

Service
Service
Service



Service Manual



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PHILIPS

TECHNICAL SPECIFICATION**General:**

| | |
|-------------------|--|
| Mains voltage | : 220V-230V / 50Hz for /00 /04 /14 230V-240V / 50Hz for /05 /10 110V-127V / 220V-240V /50Hz switchable for /01 /11 /11H 120V / 60Hz for /17 |
| Battery | : 9V (6xR20) |
| Power consumption | : $\leq 15W$ at maximum output power, ($\leq 11W$ at $1/8 P_{max}$) $\leq 5W$ (typ. 2W) with source switch in <i>tape/off</i> |

Amplifier:

| | |
|------------------------|---|
| Power stage protection | : temperature and shortcircuit |
| Output power mains | : 2 x 1,4W _{rms} -1dB at 4 Ω D=10% |
| battery | : 2 x 2W _{rms} -1dB at 4 Ω D=10% |
| Headphone | : 3,5mm stereo jack, $\geq 20mW$ at 32 Ω ($\approx 0,8V$ at 32 Ω) D=10% |
| Frequency response | : 30Hz - 16kHz (typ. at volume set to -20dB, CD mode 0dB signal level \Rightarrow use SBC429) |
| Tone control DBB | : +12dB ± 3 dB at 100Hz (volume set to -20dB) |

Tuner:

| | FM | MW |
|---|--|---|
| Tuning range | 87,5 - 108 MHz | 522 - 1607 kHz (520 - 1730 kHz for /17) |
| IF | 10,7 MHz ± 20 kHz | 468 kHz ± 3 kHz |
| Sensitivity Mono: 26dB S/N, m=30% -3 dB limiting point | $\leq 4 \mu V$ ($\leq 2\mu V$ typ.) $\leq 5 \mu V$ ($\leq 2\mu V$ typ.) | $\leq 4mV/m$ ($\leq 1,5mV/m$ typ.) |
| AFC capture range | $\pm 300kHz$ typ. | |
| Distortion | $\leq 7\%$ ($\leq 1\%$ typ.) RF=1mV $\Delta f=75kHz$ | $\leq 7\%$ ($\leq 2,5\%$ typ.) RF=100mV/m m=80% |
| Image rejection ratio | $\geq 20dB$ (26dB typ.) | $\geq 28dB$ |
| Channel separation at 1kHz | $\geq 20dB$ (25dB typ.) | |

CD: To be measured on phone socket with 100k Ω load.

| | |
|--------------------|--|
| Frequency response | : 30 - 16.000 Hz -4dB |
| Signal/Noise ratio | : $\geq 60dB$ |
| Distortion | : 0.2% typ. at 1 kHz |
| Channel difference | : $\leq 3dB$ at 1 kHz |
| Channel crosstalk | : 40dB typ. |
| De emphasis | : 0 or 15/50 μs switched automatically by subcode on the disc |

| | |
|--------------|-------------------|
| Laser | |
| Output power | : 500 μW |
| Wave length | : 780 \pm 20 nm |

Recorder: To be measured on phone socket with 100k Ω load.

| | |
|----------------------------------|--|
| Tape speed | : 4,76cm/s $\pm 3\%$ |
| Wow & Flutter | : $\leq 0,5\%$ weighted |
| Winding speed | : 120s for C60 cassette |
| Erase / Bias system | : permanent magnetic erase head / AC 65 $\pm 5kHz$ |
| Distortion at 250 nWb/m | : $\leq 7\%$ |
| Signal/Noise ratio (FF weighted) | : $\geq 40dB$ |
| (A - weighted) | : $\geq 43dB$ |
| Channel difference at PB | : $\leq 5dB$ |
| Channel difference overall | : $\leq 5dB$ |
| Channel separation | : $\geq 15dB$ at 1kHz |
| Track separation | : $\geq 55dB$ at 1kHz |

| | |
|--------------------------|-------------------------------|
| Frequency response IEC I | |
| Pb | : 125Hz - 8000Hz (within 8dB) |
| overall | : 250Hz - 6300Hz (within 8dB) |

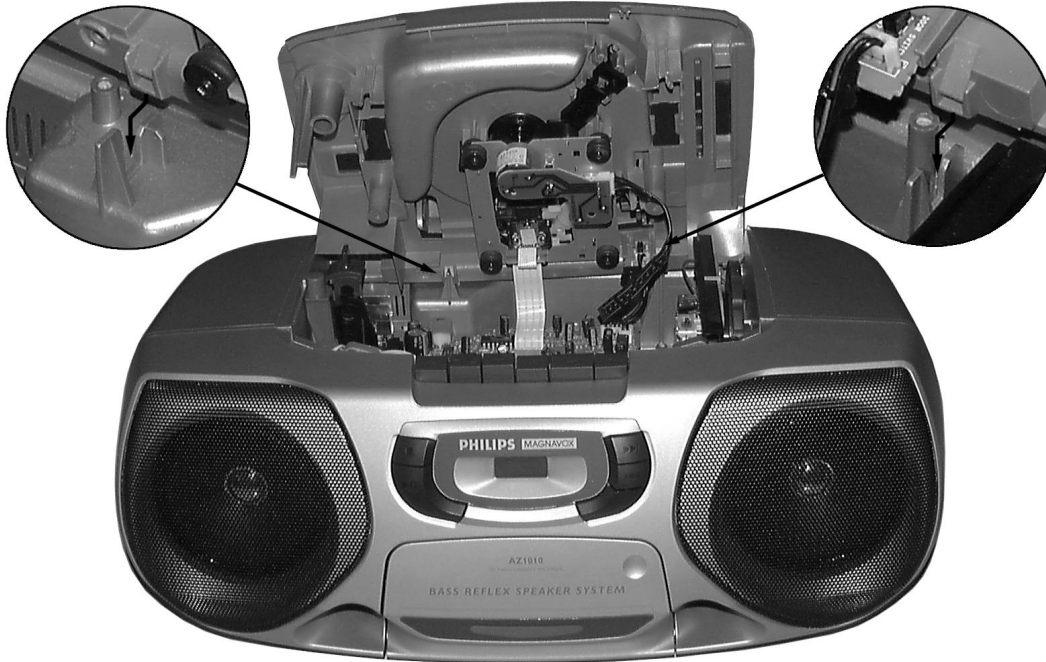
note: set is not prepared to play or record IEC II Chrome cassettes!

SERVICE HINTS

General Service position

For repairs on:

- CD failures
- Rec/Pb-amplifier
- Power-amplifier
- Power supply
- Tuner Board

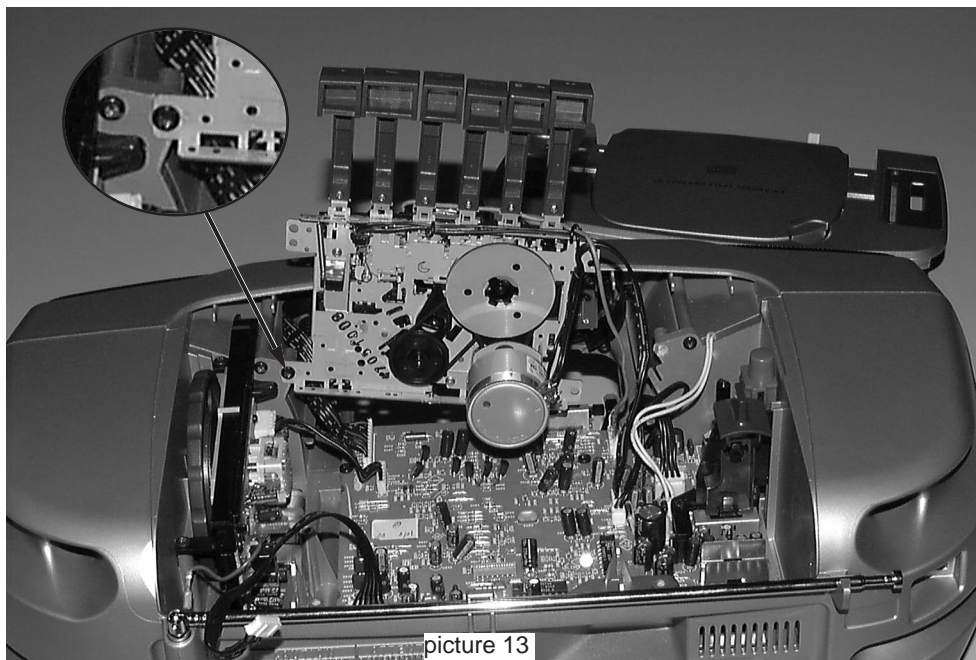


picture 12

Service position Tape Transport

For repairs on the Tape Transport or for adjustment of the tape speed:

- Dismantle tape transport as described in chapter 3-3.
- Fix tape transport on cabinet with one screw as shown in picture 13.
- Connect cables on Combi Board again.

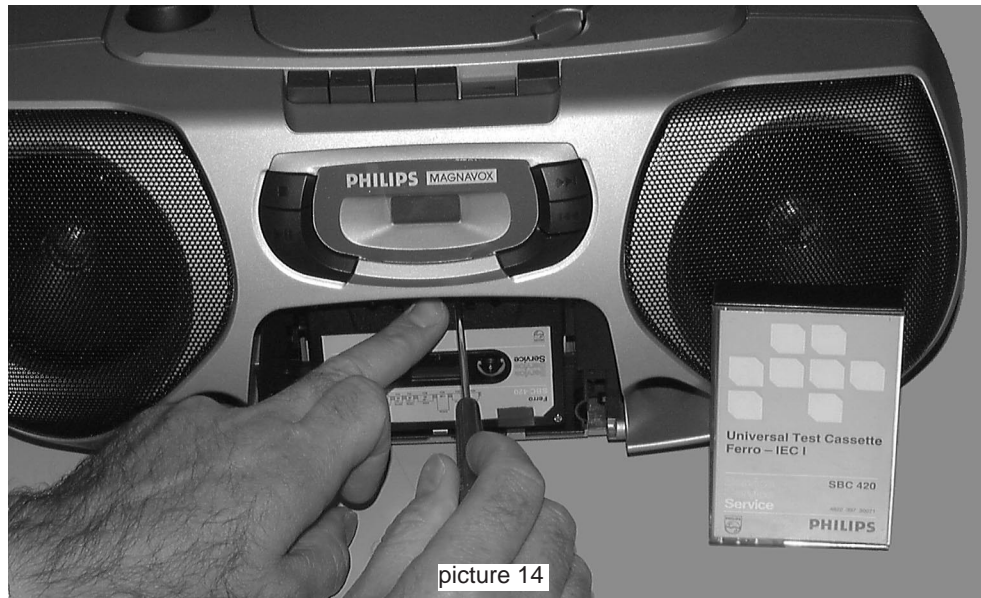


picture 13

SERVICE HINTS

Alignment of AZIMUTH

- Remove cassette door as described in chapter 3-1.
- Insert testcassette SBC420 (4822 397 30071) directly into cassette compartment and play 10kHz part.
- Adjust right hand screw for max. output and left channel = right channel.

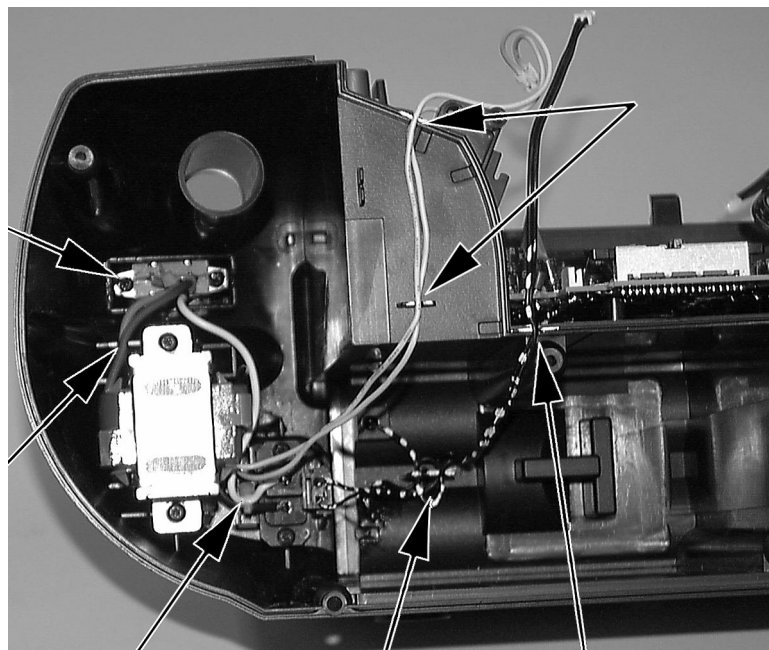


picture 14

Details wire routing of mains transformer

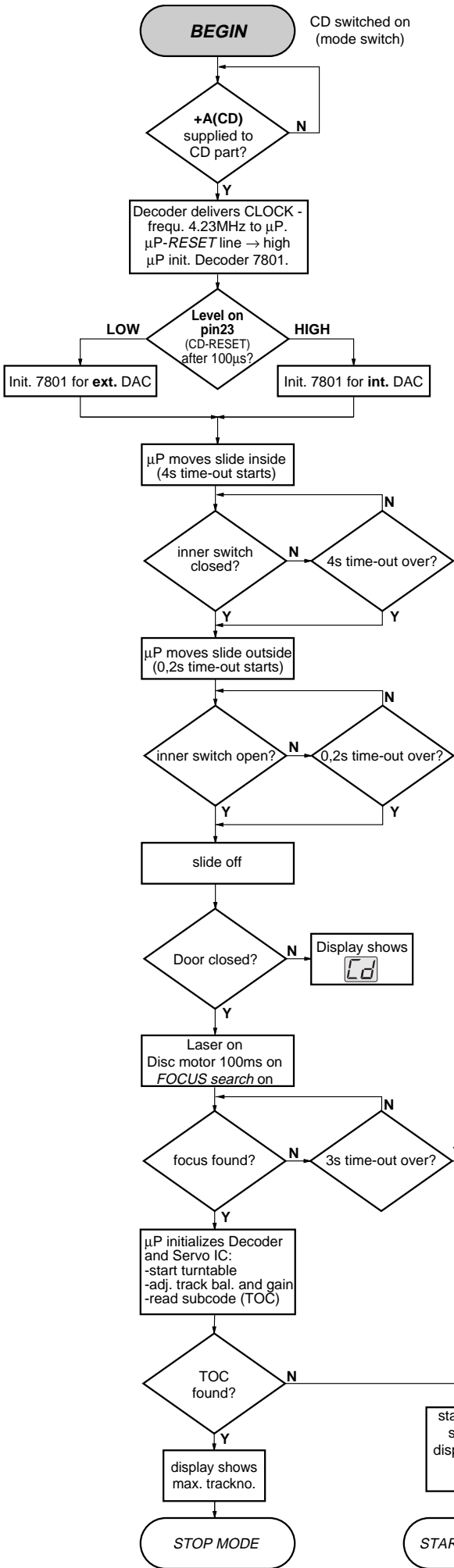
Wire routing has to be carried out as shown in picture 15 in order to:

- fulfil safety requirements and
- obtain tight speaker boxes



picture 15

CD STARTUP PROCEDURE



Remark: To check focus servo, slide servo, track servo and turntable use service test program

-> - Battery empty?
-> - check +A,
-> - mode switch o.k.?

-> check: - +A(CD), +B(CD), +LASER, +M,
-> - time constant of reset circuit
-> - Pin 32 of µP 7800 HIGH ?
-> - Pin 30 of µP 7800, if 4.23 MHz o.k.

