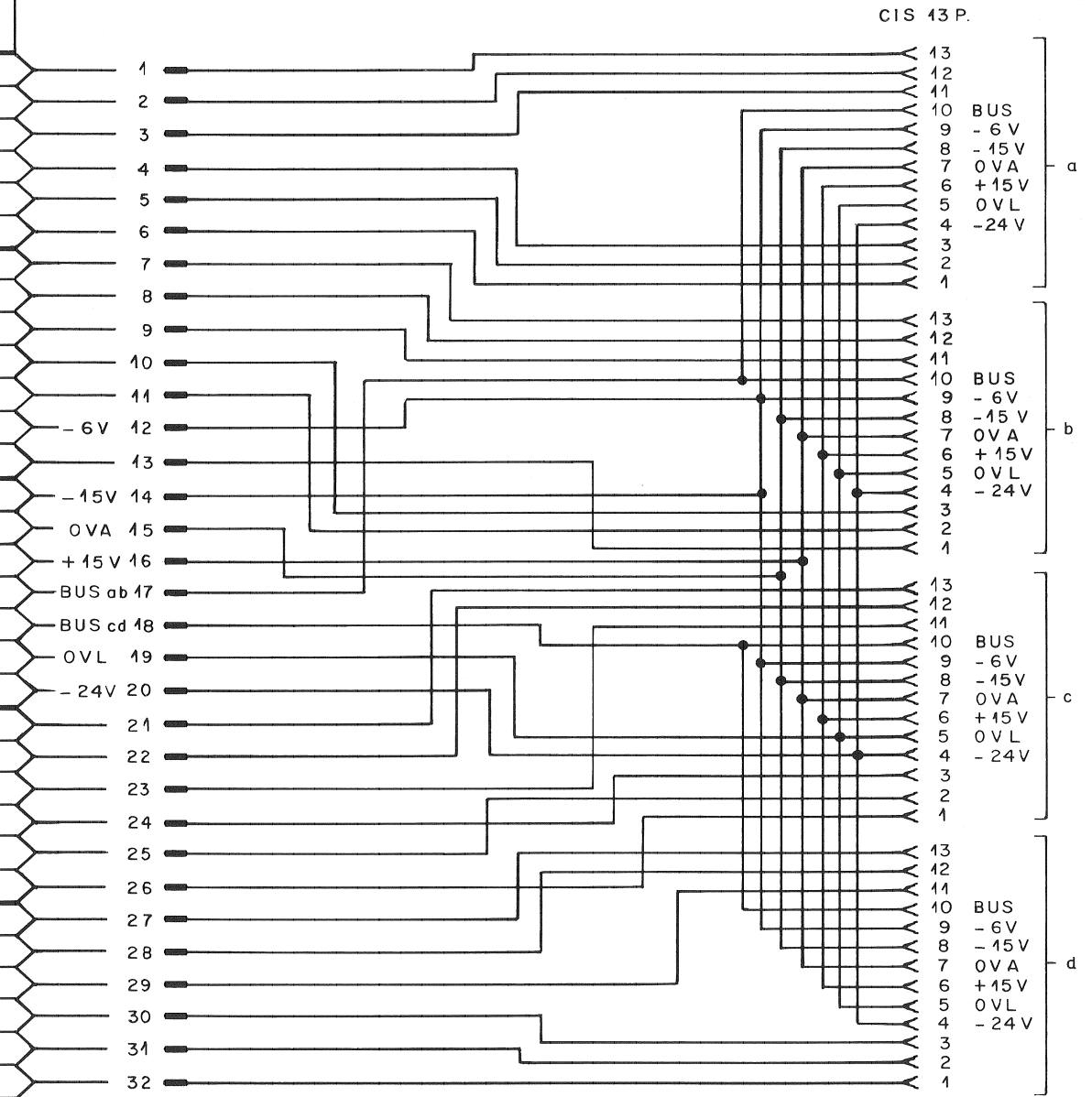
**Dimensions:** Euro-card **100 × 160 mm**

**Connectors:** 1 × Euro connector **32-pin, DIN 41612**  
4 × CIS connector **13-pin, plug-in socket for MSC**

**Ordering Information:** MSC motherboard

1.915.770.xx

PIN No.		SIGNAL	SECTION	CONNECTION REMARKS
EURO	CIS			
1	a 13		1.914.5 . .	
2	a 12			
3	a 11		(a) NAME	
4	a 3		-----	
5	a 2			
6	a 1			
7	b 13		1.914.5 . .	
8	b 12			
9	b 11		(b) NAME	
10	b 3		-----	
11	b 2			
12		- 6V		
13	b 1			
14		- 15V		
15		OVA		
16		+ 15V		
17	a, b 10			
18	c, d 10			
19		OVL		
20		- 24V		
21	c 13		1.914.5 . .	
22	c 12			
23	c 11		(c) NAME	
24	c 3		-----	
25	c 2			
26	c 1			
27	d 13		1.914.5 . .	
28	d 12			
29	d 11		(d) NAME	
30	d 3		-----	
34	d 2			
32	d 1			



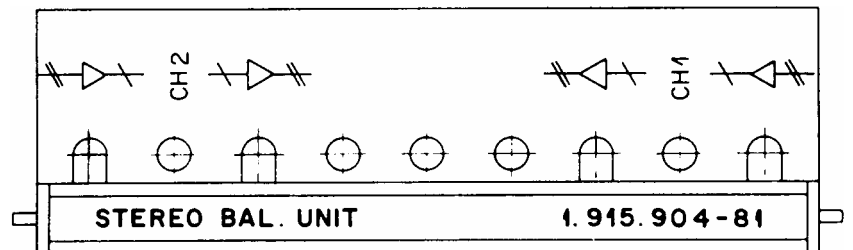
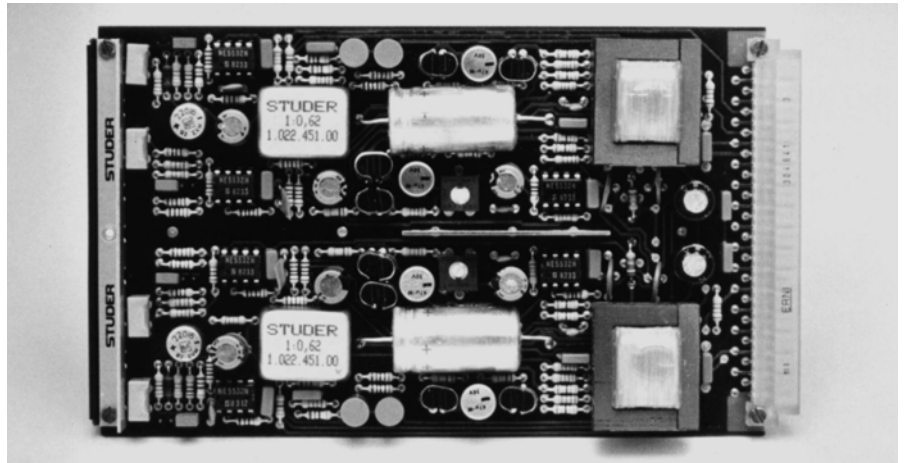




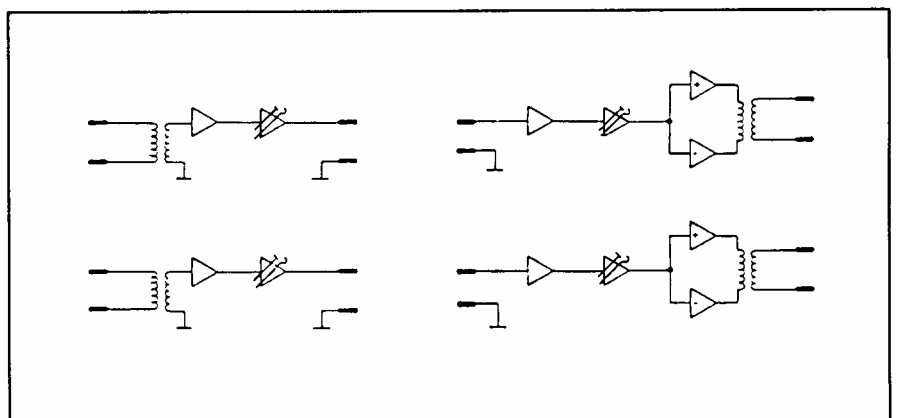
Dual Balancing Unit/Dual Line Amplifier

1.915.904

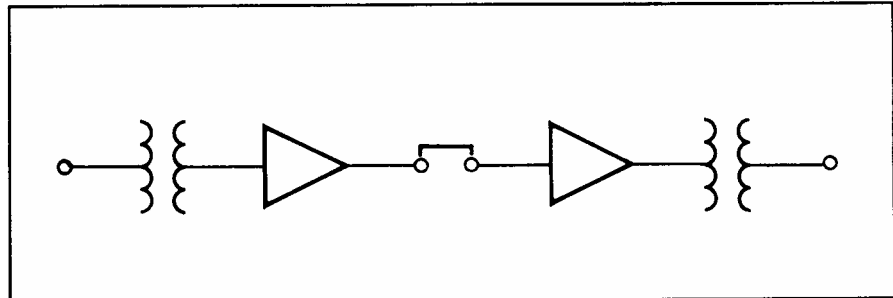
In professional audio work it is not uncommon that equipment with unbalanced input or output configuration must be connected to a system that is based on a strictly balanced design. The Dual Balancing Unit is the ideal component if the requirement of matching unbalanced to balanced equipment or vice versa has to be satisfied.



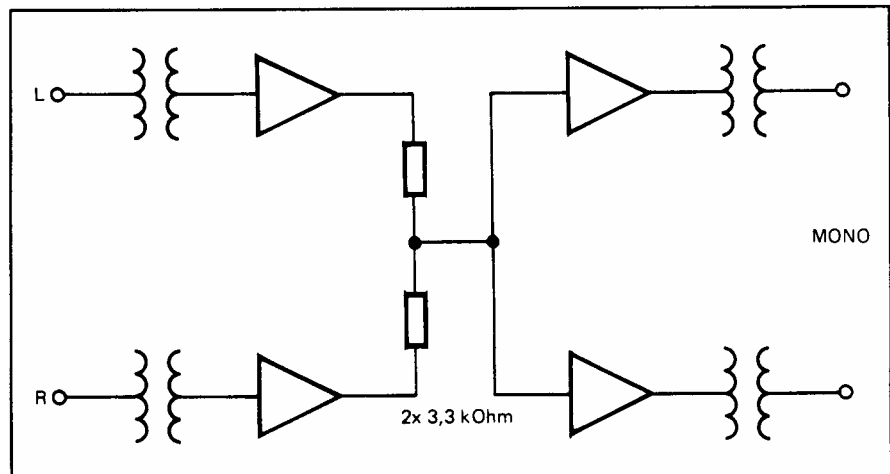
The Dual Balancing Unit consists of one Euro-card which contains four separate circuits to accommodate unbalanced-to-balanced or balanced-to-unbalanced matching in a stereo system. It is the ideal choice for applications in which consumer-type stereo equipment has to be integrated into a professional audio system, where balanced audio lines are a must. The Dual Balancing Unit will also be used in situations where balanced auxiliary units must be connected to unbalanced insert points on a mixing desk.



The use of the balancing unit is not restricted to matching of balanced and unbalanced audio system components, because it can also be utilized as a (line) booster amplifier or as a stereo-to-mono mixer. By simply connecting the unbalanced outputs and inputs together and by adjusting again within the available ranges, two booster amplifiers with a maximum gain of 30 dB and a maximum output capability of +24 dBu\*) can be realized.



For stereo-to-mono mixing, the unbalanced sides of the amplifier sections simply are connected by means of combining (mixing) resistors, as shown in the diagram below.



- \*) To avoid signal clipping, a system should always be designed in such a way that signal peaks stay well below an amplifier's maximum output capacity. Alignment procedures and level settings depend to a large degree on the type of metering used in an audio system. When making measurements with a steady-state signal, a margin of 6 dB below a system's clipping point and the PPM deflected to "zero volume", or a margin of 15 dB (for programs with extreme crest factors, even 20 dB) when utilizing a VU-meter, is considered good engineering practice.

Technical Specifications

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**Balanced to unbalanced (Section 1):**

Input impedance	<b>≥ 10 kΩ</b> , balanced/floating
Maximum input level	<b>+24 dBu</b>
Output impedance	<b>&lt; 100 Ω</b> , unbalanced
Maximum output level	<b>+20 dBu</b>
Minimum load	<b>600 Ω</b>
Frequency response	<b>±0.2 dB</b> , 30 Hz...16 kHz
Attenuation	<b>0/15 dB</b> ; two fixed steps <b>0...15 dB</b> ; variable
S/N	<b>&gt; 100 dB</b> ; attenuation set to 6 dB, line level +6 dBu

**Unbalanced to balanced (Section 2):**

Input impedance	<b>5 kΩ</b> , unbalanced
Maximum input level	<b>+20 dBu</b>
Output impedance	<b>≤ 50 Ω</b> , balanced/floating
Minimum load	<b>200 Ω</b>
Maximum output level	<b>+24 dBu</b>
Frequency response	<b>±0.2 dB</b> , 30 Hz...16 kHz
Gain	<b>14/30 dB</b> ; two fixed steps <b>0...17 dB</b> ; variable
S/N	<b>&gt; 100 dB</b> ; gain set to 6 dB, line level +6 dBu

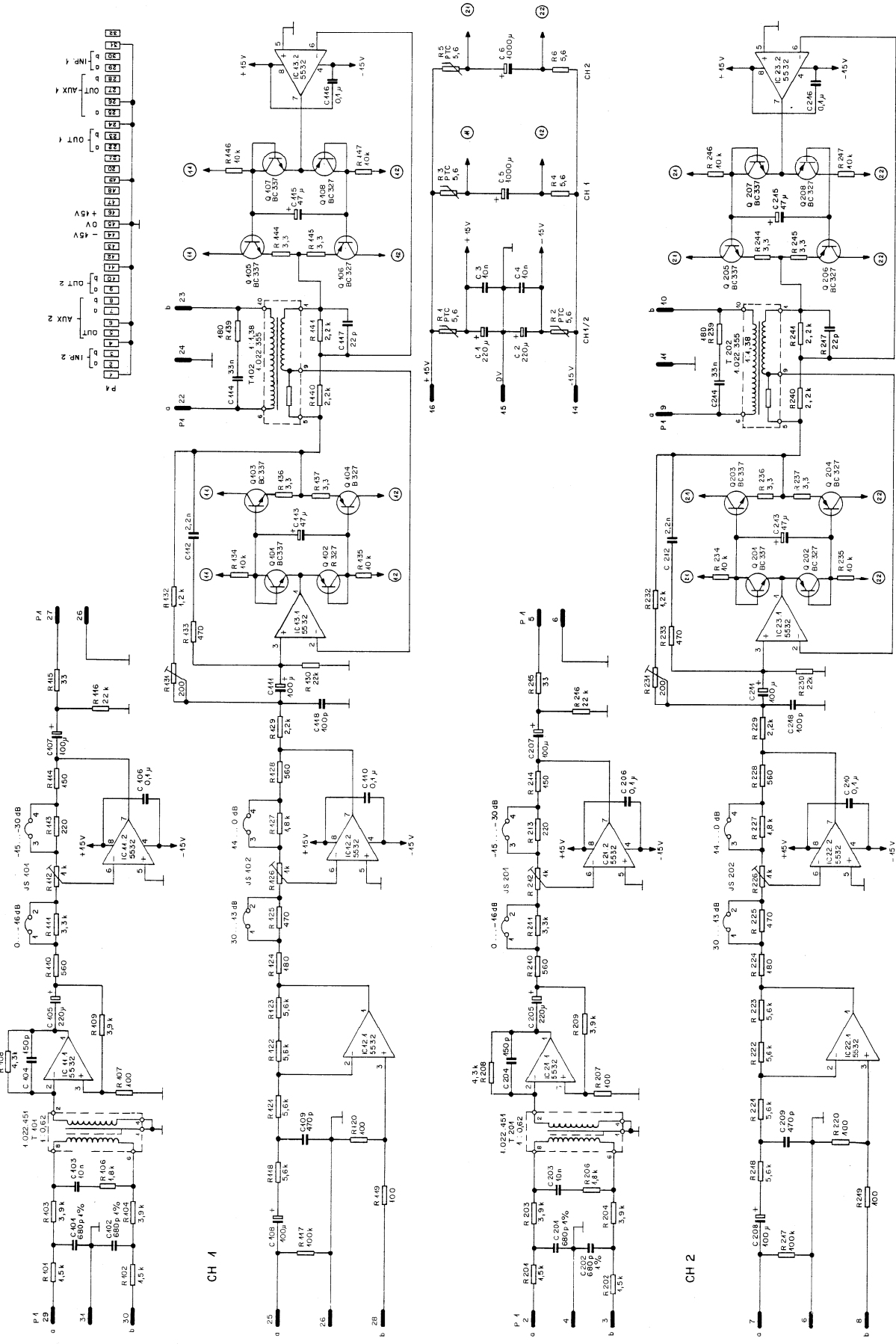
**Supply:** ±15 V (70 mA, idling; 170 mA, each channel +24 dBu into 200 Ω)

**Dimensions:** Euro-card **100 × 160 mm, 7 M units wide**

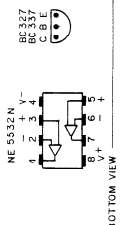
**Ordering Information:**

<b>Euro-card:</b>	• Dual balancing unit	1.915.904.xx
<b>19"/1U standard products:</b>	• 2CH balancing unit (1 × 1.915.904)	75.700.89212
	• 4CH balancing unit (2 × 1.915.904)	75.700.89422
	• 6CH balancing unit (3 × 1.915.904)	75.700.89632

DUAL BALANCING UNIT



DATE:	8.7.83
SIGN:	<i>Rec</i>
STEREO BALANCING UNIT	
SC 1.915.904-81	



- 1 2 3 4
- 5 6 7 8
- 9 10 11 12



DUAL BALANCING UNIT

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER	Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C....1		59.22.4221	220p	16V EL	R....41		57.11.4222	2,2k 2%	
C....2		59.22.4221	220p	16V EL	R....42				
C....3		59.06.0103	10n	63V PE	R....43				
C....4		59.06.0103	10n	63V PE	R....44		57.11.4339	3,3	
C....5		59.25.5102	1000p	40V EL	R....45		57.11.4339	3,3	
C....6		59.25.5102	1000p	40V EL	R....46		57.11.4103	10k	
					R....47		57.11.4103	10k	
C....1		59.05.1681	680p	1% 630V PP	T....1		1.022.451.00	1:0,62	INPUT TRAFO
C....2		59.05.1681	680p	1% 630V PP	T....2		1.022.355.00	1:1,38	LINE OUTPUT TRAFO
C....3		59.06.0103	10n	63V PE					
C....4		59.34.4151	150p	63V CER	XIC		53.03.0166	8P	IC SOCKET
C....5		59.22.2221	220p	6V EL					
C....6		59.06.0104	0,1p	63V PE					
C....7		59.22.5101	100p	25V EL					
C....8		59.22.5101	100p	25V EL					
C....9		59.34.5471	470p	63V CER					
C....10		59.06.0104	0,1p	63V PE					
C....11		59.22.5101	100p	25V EL					
C....12		59.06.0222	2,2n	63V PE					
C....13		59.22.5470	47p	25V EL					
C....14		59.06.0333	33n	63V PE					
C....15		59.22.5470	47p	25V EL					
C....16		59.06.0104	0,1p	63V PE					
C....17		59.34.2220	22p	63V CER					
① C....18		59.34.4101	100p	63V CER					
IC....1		50.09.0105	NE5532	DUAL OP AMP					
IC....2		50.09.0105	NE5532	DUAL OP AMP					
IC....3		50.09.0105	NE5532	DUAL OP AMP					
JS....1		54.01.0020	4PIN						
		54.01.0021	JUMPER						
JS....2		54.01.0021	4PIN						
		54.01.0021	JUMPER						
P....1		54.01.0359	2*16P						
Q....1		1.010.037.50	BC337	NPN					
Q....2		1.010.036.50	BC327	PNP					
Q....3		1.010.037.50	BC337	NPN					
Q....4		1.010.036.50	BC327	PNP					
Q....5		1.010.037.50	BC337	NPN					
Q....6		1.010.036.50	BC327	PNP					
Q....7		1.010.037.50	BC337	NPN					
Q....8		1.010.036.50	BC327	PNP					
									MATCHED
R....1		57.99.0209	5,6	PTC					PH
R....2		57.99.0209	5,6	PTC					PH
R....3		57.99.0209	5,6	PTC					PH
R....4		57.11.4569	5,6						
R....5		57.99.0209	5,6	PTC					PH
R....6		57.11.4569	5,6						
R....1		57.11.3152	1,5k	1%					
R....2		57.11.3152	1,5k	1%					
R....3		57.11.3392	3,9k	1%					
R....4		57.11.3392	3,9k	1%					
R....5									
R....6		57.11.4182	1,8k						
R....7		57.11.3101	100						
R....8		57.11.3432	4,3k						
R....9		57.11.3392	3,9k	2%					
R....10		57.11.4561	560						
R....11		57.11.4332	3,3k						
R....12		58.01.9102	1k	10% TRIM					
R....13		57.11.4221	220	2%					
R....14		57.11.4151	150	2%					
R....15		57.11.4330	33						
R....16		57.11.4223	22k						
R....17		57.11.4104	100k						
R....18		57.11.3562	5,6k						
R....19		57.11.3101	100						
R....20		57.11.3101	100	1%					
R....21		57.11.3562	5,6k						
R....22		57.11.3562	5,6k						
R....23		57.11.3562	5,6k						
R....24		57.11.4181	180	2%					
R....25		57.11.4471	470	2%					
R....26		58.01.9102	1k	10% TRIM					
R....27		57.11.4182	1,8k	2%					
R....28		57.11.4561	560	2%					
R....29		57.11.4222	2,2k						
R....30		57.11.4223	22k						
R....31		58.01.8201	200	TRIM					
R....32		57.11.4122	1,2k						
R....33		57.11.4471	470						
R....34		57.11.4103	10k						
R....35		57.11.4103	10k						
R....36		57.11.4339	3,3						
R....37		57.11.4339	3,3						
R....38									
R....39		57.11.4181	180						
R....40		57.11.4222	2,2k	2%					

END  
→

EL=Electrolytic, PE=Polyester, PP=Polypropylen, CER=Ceramic  
MANUFACTURER: SIG=Signetics, PH=Philips, EX=Exar, ST=Studer

1.915.904.81 STEREO BAL. UNIT BR 24/11/82

## Schemata / Circuit Diagrams

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### Connection Boards

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Circuit diagrams, component layouts, and parts lists:

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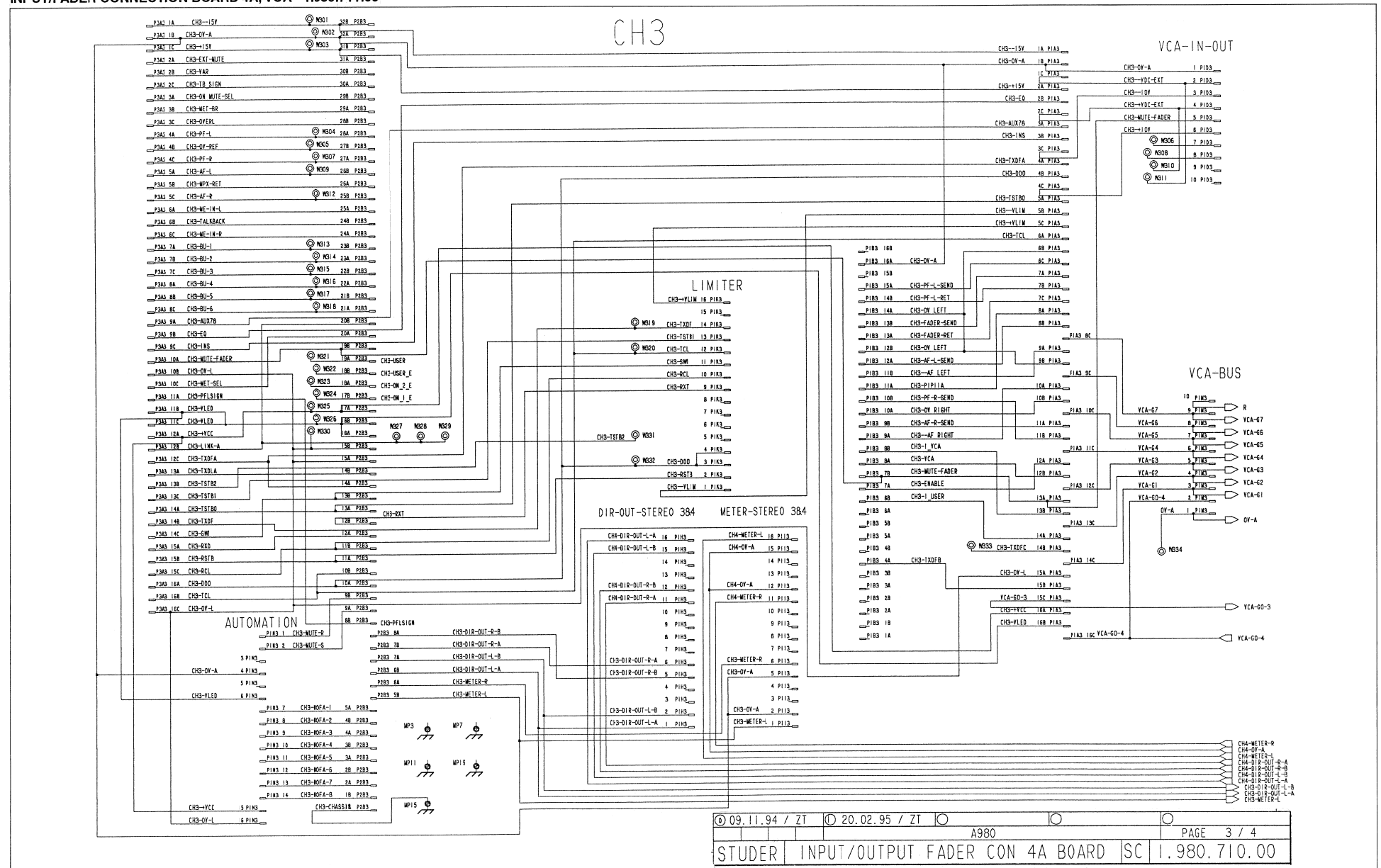
Input/Fader Connection Board 4A .....	1.980.710.00
Input/Fader Connection Board 4A, VCA .....	1.980.711.00
Input/Output Connection / Digital Bus Board .....	1.980.712.00
XLR to Flatcable Male Board .....	1.980.720.00
XLR to Flatcable Female Board .....	1.980.721.81
3 x 16-Pin To 37-Pin D-Type Board .....	1.980.761.00
Aux P5 Connection Board .....	1.980.763.00
Address Select Board, 40 mm .....	1.980.764.00
Address Select Board, 60 mm .....	1.980.765.00
10-Pin Connection Board, 60 mm .....	1.980.771.00
10-Pin Connection Board, 40 mm .....	1.980.772.00
Aux Jumper Connection Board 2x16 Pin .....	1.980.773.00



