

Service
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Service Manual



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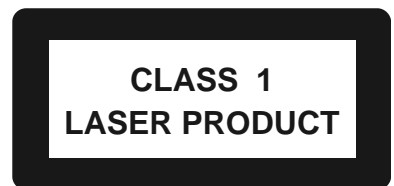


3140 785 32230

Version 1.0



PHILIPS



SPECIFICATIONS**GENERAL:**

Mains voltage	: 110-127V / 220-240V Switchable
Mains frequency	: 50/60Hz
Power consumption	: 15W at Standby
	: 120W at Active
Clock accuracy	: < 4 seconds per day
Dimension centre unit	: 265 x 310 x 390mm

TUNER:**FM**

Tuning range	: 87.5-108MHz
Grid	: 50kHz
IF frequency	: 10.7MHz \pm 25kHz
Aerial input	: 75 Ω coaxial
Sensitivity at 26dB S/N	: < 7 μ V
Selectivity at 600kHz bandwidth	: > 25dB
Image rejection	: > 25dB
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: < 8 μ V
Crosstalk at RF=1mV, dev. 40kHz	: > 18dB

MW

Tuning range	: 531-1602kHz/530-1700kHz
Grid	: 9kHz / 10kHz
IF frequency	: 450kHz \pm 1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: < 4.0mV/M
Selectivity at 18kHz bandwidth	: > 18dB
IF rejection	: > 45dB
Image rejection	: > 28dB
Distortion at RF=50mV, m=80%	: < 5%

AMPLIFIER:

Output power (6 Ω , 1kHz, 10% THD)

L & R : 2 x 55W RMS

Frequency response within -3dB	: 50Hz-20kHz
Digital Sound Control (DSC)	: Digital, Rock, Pop, Newage, Classic, Electric
Virtual Ambience Control (VAC)	: Hall, Concert, Cinema, Disco, Arcade, Cyber
Dynamic Bass Boost (DBB)	: BEAT, PUNCH, BLAST, DBB OFF
Incredible Surround (IS)	: ON/OFF
MAX Sound	: ON/OFF

Input sensitivity

Aux in : 500mV \pm 3dB at 1kHz

CDR in : 1V \pm 3dB at 1kHz

Microphone : 3.5mV

Output sensitivity

Headphone output at 32 Ω : 15mW

CASSETTE RECORDER:

Number of track	: 2 x 2 stereo
Tape speed	: 4.76 cm/sec \pm 2%
Wow and flutter	: < 0.4% DIN
Fast-wind/Rewind time C60	: 130 sec
Bias system	: 78kHz \pm 10kHz
Rec/Pb frequency response within 8dB	: 80Hz - 10kHz
Signal to Noise Ratio (Type I)	: > 48dBA

VIDEO CD**Audio Performance:**

Measurement done at output conn. of the CDC module.

Frequency response within \pm 3dB : 20Hz - 20kHz

Output level (in Vrms) : 500mV, $Z_{out} = 100\Omega$

Signal/Noise ratio (A-weighted) : > 80dBA

Distortion at 1kHz : < 0.02%

Channel unbalance at 1kHz : < 1dB

Channel separation at 1kHz : > 60dB

De-emphasis : 0 or 15/50 mS (Switched
by subcode on the disc)

MP3-CD bit rate : 32 - 256kbps

Sampling Frequencies : 48kHz, 44.1kHz, 32kHz

Video Performance:

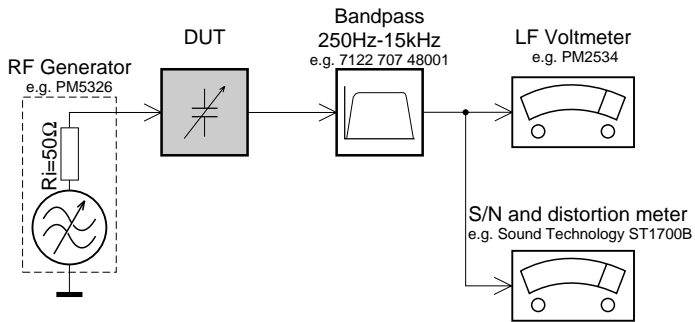
Video output level : 1 \pm 0.2V_{p-p}

Luminance non-linear distortion : 0 \pm 5%

Luminance S/N ratio : > 50dB

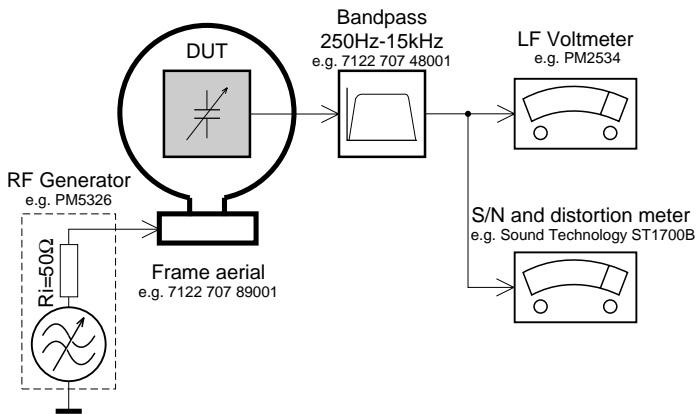
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

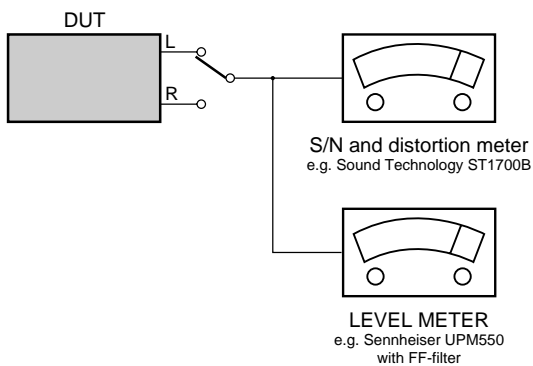
Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

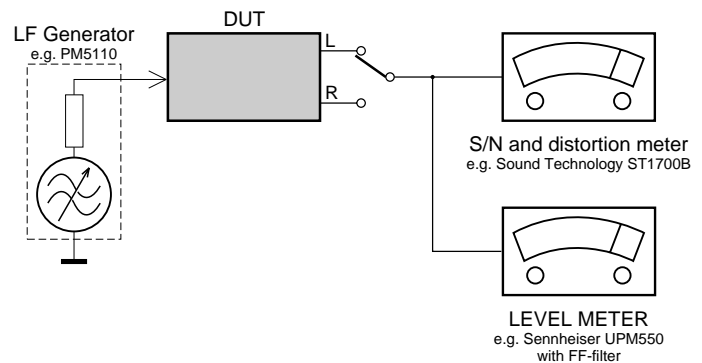
CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069 or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

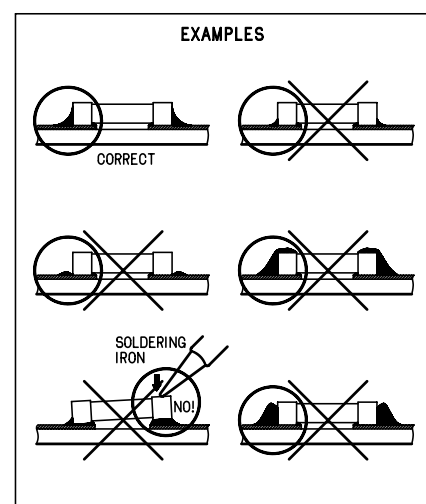
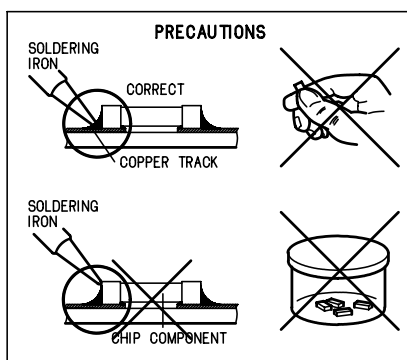
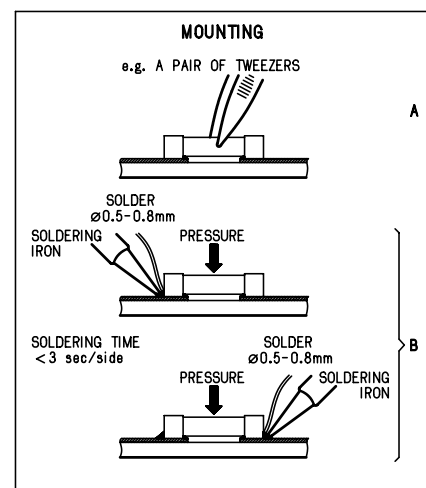
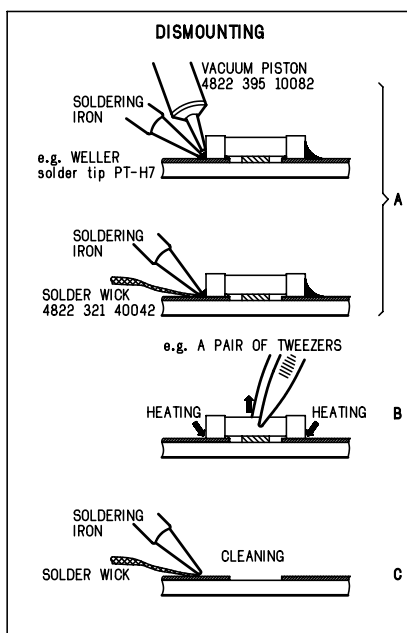
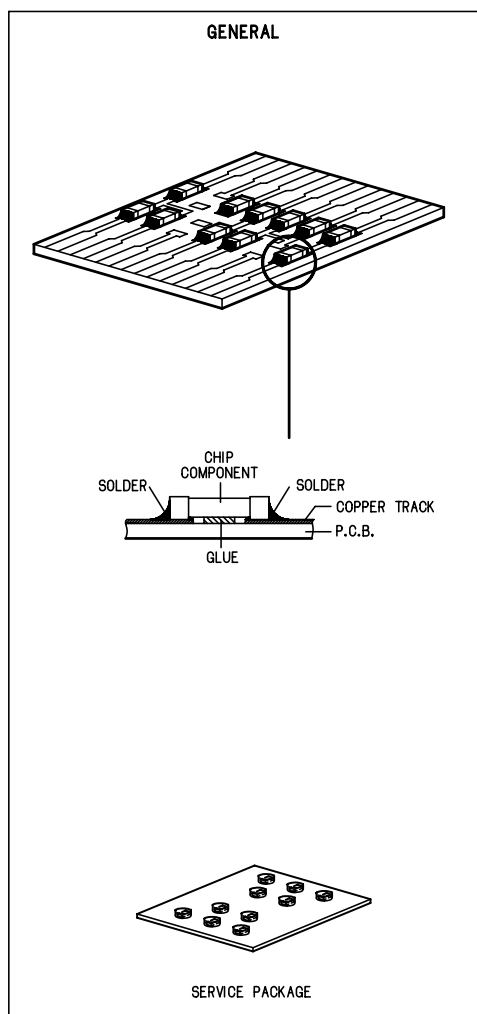
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm ...	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1M Ω)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

ESD**(D) WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatistischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

**(GB) Warning !**

Invisible laser radiation when open. Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varoitus !

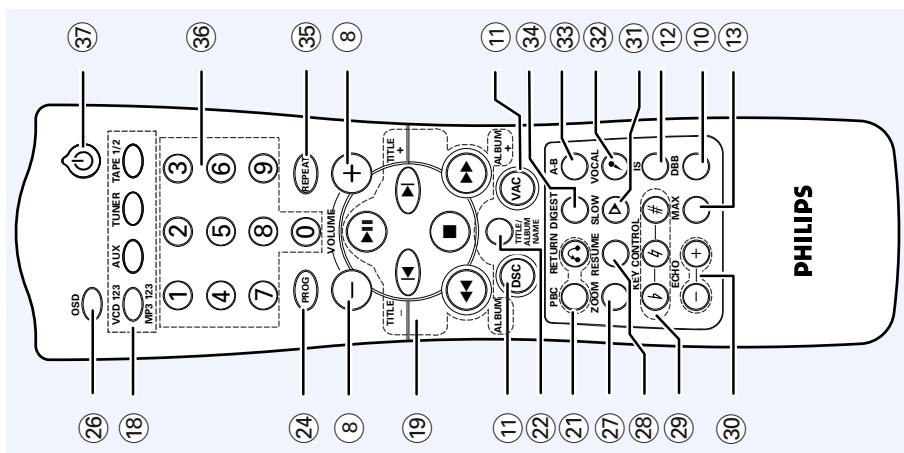
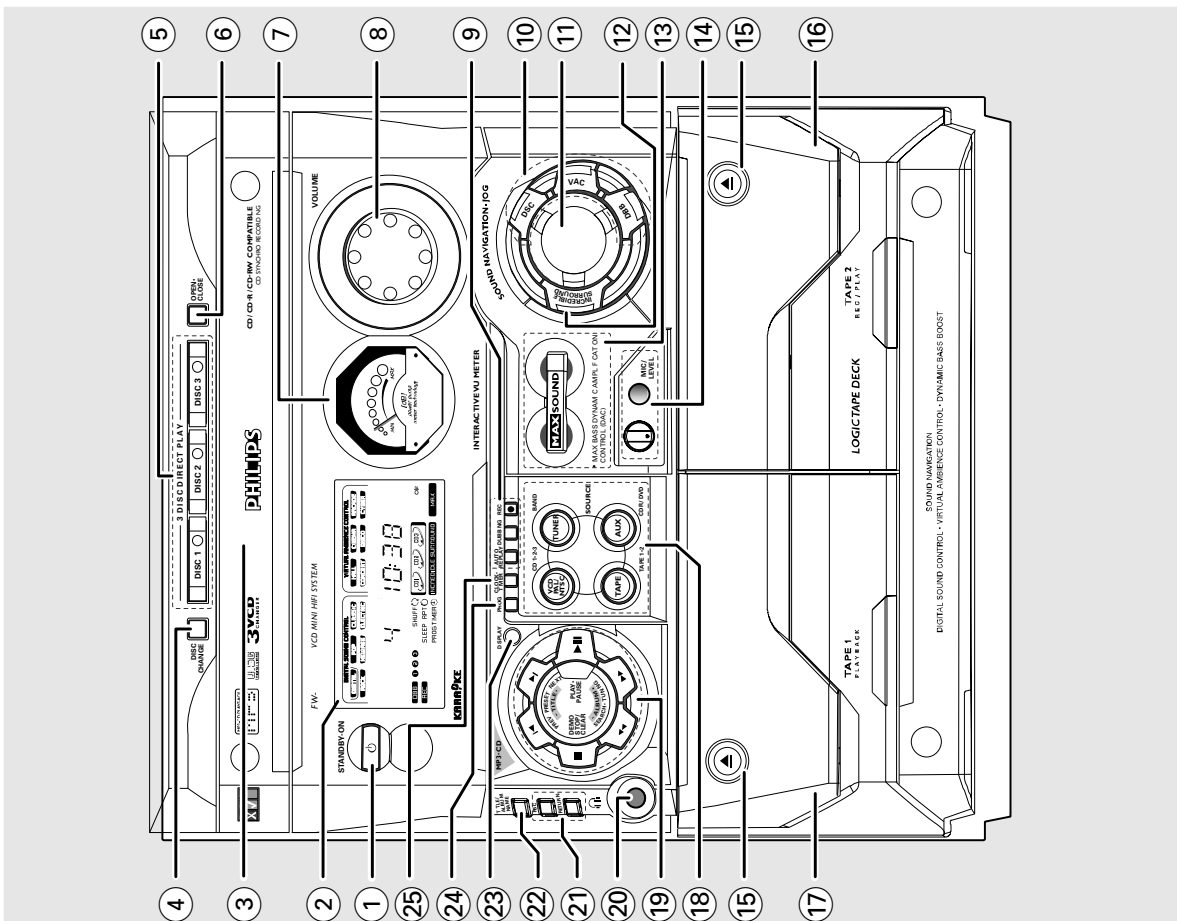
Avatussa laitteessa ja suojaletyksen ohitettaessa olet alltiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

CONNECTION AND CONTROLS

Controls




- ### Controls on the system and remote control
- 1 **STANDBY ON** to switch the system on or to Standby mode .
 - 2 **DISPLAY SCREEN** to view the current status of the system.
 - 3 **DISC TRAYS**
 - 4 **DISC CHANGE** to change disc(s).
 - 5 **DISC 1 / DISC 2 / DISC 3** to select a disc tray for playback.
 - 6 **OPEN-CLOSE** to open or close the disc tray.
 - 7 **INTERACTIVE VU METER** to show the VU (volume unit) meter in music or volume mode depending on the display mode selected.
 - 8 **VOLUME** to increase or decrease the volume .
 - 9 **Tape Deck Operation**
 - 10 **AUTO REPLAY** to select continuous playback in either AUTO PLAY or ONCE mode only.
 - 11 **DUBBING** to dub a tape .
 - 12 **REC** to start recording on tape deck 2.
 - 13 **SOUND NAVIGATION** to select the desired sound feature : DSC , VAC, or DBB .
 - 14 **JOG CONTROL** to select the desired sound effect for the selected sound feature .
 - 15 **DSC**DIGITAL, ROCK, POP, NEWAGE, CLASSIC or ELECTRIC .
 - 16 **VAC**HALL, CONCERT T, CINEMA, DISCO , ARCADE or CYBER.
 - 17 **DBB**BEA T, PUNCH or BLAST.
 - 18 **INCREDIBLE SURROUND (IS)** to activate or deactivate the surround sound effect.
 - 19 **MAX SOUND (MAX)** to activate or deactivate the optimal mix of various sound features.

Notes for remote control:

- First, select the source you wish to control by pressing one of the source select keys on the remote control (VCD 123 or TUNER, for example).
- Then select the desired function (, , , , for example).

CONNECTION AND CONTROLS

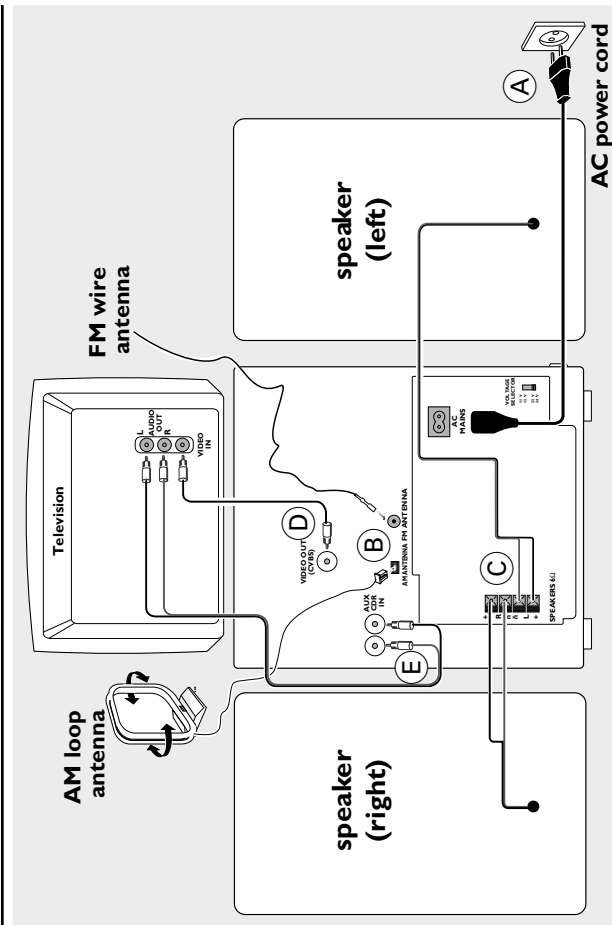
Controls

- (24) PROG**  — to switch the system to Standby mode.
- for CD/VCD/MP3-CD... to programme disc tracks.
- for TUNER to programme preset radio stations.
- for CLOCK.....(on the system only) to select 12- or 24-hour clock mode.
- (25) CLOCK-TIMER**
- to view the clock, set the clock or set the timer.
- (26) OSD (ON SCREEN DISPLAY)**
- to switch on or off the on screen display on the TV.
- (27) ZOOM**
- to enlarge a still picture of the VCD on the TV screen.
- (28) RESUME**
- to continue playback again from where you have stopped (for VCD with PBC switched off).
- (29) KEY CONTROL (b h #)**
- to change the VCD key tone level to suit your vocal range.
 - b to decrease the key tone level.
 - h to restore the key tone level to original setting.
 - # to increase the key tone level.
- (30) ECHO - / +**
- to adjust the VCD echo level for karaoke after inserted the microphone.
- (31) SLOW ▷**
- to watch the VCD at a slower speed.
- (32) VOCAL /**
- to fade out the original vocal from a Karaoke VCD or to switch between mono or stereo mode during audio disc playback.
- (33) A - B**
- to playback a certain scene or passage of a CD/VCD repeatedly.
- (34) DIGEST**
- to scan through a VCD or a specific track.
- (35) REPEAT**
- to playback track/disc/programme repeatedly.
- (36) DIGIT 0 - 9**
(numbers consisting more than two figures must be keyed in within 2 seconds.)
- to select a track number for CD/VCD/MP3-CD

Controls

- (14) MIC/LEVEL**
- to connect microphone jack.
 - to adjust the mixing level for karaoke or microphone recording.
- (15) ▲**
- to open the tape deck door.
- (16) TAPE DECK 2**
- (17) TAPE DECK 1**
- (18) SOURCE** — to select the following:
- VCD PAL/NTSC / (CD 1-2-3)**
- to select disc tray 1, 2 or 3 (this system can playback normal CD/VCD/MP3-CD format disc).
 - (on the system only) to select corresponding video output for NTSC or PAL system of your TV set (except Multi-system TV).
- TUNER / (BAND)**
- to select waveband : FM or MW.
- TAPE / (TAPE 1-2)**
- to select tape deck 1 or 2.
- AUX / (CDR/DVD)**
- to select a connected external source : CDR/DVD or AUX (auxiliary) mode.
- (19) Mode Selection**
- PLAY PAUSE ▶ II**
- for CD/VCD/MP3-CD... to start or interrupt playback.
 - for TAPE.....to start playback.
 - for PLUG & PLAY... (on the system only) to initiate and start plug & play mode.
- SEARCH• TUNING ◀▶▶**
(ALBUM - / +)
- for MP3-CD only...to select previous/next Album.
 - for VCD only...to move the zoomed picture to the left or right.
 - for CD/VCD ...to search backward/forward.
 - for TUNER to tune to a lower or higher radio frequency.
 - for TAPE.....to rewind or fast forward.
 - for CLOCK.....(on the system only) to set the hour.
- DEMO STOP/CLEAR ■**
- for CD/VCD/MP3-CD... to stop playback or to clear a programme.
- for TUNER(on the system only) to stop programming.
- (on the system only) to delete the preset radio station.
- for TAPE..... to stop playback or recording.
- to reset tape counter number.
- for DEMO (on the system only) to activate/deactivate the demonstration.
- for CLOCK.....(on the system only) to exit clock setting or cancel timer.
- for PLUG & PLAY... (on the system only) to exit plug & play mode.
- PREV / PRESET / NEXT ◀▶▶**
- (TITLE - / +)**
- for MP3-CD only... to select previous/next Title.
 - for VCD only... to move the zoomed picture down or up.
 - to select next or previous MENU or VCD track during playback (for VCD with PBC switched on).
 - for CD/VCD ... to skip to the previous or next track.
 - for TUNER..... to select a preset radio station.
 - for CLOCK.....(on the system only) to set the minute.
- (20) 📶**
- to connect headphones.
- (21) VCD Operation (for VCD version 2.0 only)**
- PBC (PLAYBACK CONTROL)**
- to switch on or off PBC mode.
- RETURN 🎵**
- to return to the previous MENU level during playback (for VCD with PBC switched on).
- (22) TITLE/ALBUM NAME**
- to display the title or album name for MP3-CD.
- (23) DISPLAY**
- to select different screen display mode : NORMAL, MODE 1, MODE 2, or MODE 3.

Preparations



Rear Connections

The type plate is located at the rear of the system.

A Power

- Before connecting the AC power cord to the wall outlet, ensure that the following are done;
 - If your system is equipped with a Voltage Selector, set the VOLTAGE SELECTOR to the local power line voltage.
 - All other connections have been made.

WARNING!

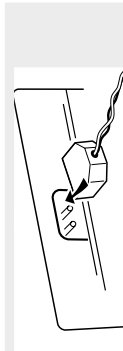
- For optimal performance, use only the original power cable.
- Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it (not available for all versions).

B Antennas Connection

Connect the supplied AM loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

AM Antenna



Position the antenna as far as possible from a TV, VCR or other radiation source.

FM Antenna



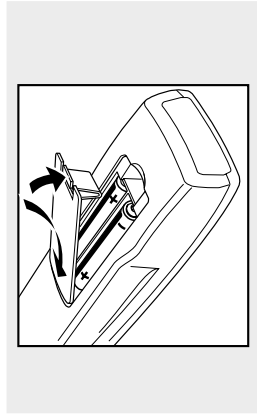
For better FM stereo reception, connect an outdoor FM antenna to the FM ANTENNA terminal.

CONNECTION AND CONTROLS

Preparations

Inserting batteries into the Remote Control

Insert two batteries (Type R06 or AA) into the remote control with the correct polarity as indicated by the + and - symbols inside the battery compartment.



CAUTION!

- Remove batteries if they are exhausted or not to be used for a long time.
- Do not use old and new or different types of batteries in combination.
- Batteries contain chemical substances, so they should be disposed off properly.

C Speakers Connecton

Front Speakers

Connect the speaker wires to the SPEAKERS (FRONT) terminals, right speaker to "R" and left speaker to "L", coloured (marked) wire to "+" and black (unmarked) wire to "-".



Fully insert the stripped portion of the speaker wire into the terminal as shown.

Notes:

- For optimal sound performance, use the supplied speakers.
- Do not connect more than one speaker to any one pair of +/ - speaker terminals.
- Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

D Video Out Connection

Connect the VIDEO OUT (CVBS) terminal at the rear of the system to the TV or VCR VIDEO IN for viewing or recording.

Note:

- To avoid magnetic interference with the picture on your TV, do not position the front speakers too close to the TV.