.....> check: - door switch

.....> check: - Laser light on ?
Check pin 38 of 7803 and LASER CONTROL circuit
- Focus Servo

.....> check: - Motor control pin 27 of Decoder 7801 and Disc Motor driver 7805
- HF Signal by using service testprogram

SERVO PROCESSOR M62475FP

| Pin | Name | Direction | Description |
|-----|---------------------|---|---|
| 1-3 | A, B, C | Diode array → Servo processor | Current input (central photo diode signal input) |
| 4-5 | E, F | Diode array → Servo processor | Current input (satellite photo diode signal input) |
| 6 | SGT | Servo processor → Track error ampl. input | Signal generator output to track servo, sends 1700Hz for adjustment procedure |
| 7 | TE - | - | Inverting input of track error amplifier |
| 8 | TEGain | - | Gain control pin of track error amplifier |
| 9 | TG1 | - | Track Gain 1 - switch: controls the gain of the track servo amplifier |
| 10 | TE out | - | Track Error amplifier output |
| 11 | TC/Shock | - | Track Cross/Shock detector input |
| 12 | TS + | - | Non inverting input of track servo amplifier |
| 13 | TG2 | not connected | Track Gain 2 - switch: controls the gain of the track servo amplifier |
| 14 | TS - | - | Inverting input of track servo amplifier |
| 15 | TS out | Servo processor → Servo driver | Output of track servo amplifier |
| 16 | SS + | - | Non inverting input of slide servo amplifier |
| 17 | SS - | - | Inverting input of slide servo amplifier |
| 18 | Slide out | Servo processor → Motor driver | Output of slide servo amplifier |
| 19 | DET.FILTER | - | Pin for connection of DETection FILTer capacitor of <i>ADJUST LOGIC</i> |
| 20 | BIAS | Servo processor → external electronic | Reference Voltage output $V_{cc}/2$ of internal BIAS-generator |
| 21 | GND | - | Ground connection pin (negative supply) |
| 22 | MLA/DIS | μP → Servo processor | Serial interface Microprocessor LAtch control / DISCharge control for adjustment |
| 23 | JP1/SG | μP → Servo processor | Serial interface Jump control line / Signal Generator input line for adjustment |
| 24 | MCK | μP → Servo processor | Serial interface Clock input line |
| 25 | MSD | μP → Servo processor | Serial interface Data input line |
| 26 | D _{out} | Servo processor → μP | Serial interface Data output line |
| 27 | CLPF | - | Pin for connection of Low Pass Filter capacitor for <i>ADJUST LOGIC</i> |
| 28 | I _{REF} | - | Reference current input |
| 29 | V _{CC} | - | Positive supply connection pin (4V - 5.5V) |
| 30 | FS _{OUT} | Servo processor → Servo driver | Output of focus servo amplifier |
| 31 | FS - | - | Inverting input of focus servo amplifier |
| 32 | FEGain | - | Gain control pin of focus error amplifier |
| 33 | FE - | - | Inverting input of focus error amplifier |
| 34 | SGF | Servo processor → Focus error ampl. input | Signal generator output to focus servo, sends 1300Hz for adjust. procedure |
| 35 | C _{FSR} | - | Charge capacitor for Focus Search triangle-generator |
| 36 | ALPC + | - | Non inverting input of Automatic Laser Power Control amplifier |
| 37 | ALPC - | - | Inverting input of Automatic Laser Power Control amplifier |
| 38 | ALPC _{OUT} | Servo processor → Laser driver | Output of Automatic Laser Power Control amplifier |
| 39 | MRC | - | Connection pin for capacitor of Mirror detector |
| 40 | HF | Servo processor → Decoder | Output of HF amplifier |
| 41 | HFI | - | Inverting input of HF amplifier |
| 42 | ABC | - | Sum output of amplified A, B and C input (central photo diode signal input) to external ac-coupling capacitor |

SIGNAL PROCESSOR M65824FP

| Pin | Name | Direction | Description |
|-----|------------------------|------------------------------------|--|
| 1 | Anal. V _{SS} | - | Analog system ground |
| 2 | ADJCLK | not connected | Clock output for servo adjustment; f=88.2kHz |
| 3 | LOCK | not connected | Lock monitor / low disc rotation output |
| 4 | CKSEL | - | System clock selection. Low=8.4672MHz, high=16.9344MHz |
| 5 | RESET | μP → Signal processor | System reset (low level = active) |
| 6 | C423 | Signal processor → μP | 4.2336MHz clock output |
| 7 | C846 | not connected | 8.4672MHz clock output |
| 8 | XI | X-Tal → Signal processor | Crystal oscillator input |
| 9 | DVSS | - | Digital system ground |
| 10 | XO | Signal processor → X-Tal | Crystal oscillator output |
| 11 | TEST | - | Normal / Test selection input. Testmode = high |
| 12 | SBCO | not connected | Subcode serial output |
| 13 | SCCK | - | Shift clock input for subcode data read |
| 14 | SYCLK | not connected | Frame lock status output. Lock = high |
| 15 | EFFK | not connected | EFM frame clock output. Duty = 50% |
| 16 | KILLB | not connected | Digital silence mute output. Digital zero = low |
| 17 | EST1 | not connected | Error monitor output 1 |
| 18 | EST2 | not connected | Error monitor output 2 |
| 19 | HF | Servo processor → Signal processor | HF signal input |
| 20 | TLC | - | Slice level control signal output |
| 21 | LPF | - | PLL loop filter |
| 22 | Dig.V _{DD} | - | Digital interface power supply |
| 23 | DSPS | - | Digital system power supply |
| 24 | SBQS | not connected | Interrupt signal to read out subcode Q data. Read = low |
| 25 | CRCF | not connected | Subcode Q-channel Cyclic Redundance Check Flag output. CRC o.k.=high level |
| 26 | SCAND | not connected | Subcode sync signal detection. Sync = high |
| 27 | PWM | Signal processor → Motor driver | Disc motor driving (Pulse Width Modulation) output |
| 28 | DVDD2 | - | Digital interface power supply 2 |
| 29 | DVSS2 | - | Digital system ground2 |
| 30 | MCK | μP → Signal processor | μP interface shift Clock input |
| 31 | MSD | μP ↔ Signal processor | μP interface Serial Data I/O line |
| 32 | MLAB | μP → Signal processor | μP interface Latch clock input (internal 22k pull up resistor) |
| 33 | EXP1 | → Signal processor | Versatile input pin (internal 4.7k pull up resistor) |
| 34 | EXP2 | → Signal processor | Versatile input pin (internal 4.7k pull up resistor) |
| 35 | CGREF | → Signal processor | Charge-pump for LPF reference current input |
| 36 | AMPREF | not connected | Op-amp for LPF reference voltage setting |
| 37 | L _{OUT} /DO | Signal processor → | Audio signal output (left channel) / Ext. DAC mode: Audio serial data output |
| 38 | LNEG | not connected | Charge pump output (left channel) / Ext. DAC mode: Wordclock output |
| 39 | R _{OUT} /DSCK | Signal processor → | Audio signal output (right channel) / Ext. DAC mode: Data shift clock output |
| 40 | RNEG/LRCK | Signal processor → | Charge pump output (right channel) / Ext. DAC mode: L/R clock output |
| 41 | IREF | - | Current reference |
| 42 | Anal. V _{DD} | - | Analog System power supply |

SERVICE TESTPROGRAM

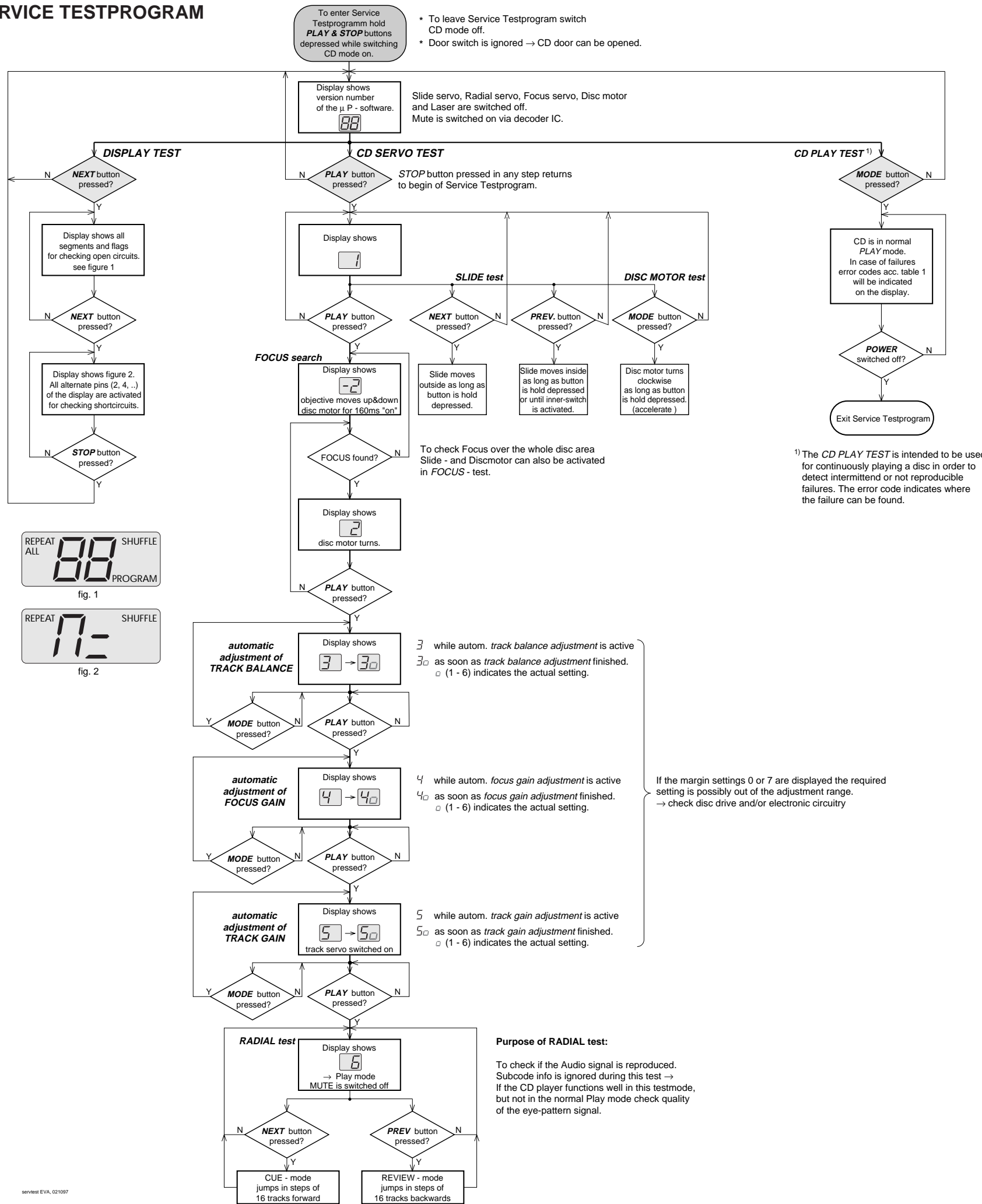


fig. 1

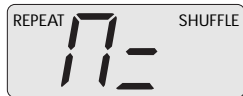


fig. 2

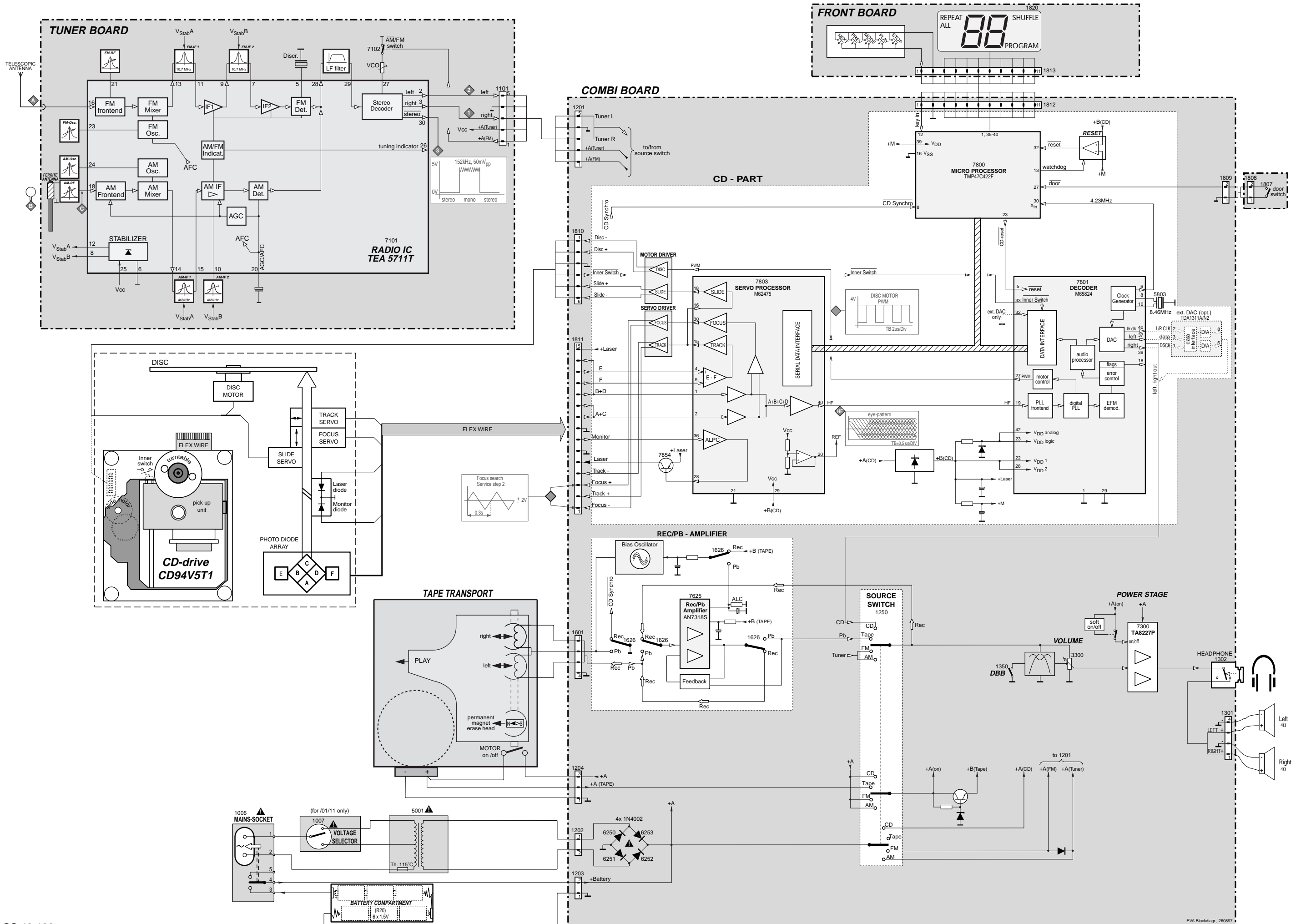
CD ERROR codes

| Error number | Error description | Error type |
|--------------|---|------------|
| E0 | Focus Error Triggered when the focus is lost for more than 250ms during playing the CD. | W |
| E2 | Slide-in error Generated when the inner-switch did not close within approx. 4s when the pick up is moved inside. Inner-switch or slide motor problems. | W |
| E3 | Slide-out error Generated when the inner-switch did not open within approx. 250ms when the pick up is moved from the inner position outside. Inner-switch or slide motor problems. | W |
| E5 | Jump error. Triggered when the servo processor counts too less tracks in a defined time during JUMPS. This can be caused by a disturbed HF-signal (the tracks cannot be recognized exactly), slide motor problems, track servo problems or scratched discs. | W |
| E6 | Subcode Error No valid subcode for 300ms during PLAY. | W |
| E7 | PLL lock error When the PLL did not lock after 10 retries then this warning message is generated and the servo is stopped and restarted (as if the user would have pressed STOP and then PLAY immediately) to recover. | W |
| F0 | Focus Search Error Triggered when the focus could not be found within 3s when starting up the CD. | F |
| F2 | Fatal Subcode Error No valid subcode for more than 4s during PLAY. | F |

