

STUDER

PROFESSIONAL AUDIO EQUIPMENT

Service Information

Bar-Graph-Instrumente/Bar-Graph
Instruments 1.091.336 ... 339
1.091.346 ... 394
Service Information SI 42/79 D/E

S E R V I C E I N F O R M A T I O N

42/79 D/E

Bar-Graph-Instrumente

1.091.336 ... 339

1.091.346 ... 349

Zur Verlängerung der Lebenszeit der Bar-Graph-Displays 89.01.0365, sind drei Bauelemente zu ersetzen.

Ein Neueinmessen der Instrumente wird durch diese Aenderung nicht notwendig!

Für Reparaturen defekter Displays, kann die Servicebaugruppe 1.091.335 bezogen werden.

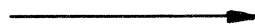
Aenderung auf Display Control Unit 1.091.340

(für alle Instrumente 1.091.336 ... 339 und 346 ... 349)

entfällt/cancelled:

D13 Z20V 50.04.1109

D12 IN4004 50.04.0105

Bar-Graph-Instruments

1.091.336 ... 339

1.091.346 ... 349

In order to prolong the live times of the bar-graph-displays, three components have to be replaced.

The instruments need not be re-calibrated after this change.

Please order service component 1.091.335 for repairing faulty displays.

Modification on Display Control Unit 1.091.340

(valid for all instruments 1.091.336 ... 339 and 346 ... 349)

ersetzt durch/replaced by:

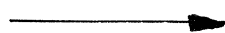
D13 Z10V 50.04.1114

R33 100 kOhm 57.02.5104

Aenderung auf Connection-Print 1.091.341

(für Instrumente 1.091.346...349)

R 42 1M0hm 57.02.5105

Modification on Connection PC-Board 1.091.341

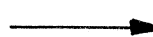
(valid for all instruments 1.091.346...349)

R 42 470 kOhm 57.02.5474

Aenderung auf Base-Print 1.091.310

(für Instrumente 1.091.336...339)

2 x R 42 1 M0hm 57.02.5105

Modification on Base PC-Board 1.091.310

(valid for all instruments 1.091.336...339)

2 x R 42 470 kOhm 57.02.5474

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 9	59 25 5220	22 μ	40V	EL	
C 10					
C 11	59 25 5101	100 μ	40V	EL	
C 12	59 34 4221	220 p			
C 13	59 34 4221	220 p			
C 14	59 05 4683	0,068 μ	100V	PC	
C 15	59 05 4683	0,068 μ	100V	PC	
C 16	59 25 3101	100 μ	10V	EL	
C 17	59 25 3101	100 μ	10V	EL	
C 18	59 22 4101	100 μ	10V	EL	
C 19	59 36 3470	47 μ	16V	TA	
C 20	59 05 2104	0,1 μ			
C 21	59 11 6332	3300 p		PC	
C 22	59 11 6102	1000 p	5%	PC	
C 23	59 11 6222	2200 p	5%	PC	
C 24	59 34 4221	220 p			
C 25	59 31 1224	0,22 μ			
C 26	59 31 1224	0,22 μ			
C 27	59 34 4222	220 p			
D 4	50 04 0105	1N4004			ANY
D 5	50 04 0508	1N4935			
D 6	50 04 0508	1N4935	FAST RECOVERY 200ns	S2F	M,SE
D 7	50 04 0508	1N4935	$I_F = 1A, U_R = 200V$		
D 8	50 04 0508	1N4935			
D 9	50 04 1108	2PD 5,6	5,6V 5% @ 5mA		ITT
D 10	50 04 0109	1N4448			ANY
D 11	50 04 0109	1N4448			ANY
D 12	50 04 0109	1N4448			ANY
D 12	50 04 1108	2PD 20	20V 5% @ 5mA		ITT
D 14	50 04 1126	2PD 62	62V 5% @ 5mA		ITT
D 15	50 04 0109	1N4448			ANY
D 16	50 04 0109	1N4448			ANY
D 17	50 04 0109	1N4448			ANY
D 13	50 04 1114	2PD 10	10V 5% @ 5mA		ITT
D ..06	50 04 0109	1N4448			ANY
D ..07	50 04 1102	2PD 6,8	6,8V 5% @ 5mA		ITT

