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Quick Reference Guide to Revox A77:

Page:

About Revox A77 and info on Mark versions

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- All Revox A77's that have not been serviced **will need service**.
  These decks have been manufacured between 1967 and 1976, so by now they will probably be 50 years or older.
- There is a lot of experience in the field about what components have often failed, and what components will likely fail on your deck in the future if they still have not failed yet. So you should replace them now.
  This document is a breakdown of what to do to get a Revox A77 back into shape.
- For this you will need to take the deck apart, to the individual circuit boards.
  A lot of soldering and desoldering will be required, so experience in the repair field is recommended.
- This guide is NOT a tutorial, nor a guide to repair, but a Quick Reference Guide for technicians to get to information quickly, without having to search through the 300 page Service Manual back and forth all the time.
  But, the original SM is still required for reference and for specific problems, of course.
- As there a 4 versions of the A77, Mark I to Mark IV, there may be differences in your deck. This QRG focusses on Marks III & IV.
- How do you know which version you have?
  - **A77 – version MK I** Serial-No. S 054 – S18 080 produced 08.1967 to 06.1969
    Serial-No. G 100 – G 19 368 produced 10.1967 to 06.1969
  - non spring left tapeguide, left roller is not a bearing but solid alu disc
  - silver lower front, black vu meters that are only lit when recording
  - dark shiny upper front
  - plastic reeltables
  - Revox logo with High Fidelity
  - black and red plastic pushbuttons
  - knobs transparent plastic
  - **A77 – version MK II** Serial-No. S 18 081 – S 31 000 produced 06.1969 to 06.1970
    Serial-No. G 19 369 – G 54 600 produced 06.1969 to 08.1971
  - left tape guide spring loaded, left roller is bearing
  - silver lower front, black vu meters that are only lit when recording
  - dark shiny upper front
  - alu reeltables
  - Revox logo with High Fidelity
  - black and red plastic pushbuttons
  - knobs transparent plastic
  - **A77 – version MK III** Serial-No. S 45 640 – S 72 852 produced 08.1971 to 08.1973
    Serial-No. G 55 000 – G 145 099 produced 08.1971 to 08.1974
  - dark lower front, silvery vumeters
  - dark matte upper front
  - single Revox logo
  - black and red plastic pushbuttons
  - knobs transparent plastic
  - 3e lightbulb installed for meter illumination
  - new chassis, is exchangeable
  - pertinax pcb
  - **A77 – version MK IV** Serial-No. G 145 100 – G 289 836 produced 08.1974 – 10.1977
  - dark lower front, silvery vumeters
  - dark matte upper front
  - blue Revox logo with text "A 77 – STEREO – TAPERECORDER"
  - revised controls in alu-look
  - revised capstan PCB with IC 555 timer IC
  - tape counter with gear and toothed belt
  - epoxy pcb

  - remark: the "S" at the beginning of the serial No. means "Made in Schwitzerland"
    a "G" means "Made in Germany"
  - http://www.theimann.com/Analog/A77/Versionen.html

Revox A77 – Necessary repairs and attention points

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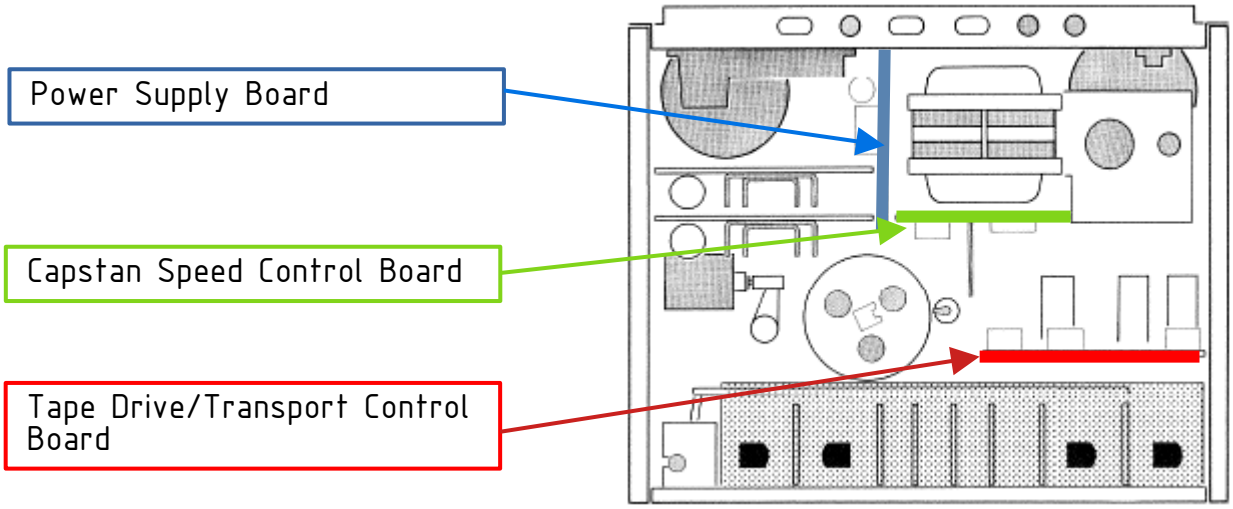
Here is the list of the **necessary** things to do:

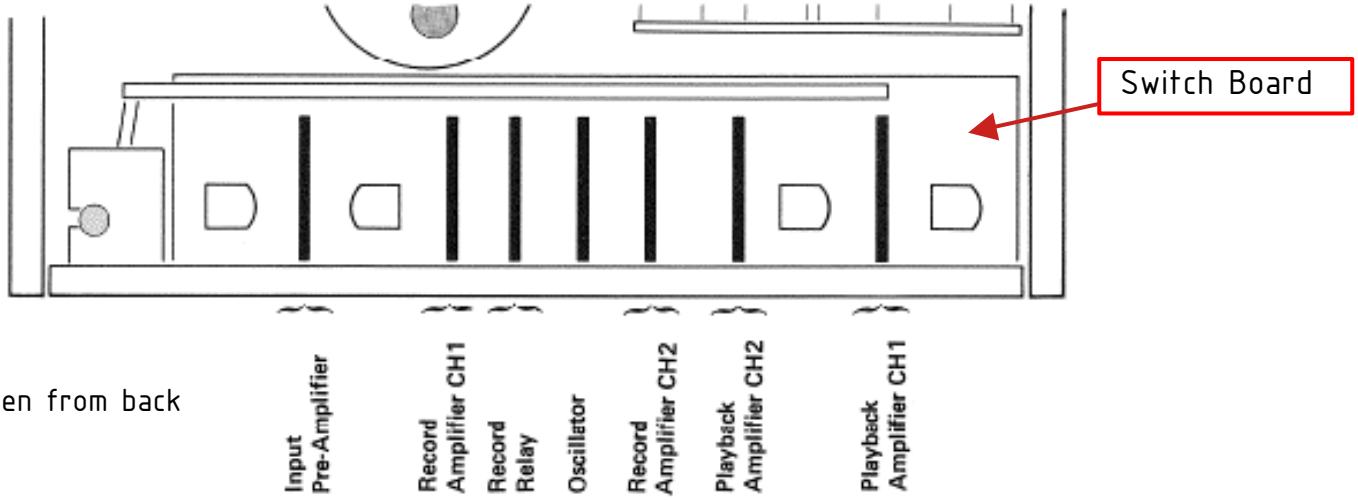
- ❑ **Before power on**:
  Replace the 4 rifa caps (0,47 µF = 470 nF) sparkkillers:
  - ❑ 3x on tape drive transport control board.
  - ❑ 1x on capstan board.
- ❑ And **if** there are blown rifa's, check surrounding diodes and resistors.
- ❑ Set deck for **240** V operation (when in EU). Deck can now be switched **on** for testing.
- ❑ **After power on**, **check** on the power supply board :
  - ❑ 21 V AD1 (red) & ED1 (yellow). Adjust P106.
  - ❑ 27 V DM1 (blk) & DB1 (vio) & DF1 (vio) & DM2 (wht). No adjust possible.
- ❑ Then replace all **electrolytic** caps on the 7 audio cards, the switch board and the 3 control boards as well. A list is supplied further in this document. Probably replace tantalum too.
- ❑ Replace 3 **rectifiers** on Power Supply Board and Capstan Board.
- ❑ Replace **motor** caps 3x.
- ❑ Replace all 14x **trimpots** on the audio cards, 1x on the switch board, 1x on Power Supply Board, 1x on Capstan Board.
- ❑ Replace 4x SKF 608 (2Z or ZZ) **bearings** in both spoolmotors if noisy.
- ❑ Replace 1x SKF 626 (2Z or ZZ) tape guide **bearing** left side.
- ❑ Replace 3 **caps** on the switch board, and one **trimpot**.

There are also **points of attention**:

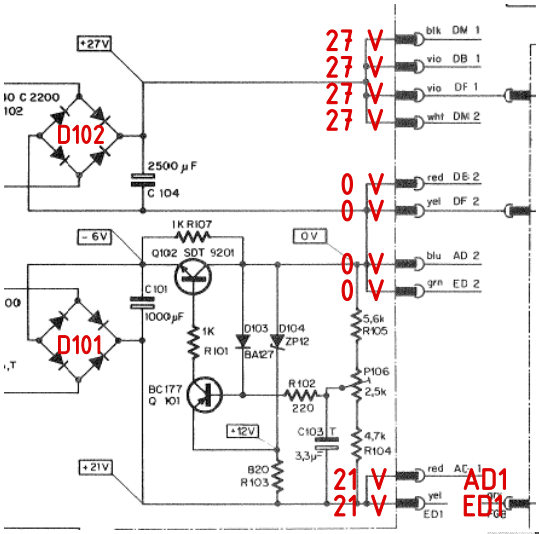
- ❑ The A77 won't latch if the **remote plug** on the top isn't installed
- ❑ The A77 won't turn on if the 2 plugs in the back near the powerplug aren't fitted.
  But be careful! They carry mains voltage.
- ❑ Clean the contact patches of the open **switch** on the switch pcb, which is connected to the power switch knob.
- ❑ Clean the open record **switches** next to VU meters for oxidation.
- ❑ Glue the VU meter **needles** to the base inside the meter (very difficult!! Only try when experienced. VU meter could get ruined).
- ❑ Check counter **belt**, replace if necessary. **Lubricate** the mechanism.
- ❑ Check **counter** workings.
- ❑ Check **pinch roller**, replace if necessary.
- ❑ Originally, in the A77 the **left** guide is a bearing and the **right** guide is stationary.
  Sometimes it has been altered.
- ❑ If you have audio on OUTPUT when fast winding, clean the contact tabs that are located behind the vu meter panel that make contact with the switchboard on fastwind.

Revox A77 – Location of the boards:





Power supply PCB voltages

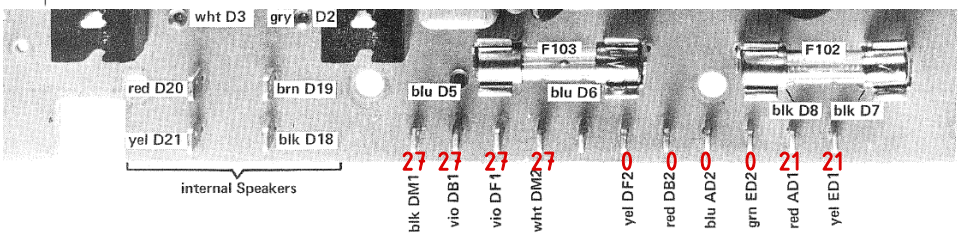


D101 Rectifier	B35C 35 V / 800 mA
D102 Rectifier	B40C 40 V / 2.2 A

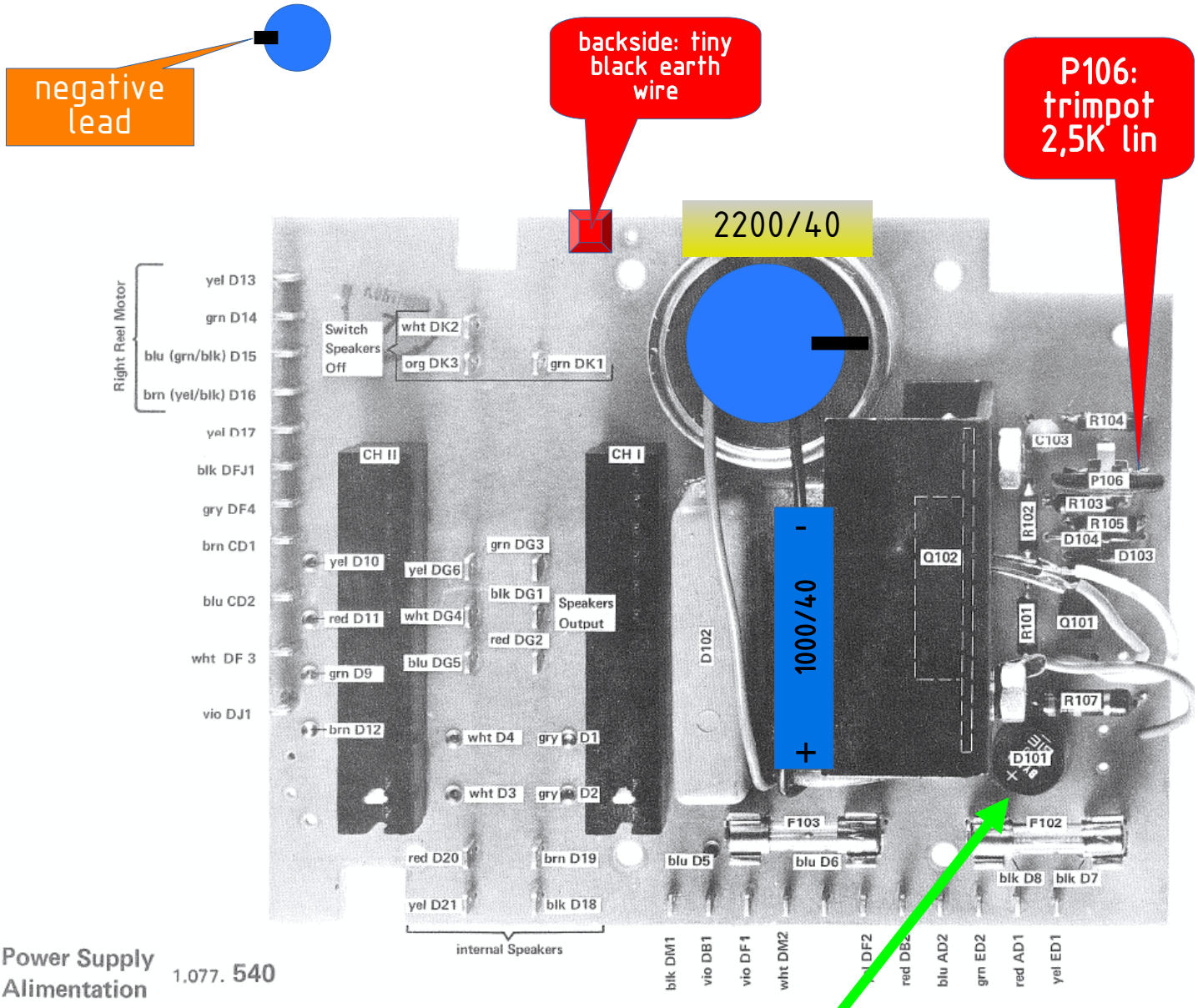
top:

21	yel
21	red
0	grn
0	blu
0	red
0	yel
–	
27	whi
27	vio
27	vio
27	blk

bottom



Power Supply Board layout

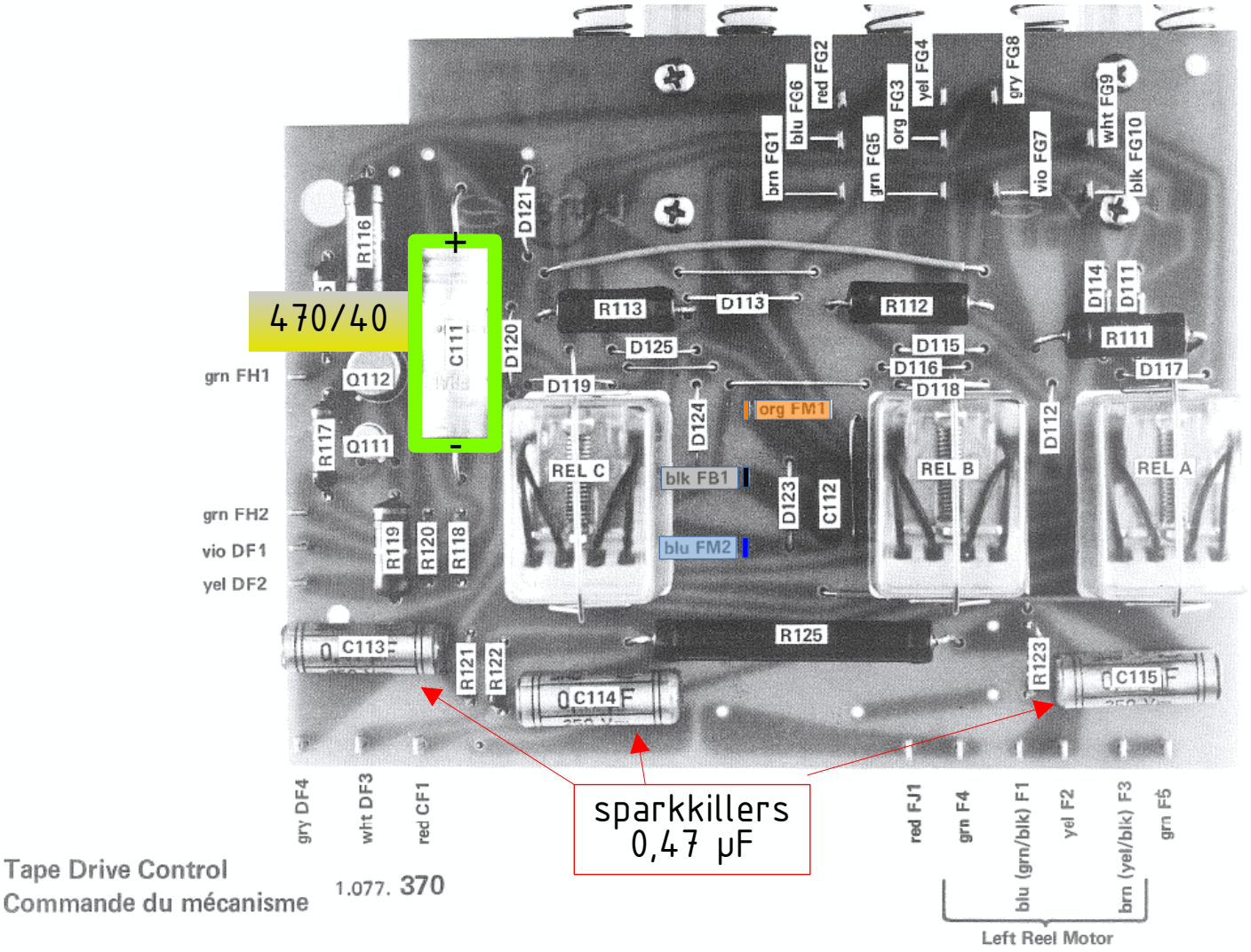


- Replace bridge rectifier D101 with new one (> 400 V 1,5 A)
  for instance 2W04G-E4/51
- Replace 2 caps:
  1000 µF / 40 V
  2200 µF / 40 V