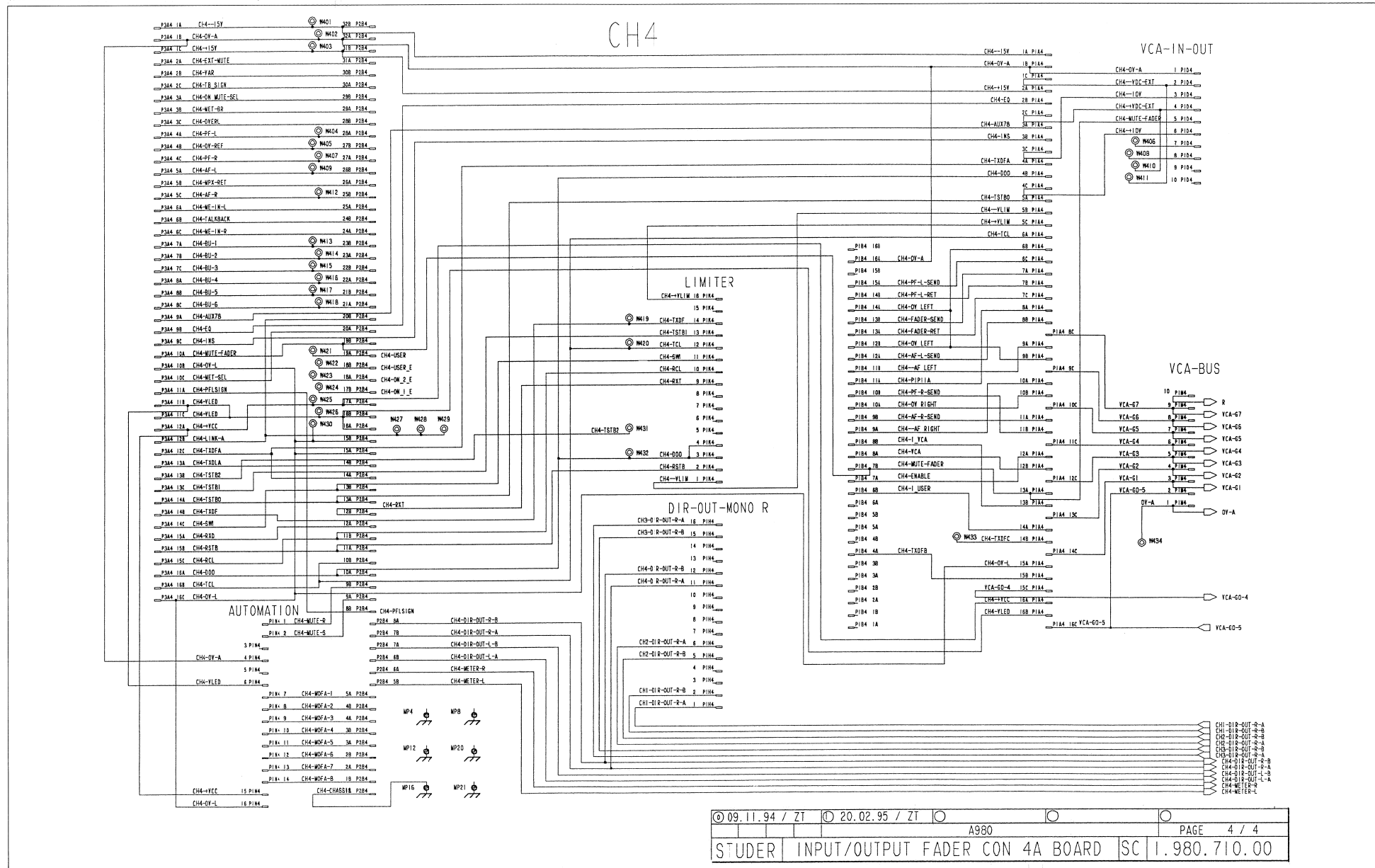




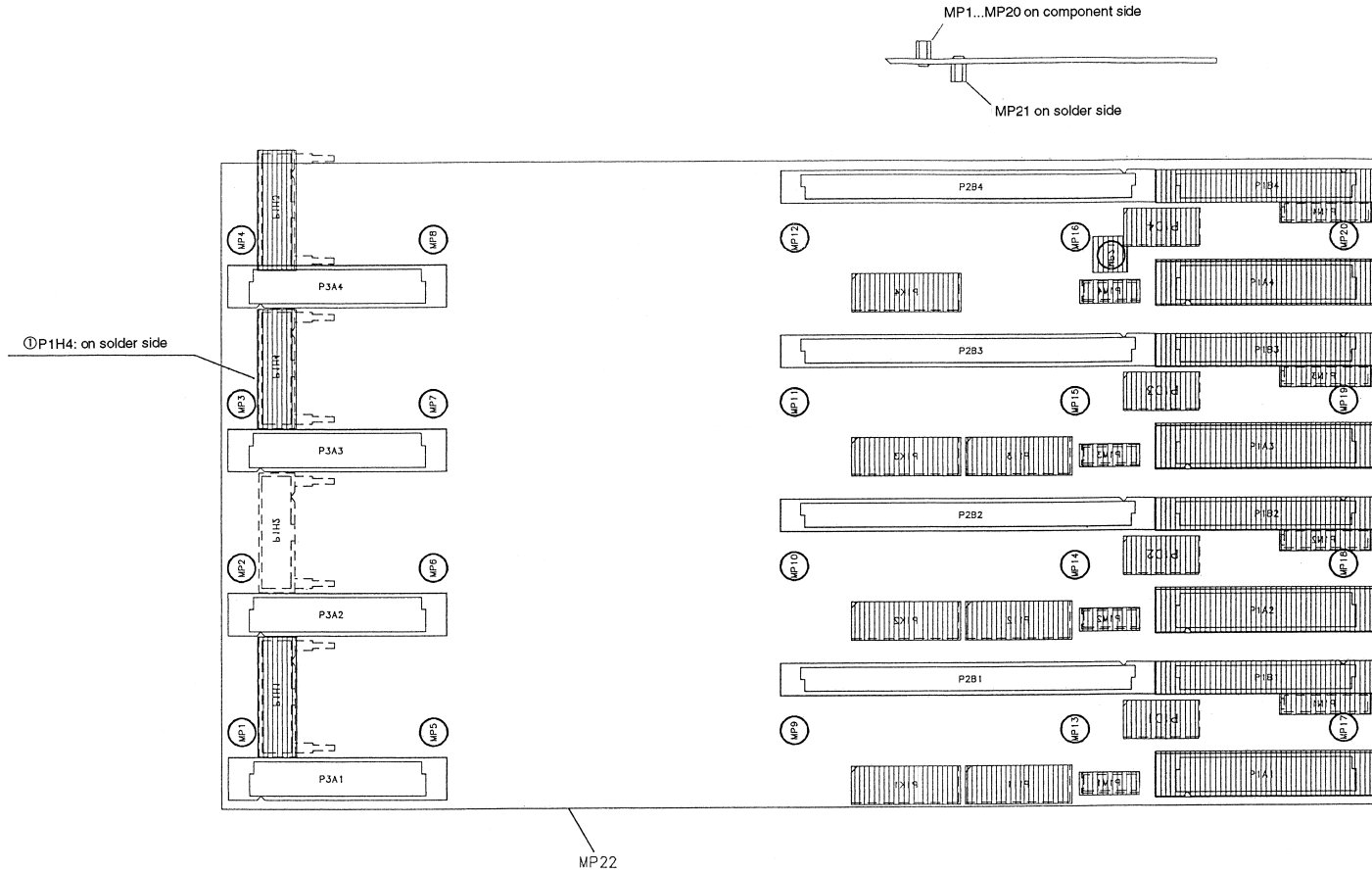
INPUT/FADER CONNECTION BOARD 4A 1.980.710.00  
INPUT/FADER CONNECTION BOARD 4A, VCA 1.980.711.00



INPUT/FADER CONNECTION BOARD 4A 1.980.710.00  
INPUT/FADER CONNECTION BOARD 4A, VCA 1.980.711.00



INPUT/FADER CONNECTION BOARD 4A 1.980.710.00



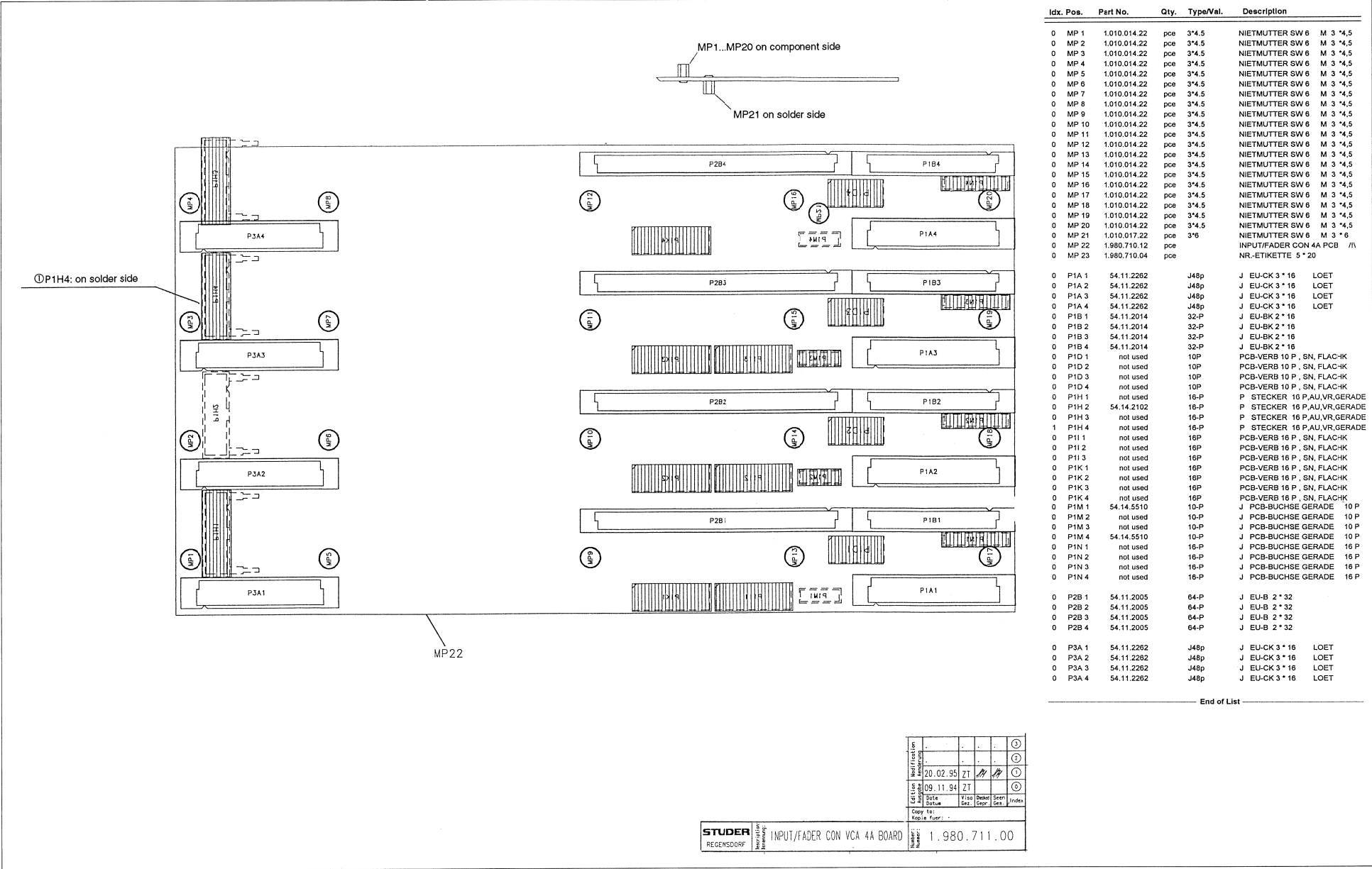
Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0	MP 1	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 2	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 3	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 4	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 5	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 6	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 7	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 8	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 9	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 10	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 11	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 12	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 13	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 14	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 15	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 16	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 17	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 18	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 19	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 20	1.010.014.22	pce	3*4.5 NIETMUTTER SW 6 M 3 *4.5
0	MP 21	1.010.017.22	pce	3*6 NIETMUTTER SW 6 M 3 *6
0	MP 22	1.980.710.12	pce	INPUT/FADER CON 4A PCB //1
0	MP 23	1.980.710.04	pce	NR-ETIKETTE 5 * 20
0	P1A 1	not used	J48p	J EU-CK 3 * 16 LOET
0	P1A 2	not used	J48p	J EU-CK 3 * 16 LOET
0	P1A 3	not used	J48p	J EU-CK 3 * 16 LOET
0	P1A 4	not used	J48p	J EU-CK 3 * 16 LOET
0	P1B 1	not used	32-P	J EU-BK 2 * 16
0	P1B 2	not used	32-P	J EU-BK 2 * 16
0	P1B 3	not used	32-P	J EU-BK 2 * 16
0	P1B 4	not used	32-P	J EU-BK 2 * 16
0	P1D 1	not used	10P	PCB-VERB 10 P, SN, FLACHK
0	P1D 2	not used	10P	PCB-VERB 10 P, SN, FLACHK
0	P1D 3	not used	10P	PCB-VERB 10 P, SN, FLACHK
0	P1D 4	not used	10P	PCB-VERB 10 P, SN, FLACHK
0	P1H 1	not used	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1H 2	54.14.2102	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1H 3	not used	16-P	P STECKER 16 P,AU,VR,GERADE
1	P1H 4	not used	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1I 1	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1I 2	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1I 3	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1K 1	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1K 2	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1K 3	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1K 4	not used	16P	PCB-VERB 16 P, SN, FLACHK
0	P1M 1	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 2	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 3	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 4	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1N 1	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 2	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 3	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 4	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P2B 1	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 2	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 3	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 4	54.11.2005	64-P	J EU-B 2 * 32
0	P3A 1	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 2	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 3	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 4	54.11.2262	J48p	J EU-CK 3 * 16 LOET

End of List

Revision	20.02.95	ZT			
Date	09.11.94	ZT			
Drawn					
Checked					
Copy to:	Kopie fuer:				

STUDER REGENSDORF INPUT/FADER CON 4A BOARD 1.980.710.00

INPUT/FADER CONNECTION BOARD 4A, VCA 1.980.711.00



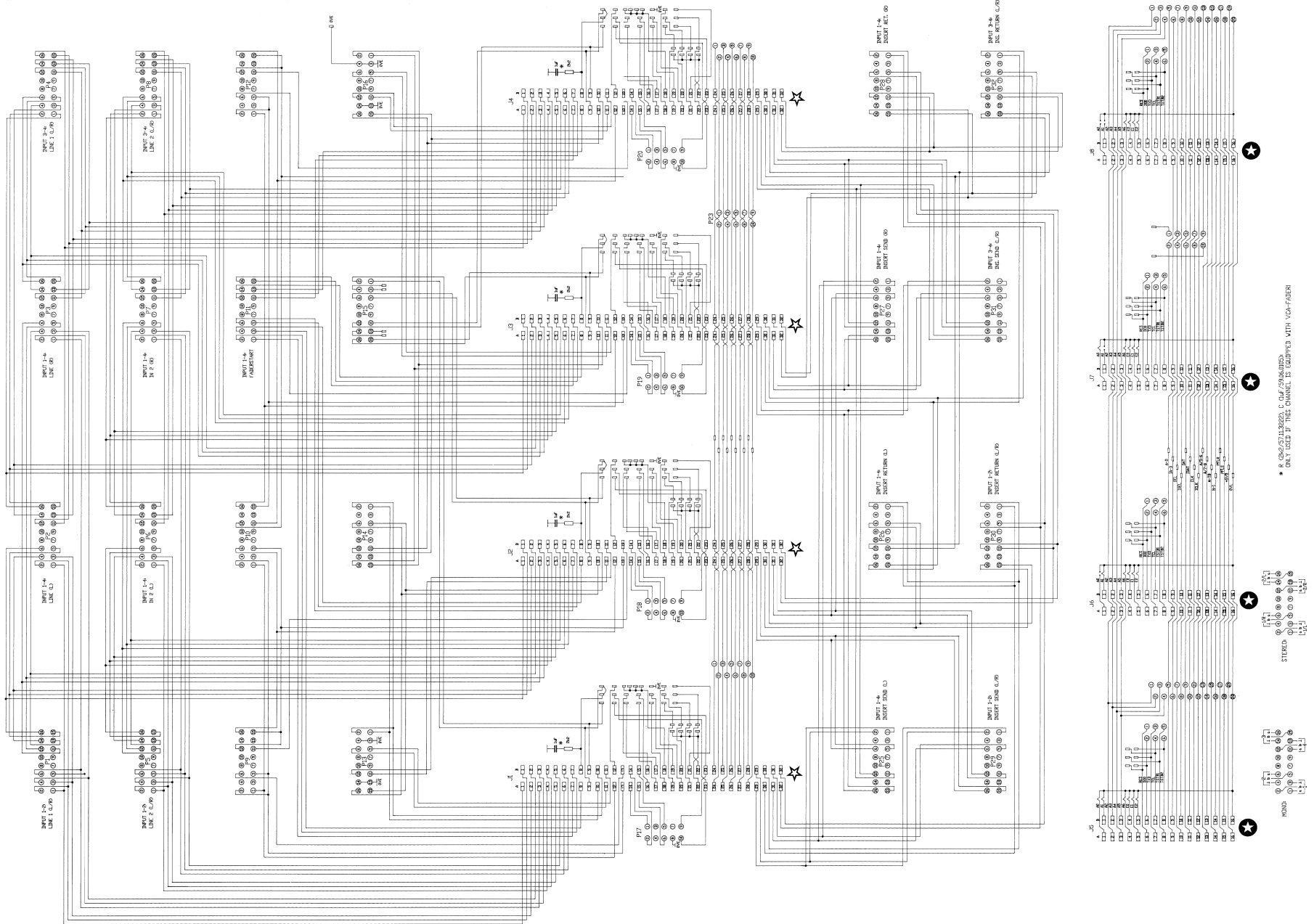
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0	MP 2	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 3	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 4	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 5	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 6	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 7	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 8	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 9	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 10	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 11	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 12	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 13	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 14	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 15	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 16	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 17	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 18	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 19	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 20	1.010.014.22	pce 3*4,5	NIETMUTTER SW 6 M 3 *4,5
0	MP 21	1.010.017.22	pce 3*6	NIETMUTTER SW 6 M 3 * 6
0	MP 22	1.980.710.12	pce	INPUT/FADER CON 4A PCB /A
0	MP 23	1.980.710.04	pce	NR.-ETIKETTE 5 * 20
0	P1A 1	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P1A 2	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P1A 3	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P1A 4	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P1B 1	54.11.2014	32-P	J EU-BK 2 * 16
0	P1B 2	54.11.2014	32-P	J EU-BK 2 * 16
0	P1B 3	54.11.2014	32-P	J EU-BK 2 * 16
0	P1B 4	54.11.2014	32-P	J EU-BK 2 * 16
0	P1D 1	not used	10P	PCB-VERB 10 P , SN, FLACHK
0	P1D 2	not used	10P	PCB-VERB 10 P , SN, FLACHK
0	P1D 3	not used	10P	PCB-VERB 10 P , SN, FLACHK
0	P1D 4	not used	10P	PCB-VERB 10 P , SN, FLACHK
0	P1H 1	not used	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1H 2	54.14.2102	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1H 3	not used	16-P	P STECKER 16 P,AU,VR,GERADE
1	P1H 4	not used	16-P	P STECKER 16 P,AU,VR,GERADE
0	P1I 1	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1I 2	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1I 3	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1K 1	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1K 2	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1K 3	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1K 4	not used	16P	PCB-VERB 16 P , SN, FLACHK
0	P1M 1	54.14.5510	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 2	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 3	not used	10-P	J PCB-BUCHSE GERADE 10 P
0	P1M 4	54.14.5510	10-P	J PCB-BUCHSE GERADE 10 P
0	P1N 1	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 2	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 3	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P1N 4	not used	16-P	J PCB-BUCHSE GERADE 16 P
0	P2B 1	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 2	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 3	54.11.2005	64-P	J EU-B 2 * 32
0	P2B 4	54.11.2005	64-P	J EU-B 2 * 32
0	P3A 1	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 2	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 3	54.11.2262	J48p	J EU-CK 3 * 16 LOET
0	P3A 4	54.11.2262	J48p	J EU-CK 3 * 16 LOET

End of List

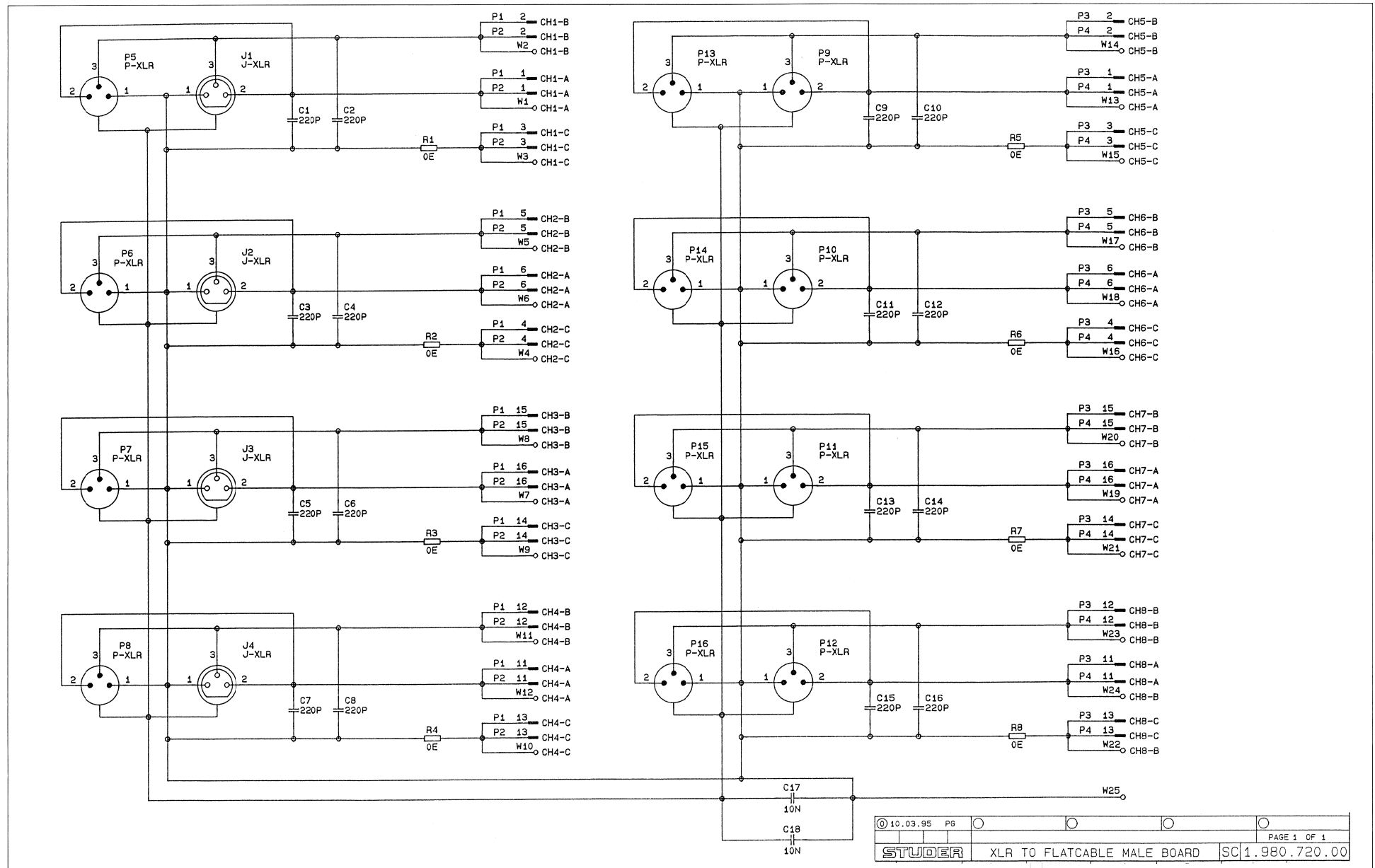
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20.02.95	ZT						
09.11.94	ZT						
Date	Vis	Debet	Seen				
Postum	Erz	Erz	Erz				
Copy to:	Kopie fuer						

STUDER  
REGENSDORF  
INPUT/FADER CON VCA 4A BOARD  
Number: 1.980.711.00

INPUT/OUTPUT CONNECTION / DIGITAL BUS BOARD 1.980.712.00



XLR TO FLATCABLE MALE BOARD 1.980.720.00



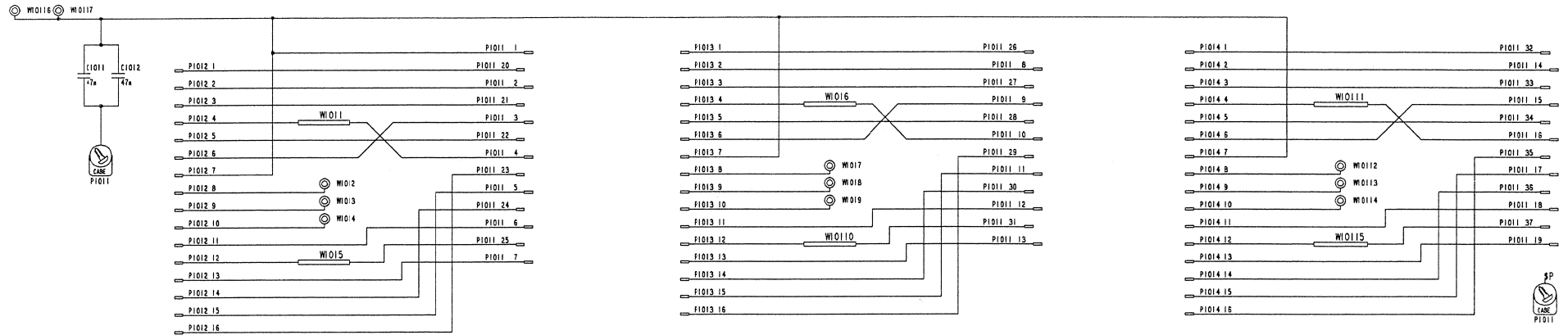








3 x 16-PIN TO 37-PIN D-TYPE BOARD 1.980.761.00

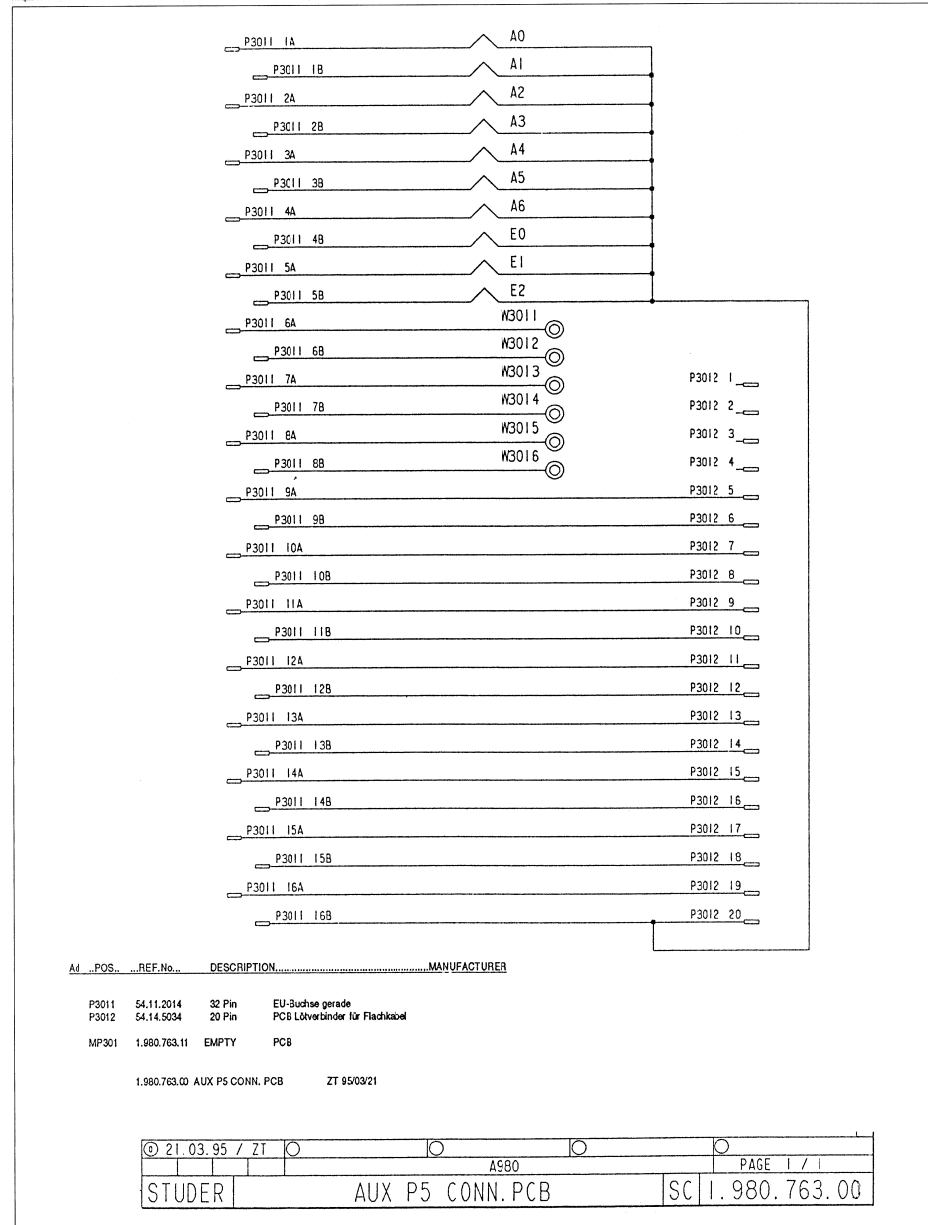


Ad. POS. REF.No. DESCRIPTION MANUFACTURER

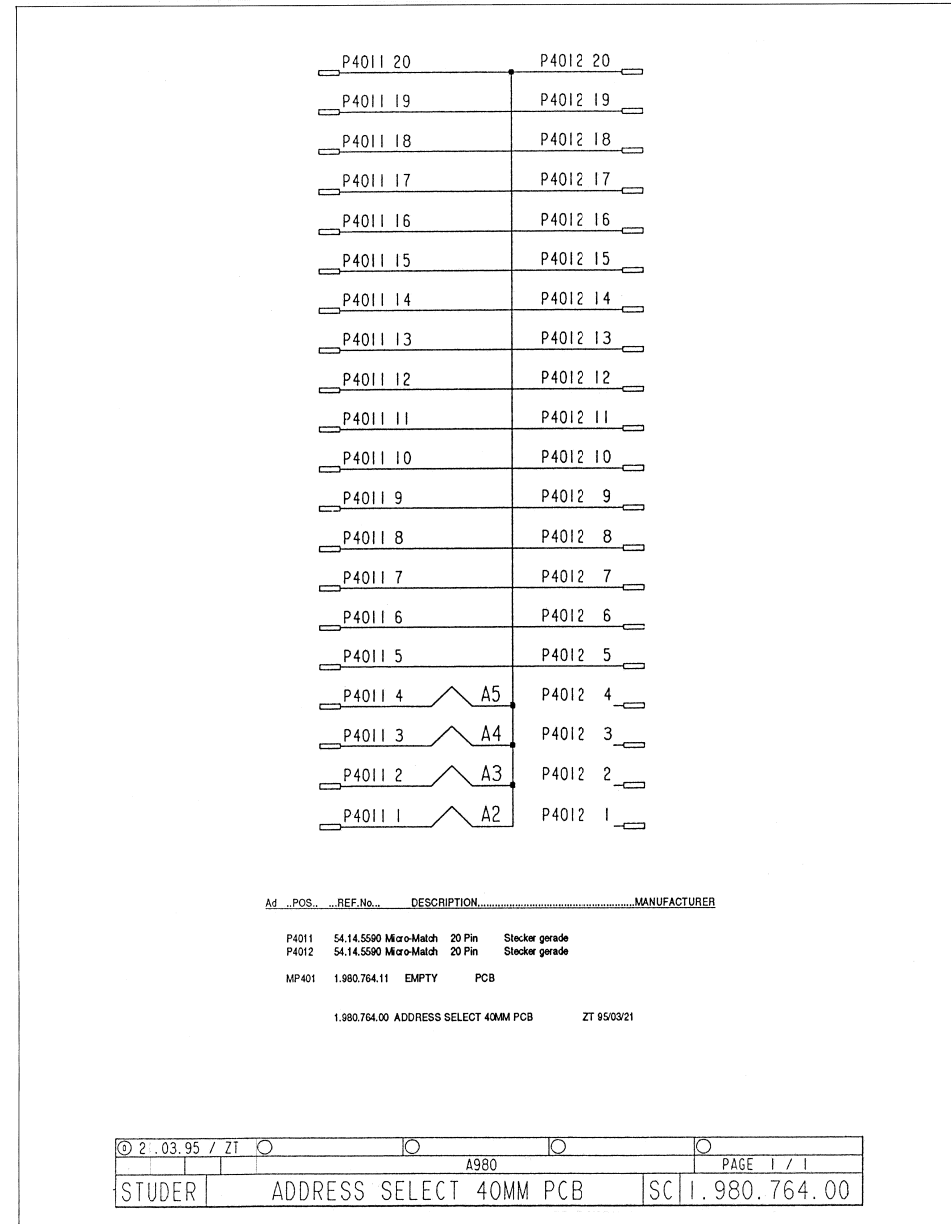
C1011	58.06.0473	47 nF	63V	C-PETP
C1012	58.02.5473	47 nF	250V	
P1011	54.13.0274	37 Pin	PCB D-Buchse winkel	
P1012	54.14.2102	16 Pin	PCB Stecker gerade	
P1013	54.14.2102	16 Pin	PCB Stecker gerade	
P1014	54.14.2102	16 Pin	PCB Stecker gerade	
MP101	1.980.761.11	EMPTY	PCB	