EL: ELECTROLYTIC
PC: POLYCARBONATE
TA: TANTALUM

M: MOTOROLA
SE: SEMTECH

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23.6.76

Z65

IND DATE NAME

STUDER

DISPLAY CONTROL UNIT

1091 340

PAGE
1 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
IC 1	50 07 0027	4027 PC			FC
IC 2	50 07 0049	4049 PC			FC
IC 3	50 99 0124	MC 14501 PC			M
IC 4	50 07 0520	4520 PC			FC
IC 5	50 07 0091	4081 PC			FC
IC 6	50 07 0512	4512 PC			FC
IC 7	1 091 340 51	R0004			ST
	1 091 340 52	R0040			ST
IC 8	50 05 0232	RC 4136			RA, TI
IC 9	50 99 0123	MC 1408 LB			M, PMI
L 1	62 01 0127	33 μ H	R = 1.25 Ω		
L 2	62 01 0127	33 μ H	R = 1.25 Ω		
Q 1	50 03 0316	BC 140-16		ONLY	SI
Q 2	50 03 0316	BC 140-16		ONLY	SI
Q 3	50 03 0316	BC 140-16		2N1613	
Q 4	50 03 0434	BC 267A			
Q 5	50 03 0434	BC 267A		NPN $V_{CE0} > 85V$	BFR 18 S/A
Q 6	50 03 0434	BC 267A			
Q 7	50 03 0484	MPS A42		NPN HIGH VOLTAGE	M, FC
Q 8	50 03 0438	BC 238 B		NPN SMALL SIGNAL	ANY
Q 9	50 03 0347	2N 4851		UNIUNCTION TRANSISTOR	M
Q ..02	50 03 0484	MPS A42		NPN HIGH VOLTAGE	M, FC
Q ..03	50 03 0485	MPS A92		PNP	M, FC
R 44	57 02 5104	100 k			
R 12	57 02 5105	1 M			
R 13	57 02 5682	6,8 k	10%		
R 14	57 02 5682	6,8 k	10%		
R 15	57 02 5422	1,2 k			
R 16	57 02 5473	47 k			
R 17	57 02 5104	100 k			
R 18	57 02 5104	100 k			
R 19	57 02 5104	100 k			
R 20	57 02 5104	100 k			
R 21	57 02 5224	220 k			
R 22	57 02 5682	6,8 k			
R 23	57 02 5682	6,8 k			

TJ: TEXAS INSTR.
S/A: SGS/ATES
SI: SIEMENS

FC: FAIRCHILD
M: MOTOROLA
ST: STUDER
RA: RAYTHEON
PMI: PRECISION
MONOLITHICS INC.

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23.6.76

Z65

IND DATE NAME

STUDER

DISPLAY CONTROL UNIT

1091 340

PAGE
2 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT MFR	
R 24	57 02 5682	6,8k			
R 25	57 02 5682	6,8k			
R 26	57 02 5103	10 k			
R 27	57 02 5393	38 k	10%		
R 28	57 02 5471	470	10%		
R 29	57 02 5224	220 k			
R 30	57 39 3461	3,16 k	1% 100ppm/°C		
R 31	57 39 2261	2,26 k	1% 100ppm/°C		
R 32	57 39 3652	36,5 k	1% 100ppm/°C		
R 33	58 11 6103	10 k	CERMET TRIMPOT. TYPE 62P	BE	
R 34	57 39 2741	2,74 k	1% 100ppm/°C		
R 35	58 11 6102	1 k	CERMET TRIMPOT. TYPE 62P	BE	
R 32	57 02 5103	.10 k	10%		
R 33	57 02 5273	27 k			
R 34	57 02 5273	27 k			
R 35	57 02 5154	150 k			
R 36	57 02 5473	47 k			
R 37	57 02 5272	2,7 k			
P					
T 1	1 022 162 00		CONVERTER TRAF0	ST	
X IC	53 03 0168		IC - SOCKET 16PINS		
R					
		BE: Beckmann ST: STUDER	④ ③ ② ① ○		
			IND	DATE	NAME
STUDER		DISPLAY CONTROL UNIT	23.6.76	76i	PAGE 3 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT MFR		
C 28	39 32 3472	4700p	CER			
IC 10	50 07 0085	40085 PC	4 BIT MAGNITUDE COMPARATOR	FC		
IC 11	50 07 0520	40520 PC	DUAL 4 BIT BINARY COUNTER	FC		
IC 12	50 07 0085	40085 PC		FC		
IC 13	50 07 0027	4027 PC	DUAL JK FLIP-FLOP	FC		
IC 14	50 07 0085	40085 PC		FC		
IC 15	50 07 0520	40520 PC		FC		
IC 16	50 07 0085	40085 PC		FC		
IC 17	50 07 0019	4019 PC	QUAD 2-INPUT MUX	FC		
Q 1	50 03 0438	BC233B	NPN SMALL SIGNAL	ANY		
Q 2						
R 36	50 02 E 104	100 k				
R 37						
R 38						
R 39	50 02 5683	68 k				
R 40						
R 41						
		CER - CERAMIC	FC - FAIRCHILD	④ ③ ② ① ○		
				IND	DATE	NAME
STUDER		DUAL PEAK MEMORY	24.6.76	26i	PAGE 1 of 1	