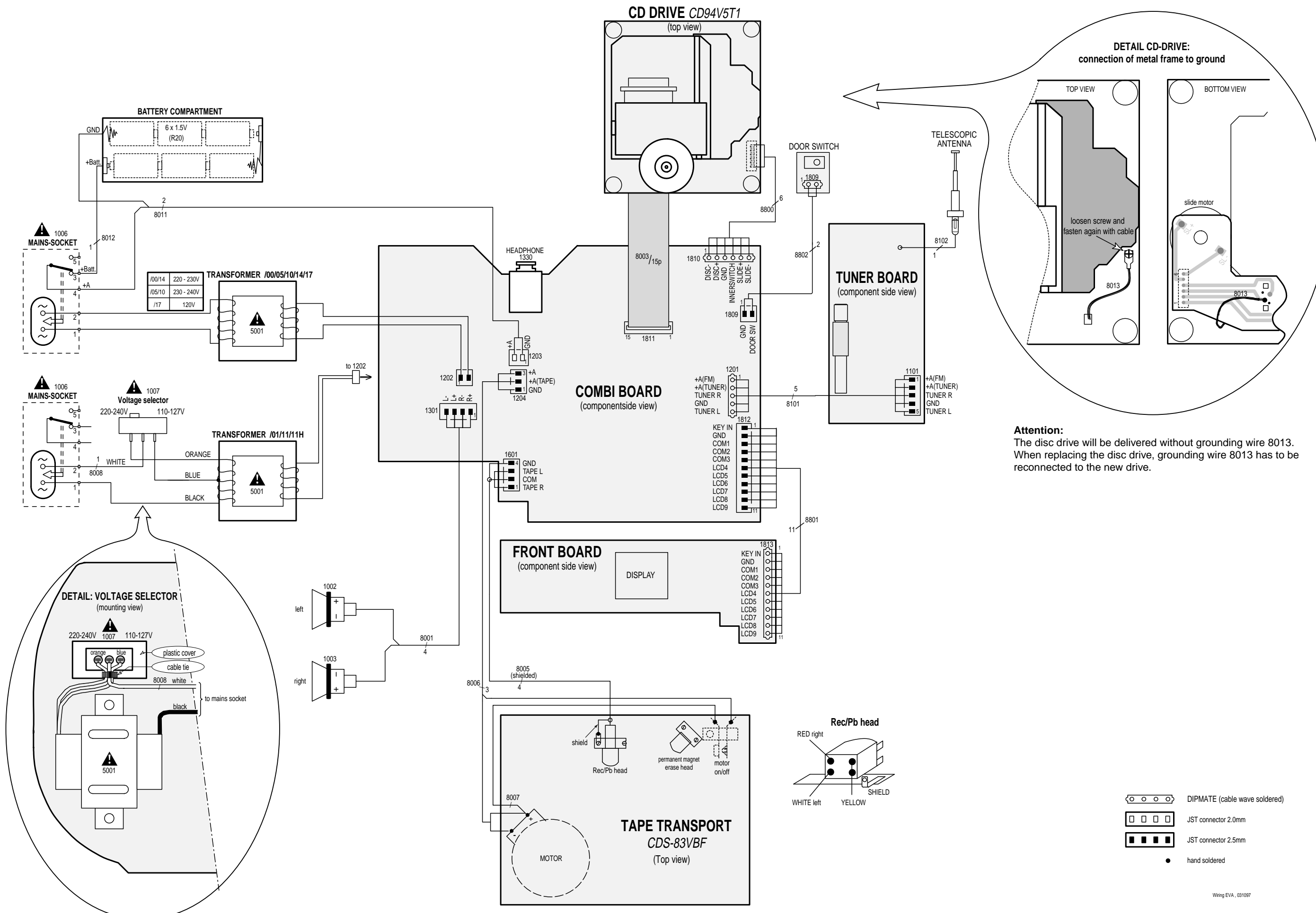
table 1

Error type: W = Warning → set continues operation, message remains on the display until next error occurs or any key is pressed.

F = Fatal Error → set stops operation, message remains on the display. (The set can only be operated again via a reset)



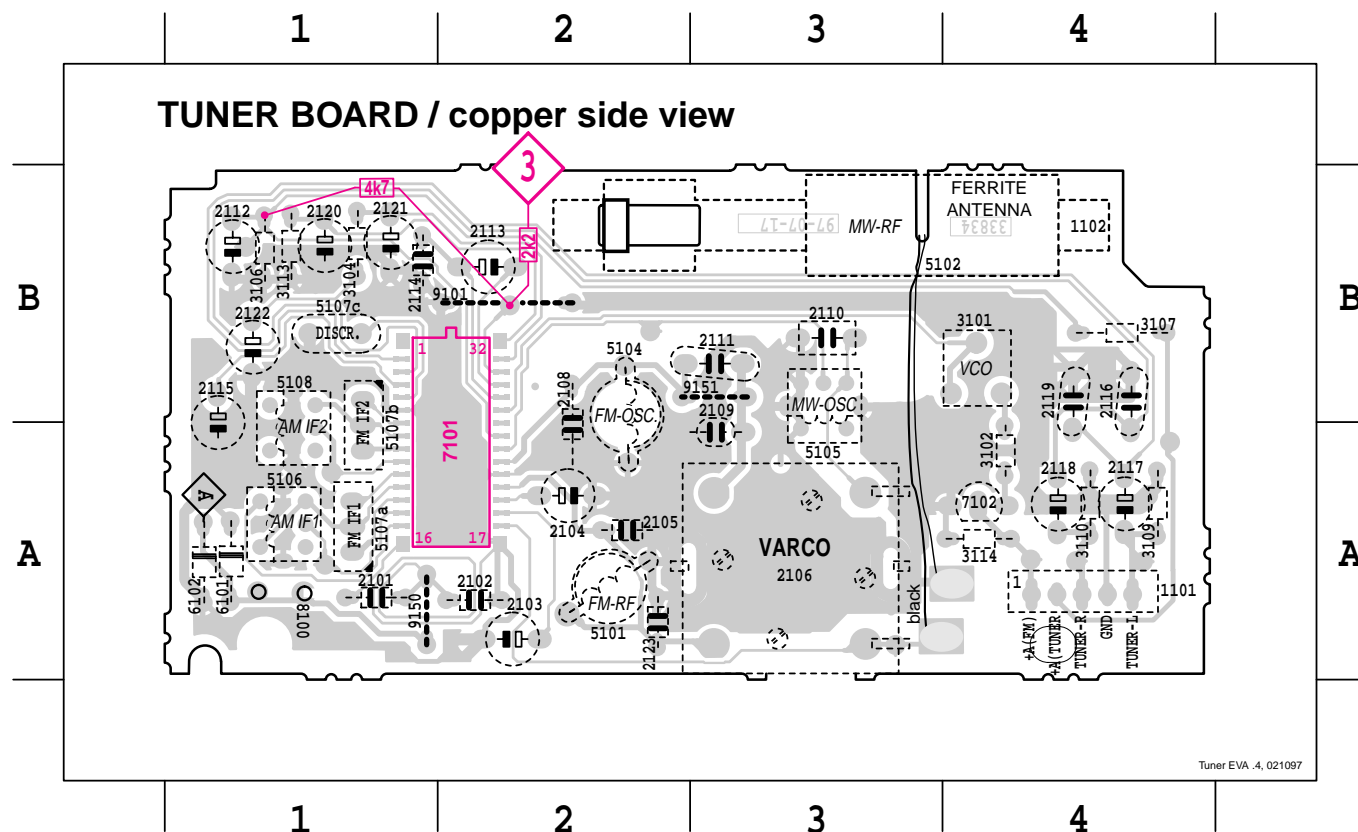
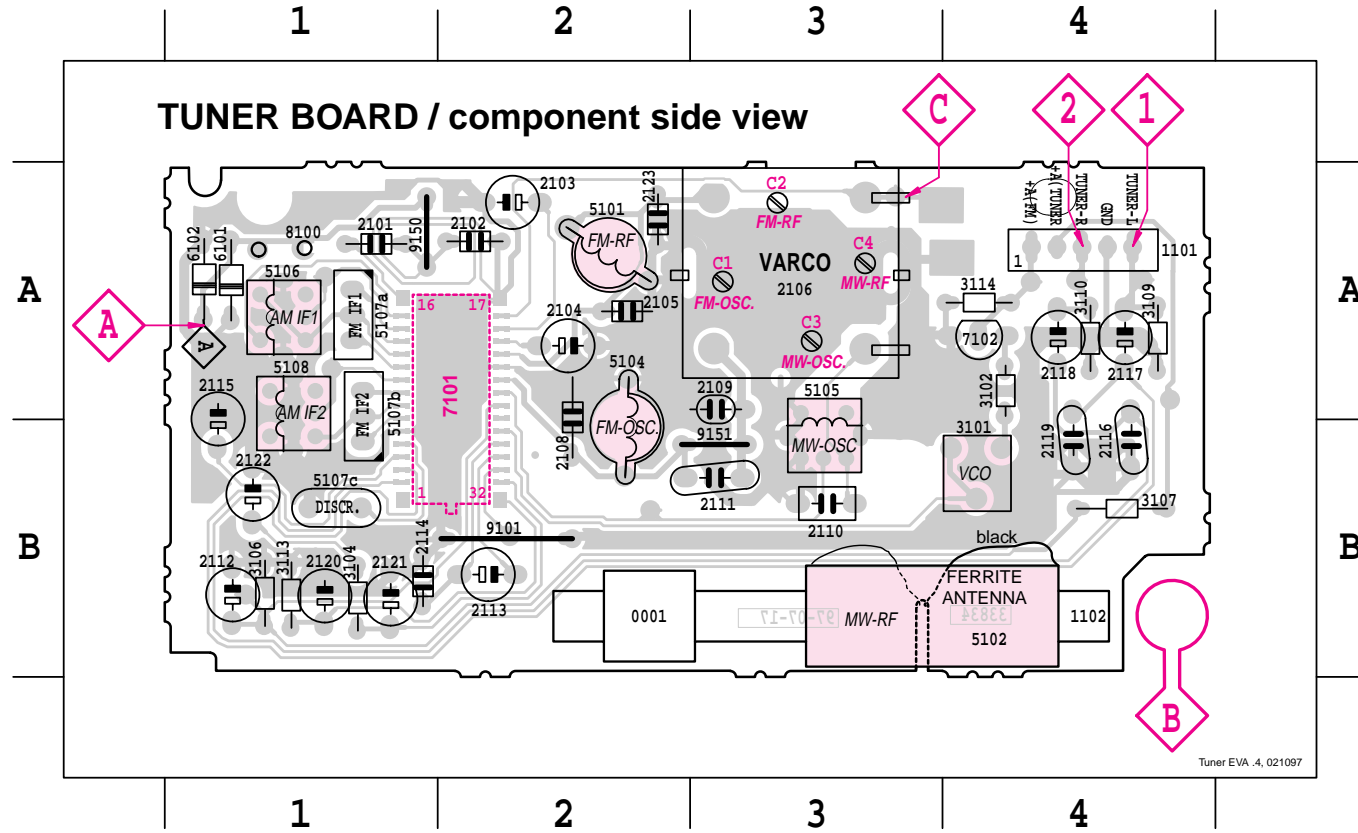
WIRING DIAGRAM



Attention:
The disc drive will be delivered without grounding wire 8013. When replacing the disc drive, grounding wire 8013 has to be reconnected to the new drive.

- DIPMATE (cable wave soldered)
- JST connector 2.0mm
- JST connector 2.5mm
- hand soldered

| | | | | | | | | |
|----------|----------|----------|----------|----------|----------|-----------|----------|----------|
| 0001 B 2 | 2104 A 2 | 2111 B 3 | 2117 A 4 | 2123 A 2 | 3109 A 4 | 5104 B 2 | 5108 A 1 | 9101 B 2 |
| 1101 A 4 | 2105 A 2 | 2112 B 1 | 2118 A 4 | 3101 B 4 | 3110 A 4 | 5105 B 3 | 6101 A 1 | 9150 A 1 |
| 1102 B 4 | 2106 A 3 | 2113 B 2 | 2119 B 4 | 3102 A 4 | 3113 B 1 | 5106 A 1 | 6102 A 1 | 9151 B 3 |
| 2101 A 1 | 2108 A 2 | 2114 B 1 | 2120 B 1 | 3104 B 1 | 3114 A 4 | 5107a A 1 | 7101 A 2 | |
| 2102 A 2 | 2109 A 3 | 2115 A 1 | 2121 B 1 | 3106 B 1 | 5101 A 2 | 5107b A 1 | 7102 A 4 | |
| 2103 A 2 | 2110 B 3 | 2116 B 4 | 2122 B 1 | 3107 B 4 | 5102 B 4 | 5107c B 1 | 8100 A 1 | |