1.980.761.00 3x 16P TO 37D TYP PCB ZT 95/03/21

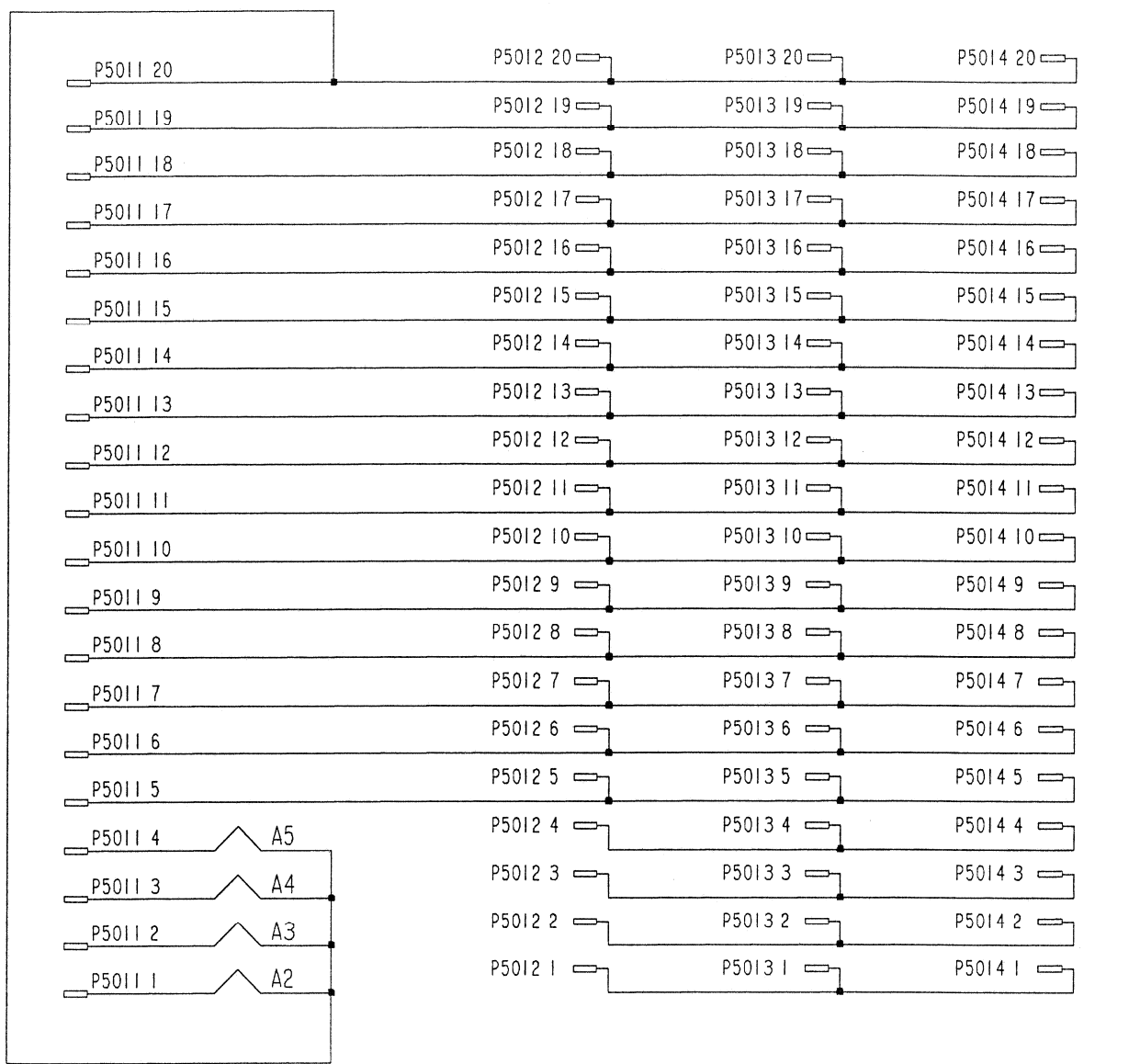
AUX P5 CONNECTION BOARD 1.980.763.00



ADDRESS SELECT BOARD, 40 mm 1.980.764.00



ADDRESS SELECT BOARD, 60 mm 1.980.765.00



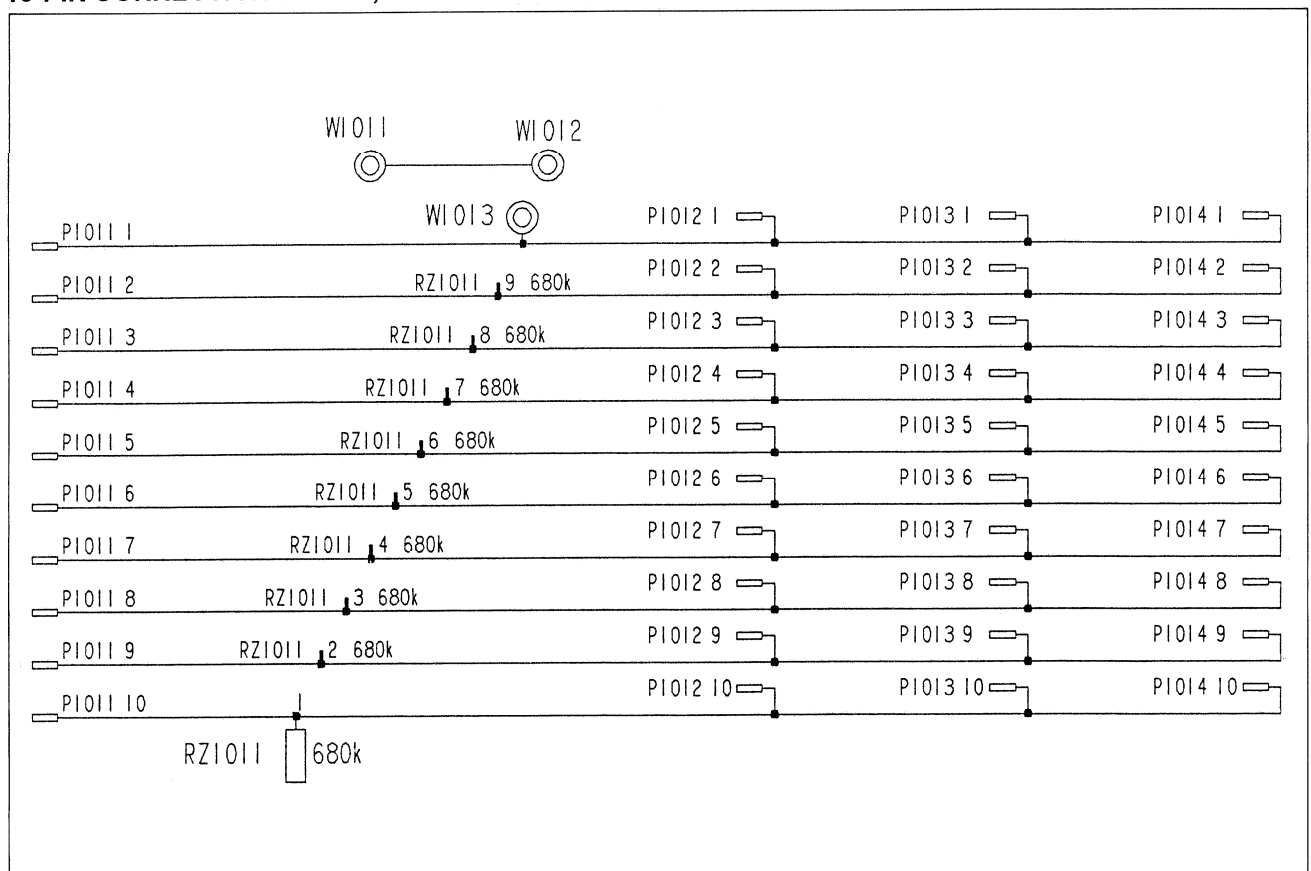
Ad ..POS.. ..REF.No... DESCRIPTION.....MANUFACTURER

P5011	54.14.5590	Micro-Match	20 Pin	Stecker gerade	
P5012	54.14.5590	Micro-Match	20 Pin	Stecker gerade	n.c.
P5013	54.14.5620	Micro-Match	20 Pin	PCB Lötverbinder	n.c.
P5014	54.14.5590	Micro-Match	20 Pin	Stecker gerade	
MP501	1.980.765.11	EMPTY	PCB		

1.980.765.00 ADDRESS SELECT 60MM PCB ZT 95/03/21

© 21.03.95 / ZT					
			A980	PAGE 1 / 1	
STUDER	ADDRESS SELECT 60MM PCB			SC	1.980.765.00

10-PIN CONNECTION BOARD, 60 mm 1.980.771.00

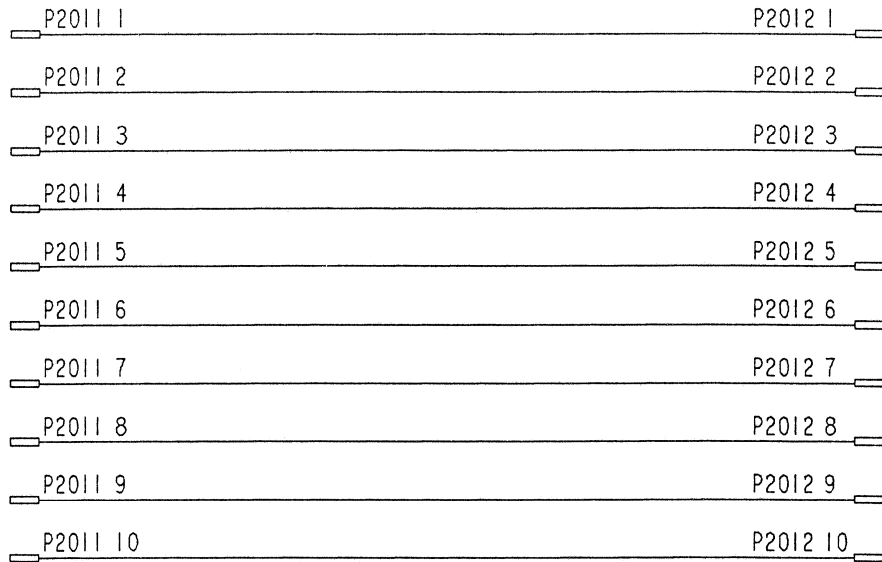


Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
P1011	54.14.5580	Micro-Match	10 Pin Stecker gerade	n.c.
P1012	54.14.5580	Micro-Match	10 Pin Stecker gerade	n.c.
P1013	54.14.5610	Micro-Match	10 Pin PCB Lötverbinder	n.c.
P1014	54.14.5580	Micro-Match	10 Pin Stecker gerade	n.c.
RZ1011	57.88.4684	680 k	Netzwerk	n.c.
MP101	1.980.771.11	EMPTY	PCB	

1.980.771.00 10P CONN. 60MM PCB ZT 95/02/22

© 22.02.95 / ZT					
A980				PAGE 1 / 1	
STUDER	10P CONN. 60MM PCB			SC	1.980.771.00

10-PIN CONNECTION BOARD, 40 mm 1.980.772.00

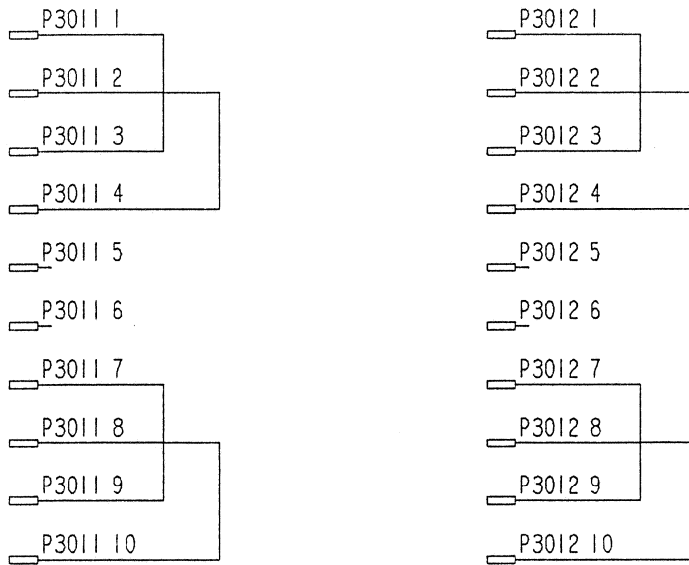


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P2011	54.14.5580	Micro-Match	10 Pin	Stecker gerade
P2012	54.14.5580	Micro-Match	10 Pin	Stecker gerade
MP201	1.980.772.11	EMPTY	PCB	
1.980.772.00 10P CONN. 40MM PCB				ZT 95/02/22

© 22.02.95 / ZT				
		A980		PAGE 1 / 1
STUDER	10P CONN. 40MM PCB		SC	1.980.772.00



AUX JUMPER CONNECTION BOARD, 2 x 26 PIN 1.980.773.00



Ad ..POS.. ..REF.No.. DESCRIPTION.....MANUFACTURER

P3011	54.14.5586	Micro-Match	16 Pin	Stecker gerade
P3012	54.14.5586	Micro-Match	16 Pin	Stecker gerade
MP301	1.980.773.11	EMPTY	PCB	

1.980.773.00 AUX JUMP. CONN. 2x16 PCB ZT 95/02/22

© 22.02.95 / ZT				
		A980		PAGE 1 / 1
STUDER	AUX JUMP. CONN. 2x16 PCB		SC	1.980.773.00

## Schemata / Circuit Diagrams

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### Power Supply

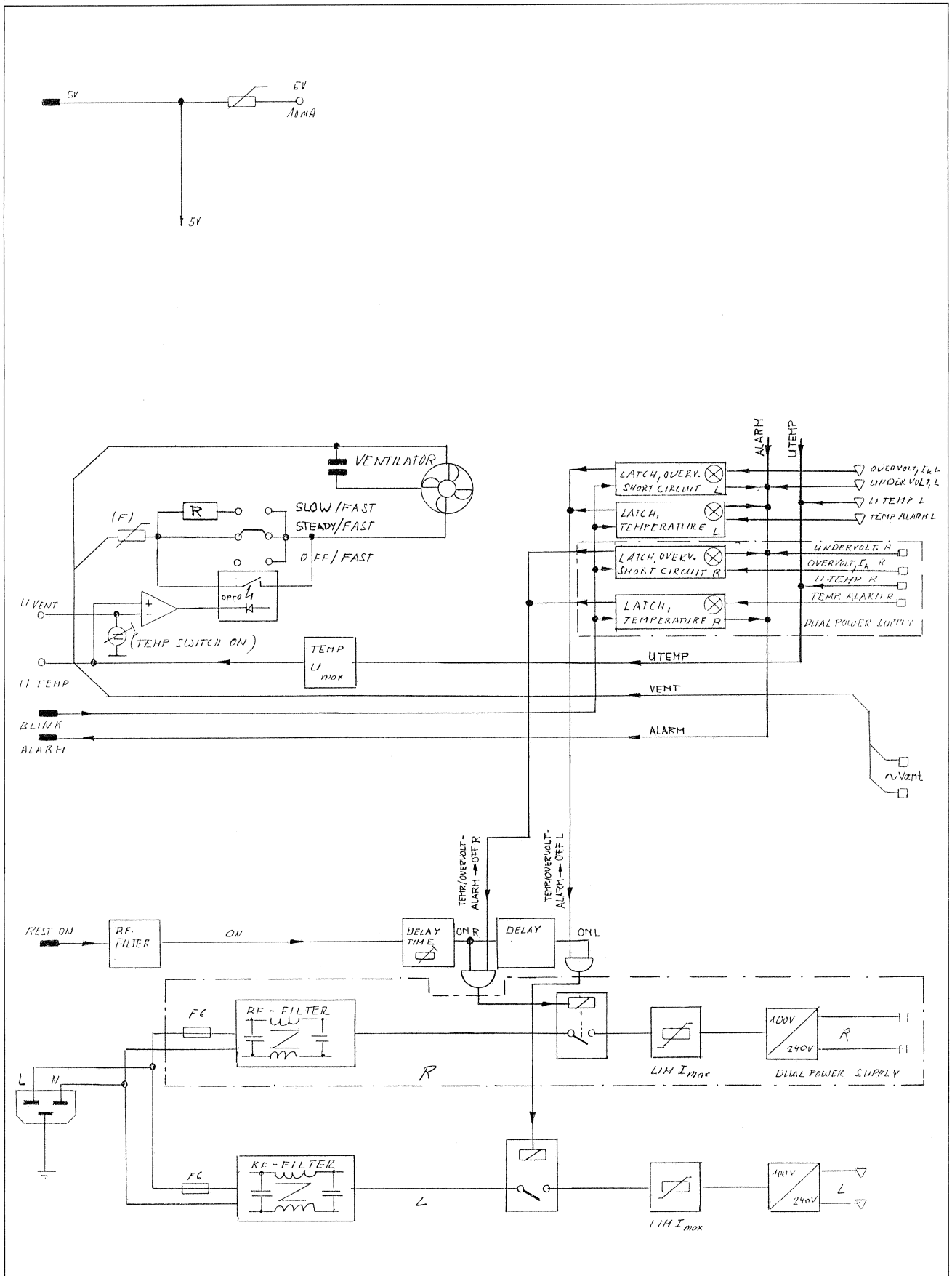
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Block diagrams, circuit diagrams, component layouts, and parts lists:

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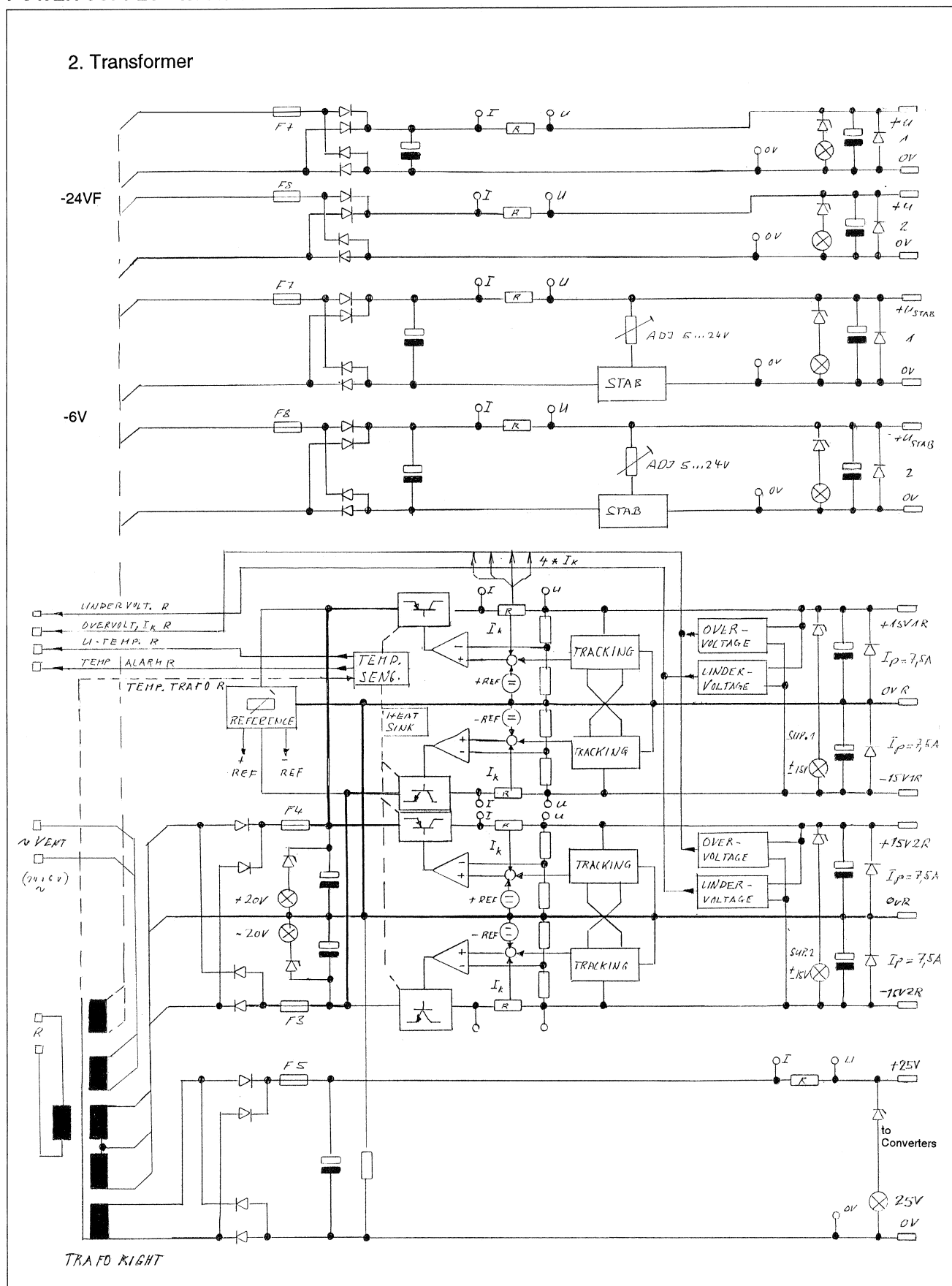
Power Supply .....	1.918.420
Mains Transformer 2 .....	1.910.503.00
Change-Over Board .....	1.918.075.00
Ventilator .....	1.918.078.00
NTC-Sensor .....	1.918.079.00
LED Board .....	1.918.082.00
Rectifier/Capacitor .....	1.918.083.00
±15 V Stabilizer Board .....	1.918.084.00
Mains Selector Board .....	1.918.085.00
Power Amplifier Rectifier Board .....	1.918.086.00
± Dual Stabilizer Rectifier Board .....	1.918.087.81
Phantom S.B. ±12 V Board .....	1.918.088.00
Feed-Through Board .....	1.918.089.00
Modification for Power Supply .....	1.918.420/101