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 15	57 02 5103	10 k			
R 16	57 02 5335	3,3 M			
R 17	57 02 5106	10 M			
R 18	57 39 1101	110 k	1%		
R 19	57 41 4684	680 k	5%		
R 20	57 02 5162	68 k			
R 21	57 02 5101	100	10%		
R 22	57 02 5101	100			
R 23	57 02 5473	47k			
R 24	57 02 5473	47k			
R 25	57 39 5111	5,11k	1% 100ppm/°C		
R 26	57 39 2612	26,1 k			
R 27	57 39 3012	30,1 k			
R 28	57 39 3012	30,1 k			
R 29	57 39 2052	20,5 k			
R 30	57 39 1821	1,82 k			
R 31	57 02 5103	10 k			
R 31	58 01 4103	10k	Pos. LOG. TYPE YR		AB
R 32	58 11 6105	1 M			
R 33	58 11 6105	1 M			
R 34	58 11 6202	2 k	CERMET TRIMPOT. TYPE 62P		BE
R 35	58 11 6303	50k			
R 36	58 11 6102	1k			
R 37	58 11 6103	10k			
R 38	1 022 159 00	20	CU-RESISTOR 90...97Ω		ST
T 39	1 022 400 00	14	MIC. INPUT TRAFO		ST
X IC	E3 03 0166		IC SOCKET 8 PINS		
X IC	E2 03 0167		IC SOCKET 14 PINS		
AB: ALLAN BRADLEY BE: BECKMANN ST: STUDER			④ ③ ② ① ○	24.6.76	265
			IND	DATE	NAME
STUDER		AUDIO PART PPM	1 091 344	PAGE 3 of 3	

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 1	59 31 1224	0.22 μ			
C 2	59 31 1224	0.22 μ			
C 3	59 36 3100	10 μ	16V	TA	
C 5	59 34 2220	22 p			
C 6	59 2E 5221	220 μ	40V	EL	
C 7	59 2E 5221	220 μ	40V	EL	
C 8	59 34 2220	22 p			
C 01	59 36 3100	10 μ		TA	
C 02	59 36 3100	10 μ		TA	
C 03	59 23 0123	0.012 μ	1%	PS	
C 04		$\leq 1000 p$	FOR ADJUSTMENTS	CER	
C 05	59 23 0103	0.010 μ	1%	PS	
C 06	59 34 2330	39 p			
C 07	59 34 2390	39 p			
C 08	59 34 1100	10 p			
C 09	59 36 3100	10 μ		TA	
C 10	59 34 2220	22 p			
C 11	59 34 2220	22 p			
C 12	59 34 41E1	150 p			
C 13	59 34 41E1	150 p			
C 14	59 34 2330	33 p			
C 15	59 34 0508	1 μ	2%	PC	
C 16		$< 100 p$	FOR ADJUSTMENTS	CER	
C 17	59 34 4471	470 p		CER	
C 18	59 34 4471	470 p		CER	
D 1	50 04 0105	1N4004			ANY
D 2	50 04 1112	2PD51	5.1V 5% @ 5mA		ITT
D 3	50 04 0132	BAW62		ONLY	PH
D 01					
D 02	50 04 0109	1N4448			ANY
D 03					
D 04					
D 05	50 04 0132	BAW62		ONLY	PH