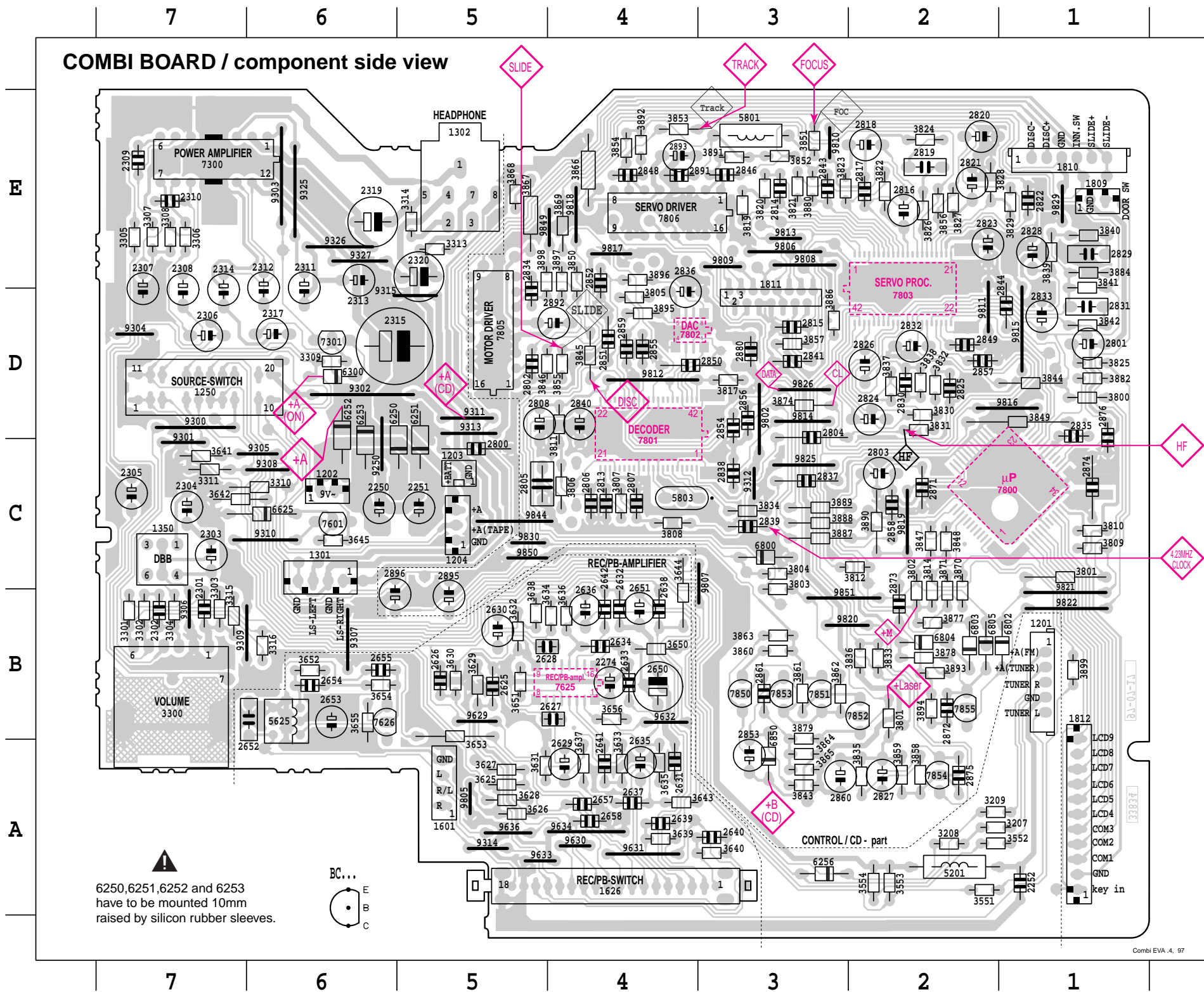


TUNER ADJUSTMENT TABLE

| Waverange | Input Frequency | Input | Set tuned to | Adjust | Measure on | Scope / Counter |
|---|---|--|----------------|----------------------------|----------------------|--|
| OSCILLATOR | | | | | | |
| FM ¹⁾ 87,5 - 108 MHz | 87,35 MHz | A | lower band end | 5104 | 1 or 2 | |
| | 108,25 MHz | $\Delta f = \pm 500\text{kHz}$ $V_{RF} = 100\mu\text{V}$ | upper band end | 2106 C1 | 1 or 2 | |
| MW 525 - 1607 kHz (530 - 1710 kHz) ²⁾ | 512 kHz (525 kHz) | C | lower band end | 5105 | 1 or 2 | |
| | 1635 kHz (1720 kHz) | $\Delta f = \pm 30\text{kHz}$ $V_{RF} = 100\mu\text{V}$ | upper band end | 2106 C3 | 1 or 2 | |
| FM - RF | | | | | | |
| FM 87,5 - 108 MHz | 87,5 MHz | A | 87,5 MHz | 5101 | 1 or 2 | |
| | 108 MHz | $\Delta f = \pm 500\text{kHz}$ $V_{RF} = 10\mu\text{V}$ | 108 MHz | 2106 C2 | 1 or 2 | |
| VCO | | | | | | |
| FM | 98 MHz | A continuous wave $V_{RF} = 1\text{ mV}$ | 98 MHz | 3101 | 3 | $152 \pm 1\text{ kHz}$ ³⁾ |
| AM - IF | | | | | | |
| MW | 468 kHz connect pin 24 of IC 7101 (AM Osc) with short wire to ground | C $\Delta f = \pm 15\text{kHz}$ $V_{RF} = 10\text{mV}$ | IC 7101 10 | 5106 | 1 or 2 | |
| | | | IC 7101 14 | 5108 | 1 or 2 | |
| AM - RF | | | | | | |
| MW | 560 kHz | B $\Delta f = \pm 30\text{kHz}$ V_{RF} as low as possible | 560 kHz | 5102 (ferroceptor coil) | 1 or 2 | |
| | 1500 kHz | | 1500 kHz | 2106 C4 | 1 or 2 | |

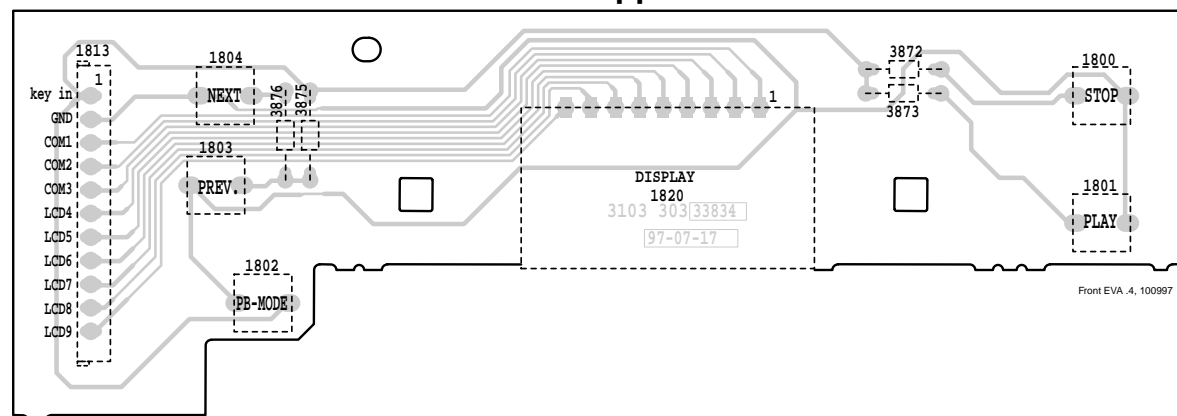
↑ repeat

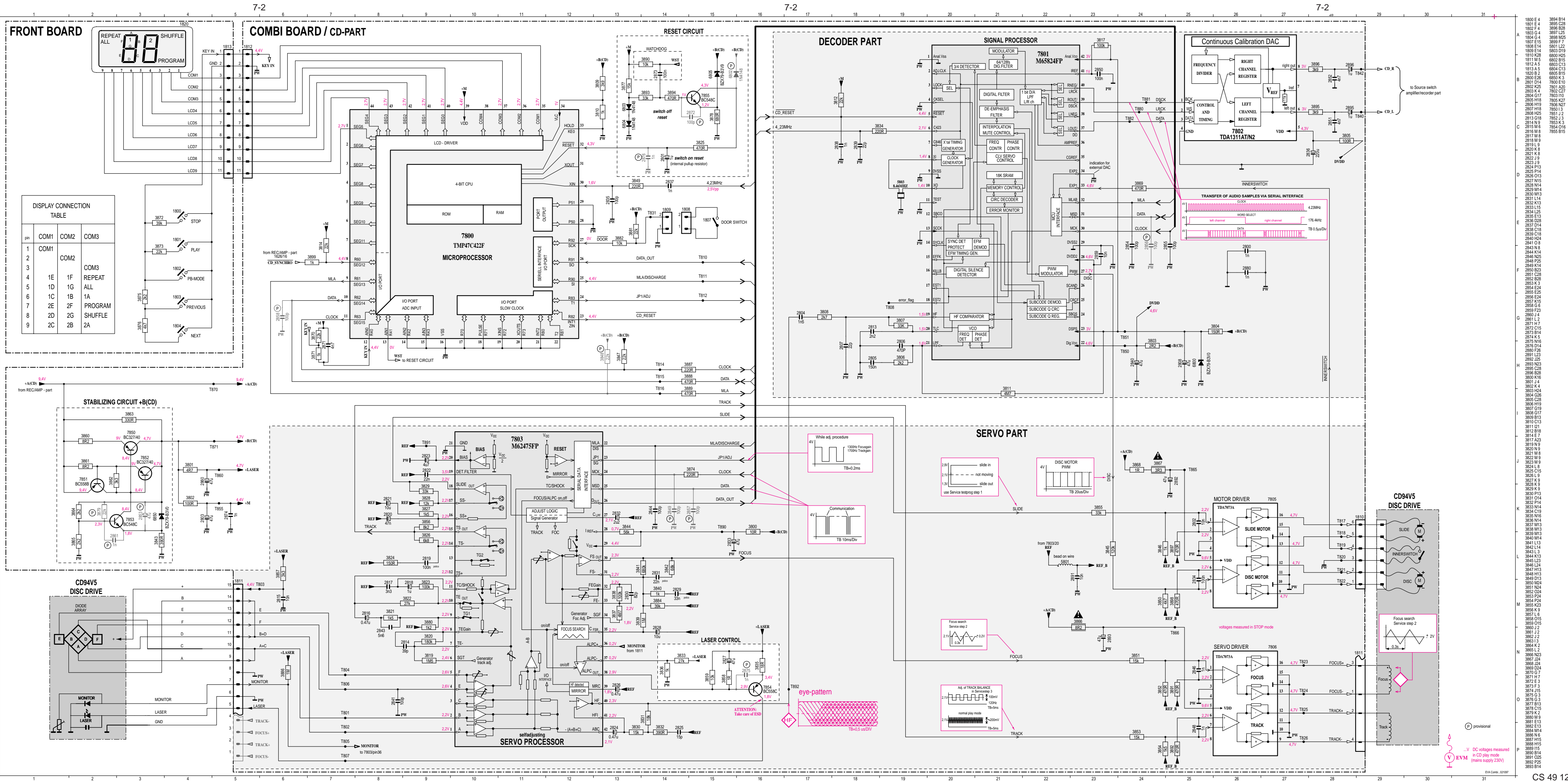
- 1) Check if capacitor 2109 stands upright before starting adjustments.
- 2) for USA /17
- 3) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum).
- 4) RC-network serves for damping the IF-filter while adjusting the other one.



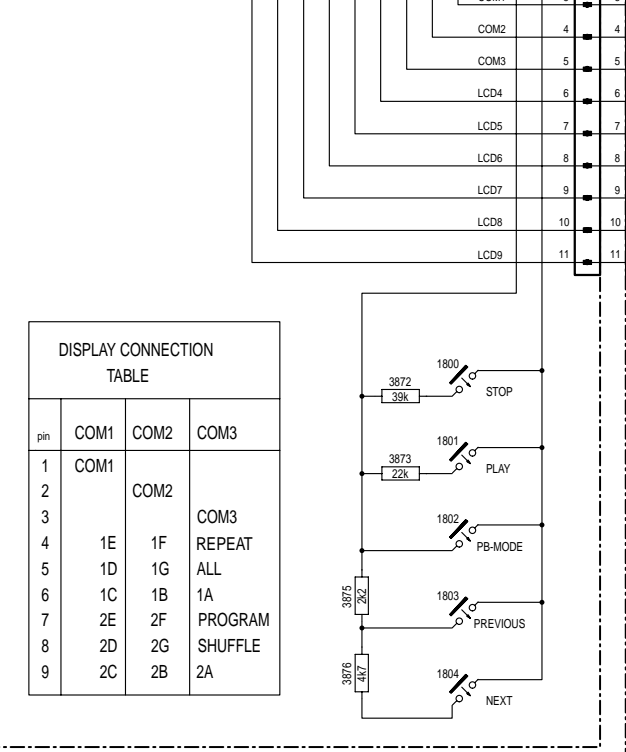
| | | | | |
|----------|----------|----------|----------|----------|
| 1201 B 1 | 2815 D 3 | 3315 B 7 | 3843 A 3 | 7800 C 1 |
| 1202 C 6 | 2816 E 2 | 3316 B 6 | 3844 D 1 | 7801 D 4 |
| 1203 C 5 | 2817 E 2 | 3551 A 2 | 3845 D 4 | 7802 D 4 |
| 1204 C 5 | 2818 E 2 | 3552 A 2 | 3846 D 5 | 7803 D 2 |
| 1250 D 7 | 2819 E 2 | 3553 A 2 | 3847 C 2 | 7805 D 5 |
| 1301 C 6 | 2820 E 2 | 3554 A 2 | 3848 C 2 | 7806 E 4 |
| 1302 E 5 | 2821 E 2 | 3625 A 5 | 3849 D 1 | 7850 B 3 |
| 1350 C 7 | 2822 E 1 | 3626 A 5 | 3850 E 4 | 7851 B 3 |
| 1601 A 5 | 2823 E 2 | 3627 A 5 | 3851 E 3 | 7852 B 2 |
| 1626 A 4 | 2824 D 2 | 3628 A 5 | 3852 E 3 | 7853 B 3 |
| 1809 E 1 | 2825 D 2 | 3629 B 5 | 3853 E 4 | 7854 A 2 |
| 1810 E 1 | 2826 D 2 | 3630 B 5 | 3854 E 4 | 7855 B 2 |
| 1811 D 3 | 2827 A 2 | 3631 A 5 | 3855 D 4 | 9250 C 6 |
| 1812 A 1 | 2828 E 1 | 3632 B 5 | 3856 E 2 | 9300 D 7 |
| 2250 C 6 | 2829 E 1 | 3633 A 4 | 3857 D 3 | 9301 C 7 |
| 2251 C 5 | 2830 D 2 | 3634 B 4 | 3858 A 2 | 9302 D 6 |
| 2252 A 1 | 2831 D 1 | 3635 A 4 | 3859 A 2 | 9303 E 6 |
| 2274 B 4 | 2832 D 2 | 3636 B 4 | 3860 B 3 | 9304 D 7 |
| 2301 B 7 | 2833 D 1 | 3637 A 4 | 3861 B 3 | 9305 C 6 |
| 2302 B 7 | 2834 D 5 | 3638 B 5 | 3862 B 3 | 9306 B 7 |
| 2303 C 7 | 2835 D 1 | 3639 A 4 | 3863 B 3 | 9307 B 6 |
| 2304 C 7 | 2836 D 4 | 3640 A 3 | 3864 A 3 | 9308 C 6 |
| 2305 C 7 | 2837 C 3 | 3641 C 7 | 3865 A 3 | 9309 B 6 |
| 2306 D 7 | 2838 C 3 | 3642 C 7 | 3866 E 4 | 9310 C 6 |
| 2307 D 7 | 2839 C 3 | 3643 A 4 | 3867 E 5 | 9311 D 5 |
| 2308 D 7 | 2840 D 4 | 3644 B 4 | 3868 E 5 | 9312 C 3 |
| 2309 E 7 | 2841 D 3 | 3645 C 6 | 3869 E 4 | 9313 D 5 |
| 2310 E 7 | 2843 E 3 | 3650 A 4 | 3870 B 2 | 9314 A 5 |
| 2311 E 6 | 2844 D 1 | 3651 B 5 | 3871 B 2 | 9315 D 5 |
| 2312 E 6 | 2846 E 3 | 3652 B 6 | 3874 D 3 | 9325 E 6 |
| 2313 E 6 | 2848 E 4 | 3653 B 5 | 3877 B 2 | 9326 E 6 |
| 2314 D 7 | 2849 D 2 | 3654 B 6 | 3878 B 2 | 9327 E 6 |
| 2315 D 6 | 2850 D 4 | 3655 B 6 | 3879 B 3 | 9629 B 5 |
| 2317 D 6 | 2851 D 4 | 3656 B 4 | 3880 E 3 | 9630 A 4 |
| 2319 E 6 | 2852 E 4 | 3800 D 1 | 3881 C 1 | 9631 A 4 |
| 2320 E 5 | 2853 A 3 | 3801 B 2 | 3882 D 1 | 9632 B 4 |
| 2625 B 5 | 2854 D 3 | 3802 B 2 | 3884 E 1 | 9633 A 5 |
| 2626 B 5 | 2855 D 4 | 3803 C 3 | 3886 D 3 | 9634 A 4 |
| 2627 B 4 | 2856 D 3 | 3804 B 3 | 3887 C 3 | 9636 A 5 |
| 2628 B 5 | 2857 D 2 | 3805 D 4 | 3888 C 3 | 9802 D 3 |
| 2629 A 4 | 2858 C 2 | 3806 C 4 | 3889 C 3 | 9805 A 5 |
| 2630 B 5 | 2859 D 4 | 3807 C 4 | 3890 C 2 | 9806 E 3 |
| 2631 A 4 | 2860 A 3 | 3808 C 4 | 3891 E 3 | 9807 C 3 |
| 2632 B 4 | 2861 B 3 | 3809 C 1 | 3892 E 4 | 9808 E 3 |
| 2633 B 4 | 2871 C 2 | 3810 C 1 | 3893 B 2 | 9809 E 3 |
| 2634 B 4 | 2872 B 2 | 3811 D 4 | 3894 B 2 | 9810 E 3 |
| 2635 A 4 | 2873 B 2 | 3812 C 2 | 3895 D 4 | 9811 D 2 |
| 2636 B 4 | 2874 C 1 | 3814 B 2 | 3896 E 4 | 9812 D 4 |
| 2637 A 4 | 2875 A 2 | 3817 D 3 | 3897 E 4 | 9813 E 3 |
| 2638 B 4 | 2876 D 1 | 3819 C 3 | 3898 E 5 | 9814 D 3 |
| 2639 A 4 | 2880 D 3 | 3820 E 3 | 3899 B 1 | 9815 D 1 |
| 2640 A 3 | 2891 E 4 | 3821 E 3 | 5201 A 2 | 9816 D 1 |
| 2641 A 4 | 2892 D 4 | 3822 E 2 | 5625 B 6 | 9817 E 4 |
| 2642 B 4 | 2893 E 4 | 3823 E 3 | 5801 E 3 | 9818 E 4 |
| 2650 B 4 | 2895 B 5 | 3824 E 2 | 5803 C 4 | 9819 C 2 |
| 2651 B 4 | 2896 B 6 | 3825 D 1 | 6250 C 5 | 9820 B 3 |
| 2652 B 6 | 3207 A 2 | 3826 E 2 | 6251 C 5 | 9821 B 1 |
| 2653 B 6 | 3208 A 2 | 3827 E 2 | 6252 D 6 | 9822 B 1 |
| 2654 B 6 | 3209 A 2 | 3828 E 2 | 6253 C 6 | 9825 C 3 |
| 2655 B 6 | 3300 B 7 | 3829 E 1 | 6256 A 3 | 9826 D 3 |
| 2657 A 4 | 3301 B 7 | 3830 D 2 | 6300 D 6 | 9829 E 1 |
| 2658 A 4 | 3302 B 7 | 3831 D 2 | 6625 C 6 | 9830 C 5 |
| 2800 C 5 | 3303 B 7 | 3832 D 2 | 6800 C 3 | 9844 C 5 |
| 2801 D 1 | 3304 B 7 | 3833 B 2 | 6802 B 1 | 9849 E 4 |
| 2802 D 5 | 3305 E 7 | 3834 C 3 | 6803 B 2 | 9850 C 5 |
| 2803 C 2 | 3306 E 7 | 3835 A 2 | 6804 B 2 | 9851 B 3 |
| 2804 D 3 | 3307 E 7 | 3836 B 2 | 6805 B 2 | |
| 2805 C 5 | 3308 E 7 | 3837 D 2 | 6850 A 3 | |
| 2806 C 4 | 3309 D 6 | 3838 D 2 | 7300 E 7 | |
| 2807 C 4 | 3310 C 6 | 3839 E 1 | 7301 D 6 | |
| 2808 D 5 | 3311 C 7 | 3840 E 1 | 7601 C 6 | |
| 2813 C 4 | 3313 E 5 | 3841 E 1 | 7625 B 4 | |
| 2814 E 3 | 3314 E 5 | 3842 D 1 | 7626 B 6 | |