- Replace trimpot 2,5 kΩ
- Don't forget the thin black wire at the back of the pcb!

Tape Drive / Transport Control Board layout

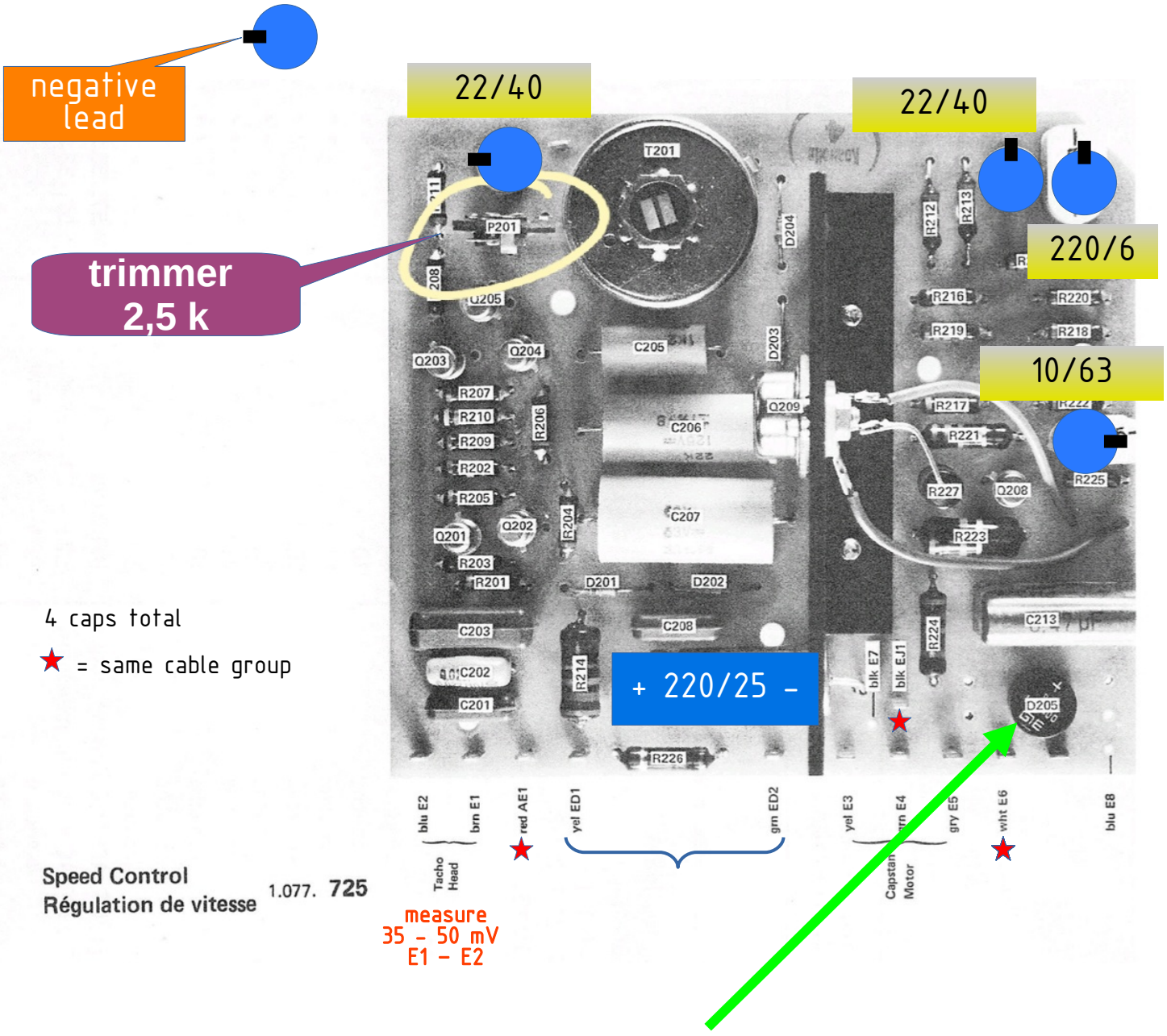
some values can vary between different versions

Relay A: Playback
Relay B: Rewind
Relay C: Fast Forward (+ Playback for ½ second)