TA: TANTALUM
 EL: ELECTROLYTIC
 PS: POLYSTYRENE
 CER: CERAMIC
 PC: POLYCARBONATE

PH: PHILIPS

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24.6.76

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IND DATE NAME

STUDER

AUDIO PART PPM

1091344

PAGE 1 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
IC 18	50 05 0144	LM 301AN			ONLY NS
IC 19					
IC 20	50 05 0232	RC 4136	QUAD OP AMP		RA, TI
IC 01					
IC 02	50 05 0144	LM 301AN			ONLY NS
IC 03					
IC 04	50 05 0196	TCA 410 B	VOLTAGE FOLLOWER		PH
Q 01	50 03 0407	BC109C	NPN LOW NOISE		
R 1	57 99 0206	PTC 50	2322 660 31008		PH
R 2	57 99 0206	PTC 50			
R 3	57 39 1002	10.0k		1%	
R 4	57 39 1002	10.0k		1%	
R 5	57 02 5222	2.2k			
R 6	57 39 3012	30.1k		1%	
R 7	57 39 3012	30.1k		1%	
R 8	57 02 5104	100k			
R 9	57 02 5104	100k		10%	
R 10	57 02 5101	100			
R 11	57 02 5101	100			
R 13	57 02 5102	1k			
R 01	57 39 5111	5.1k		1%	
R 02	57 39 5111	5.1k		1%	
R 03	57 02 5470	47			
R 04	57 02 5473	47k		10%	
R 05	57 02 5223	22k			
R 06					
R 07	57 39 2001	2.00k		1%	
R 08					
R 09	57 39 8452	84.5k		1%	
R 10					
R 11					
R 12	57 39 1002	10.0k		1%	
R 13					
R 14					

PTC: POSITIVE TEMP. COEFF.

NS: NATIONAL SEMIC.
 RA: RAYTHEON
 PH: PHILIPS
 TI: TEXAS INSTR.

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24.6.76

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IND DATE NAME

STUDER

AUDIO PART PPM

1091344

PAGE 2 of 3

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
C 1	58 31 1224	0.22 μ			
C 2	58 31 1224	0.22 μ			
C 3	58 36 2100	10 μ	16V	TA	
C 4	58 36 2100	10 μ	16V	TA	
C 5	58 34 2220	22p			
C 6	58 25 5221	220 μ	40V	EL	
C 7	58 21 5221	220 μ	40V	EL	
C 01	58 11 6631	680k	5%		
C 02	58 11 6631	680k	5%		
C 03					
C 04					
C 05	58 36 2100	10 μ		TA	
C 06	58 05 1225	2.2 μ	10%		
C 07					
C 08	58 05 2104	0.1 μ	10%		
C 09					
C 10	58 34 4221	220k			
D 1	50 04 0105	1N4004			ANY
D 2	50 04 1112	2PDE.1	5.1V 5% @ 5mA		ITT
D 01	50 04 0109	1N4448			ANY
D 02					
IC 18	50 05 0144	LH301AN		ONLY	NS
IC 01	50 05 0232	RC 4136	QUAD OP. AMP.		RAJTI
R 1	57 28 0206	PTC 50	2322 660 91008		PH
R 2	57 28 0206	PTC 50			
R 3	57 39 1002	10.0k			
R 4	57 39 1002	10.0k			
R 5	57 41 4102	1k			