E Connecting other equipment to your system

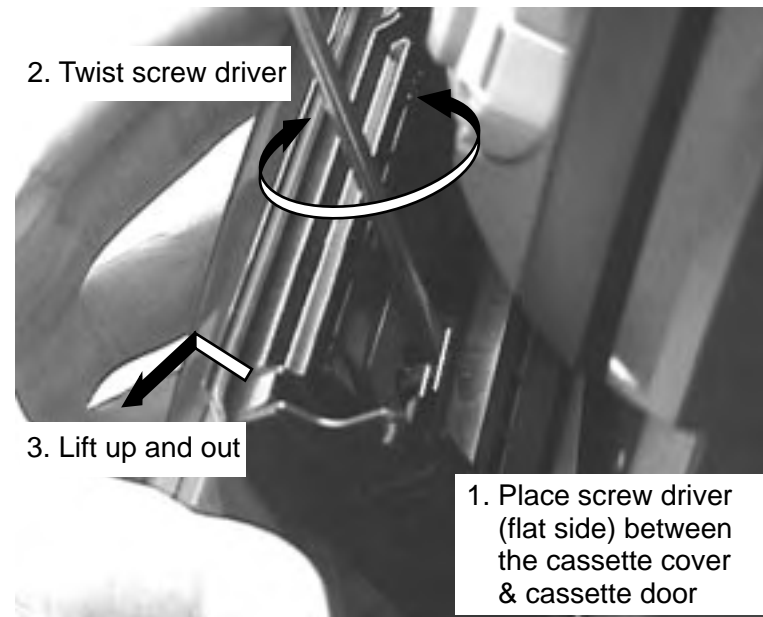
Connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the AUX/CDR IN terminals.

Note:

- If you are connecting equipment with a mono output (a single audio out terminal), connect it to the AUX/CDR IN left terminal. Alternatively, you can use a "single to double" cinch cable (still be mono sound).

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



2. Twist screw driver

3. Lift up and out

1. Place screw driver (flat side) between the cassette cover & cassette door



PLACE THE FLAT SIDE OF THE SCREW DRIVER BETWEEN THIS EDGE AND THE CASSETTE DOOR

Remove Cassette Cover

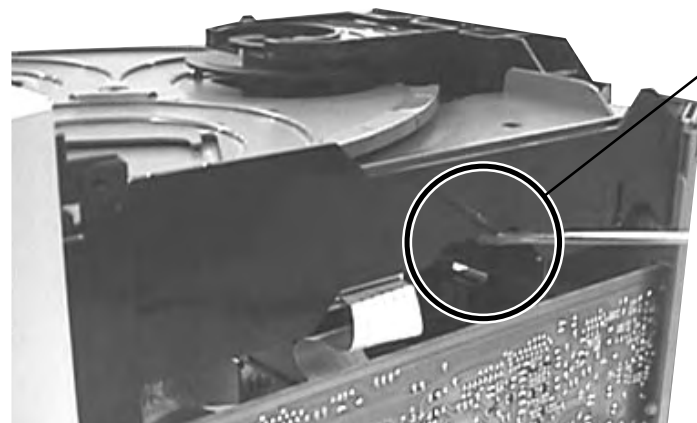
Cassette Cover

Dismantling of the CDC Module and Front Panel

- 1) Loosen 4 screws to remove the Cover Top (pos 255) of the set.
- 2) Loosen 3 screws to remove the Panel Left (pos 253) and 3 screws to remove the Panel Right (pos 254) of the set.
- 3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.

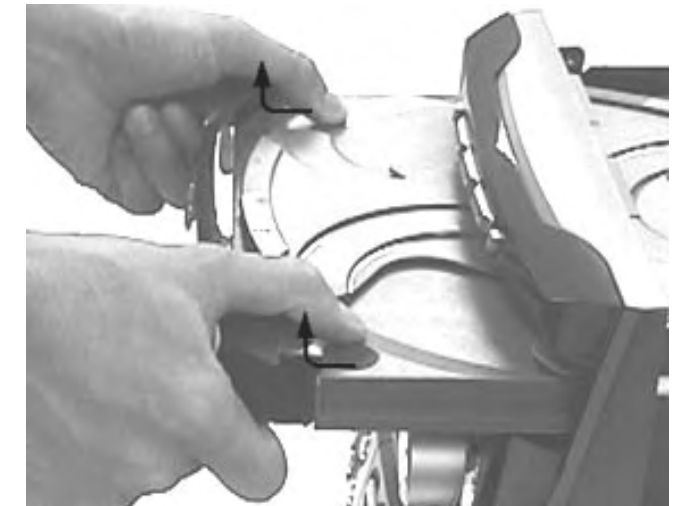


Sliding out the CDC Tray



Dismantling of the CDC Module and Front Panel

- 4) Remove the Cover Tray VCD (pos 106) as indicated.

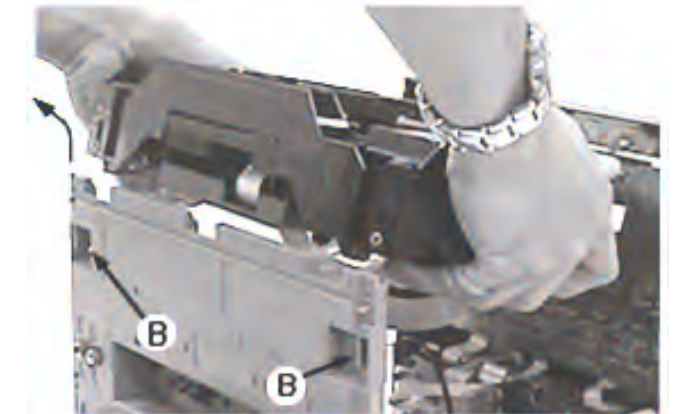


Remove Cover Tray VCD

- 5) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1105) as indicated.
- 6) Remove 2 screws (pos 226) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 265).



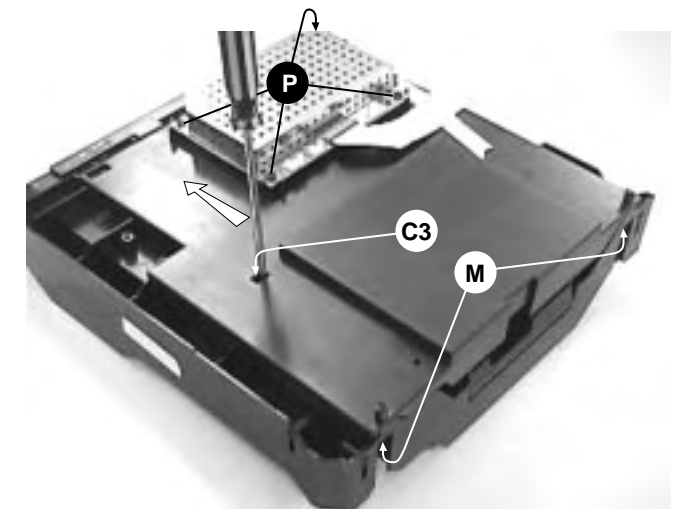
Front View CDC



Remove CDC Module

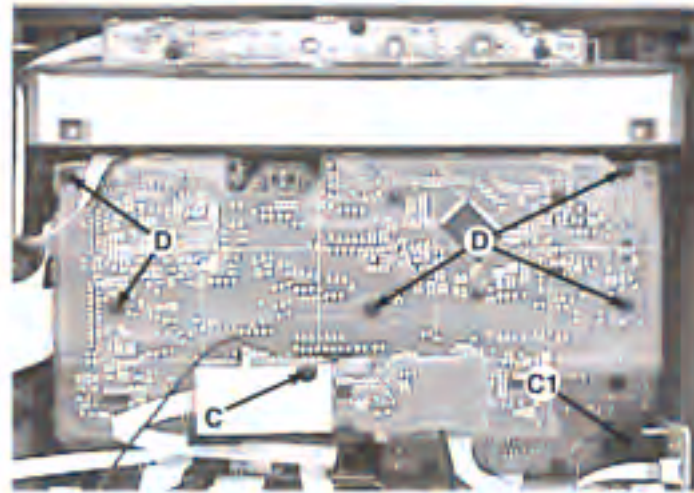
Separating the MPEG and the CDC Module

- 1) Remove 4 screws P to remove the MPEG shield & MPEG Board.
- 2) Remove 2 screws M and uncatch C3 with a flat screwdriver in the direction as shown to loosen the Plate Insulator.

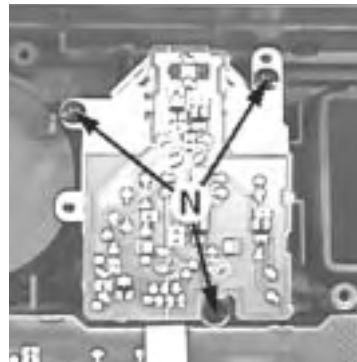


Dismantling of the Front Display Board and Front Control Board

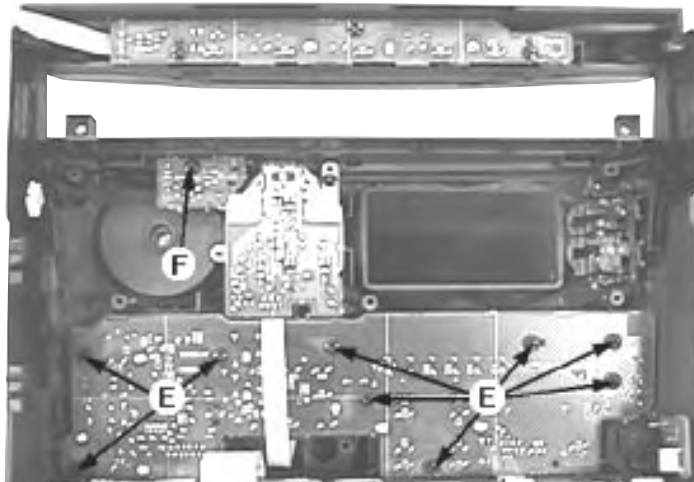
- 1) Remove 1 screw C as indicated to loosen the VCD GND Isolator Board (pos 1109).
- 2) Remove 1 screw C1 as indicated to loosen the Headphone Board (pos 1101-B).
- 3) Remove 5 screws D as indicated to loosen the Front Display Board (pos 1101-A).
- 4) Remove 9 screws E as indicated to loosen the Front Control Board (pos 1107-A).
- 5) Remove 1 screw F as indicated to loosen the IR-Eye Board (pos 1107-D).
- 6) Remove 3 screws N as indicated to loosen the VU Meter Board (pos 1107-C).



Remove VCD GND Isolator Board, Headphone Board and Front Display Board



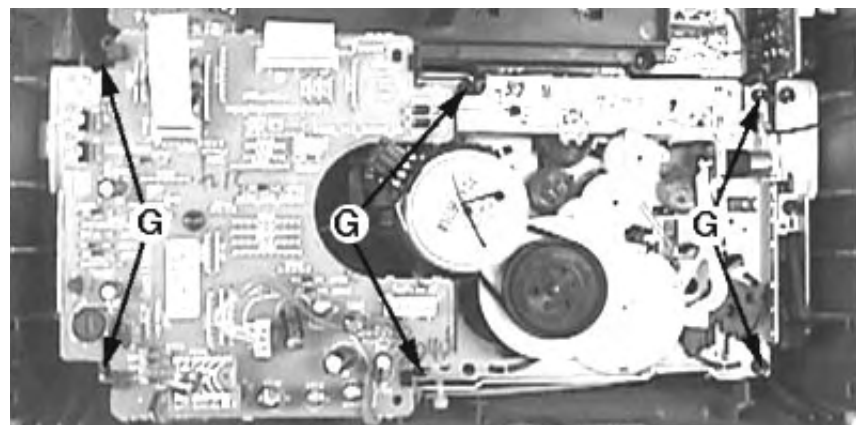
Remove VU Meter Board



Remove Front Control Board and IR-Eye Board

Dismantling of the ETF Tape Module

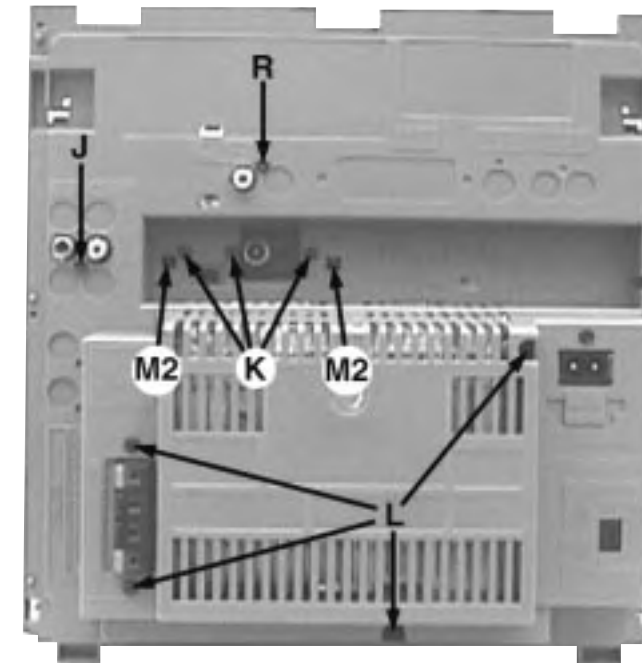
- 1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1104).

**Dismantling of Rear Portion**

- 1) Remove 1 screw J and uncatch M1 as indicated to loosen the AF Board (pos 1102-A).
- 2) Remove 1 screw R as indicated to loosen the Video Out Cinch Board (pos V1102-B).
- 3) Remove 3 screws K and uncatch M2 as indicated to loosen the Tuner Board (pos 1103).
- 4) Remove 4 screws L as indicated to loosen the Panel Rear (pos 256).



Remove AF Board

**Repair Hints**

- 1) The Knob Volume Rotary (pos 117) can be removed by inserting a strong string into the slot and pulling it out in the direction as indicated. See picture 1.

Picture 1



- 2) The Knob Jog Rotary (pos 140) can be removed by inserting a strong string into the slot and pulling it out in the direction as indicated. See picture 2.

Picture 2



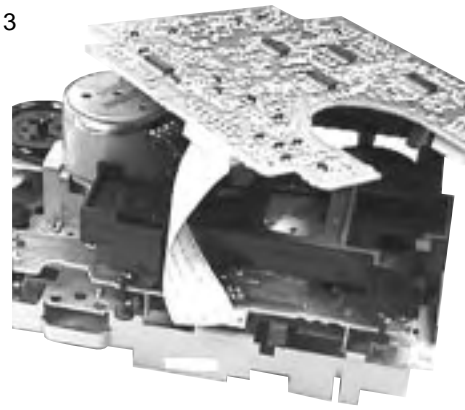
Repair Hints

3) During repair it is possible to disconnect the Tuner Board (pos 1103) and CDC & MPEG Module (pos 1105) unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

4) Due to the short flex cable wires in the ETF Module, the pc board should be disconnected and reconnected on the reverse side of the tape mechanism to keep it electrically connected during repair. See picture 3.

Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occur.

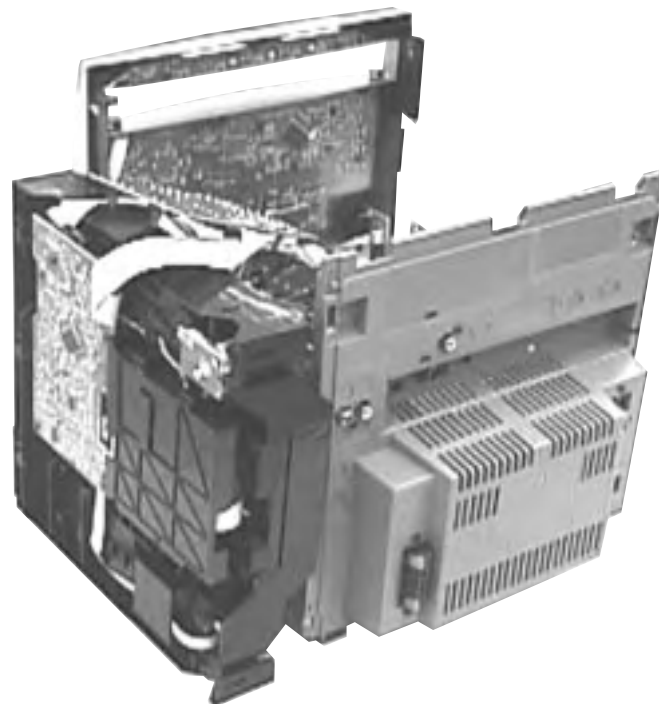
Picture 3



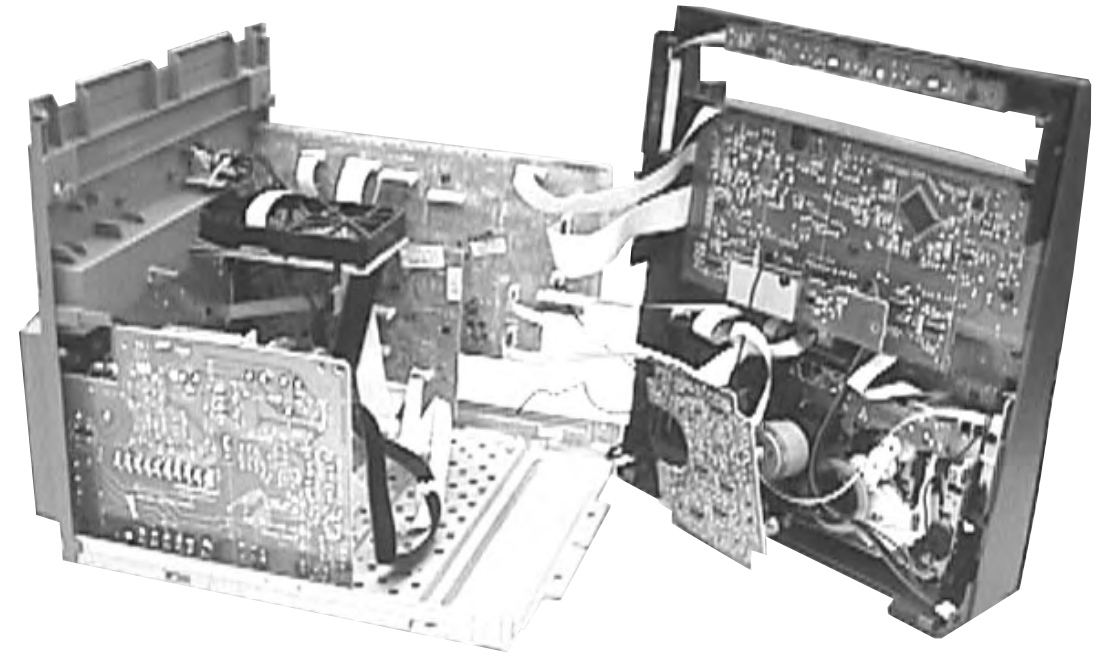
Service pos A



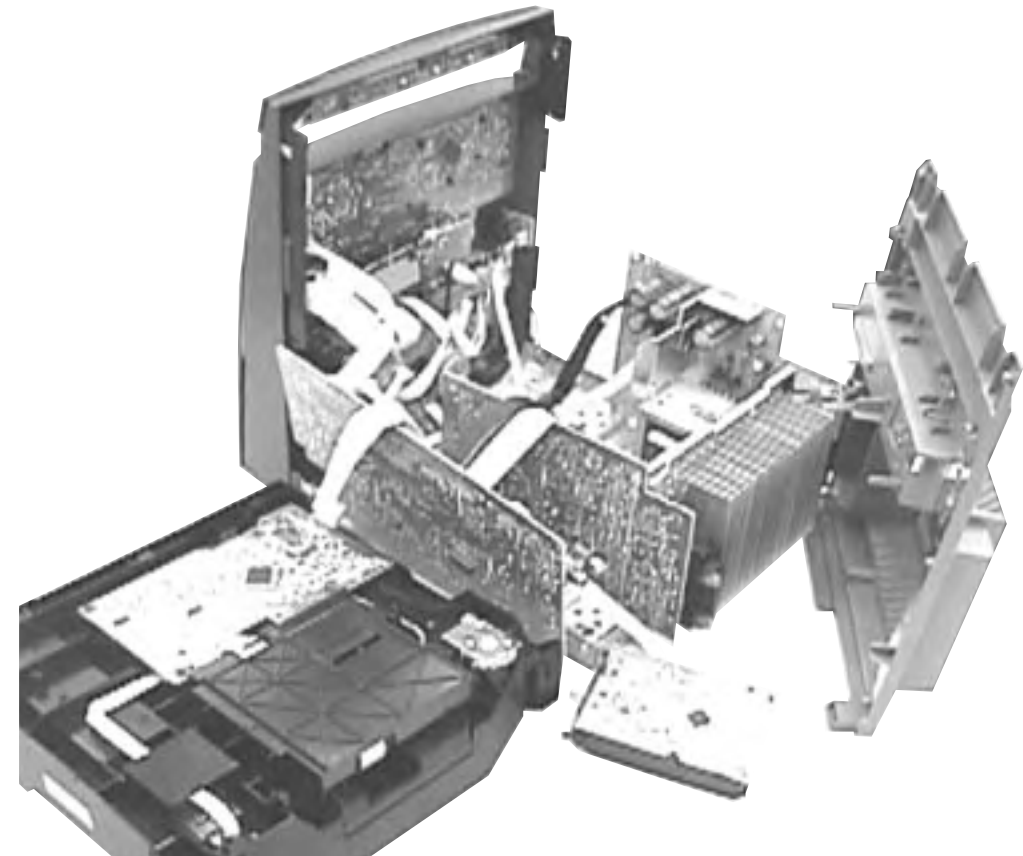
Service pos B



Service pos C



Service pos D

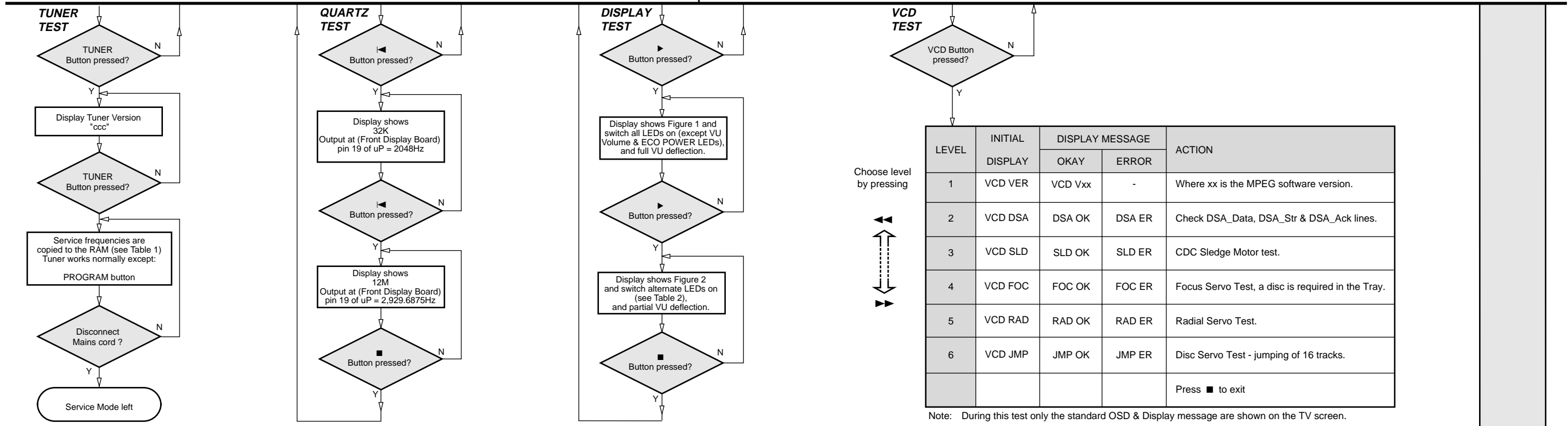


SERVICE TEST PROGRAM

To start service test program hold **▶▶** & Aux depressed while plugging in the mains cord

Display shows the ROM version "S-Vyy" (Main menu)

S refers to Service Mode
V refers to Version
yy refers to Software version number of the uProcessor (counting up from 01 to 99)



Note: During this test only the standard OSD & Display message are shown on the TV screen. The Display message takes a few seconds to appear.