FRONT BOARD / copper side view



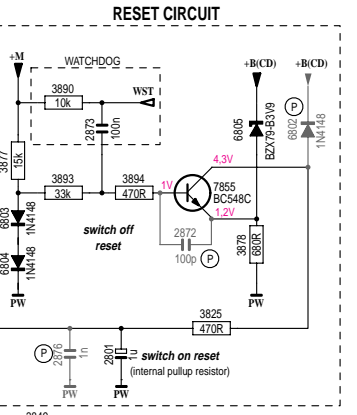
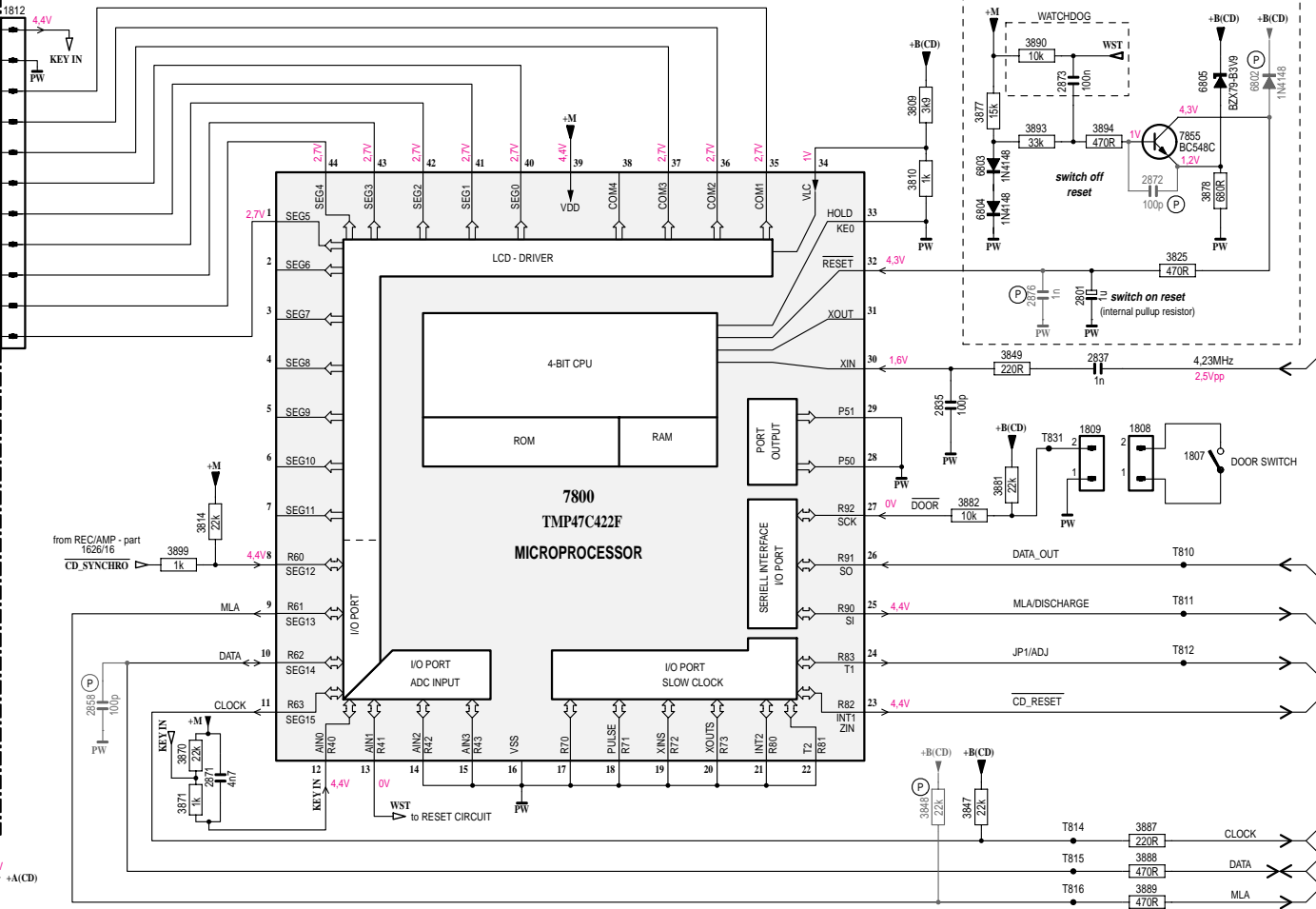


FRONT BOARD

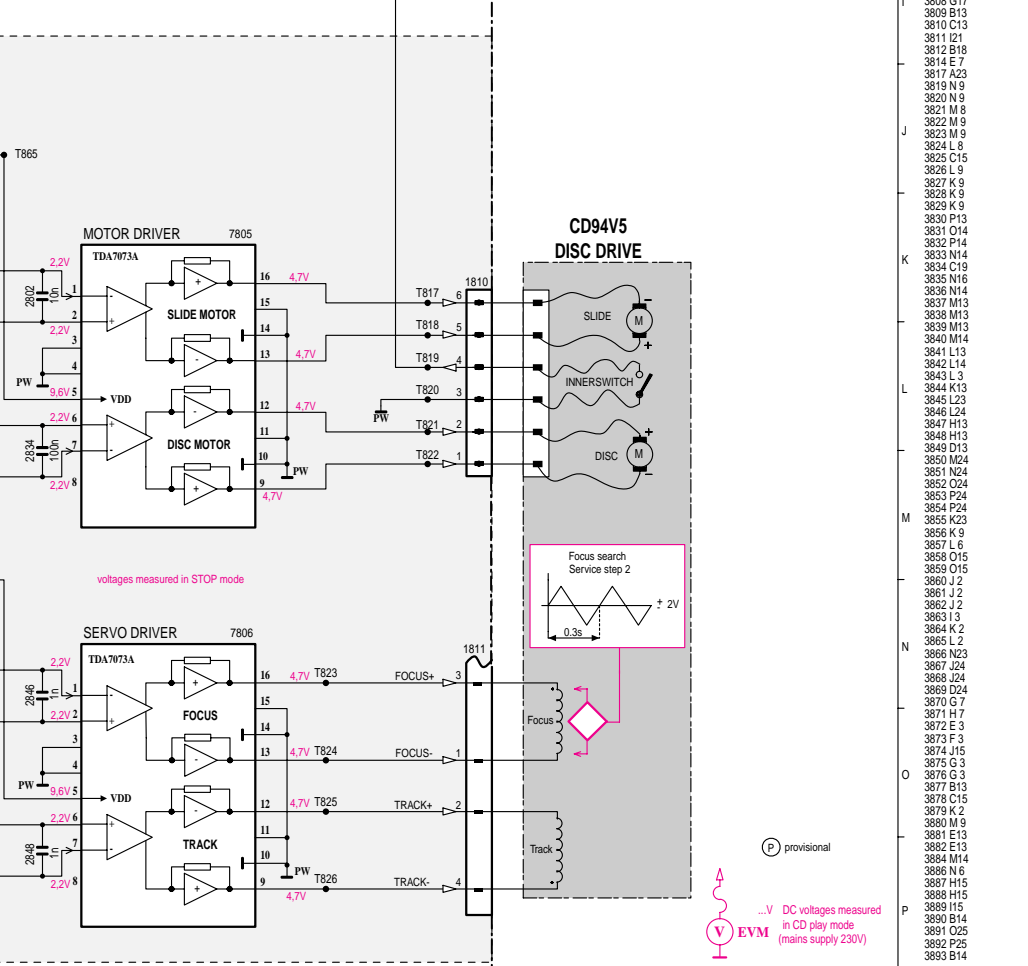
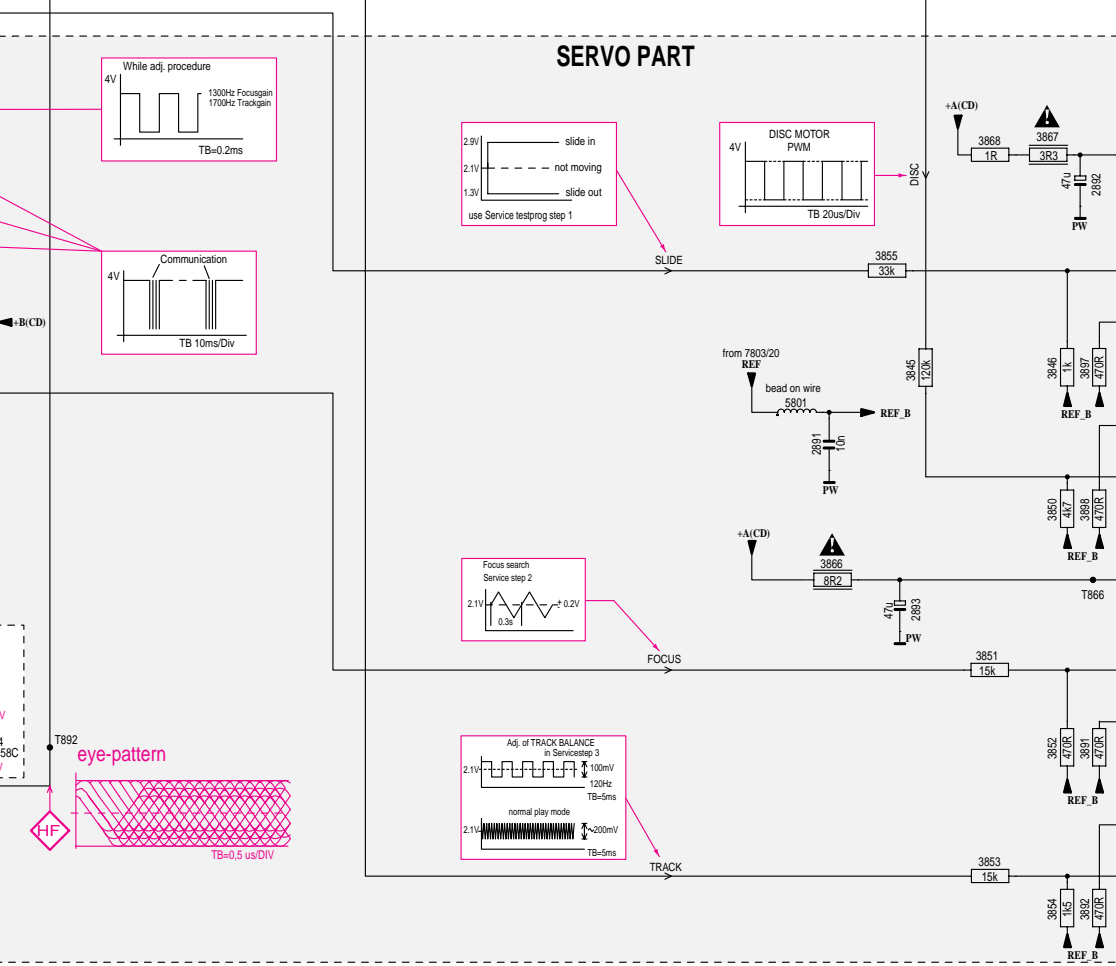
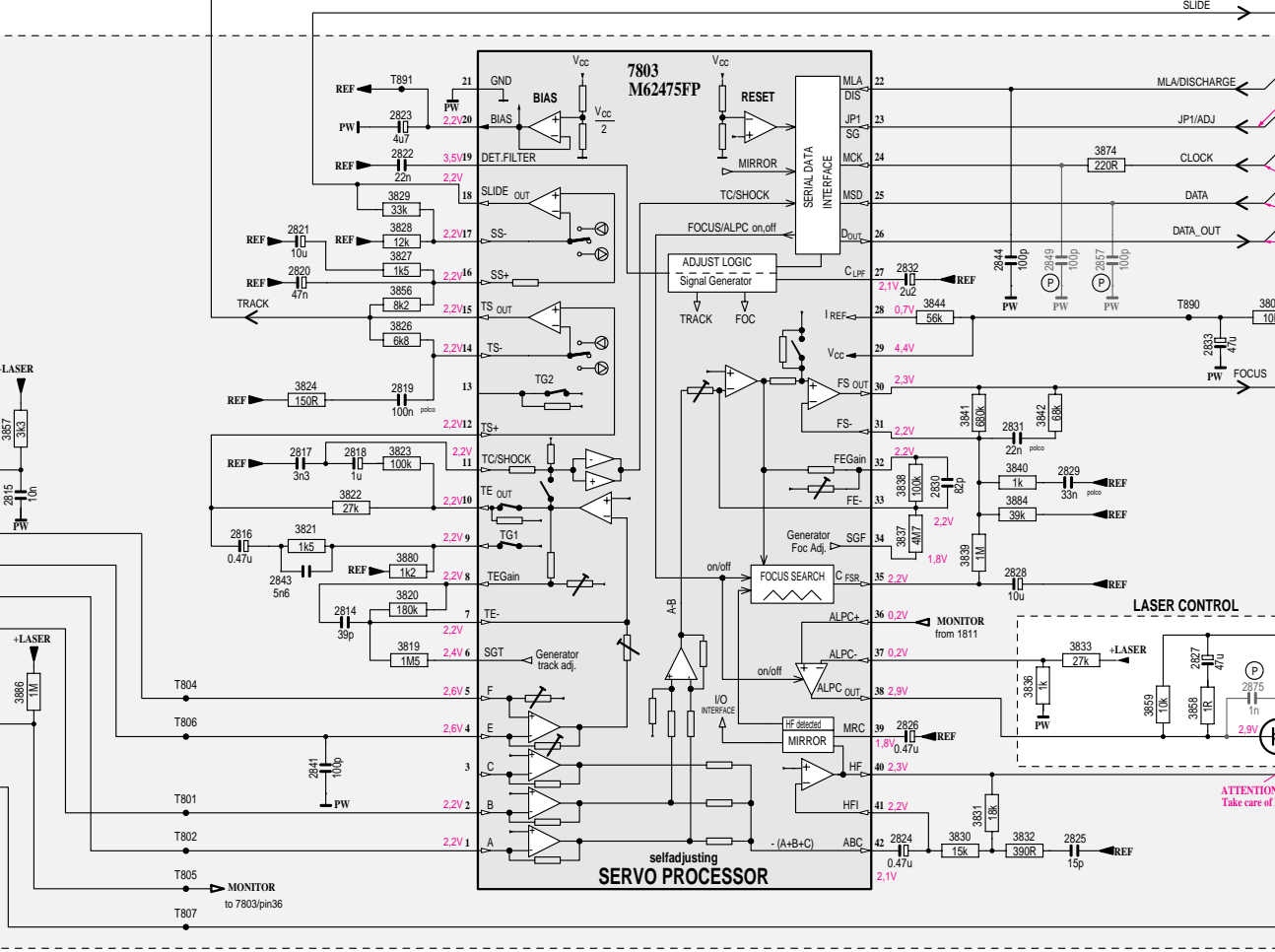
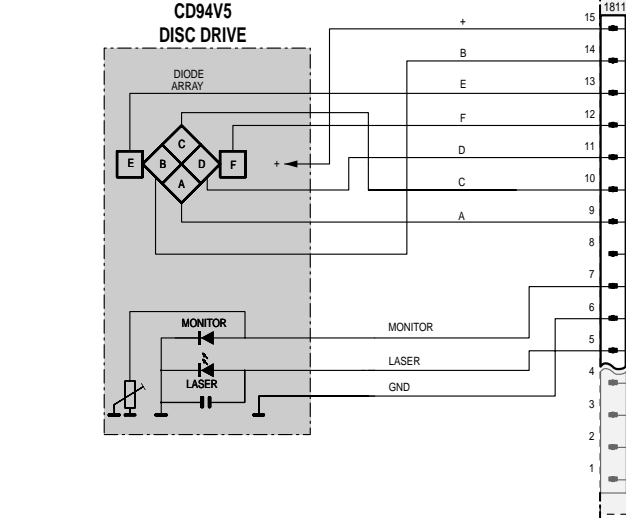
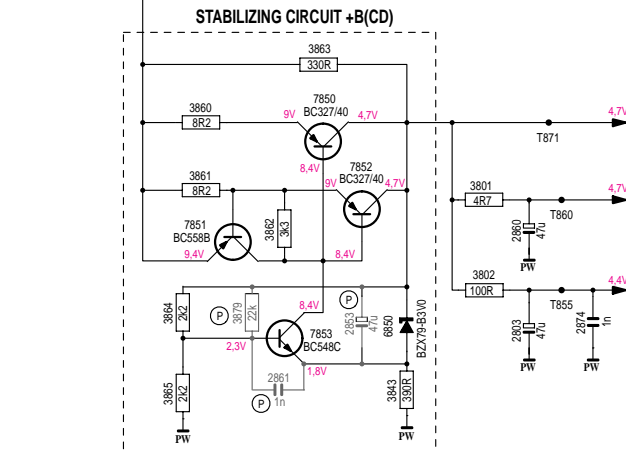
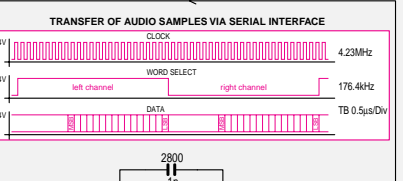
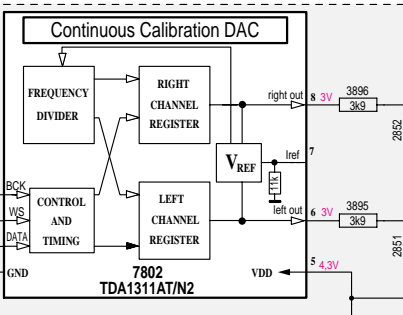
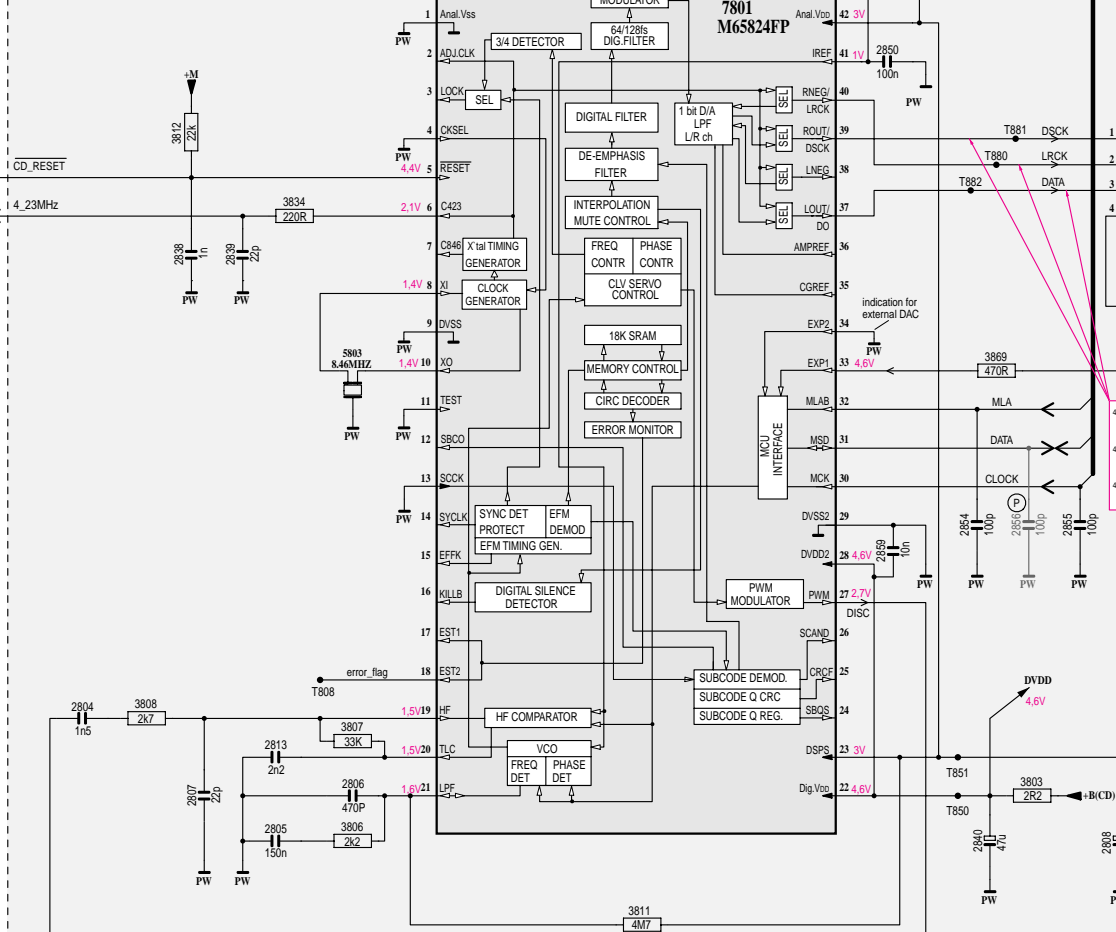