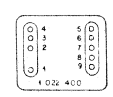
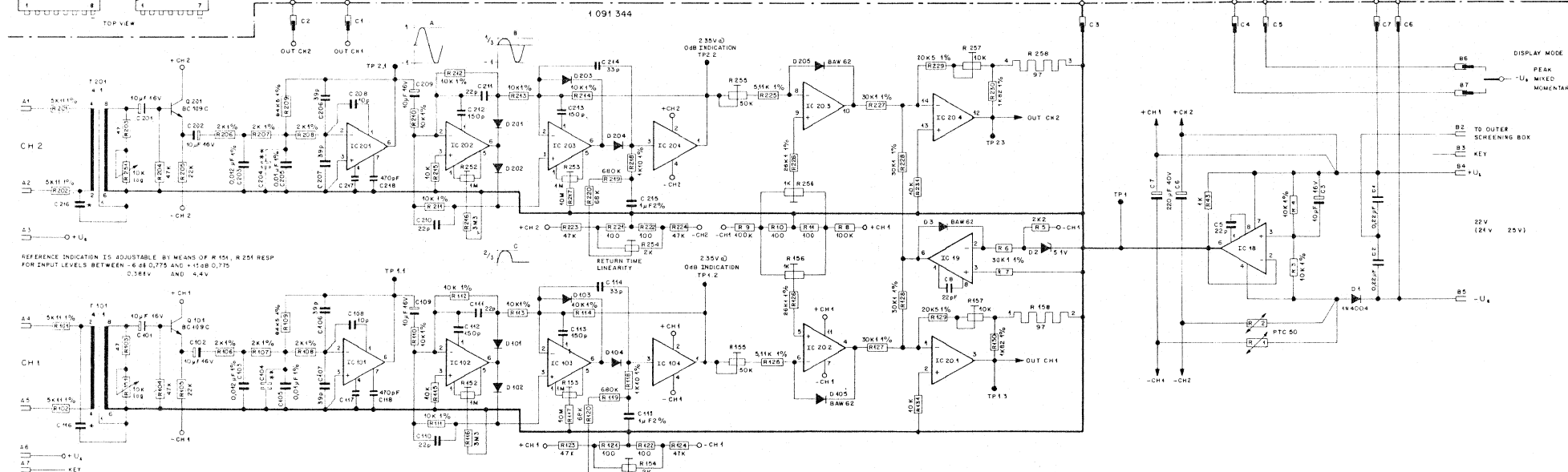
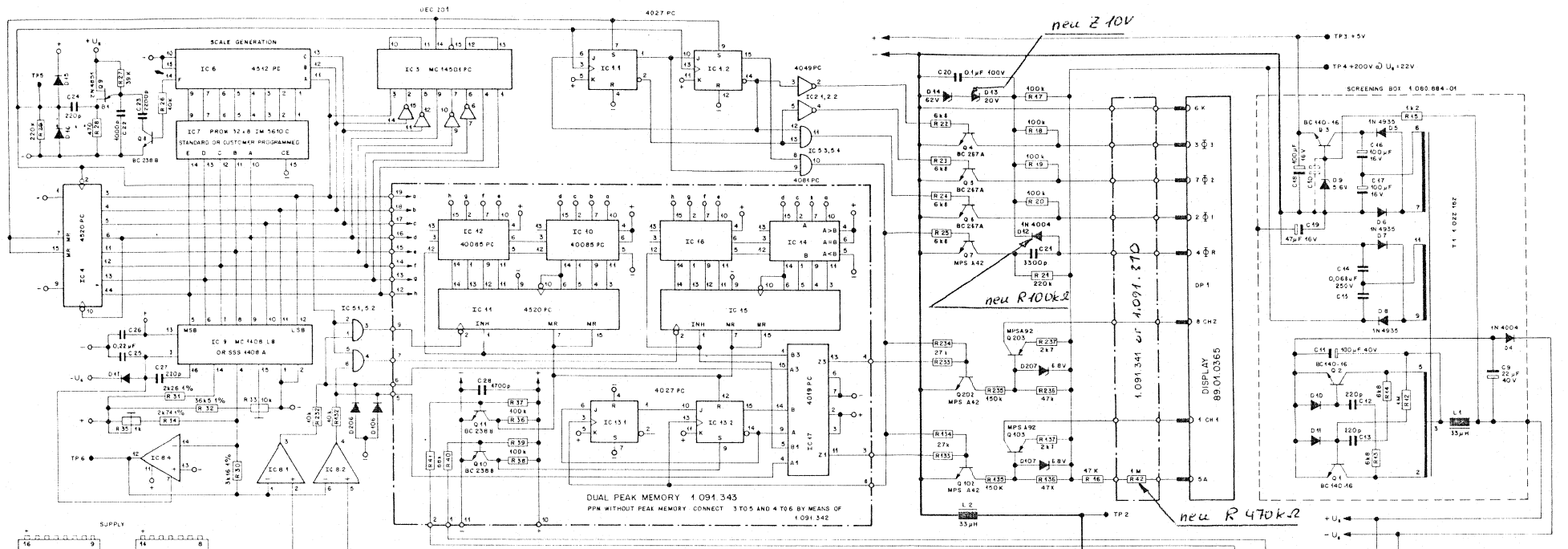
TA TANTALUM	NS NATIONAL SEMIC.	④		
EL ELECTROLYTIC	RA RAYTHEON	③		
PTC POSITIVE TEMP. COEFF.	PH PHILIPS	②		
	TI TEXAS INSTR.	①		
		①	24.6.76	265
		IND	DATE	NAME