PRESET	Oversea "OSE"
1	87.5MHz
2	108MHz
3	531 / 530kHz*
4	1602 / 1700kHz*
5	558 / 560kHz*
6	1494 / 1500kHz*
7	87.5 / 98MHz*
8	87.5MHz
9	87.5MHz
10	87.5MHz
11	98 / 87.5MHz*

Table 1

LEDs	FW-V520 , FW-V720 FW-V780 , FW-V785 FW-V795
DISC 1	On
DISC 3	On
TUNER	On
TAPE	On
VAC	On
VU BACK LIGHT	On
VU VOLUME	On

Table 2

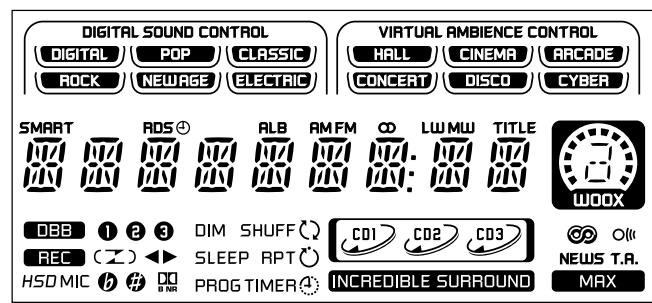


Figure 1

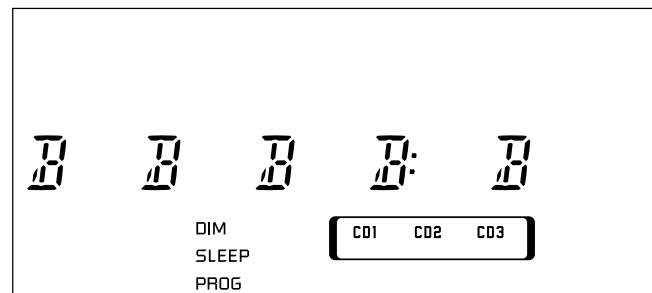


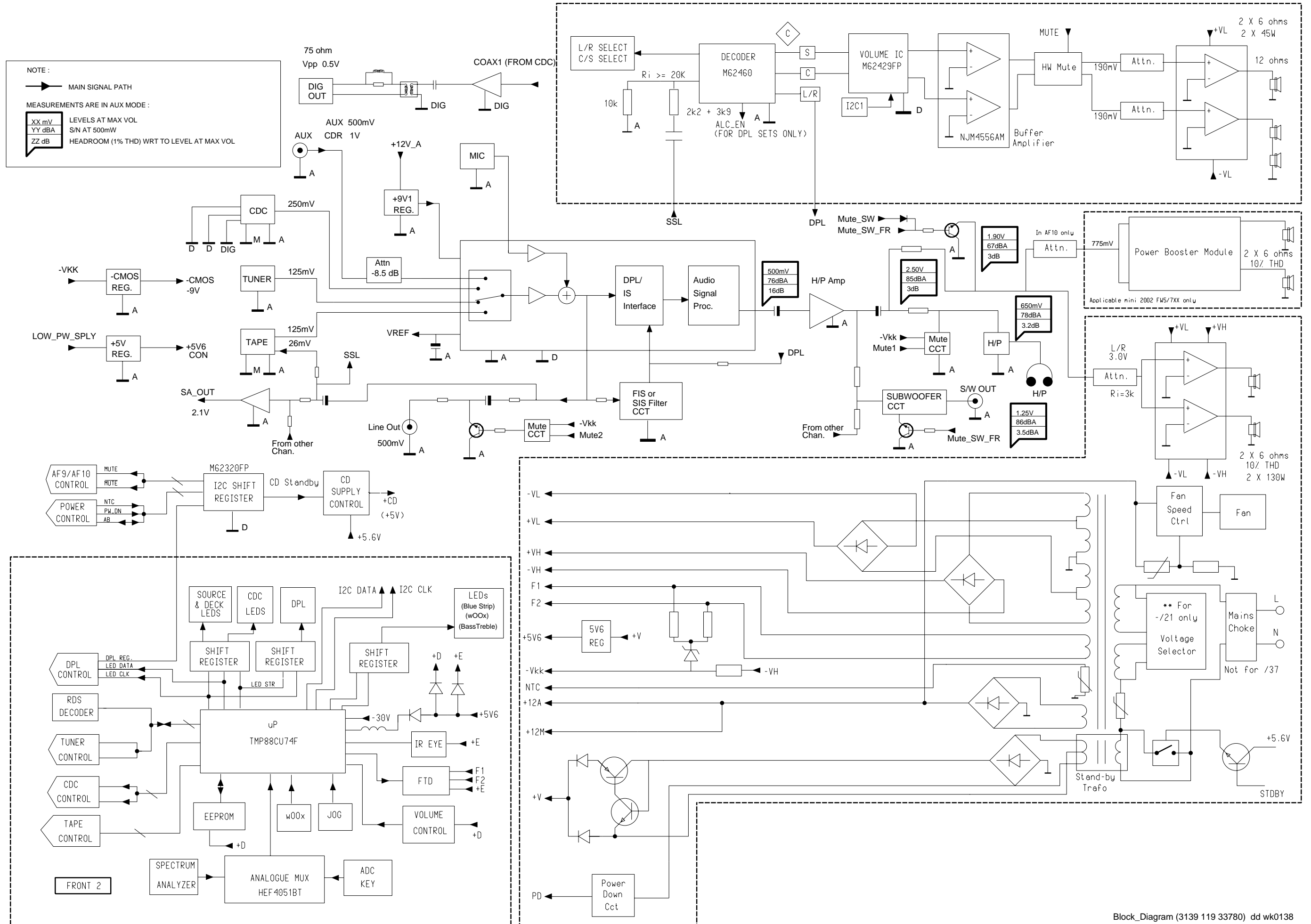
Figure 2

* Depending on the selected grid frequency (9 or 10kHz)
Note:
a) By holding the TUNER and **▶▶** buttons depressed while switching on the Mains supply, the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
b) This Tuner information is also applicable for /12 and /28 versions.

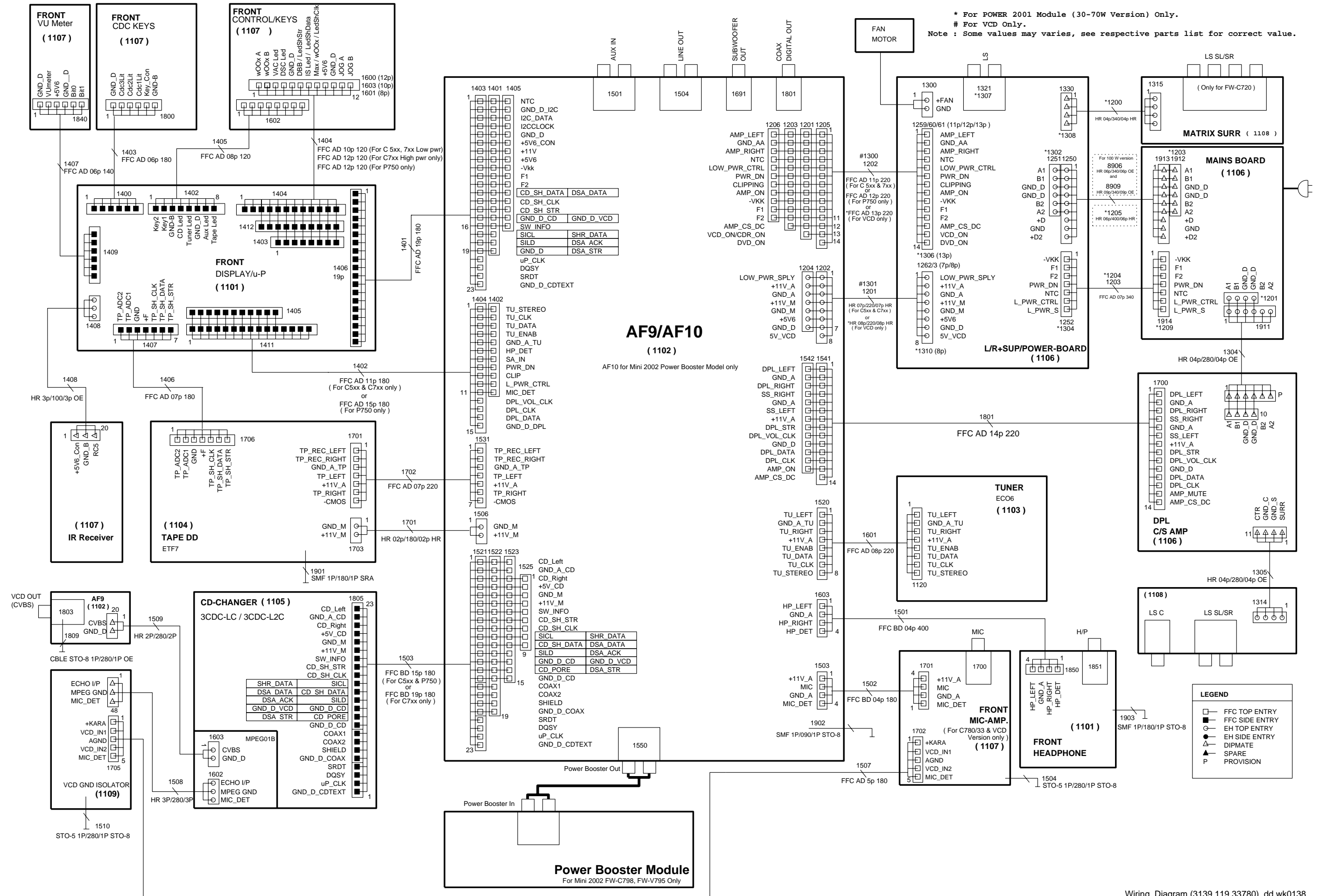
TEST	Activated with	ACTION
EEPROM TEST	▶▶ ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "FAIL" will be displayed.
EEPROM FORMAT TEST	◀◀	Load default data. Display shows "NEW" for 1 second. Caution! All presets from the customer will be lost!!
ROTARY ENCODER TEST	Rotary Volume Knob or Jog Shuttle	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
DEMO TOGGLE	DSC	Pressing this button will toggle between DEMO ON and DEMO OFF. The DEMO status will scroll once across the Display.
LEAVE SERVICE TEST PROGRAM	Disconnect mains cord	

SET BLOCK DIAGRAM

NOTE :
 → MAIN SIGNAL PATH
 MEASUREMENTS ARE IN AUX MODE :
 XX mV LEVELS AT MAX VOL
 YY dBA S/N AT 500mW
 ZZ dB HEADROOM (1% THD) WRT TO LEVEL AT MAX VOL



SET WIRING DIAGRAM



REMARKS :

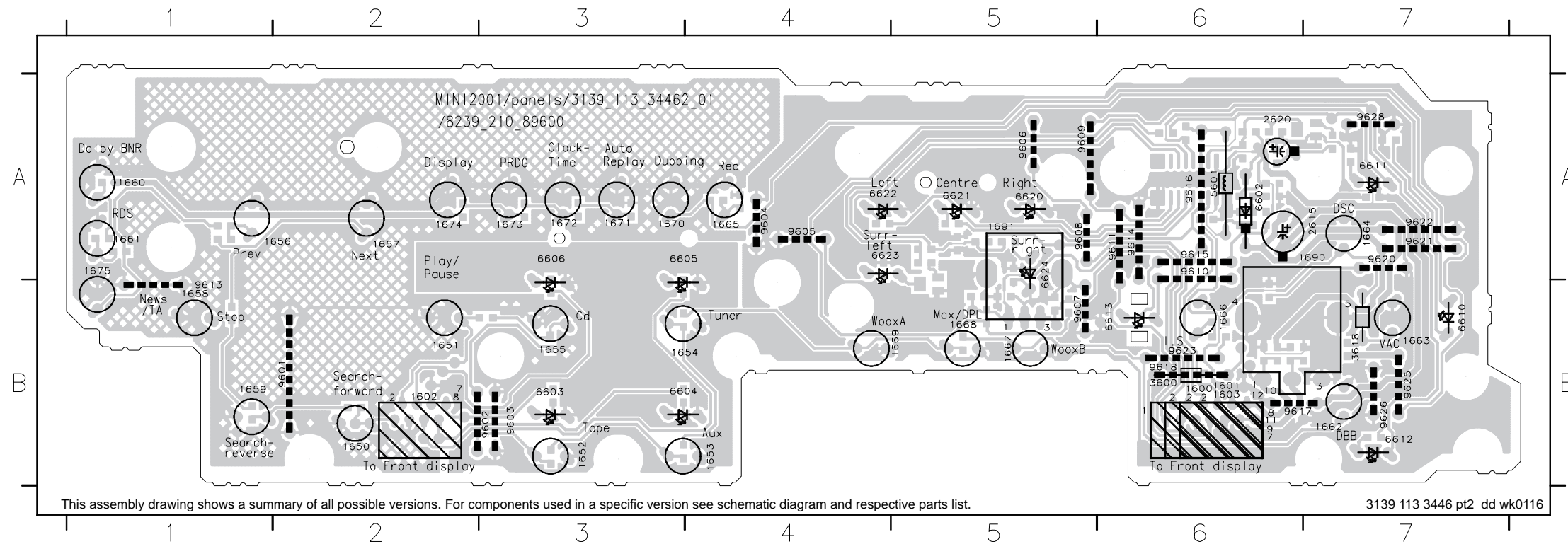
FRONT CONTROL BOARD

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Karaoke Part - Layout & Circuit diagram 5-5
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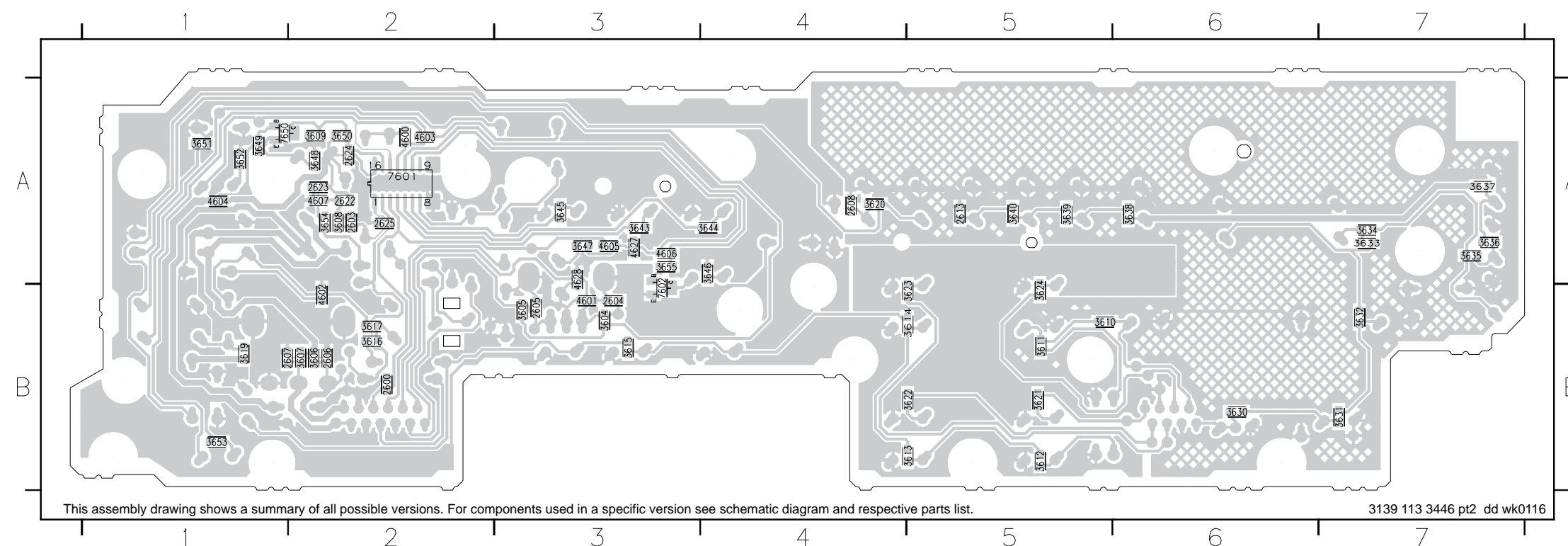
FRONT CONTROL BOARD - COMPONENT LAYOUT

1600 B6	1650 B2	1654 B3	1658 B1	1662 B7	1666 B6	1670 A3	1674 A2	2615 A7	5601 A6	6605 A3	6612 B7	6622 A4	9602 B3	9606 A5	9610 A6	9615 A6	9620 A7	9625 B7
1601 B6	1651 B2	1655 B3	1659 B1	1663 B7	1667 B5	1671 A3	1675 A1	2620 A6	6602 A6	6606 A3	6613 B6	6623 A4	9603 B3	9607 B5	9611 A6	9616 A6	9621 A7	9626 B7
1602 B2	1652 B3	1656 A2	1660 A1	1664 A7	1668 B5	1672 A3	1690 A7	3600 B6	6603 B3	6610 B7	6620 A5	6624 A5	9604 A4	9608 A5	9613 B1	9617 B6	9622 A7	9628 A7
1603 B6	1653 B4	1657 A2	1661 A1	1665 A4	1669 B5	1673 A3	1691 A5	3618 B7	6604 B3	6611 A7	6621 A5	9601 B2	9605 A4	9609 A5	9614 A6	9618 B6	9623 B6	



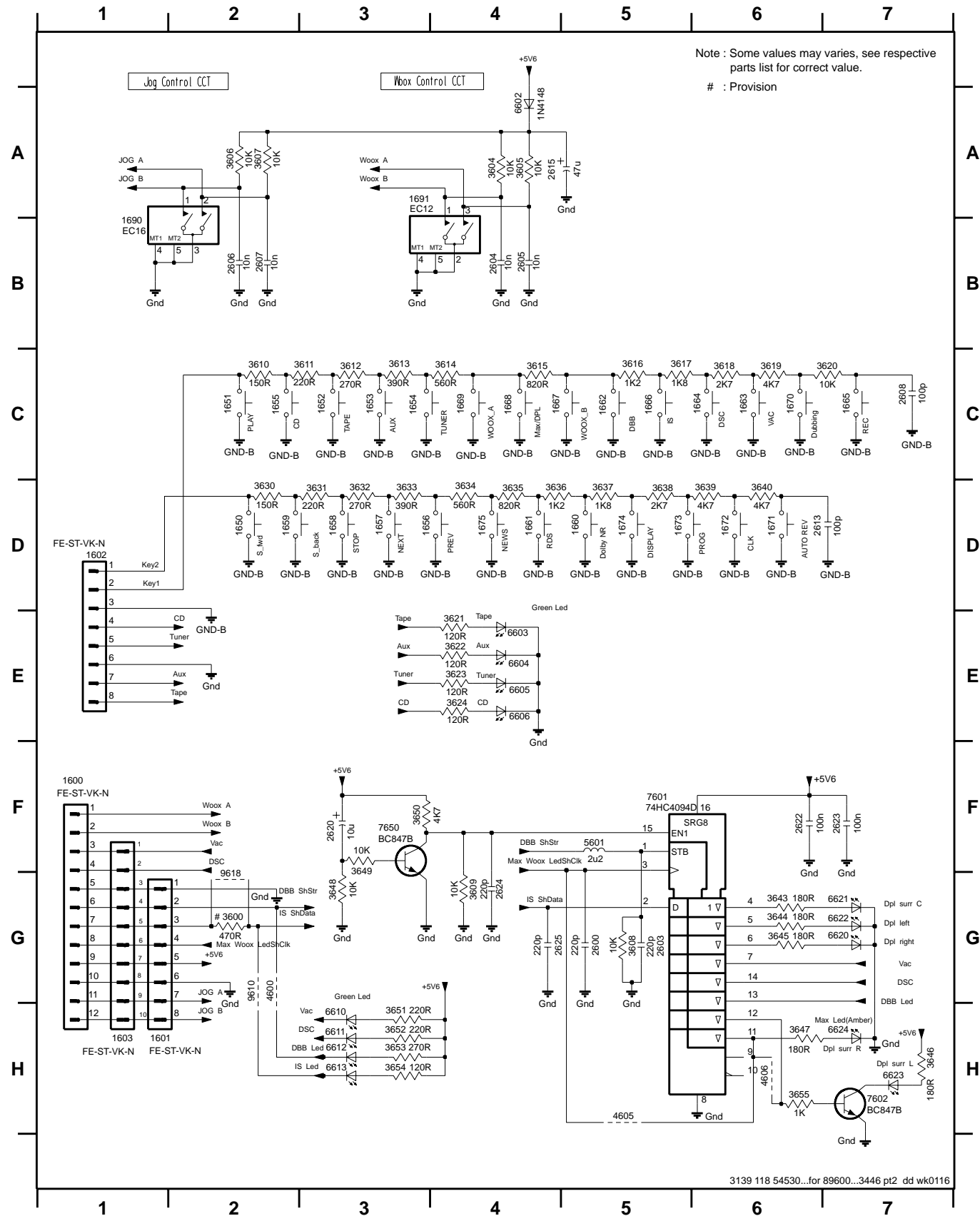
FRONT CONTROL BOARD - CHIP LAYOUT

2600 B2	2606 B2	2622 A2	3604 B3	3608 A2	3612 B5	3616 B2	3621 B5	3630 B6	3634 A7	3638 A6	3644 A4	3648 A2	3652 A1	4600 A2	4604 A1	4627 A3	7650 A1
2603 A2	2607 B1	2623 A2	3605 B3	3609 A2	3613 B5	3617 B2	3622 B5	3631 B7	3635 A7	3639 A5	3645 A3	3649 A1	3653 B1	4601 B3	4605 A3	4628 A3	
2604 B3	2608 A4	2624 A2	3606 B2	3610 B5	3614 B5	3619 B1	3623 B5	3632 B7	3636 A7	3640 A5	3646 A4	3650 A2	3654 A2	4602 B2	4606 A3	7601 A2	
2605 B3	2613 A5	2625 A2	3607 B2	3611 B5	3615 B3	3620 A4	3624 B5	3633 A7	3637 A7	3643 A3	3647 A3	3651 A1	3655 A3	4603 A2	4607 A2	7602 B3	



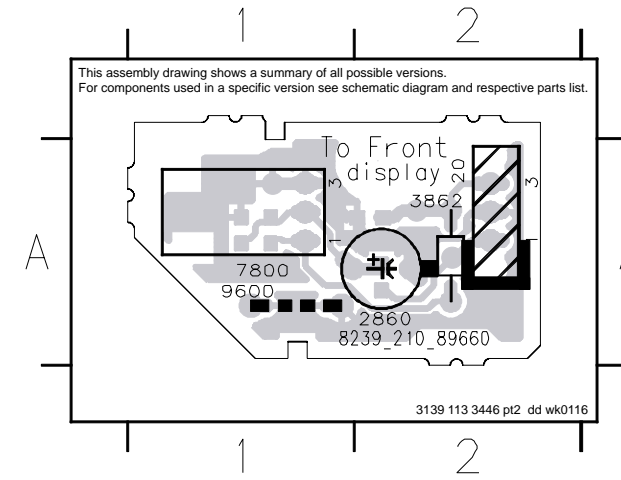
FRONT CONTROL BOARD - CIRCUIT DIAGRAM

1600 F1	1653 C3	1660 D5	1667 C4	1674 D5	2605 B4	2622 F6	3606 A2	3613 C3	3620 C7	3632 D3	3639 D6	3648 G3	3655 H6	6604 E4	6620 G7	7650 F3
1601 H2	1654 C3	1661 D4	1668 C4	1675 D4	2606 B2	2623 F7	3607 A2	3614 C4	3621 E4	3633 D3	3640 D6	3649 F3	4600 G2	6605 E4	6621 G7	9610 G2
1602 D1	1655 C2	1662 C5	1669 C4	1690 B1	2607 B2	2624 G4	3608 G5	3615 C4	3622 E4	3634 D4	3643 G6	3650 F3	4605 H5	6606 E4	6622 G7	9618 G2
1603 H1	1656 D3	1663 C6	1670 C6	1691 A3	2608 C7	2625 G4	3609 G4	3616 C5	3623 E4	3635 D4	3644 G6	3651 H3	4606 H6	6610 H3	6623 H7	
1650 D2	1657 D3	1664 C6	1671 D6	2600 G5	2613 D6	3600 G2	3610 C2	3617 C5	3624 E4	3636 D4	3645 G6	3652 H3	5601 F5	6611 H3	6624 H7	
1651 C2	1658 D3	1665 C7	1672 D6	2603 G5	3604 A4	3611 C3	3618 C6	3630 D2	3637 D5	3646 H7	3653 H3	6602 A4	6612 H3	7601 F5		
1652 C3	1659 D2	1666 C5	1673 D5	2604 B4	2620 F3	3605 A4	3612 C3	3619 C6	3631 D3	3638 D5	3647 H6	3654 H3	6603 E4	6613 H3	7602 H7	