BLOCK DIAGRAM  
POWER SUPPLY 1.918.420

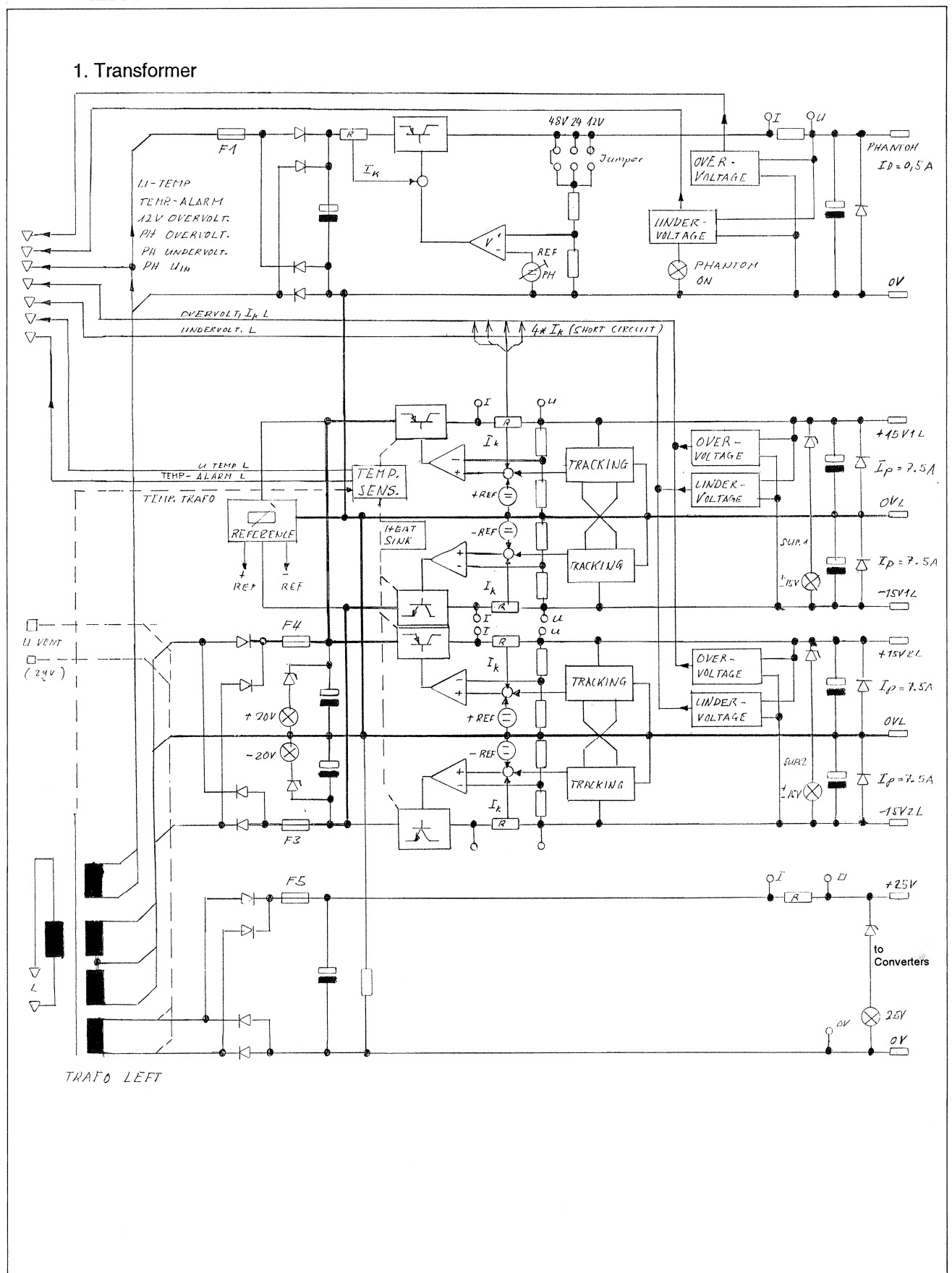


BLOCK DIAGRAM  
POWER SUPPLY 1.918.420

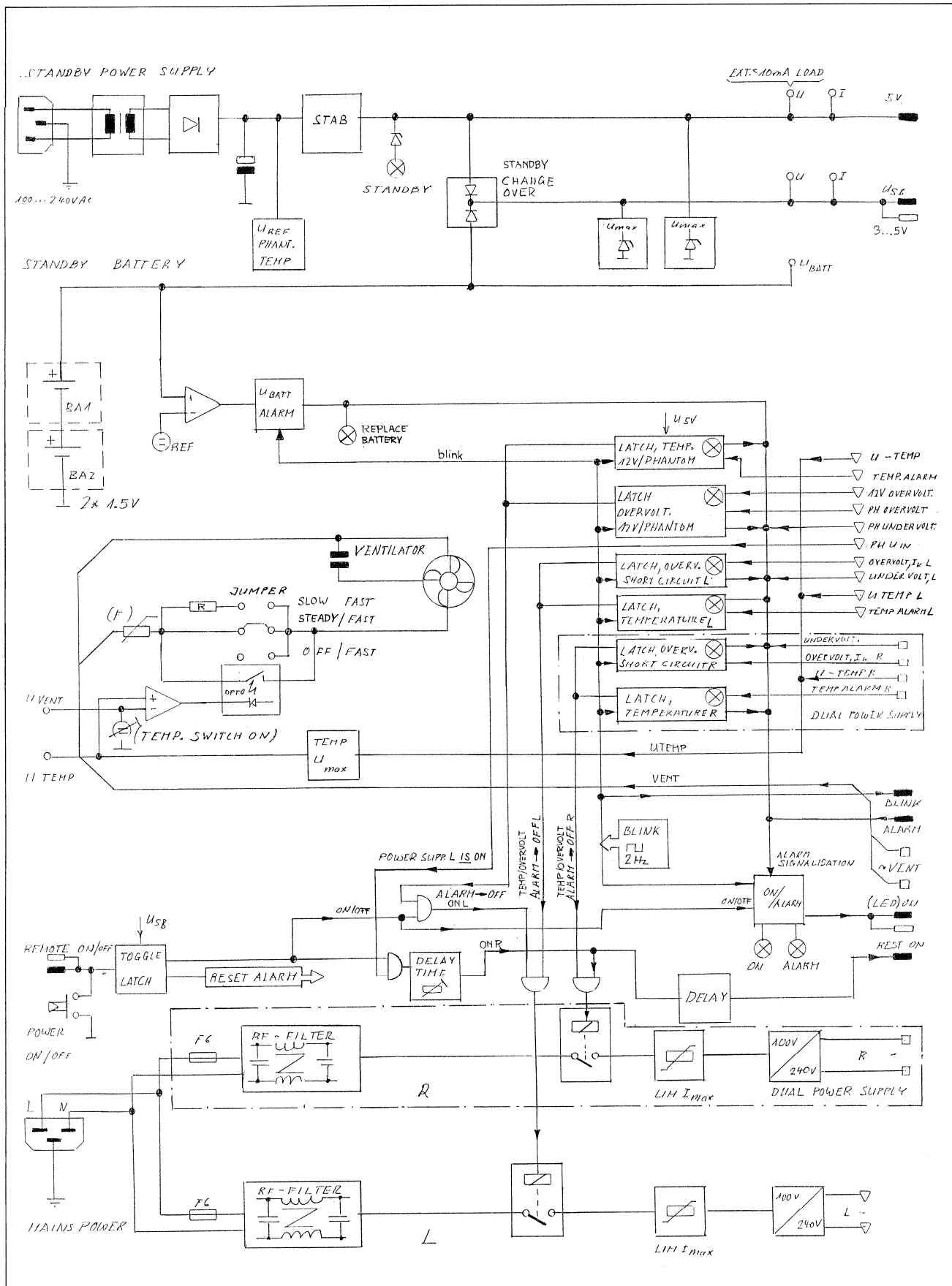
2. Transformer



BLOCK DIAGRAM  
POWER SUPPLY 1.918.420



**BLOCK DIAGRAM  
POWER SUPPLY 1.918.420**



MAINS TRANSFORMER 2 1.910.503.00

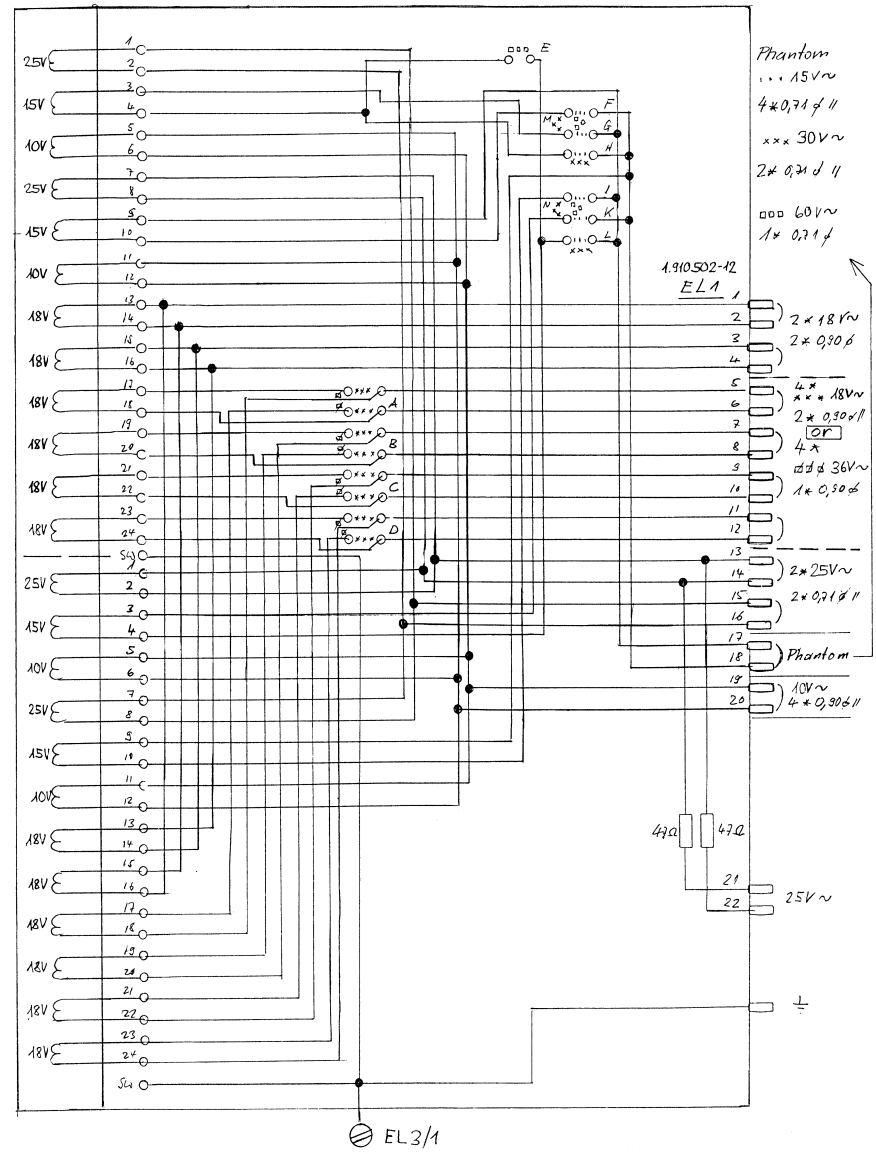
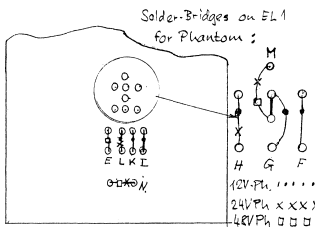
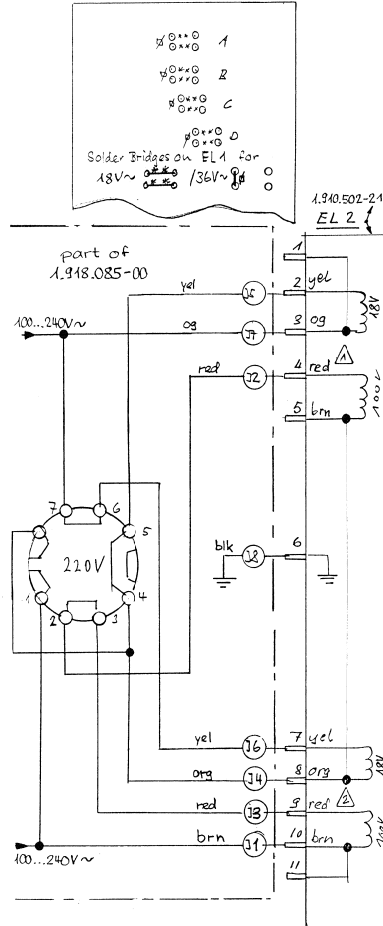
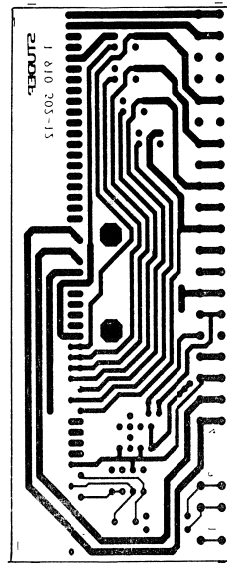
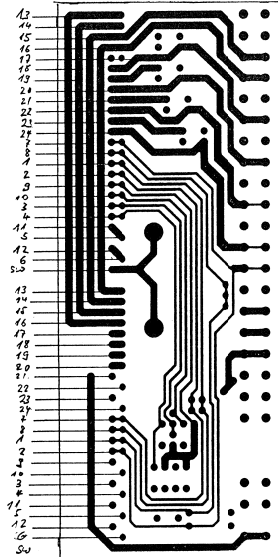
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PAGE 1 OF 1

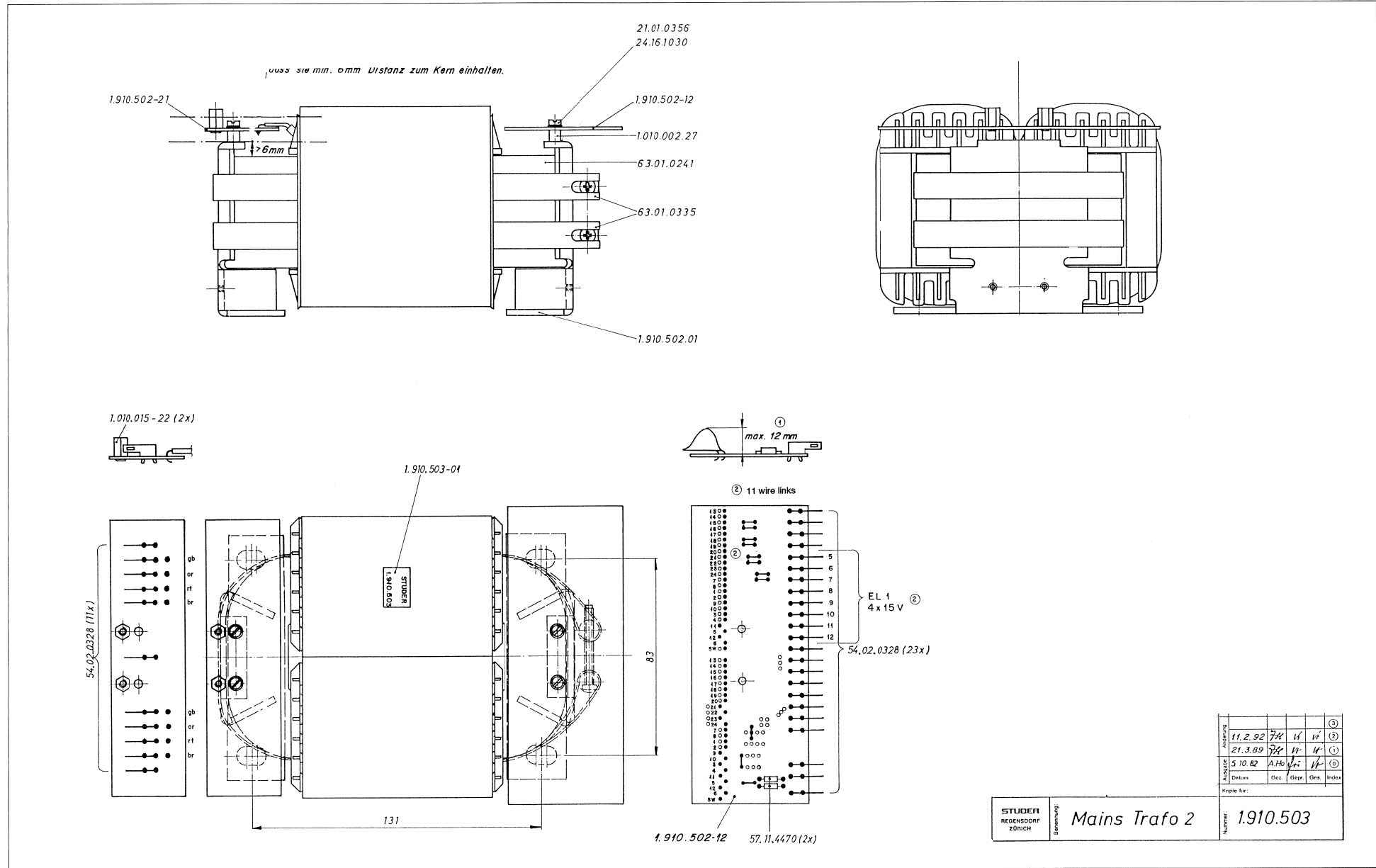
Mains Trafo 2

STUDER

1910.503.00



MAINS TRANSFORMER 2 1.910.503.00

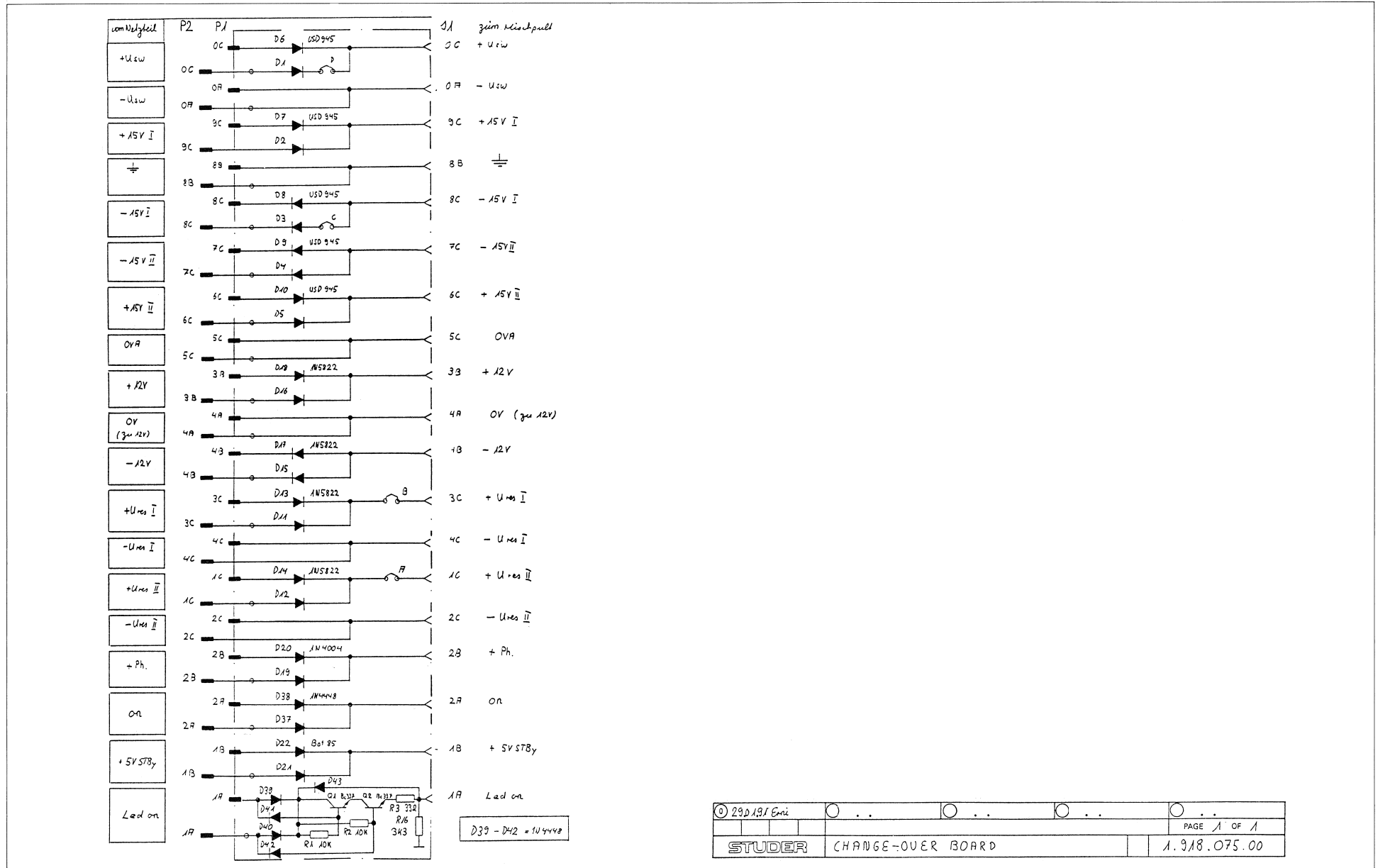


Zeichnung	Index	①
11.2.92	74	11
21.3.89	74	11
5.10.82	A.16	11

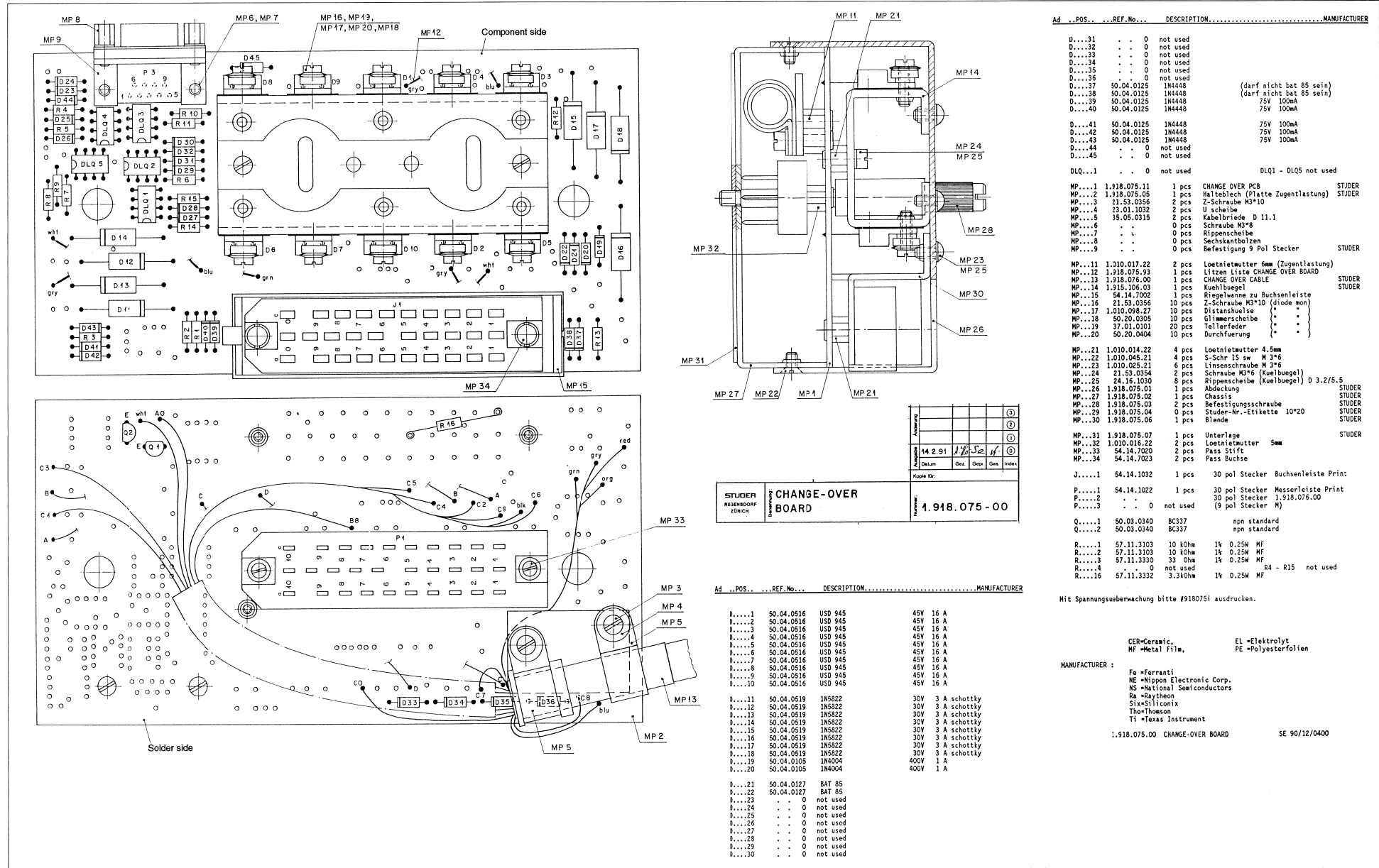
STUDER REGENSDORF ZÜRICH	Benennung:	Mains Trafo 2	Teilnummer:	1.910.503
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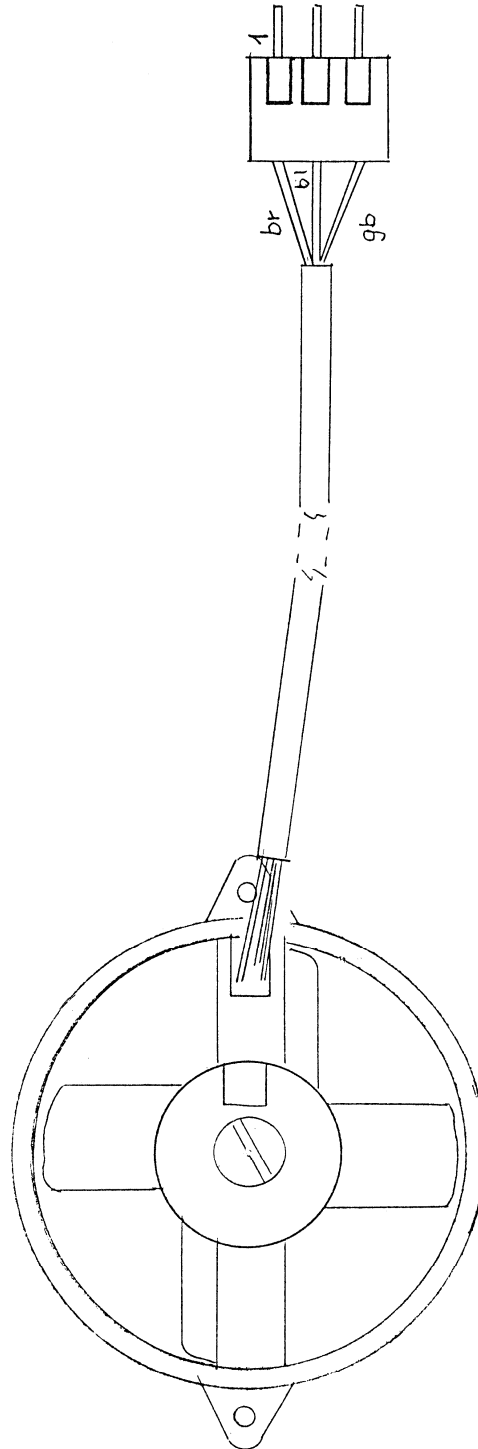
CHANGE-OVER BOARD 1.918.075.00



CHANGE-OVER BOARD 1.918.075.00

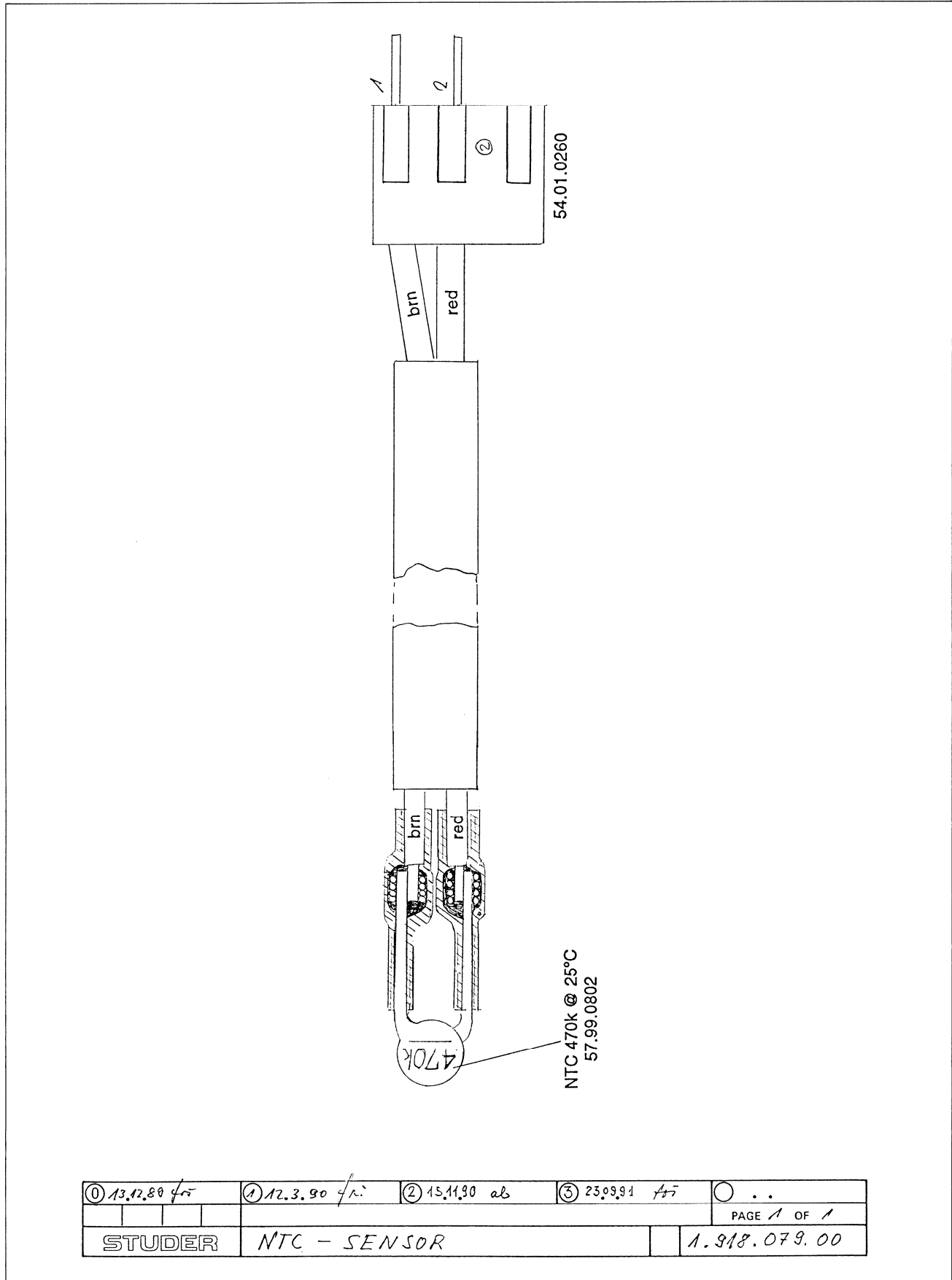


VENTILATOR 1.918.078.00

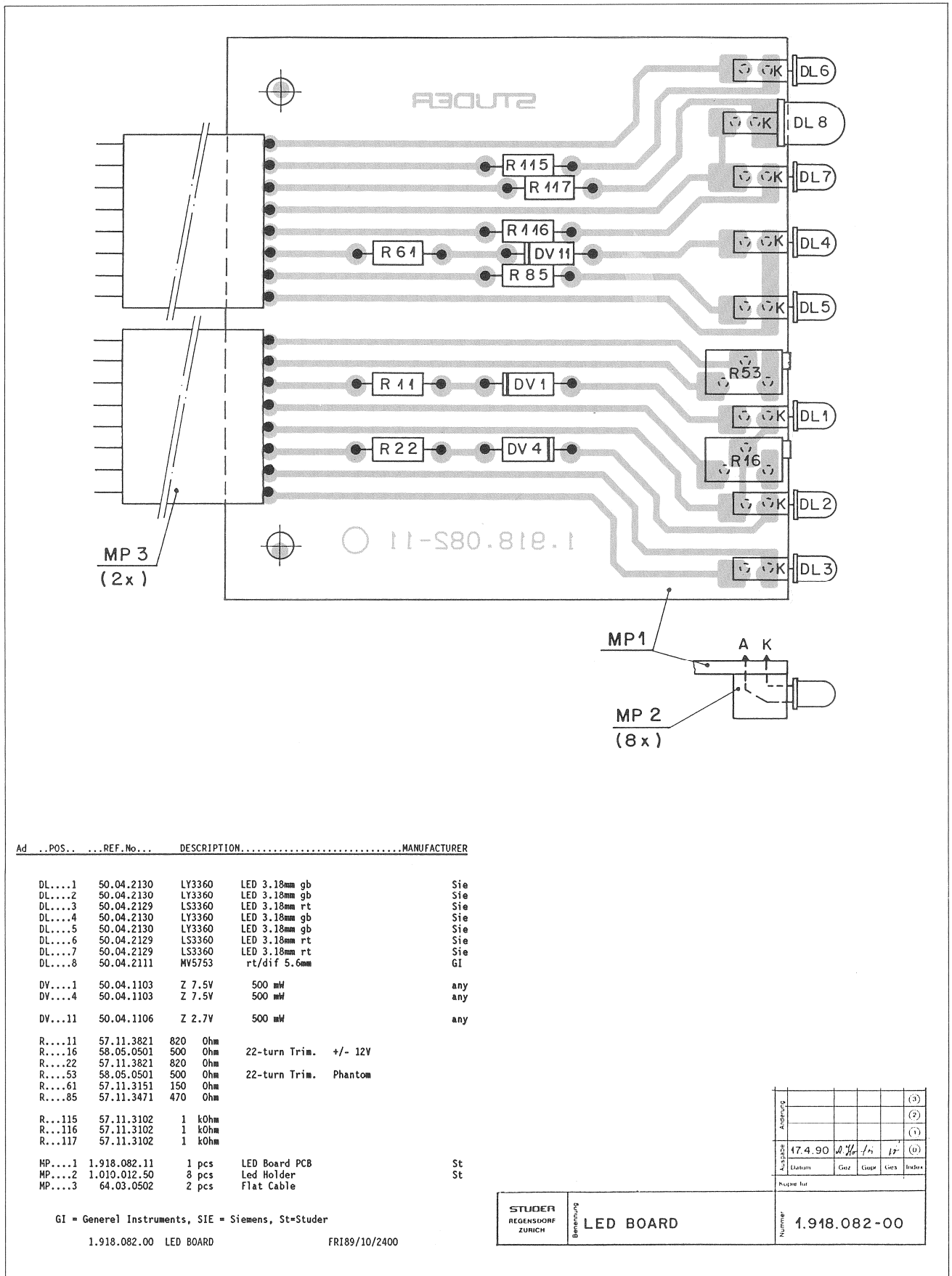


① 9.1.90 frp	① 15.11.90 ab	○ ..	○ ..	○ ..
				PAGE 1 OF 1
STUDER	VENTILATOR			1.918.078.00

NTC-SENSOR 1.918.079.00



LED BOARD 1.918.082.00



Ad . . . POS. . . . REF.No. . . . DESCRIPTION . . . . . MANUFACTURER

DL . . . 1	50.04.2130	LY3360	LED 3.18mm gb	Sie
DL . . . 2	50.04.2130	LY3360	LED 3.18mm gb	Sie
DL . . . 3	50.04.2129	LS3360	LED 3.18mm rt	Sie
DL . . . 4	50.04.2130	LY3360	LED 3.18mm gb	Sie
DL . . . 5	50.04.2130	LY3360	LED 3.18mm gb	Sie
DL . . . 6	50.04.2129	LS3360	LED 3.18mm rt	Sie
DL . . . 7	50.04.2129	LS3360	LED 3.18mm rt	Sie
DL . . . 8	50.04.2111	MV5753	rt/dif 5.6mm	GI
DV . . . 1	50.04.1103	Z 7.5V	500 mW	any
DV . . . 4	50.04.1103	Z 7.5V	500 mW	any
DV . . . 11	50.04.1106	Z 2.7V	500 mW	any
R . . . 11	57.11.3821	820 Ohm		
R . . . 16	58.05.0501	500 Ohm	22-turn Trim. +/- 12V	
R . . . 22	57.11.3821	820 Ohm		
R . . . 53	58.05.0501	500 Ohm	22-turn Trim. Phantom	
R . . . 61	57.11.3151	150 Ohm		
R . . . 85	57.11.3471	470 Ohm		
R . . . 115	57.11.3102	1 kOhm		
R . . . 116	57.11.3102	1 kOhm		
R . . . 117	57.11.3102	1 kOhm		
MP . . . 1	1.918.082.11	1 pcs	LED Board PCB	St
MP . . . 2	1.010.012.50	8 pcs	Led Holder	St
MP . . . 3	64.03.0502	2 pcs	Flat Cable	