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
R 01	57 41 4222	2.2k	5%		
R 02	57 41 4222	2.2k	5%		
R 03	57 41 4102	1k	5%		
R 04	57 41 4102	1k	5%		
R 05	57 41 4683	68k			
R 06	57 41 4102	10k			
R 07					
R 08					
R 09	57 41 4102	1k	5%		
R 10					
R 11	57 41 4104	100k	5%		
R 12	57 41 4104	100k	5%		
R 13	57 41 4684	680k	5%		
R 14	57 41 4223	22k			
R 15	57 41 4104	100k			
R 16	57 41 4102	1k	10%		
R 17	57 41 4822	8.2k	10%		
R 18	58 01 4104	100k	POS. LOG. TYPE YR		AB
R 19	58 11 6102	1k	CERMET TRIMPOT. TYPE 62P		BE
R 20	58 11 6203	20k			
T 01	1 022 405 00	1:1	MIC. INPUT TRAF0		ST
X IC	53 03 0166		IC SOCKET 8 PINS		
Y IC	53 03 0167		IC SOCKET 14 PINS		

AE ALLAN BRADLEY	④		
BE BECKMANN	③		
ST STUDER	②		
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	①	24.6.76	265
	IND	DATE	NAME

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
	BG 01 0365	BG 1201-2	BAR GRAPH DISPLAY		BU
	1 091 032 01		HOLDER		ST
	1 091 032 02		MOUNTING PLATE		ST
	1 091 032 10		SHIELDING		ST
	1 091 032 12		SCALE VUM, STANDARD		ST
	1 091 324 00		CABINET		ST
	1 091 340 00		DISPLAY CONTROL UNIT		ST
	1 091 341 00		CONNECTION PRINT		ST
	1 091 343 00		DUAL PEAK MEMORY		ST
	1 091 345 00		AUDIO PART VUM		ST
	DUAL VUM WITHOUT MEMORY 1 091 348 :				
	1 091 342 00		DUMMY INSTEAD OF PEAK MEMORY		ST
	CONNECTION FOR MODULATION AND SUPPLY VOLTAGE				
	54 01 0225		PIN (10 PINS ARE NEEDED)		AMP
	54 01 0233		HOUSING FOR 7 PINS		AMP
	54 01 0244		FEMALE 7-POINT CONNECTOR		AMP
			BU BURROUGHS ST STUDER	④ ③ ② ① ○	
			IND	DATE	NAME
				25.6.76	Zbi
STUDER	DUAL VUM W. MEMORY		1 091 346		PAGE 1 of 1

POS NO	PART NO	VALUE	SPECIFICATIONS	EQUIVALENT	MFR
	BG 01 0365	BG 1201-2	BAR GRAPH DISPLAY		BU
	1 091 032 01		HOLDER		ST
	1 091 032 02		MOUNTING PLATE		ST
	1 091 032 10		SHIELDING		ST
	1 091 032 06		SCALE PPM, STANDARD		ST
	1 091 324 00		CABINET		ST
	1 091 340 00		DISPLAY CONTROL UNIT		ST
	1 091 341 00		CONNECTION PRINT		ST
	1 091 343 00		DUAL PEAK MEMORY		ST
	1 091 344 00		AUDIO PART PPM		ST
	DUAL PPM WITHOUT MEMORY 1 091 349				
	1 091 342 00		DUMMY INSTEAD OF PEAK MEMORY		ST
	CONNECTION FOR MODULATION AND SUPPLY VOLTAGE				
	54 01 0225		PIN (10 PINS ARE NEEDED)		AMP
	54 01 0233		HOUSING FOR 7 PINS		AMP
	54 01 0244		FEMALE 7-POINT CONNECTOR		AMP
			BU BURROUGHS ST STUDER	④ ③ ② ① ○	
			IND	DATE	NAME
				25.6.76	Zbi
STUDER	DUAL PPM W MEMORY		1 091 347		PAGE 1 of 1