| pin | COM1 | COM2 | COM3 |
|-----|------|------|---------|
| 1 | COM1 | | |
| 2 | | COM2 | |
| 3 | | | COM3 |
| 4 | 1E | 1F | REPEAT |
| 5 | 1D | 1G | ALL |
| 6 | 1C | 1B | 1A |
| 7 | 2E | 2F | PROGRAM |
| 8 | 2D | 2G | SHUFFLE |
| 9 | 2C | 2B | 2A |

COMBI BOARD / CD-PART

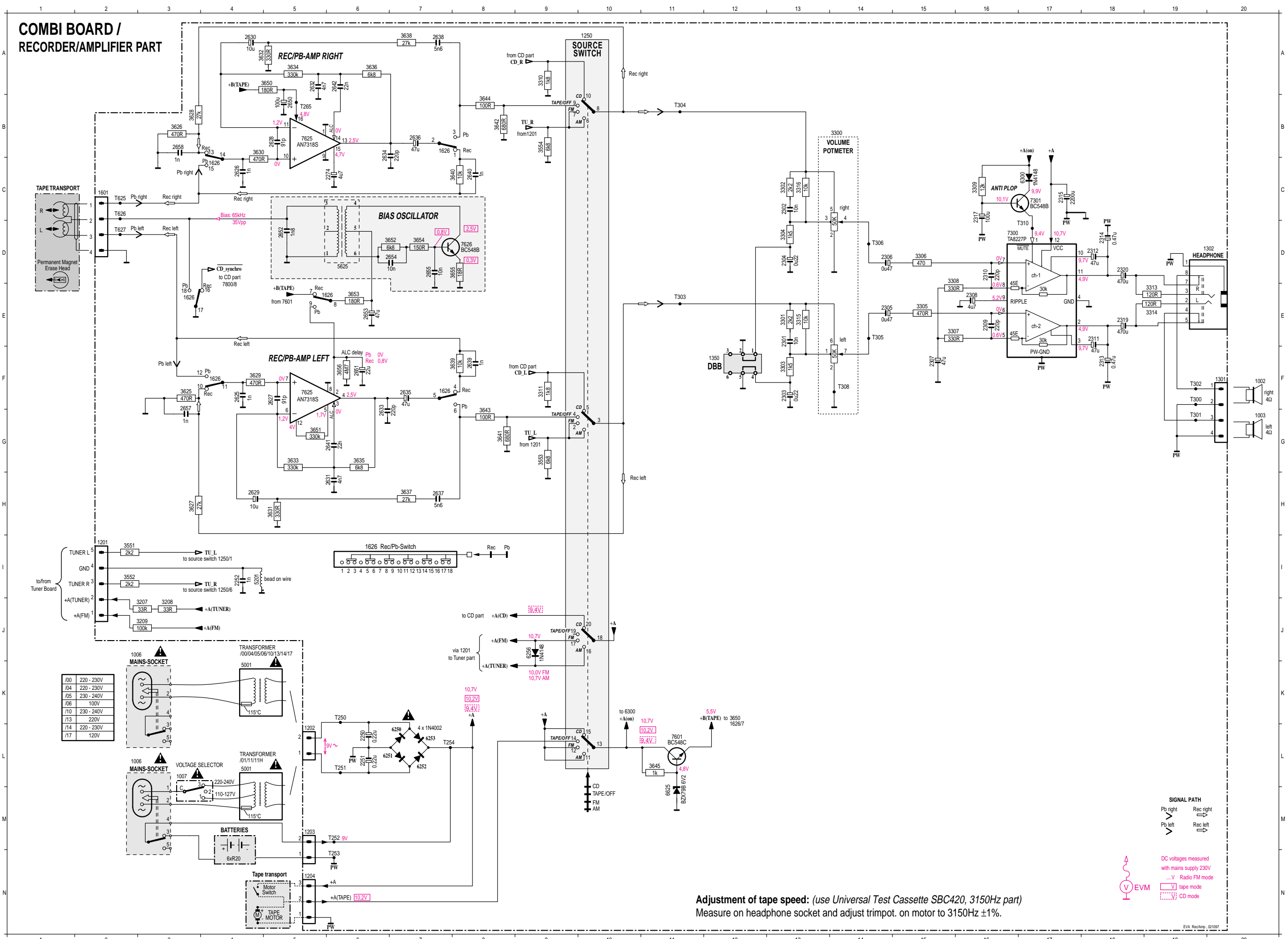


DECODER PART

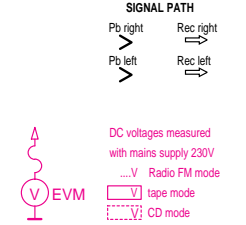


- 3894 B14
- 1801 E 4
- 3895 C 28
- 1802 G 4
- 3896 B 28
- 1803 G 4
- 3897 L 25
- 1807 E 15
- 3898 M 28
- 1808 E 14
- 5801 L 22
- 1810 K 28
- 6800 H 25
- 1811 M 5
- 7803 D 19
- 1812 A 5
- 6804 C 13
- 1813 A 5
- 7800 E 10
- 2800 E 26
- 6850 K 3
- 2801 D 14
- 7800 E 10
- 2802 K 25
- 7801 A 20
- 2803 A 4
- 7802 C 27
- 2804 G 11
- 7803 D 19
- 2805 H 18
- 7805 K 27
- 2806 H 19
- 7806 N 27
- 2807 H 18
- 7850 J 3
- 2808 M 8
- 2809 M 8
- 2810 M 8
- 2811 M 8
- 2812 M 8
- 2813 M 8
- 2814 M 8
- 2815 M 8
- 2816 M 8
- 2817 M 8
- 2818 M 8
- 2819 L 9
- 2820 L 9
- 2821 K 8
- 2822 L 9
- 2823 L 9
- 2824 P 13
- 2825 P 14
- 2826 O 13
- 2827 M 15
- 2828 N 14
- 2829 M 14
- 2830 M 13
- 2831 L 14
- 2832 M 15
- 2833 L 15
- 2834 L 25
- 2835 L 13
- 2836 D 28
- 2837 D 14
- 2838 C 18
- 2839 C 18
- 2840 C 18
- 2841 O 8
- 2842 A 8
- 2843 K 14
- 2844 K 14
- 2845 H 25
- 2846 H 25
- 2847 F 29
- 2848 K 14
- 2849 K 14
- 2850 G 23
- 2851 C 28
- 2852 K 3
- 2853 K 3
- 2854 E 24
- 2855 E 25
- 2856 E 24
- 2857 M 15
- 2858 G 6
- 2859 F 23
- 2860 L 14
- 2861 L 2
- 2862 L 7
- 2863 C 15
- 2864 K 5
- 2865 N 16
- 2866 D 14
- 2867 F 26
- 2868 L 23
- 2869 L 23
- 2870 L 23
- 2871 L 2
- 2872 C 15
- 2873 B 14
- 2874 K 5
- 2875 N 16
- 2876 D 14
- 2877 F 26
- 2878 L 23
- 2879 L 23
- 2880 F 26
- 2881 C 14
- 2882 L 23
- 2883 N 23
- 2884 C 28
- 2885 B 28
- 2886 K 16
- 2887 M 14
- 2888 K 4
- 2889 K 4
- 2890 K 4
- 2891 K 4
- 2892 K 4
- 2893 K 4
- 2894 G 26
- 2895 C 28
- 2896 H 19
- 2897 G 19
- 2898 G 17
- 2899 B 13
- 2900 C 13
- 2901 C 13
- 2902 L 12
- 2903 L 7
- 2904 A 23
- 2905 N 9
- 2906 M 8
- 2907 M 8
- 2908 M 8
- 2909 M 8
- 2910 M 8
- 2911 M 8
- 2912 M 8
- 2913 M 8
- 2914 M 8
- 2915 M 8
- 2916 M 8
- 2917 M 8
- 2918 M 8
- 2919 M 8
- 2920 M 8
- 2921 M 8
- 2922 M 8
- 2923 M 8
- 2924 M 8
- 2925 M 8
- 2926 M 8
- 2927 M 8
- 2928 M 8
- 2929 M 8
- 2930 M 8
- 2931 M 8
- 2932 M 8
- 2933 M 8
- 2934 M 8
- 2935 M 8
- 2936 M 8
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- 2939 M 8
- 2940 M 8
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- 2948 M 8
- 2949 M 8
- 2950 M 8
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- 2957 M 8
- 2958 M 8
- 2959 M 8
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- 2964 M 8
- 2965 M 8
- 2966 M 8
- 2967 M 8
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- 2969 M 8
- 2970 M 8
- 2971 M 8
- 2972 M 8
- 2973 M 8
- 2974 M 8
- 2975 M 8
- 2976 M 8
- 2977 M 8
- 2978 M 8
- 2979 M 8
- 2980 M 8
- 2981 M 8
- 2982 M 8
- 2983 M 8
- 2984 M 8
- 2985 M 8
- 2986 M 8
- 2987 M 8
- 2988 M 8
- 2989 M 8
- 2990 M 8
- 2991 M 8
- 2992 M 8
- 2993 M 8
- 2994 M 8
- 2995 M 8
- 2996 M 8
- 2997 M 8
- 2998 M 8
- 2999 M 8
- 3000 M 8