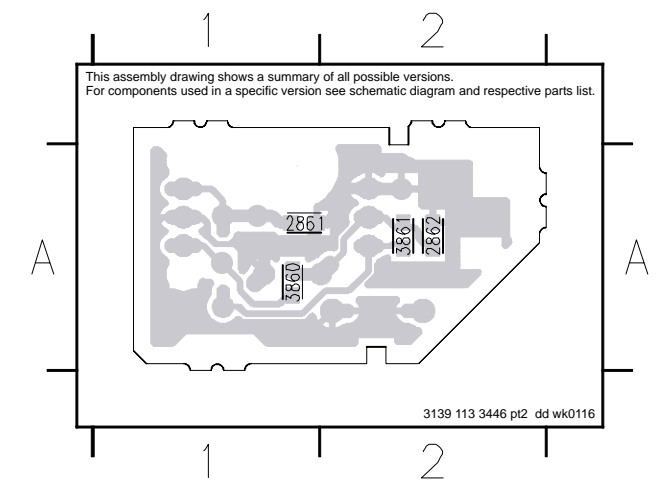
IR-EYE BOARD - COMPONENT LAYOUT

20 A2 3862 A2 9600 A1
2860 A2 7800 A1



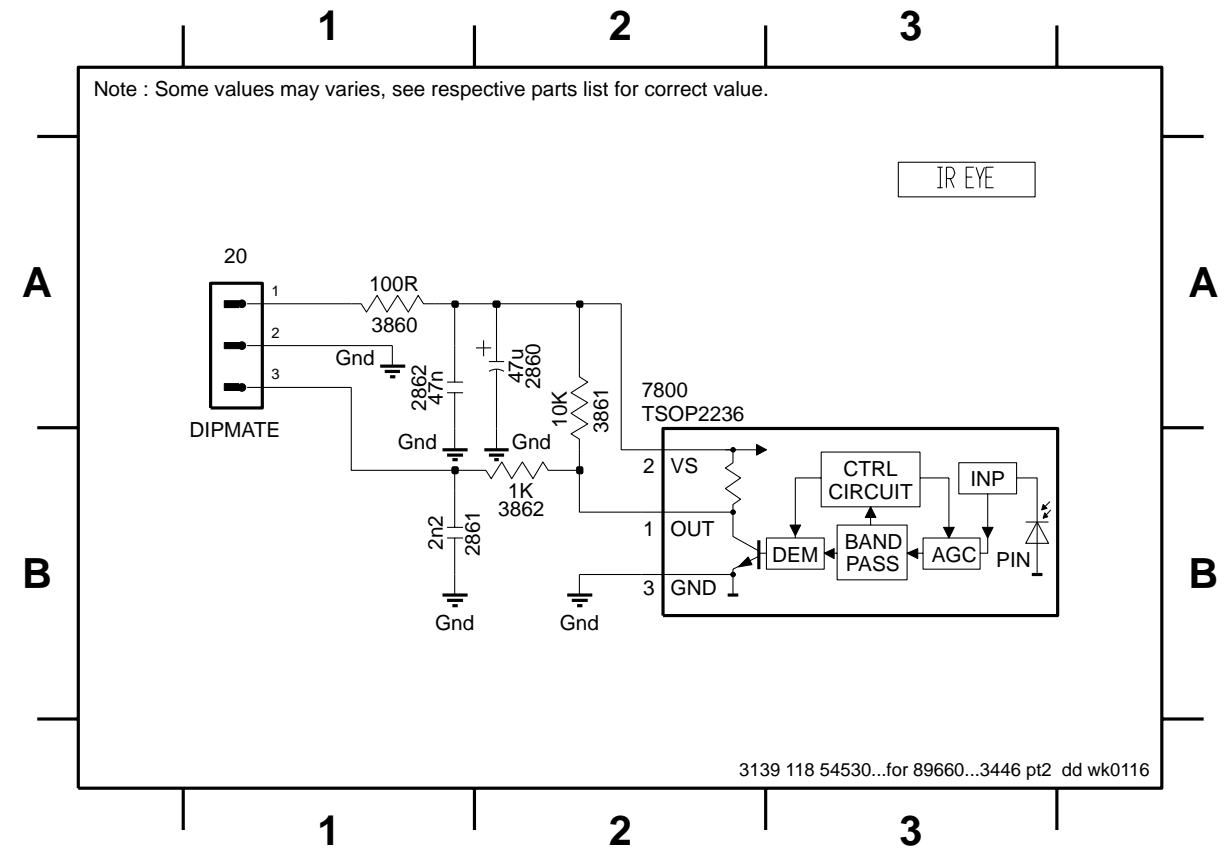
IR-EYE BOARD - CHIP LAYOUT

2861 A1 2862 A2 3860 A1 3861 A2



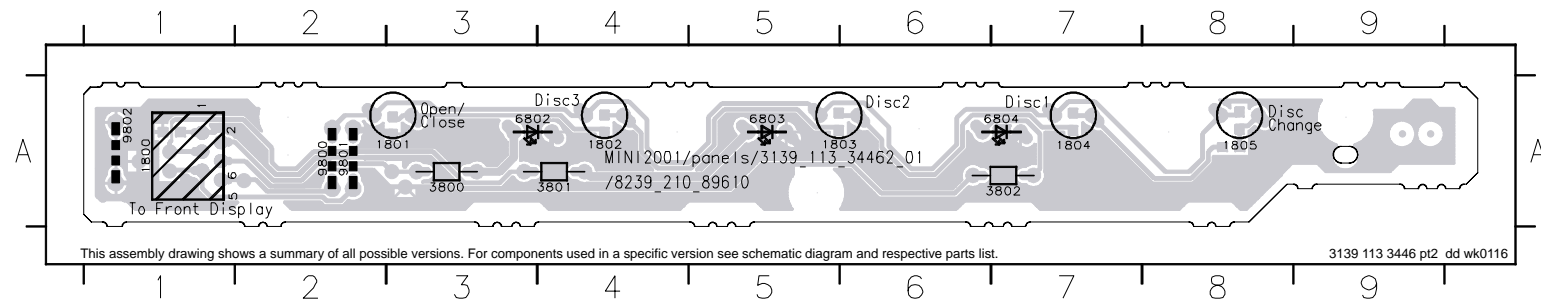
IR-EYE BOARD - CIRCUIT DIAGRAM

20 A1 2860 A2 2861 B1 2862 A1 3860 A1 3861 A2 3862 B2 7800 A2



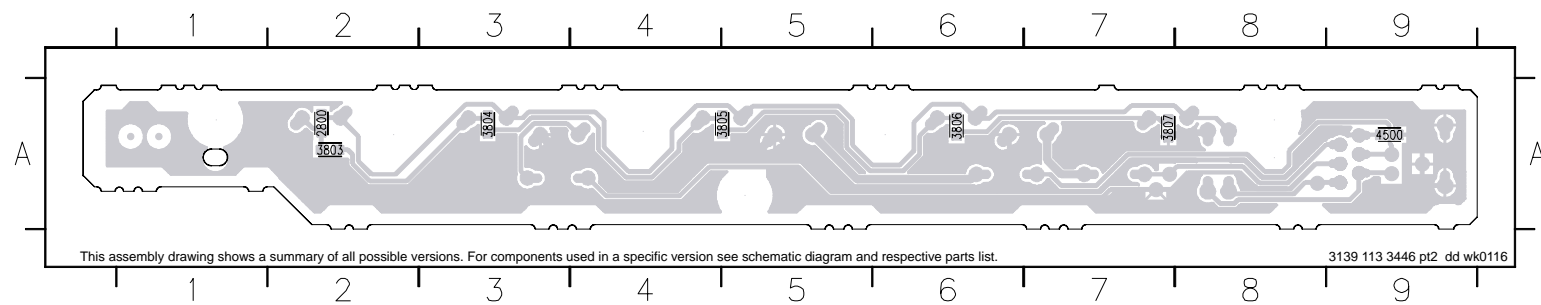
KEY-CDC BOARD - COMPONENT LAYOUT

1800 A1 1801 A3 1802 A4 1803 A5 1804 A7 1805 A8 3800 A3 3801 A4 3802 A7 6802 A3 6803 A5 6804 A7 9800 A2 9801 A2 9802 A1



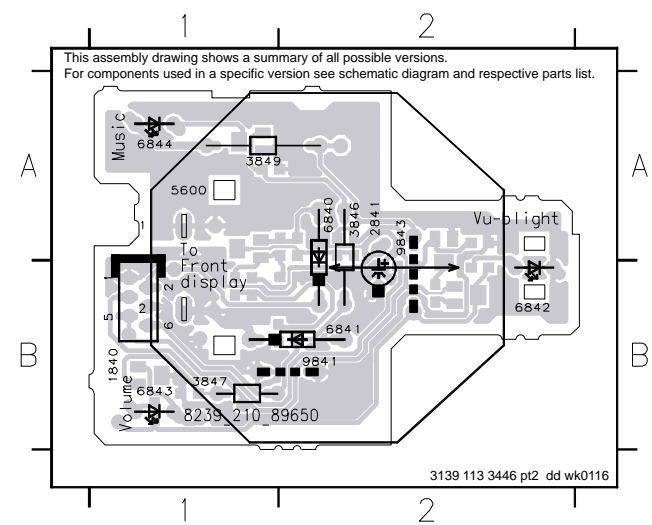
KEY-CDC BOARD - CHIP LAYOUT

2800 A2 3803 A2 3804 A3 3805 A5 3806 A6 3807 A7 4500 A9



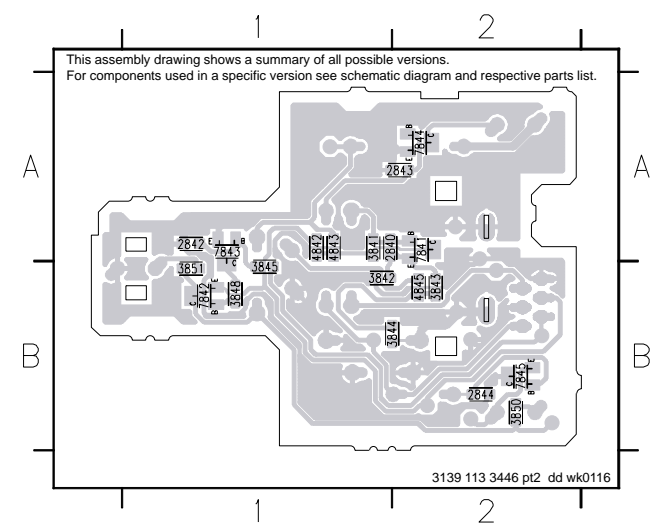
VU METER BOARD - COMPONENT LAYOUT

1840 B1 3846 A2 3849 A1 6840 A2 6842 B2 6844 A1 9843 A2
2841 A2 3847 B1 5600 A1 6841 B2 6843 B1 9841 B2



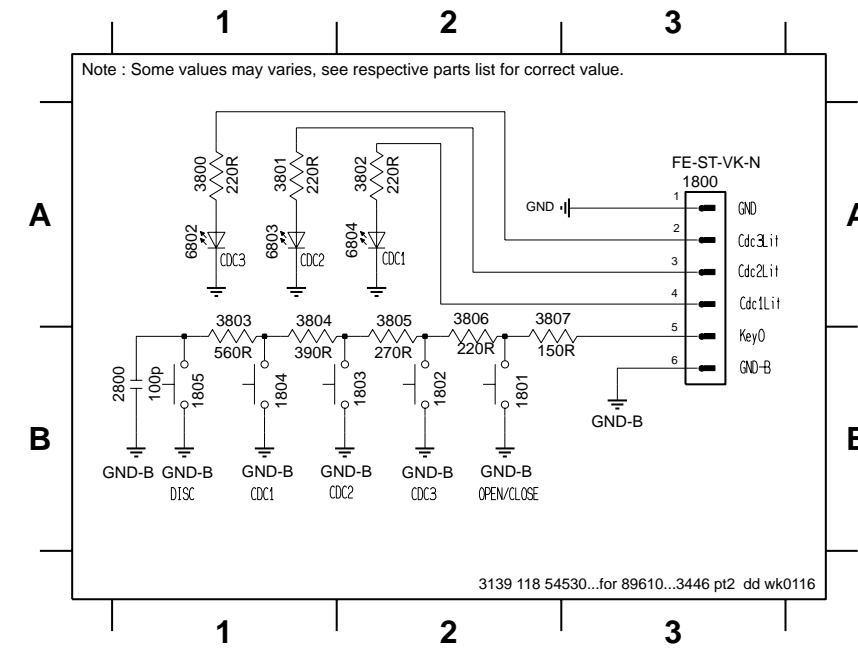
VU METER BOARD - CHIP LAYOUT

2840 A1 2844 B2 3843 B2 3848 B1 4842 A1 7841 A2 7844 A2
2842 A1 3841 A1 3844 B1 3850 B2 4843 A1 7842 B1 7845 B2
2843 A2 3842 B1 3845 B1 3851 B1 4845 B2 7843 A1



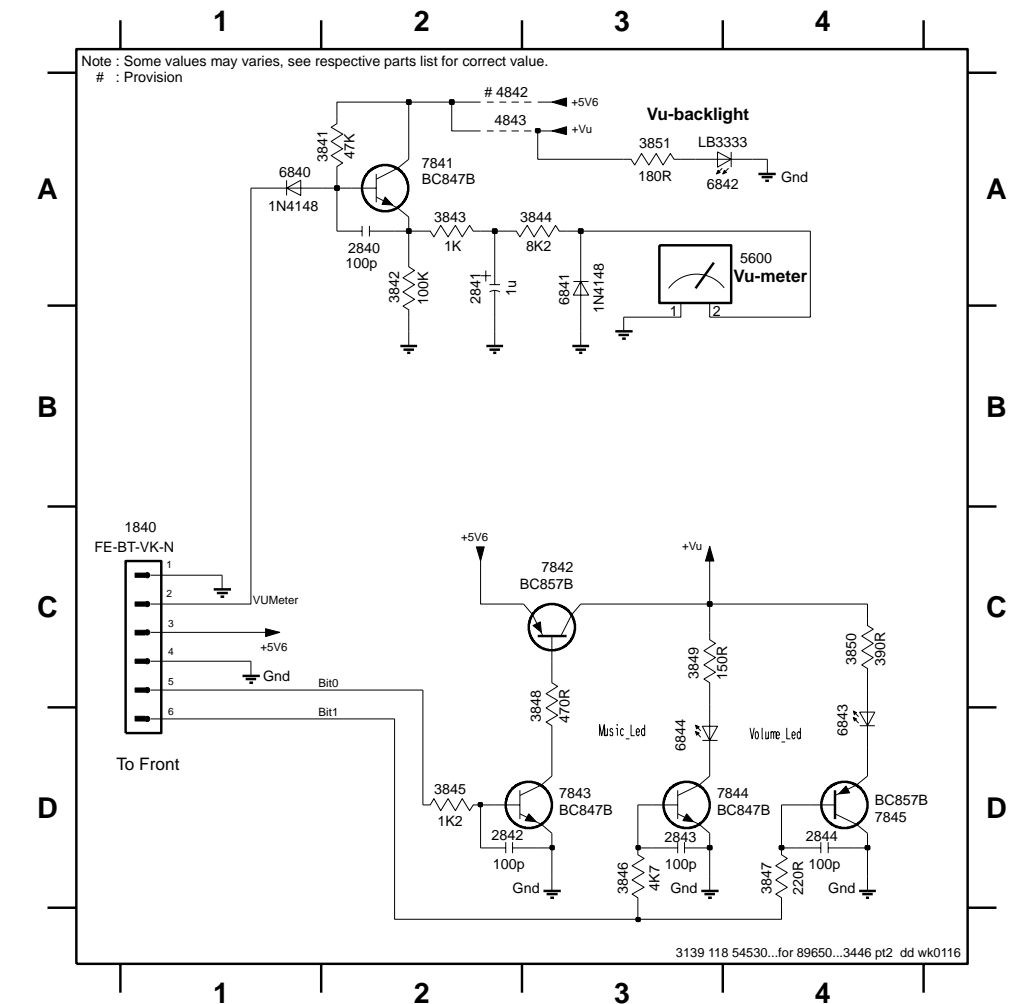
KEY-CDC BOARD - CIRCUIT DIAGRAM

1800 A3 1802 B2 1804 B1 2800 B1 3801 A1 3803 A1 3805 A2 3807 A2 6803 A1
1801 B2 1803 B2 1805 B1 3800 A1 3802 A2 3804 A1 3806 A2 6802 A1 6804 A2



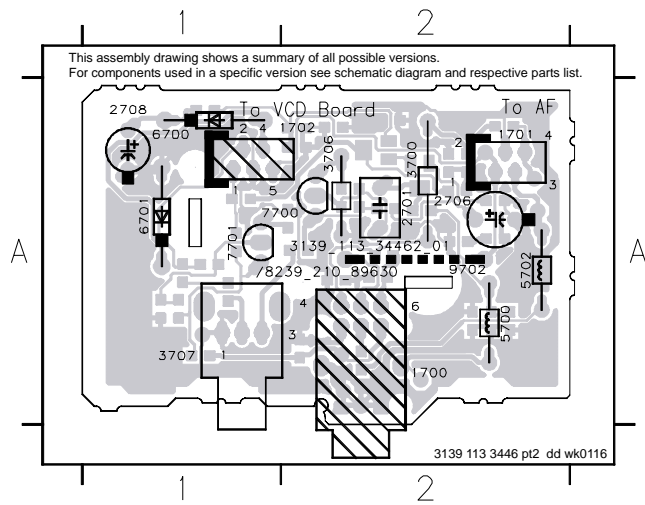
VU METER BOARD - CIRCUIT DIAGRAM

1840 C1 2842 D2 3841 A2 3844 A3 3847 D4 3850 C4 4843 A2 6841 A3 6844 D3 7843 D3
2840 A2 2843 D3 3842 A2 3845 D2 3848 C3 3851 A3 5600 A4 6842 A4 7841 A2 7844 D3
2841 A2 2844 D4 3843 A2 3846 D3 3849 C3 4842 A2 6840 A1 6843 D4 7842 C3 7845 D4



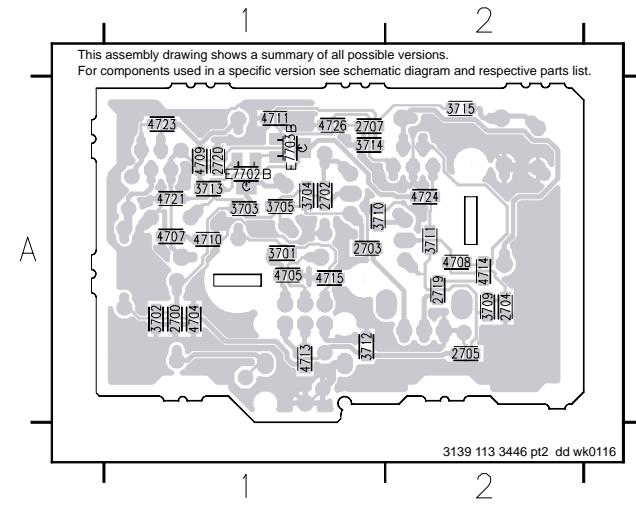
KARAOKE BOARD - COMPONENT LAYOUT

1700 A2 2701 A2 3700 A2 5700 A2 6701 A1 9702 A2
 1701 A2 2706 A2 3706 A2 5702 A2 7700 A1
 1702 A2 2708 A1 3707 A1 6700 A1 7701 A1



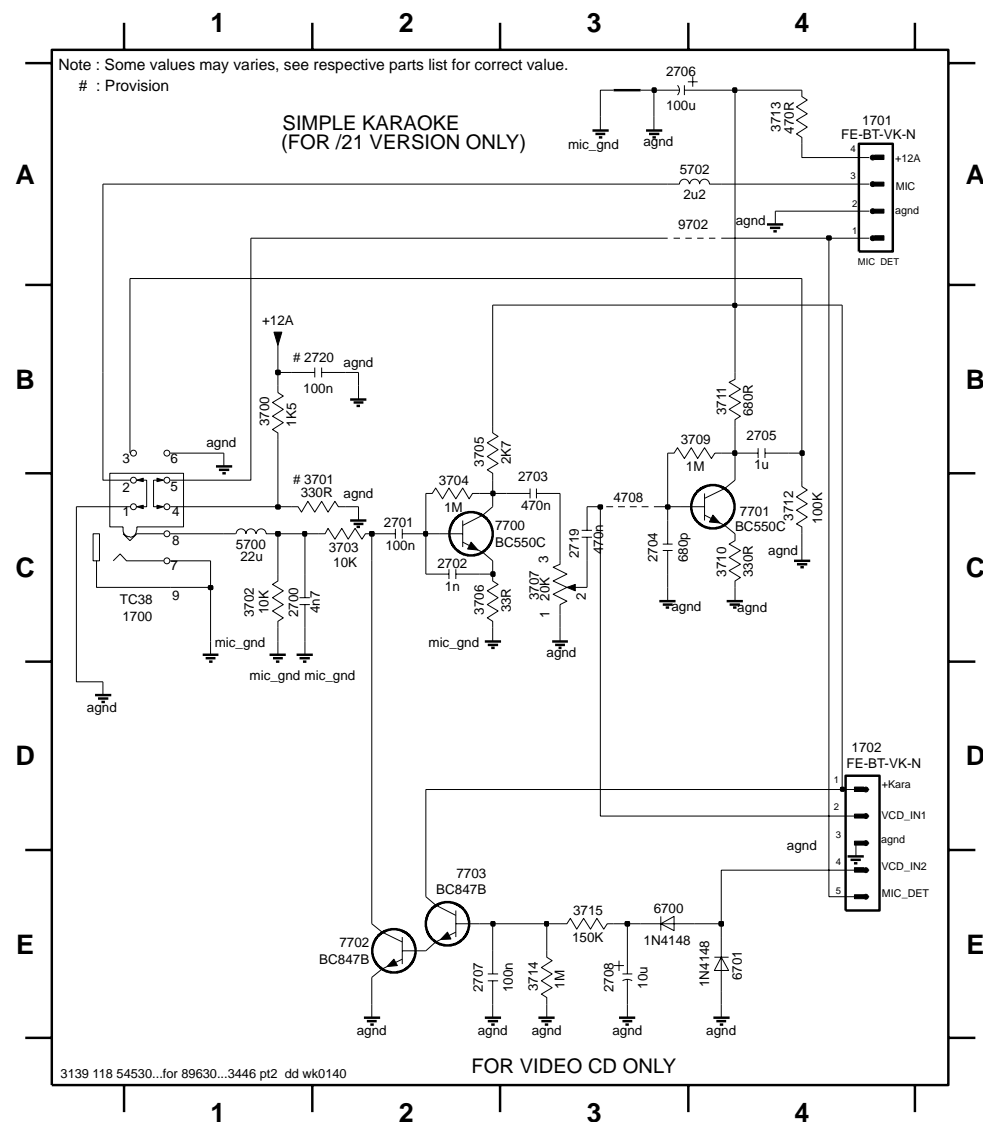
KARAOKE BOARD - CHIP LAYOUT

2700 A1 2719 A2 3705 A1 3714 A1 4709 A1 4721 A1
 2702 A1 2720 A1 3709 A2 3715 A2 4710 A1 4723 A1
 2703 A1 3701 A1 3710 A1 4704 A1 4711 A1 4724 A2
 2704 A2 3702 A1 3711 A2 4705 A1 4713 A1 4726 A1
 2705 A2 3703 A1 3712 A1 4707 A1 4714 A2 7702 A1
 2707 A1 3704 A1 3713 A1 4708 A2 4715 A1 7703 A1



KARAOKE BOARD - CIRCUIT DIAGRAM

1700 C1 2700 C1 2703 C3 2706 A3 2719 C3 3701 C2 3704 C2 3707 C3 3711 B4 3714 E3 5700 C1 6701 E4 7702 E2
 1701 A4 2701 C2 2704 C3 2707 E2 2720 B2 3702 C1 3705 B2 3709 B4 3712 C4 3715 E3 5702 A4 7700 C2 7703 E2
 1702 D4 2702 C2 2705 B4 2708 E3 3700 B1 3703 C2 3706 C2 3710 C4 3713 A4 4708 C3 6700 E3 7701 C4 9702 A4



ELECTRICAL PARTS LIST - FRONT CONTROL BOARD

MISCELLANEOUS

1602	4822 265 11535	Flex Connector 8P
1603	4822 265 11208	Flex Connector 10P
1650	4822 276 13775	Tact Switch
1651	4822 276 13775	Tact Switch
1652	4822 276 13775	Tact Switch
1653	4822 276 13775	Tact Switch
1654	4822 276 13775	Tact Switch
1655	4822 276 13775	Tact Switch
1656	4822 276 13775	Tact Switch
1657	4822 276 13775	Tact Switch
1658	4822 276 13775	Tact Switch
1659	4822 276 13775	Tact Switch
1660	4822 276 13775	Tact Switch
1661	4822 276 13775	Tact Switch
1662	4822 276 13775	Tact Switch
1663	4822 276 13775	Tact Switch
1664	4822 276 13775	Tact Switch
1665	4822 276 13775	Tact Switch
1666	4822 276 13775	Tact Switch
1668	4822 276 13775	Tact Switch
1670	4822 276 13775	Tact Switch
1671	4822 276 13775	Tact Switch
1672	4822 276 13775	Tact Switch
1673	4822 276 13775	Tact Switch
1674	4822 276 13775	Tact Switch
1675	4822 276 13775	Tact Switch
1690	2422 129 16385	Rotary Encoder 12P
1700	4822 265 11529	Microphone Socket
1701	4822 267 10733	Flex Connector 4P
1702	4822 267 10954	Flex Connector 5P
1800	4822 265 11207	Flex Connector 6P
1801	4822 276 13775	Tact Switch
1802	4822 276 13775	Tact Switch
1803	4822 276 13775	Tact Switch
1804	4822 276 13775	Tact Switch
1805	4822 276 13775	Tact Switch
1840	4822 267 10731	Flex Connector 6P

2706	4822 124 41643	100uF 20% 16V
2707	4822 126 14305	100nF 10% 16V
2708	4822 124 21732	10uF 20% 25V
2719	3198 017 44740	470nF 10V
2800	4822 122 31765	100pF 2% 63V
2840	4822 122 31765	100pF 2% 63V
2841	4822 124 22651	1uF 20% 50V
2842	4822 122 31765	100pF 2% 63V
2843	4822 122 31765	100pF 2% 63V
2844	4822 122 31765	100pF 2% 63V
2860	4822 124 81286	47uF 20% 16V
2861	4822 126 14238	2,2nF 50V
2862	3198 017 34730	47nF 16V

RESISTORS

3606	4822 051 30103	10k 5% 0,062W
3607	4822 051 30103	10k 5% 0,062W
3610	4822 051 30151	150R 5% 0,062W
3611	4822 051 30221	220R 5% 0,062W
3612	4822 051 30271	270R 5% 0,062W
3613	4822 051 30391	390R 5% 0,062W
3614	4822 051 30561	560R 5% 0,062W
3615	4822 117 12968	820R 5% 0,62W
3616	4822 117 11817	1k2 1% 1/16W
3617	4822 117 12903	1k8 1% 0,063W
3618	4822 116 52263	2k7 5% 0,5W
3619	4822 051 30472	4k7 5% 0,062W
3620	4822 051 30103	10k 5% 0,062W
3621	4822 051 30121	120R 5% 0,062W
3622	4822 051 30121	120R 5% 0,062W
3623	4822 051 30121	120R 5% 0,062W
3624	4822 051 30121	120R 5% 0,062W
3630	4822 051 30151	150R 5% 0,062W
3631	4822 051 30221	220R 5% 0,062W
3632	4822 051 30271	270R 5% 0,062W
3633	4822 051 30391	390R 5% 0,062W
3634	4822 051 30561	560R 5% 0,062W
3635	4822 117 12968	820R 5% 0,62W
3636	4822 117 11817	1k2 1% 1/16W
3637	4822 117 12903	1k8 1% 0,063W
3638	4822 051 30272	2k7 5% 0,062W
3639	4822 051 30472	4k7 5% 0,062W
3640	4822 051 30103	10k 5% 0,062W
3647	4822 051 30181	180R 5% 0,062W
3651	4822 051 30221	220R 5% 0,062W
3652	4822 051 30221	220R 5% 0,062W
3653	4822 051 30271	270R 5% 0,062W
3654	4822 051 30121	120R 5% 0,062W
3700	4822 116 52243	1k5 5% 0,5W
3702	4822 051 30103	10k 5% 0,062W
3703	4822 051 30103	10k 5% 0,062W
3704	4822 051 30105	1M 5% 0,062W

CAPACITORS

2606	5322 126 11583	10nF 10% 50V
2607	5322 126 11583	10nF 10% 50V
2608	4822 122 31765	100pF 2% 63V
2613	4822 122 31765	100pF 2% 63V
2615	4822 124 12233	47uF 20% 25V
2622	4822 126 14305	100nF 10% 16V
2623	4822 126 14305	100nF 10% 16V
2700	4822 126 13193	4,7nF 10% 63V
2701	5322 121 42386	100nF 5% 63V
2702	3198 016 31020	1nF 25V
2703	3198 017 44740	470nF 10V
2704	4822 126 13909	680pF 10% 50V
2705	3198 017 41050	1uF 10V

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD**RESISTORS**

3705	4822 051 30272	2k7 5% 0,062W
3706	4822 116 52191	33R 5% 0,5W
3707	2120 366 90291	POTM CAR LOG 20k
3709	4822 051 30105	1M 5% 0,062W
3710	4822 051 30331	330R 5% 0,062W
3711	4822 051 30681	680R 5% 0,062W
3712	4822 117 13632	100k 1% 0,62W
3713	4822 051 30471	470R 5% 0,062W
3714	4822 051 30105	1M 5% 0,062W
3715	4822 051 30154	150k 5% 0,062W
3800	4822 116 83872	220R 5% 0,5W
3801	4822 116 83872	220R 5% 0,5W
3802	4822 116 83872	220R 5% 0,5W
3803	4822 051 30561	560R 5% 0,062W
3804	4822 051 30391	390R 5% 0,062W
3805	4822 051 30271	270R 5% 0,062W
3806	4822 051 30221	220R 5% 0,062W
3807	4822 051 30151	150R 5% 0,062W
3841	4822 117 12925	47k 1% 0,063W
3842	4822 117 13632	100k 1% 0,62W
3843	4822 051 30102	1k 5% 0,062W
3844	4822 117 12902	8k2 1% 0,063W
3845	4822 117 11817	1k2 1% 1/16W
3846	4822 116 52283	4k7 5% 0,5W
3847	4822 116 83872	220R 5% 0,5W
3848	4822 051 30471	470R 5% 0,062W
3849	4822 116 83868	150R 5% 0,5W
3850	4822 051 30391	390R 5% 0,062W
3851	4822 051 30181	180R 5% 0,062W
3860	4822 051 30101	100R 5% 0,062W
3861	4822 051 30103	10k 5% 0,062W
3862	4822 050 11002	1k 1% 0,4W
4500	4822 051 30008	OR Jumper 0603
4600	4822 051 30008	OR Jumper 0603
4601	4822 051 30008	OR Jumper 0603
4602	4822 051 30008	OR Jumper 0603
4603	4822 051 30008	OR Jumper 0603
4604	4822 051 30008	OR Jumper 0603
4605	4822 051 30008	OR Jumper 0603
4607	4822 051 30008	OR Jumper 0603
4627	4822 051 30008	OR Jumper 0603
4628	4822 051 30008	OR Jumper 0603
4704	4822 051 30008	OR Jumper 0603
4705	4822 051 30008	OR Jumper 0603
4707	4822 051 30008	OR Jumper 0603
4708	4822 051 30008	OR Jumper 0603
4709	4822 051 30008	OR Jumper 0603
4710	4822 051 30008	OR Jumper 0603
4711	4822 051 30008	OR Jumper 0603
4713	4822 051 30008	OR Jumper 0603
4714	4822 051 30008	OR Jumper 0603
4715	4822 051 30008	OR Jumper 0603