GI = General Instruments, SIE = Siemens, St=Studer

1.918.082.00 LED BOARD

FRI89/10/2400

STUDER  
REGENSDORF  
ZURICH

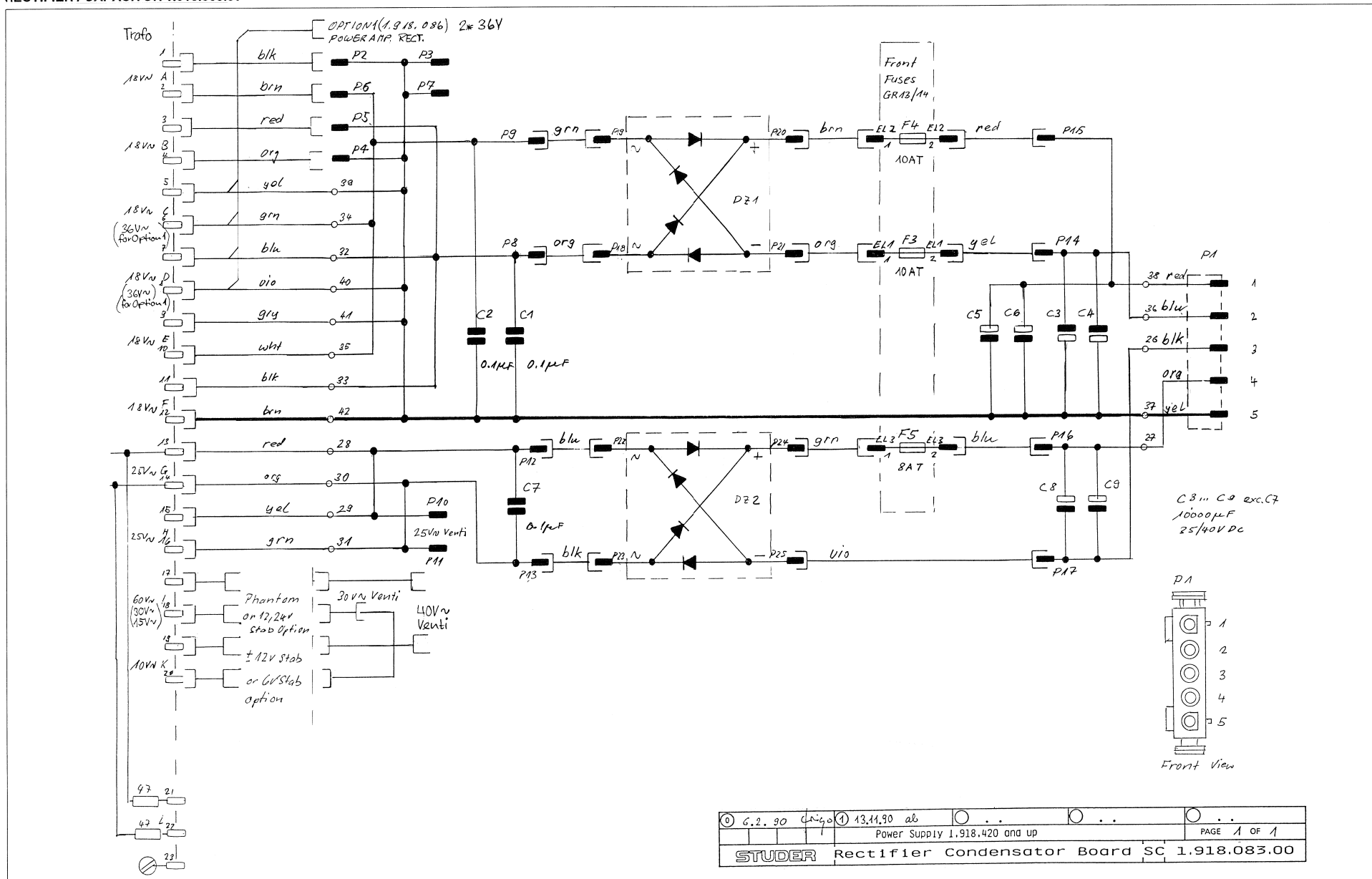
Benennung

LED BOARD

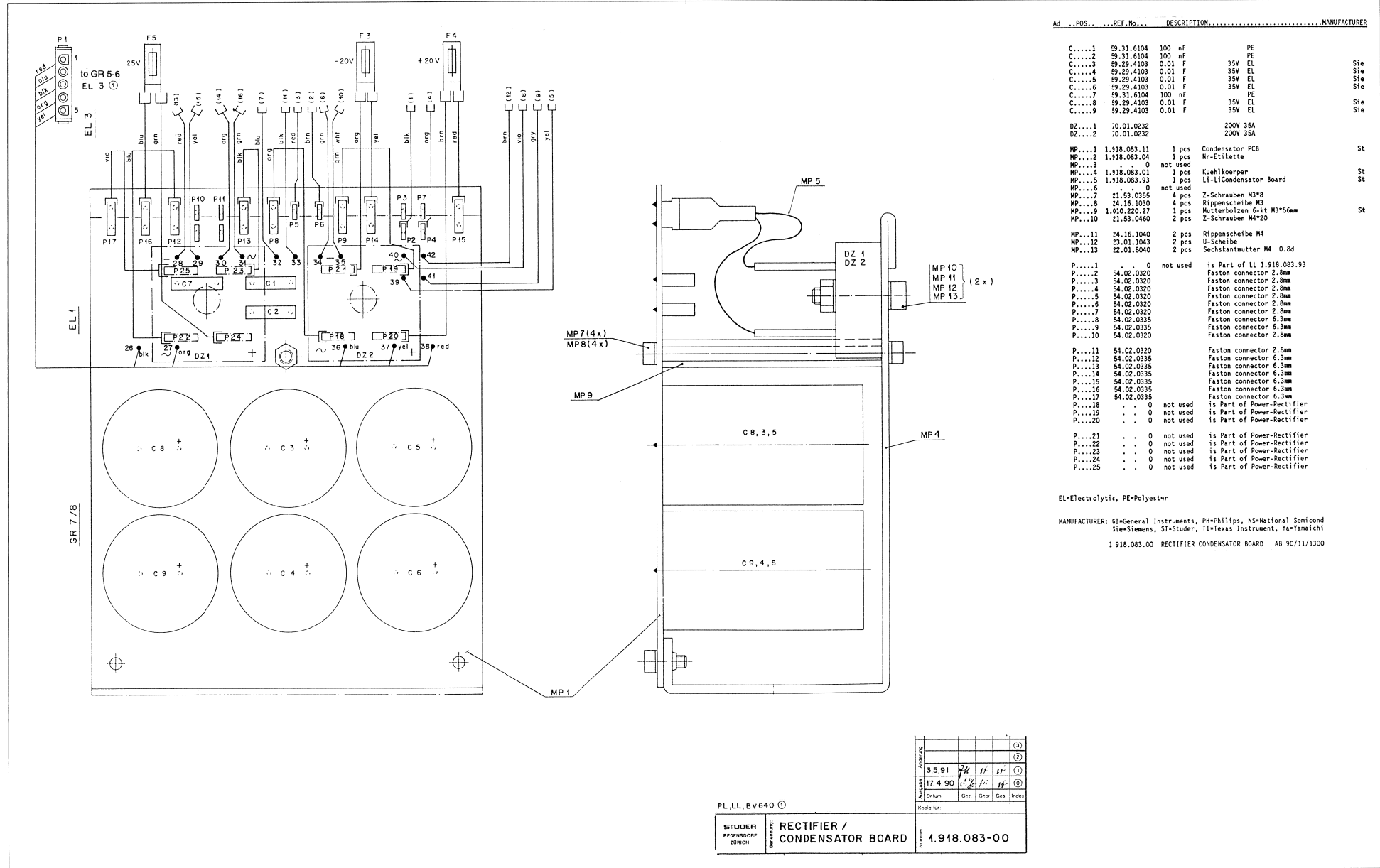
Änderung					(3)
					(2)
					(1)
Ausgabe	17.4.90	0.1/1	/s	12	(0)
Datum	Gez	Gepr	Gez	Gez	Gez
Proge für					

Nummer 1.918.082-00

RECTIFIER / CAPACITOR 1.918.083.00

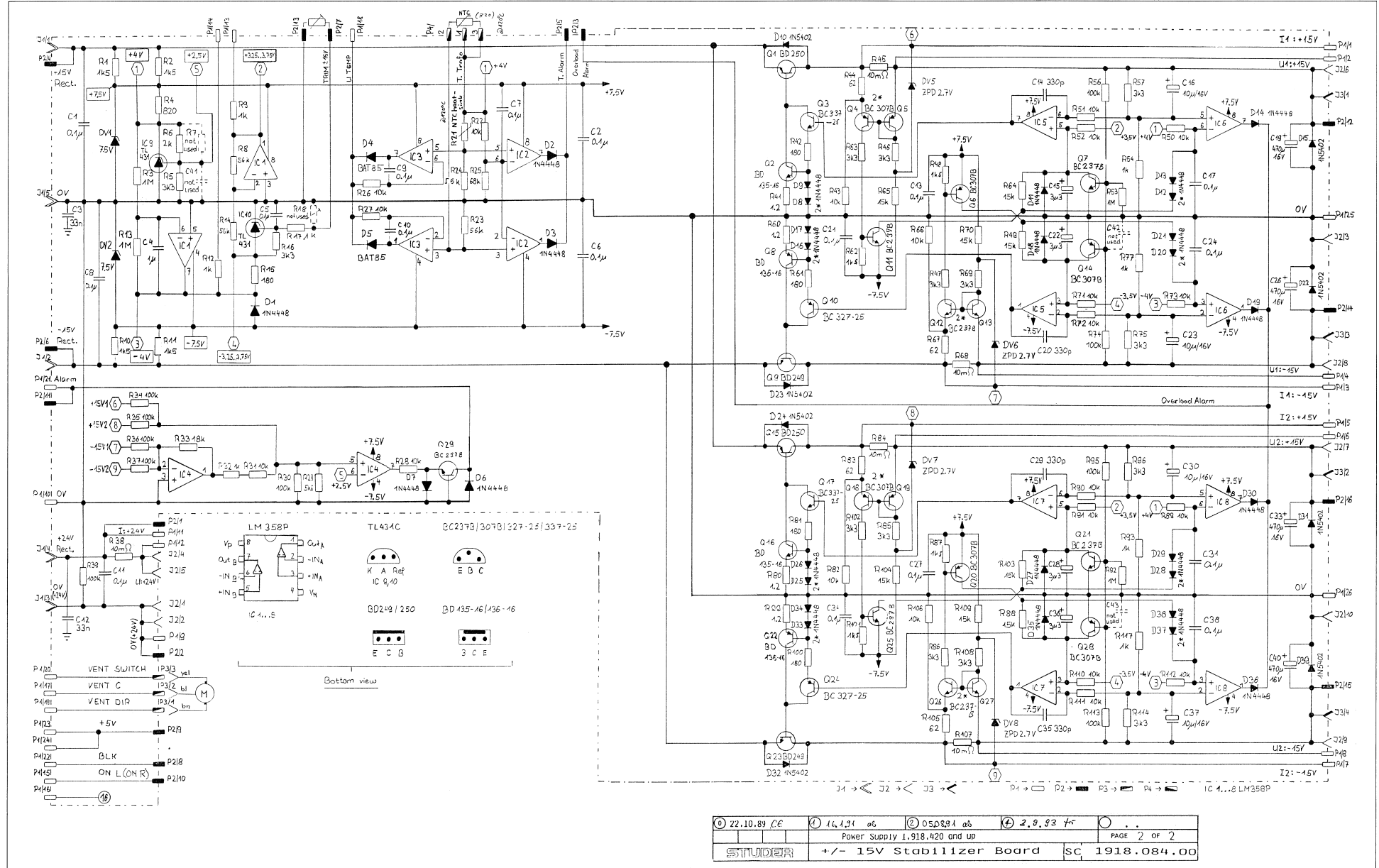


RECTIFIER / CAPACITOR 1.918.083.00





±15V STABILIZER BOARD 1.918.084.00

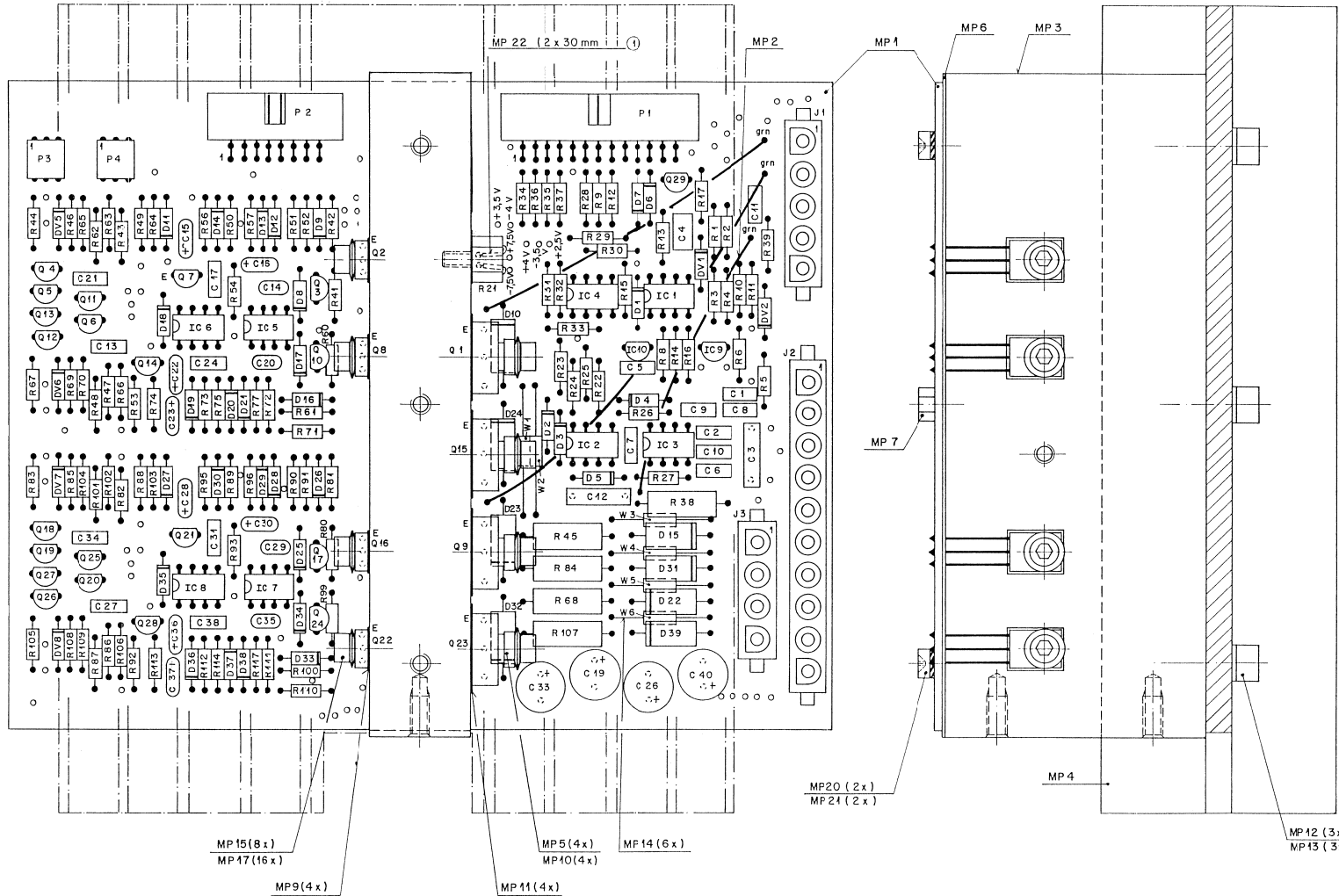


22.10.89 CE	16.1.91 ab	05D891 ab	2.9.92 fr	
Power Supply 1.918.420 and up				
PAGE 2 OF 2				
STUDER		+/- 15V Stabilizer Board		SC 1918.084.00





±15V STABILIZER BOARD 1.918.084.00



Author					
Checked	23.9.91	W. G. 108	11		
Released	18.5.90	W. G. 108	11		
Category	2	Category	Size	Order	Check
Kreuz für					

STUDER REGENSDORF ZÜRICH	Brandmark	+/- 15V STABILIZER BOARD	ESE
Number			1.918.084-00



±15V STABILIZER BOARD 1.918.084.00

Ad	POS	REF.No	DESCRIPTION	MANUFACTURER	Ad	POS	REF.No	DESCRIPTION	MANUFACTURER
C....1		59.06.0104	100 nF	PE					
C....2		59.06.0104	100 nF	PE	J....1	54.25.0005	5PIN	Power-Connector	
C....3		59.31.8333	33 nF	400V PE	J....2	54.25.0010	10PIN	Power-Connector	
C....4		59.06.0105	1 uF	PE	J....3	54.25.0004	4PIN	Power-Connector	
C....5		59.06.0104	100 nF	PE	MP...1	1.918.084.11	1 pcs	Print	St
C....6		59.06.0104	100 nF	PE	MP...2	1.918.084.93	1 pcs	Litzenliste	St
C....7		59.06.0104	100 nF	PE	MP...3	1.918.084.01	1 pcs	Kuehlprofiltraeger	St
C....8		59.06.0104	100 nF	PE	MP...4	1.918.084.02	1 pcs	Kuehlprofil	St
C....9		59.06.0104	100 nF	PE	MP...5	1.010.098.27	4 pcs	Distanzhuelse	St
C....10		59.06.0104	100 nF	PE	MP...6	1.918.084.03	1 pcs	Isolierunterlage	St
C....11		59.06.0104	100 nF	PE	MP...7	1.010.013.22	1 pcs	Nietmuttern M3*3mm	St
C....12		59.31.8333	33 nF	400V PE	MP...8	43.01.0108	1 pcs	ESE Warnschild	
C....13		59.06.0104	100 nF	PE	MP...9	50.20.0317	4 pcs	Glimmer TO 218	
C....14		59.34.4331	330 pF	CER	MP...10	50.20.0404	4 pcs	Durchfuhrung	
C....15		59.26.2339	3.3uF	16V SAL					
C....16		59.26.2100	10 uF	16V SAL	MP...11	50.20.0310	4 pcs	Glimmer TO 126	
C....17		59.06.0104	100 nF	PE	MP...12	21.53.0456	3 pcs	Schrauben M4*10mm Z	
C....18		0	not used		MP...13	24.16.1040	3 pcs	Rippenscheiben M4	
C....19		59.22.4471	470 uF	16V EL	MP...14	57.11.3000	6 pcs	0 Ohm Drahtbruecken W1...W6	
C....20		59.34.4331	330 pF	CER	MP...15	21.53.0355	8 pcs	Schrauben M3*8mm Z	
C....21		59.06.0104	100 nF	PE	02 MP...15	21.53.0356	8 pcs	Schrauben M3*10mm Z	
C....22		59.26.2339	3.3uF	16V SAL	MP...16	0	not used		
C....23		59.26.2100	10 uF	16V SAL	MP...17	37.01.0101	16 pcs	Federscheiben M3	
C....24		59.06.0104	100 nF	PE	03 MP...18	0	not used		
C....25		0	not used		03 MP...19	0	not used		
C....26		59.22.4471	470 uF	16V EL	MP...20	21.38.0355	2 pcs	Schrauben M3*8mm A2 Z	
C....27		59.06.0104	100 nF	PE	MP...21	24.16.2030	2 pcs	Faecherscheibe A d 3,2	
C....28		59.26.2339	3.3uF	16V SAL	03 MP...22	65.99.0111	2 * 30 mm	PTFE-Schlauch Spez. 0.89 * 0.152 mm	
C....29		59.34.4331	330 pF	CER					
C....30		59.26.2100	10 uF	16V SAL	P....1	54.14.2074	26PIN	PCB Flat-cable connector	Ya
C....31		59.06.0104	100 nF	PE	P....2	54.14.2072	16PIN	PCB Flat-cable connector	Ya
C....32		0	not used		P....3	54.01.0249	3PIN	CIS Connector	
C....33		59.22.4471	470 uF	16V EL	P....4	54.01.0249	3PIN	CIS Connector	
C....34		59.06.0104	100 nF	PE	Q....1	50.03.0951	BD 250	PNP	TI
C....35		59.34.4331	330 pF	CER	Q....2	50.03.0495	BD 135-16	NPN	Ph
C....36		59.26.2339	3.3uF	16V SAL	Q....3	50.03.0340	BC 337-25	NPN	any
C....37		59.26.2100	10 uF	16V SAL	Q....4	50.03.0515	BC 307B	PNP	any
C....38		59.06.0104	100 nF	PE	Q....5	50.03.0515	BC 307B	PNP	any
C....39		0	not used		Q....6	50.03.0515	BC 307B	PNP	any
C....40		59.22.4471	470 uF	16V EL	Q....7	50.03.0436	BC 237B	NPN	any
D....1		50.04.0125	1N 4448	Si Diode	any	any	any	any	any
D....2		50.04.0125	1N 4448	Si Diode	any	any	any	any	any
D....3		50.04.0125	1N 4448	Si Diode	any	any	any	any	any
D....4		50.04.0127	BAT 85	Schottky Diode	any	Q....11	50.03.0436	BC 237B	NPN
D....5		50.04.0127	BAT 85	Schottky Diode	any	Q....12	50.03.0436	BC 237B	NPN
D....6		50.04.0125	1N 4448	Si Diode	any	Q....13	50.03.0436	BC 237B	NPN
D....7		50.04.0125	1N 4448	Si Diode	any	Q....14	50.03.0515	BC 307B	PNP
D....8		50.04.0125	1N 4448	Si Diode	any	Q....15	50.03.0951	BD 250	PNP
D....9		50.04.0125	1N 4448	Si Diode	any	Q....16	50.03.0495	BD 135-16	NPN
D....10		50.04.0507	1N 5402	Si Diode 3A	any	Q....17	50.03.0340	BC 337-25	NPN
D....11		50.04.0125	1N 4448	Si Diode	any	Q....18	50.03.0515	BC 307B	PNP
D....12		50.04.0125	1N 4448	Si Diode	any	Q....19	50.03.0515	BC 307B	PNP
D....13		50.04.0125	1N 4448	Si Diode	any	Q....20	50.03.0515	BC 307B	PNP
D....14		50.04.0125	1N 4448	Si Diode	any	Q....21	50.03.0436	BC 237B	NPN
D....15		50.04.0507	1N 5402	Si Diode 3A	any	Q....22	50.03.0510	BD 136-16	NPN
D....16		50.04.0125	1N 4448	Si Diode	any	Q....23	50.03.0901	BD 249	PNP
D....17		50.04.0125	1N 4448	Si Diode	any	Q....24	50.03.0351	BC 327-25	NPN
D....18		50.04.0125	1N 4448	Si Diode	any	Q....25	50.03.0436	BC 237B	NPN
D....19		50.04.0125	1N 4448	Si Diode	any	Q....26	50.03.0436	BC 237B	NPN
D....20		50.04.0125	1N 4448	Si Diode	any	Q....27	50.03.0436	BC 237B	NPN
D....21		50.04.0125	1N 4448	Si Diode	any	Q....28	50.03.0515	BC 307B	PNP
D....22		50.04.0507	1N 5402	Si Diode 3A	any	Q....29	50.03.0436	BC 237B	NPN
D....23		50.04.0507	1N 5402	Si Diode 3A	any	R....1	57.11.3152	1.5 kOhm	1% 0.25W
D....24		50.04.0507	1N 5402	Si Diode 3A	any	R....2	57.11.3152	1.5 kOhm	1% 0.25W
D....25		50.04.0125	1N 4448	Si Diode	any	R....3	57.11.3105	1 MOhm	5% 0.25W
D....26		50.04.0125	1N 4448	Si Diode	any	R....4	57.11.3821	820 Ohm	1% 0.25W
D....27		50.04.0125	1N 4448	Si Diode	any	R....5	57.11.3332	3.3 kOhm	1% 0.25W
D....28		50.04.0125	1N 4448	Si Diode	any	R....6	57.11.3202	2 kOhm	1% 0.25W
D....29		50.04.0125	1N 4448	Si Diode	any	R....7	0	not used	
D....30		50.04.0125	1N 4448	Si Diode	any	R....8	57.11.3563	56 kOhm	1% 0.25W
D....31		50.04.0507	1N 5402	Si Diode 3A	any	R....9	57.11.3102	1 kOhm	1% 0.25W
D....32		50.04.0507	1N 5402	Si Diode 3A	any	R....10	57.11.3152	1.5 kOhm	1% 0.25W
D....33		50.04.0125	1N 4448	Si Diode	any	R....11	57.11.3152	1.5 kOhm	1% 0.25W
D....34		50.04.0125	1N 4448	Si Diode	any	R....12	57.11.3102	1 kOhm	1% 0.25W
D....35		50.04.0125	1N 4448	Si Diode	any	R....13	57.11.3105	1 MOhm	5% 0.25W
D....36		50.04.0125	1N 4448	Si Diode	any	R....14	57.11.3563	56 kOhm	1% 0.25W
D....37		50.04.0125	1N 4448	Si Diode	any	R....15	57.11.3181	180 Ohm	1% 0.25W
D....38		50.04.0125	1N 4448	Si Diode	any	R....16	57.11.3332	3.3 kOhm	1% 0.25W
D....39		50.04.0507	1N 5402	Si Diode 3A	any	R....17	57.11.3102	1 kOhm	1% 0.25W
DV....1		50.04.1503	ZPD 7.5V	Si Z-Diode 1.3W	any	R....18	0	not used	voltage adjust on board
DV....2		50.04.1503	ZPD 7.5V	Si Z-Diode 1.3W	any	R....19	0	not used	voltage adjust on 1.918.085, 2k ]] 2k2
DV....3		0	not used		any	R....20	0	not used	1.918.079.00 NTC-Sensor on Trafo
DV....4		0	not used						
DV....5		50.04.1106	ZPD 2.7V	Si Z-Diode 0.5W	any	03 R....21	57.99.0803	470 kOhm	10%, NTC
DV....6		50.04.1106	ZPD 2.7V	Si Z-Diode 0.5W	any	R....22	57.11.3103	10 kOhm	1% 0.25W
DV....7		50.04.1106	ZPD 2.7V	Si Z-Diode 0.5W	any	R....23	57.11.3563	56 kOhm	1% 0.25W
DV....8		50.04.1106	ZPD 2.7V	Si Z-Diode 0.5W	any	R....24	57.11.3563	56 kOhm	1% 0.25W
IC....1		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....25	57.11.3683	68 kOhm	1% 0.25W
IC....2		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....26	57.11.3103	10 kOhm	1% 0.25W
IC....3		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....27	57.11.3103	10 kOhm	1% 0.25W
IC....4		50.05.0286	LM 358P	Dual Op.Amp.	TI	02 R....28	57.11.3102	1 kOhm	1% 0.25W
IC....5		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....29	57.11.3103	10 kOhm	1% 0.25W
IC....6		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....30	57.11.3562	5.6 kOhm	1% 0.25W
IC....7		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....31	57.11.3104	100 kOhm	1% 0.25W
IC....8		50.05.0286	LM 358P	Dual Op.Amp.	TI	R....32	57.11.3103	10 kOhm	1% 0.25W
IC....9		50.10.0106	TL 431C	Shunt-Regulator	TI	R....33	57.11.3183	18 kOhm	1% 0.25W
IC....10		50.10.0106	TL 431C	Shunt-Regulator	TI	R....34	57.11.3104	100 kOhm	1% 0.25W