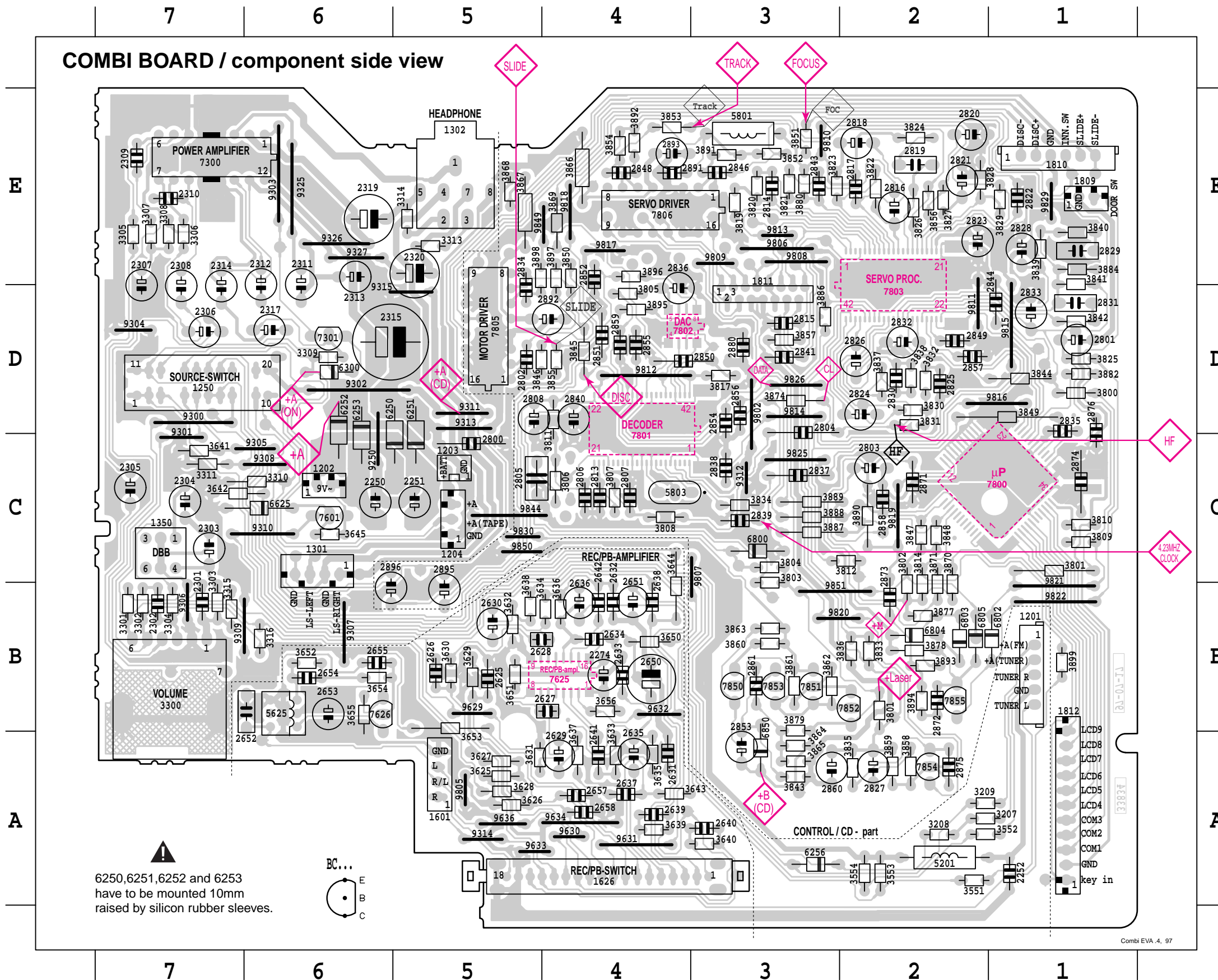
...V DC voltages measured in CD play mode (main supply 230V)



Adjustment of tape speed: (use Universal Test Cassette SBC420, 3150Hz part)
 Measure on headphone socket and adjust trimpt. on motor to 3150Hz ±1%.



COMBI BOARD / component side view



| | | | | |
|----------|----------|----------|----------|----------|
| 1201 B 1 | 2815 D 3 | 3315 B 7 | 3843 A 3 | 7800 C 1 |
| 1202 C 6 | 2816 E 2 | 3316 B 6 | 3844 D 1 | 7801 D 4 |
| 1203 C 5 | 2817 E 2 | 3551 A 2 | 3845 D 4 | 7802 D 4 |
| 1204 C 5 | 2818 E 2 | 3552 A 2 | 3846 D 5 | 7803 D 2 |
| 1250 D 7 | 2819 E 2 | 3553 A 2 | 3847 C 2 | 7805 D 5 |
| 1301 C 6 | 2820 E 2 | 3554 A 2 | 3848 C 2 | 7806 E 4 |
| 1302 E 5 | 2821 E 2 | 3625 A 5 | 3849 D 1 | 7850 B 3 |
| 1350 C 7 | 2822 E 1 | 3626 A 5 | 3850 E 4 | 7851 B 3 |
| 1601 A 5 | 2823 E 2 | 3627 A 5 | 3851 E 3 | 7852 B 2 |
| 1626 A 4 | 2824 D 2 | 3628 A 5 | 3852 E 3 | 7853 B 3 |
| 1809 E 1 | 2825 D 2 | 3629 B 5 | 3853 E 4 | 7854 A 2 |
| 1810 E 1 | 2826 D 2 | 3630 B 5 | 3854 E 4 | 7855 B 2 |
| 1811 D 3 | 2827 A 2 | 3631 A 5 | 3855 D 4 | 9250 C 6 |
| 1812 A 1 | 2828 E 1 | 3632 B 5 | 3856 E 2 | 9300 D 7 |
| 2250 C 6 | 2829 E 1 | 3633 A 4 | 3857 D 3 | 9301 C 7 |
| 2251 C 5 | 2830 D 2 | 3634 B 4 | 3858 A 2 | 9302 D 6 |
| 2252 A 1 | 2831 D 1 | 3635 A 4 | 3859 A 2 | 9303 E 6 |
| 2274 B 4 | 2832 D 2 | 3636 B 4 | 3860 B 3 | 9304 D 7 |
| 2301 B 7 | 2833 D 1 | 3637 A 4 | 3861 B 3 | 9305 C 6 |
| 2302 B 7 | 2834 D 5 | 3638 B 5 | 3862 B 3 | 9306 B 7 |
| 2303 C 7 | 2835 D 1 | 3639 A 4 | 3863 B 3 | 9307 B 6 |
| 2304 C 7 | 2836 D 4 | 3640 A 3 | 3864 A 3 | 9308 C 6 |
| 2305 C 7 | 2837 C 3 | 3641 C 7 | 3865 A 3 | 9309 B 6 |
| 2306 D 7 | 2838 C 3 | 3642 C 7 | 3866 E 4 | 9310 C 6 |
| 2307 D 7 | 2839 C 3 | 3643 A 4 | 3867 E 5 | 9311 D 5 |
| 2308 D 7 | 2840 D 4 | 3644 B 4 | 3868 E 5 | 9312 C 3 |
| 2309 E 7 | 2841 D 3 | 3645 C 6 | 3869 E 4 | 9313 D 5 |
| 2310 E 7 | 2843 E 3 | 3650 B 4 | 3870 B 2 | 9314 A 5 |
| 2311 E 6 | 2844 D 1 | 3651 B 5 | 3871 B 2 | 9315 D 5 |
| 2312 E 6 | 2846 C 3 | 3652 B 6 | 3874 D 3 | 9325 E 6 |
| 2313 E 6 | 2848 E 4 | 3653 B 5 | 3877 B 2 | 9326 E 6 |
| 2314 D 7 | 2849 D 2 | 3654 B 6 | 3878 B 2 | 9327 E 6 |
| 2315 D 6 | 2850 D 4 | 3655 B 6 | 3879 B 3 | 9629 B 5 |
| 2317 D 6 | 2851 D 4 | 3656 B 4 | 3880 E 3 | 9630 A 4 |
| 2319 E 6 | 2852 E 4 | 3800 D 1 | 3881 C 1 | 9631 A 4 |
| 2320 E 5 | 2853 A 3 | 3801 B 2 | 3882 D 1 | 9632 B 4 |
| 2625 B 5 | 2854 D 3 | 3802 B 2 | 3884 E 1 | 9633 A 5 |
| 2626 B 5 | 2855 D 4 | 3803 B 3 | 3886 D 3 | 9634 A 4 |
| 2627 B 4 | 2856 D 3 | 3804 C 3 | 3887 C 3 | 9636 A 5 |
| 2628 B 5 | 2857 D 2 | 3805 D 4 | 3888 C 3 | 9802 D 3 |
| 2629 A 4 | 2858 C 2 | 3806 C 4 | 3889 C 3 | 9805 A 5 |
| 2630 B 5 | 2859 D 4 | 3807 C 4 | 3890 C 2 | 9806 E 3 |
| 2631 A 4 | 2860 A 3 | 3808 C 4 | 3891 E 3 | 9807 C 3 |
| 2632 B 4 | 2861 B 3 | 3809 C 1 | 3892 E 4 | 9808 E 3 |
| 2633 B 4 | 2871 C 2 | 3810 C 1 | 3893 B 2 | 9809 E 3 |
| 2634 B 4 | 2872 B 2 | 3811 D 4 | 3894 B 2 | 9810 E 3 |
| 2635 A 4 | 2873 B 2 | 3812 C 2 | 3895 D 4 | 9811 D 2 |
| 2636 B 4 | 2874 C 1 | 3814 B 2 | 3896 E 4 | 9812 D 4 |
| 2637 A 4 | 2875 A 2 | 3817 D 3 | 3897 E 4 | 9813 E 3 |
| 2638 B 4 | 2876 D 1 | 3819 E 3 | 3898 E 5 | 9814 D 3 |
| 2639 A 4 | 2880 D 3 | 3820 E 3 | 3899 B 1 | 9815 D 1 |
| 2640 A 3 | 2891 E 4 | 3821 E 3 | 5201 A 2 | 9816 D 1 |
| 2641 A 4 | 2892 D 4 | 3822 E 2 | 5625 B 6 | 9817 E 4 |
| 2642 B 4 | 2893 E 4 | 3823 E 3 | 5801 E 3 | 9818 E 4 |
| 2650 B 4 | 2895 B 5 | 3824 E 2 | 5803 C 4 | 9819 C 2 |
| 2651 B 4 | 2896 B 6 | 3825 D 1 | 6250 C 5 | 9820 B 3 |
| 2652 B 6 | 3207 A 2 | 3826 E 2 | 6251 C 5 | 9821 B 1 |
| 2653 B 6 | 3208 A 2 | 3827 E 2 | 6252 D 6 | 9822 B 1 |
| 2654 B 6 | 3209 A 2 | 3828 E 2 | 6253 C 6 | 9825 C 3 |
| 2655 B 6 | 3300 B 7 | 3829 E 1 | 6256 A 3 | 9826 D 3 |
| 2657 A 4 | 3301 B 7 | 3830 D 2 | 6300 D 6 | 9829 E 1 |
| 2658 A 4 | 3302 B 7 | 3831 D 2 | 6625 C 6 | 9830 C 5 |
| 2800 C 5 | 3303 B 7 | 3832 D 2 | 6800 C 3 | 9844 C 5 |
| 2801 D 1 | 3304 B 7 | 3833 B 2 | 6802 B 1 | 9849 E 4 |
| 2802 D 5 | 3305 E 7 | 3834 C 3 | 6803 B 2 | 9850 C 5 |
| 2803 C 2 | 3306 E 7 | 3835 A 2 | 6804 B 2 | 9851 B 3 |
| 2804 D 3 | 3307 E 7 | 3836 B 2 | 6805 B 2 | |
| 2805 C 5 | 3308 E 7 | 3837 D 2 | 6850 A 3 | |
| 2806 C 4 | 3309 D 6 | 3838 D 2 | 7300 E 7 | |
| 2807 C 4 | 3310 C 6 | 3839 E 1 | 7301 D 6 | |
| 2808 D 5 | 3311 C 7 | 3840 E 1 | 7601 C 6 | |
| 2813 C 4 | 3313 E 5 | 3841 E 1 | 7625 B 4 | |
| 2814 E 3 | 3314 E 5 | 3842 D 1 | 7626 B 6 | |

ELECTRICAL PARTSLIST

MECHANICAL PARTS

0001 4822 256 90463 HOLDER FERRITE BAR

MISCELLANEOUS

1250 4822 277 11739 SWITCH SLIDE, MODE
 1302 4822 267 31468 SOCKET HEADPHONE 3,5mm Jack
 1350 4822 276 12648 SWITCH PUSH, DBB
 1626 4822 277 11504 SWITCH SLIDE, REC/PB
 1800 4822 276 13114 TACT SWITCH

1801 4822 276 13114 TACT SWITCH
 1802 4822 276 13114 TACT SWITCH
 1803 4822 276 13114 TACT SWITCH
 1804 4822 276 13114 TACT SWITCH
 1807 4822 276 12889 DOOR SWITCH

1820 4822 135 00151 LCD

CAPACITORS

2101 4822 122 33195 100pF 10% 50V
 2102 4822 122 33848 47pF 5% 50V
 2103 4822 124 40248 10µF 20% 63V
 2104 4822 124 40248 10µF 20% 63V
 2105 4822 122 33191 22pF 5% 50V

2106 4822 125 50681 VARCO TUNING
 2108 4822 126 13508 3p3 10% 50V
 2109 4822 126 13674 27pF 5% N330
 2110 4822 126 12229 8,2pF N750 50V
 2112 4822 124 41397 47µF 20% 25V

2113 4822 126 13581 0,22µF 20% 50V
 2114 4822 126 12787 330pF 10% 50V
 2115 4822 124 40246 4,7µF 20% 63V
 2116 4822 121 43144 22nF 10% 50V
 2116 4822 121 43145 33nF 10% 50V

2117 4822 124 40242 1µF 20% 63V
 2118 4822 124 40242 1µF 20% 63V
 2119 4822 121 43144 22nF 10% 50V
 2119 4822 121 43145 33nF 10% 50V
 2120 4822 124 40242 1µF 20% 63V

2121 4822 124 40239 0,47µF 20% 63V
 2122 4822 124 40239 0,47µF 20% 63V
 2250 4822 124 40746 0,22µF 20% 63V
 2251 4822 124 40746 0,22µF 20% 63V
 2252 4822 122 33197 1nF 10% 50V

2274 4822 124 40246 4,7µF 20% 63V
 2301 4822 121 51387 10nF 20% 16V
 2302 4822 121 51387 10nF 20% 16V
 2303 4822 124 40746 0,22µF 20% 63V
 2304 4822 124 40746 0,22µF 20% 63V

2305 4822 124 41407 0,47µF 20% 63V
 2306 4822 124 41407 0,47µF 20% 63V
 2307 4822 124 40433 47µF 20% 25V
 2308 4822 124 40246 4,7µF 20% 63V
 2309 4822 122 10466 220pF 10% 50V

2310 4822 122 10466 220pF 10% 50V
 2311 4822 124 40433 47µF 20% 25V
 2312 4822 124 40433 47µF 20% 25V
 2313 4822 124 41407 0,47µF 20% 63V
 2314 4822 124 41407 0,47µF 20% 63V

2315 4822 123 14025 2200µF 20% 16V
 2317 4822 124 81029 100µF 20% 25V
 2319 4822 124 41997 470µF 20% 10V
 2320 4822 124 41997 470µF 20% 10V
 2625 4822 122 33197 1nF 10% 50V

2626 4822 122 33197 1nF 10% 50V

CAPACITORS

2627 4822 126 13507 91pF 5% 50V
 2628 4822 126 13507 91pF 5% 50V
 2629 4822 124 41579 10µF 20% 50V
 2630 4822 124 41579 10µF 20% 50V
 2631 4822 126 11714 4,7nF 20% 16V