4721	4822 051 30008	OR Jumper 0603
4723	4822 051 30008	OR Jumper 0603
4724	4822 051 30008	OR Jumper 0603
4726	4822 051 30008	OR Jumper 0603
4843	4822 051 30008	OR Jumper 0603
4845	4822 051 30008	OR Jumper 0603

COILS & FILTERS

5600	3139 110 53010	METER VU P-47SI-CAMBER
5700	4822 157 11235	Coil 22uH 5%
5702	4822 157 62552	Coil 2,2uH 5%

DIODES

6602	4822 130 30621	1N4148
6603	4822 130 10791	LTL-1CHGE
6604	4822 130 10791	LTL-1CHGE
6605	4822 130 10791	LTL-1CHGE
6606	4822 130 10791	LTL-1CHGE
6610	4822 130 10791	LTL-1CHGE
6611	4822 130 10791	LTL-1CHGE
6612	4822 130 82978	LTL-1CHPE
6613	4822 130 10791	LTL-1CHGE
6624	4822 130 11589	LTL-1CHAE
6700	4822 130 30621	1N4148
6701	4822 130 30621	1N4148
6802	4822 130 10791	LTL-1CHGE
6803	4822 130 10791	LTL-1CHGE
6804	4822 130 10791	LTL-1CHGE
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	9322 172 75676	LED VS LTL-1CHKFK

TRANSISTORS & INTEGRATED CIRCUITS

7602	4822 130 60511	BC847B
7700	4822 130 41096	BC550C
7701	4822 130 41096	BC550C
7702	4822 130 60511	BC847B
7703	4822 130 60511	BC847B
7800	9322 155 22667	IR Receiver TSOP2236ZC1
7841	4822 130 60511	BC847B
7842	4822 130 60373	BC857B
7843	4822 130 60511	BC847B

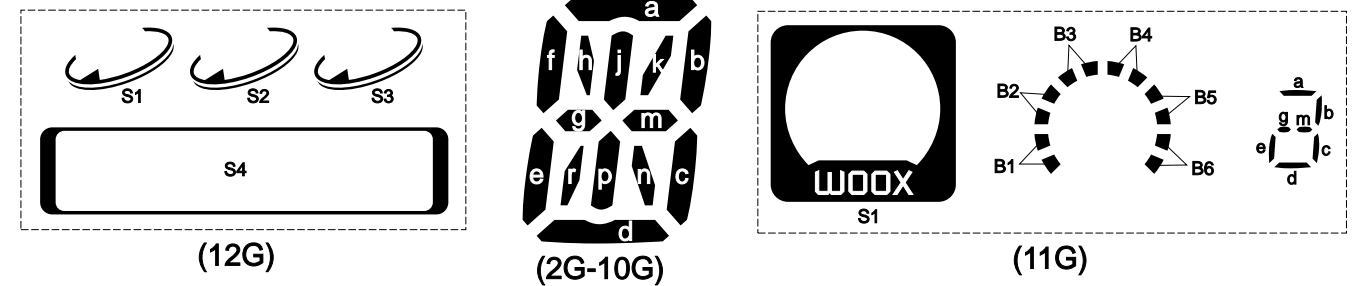
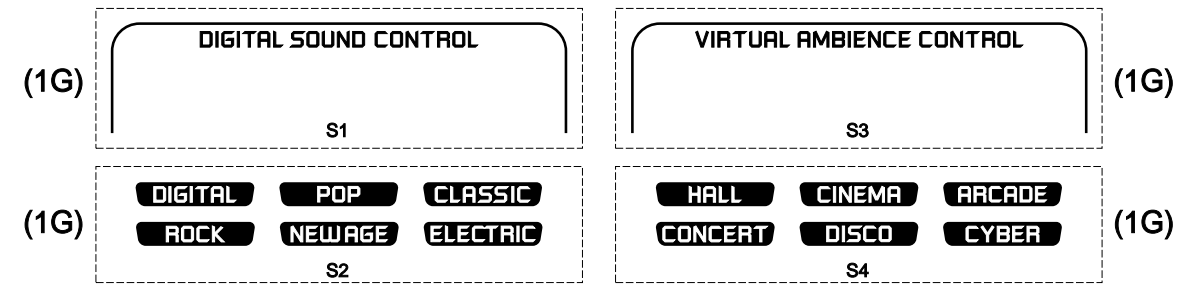
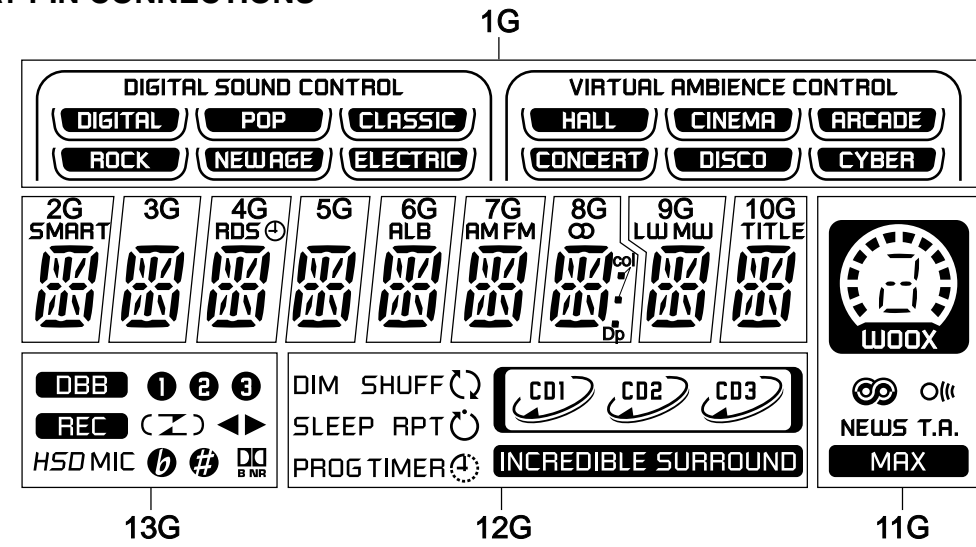
Note : Only the parts mentioned in this list are normal service spare parts.

FRONT DISPLAY BOARD

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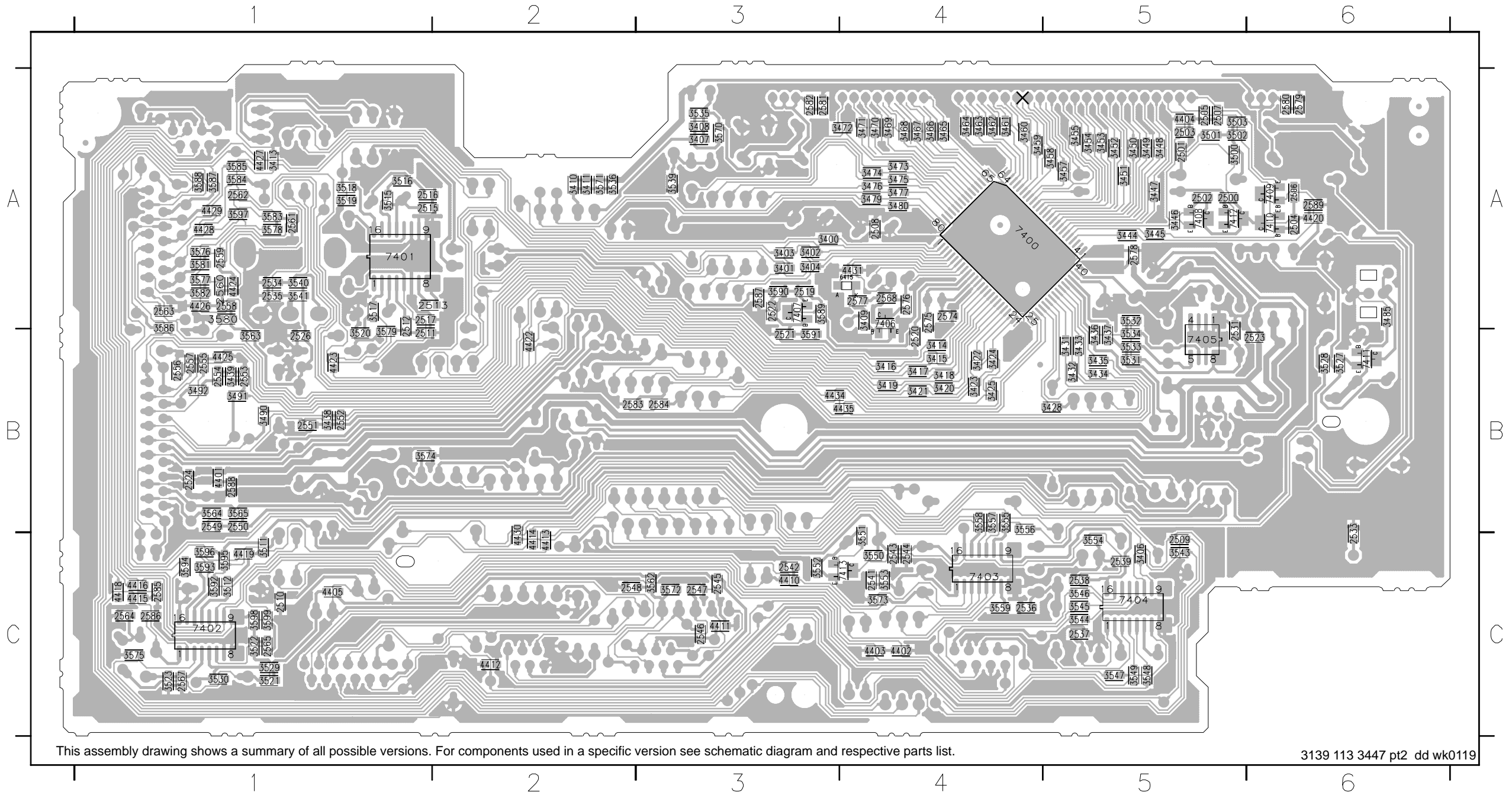
FTD DISPLAY PIN CONNECTIONS



	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	S1	a	a	a	a	a	a	a	a	a	S1	DIM	DBB
P2	S2	h	h	h	h	h	h	h	h	h	B1	SHUFF	1
P3	(CLASSIC)	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	B2	SLEEP	2
P4	(POP)	k	k	k	k	k	k	k	k	k	B3	RPT	3
P5	(DIGITAL)	b	b	b	b	b	b	b	b	b	B4	PROG	REC
P6	(ELECTRIC)	f	f	f	f	f	f	f	f	f	B5	TIMER	C
P7	(NEWAGE)	m	m	m	m	m	m	m	m	m	B6	CD1	Z
P8	(ROCK)	g	g	g	g	g	g	g	g	g	a, g, m, d	S1)
P9	S3	c	c	c	c	c	c	c	c	c	b	CD2	◀
P10	S4	e	e	e	e	e	e	e	e	e	c	S2	▶
P11	(ARCADE)	r	r	r	r	r	r	r	r	r	e	CD3	HSD
P12	(CINEMA)	n	n	n	n	n	n	n	n	n	⊞	S3	MIC
P13	(HALL)	d	d	d	d	d	d	d	d	d	O/	S4	b
P14	(CYBER)	SMART	-	RDS	-	ALB	AM	∞	LW	TITLE	NEWS	INCREDIBLE SURROUND	#
P15	(DISCO)	-	-	-	-	-	FM	col	MW	-	T.A.	-	⊞ NR
P16	(CONCERT)	-	-	-	-	-	-	Dp	-	-	MAX	-	-

FRONT DISPLAY BOARD - CHIP LAYOUT

2500 A5	2512 A1	2531 B5	2545 C3	2557 B1	2575 A4	2587 A3	3410 A2	3423 B4	3439 B1	3455 A5	3468 A4	3485 A6	3517 A1	3532 A5	3547 C5	3559 C4	3577 A1	3589 A3	4402 C4	4419 C1	4434 B3	7409 A6
2501 A5	2513 A2	2533 C6	2546 C3	2558 A1	2576 A4	2588 B1	3411 A2	3424 B4	3444 A5	3457 A5	3469 A4	3490 B1	3518 A1	3533 B5	3548 C5	3562 C3	3578 A1	3590 A3	4403 C4	4420 A6	4435 B4	7410 A6
2502 A5	2515 A1	2534 A1	2547 C3	2559 A1	2577 A4	2589 A6	3413 A1	3425 B4	3445 A5	3458 A5	3470 A4	3491 B1	3519 A1	3534 B5	3549 C5	3563 B1	3579 B1	3591 B3	4404 A5	4422 B2	6415 A4	7411 B6
2503 A5	2516 A1	2535 A1	2548 C2	2560 A1	2578 A5	3400 A3	3414 B4	3428 B5	3446 A5	3459 A4	3471 A4	3492 B1	3520 B1	3535 A3	3550 C4	3564 B1	3580 A1	3592 C1	4405 C1	4423 B1	7400 A4	7412 A5
2504 A6	2517 A1	2536 C4	2549 B1	2561 A1	2579 A6	3401 A3	3415 B4	3431 B5	3447 A5	3460 A4	3472 A4	3500 A5	3521 C1	3536 A2	3551 C4	3565 B1	3581 A1	3593 C1	4410 C3	4424 A1	7401 A1	7413 C4
2505 A5	2519 A3	2537 C5	2550 B1	2562 A1	2580 A6	3402 A3	3416 B4	3432 B5	3448 A5	3461 A4	3473 A4	3501 A5	3522 C1	3539 A3	3552 C3	3570 A3	3582 A1	3594 C1	4411 C3	4425 B1	7402 C1	
2506 A6	2520 B4	2538 C5	2551 B1	2563 A1	2581 A3	3403 A3	3417 B4	3433 B5	3449 A5	3462 A4	3474 A4	3502 A5	3523 C1	3540 A1	3553 C4	3571 A2	3583 A1	3595 C1	4412 C2	4426 A1	7403 C4	
2507 A5	2521 B3	2539 C5	2552 B1	2564 C1	2582 A3	3404 A3	3418 B4	3434 B5	3450 A5	3463 A4	3475 A4	3503 A5	3527 B6	3541 A1	3554 C5	3572 C3	3584 A1	3596 C1	4413 C2	4427 A1	7404 C5	
2508 A4	2522 A3	2541 C4	2553 B1	2565 C1	2583 B2	3406 C5	3419 B4	3435 B5	3451 A5	3464 A4	3476 A4	3511 C1	3528 B6	3543 C5	3555 B4	3573 C4	3585 A1	3597 A1	4414 C2	4428 A1	7405 B5	
2509 C5	2523 B6	2542 C3	2554 B1	2567 C1	2584 B3	3407 A3	3420 B4	3436 B5	3452 A5	3465 A4	3477 A4	3512 C1	3529 C1	3544 C5	3556 B4	3574 B1	3586 A1	3598 C1	4415 C1	4429 A1	7406 A4	
2510 C1	2524 B1	2543 C4	2555 B1	2568 A4	2585 C1	3408 A3	3421 B4	3437 B5	3453 A5	3466 A4	3479 A4	3515 A1	3530 C1	3545 C5	3557 B4	3575 C1	3587 A1	3599 C1	4416 C1	4430 C2	7407 A3	
2511 B1	2526 B1	2544 C4	2556 B1	2574 A4	2586 C1	3409 A4	3422 B4	3438 B1	3454 A5	3467 A4	3480 A4	3516 A1	3531 B5	3546 C5	3558 B4	3576 A1	3588 A1	4401 B1	4418 C1	4431 A4	7408 A5	

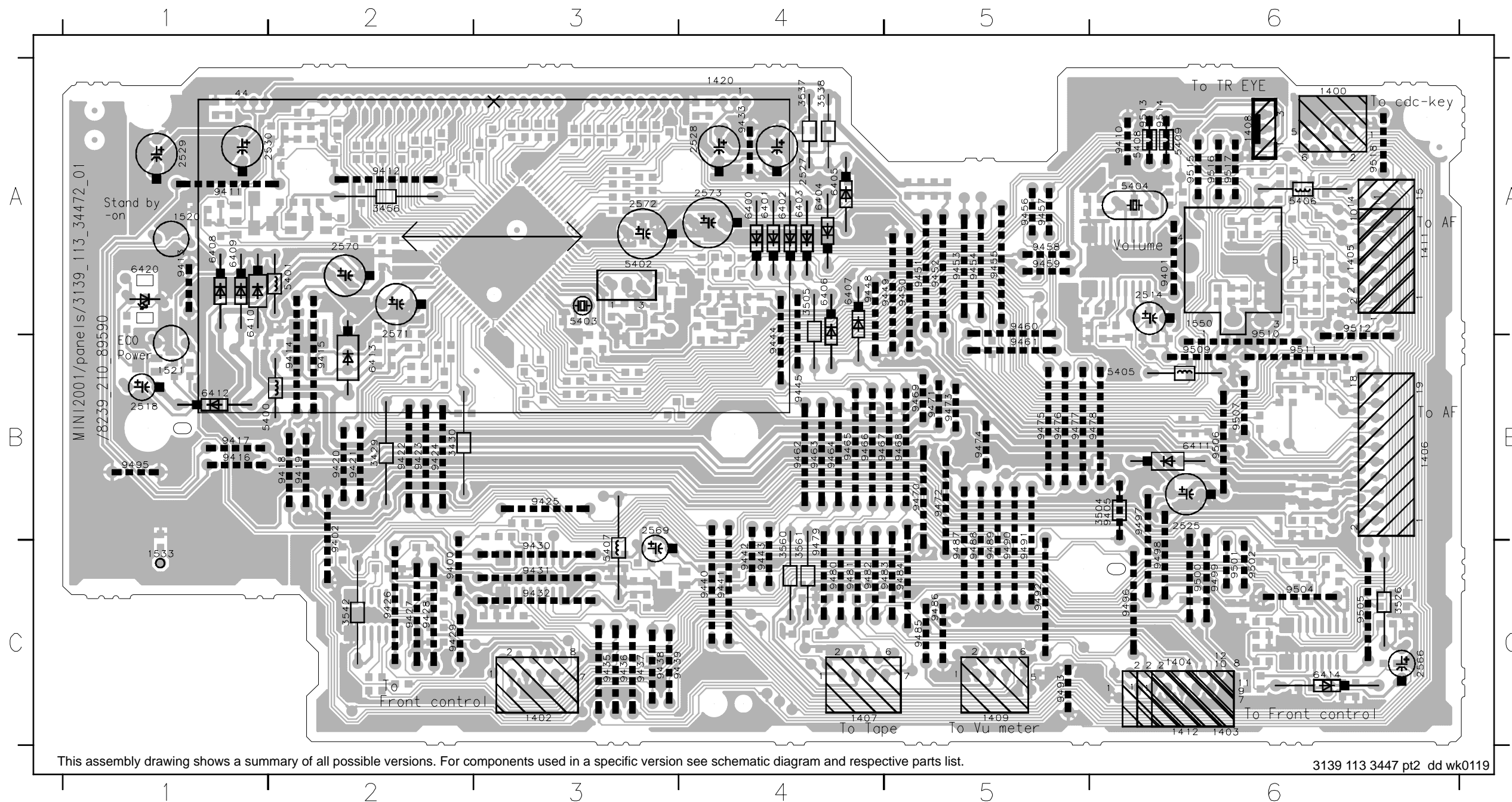


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

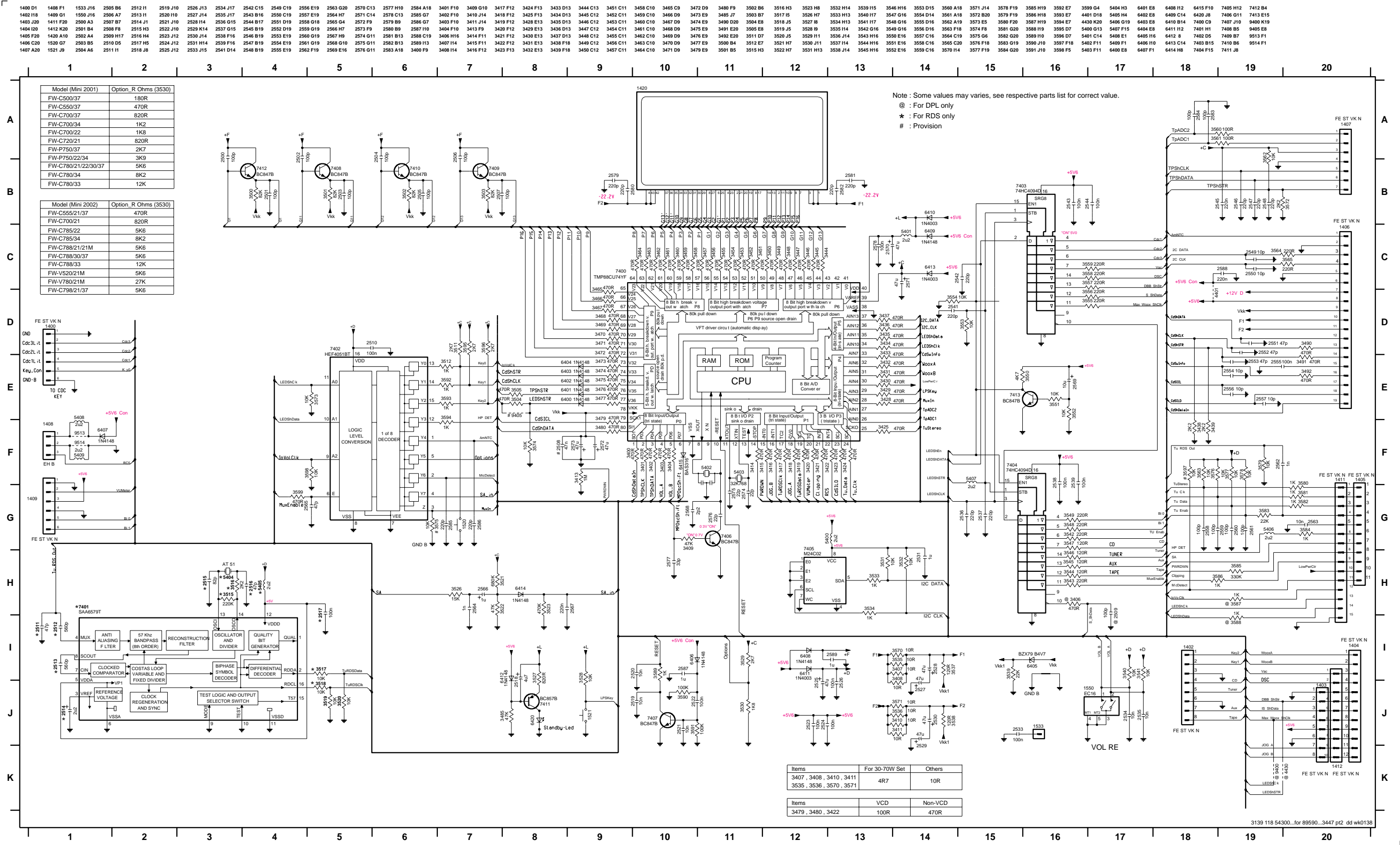
3139 113 3447 pt2 dd wk0119

FRONT DISPLAY BOARD - COMPONENT LAYOUT

1400 A6	1409 C5	2514 A6	2569 B3	3504 B6	5400 B1	5408 A6	6406 A4	6414 C6	9412 A2	9420 B2	9428 C2	9437 C3	9445 B4	9455 A5	9463 B4	9471 B5	9479 C4	9487 C5	9496 C6	9505 C6	9514 A6
1402 C3	1411 A6	2518 B1	2570 A2	3505 A4	5401 A2	5409 A6	6407 A4	6420 A1	9413 A1	9421 B2	9429 C2	9438 C3	9448 A4	9456 A5	9464 B4	9472 B5	9480 C4	9488 C5	9497 B6	9506 B6	9515 A6
1403 C6	1412 C6	2525 B6	2571 A2	3526 C6	5402 A3	6400 A4	6408 A1	9400 C2	9414 B2	9422 B2	9430 C3	9439 C3	9449 A5	9457 A5	9465 B4	9473 B5	9481 C4	9489 C5	9498 C6	9507 B6	9516 A6
1404 C6	1420 A4	2527 A4	2572 A3	3537 A4	5403 A3	6401 A4	6409 A1	9401 A6	9415 B2	9423 B2	9431 C3	9440 C4	9450 A5	9458 A5	9466 B4	9474 B5	9482 C4	9490 C5	9499 C6	9509 B6	9517 A6
1405 A6	1520 A1	2528 A4	2573 A4	3538 A4	5404 A6	6402 A4	6410 A1	9402 B2	9416 B1	9424 B2	9432 C3	9441 C4	9451 A5	9459 A5	9467 B4	9475 B5	9483 C5	9491 C5	9500 C6	9510 A6	9518 A6
1406 B6	1521 B1	2529 A1	3429 B2	3542 C2	5405 B6	6403 A4	6411 B6	9405 B6	9417 B1	9425 B3	9433 A4	9442 C4	9452 A5	9460 A5	9468 B5	9476 B5	9484 C5	9492 C5	9501 C6	9511 B6	
1407 C4	1533 C1	2530 A1	3430 B2	3560 C4	5406 A6	6404 A4	6412 B1	9410 A6	9418 B2	9426 C2	9435 C3	9443 C4	9453 A5	9461 B5	9469 B5	9477 B5	9485 C5	9493 C5	9502 C6	9512 A6	
1408 A6	1550 A6	2566 C6	3456 A2	3561 C4	5407 C3	6405 A4	6413 B2	9411 A1	9419 B2	9427 C2	9436 C3	9444 B4	9454 A5	9462 B4	9470 B5	9478 B6	9486 C5	9495 B1	9504 C6	9513 A6	



FRONT DISPLAY BOARD - CIRCUIT DIAGRAM



Model (Mini 2001)	Option_R Ohms (3530)
FW-C500/37	180R
FW-C550/37	470R
FW-C700/37	820R
FW-C700/34	1K2
FW-C700/22	1K8
FW-C720/21	820R
FW-P750/37	2K7
FW-P750/22/34	3K9
FW-C780/21/22/30/37	5K6
FW-C780/34	8K2
FW-C780/33	12K