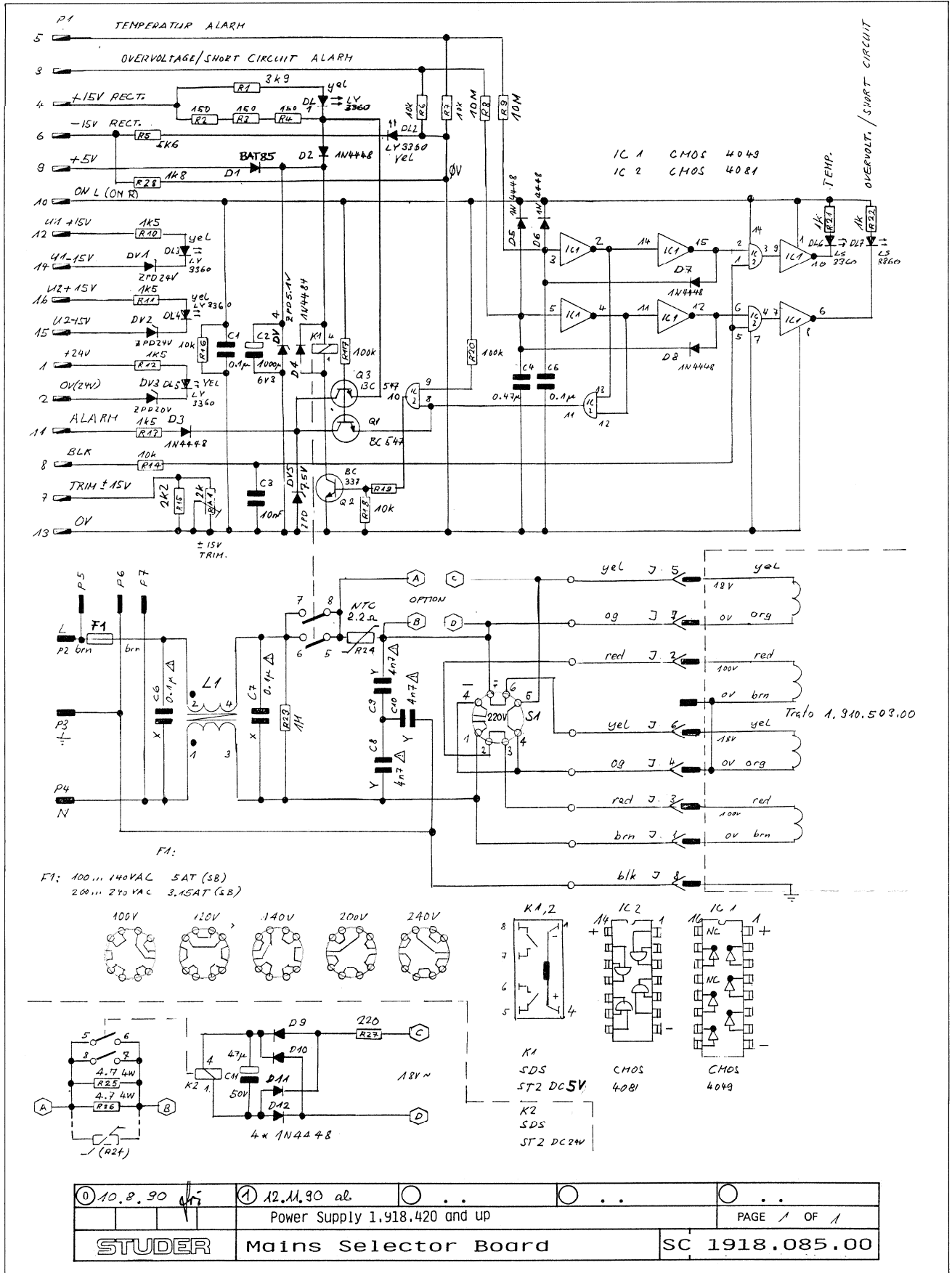


±15V STABILIZER BOARD 1.918.084.00

Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION.....	MANUFACTURER
	R....35	57.11.3104	100 kOhm	1%	0.25W			less current flow: R 28 new 10k instead of 1k	
	R....36	57.11.3104	100 kOhm	1%	0.25W				
	R....37	57.11.3104	100 kOhm	1%	0.25W				
	R....38	57.56.2010	10 mOhm	3%	3 W	(03)	91/09/23	Philips NTC Resistor #57.99.0208 is no longer available. R21 is now a Siemens NTC Resistor #57.99.0803 and the leads are insulated with 2 pcs. PTFE-tube #65.99.0111, L=30 mm. (MP22 position). MP18 & MP19 positions are no longer used.	
	R....39	57.11.3104	100 kOhm	1%	0.25W				
	R....40	. . . 0	not used						
	R....41	57.11.3129	1.2 Ohm	1%	0.25W				
	R....42	57.11.3181	180 Ohm	1%	0.25W	(04)	93/09/03	Current-Limiter set to appr. 9...J2A (before 6...9A) R 48, 62, 87, 101 new 1k2	
	R....43	57.11.3103	10 kOhm	1%	0.25W				
	R....44	57.11.3620	62 Ohm	1%	0.25W				
	R....45	57.56.2010	10 mOhm	3%	3 W				
	R....46	57.11.3332	3.3 kOhm	1%	0.25W				
	R....47	57.11.3332	3.3 kOhm	1%	0.25W				
	R....48	57.11.3102	1 kOhm	1%	0.25W				
01	R....48	57.11.3152	1.5 kOhm	1%	0.25W				
04	R....48	57.11.3122	1.2 kOhm	1%	0.25W				
	R....49	57.11.3153	15 kOhm	1%	0.25W				
	R....50	57.11.3103	10 kOhm	1%	0.25W				
	R....51	57.11.3103	10 kOhm	1%	0.25W				
	R....52	57.11.3103	10 kOhm	1%	0.25W				
	R....53	57.11.3105	1 MOhm	5%	0.25W				
	R....54	57.11.3102	1 kOhm	1%	0.25W				
	R....55	. . . 0	not used						
	R....56	57.11.3104	100 kOhm	1%	0.25W				
	R....57	57.11.3332	3.3 kOhm	1%	0.25W				
	R....58	. . . 0	not used						
	R....59	. . . 0	not used						
	R....60	57.11.3129	1.2 Ohm	1%	0.25W				
	R....61	57.11.3181	180 Ohm	1%	0.25W				
	R....62	57.11.3102	1 kOhm	1%	0.25W				
01	R....62	57.11.3152	1.5 kOhm	1%	0.25W				
04	R....62	57.11.3122	1.2 kOhm	1%	0.25W				
	R....63	57.11.3332	3.3 kOhm	1%	0.25W				
	R....64	57.11.3153	15 kOhm	1%	0.25W				
	R....65	57.11.3153	15 kOhm	1%	0.25W				
	R....66	57.11.3103	10 kOhm	1%	0.25W				
	R....67	57.11.3620	62 Ohm	1%	0.25W				
	R....68	57.56.2010	10 mOhm	3%	3 W				
	R....69	57.11.3332	3.3 kOhm	1%	0.25W				
	R....70	57.11.3153	15 kOhm	1%	0.25W				
	R....71	57.11.3103	10 kOhm	1%	0.25W				
	R....72	57.11.3103	10 kOhm	1%	0.25W				
	R....73	57.11.3103	10 kOhm	1%	0.25W				
	R....74	57.11.3104	100 kOhm	1%	0.25W				
	R....75	57.11.3332	3.3 kOhm	1%	0.25W				
	R....76	. . . 0	not used						
	R....77	57.11.3102	1 kOhm	1%	0.25W				
	R....78	. . . 0	not used						
	R....79	. . . 0	not used						
	R....80	57.11.3129	1.2 Ohm	1%	0.25W				
	R....81	57.11.3181	180 Ohm	1%	0.25W				
	R....82	57.11.3103	10 kOhm	1%	0.25W				
	R....83	57.11.3620	62 Ohm	1%	0.25W				
	R....84	57.56.2010	10 mOhm	3%	3 W				
	R....85	57.11.3332	3.3 kOhm	1%	0.25W				
	R....86	57.11.3332	3.3 kOhm	1%	0.25W				
	R....87	57.11.3102	1 kOhm	1%	0.25W				
01	R....87	57.11.3152	1.5 kOhm	1%	0.25W				
04	R....87	57.11.3122	1.2 kOhm	1%	0.25W				
	R....88	57.11.3153	15 kOhm	1%	0.25W				
	R....89	57.11.3103	10 kOhm	1%	0.25W				
	R....90	57.11.3103	10 kOhm	1%	0.25W				
	R....91	57.11.3103	10 kOhm	1%	0.25W				
	R....92	57.11.3105	1 MOhm	5%	0.25W				
	R....93	57.11.3102	1 kOhm	1%	0.25W				
	R....94	. . . 0	not used						
	R....95	57.11.3104	100 kOhm	1%	0.25W				
	R....96	57.11.3332	3.3 kOhm	1%	0.25W				
	R....97	. . . 0	not used						
	R....98	. . . 0	not used						
	R....99	57.11.3129	1.2 Ohm	1%	0.25W				
	R...100	57.11.3181	180 Ohm	1%	0.25W				
	R...101	57.11.3102	1 kOhm	1%	0.25W				
01	R...101	57.11.3152	1.5 kOhm	1%	0.25W				
04	R...101	57.11.3122	1.2 kOhm	1%	0.25W				
	R...102	57.11.3332	3.3 kOhm	1%	0.25W				
	R...103	57.11.3153	15 kOhm	1%	0.25W				
	R...104	57.11.3153	15 kOhm	1%	0.25W				
	R...105	57.11.3620	62 Ohm	1%	0.25W				
	R...106	57.11.3103	10 kOhm	1%	0.25W				
	R...107	57.56.2010	10 mOhm	3%	3 W				
	R...108	57.11.3332	3.3 kOhm	1%	0.25W				
	R...109	57.11.3153	15 kOhm	1%	0.25W				
	R...110	57.11.3103	10 kOhm	1%	0.25W				
	R...111	57.11.3103	10 kOhm	1%	0.25W				
	R...112	57.11.3103	10 kOhm	1%	0.25W				
	R...113	57.11.3104	100 kOhm	1%	0.25W				
	R...114	57.11.3332	3.3 kOhm	1%	0.25W				
	R...115	. . . 0	not used						
	R...116	. . . 0	not used						
	R...117	57.11.3102	1 kOhm	1%	0.25W				
	W.....0	. . .						see MP 14	
	(01)	91/01/16	Current-Limiter set to appr. 6...9A (before 12...15 A) R 48, 62, 87, 101 new 1k5						
	(02)	91/08/05	Screws (MP 15) longer						

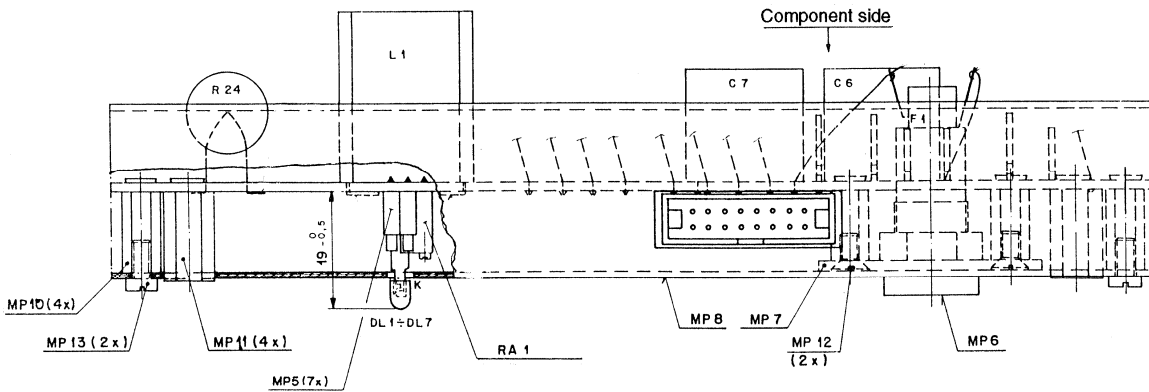
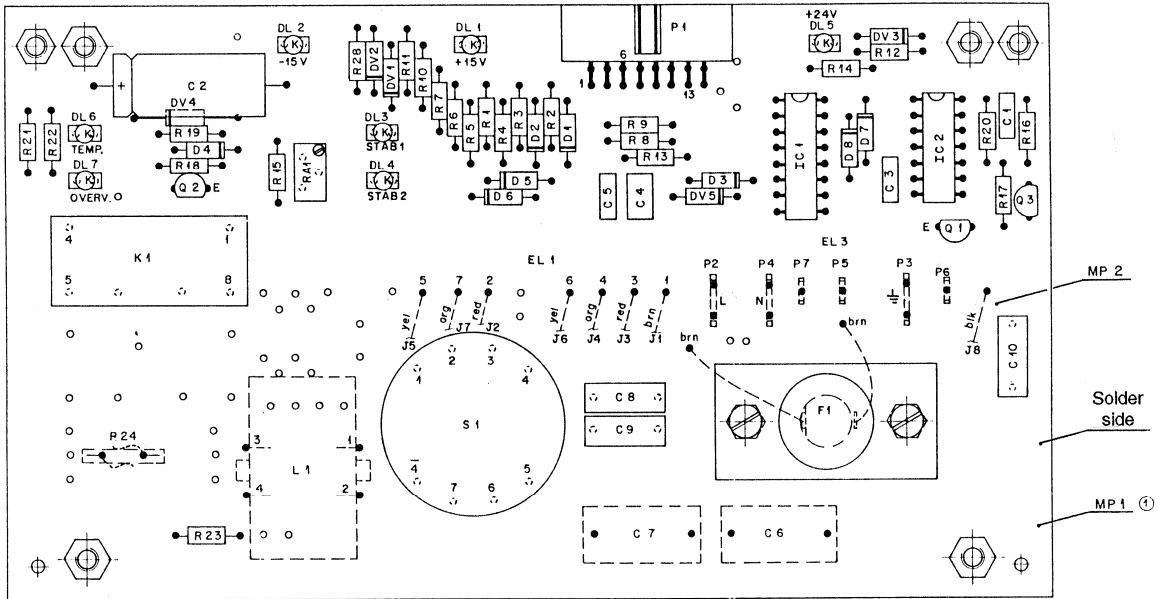


MAINS SELECTOR BOARD 1.918.085.00





MAINS SELECTOR BOARD 1.918.085.00



					(3)
					(2)
23.4.91	1/2	caB	1/2		(1)
15.5.90	1/2	fr	1/2		(0)
Datum	Gez	Gepr	Gas	Index	

Kopie für

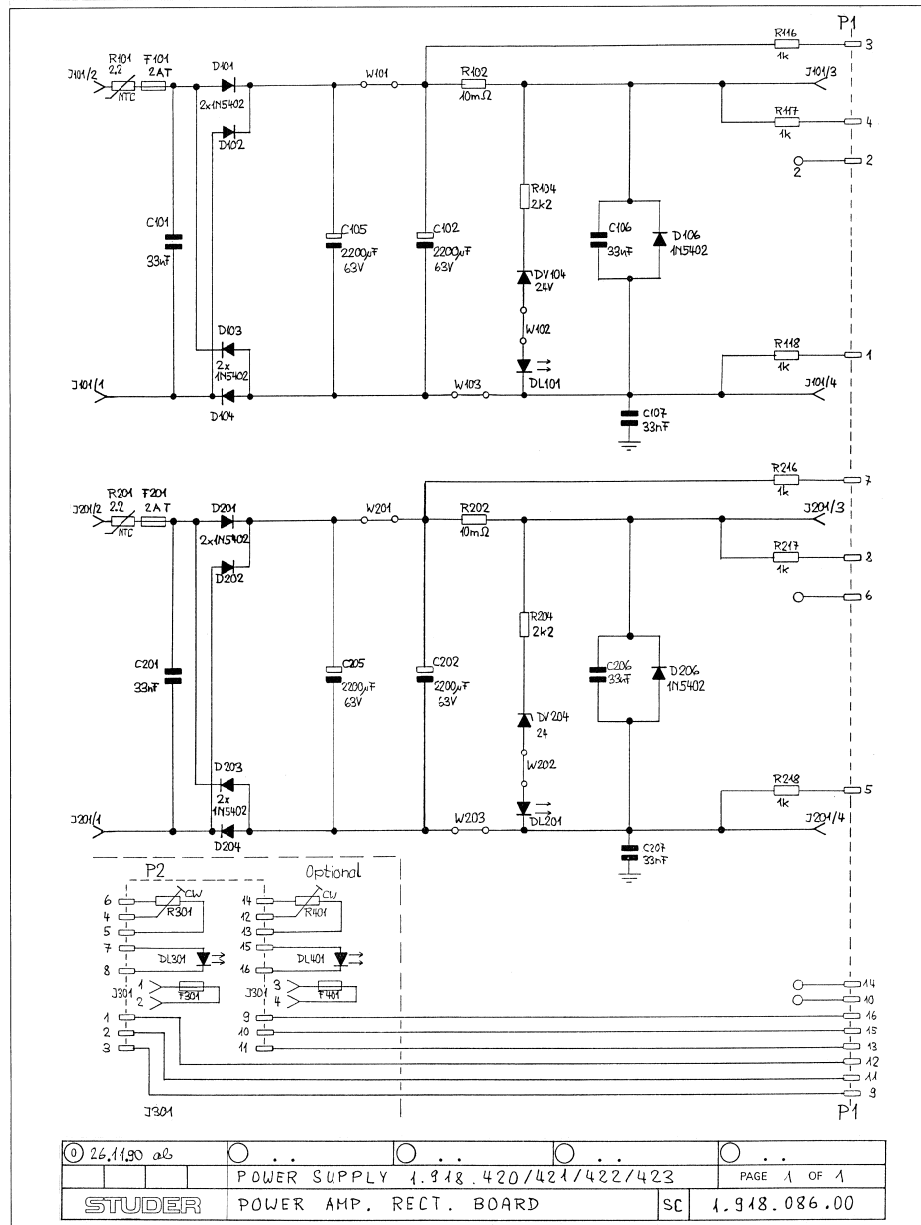
STUDER REGENSDORF ZÜRICH	Benennung:	MAINS SELECTOR BOARD ESE		Nummer: 1.918.085-00



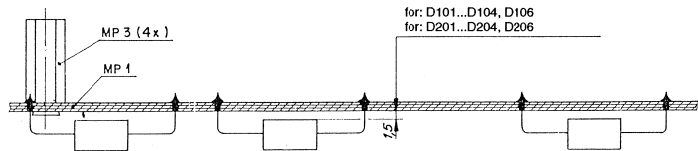
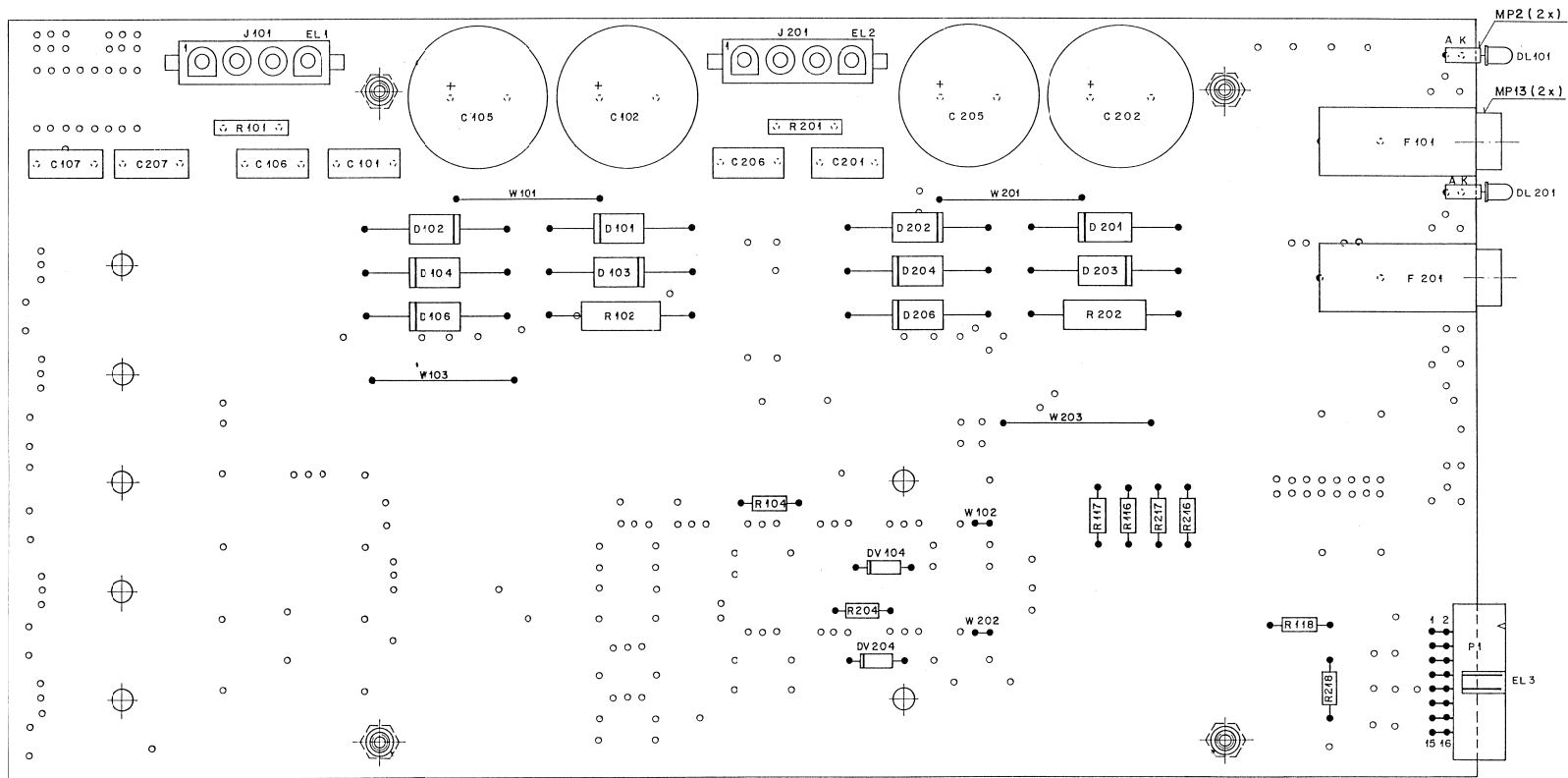
MAINS SELECTOR BOARD 1.918.085.00

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER
C.....1		59.06.0104	100 nF	PE	R....24		57.93.1229	2.2 Ohm	NTC
C.....2		59.25.1102	1000 uF	6,3V EL	02 R....25		. . 0	not used	57.56.5479, 4,7 Ohm, 4 Watt, option
C.....3		59.06.0103	10 nF	PE	02 R....26		. . 0	not used	57.56.5479, 4,7 Ohm, 4 Watt, option
C.....4		59.06.0474	470 nF	PE	02 R....27		. . 0	not used	57.11.3221, 220 Ohm option
C.....5		59.06.0104	100 nF	PE	01 R....28		57.11.3162	1.8kOhm	
C.....6		59.14.3104	0,1uF	300VAC +/-20% X-2	Sie				
C.....7		59.14.3104	0,1uF	300VAC +/-20% X-2	Sie				
C.....8		59.14.0472	4,7nF	250VAC IEC 65 Y	Ri				
C.....9		59.14.0472	4,7nF	250VAC IEC 65 Y	Ri				
C.....10		59.14.0472	4,7nF	250VAC IEC 65 Y	Ri				
02 C....11		. . 0	not used	59.22.8470, 47uF, 63V, EL	option				
D.....1		50.04.0125	1N4448		any				
02 D.....1		50.04.0127	BAT 85	Schottky	any				
D.....2		50.04.0125	1N4448		any				
D.....3		50.04.0125	1N4448		any				
D.....4		50.04.0125	1N4448		any				
D.....5		50.04.0125	1N4448		any				
D.....6		50.04.0125	1N4448		any				
D.....7		50.04.0125	1N4448		any				
D.....8		50.04.0125	1N4448		any				
02 D.....9		. . 0	not used	50.04.0125, 1N4448	option				
02 D....10		. . 0	not used	50.04.0125, 1N4448	option				
02 D....11		. . 0	not used	50.04.0125, 1N4448	option				
02 D....12		. . 0	not used	50.04.0125, 1N4448	option				
DL....1		50.04.2130	LY3360	LED 3.18mm gb	Sie				
DL....2		50.04.2130	LY3360	LED 3.18mm gb	Sie				
DL....3		50.04.2130	LY3360	LED 3.18mm gb	Sie				
DL....4		50.04.2130	LY3360	LED 3.18mm gb	Sie				
DL....5		50.04.2130	LY3360	LED 3.18mm gb	Sie				
DL....6		50.04.2129	LS3360	LED 3.18mm rt	Sie				
DL....7		50.04.2129	LS3360	LED 3.18mm rt	Sie				
DV....1		50.04.1121	Z24 Y	500 mW	any				
DV....2		50.04.1121	Z24 Y	500 mW	any				
DV....3		50.04.1109	Z20 Y	500 mW	any				
DV....4		50.04.1112	Z 5.1V	500 mW	any				
DV....5		50.04.1112	Z 5.1V	500 mW	any				
01 DV....5		50.04.1103	Z 7.5V	500 mW	any				
F.....1		51.01.0122	3.15 AT	Slow blow					
IC....1		50.07.0049	4049	CMOS hex inverting buffer	Ph				
IC....2		50.07.0081	4081	CMOS Quad 2-Input AND Gate	Ph				
K.....1		56.04.0181	6V	Power Supply Relais	SDS				
02 K.....1		56.04.0181	5V	Power Supply Relais	SDS				
02 K.....2		. . 0	not used	56.04.0181, SDS-Relais 24V, ST2-24V	option				
L.....1		62.03.0105	1.8mH	I=5A	TOK				
MP....1		1.918.085.11	1 pcs	Print	St				
MP....2		1.918.085.93	1 pcs	Litzenliste	St				
MP....3		43.01.0108	1 pcs	ESE Warnschild					
02 MP....4		. . 0	not used						
02 MP....5		53.03.0240	7 pcs	Led sockel					
02 MP....6		53.03.0106	1 pcs	Sicherungshalter					
02 MP....7		1.918.085.01	1 pcs	Sicherungshalteblech	St				
02 MP....8		1.918.085.02	1 pcs	Isolierabdeckung	St				
02 MP....9		1.918.085.04	1 pcs	Nr. Etiketle	St				
02 MP....10		1.010.058.22	4 pcs	Nietmutter M3*13mm	St				
02 MP....11		1.010.046.22	4 pcs	Nietmutter M3*14.5mm	St				
02 MP....12		21.01.2354	2 pcs	S-Schraube M3*6mm					
02 MP....13		21.99.0117	2 pcs	Z-Schraube M3*6mm Nylon					
P.....1		54.14.2072	16 pin	PCB connector side entry male					
P.....2		54.02.0335	6.3mm	Flat Pin Connector					
P.....3		54.02.0335	6.3mm	Flat Pin Connector					
P.....4		54.02.0335	6.3mm	Flat Pin Connector					
P.....5		54.02.0320	2.8mm	Flat Pin Connector					
P.....6		54.02.0320	2.8mm	Flat Pin Connector					
P.....7		54.02.0320	2.8mm	Flat Pin Connector					
Q.....1		50.03.0436	BC 547B	NPN	any				
Q.....2		50.03.0340	BC 337	NPN	any				
01 Q.....3		50.03.0436	BC 547B	NPN	any				
R....1		57.11.3392	3.9kOhm						
R....2		57.11.3151	150 Ohm						
R....3		57.11.3151	150 Ohm						
R....4		57.11.3151	150 Ohm						
R....5		57.11.3562	5.6kOhm						
R....6		57.11.3103	10 kOhm						
R....7		57.11.3103	10 kOhm						
R....8		57.11.3105	1 MOhm						
01 R....8		57.11.5106	10 MOhm						
R....9		57.11.3105	1 MOhm						
01 R....9		57.11.5106	10 MOhm						
R....10		57.11.3152	1.5kOhm						
R....11		57.11.3152	1.5kOhm						
R....12		57.11.3152	1.5kOhm						
R....13		57.11.3152	1.5kOhm						
R....14		57.11.3103	10 kOhm						
R....15		57.11.3222	2.2kOhm						
R....16		57.11.3103	10 kOhm						
R....17		57.11.3104	100 kOhm						
R....18		57.11.3103	10 kOhm						
R....19		57.11.3103	10 kOhm						
R....20		57.11.3104	100 kOhm						
R....21		57.11.3102	1 kOhm						
R....22		57.11.3102	1 kOhm						
R....23		57.11.3105	1 MOhm						

POWER AMPLIFIER RECTIFIER BOARD 1.918.086.00



POWER AMPLIFIER RECTIFIER BOARD 1.918.086.00



for: D101...D104, D106  
for: D201...D204, D206

STUDBER REGENSDORF ZÜRICH	Bauzeichnung: <b>POWER AMP. RECT. BOARD</b>	Kopie für:		1
		1.918.086-00		