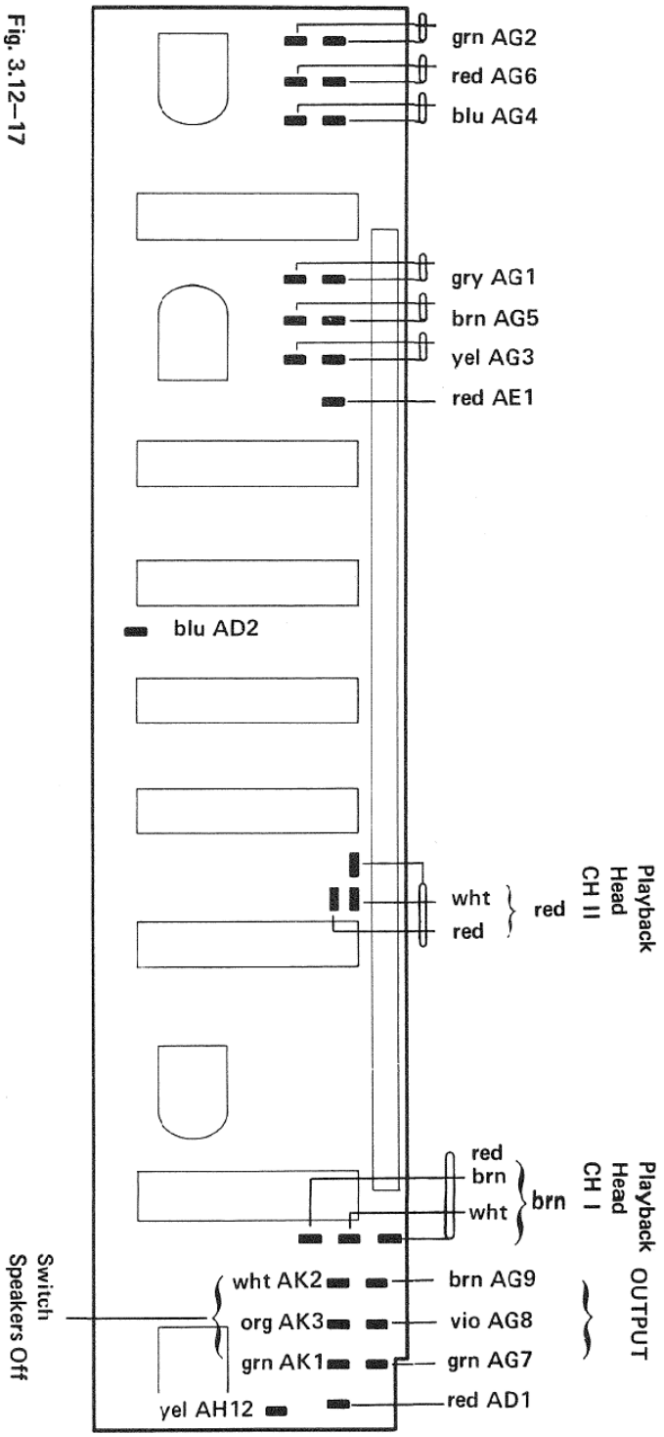
- Replace 3 sparkkillers 470nF/>300V
- Replace C111 470µF/40V

Capstan Speed Control Board layout

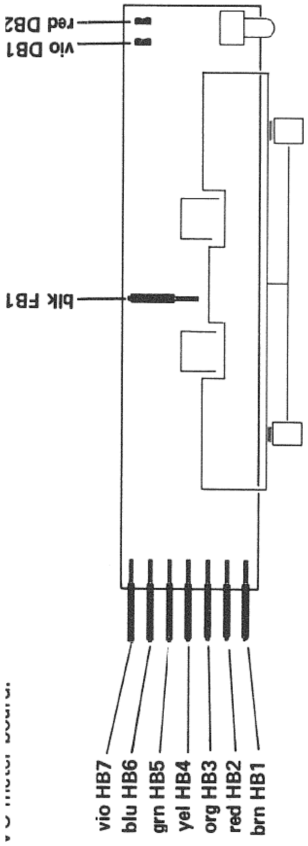


- Replace bridge rectifier D101 with new one (> 400 V 1,5 A) for instance 2W04G-E4/51
- Replace 5 caps:
  - 10 µF / 63 V
  - 22 µF / 40 V (2X)
  - 220 µF / 6 V
  - 220 µF / 25 V ax.
- Replace trimpot P201 2,5 kΩ