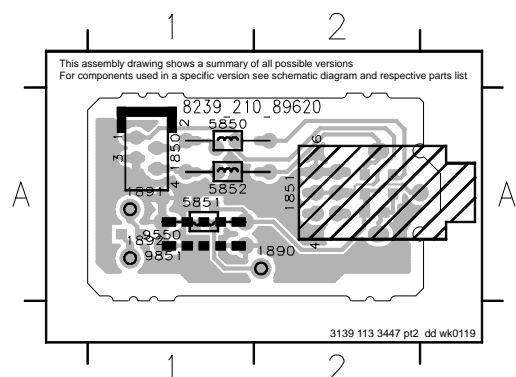
Model (Mini 2002)	Option_R Ohms (3530)
FW-C555/21/37	470R
FW-C700/21	820R
FW-C785/22	5K6
FW-C785/34	8K2
FW-C788/21/21M	5K6
FW-C788/30/37	5K6
FW-C788/33	12K
FW-V520/21M	5K6
FW-V780/21M	27K
FW-C798/21/37	5K6

Note : Some values may varies, see respective parts list for correct value.
 @ : For DPL only
 * : For RDS only
 # : Provision

Items	For 30-70W Set	Others
3407, 3408, 3410, 3411	4R7	10R
3535, 3536, 3570, 3571		
Items	VCD	Non-VCD
3479, 3480, 3422	100R	470R

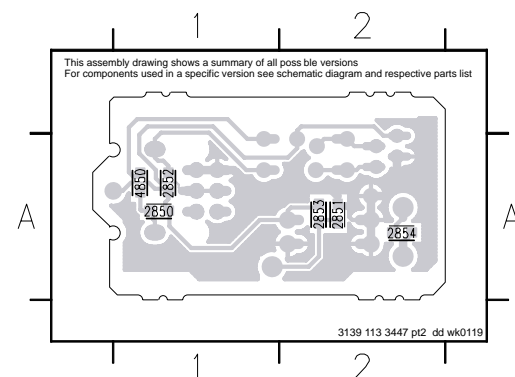
HEADPHONE BOARD - COMPONENT LAYOUT

1850 A1 1891 A1 5851 A1 9851 A1
 1851 A2 1892 A1 5852 A1
 1890 A2 5850 A1 9550 A1



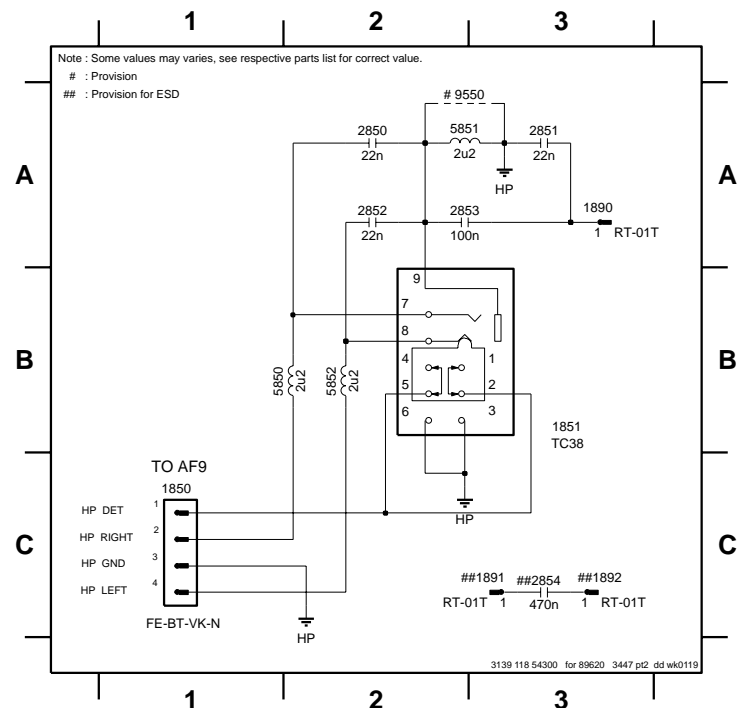
HEADPHONE BOARD - CHIP LAYOUT

2850 A1 2852 A1 2854 A2
 2851 A2 2853 A2 4850 A1



HEADPHONE BOARD - CIRCUIT DIAGRAM

1850 C1 1890 A3 1892 C3 2851 A3 2853 A2 5850 B1 5852 B2
 1851 B3 1891 C3 2850 A2 2852 A2 2854 C3 5851 A2 9550 A2



ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

MISCELLANEOUS

1400	4822 265 11207	Flex Connector 6P
1402	4822 265 11535	Flex Connector 8P
1405	2422 025 14541	Flex Connector 11P
1406	4822 265 11545	Flex Connector 19P
1407	4822 267 10956	Flex Connector 7P
1409	4822 265 11207	Flex Connector 6P
1412	4822 265 11208	Flex Connector 10P
1420	3139 110 52550	FTD Display
1520	4822 276 13775	Tact Switch
1550	4822 273 10365	Rotary Encoder 24P
1850	4822 267 10733	Flex Connector 4P

1851 4822 265 11529 Headphone Socket

CAPACITORS

2500	4822 122 31765	100pF 2% 63V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 122 31765	100pF 2% 63V
2504	4822 122 31765	100pF 2% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 122 31765	100pF 2% 63V

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

2510	4822 126 14305	100nF 10% 16V
2519	5322 126 11583	10nF 10% 50V
2520	5322 126 11583	10nF 10% 50V
2521	5322 126 11583	10nF 10% 50V
2522	4822 126 14305	100nF 10% 16V
2523	4822 126 14305	100nF 10% 16V
2524	4822 126 14305	100nF 10% 16V
2525	4822 124 12233	47uF 20% 25V
2526	4822 126 14305	100nF 10% 16V
2527	4822 124 22726	4,7uF 35V
2528	4822 124 22726	4,7uF 35V
2529	4822 124 22726	4,7uF 35V
2530	4822 124 22726	4,7uF 35V
2531	3198 017 41050	1uF 10V
2533	4822 126 14305	100nF 10% 16V
2534	5322 126 11583	10nF 10% 50V
2535	5322 126 11583	10nF 10% 50V
2536	3198 016 36810	680pF 25V
2537	4822 126 13883	220pF 5% 50V
2538	4822 126 14305	100nF 10% 16V
2539	4822 126 14305	100nF 10% 16V
2541	4822 126 13883	220pF 5% 50V
2542	4822 126 13883	220pF 5% 50V
2543	4822 126 14305	100nF 10% 16V
2544	4822 126 14305	100nF 10% 16V
2545	4822 126 13879	220nF +80/-20% 16V
2546	4822 126 13883	220pF 5% 50V
2547	4822 126 13883	220pF 5% 50V
2548	4822 126 13883	220pF 5% 50V
2549	4822 122 33741	10pF 10% 50V
2550	4822 122 33741	10pF 10% 50V
2551	4822 122 33777	47pF 5% 63V
2552	4822 122 33777	47pF 5% 63V
2553	4822 122 33777	47pF 5% 63V
2554	4822 122 33741	10pF 10% 50V
2555	4822 126 14305	100nF 10% 16V
2556	4822 122 33741	10pF 10% 50V
2557	4822 122 33741	10pF 10% 50V
2558	4822 122 31765	100pF 2% 63V
2559	4822 122 31765	100pF 2% 63V
2560	4822 122 31765	100pF 2% 63V
2561	4822 122 31765	100pF 2% 63V
2562	3198 016 31020	1nF 25V
2563	5322 126 11583	10nF 10% 50V
2564	5322 126 11578	1nF 10% 50V
2565	4822 122 33777	47pF 5% 63V
2566	4822 124 22651	1uF 20% 50V
2567	4822 126 13879	220nF +80/-20% 16V
2568	4822 126 14223	2,2pF 50V
2569	4822 124 11947	10uF 20% 16V
2570	4822 124 12233	47uF 20% 25V
2571	4822 124 12233	47uF 20% 25V

2572	3198 028 44790	47uF 20% 35V
2573	3198 028 44790	47uF 20% 35V
2574	4822 122 33761	22pF 5% 50V
2575	4822 122 33761	22pF 5% 50V
2576	4822 122 33761	22pF 5% 50V
2577	2222 867 15339	33pF 5% 50V
2578	4822 126 14305	100nF 10% 16V
2579	4822 126 13883	220pF 5% 50V
2580	4822 126 13883	220pF 5% 50V
2581	4822 126 13883	220pF 5% 50V
2582	4822 126 13883	220pF 5% 50V
2583	4822 122 31765	100pF 2% 63V
2584	4822 122 31765	100pF 2% 63V
2585	4822 126 13883	220pF 5% 50V
2586	4822 126 13883	220pF 5% 50V
2587	3198 017 41050	1uF 10V
2588	4822 126 13879	220nF +80/-20% 16V
2589	3198 017 41050	1uF 10V
2850	4822 126 14494	22nF 10% 25V
2851	4822 126 14494	22nF 10% 25V
2852	4822 126 14494	22nF 10% 25V
2853	4822 126 14305	100nF 10% 16V

RESISTORS

3400	4822 051 30471	470R 5% 0,062W
3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 051 30471	470R 5% 0,062W
3404	4822 051 30471	470R 5% 0,062W
3407	4822 051 20478	4R7 5% 0,1W
3408	4822 051 20478	4R7 5% 0,1W
3409	4822 117 12925	47k 1% 0,063W
3410	4822 051 20478	4R7 5% 0,1W
3411	4822 051 20478	4R7 5% 0,1W
3413	4822 051 30105	1M 5% 0,062W
3414	4822 051 30471	470R 5% 0,062W
3415	4822 051 30471	470R 5% 0,062W
3416	4822 051 30471	470R 5% 0,062W
3417	4822 051 30471	470R 5% 0,062W
3418	4822 051 30471	470R 5% 0,062W
3419	4822 051 30471	470R 5% 0,062W
3420	4822 051 30471	470R 5% 0,062W
3421	4822 051 30471	470R 5% 0,062W
3422	4822 051 30101	100R 5% 0,062W
3423	4822 051 30471	470R 5% 0,062W
3424	4822 051 30471	470R 5% 0,062W
3425	4822 051 30471	470R 5% 0,062W
3428	4822 051 30471	470R 5% 0,062W
3429	4822 116 83883	470R 5% 0,5W
3430	4822 116 83883	470R 5% 0,5W
3431	4822 051 30471	470R 5% 0,062W
3432	4822 051 30471	470R 5% 0,062W

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD**RESISTORS**

3433	4822 051 30471	470R 5% 0,062W	3511	4822 051 30272	2k7 5% 0,062W
3434	4822 051 30102	1k 5% 0,062W	3512	4822 051 30102	1k 5% 0,062W
3435	4822 051 30471	470R 5% 0,062W	3519	4822 051 30103	10k 5% 0,062W
3436	4822 051 30471	470R 5% 0,062W	3520	4822 051 30103	10k 5% 0,062W
3437	4822 051 30471	470R 5% 0,062W	3521	4822 051 30684	680k 5% 0,062W
3438	4822 051 30222	2k2 5% 0,062W	3522	4822 117 12925	47k 1% 0,063W
3439	4822 051 30222	2k2 5% 0,062W	3523	4822 051 30474	470k 5% 0,062W
3444	4822 051 30471	470R 5% 0,062W	3524	4822 051 30109	10R 5% 0,062W
3445	4822 051 30471	470R 5% 0,062W	3526	4822 116 52244	15k 5% 0,5W
3446	4822 051 30471	470R 5% 0,062W	3528	4822 051 30103	10k 5% 0,062W
3447	4822 051 30471	470R 5% 0,062W	3529	4822 051 30272	2k7 5% 0,062W
3448	4822 051 30471	470R 5% 0,062W	3530	4822 051 30562	5k6 5% 0,063W
3449	4822 051 30471	470R 5% 0,062W	3531	4822 051 30103	10k 5% 0,062W
3450	4822 051 30471	470R 5% 0,062W	3532	4822 051 30103	10k 5% 0,062W
3451	4822 051 30471	470R 5% 0,062W	3533	4822 051 30102	1k 5% 0,062W
3452	4822 051 30471	470R 5% 0,062W	3534	4822 051 30102	1k 5% 0,062W
3453	4822 051 30471	470R 5% 0,062W	3535	4822 051 20478	4R7 5% 0,1W
3454	4822 051 30471	470R 5% 0,062W	3536	4822 051 20478	4R7 5% 0,1W
3455	4822 051 30471	470R 5% 0,062W	3537	4822 116 52206	120R 5% 0,5W
3456	4822 116 83883	470R 5% 0,5W	3538	4822 116 52206	120R 5% 0,5W
3457	4822 051 30471	470R 5% 0,062W	3539	4822 051 30223	22k 5% 0,062W
3458	4822 051 30471	470R 5% 0,062W	3540	4822 051 30103	10k 5% 0,062W
3459	4822 051 30471	470R 5% 0,062W	3541	4822 051 30103	10k 5% 0,062W
3460	4822 051 30471	470R 5% 0,062W	3542	4822 116 83872	220R 5% 0,5W
3461	4822 051 30471	470R 5% 0,062W	3543	4822 051 30221	220R 5% 0,062W
3462	4822 051 30471	470R 5% 0,062W	3544	4822 051 30121	120R 5% 0,062W
3463	4822 051 30471	470R 5% 0,062W	3545	4822 051 30121	120R 5% 0,062W
3464	4822 051 30471	470R 5% 0,062W	3546	4822 051 30121	120R 5% 0,062W
3465	4822 051 30471	470R 5% 0,062W	3547	4822 051 30121	120R 5% 0,062W
3466	4822 051 30471	470R 5% 0,062W	3548	4822 051 30221	220R 5% 0,062W
3467	4822 051 30471	470R 5% 0,062W	3549	4822 051 30221	220R 5% 0,062W
3468	4822 051 30471	470R 5% 0,062W	3550	4822 051 30472	4k7 5% 0,062W
3469	4822 051 30471	470R 5% 0,062W	3551	4822 051 30103	10k 5% 0,062W
3470	4822 051 30471	470R 5% 0,062W	3552	4822 051 30103	10k 5% 0,062W
3471	4822 051 30471	470R 5% 0,062W	3553	4822 051 30103	10k 5% 0,062W
3472	4822 051 30471	470R 5% 0,062W	3554	4822 051 30103	10k 5% 0,062W
3473	4822 051 30471	470R 5% 0,062W	3555	4822 051 30221	220R 5% 0,062W
3474	4822 051 30221	220R 5% 0,062W	3556	4822 051 30121	120R 5% 0,062W
3475	4822 051 30221	220R 5% 0,062W	3557	4822 051 30271	270R 5% 0,062W
3476	4822 051 30471	470R 5% 0,062W	3558	4822 051 30221	220R 5% 0,062W
3477	4822 051 30471	470R 5% 0,062W	3559	4822 051 30221	220R 5% 0,062W
3479	4822 051 30101	100R 5% 0,062W	3560	4822 116 52175	100R 5% 0,5W
3480	4822 051 30101	100R 5% 0,062W	3561	4822 116 52175	100R 5% 0,5W
3490	4822 051 30471	470R 5% 0,062W	3562	4822 051 30103	10k 5% 0,062W
3491	4822 051 30471	470R 5% 0,062W	3563	4822 051 30103	10k 5% 0,062W
3492	4822 051 30471	470R 5% 0,062W	3564	4822 051 30221	220R 5% 0,062W
3500	4822 117 12864	82k 5% 0,6W	3565	4822 051 30221	220R 5% 0,062W
3501	4822 117 12864	82k 5% 0,6W	3570	4822 051 20478	4R7 5% 0,1W
3502	4822 117 12864	82k 5% 0,6W	3571	4822 051 20478	4R7 5% 0,1W
3503	4822 117 12864	82k 5% 0,6W	3572	4822 051 30222	2k2 5% 0,062W
3504	4822 116 83883	470R 5% 0,5W	3573	4822 051 30103	10k 5% 0,062W
3505	4822 116 83883	470R 5% 0,5W	3574	4822 051 30103	10k 5% 0,062W

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

3576	4822 051 30103	10k 5% 0,062W
3577	4822 051 30103	10k 5% 0,062W
3578	4822 051 30103	10k 5% 0,062W
3579	4822 051 30103	10k 5% 0,062W
3580	4822 051 30102	1k 5% 0,062W
3581	4822 051 30102	1k 5% 0,062W
3582	4822 051 30102	1k 5% 0,062W
3583	4822 051 30223	22k 5% 0,062W
3584	4822 051 30102	1k 5% 0,062W
3585	4822 051 30334	330k 5% 0,062W
3586	4822 051 30102	1k 5% 0,062W
3589	4822 051 30102	1k 5% 0,062W
3590	4822 117 13632	100k 1% 0,62W
3591	4822 117 13632	100k 1% 0,62W
3592	4822 051 30102	1k 5% 0,062W
3593	4822 051 30102	1k 5% 0,062W
3594	4822 051 30102	1k 5% 0,062W
3595	4822 051 30272	2k7 5% 0,062W
3596	4822 051 30272	2k7 5% 0,062W
3598	4822 051 30103	10k 5% 0,062W
3599	4822 051 30471	470R 5% 0,062W
4401	4822 051 30008	0R Jumper 0603
4402	4822 051 30008	0R Jumper 0603
4403	4822 051 30008	0R Jumper 0603
4404	4822 051 30008	0R Jumper 0603
4410	4822 051 30008	0R Jumper 0603
4411	4822 051 30008	0R Jumper 0603
4412	4822 051 30008	0R Jumper 0603
4413	4822 051 30008	0R Jumper 0603
4414	4822 051 30008	0R Jumper 0603
4415	4822 051 30008	0R Jumper 0603
4416	4822 051 30008	0R Jumper 0603
4418	4822 051 30008	0R Jumper 0603
4419	4822 051 30008	0R Jumper 0603
4420	4822 051 30008	0R Jumper 0603
4422	4822 051 30008	0R Jumper 0603
4423	4822 051 30008	0R Jumper 0603
4424	4822 051 30008	0R Jumper 0603
4425	4822 051 30008	0R Jumper 0603
4426	4822 051 30008	0R Jumper 0603
4427	4822 051 30008	0R Jumper 0603
4428	4822 051 30008	0R Jumper 0603
4429	4822 051 30008	0R Jumper 0603
4431	4822 051 30008	0R Jumper 0603
4434	4822 051 30008	0R Jumper 0603
4435	4822 051 30008	0R Jumper 0603
4850	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5400	4822 157 62552	Coil 2,2uH 5%
5401	4822 157 62552	Coil 2,2uH 5%
5402	5322 242 73686	RES CER 12MHz

5403	2422 543 01069	RES XTL 32,768kHz
5406	4822 157 62552	Coil 2,2uH 5%
5407	4822 157 62552	Coil 2,2uH 5%
5408	4822 157 62552	Coil 2,2uH 5%
5409	4822 157 62552	Coil 2,2uH 5%
5850	4822 157 62552	Coil 2,2uH 5%
5851	4822 157 62552	Coil 2,2uH 5%
5852	4822 157 62552	Coil 2,2uH 5%

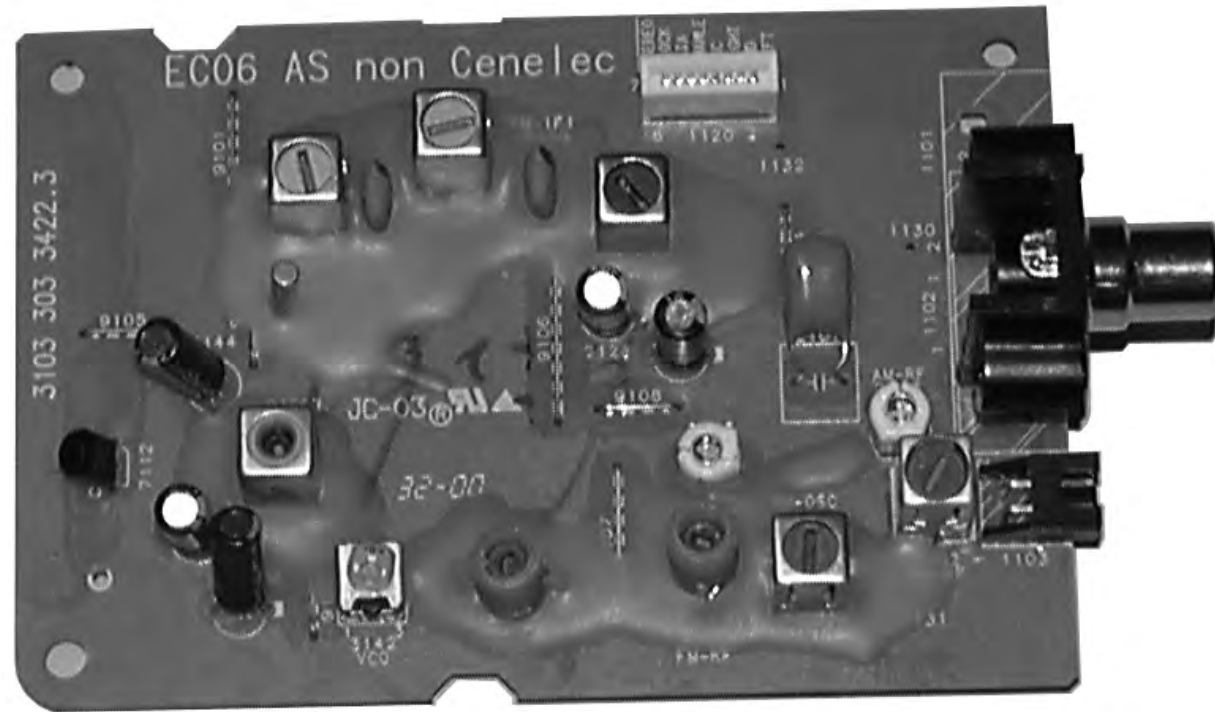
DIODES

6400	4822 130 30621	1N4148
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	4822 130 34174	BZX79-B4V7
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 31878	1N4003G
6411	4822 130 31878	1N4003G
6413	4822 130 31878	1N4003G
6414	4822 130 30621	1N4148
6415	4822 130 11397	BAS316

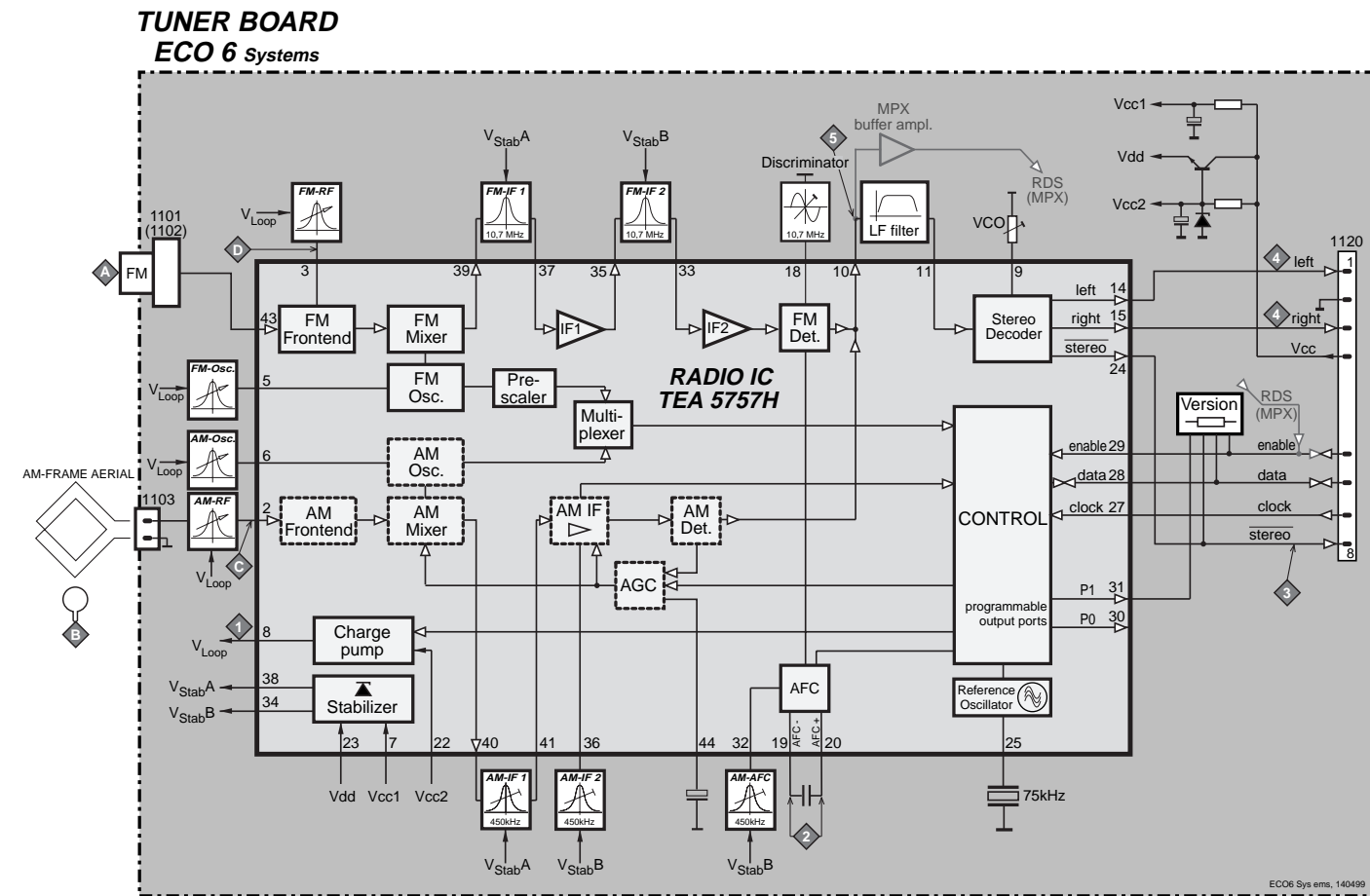
TRANSISTORS & INTEGRATED CIRCUITS

7400	3139 110 53030	TMP88CU74YF-'V520S53031'
7402	5322 209 11446	HEF4051BT
7403	4822 209 15449	74HC4094D
7404	4822 209 15449	74HC4094D
7405	9322 145 26668	M24C02-WMN6
7406	4822 130 60511	BC847B
7407	4822 130 60511	BC847B
7408	4822 130 60511	BC847B
7409	4822 130 60511	BC847B
7410	4822 130 60511	BC847B
7412	4822 130 60511	BC847B
7413	4822 130 60511	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.