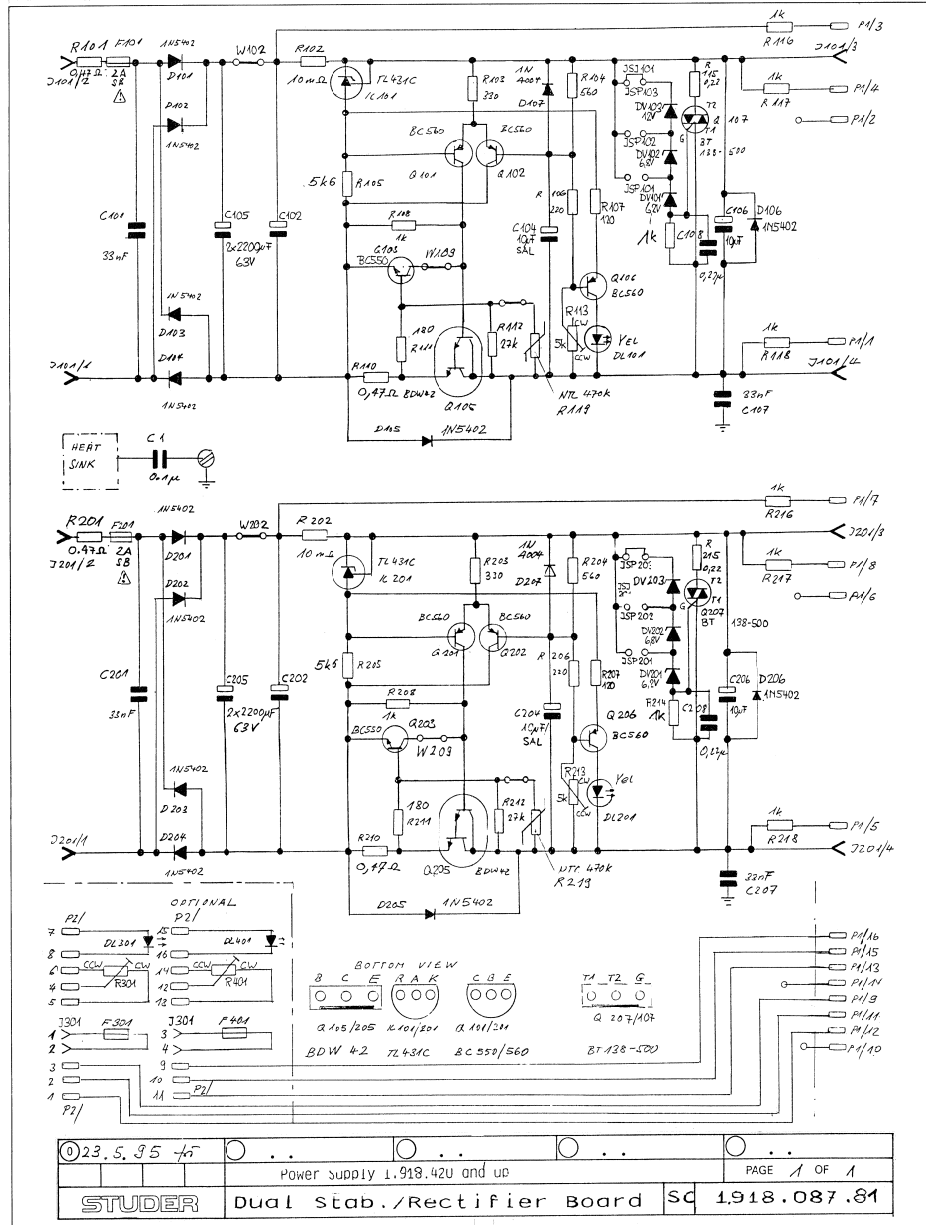
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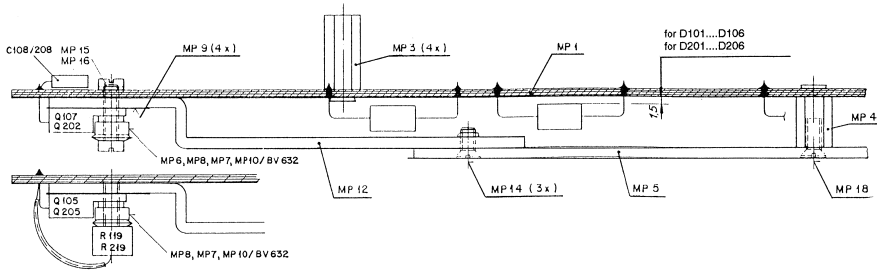
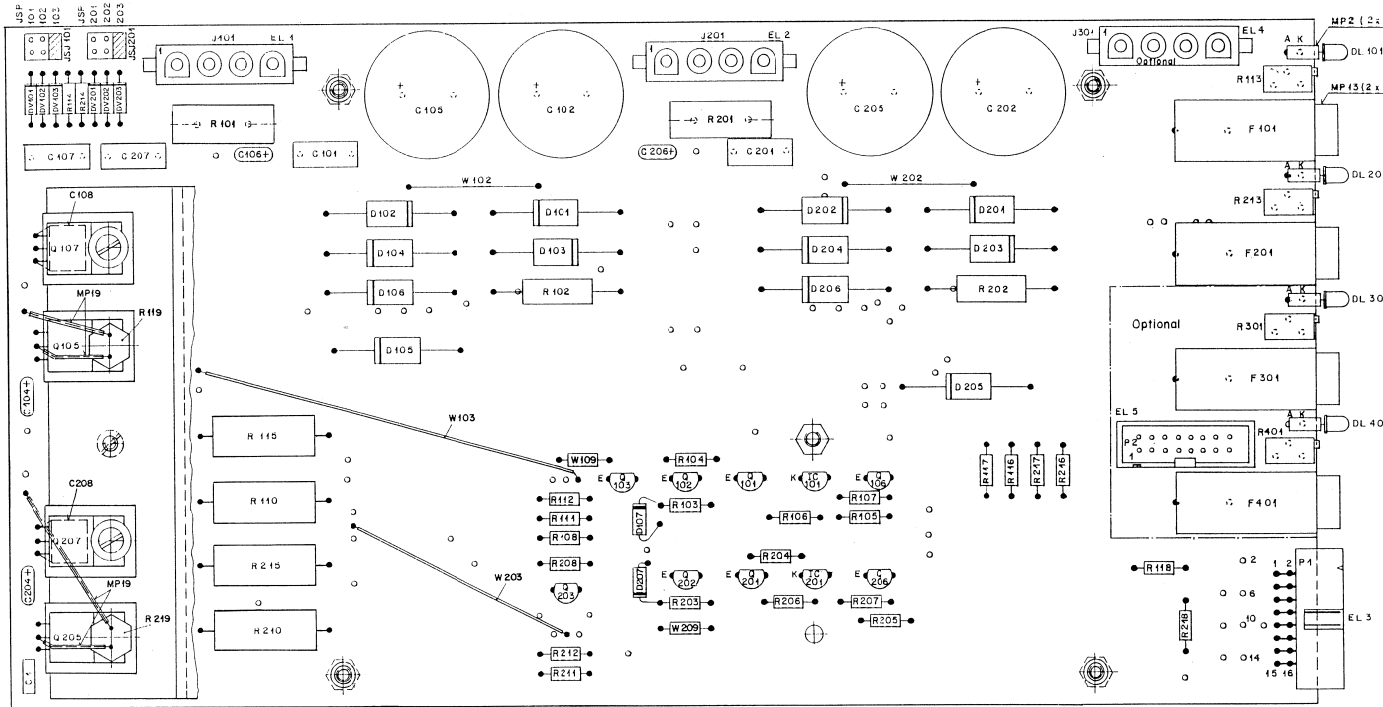
POWER AMPLIFIER RECTIFIER BOARD 1.918.086.00

Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER	Ad	..POS..	..REF.No..	DESCRIPTION	MANUFACTURER
C....1	.	0	NOT USED		R...207	.	0	NOT USED	
C...101	59.31.8333	.033 uF	10%, 400V , PE		R...208	.	0	NOT USED	
C...102	59.29.5222	2200 uF	20%, 63 V , EL		R...209	.	0	NOT USED	
C...103	.	0	NOT USED		R...210	.	0	NOT USED	
C...104	.	0	NOT USED		R...211	.	0	NOT USED	
C...105	59.29.5222	2200 uF	20%, 63 V , EL		R...212	.	0	NOT USED	
C...106	59.31.8333	.033 uF	10%, 400V , PE		R...213	.	0	NOT USED	
C...107	59.31.8333	.033 uF	10%, 400V , PE		R...214	.	0	NOT USED	
C...201	59.31.8333	.033 uF	10%, 400V , PE		R...215	.	0	NOT USED	
C...202	59.29.5222	2200 uF	20%, 63 V , EL		R...216	57.11.3102	1 kOhm	10%, .5 W	
C...203	.	0	NOT USED		R...217	57.11.3102	1 kOhm	10%, .5 W	
C...204	.	0	NOT USED		R...218	57.11.3102	1 kOhm	10%, .5 W	
C...205	59.29.5222	2200 uF	20%, 63 V , EL		R...301	.	0	not used	58.05.0502, 5 kOhm 10%, .5 W, Option 1
C...206	59.31.8333	.033 uF	10%, 400V , PE		R...401	.	0	not used	58.05.0502, 5 kOhm 10%, .5 W, Option 1
C...207	59.31.8333	.033 uF	10%, 400V , PE		W...101	57.11.3000	0 Ohm	Wiring bridge	
D...101	50.04.0507	MR 502	1N 5402, 200 V, 3 A		W...102	1.010.329.64	2.5mm	Wiring bridge	
D...102	50.04.0507	MR 502	1N 5402, 200 V, 3 A		W...103	57.11.3000	0 Ohm	Wiring bridge	
D...103	50.04.0507	MR 502	1N 5402, 200 V, 3 A		W...201	57.11.3000	0 Ohm	Wiring bridge	
D...104	50.04.0507	MR 502	1N 5402, 200 V, 3 A		W...202	1.010.329.64	2.5mm	Wiring bridge	
D...105	.	0	NOT USED		W...203	57.11.3000	0 Ohm	Wiring bridge	
D...106	50.04.0507	MR 502	1N 5402,						
D...201	50.04.0507	MR 502	1N 5402,		Pos # 1...99	:	Global		
D...202	50.04.0507	MR 502	1N 5402,		101..199	:	for U 1		
D...203	50.04.0507	MR 502	1N 5402,		201..299	:	for U 2		
D...204	50.04.0507	MR 502	1N 5402,		301..499	:	for U 3, U 4 (Option 1)		
D...205	.	0	NOT USED						
D...206	50.04.0507	MR 502	1N 5402,						
DL..101	50.04.2130	LY 3360	yellow diff.						
DL..201	50.04.2130	LY 3360	yellow diff.						
DL..301	.	0	not used	Option 1					
DL..401	.	0	not used	Option 1					
DV..101	.	0	NOT USED						
DV..102	.	0	NOT USED						
DV..103	.	0	NOT USED						
DV..104	50.04.1121	24 V	5%, .40W, Z,						
DV..201	.	0	NOT USED						
DV..202	.	0	NOT USED						
DV..203	.	0	NOT USED						
DV..204	50.04.1121	24 V	5%, .40W, Z,						
F....0	.	.	Fuseholder see MP 13						
F...101	51.01.0120		T2.0A/ 250V, 5 * 20						
F...201	51.01.0120		T2.0A/ 250V, 5 * 20						
F...301	.	0	not used	Option 1					
F...401	.	0	not used	Option 1					
J...101	54.25.0004		Power-Conn., 4 POL 16 A	AMP					
J...201	54.25.0004		Power-Conn., 4 POL 16 A	AMP					
J...301	.	0	not used	Option 1					
MP...1	1.918.086.11		Power Amp.Rect. PCB	St					
MP...2	1.010.012.50	2 pcs	Diodenhalter						
MP...3	1.010.046.22	4 pcs	Nietmutter, M 3 * 14.5						
MP...4	.	0	NOT USED						
MP...5	.	0	NOT USED						
MP...6	.	0	NOT USED						
MP...7	.	0	NOT USED						
MP...8	.	0	NOT USED						
MP...9	.	0	NOT USED						
MP...10	.	0	NOT USED						
MP...11	.	0	NOT USED						
MP...12	.	0	NOT USED						
MP...13	53.03.0145	2 pcs	Sicherungshalter liegend 5*20						
MP...14	.	0	NOT USED						
MP...15	.	0	NOT USED						
MP...16	.	0	NOT USED						
MP...17	1.918.086.04		Nr.-Etikette 5 * 20						
MP...18	.	0	NOT USED						
P....1	54.14.2072	16 pin	Plug, SN, (Winkel), Diagnostic	Option 1					
P....2	.	0	not used						
R...101	57.93.1229	2.2 Ohm	NTC, Surge-suppressor						
R...102	57.56.2010	10 mOhm	5%, 3 W						
R...103	.	0	NOT USED						
R...104	57.11.3222	2.2 kOhm	10%, .5 W						
R...105	.	0	NOT USED						
R...106	.	0	NOT USED						
R...107	.	0	NOT USED						
R...108	.	0	NOT USED						
R...109	.	0	NOT USED						
R...110	.	0	NOT USED						
R...111	.	0	NOT USED						
R...112	.	0	NOT USED						
R...113	.	0	NOT USED						
R...114	.	0	NOT USED						
R...115	.	0	NOT USED						
R...116	57.11.3102	1 kOhm	10%, .5 W						
R...117	57.11.3102	1 kOhm	10%, .5 W						
R...118	57.11.3102	1 kOhm	10%, .5 W						
R...201	57.93.1229	2.2 Ohm	NTC, Surge-suppressor						
R...202	57.56.2010	10 mOhm	5%, 3 W						
R...203	.	0	NOT USED						
R...204	57.11.3222	2.2 kOhm	10%, .5 W						
R...205	.	0	NOT USED						
R...206	.	0	NOT USED						

± DUAL STABILIZER RECTIFIER BOARD 1.918.087.81



± DUAL STABILIZER RECTIFIER BOARD 1.918.087.81



Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
C....1	59.06.0104	0.1 uF	10%, 63V, PE	
C...101	59.31.8333	.033 uF	10%, 400V, PE	
C...102	59.29.5222	2200 uF	20%, 63 V, EL	
C...104	59.26.5100	10 uF	20%, 25V, SAL	
C...105	59.29.5222	2200 uF	20%, 63 V, EL	
C...106	59.26.5100	10 uF	20%, 25V, SAL	
C...107	59.31.8333	.033 uF	10%, 400V, PE	
C...108	59.06.0224	.22 uF	10%, 63V, PE	
C...201	59.31.8333	.033 uF	10%, 400V, PE	
C...202	59.29.5222	2200 uF	20%, 63 V, EL	
C...204	59.26.5100	10 uF	20%, 25V, SAL	
C...205	59.29.5222	2200 uF	20%, 63 V, EL	
C...206	59.26.5100	10 uF	20%, 25V, SAL	
C...207	59.31.8333	.033 uF	10%, 400V, PE	
C...208	59.06.0224	.22 uF	10%, 63V, PE	
D...101	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...102	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...103	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...104	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...105	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...106	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...107	50.04.0105	MR 502	1N 4004, 400V, 1A	
D...201	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...202	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...203	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...204	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...205	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...206	50.04.0507	MR 502	1N 5402, 200V, 3A	
D...207	50.04.0105	MR 502	1N 4004, 400V, 1A	
DL...101	50.04.2130	LY 3360	yellow diff.	
DL...201	50.04.2130	LY 3360	yellow diff.	
DL...301	. . . 0	not used	50.04.2130, ye diff.	Option 1
DL...401	. . . 0	not used	50.04.2130, ye diff.	Option 1
DV...101	50.04.1118	6.2 V	5%, 40W, Z	
DV...102	50.04.1102	6.8 V	5%, 40W, Z	
DV...103	50.04.1117	12 V	5%, 40W, Z	
DV...201	50.04.1118	6.2 V	5%, 40W, Z	
DV...202	50.04.1102	6.8 V	5%, 40W, Z	
DV...203	50.04.1117	12 V	5%, 40W, Z	
F			fuseholder see MP 13	
F...101	51.01.0120	T2.0A/ 250V, 5 * 20		
F...201	51.01.0120	T2.0A/ 250V, 5 * 20		
F...301	. . . 0	not used	Fuse, 5 * 20,	Option 1
F...401	. . . 0	not used	Fuse, 5 * 20,	Option 1
IC...101	50.10.0106	TL 431 CLP,		
IC...201	50.10.0106	TL 431 CLP,		
J...101	54.25.0004	Power-Conn., 4 POL 16 A		AMP
J...201	54.25.0004	Power-Conn., 4 POL 16 A		AMP
J...301	. . . 0	not used	54.25.0004, 4 POL 16 A,	Option 1
JSJ.101	54.01.0021	Jumper female		
JSJ.201	54.01.0021	Jumper female		
JSP			see MP 11	
MP...1	1.918.086.11	2 pcs	Power Amp.Rect. PCB	St
MP...2	1.010.012.50	4 pcs	Otodenhalter	
MP...3	1.010.046.22	4 pcs	Nietmutter, M 3 * 14.5	
MP...4	1.010.049.22	4 pcs	Nietmutter, M 3 * 10.0	
MP...5	1.115.105.04		Kuehlblech	
MP...6	21.01.0355	2 pcs	Z - Schr., ZN, M 3 * 8	
MP...7	1.010.098.27	4 pcs	Distanzhulise 03.1/7/0* 2.3	
MP...8	37.01.0101	8 pcs	Teilerfeder 03.2/8 * 0.3	
MP...9	50.20.0305	4 pcs	10 220 Ohm Schemsche gefettet	
MP...10	50.20.0404	4 pcs	Isolierdurchfuehrung, D 6.0/3.5	
MP...11	54.11.0136	2 pcs	2*3 Pin, RM2.54, Crowbar Voltage	
MP...12	1.918.086.01		Kuehlwinkel	
MP...13	53.03.0145	2 pcs	Sicherungshalter Niegend 5*20	
MP...14	21.01.2354	3 pcs	Z - Schr., ZN, M 3 * 6	
MP...15	21.01.0354		Z - Schr., M 3 * 6	
MP...16	23.01.1032		U-Scheibe D 3.2/6*0.5	
MP...17	1.918.087.04		Mr.-Etikette 5 * 20	
MP...18	21.01.2355		S - Schr., ZN, M 3 * 8	
P...1	54.14.2072	16 pin	Plug, SM, (Winkel), Diagnostic	
P...2	. . . 0	not used	54.14.2002, 16 P,	Option 1
Q...101	50.03.0515	BC 307	BC 557 B, PNP	hfe=180
Q...102	50.03.0515	BC 307	BC 557 B, PNP	hfe=180
Q...103	50.03.0436	BC 237 B	.C. BC 547 B, NPN,	hfe=180
Q...105	50.03.0777	80W 42	80X 33C, 80W 93C, Darlington Ic min. 5 A	
Q...106	50.03.0515	BC 307	BC 557 B, PNP	hfe=180
Q...107	50.99.0106	BT 138	500	TRIAC

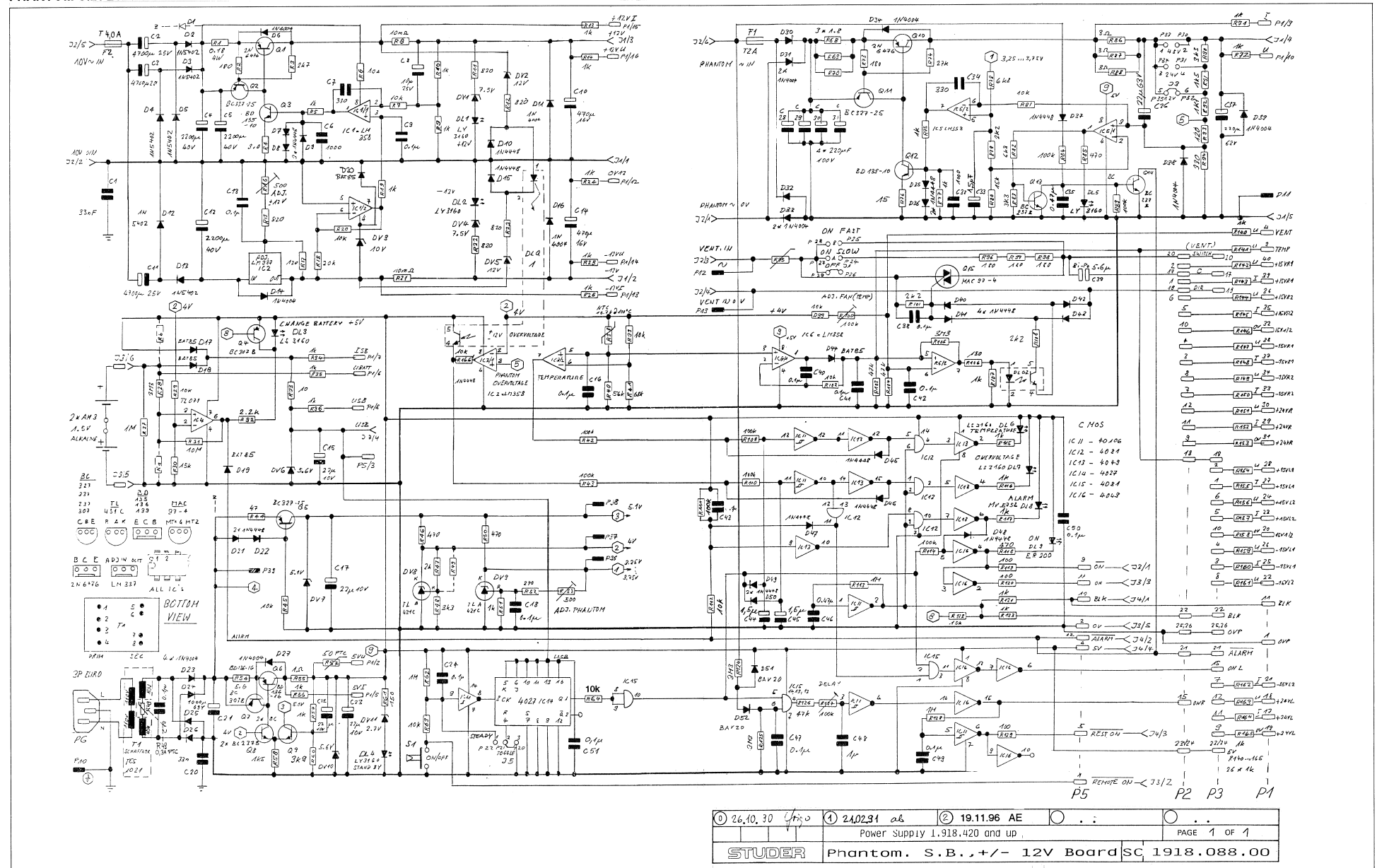
STUDER RECHENBORN GEMACH	±/- DUAL STAB, RECT. BOARD	1.918.087-81
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± DUAL STABILIZER RECTIFIER BOARD 1.918.087.81

Ad	POS.	REF.No.	DESCRIPTION	MANUFACTURER
Q...	201	50.03.0515	BC 307 BC 557 B ,PNP	hfe>180
Q...	202	50.03.0515	BC 307 BC 557 B ,PNP	hfe>180
Q...	203	50.03.0436	BC 237 B .C, BC 547 B,NPN	hfe>180
Q...	205	50.03.0777	BDW 42 BDY 33C, BDW 93C, Darlington	
Q...	206	50.03.0515	BC 307 BC 557 B ,PNP	hfe>180
Q...	207	50.99.0106	BT 138 - 500	TRIAC
R...	101	57.56.5478	0,47 Ohm 10% 4 W, WW	
R...	102	57.56.2010	10 mOhm 5%, 3 W	
R...	103	57.11.3331	330 Ohm 10%, .5 W	
R...	104	57.11.3561	560 Ohm 10%, .5 W	
R...	105	57.11.3562	5,6 kOhm 10%, .5 W	
R...	106	57.11.3221	220 Ohm 10%, .5 W	
R...	107	57.11.3121	120 Ohm 10%, .5 W	
R...	108	57.11.3102	1 kOhm 10%, .5 W	
R...	110	57.56.5478	.47 Ohm 10%, 4 W, WW	
R...	111	57.11.3181	180 Ohm 10%, .5 W	
R...	112	57.11.3273	27 kOhm 10%, .5 W	
R...	113	58.05.0502	5 kOhm 10%, .5 W 22 turn, Trim U 1	
R...	114	57.11.3102	1 kOhm 10%, .5 W	
R...	115	57.56.5228	.22 Ohm 10%, 4 W, WW	
R...	116	57.11.3102	1 kOhm 10%, .5 W	
R...	117	57.11.3102	1 kOhm 10%, .5 W	
R...	118	57.11.3102	1 kOhm 10%, .5 W	
R...	119	57.99.0803	470 kOhm NTC Siemens	
R...	201	57.56.5478	0,47 Ohm 10%, 4 W, WW	
R...	202	57.56.2010	10 mOhm 5%, 3 W	
R...	203	57.11.3331	330 Ohm 10%, .5 W	
R...	204	57.11.3561	560 Ohm 10%, .5 W	
R...	205	57.11.3562	5,6 kOhm 10%, .5 W	
R...	206	57.11.3221	220 Ohm 10%, .5 W	
R...	207	57.11.3121	120 Ohm 10%, .5 W	
R...	208	57.11.3102	1 kOhm 10%, .5 W	
R...	210	57.56.5478	0,47 Ohm 10%, 4 W, WW	
R...	211	57.11.3181	180 Ohm 10%, .5 W	
R...	212	57.11.3273	27 kOhm 10%, .5 W	
R...	213	58.05.0502	5 kOhm 10%, .5 W 22 turn, Trim U 2	
R...	214	57.11.3102	1 kOhm 10%, .5 W	
R...	215	57.56.5228	.22 Ohm 10%, 4 W, WW	
R...	216	57.11.3102	1 kOhm 10%, .5 W	
R...	217	57.11.3102	1 kOhm 10%, .5 W	
R...	218	57.11.3102	1 kOhm 10%, .5 W	
R...	219	57.99.0803	470 kOhm NTC Siemens	
R...	301	. . 0	not used 58.05.0502, 5 kOhm 10%, .5 W, Option 1	
R...	401	. . 0	not used 58.05.0502, 5 kOhm 10%, .5 W, Option 1	
W...	102	64.01.0108	0,8 mm wiring bridge	
W...	109	57.11.3000	0 Ohm wiring bridge	
W...	202	64.01.0108	0,8 mm wiring bridge	
W...	209	57.11.3000	Ohm wiring bridge	
Pos #	1...99	: Global		
	101...199	: for U 1		
	201...299	: for U 2		
	301...499	: for U 3, U 4 (Option 1)		
-81	no auto switch off thermal fold back both stabilizer max. input voltage 45 V current ~ 1 ampere			
Option 2	max. 2 ampere current for 5V or 6V DC output: R 0,47 Ohm in parallel to R110 or R210 on solder side. R 10 kOhm in parallel to R112 or R212 on solder side. F 101 or F201 3.15 A SB			
CE=Ceramic, CF=Carbon Film, EL=Electrolytic, MF=Metal Film, PE=Polyester, PP=Polypropylen, SAL=Solid Aluminium Lacquered PS=Polystyrol				
MANUFACTURER: St=Studer				
1.918.087.81 +/- DUAL STAB. RECT. BOARD FRI95/05/2300				

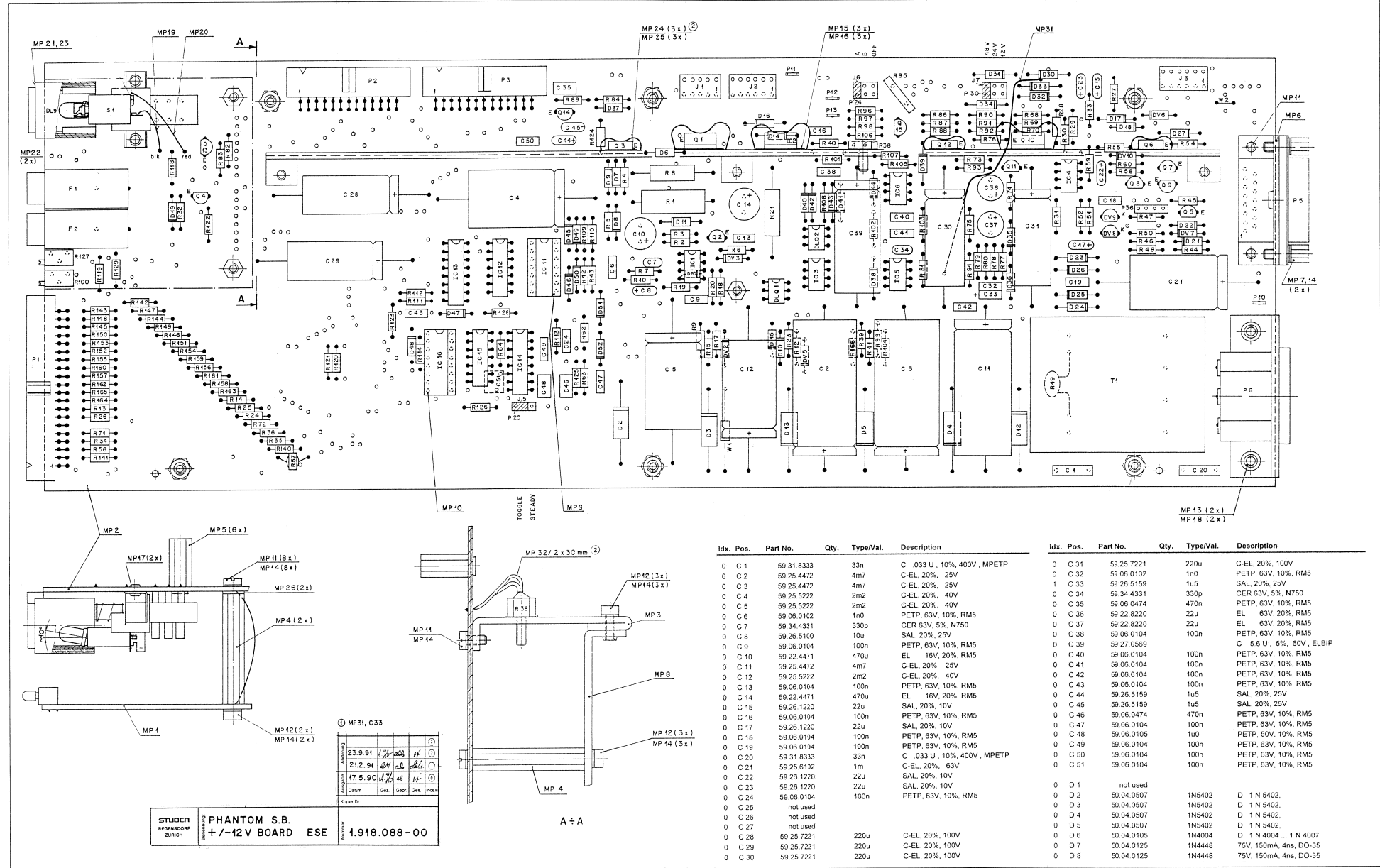


PHANTOM S.B. ±12V BOARD 1.918.088.00



① 26.10.30	① 24.02.31 ab	② 19.11.96 AE	○ . .	○ . .
Power Supply 1.918.420 and up				
STUDER			PAGE 1 OF 1	
Phantom. S.B. +/- 12V Board SC 1918.088.00				