2632 4822 126 11714 4,7nF 20% 16V
 2633 4822 122 10466 220pF 10% 50V
 2634 4822 122 10466 220pF 10% 50V
 2635 4822 124 40433 47µF 20% 25V
 2636 4822 124 40433 47µF 20% 25V

2637 4822 126 13098 5,6nF 20% 16V
 2638 4822 126 13098 5,6nF 20% 16V
 2639 4822 122 33197 1nF 10% 50V
 2640 4822 122 33197 1nF 10% 50V
 2641 4822 126 11585 22nF 20% 50V

2642 4822 126 11585 22nF 20% 50V
 2650 4822 124 41584 100µF 20% 10V
 2651 4822 124 41596 22µF 20% 50V
 2652 4822 121 43054 1,8nF 10% 50V
 2653 4822 124 40433 47µF 20% 25V

2654 4822 121 51387 10nF 20% 16V
 2655 4822 121 51387 10nF 20% 16V
 2657 4822 122 33197 1nF 10% 50V
 2658 4822 122 33197 1nF 10% 50V
 2800 4822 122 33197 1nF 10% 50V

2801 4822 124 40242 1µF 20% 63V
 2802 4822 121 51387 10nF 20% 16V
 2803 4822 124 40433 47µF 20% 25V
 2804 4822 126 12878 1,5nF 10% 16V
 2805 4822 121 41854 150nF 10% 63V

2806 4822 122 33519 470pF 10% 50V
 2807 4822 122 33191 22pF 5% 50V
 2808 4822 124 40433 47µF 20% 25V
 2813 4822 126 12339 2,2nF 10% 16V
 2814 4822 126 13677 39pF 5% 50V

2815 4822 121 51387 10nF 20% 16V
 2816 4822 124 41407 0,47µF 20% 63V
 2817 4822 122 10577 3,3nF 10% 16V
 2818 4822 124 40242 1µF 20% 63V
 2819 5322 121 42386 100nF 5% 63V

2820 4822 121 43526 47nF 5% 100V
 2821 4822 124 41579 10µF 20% 50V
 2822 4822 126 11585 22nF 20% 50V
 2823 4822 124 40246 4,7µF 20% 63V
 2824 4822 124 41407 0,47µF 20% 63V

2825 4822 122 10462 15pF 5% 50V
 2826 4822 124 41407 0,47µF 20% 63V
 2827 4822 124 40433 47µF 20% 25V
 2828 4822 124 41579 10µF 20% 50V
 2829 5322 121 42489 33nF 5% 100V

2830 4822 122 10319 82pF 5% 50V
 2831 4822 121 41856 22nF 5% 250V
 2832 4822 124 41576 2,2µF 20% 50V
 2833 4822 124 40433 47µF 20% 25V
 2834 4822 126 12882 100nF 20% 50V

2835 4822 122 33195 100pF 10% 50V
 2836 4822 124 12068 220µF 20% 10V
 2837 4822 122 33197 1nF 10% 50V
 2838 4822 122 33197 1nF 10% 50V
 2839 4822 122 33191 22pF 5% 50V

2840 4822 124 40433 47µF 20% 25V
 2841 4822 122 33195 100pF 10% 50V
 2843 4822 126 13098 5,6nF 20% 16V

ELECTRICAL PARTSLIST

CAPACITORS

| | | | | |
|------|----------------|-------|-----|-----|
| 2844 | 4822 122 33195 | 100pF | 10% | 50V |
| 2846 | 4822 122 33197 | 1nF | 10% | 50V |
| 2848 | 4822 122 33197 | 1nF | 10% | 50V |
| 2850 | 4822 126 12882 | 100nF | 20% | 50V |
| 2851 | 4822 126 11714 | 4,7nF | 20% | |

| | | | | |
|------|----------------|-------|-----|-----|
| 2852 | 4822 126 11714 | 4,7nF | 20% | |
| 2854 | 4822 122 33195 | 100pF | 10% | 50V |
| 2855 | 4822 122 33195 | 100pF | 10% | 50V |
| 2856 | 4822 122 33195 | 100pF | 10% | 50V |
| 2859 | 4822 121 51387 | 10nF | 20% | 16V |

| | | | | |
|------|----------------|-------|-----|-----|
| 2860 | 4822 124 40433 | 47μF | 20% | 25V |
| 2871 | 4822 126 11714 | 4,7nF | 20% | |
| 2873 | 4822 126 12882 | 100nF | 20% | 50V |
| 2874 | 4822 122 33197 | 1nF | 10% | 50V |
| 2880 | 4822 122 33197 | 1nF | 10% | 50V |

| | | | | |
|------|----------------|------|-----|-----|
| 2891 | 4822 121 51387 | 10nF | 20% | 16V |
| 2892 | 4822 124 40433 | 47μF | 20% | 25V |
| 2893 | 4822 124 40433 | 47μF | 20% | 25V |
| 2895 | 4822 124 40242 | 1μF | 20% | 63V |
| 2896 | 4822 124 40242 | 1μF | 20% | 63V |

RESISTORS

| | | | | |
|------|----------------|---------------|------|-------|
| 3101 | 4822 100 20167 | 50kΩ TRIMPOT. | LIN. | |
| 3102 | 4822 116 52297 | 68kΩ | 5% | 0,5W |
| 3104 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3106 | 4822 116 52231 | 820Ω | 5% | 0,5W |
| 3107 | 4822 116 52191 | 33Ω | 5% | 0,5W |

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|------|----------------|-------|----|------|
| 3113 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3114 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3207 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3208 | 4822 116 52191 | 33Ω | 5% | 0,5W |
| 3209 | 4822 116 52234 | 100kΩ | 5% | 0,5W |

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|------|----------------|--------------|-----------------|-------|
| 3300 | 4822 101 11826 | 2x50kΩ LIN., | VOLUME POTMETER | |
| 3301 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3302 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3303 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |
| 3304 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |

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|------|----------------|------|----|-------|
| 3305 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3306 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3307 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3308 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3309 | 4822 116 52238 | 12kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3310 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3311 | 4822 116 52249 | 1,8kΩ | 5% | 0,16W |
| 3313 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3314 | 4822 116 52206 | 120Ω | 5% | 0,5W |
| 3315 | 4822 116 83864 | 10kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3316 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3551 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3552 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3553 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3554 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |

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|------|----------------|------|----|-------|
| 3625 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3626 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3627 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3628 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3629 | 4822 116 83883 | 470Ω | 5% | 0,16W |

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|------|----------------|-------|----|-------|
| 3630 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3631 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3632 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3633 | 4822 116 52272 | 330kΩ | 5% | 0,5W |
| 3634 | 4822 116 52272 | 330kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3635 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3636 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |

RESISTORS

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|------|----------------|------|----|------|
| 3637 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3638 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3639 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3640 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3641 | 4822 116 52228 | 680Ω | 5% | 0,5W |

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|------|----------------|------|----|------|
| 3642 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3643 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3644 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3645 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3650 | 4822 116 52213 | 180Ω | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3651 | 4822 116 52272 | 330kΩ | 5% | 0,5W |
| 3652 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3653 | 4822 116 52213 | 180Ω | 5% | 0,5W |
| 3654 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3655 | 4822 116 52184 | 18Ω | 5% | 0,5W |

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|------|----------------|-------|----|------|
| 3656 | 4822 111 30893 | 4,7MΩ | 5% | 0,2W |
| 3800 | 4822 116 52176 | 10Ω | 5% | 0,5W |
| 3801 | 4822 050 24708 | 4,7Ω | 1% | 0,6W |
| 3802 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3803 | 4822 116 81154 | 2,2Ω | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3804 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3805 | 4822 116 52175 | 100Ω | 5% | 0,5W |
| 3806 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3807 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3808 | 4822 116 52263 | 2,7kΩ | 5% | 0,5W |

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|------|----------------|-------|----|------|
| 3809 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3810 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3811 | 4822 111 30893 | 4,7MΩ | 5% | 0,2W |
| 3812 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3814 | 4822 116 52257 | 22kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3817 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3819 | 4822 117 11825 | 1,5MΩ | 5% | 0,4W |
| 3820 | 4822 116 52252 | 180kΩ | 5% | 0,5W |
| 3821 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |
| 3822 | 4822 116 52264 | 27kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3823 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3824 | 4822 116 83868 | 150Ω | 5% | 0,5W |
| 3825 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3826 | 4822 116 83961 | 6,8kΩ | 5% | 0,16W |
| 3827 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |

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|------|----------------|------|----|-------|
| 3828 | 4822 116 52238 | 12kΩ | 5% | 0,5W |
| 3829 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3830 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3831 | 4822 116 52251 | 18kΩ | 5% | 0,5W |
| 3832 | 4822 116 52222 | 390Ω | 5% | 0,16W |

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|------|----------------|-------|----|------|
| 3833 | 4822 116 52264 | 27kΩ | 5% | 0,5W |
| 3834 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3835 | 4822 116 52184 | 18Ω | 5% | 0,5W |
| 3836 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3837 | 4822 111 30893 | 4,7MΩ | 5% | 0,2W |

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|------|----------------|-------|----|------|
| 3838 | 4822 116 52234 | 100kΩ | 5% | 0,5W |
| 3839 | 4822 116 52235 | 1MΩ | 5% | 0,5W |
| 3840 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3841 | 4822 116 52298 | 680kΩ | 5% | 0,5W |
| 3842 | 4822 116 52297 | 68kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3843 | 4822 116 52222 | 390Ω | 5% | 0,16W |
| 3844 | 4822 116 52291 | 56kΩ | 5% | 0,5W |
| 3845 | 4822 116 52239 | 120kΩ | 5% | 0,5W |
| 3846 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3847 | 4822 116 52257 | 22kΩ | 5% | 0,5W |

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|------|----------------|-------|----|-------|
| 3849 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3850 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3851 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3852 | 4822 116 83883 | 470Ω | 5% | 0,16W |

ELECTRICAL PARTSLIST

RESISTORS

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|--------|----------------|-------|-------|-------|
| 3853 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3854 | 4822 116 52243 | 1,5kΩ | 5% | 0,16W |
| 3855 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3856 | 4822 116 52303 | 8,2kΩ | 5% | 0,5W |
| 3857 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3858 | 4822 116 80176 | 1Ω | 5% | 0,5W |
| 3859 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3860 | 4822 050 18208 | 8,2Ω | 1% | 0,4W |
| 3861 | 4822 050 18208 | 8,2Ω | 1% | 0,4W |
| 3862 | 4822 116 52269 | 3,3kΩ | 5% | 0,5W |
| 3863 | 4822 116 52219 | 330Ω | 5% | 0,5W |
| 3864 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3865 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3866 ▲ | 4822 052 10828 | 8,2Ω | 5% | 0,3W |
| 3867 ▲ | 4822 052 10338 | 3,3Ω | NFR25 | |
| 3868 | 4822 116 80176 | 1Ω | 5% | 0,5W |
| 3869 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3870 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3871 | 4822 050 11002 | 1kΩ | 5% | 0,2W |
| 3872 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3873 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3874 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3875 | 4822 116 52256 | 2,2kΩ | 5% | 0,16W |
| 3876 | 4822 116 52283 | 4,7kΩ | 5% | 0,5W |
| 3877 | 4822 116 52244 | 15kΩ | 5% | 0,5W |
| 3878 | 4822 116 52228 | 680Ω | 5% | 0,5W |
| 3880 | 4822 116 52207 | 1,2kΩ | 5% | 0,5W |
| 3881 | 4822 116 52257 | 22kΩ | 5% | 0,5W |
| 3882 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3884 | 4822 116 83882 | 39kΩ | 5% | 0,5W |
| 3886 | 4822 116 52235 | 1MΩ | 5% | 0,5W |
| 3887 | 4822 116 83872 | 220Ω | 5% | 0,5W |
| 3888 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3889 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3890 | 4822 116 83864 | 10kΩ | 5% | 0,5W |
| 3891 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3892 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3893 | 4822 116 52271 | 33kΩ | 5% | 0,16W |
| 3894 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3895 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3896 | 4822 116 52276 | 3,9kΩ | 5% | 0,5W |
| 3897 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3898 | 4822 116 83883 | 470Ω | 5% | 0,16W |
| 3899 | 4822 050 11002 | 1kΩ | 5% | 0,2W |

COILS

| | | |
|------|----------------|------------------------------------|
| 1102 | 4822 526 10176 | FERRITE BAR 5X13X55MM |
| 5101 | 4822 157 70513 | RF COIL 3,5 TURNS |
| 5102 | 4822 157 70731 | COIL, FERR. ANT. (w/o FERRITE BAR) |
| 5104 | 4822 156 30947 | RF COIL 1,5 TURNS |
| 5105 | 4822 157 71145 | COIL VAR., MW-OSC. |
| 5106 | 4822 157 70499 | AM-IF FILTER, 468kHz |
| 5107 | 4822 242 81154 | FILTER KIT, FM-IF |
| 5108 | 4822 156 11146 | AM-IF FILTER, 468kHz |
| 5201 | 4822 526 10494 | FERRITE BEAD |
| 5625 | 4822 157 10371 | BIAS OSC. COIL VAR. 100kHz |
| 5801 | 4822 526 10494 | FERRITE BEAD |
| 5803 | 4822 242 73557 | CERAMIC RES. 8,46MHz |

DIODES

| | | |
|--------|----------------|---------|
| 6101 | 4822 130 30621 | 1N4148 |
| 6102 | 4822 130 30621 | 1N4148 |
| 6250 ▲ | 4822 130 31878 | 1N4003G |
| 6251 ▲ | 4822 130 31878 | 1N4003G |

DIODES

| | | |
|--------|----------------|------------|
| 6252 ▲ | 4822 130 31878 | 1N4003G |
| 6253 ▲ | 4822 130 31878 | 1N4003G |
| 6256 | 4822 130 30621 | 1N4148 |
| 6300 | 4822 130 30621 | 1N4148 |
| 6625 | 4822 130 34167 | BZX79-B6V2 |
| 6800 | 4822 130 31881 | BZX79-B3V0 |
| 6803 | 4822 130 30621 | 1N4148 |
| 6804 | 4822 130 30621 | 1N4148 |
| 6805 | 4822 130 31981 | BZX79-C3V9 |
| 6850 | 4822 130 31881 | BZX79-B3V0 |

TRANSISTORS

| | | |
|------|----------------|----------|
| 7102 | 4822 130 44196 | BC548C |
| 7301 | 4822 130 40937 | BC548B |
| 7601 | 4822 130 44196 | BC548C |
| 7626 | 4822 130 40937 | BC548B |
| 7850 | 4822 130 41327 | BC327-40 |
| 7851 | 4822 130 44197 | BC558B |
| 7852 | 4822 130 41327 | BC327-40 |
| 7853 | 4822 130 44196 | BC548C |
| 7854 | 5322 130 60068 | BC558C |
| 7855 | 4822 130 44196 | BC548C |

INTEGRATED CIRCUITS

| | | |
|--------|----------------|-------------------------------|
| 7101 © | 4822 209 32746 | TEA5711T/N2, RADIO IC |
| 7300 | 4822 209 31544 | TA8227P, POWER AMPLIFIER IC |
| 7625 © | 4822 209 32918 | AN7318S, Rec/Pb-AMPLIFIER IC |
| 7800 © | 4822 209 15932 | TMP47C422F-AZ1010.1, μ-PROC. |
| 7801 © | 4822 209 15952 | M65824FP, SIGNAL PROCESSOR IC |
| 7802 © | 4822 209 32196 | TDA1311AT/N2, DAC |
| 7803 © | 4822 209 90496 | M62475FP, SERVO PROCESSOR IC |
| 7805 | 4822 209 32852 | TDA7073A/N2, MOTOR DRIVER |
| 7806 | 4822 209 32852 | TDA7073A/N2, SERVO DRIVER |