BLOCK DIAGRAM

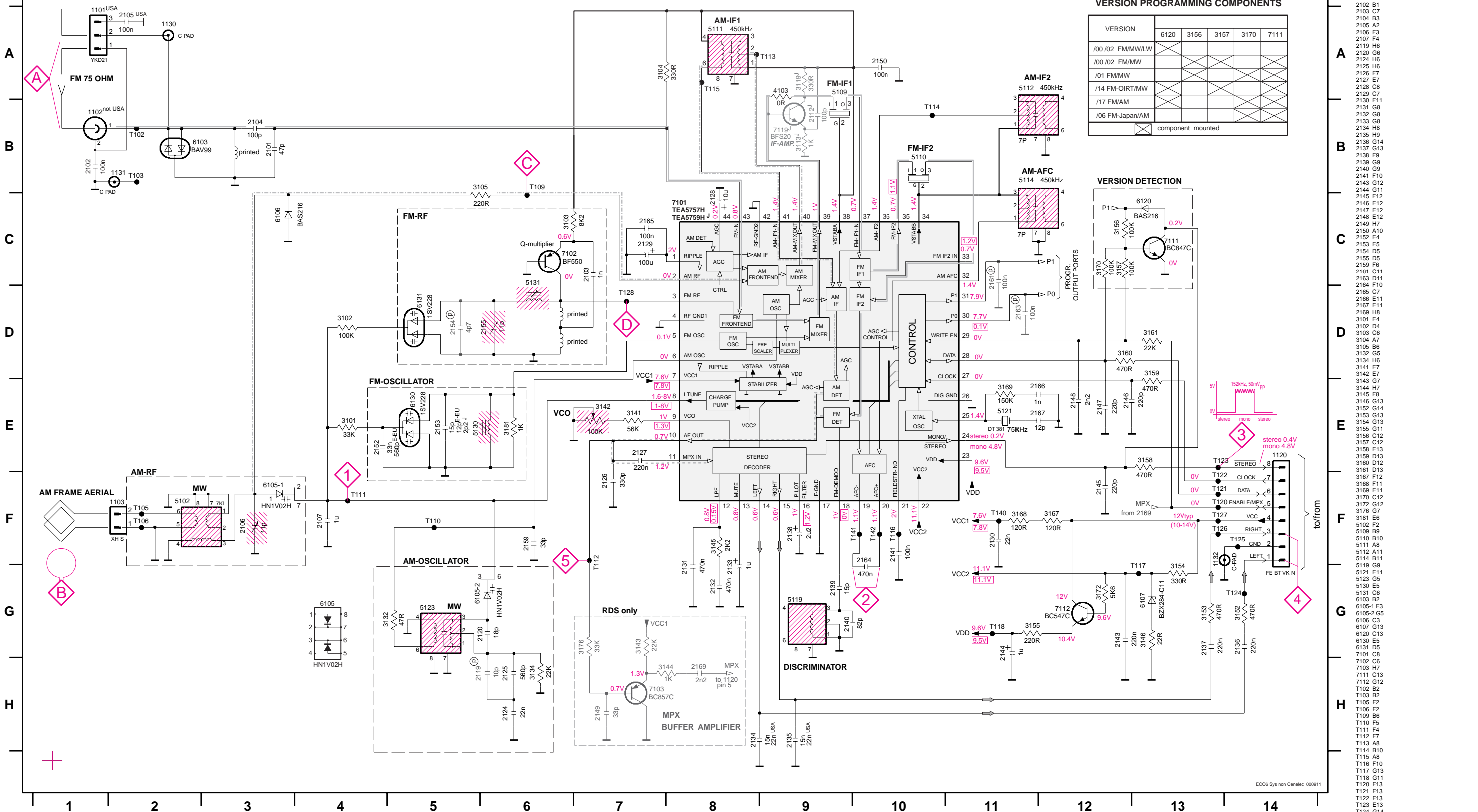


ECO6 Tuner Board
version: **SYSTEMS non-CENELEC**

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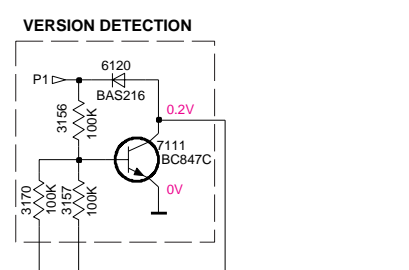
TUNER BOARD ECO6 / SYSTEMS NON CENELEC



VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW					
/00 /02 FM/MW					
/01 FM/MW					
/14 FM-OIRT/MW					
/17 FM/AM					
/06 FM-Japan/AM					

component mounted



- 1101 A1
- 1102 B1
- 1103 F2
- 1120 E14
- 1130 A2
- 1131 B2
- 1132 G13
- 2101 B3
- 2102 B1
- 2103 C7
- 2104 B3
- 2105 A2
- 2106 F3
- 2107 F4
- 2119 H6
- 2120 G6
- 2124 H6
- 2125 H6
- 2126 F7
- 2127 E7
- 2128 C8
- 2129 C7
- 2130 F11
- 2131 G8
- 2132 G8
- 2133 G8
- 2134 H8
- 2135 H9
- 2136 G14
- 2137 G13
- 2138 F9
- 2139 G9
- 2140 G9
- 2141 F10
- 2143 G12
- 2144 G11
- 2145 F12
- 2146 E12
- 2147 E12
- 2148 E12
- 2149 H7
- 2150 A10
- 2152 E4
- 2153 E5
- 2154 D5
- 2155 D5
- 2159 F6
- 2161 C11
- 2163 D11
- 2164 F10
- 2165 C7
- 2166 E11
- 2167 E11
- 2169 H8
- 3101 E4
- 3102 D4
- 3103 C6
- 3104 A7
- 3105 B6
- 3132 G5
- 3134 H6
- 3141 E7
- 3142 E7
- 3143 G7
- 3144 H7
- 3145 F8
- 3146 G13
- 3152 G14
- 3153 G13
- 3154 G13
- 3155 G11
- 3156 C12
- 3157 C12
- 3158 E13
- 3159 D13
- 3160 D12
- 3161 D13
- 3167 F12
- 3168 F11
- 3169 E11
- 3170 C12
- 3172 G12
- 3176 G7
- 3181 E6
- 5102 E2
- 5109 B9
- 5110 B10
- 5111 A8
- 5112 A11
- 5114 A11
- 5119 G9
- 5121 E11
- 5123 G5
- 5130 E5
- 5131 C6
- 5132 B2
- 6105-1 F3
- 6105-2 G5
- 6106 C3
- 6107 G13
- 6120 C13
- 6130 E5
- 6131 D5
- 7101 C8
- 7102 C6
- 7103 H7
- 7111 C13
- 7112 F13
- 7127 F13
- T102 B2
- T103 B2
- T105 F2
- T106 F2
- T109 B6
- T110 F5
- T111 F4
- T112 F7
- T113 A8
- T114 B10
- T115 A8
- T116 A8
- T117 G10
- T118 G11
- T119 B6
- T120 F11
- T121 F13
- T122 F13
- T123 F13
- T124 F13
- T125 F13
- T126 F13
- T127 F13
- T128 D7
- T140 F11
- T141 F10
- T142 F10

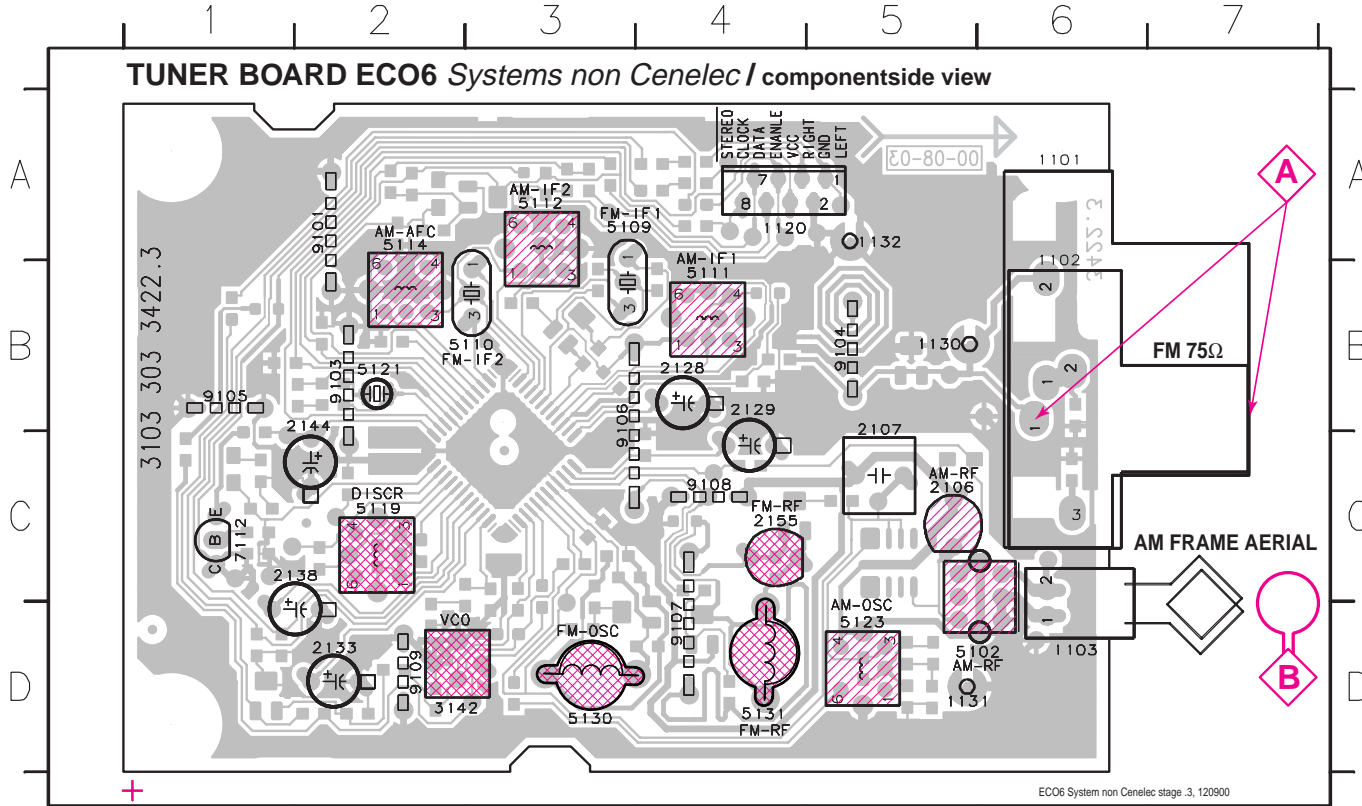
LEGEND
 (P) ... for provision only
 USA ... for USA version only
 E-EU ... for East European version only
 J ... for Japanese version only

...V FM mode stereo
 ...V MW mode
 ...V LW mode
 voltages measured while set is tuned to a strong transmitter

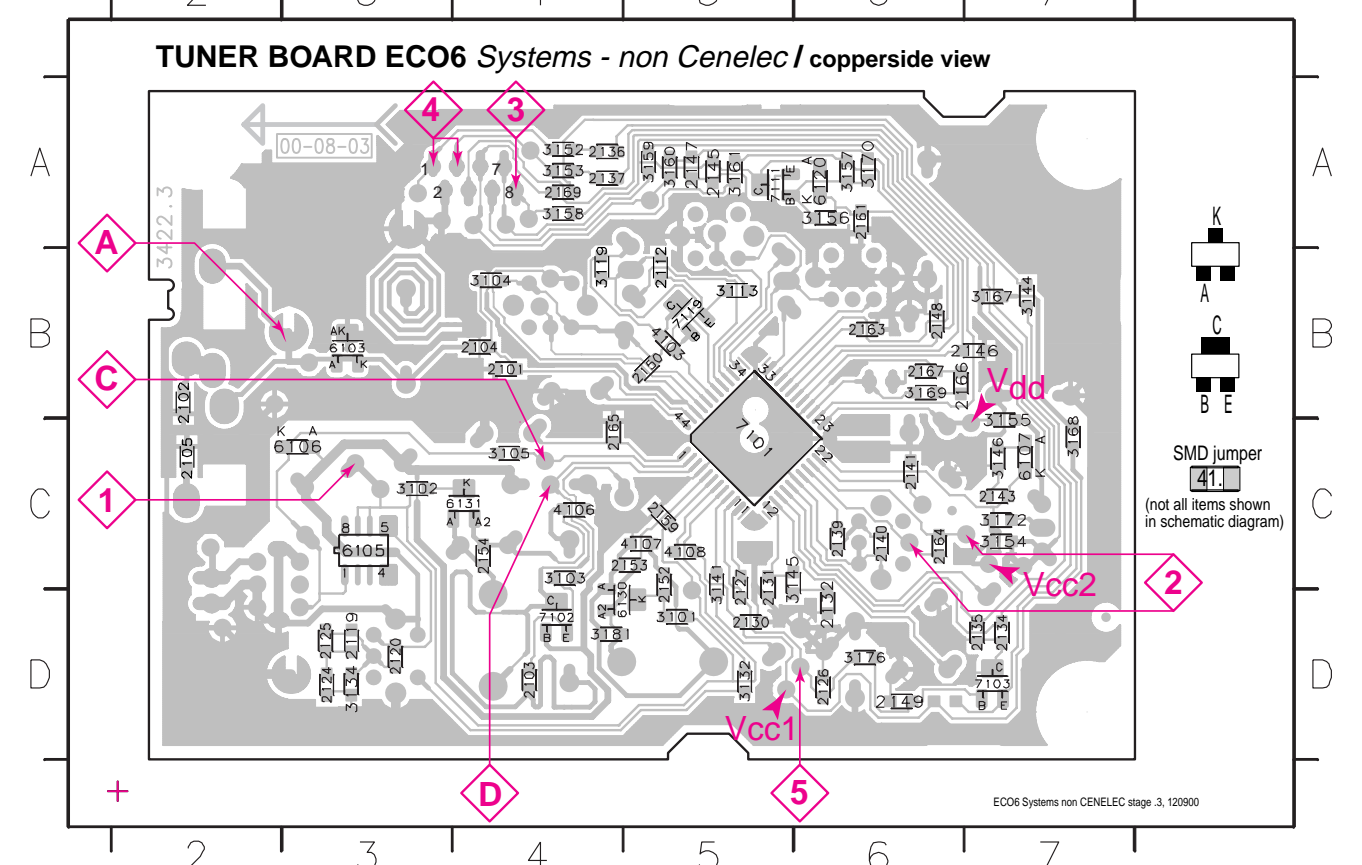
Signal path
 — FM
 - - - AM
 - - - MPX (Audio Frequency)
 ⇨ AF - left/right

ECO6 Sys non Cenelec 000911

1101 A6 1120 A4 1132 A5 2128 C4 2138 C2 3142 D2 5110 B3 5114 A2 5123 D5 7112 C1 9104 B5 9107 D4
 1102 B6 1130 B5 2106 C5 2129 B4 2144 B2 5102 D6 5111 B4 5119 C2 5130 D3 9101 A2 9105 B1 9108 C4
 1103 D6 1131 D5 2107 B5 2133 D2 2155 C4 5109 A3 5112 A3 5121 B2 5131 D4 9103 B2 9106 B3 9109 D2



2101 B4 2119 D3 2130 D5 2137 A4 2146 B7 2153 C5 2165 C4 3103 C4 3134 D3 3152 A4 3158 A4 3169 B6 4106 C4 6107 C7 7103 D7
 2102 B1 2120 D3 2131 C5 2139 C6 2147 A5 2154 C4 2166 B6 3104 B4 3141 C5 3153 A4 3159 A5 3170 A6 4107 C5 6120 A6 7111 A5
 2103 D4 2124 D3 2132 D6 2140 C6 2148 B6 2159 C5 2167 B6 3105 C4 3143 D6 3154 C7 3160 A5 3172 C7 4108 C5 6130 D4 7119 B5
 2104 B4 2125 D3 2134 D7 2141 C6 2149 D6 2161 A6 2169 A4 3113 B5 3144 B7 3155 C7 3161 A5 3176 D6 6103 B3 6131 C4
 2105 C1 2126 D6 2135 D7 2143 C7 2150 B5 2163 B6 3101 D5 3119 B5 3145 C5 3156 A6 3167 B7 3181 D4 6105 C3 7101 C5
 2112 B5 2127 C5 2136 A4 2145 A5 2152 C5 3102 C3 3132 D5 3146 C7 3157 A6 3168 C7 4103 B5 6106 C3 7102 D4



These assembly drawings show a summary of all possible versions.
 For components used in a specific version see schematic diagram respectively partlist.

TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D		5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz ¹⁾
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C		5111	5	
		C		5112		
AM AFC MW		C	continuous wave V _{RF} = 2mV	5114	2	0 ± 2 mV DC
AM RF³⁾						
MW⁴⁾ FM/MW/LW- and FM/MW-version (9kHz grid)	1494kHz	B	1494kHz	2106	5	
	531 - 1602kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	B	1500kHz	2106	5	
	560kHz		560kHz	5102		

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

- 1) 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)
- 2) RC network serves for damping the IF-filter while adjusting the other one.
- 3) For AM RF adjustments the original frame antenna has to be used!
- 4) MW has to be aligned before LW.

↑ Repeat

MISCELLANEOUS

1101	2422 015 19376	SOCKET 2P CLICKFIT	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR 2 POLE	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2101	4822 126 13692	47pF	1%	63V	
2102	4822 126 13838	100nF	10%	50V	not USA
2103	5322 122 31647	1nF	10%	63V	
2104	5322 122 32531	100pF	5%	50V	
2105	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP.,N450			
2107	4822 121 51319	1μF	20%	50V	
2120	4822 126 13689	18pF	1%	63V	
2124	5322 122 32654	22nF	10%	63V	
2125	2020 552 96199	560pF	1%	50V	
2126	5322 122 31863	330pF	5%	50V	
2127	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10μF	20%	63V	
2129	4822 124 41584	100μF	20%	10V	
2130	5322 122 32654	22nF	10%	63V	
2131	4822 126 13482	470nF	20%	16V	
2132	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1μF	20%	63V	
2134	4822 126 13188	15nF	5%	63V	not USA
2134	5322 122 32654	22nF	10%	63V	USA only
2135	4822 126 13188	15nF	5%	63V	not USA
2135	5322 122 32654	22nF	10%	63V	USA only
2136	4822 126 14076	220nF	20%	25V	
2137	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2μF	20%	50V	
2139	4822 126 14236	15pF	5%	50V	
2140	4822 126 13695	82pF	1%	63V	
2141	4822 126 13838	100nF	10%	50V	
2143	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1μF	20%	63V	
2145	4822 122 33575	220pF	5%	50V	
2146	4822 122 33575	220pF	5%	50V	
2147	4822 122 33575	220pF	5%	50V	
2148	4822 122 33127	2,2nF	10%	63V	
2149	5322 122 32659	33pF	5%	50V	RDS only
2150	4822 126 13838	100nF	10%	50V	
2152	4822 126 12105	33nF	5%	63V	not for East Europe
2152	5322 116 80853	560pF	5%	63V	for East Europe only
2153	4822 126 13486	15pF	2%	63V	not for East Europe
2153	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159	5322 122 32659	33pF	5%	50V	
2164	4822 126 13482	470nF	20%	16V	
2165	4822 126 13838	100nF	10%	50V	
2166	5322 122 31647	1nF	10%	63V	
2167	4822 122 33926	12pF	5%	50V	
2169	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101	4822 051 20333	33kΩ	5%	0,1W
3102	4822 117 10837	100kΩ	1%	0,1W
3103	4822 051 20822	8,2kΩ	5%	0,1W
3104	4822 117 13577	330Ω	1%	0,1W
3105	4822 117 11503	220Ω	5%	0,1W
3132	4822 051 20479	47Ω	5%	0,1W
3134	4822 051 20223	22kΩ	5%	0,1W
3141	4822 117 11148	56kΩ	1%	0,1W
3142	4822 100 12159	TRIMPOT. 100kΩ		

RESISTORS

3143	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145	4822 117 11449	2,2kΩ	1%	0,1W	
3146	4822 051 20229	22Ω	5%	0,1W	
3152	4822 051 20471	470Ω	5%	0,1W	
3153	4822 051 20471	470Ω	5%	0,1W	
3154	4822 117 13577	330Ω	1%	0,1W	
3155	4822 117 11503	220Ω	5%	0,1W	
3156	4822 117 10837	100kΩ	1%	0,1W	
3157	4822 117 10837	100kΩ	1%	0,1W	
3158	4822 051 20471	470Ω	5%	0,1W	
3159	4822 051 20471	470Ω	5%	0,1W	
3160	4822 051 20471	470Ω	5%	0,1W	
3161	4822 051 20223	22kΩ	5%	0,1W	
3167	4822 051 20121	120Ω	5%	0,1W	
3168	4822 051 20121	120Ω	5%	0,1W	
3169	4822 051 20154	150kΩ	5%	0,1W	
3170	4822 117 10837	100kΩ	1%	0,1W	
3172	4822 051 20562	5,6kΩ	5%	0,1W	
3176	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181	4822 051 10102	1kΩ	2%	0,25W	
4103	4822 051 20008	CHIP JUMPER 0805			
4106	4822 051 20008	CHIP JUMPER 0805			
4107	4822 051 20008	CHIP JUMPER 0805			
4108	4822 051 20008	CHIP JUMPER 0805			
COILS					
5102	4822 157 71634	RF-COIL MW			
5109	4822 242 70665	FM-IF FILTER 10,7MHz			
5110	4822 242 70665	FM-IF FILTER 10,7MHz			
5111	2422 549 44023	AM-IF FILTER 450kHz			
5112	4822 157 70302	AM-IF FILTER 450kHz			
5114	4822 157 70302	AM-IF FILTER 450kHz			
5119	4822 157 11443	DISCRIMINATOR COIL			
5121	4822 242 10261	QUARTZ 75kHz			
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR			
5130	4822 157 11843	RF COIL 1,5 TURNS			
5131	4822 157 11843	RF COIL 1,5 TURNS			
DIODES					
6103	5322 130 34337	BAV99			
6105	4822 130 83075	HN1V02H			
6106	4822 130 83757	BAS216			
6107	9340 386 90115	BZX284-C11			
6120	4822 130 83757	BAS216			
6130	4822 130 82833	1SV228			
6131	4822 130 82833	1SV228			
TRANSISTORS					
7102	4822 130 42131	BF550			
7103	5322 130 42756	BC857C			RDS only
7111	5322 130 42755	BC847C			
7112	4822 130 44503	BC547C			
INTEGRATED CIRCUITS					
7101	9351 740 80557	TEA5757H/V1, RADIO IC			

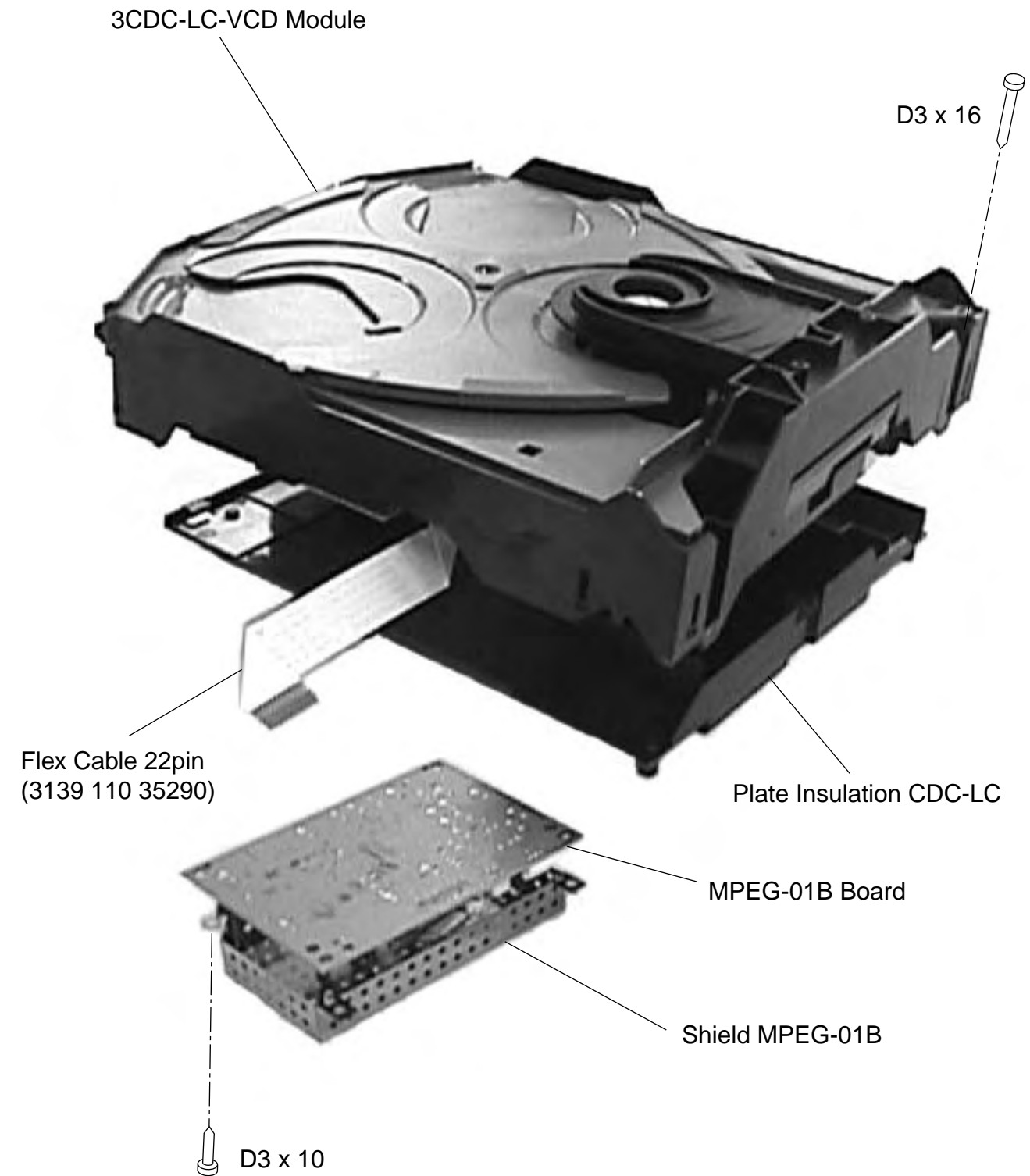
VCD - MPEG-01B MODULE

This chapter shows the MPEG-01B Board, for 3CDC-LC-VCD mechanism & electronics please refer to Chapter 10