Switch Board layout



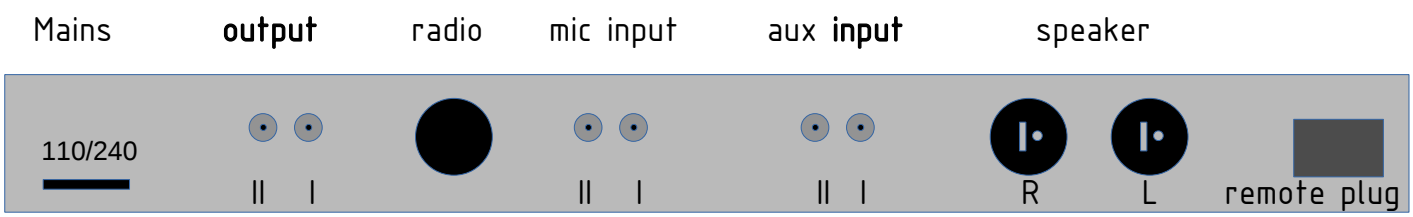
VU-Meter Board layout



BIAS Trap test point

probe point for step 8 C515

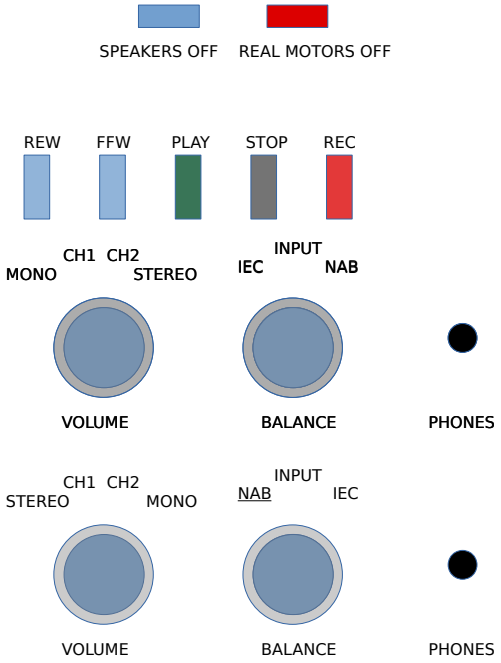
Backside connections

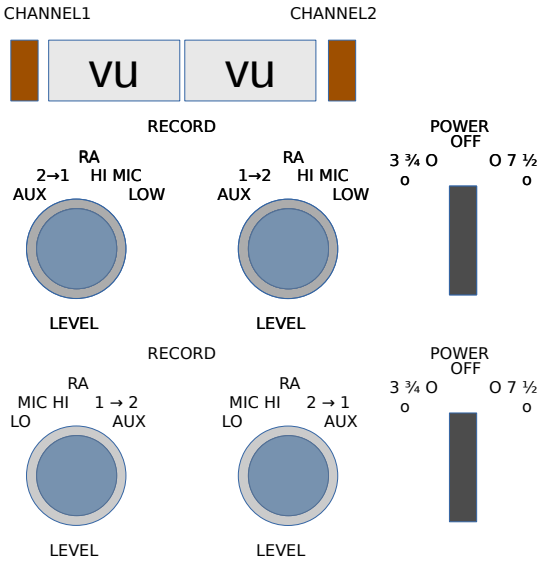


Viewed from backside

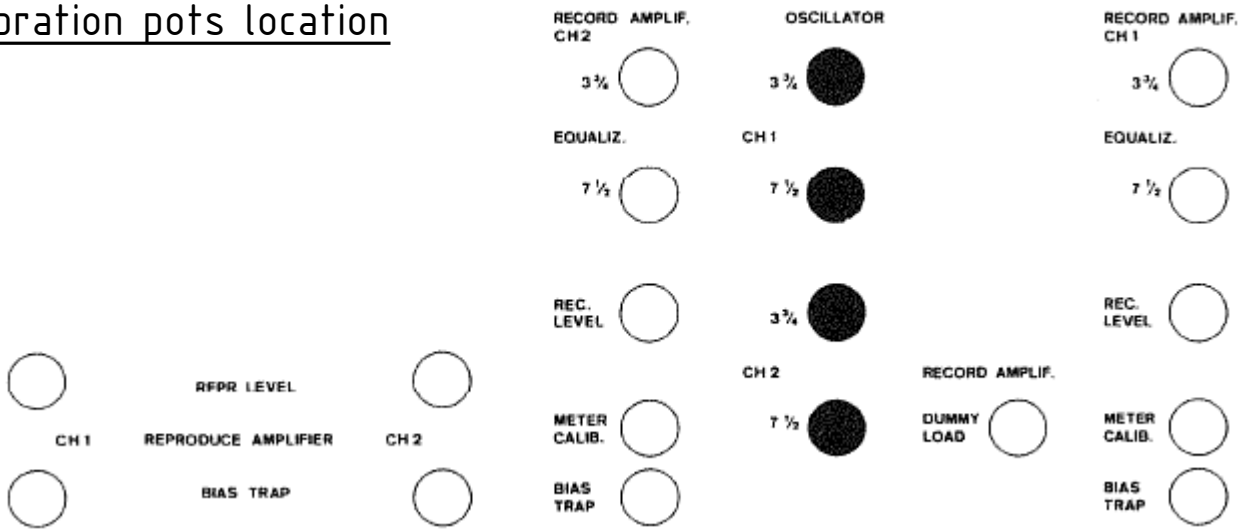
Front panel knobs layout

When all knobs and the face plate are off....
Now you know what you are doing
There are 2 versions !!