PHANTOM S.B. ±12V BOARD 1.918.088.00



Idx. Pos.	Part No.	Qty.	Type/Val.	Description	Idx. Pos.	Part No.	Qty.	Type/Val.	Description
0 C 1	59.31.8333	33n		C 033 U, 10%, 400V, MPETP	0 C 31	59.25.7221	220u		C-EL, 20%, 100V
0 C 2	59.25.4472	4m7		C-EL, 20%, 25V	0 C 32	59.06.0102	1u0		PETP, 63V, 10%, RM5
0 C 3	59.25.4472	4m7		C-EL, 20%, 25V	1 C 33	59.26.5159	1u5		SAL, 20%, 25V
0 C 4	59.25.5222	2m2		C-EL, 20%, 40V	0 C 34	59.34.4331	330p		CER 63V, 5%, N750
0 C 5	59.25.5222	2m2		C-EL, 20%, 40V	0 C 35	59.06.0474	470n		PETP, 63V, 10%, RM5
0 C 6	59.06.0102	1n0		PETP, 63V, 10%, RM5	0 C 36	59.22.8220	22u		EL 63V, 20%, RM5
0 C 7	59.34.4331	330p		CER 63V, 5%, N750	0 C 37	59.22.8220	22u		EL 63V, 20%, RM5
0 C 8	59.26.5100	10u		SAL, 20%, 25V	0 C 38	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 9	59.06.0104	100n		PETP, 63V, 10%, RM5	0 C 39	59.27.0569			C 5.6 U, 5%, 60V, ELBIP
0 C 10	59.22.4471	470u		EL 16V, 20%, RM5	0 C 40	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 11	59.25.4472	4m7		C-EL, 20%, 25V	0 C 41	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 12	59.25.5222	2m2		C-EL, 20%, 40V	0 C 42	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 13	59.06.0104	100n		PETP, 63V, 10%, RM5	0 C 43	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 14	59.22.4471	470u		EL 16V, 20%, RM5	0 C 44	59.26.5159	1u5		SAL, 20%, 25V
0 C 15	59.26.5120	22u		SAL, 20%, 10V	0 C 45	59.26.5159	1u5		SAL, 20%, 25V
0 C 16	59.06.0104	100n		PETP, 63V, 10%, RM5	0 C 46	59.06.0474	470n		PETP, 63V, 10%, RM5
0 C 17	59.26.1220	22u		SAL, 20%, 10V	0 C 47	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 18	59.06.0104	100n		PETP, 63V, 10%, RM5	0 C 48	59.06.0105	1u0		PETP, 50V, 10%, RM5
0 C 19	59.06.0104	100n		PETP, 63V, 10%, RM5	0 C 49	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 20	59.31.8333	33n		C 033 U, 10%, 400V, MPETP	0 C 50	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 21	59.25.6132	1m		C-EL, 21%, 63V	0 C 51	59.06.0104	100n		PETP, 63V, 10%, RM5
0 C 22	59.25.1220	22u		SAL, 20%, 10V					
0 C 23	59.26.1220	22u		SAL, 20%, 10V	0 D 1	not used			
0 C 24	59.06.0104	100n		PETP, 63V, 10%, RM5	0 D 2	50.04.0507	1N5402		D 1 N 5402,
0 C 25	not used				0 D 3	50.04.0507	1N5402		D 1 N 5402,
0 C 26	not used				0 D 4	50.04.0507	1N5402		D 1 N 5402,
0 C 27	not used				0 D 5	50.04.0507	1N5402		D 1 N 5402,
0 C 28	59.25.7221	220u		C-EL, 20%, 100V	0 D 6	50.04.0105	1N4004		D 1 N 4004, 1 N 4007
0 C 29	59.25.7221	220u		C-EL, 20%, 100V	0 D 7	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35
0 C 30	59.25.7221	220u		C-EL, 20%, 100V	0 D 8	50.04.0125	1N4448		75V, 150mA, 4ns, DO-35

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PHANTOM S.B.  
±12V BOARD ESE

1.918.088-00



PHANTOM S.B. ±12V BOARD 1.918.088.00

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	D 9	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	IC 10	not used			
0	D 10	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	IC 11	50.07.0014	40106		Hex Schmitt Trigger
0	D 11	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	IC 12	50.07.0081	4081		IC ... 4081 ... ,A
0	D 12	50.04.0507		1N5402	D 1 N 5402,	0	IC 13	50.07.0049	4049		IC ... 4049 ... ,A
0	D 13	50.04.0507		1N5402	D 1 N 5402,	0	IC 14	50.07.0027	4027		IC ... 4027 ... ,A
0	D 14	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	IC 15	50.07.0081	4081		IC ... 4081 ... ,A
0	D 15	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	IC 16	50.07.0049	4049		IC ... 4049 ... ,A
0	D 16	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	J 1	54.01.0288	5-P		J LEISTE 5 POL CIS AUFST.
0	D 17	50.04.0127		BAT85	200mA, Schottky	0	J 2	54.01.0216	6-P		J LEISTE 6 POL CIS AUFST.
0	D 18	50.04.0127		BAT85	200mA, Schottky	0	J 3	54.01.0216	6-P		J LEISTE 6 POL CIS AUFST.
0	D 19	50.04.0127		BAT85	200mA, Schottky	0	J 4	not used			
0	D 20	50.04.0127		BAT85	200mA, Schottky	0	J 5	54.01.0021	Jumper		0.63 * 0.63mm
0	D 21	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	J 6	54.01.0021	Jumper		0.63 * 0.63mm
0	D 22	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	J 7	54.01.0021	Jumper		0.63 * 0.63mm
0	D 23	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 1	1.918.082.00	1 mp		LED BOARD
0	D 24	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 2	1.918.088.11	1 mp		PHANTOM S.B. +/- 12V PCB
0	D 25	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 3	1.918.088.01	1 mp		KUEHLBLECH
0	D 26	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 4	1.010.027.27	3 mp		MUTTERBOLZEN M 3 * 3-5
0	D 27	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 5	1.010.046.22	6 mp		NIETMUTTER
0	D 28	not used				0	MP 6	1.963.001.22	1 mp		HALTEWINKEL D-15POL.
0	D 29	not used				0	MP 7	1.010.036.54	2 mp		VERIEGELUNGS-GEWINDEBOLZEN
0	D 30	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 8	1.918.088.02	1 mp		KUEHLBLECHERWEITERUNG
0	D 31	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 9	53.03.0167	1 mp	14p	DIL 0.3", lot, gerade
0	D 32	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 10	53.03.0168	1 mp	16p	DIL 0.3", lot, gerade
0	D 33	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 11	21.13.0354	8 mp		Z - SCHR. A2/A2 M 3 * 6
0	D 34	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 12	21.53.0355	6 mp		Z - SCHR. IS , ZN , M 3 * 8
0	D 35	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 13	23.01.1032	2 mp		U-SCHEIBE D 3.2/6 * 0.5
0	D 36	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 14	24.16.1030	16 mp		RIPPENSCHLEIBE D 3.2/5.5
0	D 37	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 15	50.20.2004	3 mp		MONTAGECLIP ZU TO 220
0	D 38	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 16	50.20.0315	3 mp		TO 220 GLIMMERSCHLEIBE, ZU CLIP
0	D 39	50.04.0105		1N4004	D 1 N 4004 ... 1 N 4007	0	MP 17	28.21.1350	2 mp		ROHRNIETE, D2.25* 4.0
0	D 40	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 18	28.21.2408	2 mp		ROHRNIETE, DIN D 3.0* 6.0
0	D 41	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 19	1.010.200.64	1 mp		LITZE SW, 70MM, M.RASTKONTAKT
0	D 42	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 20	1.010.202.64	1 mp		LITZE RT, 70MM, M.RASTKONTAKT
0	D 43	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 21	55.15.0101	1 mp		BX W2*4.6D, ZU SCHADOW- TYP F
0	D 44	50.04.0127		BAT85	200mA, Schottky	0	MP 22	53.03.0145	2 mp		XF 5 * 20, PCB-LIEGEND ,U
0	D 45	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 23	55.15.0143	1 mp		S TASTE GRUND SW KAPPE OR
0	D 46	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	2	MP 24	50.20.2002	3 mp		MONTAGECLIP ZU TO 126
0	D 47	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 25	50.20.0314	3 mp		TO 126 GLIMMERSCHLEIBE, ZU CLIP
0	D 48	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 26	1.010.013.23	2 mp		U-SCHEIBE ST D 3.1/ 6 X1
0	D 49	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	0	MP 27	43.01.0108	1 mp	Label	ESE-WARNSCHILD
0	D 50	50.04.0125		1N4448	75V, 150mA, 4ns, DO-35	2	MP 28	not used	mp		
0	D 51	50.04.0133		BAV20	D BAV 20 , SI	0	MP 29	1.918.088.04	1 mp		NR.-ETIKETTE 5 * 20
0	D 52	50.04.0133		BAV20	D BAV 20 , SI	0	MP 30	54.01.0020	7 mp	1p	Pin 0.63*0.63
0	DL 1	not used				1	MP 31	64.01.0309	90 mm		PCB Connector P20.22, P36.39
0	DL 2	not used				2	MP 32	65.99.0111	60 mm		SCHALTDRAHT WS, ISOL D 0.6/1.2
0	DL 3	not used									Schaltdraht iso, min D=0.6 mm
0	DL 4	not used									PTFE-SCHLAUCH SPEZ 89*0.152
0	DL 5	not used									PTFE-Schlauch Spez. 0.89 * 0.152mm.
0	DL 6	not used				0	P 1	54.14.2075	40p		1/20" Au, winkel, ohne Verrieg
0	DL 7	not used				0	P 2	54.14.2074	26p		1/20" Au, winkel, ohne Verrieg
0	DL 8	not used				0	P 3	54.14.2074	26p		1/20" Au, winkel, ohne Verrieg
0	DL 9	50.04.2155		ER300	DL ER 300 RT	0	P 4	not used			
0	DLQ 1	50.04.3200		CNY17	DLQ CNY 17-2, CNY 17-2Z,	0	P 5	54.13.0012	15p		P D-TYPE, 15 POL WINKL,PRINT
0	DLQ 2	50.04.3200		CNY17	DLQ CNY 17-2, CNY 17-2Z,	0	P 6	54.42.0020	3-P		IEC 320 GERAETESTECKER 6A
0	DV 1	not used				0	P 7	not used			
0	DV 2	50.04.1117		12V	Zener, 5%, 0.5W, DO-35	0	P 8	not used			
0	DV 3	50.04.1114		10V	Zener, 5%, 0.5W, DO-35	0	P 9	not used			
0	DV 4	not used				0	P 10	54.02.0320	1p		Flatpin, 2.8*0.8mm
0	DV 5	50.04.1117		12V	Zener, 5%, 0.5W, DO-35	0	P 11	54.02.0320	1p		Flatpin, 2.8*0.8mm
0	DV 6	50.04.1108		5V6	Zener, 5%, 0.5W, DO-35	0	P 12	54.02.0320	1p		Flatpin, 2.8*0.8mm
0	DV 7	50.04.1112		5V1	Zener, 5%, 0.5W, DO-35	0	P 13	54.02.0320	1p		Flatpin, 2.8*0.8mm
0	DV 8	50.10.0106		TL431	IC TL 431 CLP,	0	P 14	not used			
0	DV 9	50.10.0106		TL431	IC TL 431 CLP,	0	P 15	not used			
0	DV 10	50.04.1108		5V6	Zener, 5%, 0.5W, DO-35	0	P 16	not used			
0	DV 11	not used				0	P 17	not used			
0	F 1	51.01.0120		2.0A	T 5*20 L 250V	0	P 18	not used			
0	F 2	51.01.0123		4.0A	T 5*20 L 250V	0	P 19	not used			
0	IC 1	50.05.0286		LM358	IC LM 358 N,LM 358 P,OPAMP ,A	0	P 20	not used			
0	IC 2	50.10.0105		LM337KC	IC LM 337 KC, ...SP, ...T,	0	P 21	54.11.0136	2*3p		Pin 0.63*0.63, RM2.54
0	IC 3	50.05.0286		LM358	IC LM 358 N,LM 358 P,OPAMP ,A	0	P 22	54.11.0136	2*3p		Pin 0.63*0.63, RM2.54
0	IC 4	50.09.0103		TL071	IC TL 071 CP, ,A	0	P 23	not used			
0	IC 5	50.05.0286		LM358	IC LM 358 N,LM 358 P,OPAMP ,A	0	P 24	not used			
0	IC 6	50.05.0286		LM358	IC LM 358 N,LM 358 P,OPAMP ,A	0	P 25	not used			
0	IC 7	not used				0	Q 1	50.03.0345	MJE15029		MJE 15 029 PNP
0	IC 8	not used				0	Q 2	50.03.0351	BC327-25		PNP, 800mA
0	IC 9	not used				0	Q 3	50.03.0495	BD135-16		BD 135-16 NPN
0	IC 10	not used				0	Q 4	50.03.0515	BC307B		BC 307 B , BC 557 B ,PNP
0	IC 11	not used				0	Q 5	50.03.0351	BC327-25		PNP, 800mA
0	IC 12	not used				0	Q 6	50.03.0510	BD136-16		BD 136-16, ...K, -L, -M



## PHANTOM S.B. ±12V BOARD 1.918.088.00

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	Idx.	Pos.	Part No.	Qty.	Type/Val.	Description	
0	Q 7	50.03.0515		BC307B	BC 307 B , BC 557 B ,PNP	0	R 76	57.11.3150		15R	MF, 1%, 0207	
0	Q 8	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 77	57.11.3102		1k0	MF, 1%, 0207	
0	Q 9	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 78	57.11.3682		6k8	MF, 1%, 0207	
0	Q 10	50.03.0345		MJE15029	MJE 15 029 PNP	0	R 79	57.11.3222		2k2	MF, 1%, 0207	
0	Q 11	50.03.0351		BC327-25	PNP, 800mA	0	R 80	57.11.3153		15k	MF, 1%, 0207	
0	Q 12	50.03.0451		BD139-10	BD 139-10	0	R 81	57.11.3103		10k	MF, 1%, 0207	
0	Q 13	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 82	57.11.3682		6k8	MF, 1%, 0207	
0	Q 14	50.03.0436		BC237B	BC 237 B, 547 B, 550 B,	0	R 83	57.11.3332		3k3	MF, 1%, 0207	
0	Q 15	50.08.0001			Q MAC 97-4 200V,0.6A. TRIAC Triac UAC=200V IAC=0.6A	0	R 84	57.11.3104		100k	MF, 1%, 0207	
						Mut	0	R 85		not used	470R	MF, 1%, 0207
0	R 1	57.56.4188		R18	VWV, 5%, 4 W	0	R 86	57.11.3309		3R0	MF, 1%, 0207	
0	R 2	57.11.3181		180R	MF, 1%, 0207	0	R 87	57.11.3309		3R0	MF, 1%, 0207	
0	R 3	57.11.3272		2k7	MF, 1%, 0207	0	R 88	57.11.3309		3R0	MF, 1%, 0207	
0	R 4	57.11.3309		3R0	MF, 1%, 0207	0	R 89	57.11.3104		100k	MF, 1%, 0207	
0	R 5	57.11.3102		1k0	MF, 1%, 0207	0	R 90	57.11.3332		3k3	MF, 1%, 0207	
0	R 6	57.19.0100		10R	5%, 0207, Fuse	0	R 91	57.11.3152		1k5	MF, 1%, 0207	
0	R 7	57.11.3103		10k	MF, 1%, 0207	0	R 92	57.11.3112		1k1	MF, 1%, 0207	
0	R 8	57.56.2010		R010	VWV, 5%, 3 W	0	R 93	57.11.3121		120R	MF, 1%, 0207	
0	R 9	57.11.3102		1k0	MF, 1%, 0207	0	R 94	57.11.3331		330R	MF, 1%, 0207	
0	R 10	57.11.3102		1k0	MF, 1%, 0207	0	R 95	57.92.1221		270mA	PTC, 30V, 6 Ohm	
0	R 11	not used		820R	MF, 1%, 0207	0	R 96	57.11.3181		180R	MF, 1%, 0207	
0	R 12	57.11.3821		820R	MF, 1%, 0207	0	R 97	57.11.3181		180R	MF, 1%, 0207	
0	R 13	57.11.3102		1k0	MF, 1%, 0207	0	R 98	57.11.3181		180R	MF, 1%, 0207	
0	R 14	57.11.3102		1k0	MF, 1%, 0207	0	R 99	57.11.3103		10k	MF, 1%, 0207	
0	R 15	57.11.3821		820R	MF, 1%, 0207	0	R 100	58.05.0104		100k	10%, 0.5W, Cermet	
0	R 17	57.11.3121		120R	MF, 1%, 0207	0	R 101	57.11.3222		2k2	MF, 1%, 0207	
0	R 18	57.11.3203		20k	MF, 1%, 0207	0	R 102	57.11.3103		10k	MF, 1%, 0207	
0	R 19	57.11.3102		1k0	MF, 1%, 0207	0	R 103	57.11.3473		47k	MF, 1%, 0207	
0	R 20	57.11.3103		10k	MF, 1%, 0207	0	R 104	57.11.3473		47k	MF, 1%, 0207	
0	R 21	57.56.2010		R010	VWV, 5%, 3 W	0	R 105	57.11.5335		3M3	MF, 5%, 0207	
0	R 22	not used		820R	MF, 1%, 0207	0	R 106	57.11.3181		180R	MF, 1%, 0207	
0	R 23	57.11.3821		820R	MF, 1%, 0207	0	R 107	57.11.3102		1k0	MF, 1%, 0207	
0	R 24	57.11.3102		1k0	MF, 1%, 0207	0	R 108	57.11.3222		2k2	MF, 1%, 0207	
0	R 25	57.11.3102		1k0	MF, 1%, 0207	0	R 109	57.11.3104		100k	MF, 1%, 0207	
0	R 26	57.11.3102		1k0	MF, 1%, 0207	0	R 110	57.11.3104		100k	MF, 1%, 0207	
0	R 27	57.11.3105		1M0	MF, 1%, 0207	0	R 111	57.11.3104		100k	MF, 1%, 0207	
0	R 28	57.11.5335		3M3	MF, 5%, 0207	0	R 112	57.11.3103		10k	MF, 1%, 0207	
0	R 29	57.11.3103		10k	MF, 1%, 0207	0	R 113	57.11.3105		1M0	MF, 1%, 0207	
0	R 30	57.11.3153		15k	MF, 1%, 0207	0	R 114	57.11.3104		100k	MF, 1%, 0207	
0	R 31	57.11.5106		10M	MF, 5%, 0207	0	R 115	not used		1k0	MF, 1%, 0207	
0	R 32	57.11.3222		2k2	MF, 1%, 0207	0	R 116	not used		1k0	MF, 1%, 0207	
0	R 33	57.11.3100		10R	MF, 1%, 0207	0	R 117	not used		1k0	MF, 1%, 0207	
0	R 34	57.11.3102		1k0	MF, 1%, 0207	0	R 118	57.11.3471		470R	MF, 1%, 0207	
0	R 35	57.11.3102		1k0	MF, 1%, 0207	0	R 119	57.11.3101		100R	MF, 1%, 0207	
0	R 36	57.11.3102		1k0	MF, 1%, 0207	0	R 120	57.11.3101		100R	MF, 1%, 0207	
0	R 37	not used				0	R 121	57.11.3102		1k0	MF, 1%, 0207	
2	R 38	57.99.0803			R 470 K, 10%, NTC	0	R 122	57.11.3103		10k	MF, 1%, 0207	
0	R 39	57.11.3103		10k	MF, 1%, 0207	0	R 123	57.11.3102		1k0	MF, 1%, 0207	
0	R 40	57.11.3563		56k	MF, 1%, 0207	0	R 124	57.11.5335		3M3	MF, 5%, 0207	
0	R 41	57.11.3683		68k	MF, 1%, 0207	0	R 125	57.11.5335		3M3	MF, 5%, 0207	
0	R 42	57.11.3104		100k	MF, 1%, 0207	0	R 126	57.11.3473		47k	MF, 1%, 0207	
0	R 43	57.11.3104		100k	MF, 1%, 0207	0	R 127	58.05.0104		100k	10%, 0.5W, Cermet	
0	R 44	57.11.3470		47R	MF, 1%, 0207	0	R 128	57.11.3105		1M0	MF, 1%, 0207	
0	R 45	57.11.3103		10k	MF, 1%, 0207	0	R 129	57.11.3101		100R	MF, 1%, 0207	
0	R 46	57.11.3471		470R	MF, 1%, 0207	0	R 130	not used				
0	R 47	57.11.3202		2k0	MF, 1%, 0207	0	R 131	not used				
0	R 48	57.11.3332		3k3	MF, 1%, 0207	0	R 132	not used				
0	R 49	57.92.7012		0.3A	POLY- PTC, 60V	0	R 133	not used				
0	R 50	57.11.3471		470R	MF, 1%, 0207	0	R 134	not used				
0	R 51	57.11.3102		1k0	MF, 1%, 0207	0	R 135	not used				
0	R 52	57.11.3271		270R	MF, 1%, 0207	0	R 136	not used				
0	R 54	57.11.3569		5R6	MF, 1%, 0207	0	R 137	not used				
0	R 55	57.11.3109		1R0	MF, 1%, 0207	0	R 138	not used				
0	R 56	57.11.3102		1k0	MF, 1%, 0207	0	R 139	not used				
0	R 57	57.99.0206			R 50 , 25V, .5 W, PTC	0	R 140	57.11.3102		1k0	MF, 1%, 0207	
0	R 58	57.11.3152		1k5	MF, 1%, 0207	0	R 141	57.11.3102		1k0	MF, 1%, 0207	
0	R 59	57.11.3102		1k0	MF, 1%, 0207	0	R 142	57.11.3102		1k0	MF, 1%, 0207	
0	R 60	57.11.3392		3k9	MF, 1%, 0207	0	R 143	57.11.3102		1k0	MF, 1%, 0207	
0	R 61	not used		150R	MF, 1%, 0207	0	R 144	57.11.3102		1k0	MF, 1%, 0207	
0	R 62	57.11.3105		1M0	MF, 1%, 0207	0	R 145	57.11.3102		1k0	MF, 1%, 0207	
0	R 63	57.11.3103		10k	MF, 1%, 0207	0	R 146	57.11.3102		1k0	MF, 1%, 0207	
3	R 64	57.11.3103		10k	MF, 1%, 0207	0	R 147	57.11.3102		1k0	MF, 1%, 0207	
0	R 65	not used				0	R 148	57.11.3102		1k0	MF, 1%, 0207	
0	R 66	not used				0	R 149	57.11.3102		1k0	MF, 1%, 0207	
0	R 67	not used				0	R 150	57.11.3102		1k0	MF, 1%, 0207	
0	R 68	57.11.3189		1R8	MF, 1%, 0207	0	R 151	57.11.3102		1k0	MF, 1%, 0207	
0	R 69	57.11.3189		1R8	MF, 1%, 0207	0	R 152	57.11.3102		1k0	MF, 1%, 0207	
0	R 70	57.11.3189		1R8	MF, 1%, 0207	0	R 153	57.11.3102		1k0	MF, 1%, 0207	
0	R 71	57.11.3102		1k0	MF, 1%, 0207	0	R 154	57.11.3102		1k0	MF, 1%, 0207	
0	R 72	57.11.3102		1k0	MF, 1%, 0207	0	R 155	57.11.3102		1k0	MF, 1%, 0207	
0	R 73	57.11.3181		180R	MF, 1%, 0207	0	R 156	57.11.3102		1k0	MF, 1%, 0207	
0	R 74	57.11.3273		27k	MF, 1%, 0207	0	R 157	57.11.3102		1k0	MF, 1%, 0207	
0	R 75	57.11.3102		1k0	MF, 1%, 0207	0	R 158	57.11.3102		1k0	MF, 1%, 0207	





## PHANTOM S.B. ±12V BOARD 1.918.088.00

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 159	57.11.3102		1k0	MF, 1%, 0207
0	R 160	57.11.3102		1k0	MF, 1%, 0207
0	R 161	57.11.3102		1k0	MF, 1%, 0207
0	R 162	57.11.3102		1k0	MF, 1%, 0207
0	R 163	57.11.3102		1k0	MF, 1%, 0207
0	R 164	57.11.3102		1k0	MF, 1%, 0207
0	R 165	57.11.3102		1k0	MF, 1%, 0207
0	R 166	57.11.3103		10k	MF, 1%, 0207
0	S 1	55.15.0032			SZ 1 TASTE, 2U, IMPULS OHNE
0	T 1	63.20.0101			NETZTRAFO 2 X 10.2V / 3.5VA
0	W 1	57.11.3000		OR0	MF, 0207
0	W 2	1.010.321.64		Wire	DRAHTBRUECKE U, 4.3* 5.0, 0.6

End of List

**Comments**

(01) 21.02.91 AB

Better Phantom Performance

(02) 23.09.91 AB

Philips NTC Resistor #57.99.0220 is no longer available.

R38 is now a Siemens NTC Resistor #57.99.0803 and the leads are insulated with 2 pcs. PTFE-tube #65.99.0111, L=30 mm. (MP32 position).

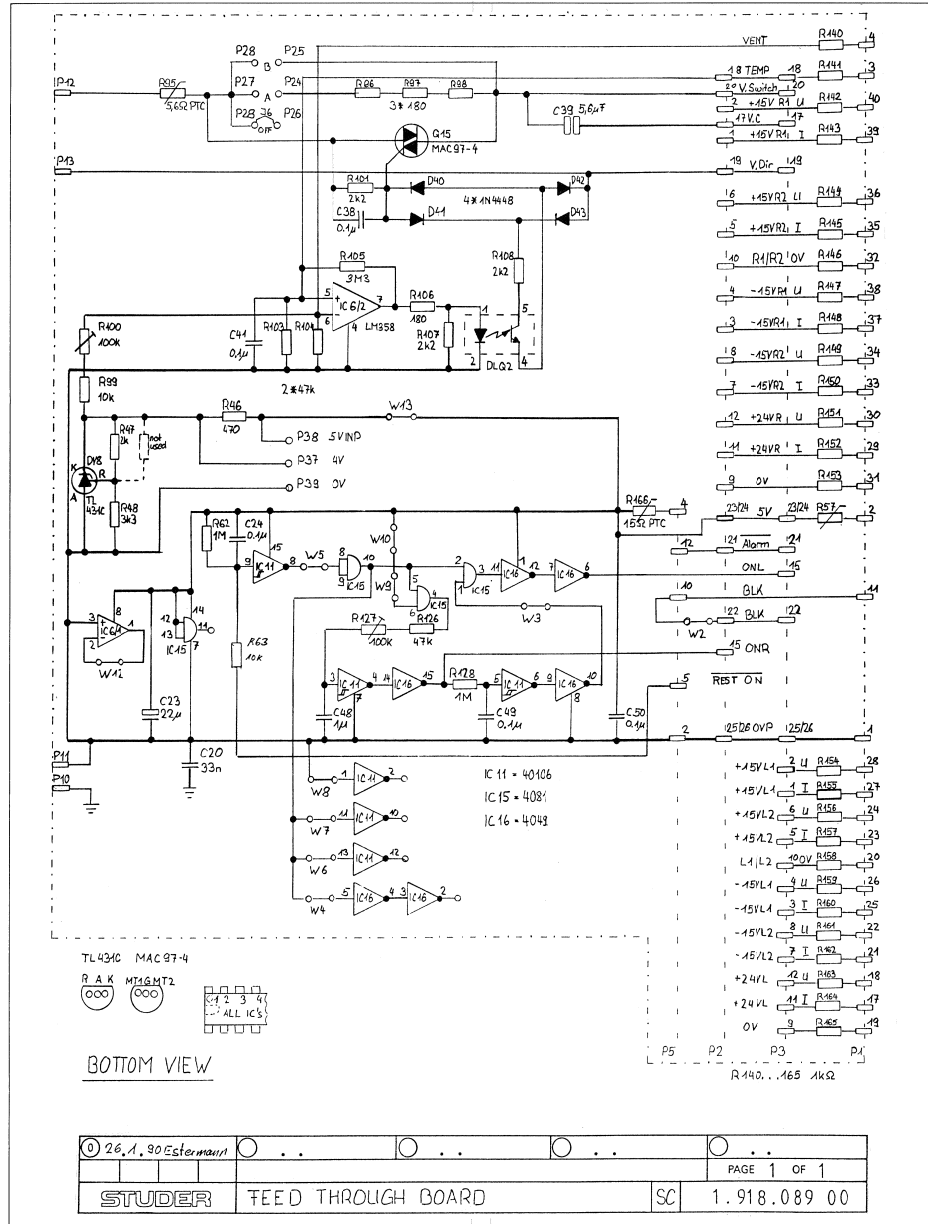
At the MP24 position, one pc. is removed from the board.

The MP28 position is no longer used.

(03) 19.11.96 AE

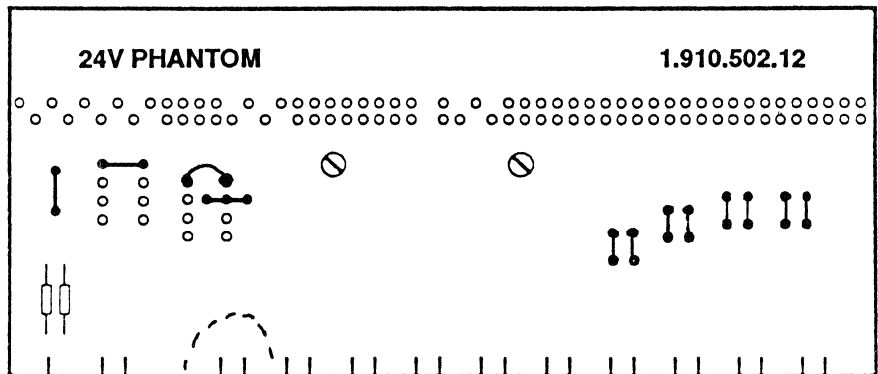
Circuit works at lower temperature

FEED-THROUGH BOARD 1.918.089.00





MODIFICATION FOR POWER SUPPLY 1.918.420 / 101



Link removed

6V 24V  
(Conn. 20A) (Conn. 10A)

Changed to Rectifier/Condensator-Board  
1.918.083

ONLY TRAFFO-BLOCK B!

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				PAGE OF
STUDER	Modification for Power-Supply 1.918.420/101			