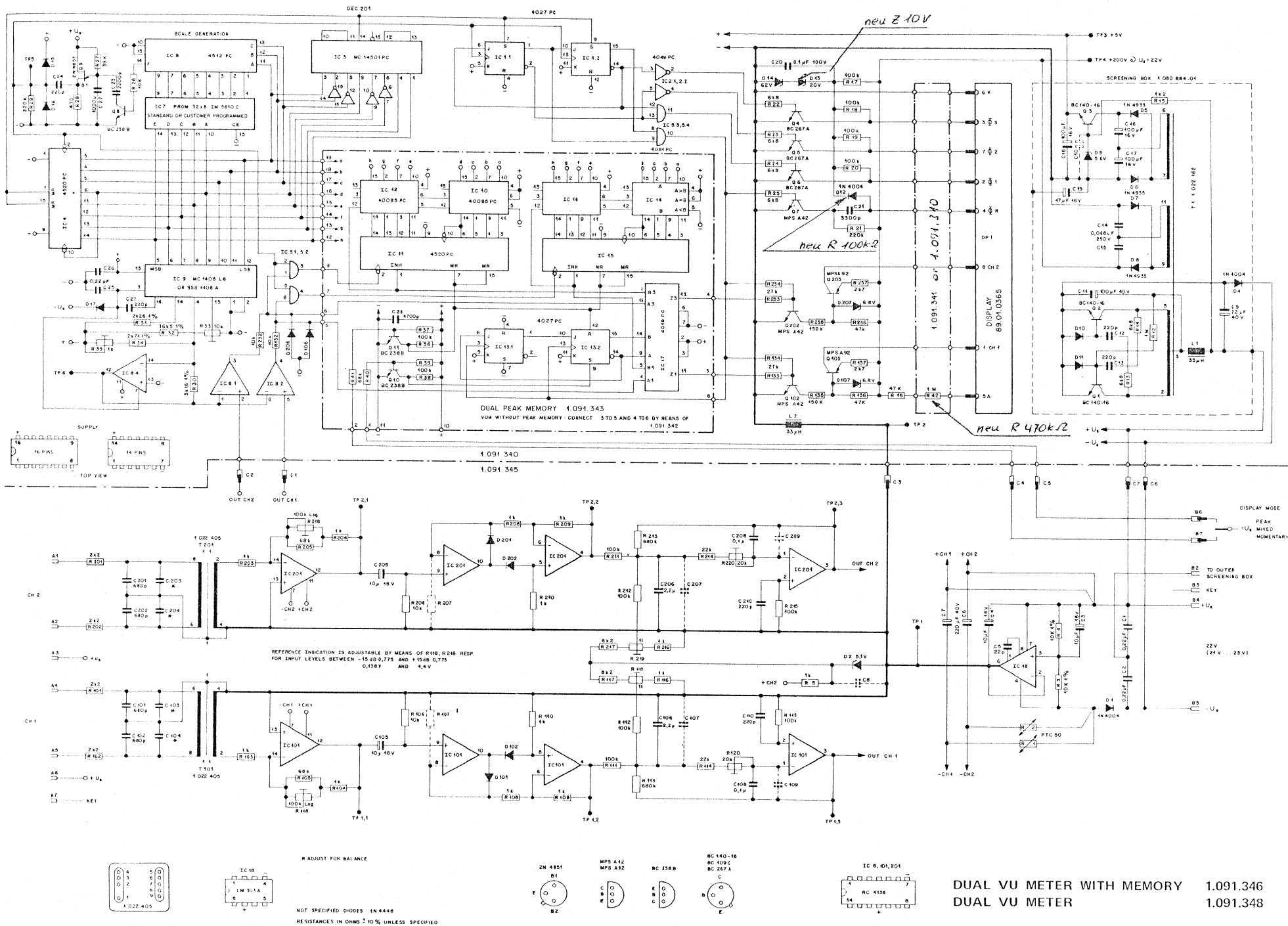
* ADJUST FOR BALANCE
 ** ADJUST FOR FREQUENCY RESPONSE

IC 14, 19, 41, 201 LM 301A (V_{OFFSET} ≤ 6 mV (RED))
 IC 102, 202, 403, 203 LM 301A (V_{OFFSET} ≤ 3 mV (YEL))

NOT SPECIFIED DIODES 1N 4448
 RESISTANCES IN OHMS ± 10% UNLESS SPECIFIED



DUAL PEAK PROGRAM METER WITH MEMORY 1.091.347
 DUAL PEAK PROGRAM METER 1.091.349



DUAL VU METER WITH MEMORY 1.091.346
 DUAL VU METER 1.091.348