Calibration pots location



Revox A77 – Quick Overview Of Electrical Adjustments / Alignment / Calibration

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Only IF you're familiar with the procedure (if not, I suggest you do it from Service Manual 1st time).

[stereo+max, NAB, aux+min, 2xrec] defines the knobs and buttons from left to right before each step.

0 – **Demagnitise** the heads and the complete tapepath.

1a – **Capstan speed**: check for **35..50 mV** @ **9,5** cm/s at **E1** (brown) and **E2** (blue) of tacho head on capstan board.

1b – check for **1600** Hz / **19** cm/s at same terminals, adjust **T201**.

1c – check for **800** Hz / **9,5** cm/s at same terminals, adjust **P201**.

2 – check for **21 V AD1 (red) & ED1 (yellow)** at power supply board. Adjust **P106**.

3 – **Balance**: *[stereo+max, input, aux+max, 2xrec]* supply **30 mV@1000 Hz** at AUX inputs, and **short** the L/R input connectors. Adjust balance for **~2 V** @ outputs **equally** L/R. *Do not adjust the balance control from here on!*

4 – **Azimuth**: adjust screw top-right of **playback** head playing azimuth calibration tape.

5 – 6.3.3 **Output**: *[I/II+max, NAB, aux+min]* Play calibration tape, **level** section: set playback switch to **CH1/2**, adjust **REPR LEVEL 1/2** trimpot for 2 V at output.

6 – 6.3.4 **Frequency**: *[I/II+max, NAB]* Play calibration tape, **frequency** section (**–20 dB!**): measure both channels by changing switch to **CH1/2**, measure range 300 mV. *(AFAIK nothing can be set).*

7a – 6.4.1 ??**Oscillator**: *[stereo+max, NAB, aux+min, 2xrec]* Load test tape and record. Press both rec buttons, Check VU board orange **HB3** (CH2) & blue **HB6** (CH1) for:
21 Vac for 2 track machines, **16 Vac** for 4 track machines.

7b – Check **oscillator frequency**: 120 kHz ± 5 kHz at **same** terminals against ground. *(No adjust)*

8 – 6.4.3 **Bias Trap**: *[stereo+max, NAB, aux+min, 2xrec]* Load test tape and record. Adjust **Record Bias Trap** (5th/bottom trimpot!) for minimal voltage at test points C515 on both record amp pcbs for < 300 mV.

9 – 6.4.4 Set **Playback** Bias Trap (2nd/bottom trimpot!) at playback amp cards to minimal voltage at **OUTPUT** terminals. < 50 mV

10 – 6.5 **Record:** *[stereo+max, input, aux+max, 2xrec]* Input ~3-4 mV @ 1000 Hz, adjust frequency generator level for 200 mV @ **OUTPUT**

11 – 6.5.1 **Azimuth:** record 10 kHz tone and adjust screw at top-right of **rec** head for maximum signal. (or use XY-method)

12 – 6.5.2 **RF BIAS:** input 10 kHz -20 dB, and adjust **OSCILLATOR** pots CLOCKWISE for **both** channels and for **both** speeds (so 4x adjustment) to reach overbias after peak value at **OUTPUT**.
ΔV = ~4 to ~5 dB overbias.

13 – repeat the previous azimuth setting.

14 – 6.5.4 **Record Level:** *[ch1/II+max, input, aux+max, 2xrec]* Short both **AUX** inputs. Record 1 kHz and Before-and-after-tape switch to INP. Adjust generator so that OUTPUT is **200 mV**.

15 – 6.5.4 Switch to **NAB** and adjust **REC LEVEL I/II** trimpots for 200 mV @ OUTPUT. Playback mode switch to **CH1** or **CH2** respectively.

16 – 6.5.5 **Record Equalization:** Switch generator to **12 kHz -20 dB.** Set to **NAB.** Adjust output voltage between 0 to +1 dB with trimpots **EQUALIZ.** 0 dB = 200 mV @ 1 kHz. **CH1** / **CH2** & **both** speeds.

17 – 6.6.1 **Distortion:** *[ch1/II+max, NAB, aux+max, 2xrec]* **500** Hz @ **40** mV at INPUT. RECORD and measure distortion. Set input level so that distortion < 2% at 19 cm/s

18 – **VU Meter calibration** see the SM. And good luck!

The rest of the SM is all checks but nothing that can be adjusted.

Caps and component replace list

To be completed