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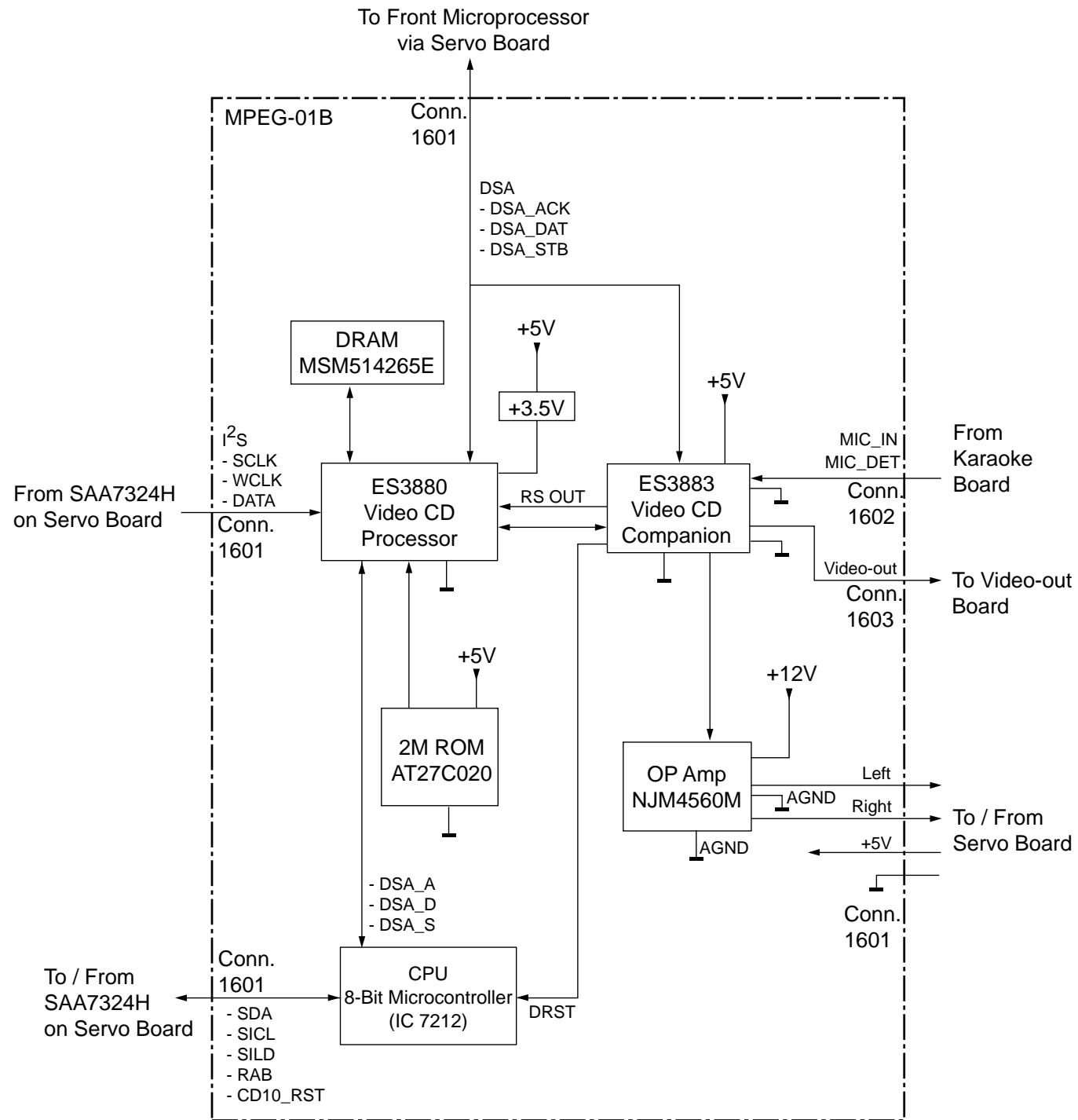
EXPLODED VIEW OF MODULE



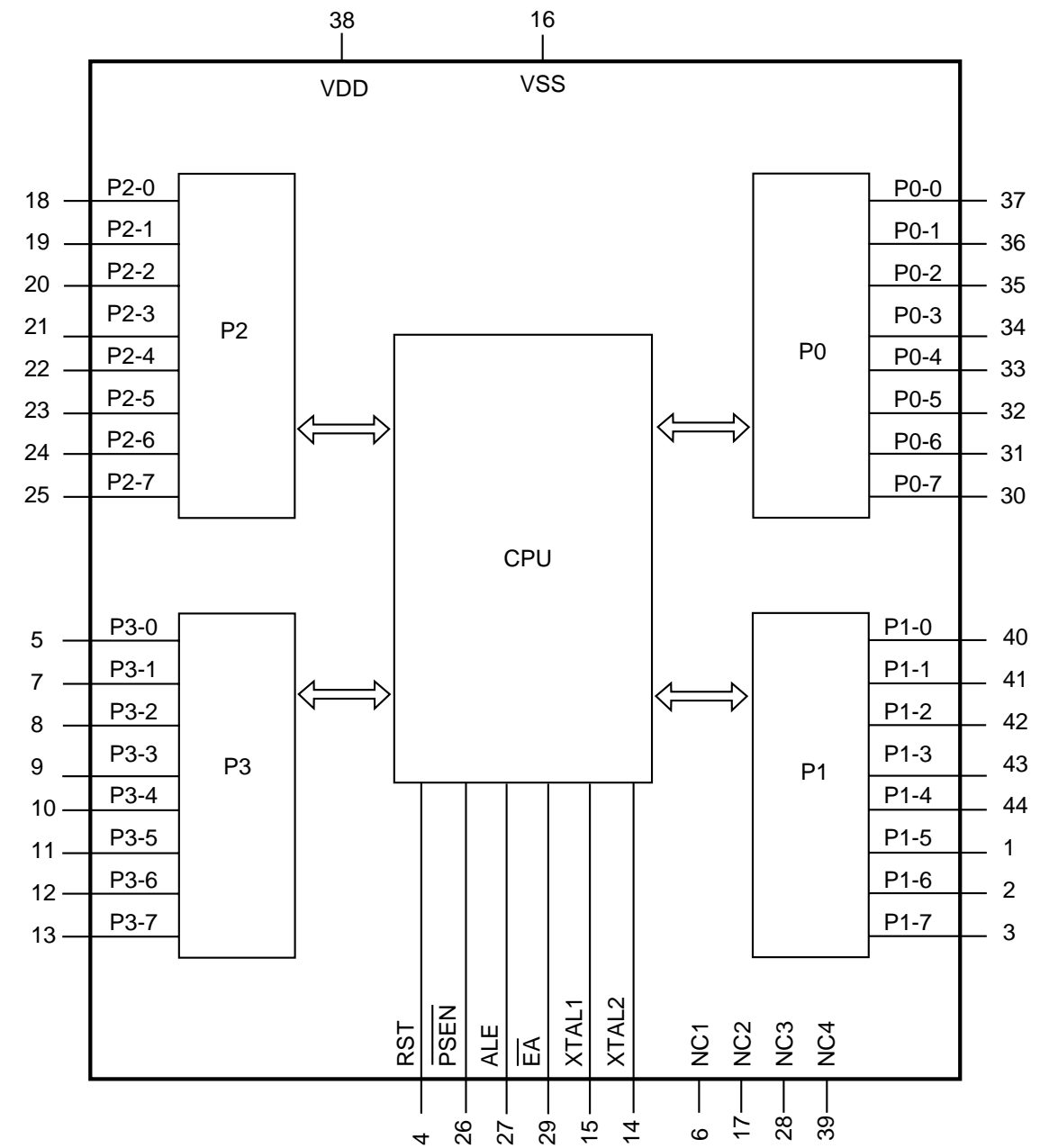
NOTES:***Brief Introduction on the MPEG***

1. When VCD source is selected the MPEG_RESET line will go positive triggering the following:
 - DRST pulse to reset 8-bit microcontroller IC 7212
 - RSTOUT# pulse to reset IC 7201 ES3880
 - IC7212 sends CD10_RST to reset Signal Processor IC 7802 on the CD Board.
2. Communication will establish as follows:
 - DSA_ACK, DSA_STB and DSA_DAT between μ Processor IC 7401 on the Front Board and IC 7201 ES3880.
 - DSA_STB to IC7204 ES3883 to select between NTSC (Lo) or PALS (Hi)
 - DSA_A, DSA_D and DSA_S between IC 7201 ES3880 and microcontroller IC7212
 - SILD, SICL, RAB and SDA between microcontroller IC7212 and Signal Processor IC7802 on the CD Board.
3. Other activities between IC7201 ES3880 and Eprom IC7202, Dram IC7203 and IC7204 ES3883 will follows resulting in the OSD display on the TV set connected to the Video out socket.
4. When play button is activated the I²S signal (IIS_SCLK, IIS_WCLK and IIS_DATA) from the CD Board will enter IC7201 ES3880 which will work closely with the Eprom IC7202 and Dram IC7203. Inverter IC7205 74HC04D serves to reconstruct the Digital signal & level required by IC7201 ES3880.
5. Digital Audio information (AUDIOCLK, AUDA and BCLK) will be send to DAC (Digital to Analog Converter) of IC7204 ES3883.
6. Analog output (AOL+, AOL-, AOR+ and AOR-) is amplified by the differential Op. Amplifier IC7207 NJM4560M.
7. Digital Video information YUV(0...7) will be send to the Video processing part of IC7204 ES3883 and out to the Video out socket.
8. The HSYNC & VSYNC from IC7204 ES3883 to IC7201 ES3880 are to synchronize the Digital Video Information.
9. Mic Echo Input into IC7204 ES3883 is converted to digital signal (ARCLK, AIN and ARFS) for IC7201 ES3880 to combine into the Digital Audio Information.

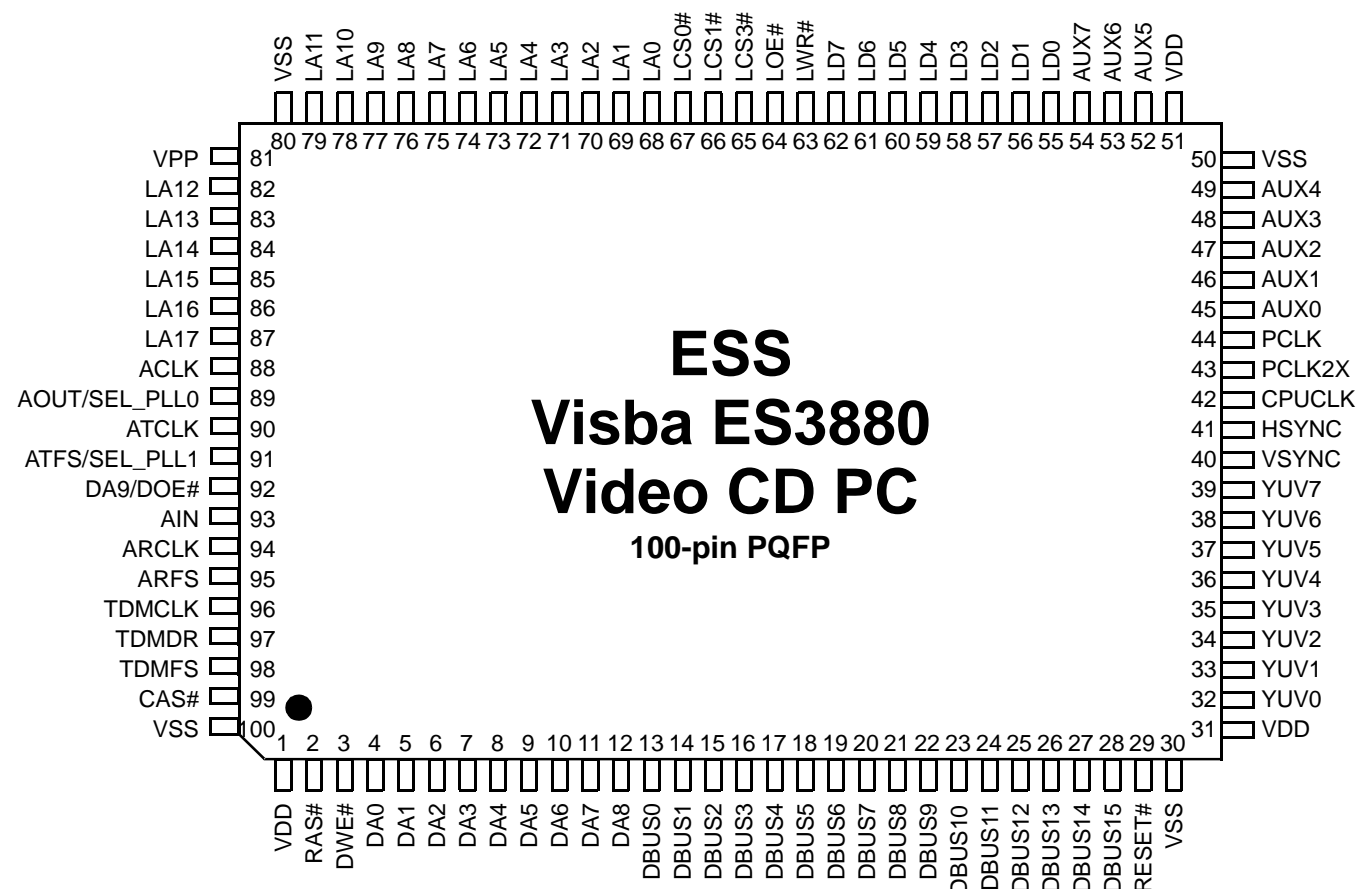
MPEG-01B BLOCK DIAGRAM



8-BIT MICROCONTROLLER (IC 7212) INTERNAL BLOCK

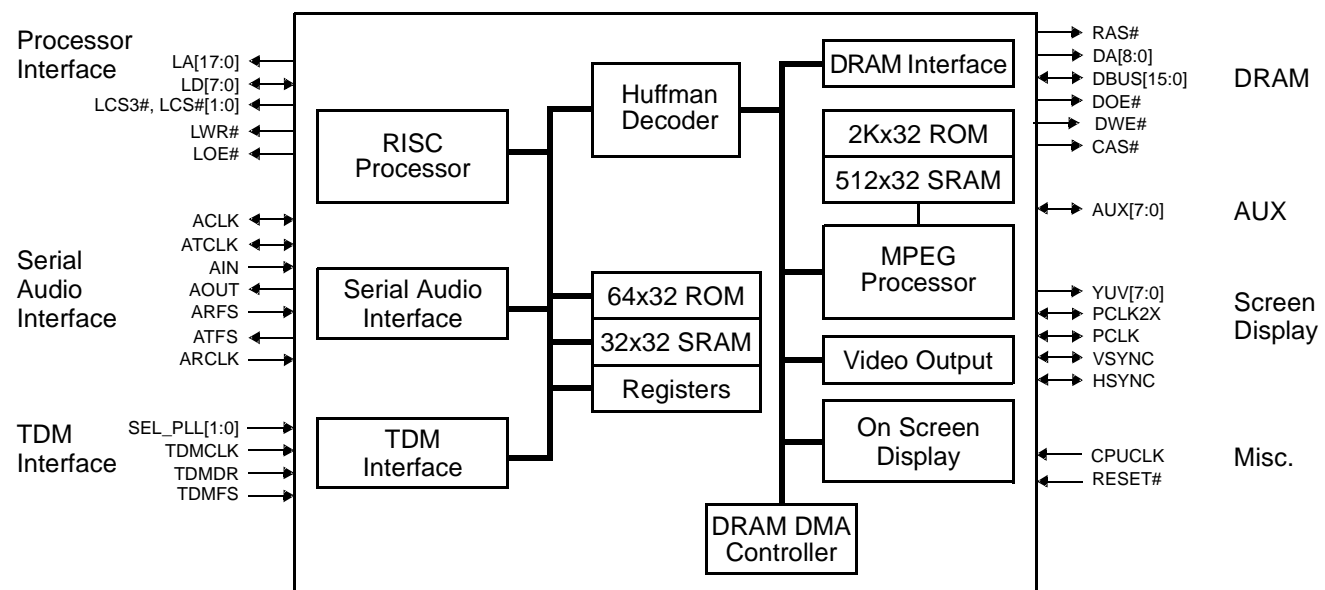


ES3880 VIDEO CD PROCESSOR CHIP



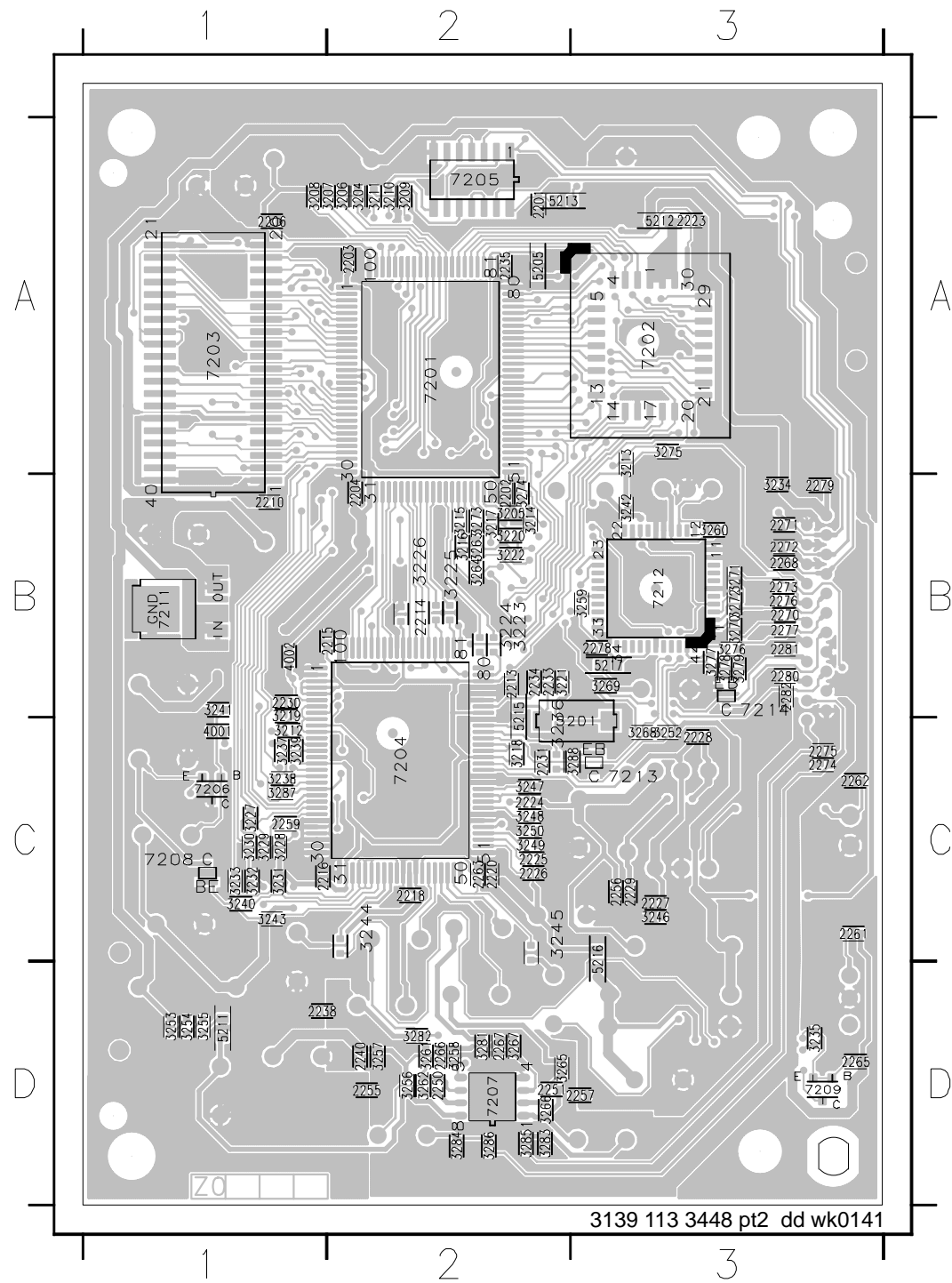
VISBA VIDEO PC PROCESSOR CHIP PIN DESCRIPTION

Name	Number	I/O	Definition
VDD	1, 31, 51	I	Voltage supply for 3.3 V.
RAS#	2	O	DRAM row address strobe (active low).
DWE#	3	O	DRAM write enable (active low).
DA[8:0]	12:4	O	DRAM multiplexed row and column address bus.
DBUS[15:0]	28:13	I/O	DRAM data bus.
RESET#	29	I	System reset (active low).
VSS	30, 50, 80, 100	I	Ground.
YUV[7:0]	39:32	O	Y is luminance, UV are chrominance data bus for screen video interface. YUV[7:0] for 8-bit YUV mode.
VSYNC	40	I/O	Vertical sync for screen video interface, programmable for rising or falling edge.
HSYNC	41	I/O	Horizontal sync for screen video interface, programmable for rising or falling edge.
CPUCLK	42	I	RISC and system clock input. CPUCLK is used only if SEL_PLL[1:0] = 00.
PCLK2X	43	I/O	Pixel clock; two times the actual pixel clock for screen video interface.
PCLK	44	I/O	Pixel clock qualifier in for screen video interface.
AUX[7:0]	54, 52, 53, 49:45	I/O	Auxiliary control pins (AUX0 and AUX1 are open collectors).
LD[7:0]	62:55	I/O	RISC interface data bus.
LWR#	63	O	RISC interface write enable (active low).
LOE#	64	O	RISC interface output enable (active low).
LCS[3,1,0]#	65,66,67	O	RISC interface chip select (active low).
LA[17:0]	87:82, 79:68	O	RISC interface address bus.
VPP	81	I	Digital supply voltage for 5 V.
ACLK	88	I/O	Master clock for external audio DAC (8.192 MHz, 11.2896 MHz, 12.288 MHz, 16.9344 MHz, and 18.432 MHz).
AOUT/SEL_PLL0	89	O	Dual-purpose pin. AOUT is the audio interface serial data output
		I	Pins SEL_PLL[1:0] select phase-lock loop (PLL) clock frequency CPUCLK for the Visba: 00 = bypass PLL. 01 = 54 MHz PLL. 10 = 67.5 MHz PLL. 11 = 81 MHz PLL.
ATCLK	90	I/O	Audio transmit bit clock.
ATFS/SEL_PLL1	91	O	Dual-purpose pin. ATFS is the audio interface transmit frame sync.
		I	Pins SEL_PLL[1:0] select phase-lock loop (PLL) clock frequency CPUCLK for the Visba. See the SEL_PLL0 pin above for the settings.
DA9/DOE#	92	O	Dual purpose pin: DRAM output enable (active low)/DRAM multiplexed row and column address bus.
AIN	93	I	Audio interface serial data input.
ARCLK	94	I	Audio receive bit clock.
ARFS	95	I	Audio interface receive frame sync.
TDMCLK	96	I	TDM interface serial clock.
TDMDR	97	I	TDM interface serial data receive.
TDMFS	98	I	TDM interface frame sync.
CAS#	99	O	DRAM column address strobe bank 0 (active low).

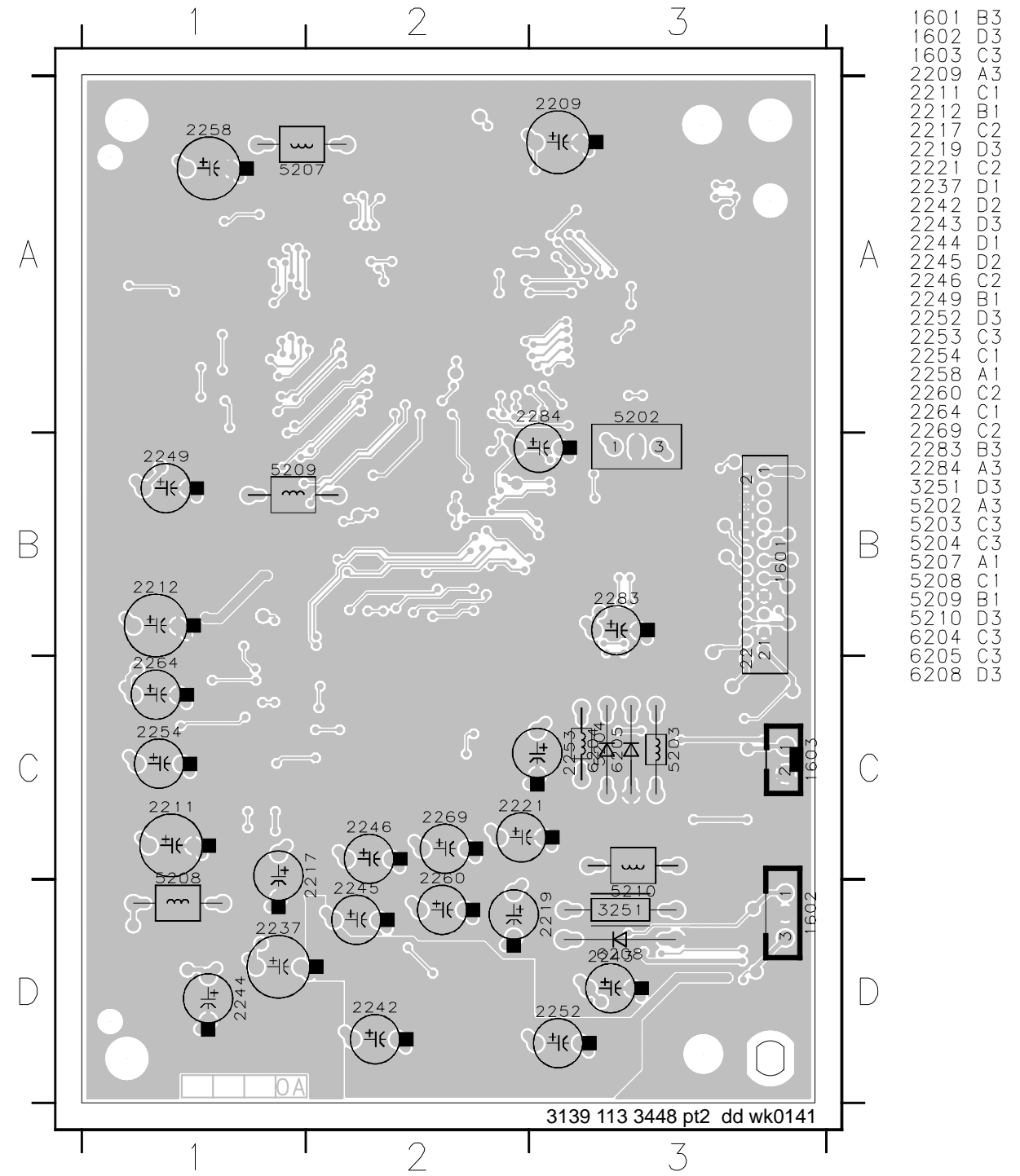


Visba Video CD PC Block Diagram

MPEG-01B BOARD LAYOUT



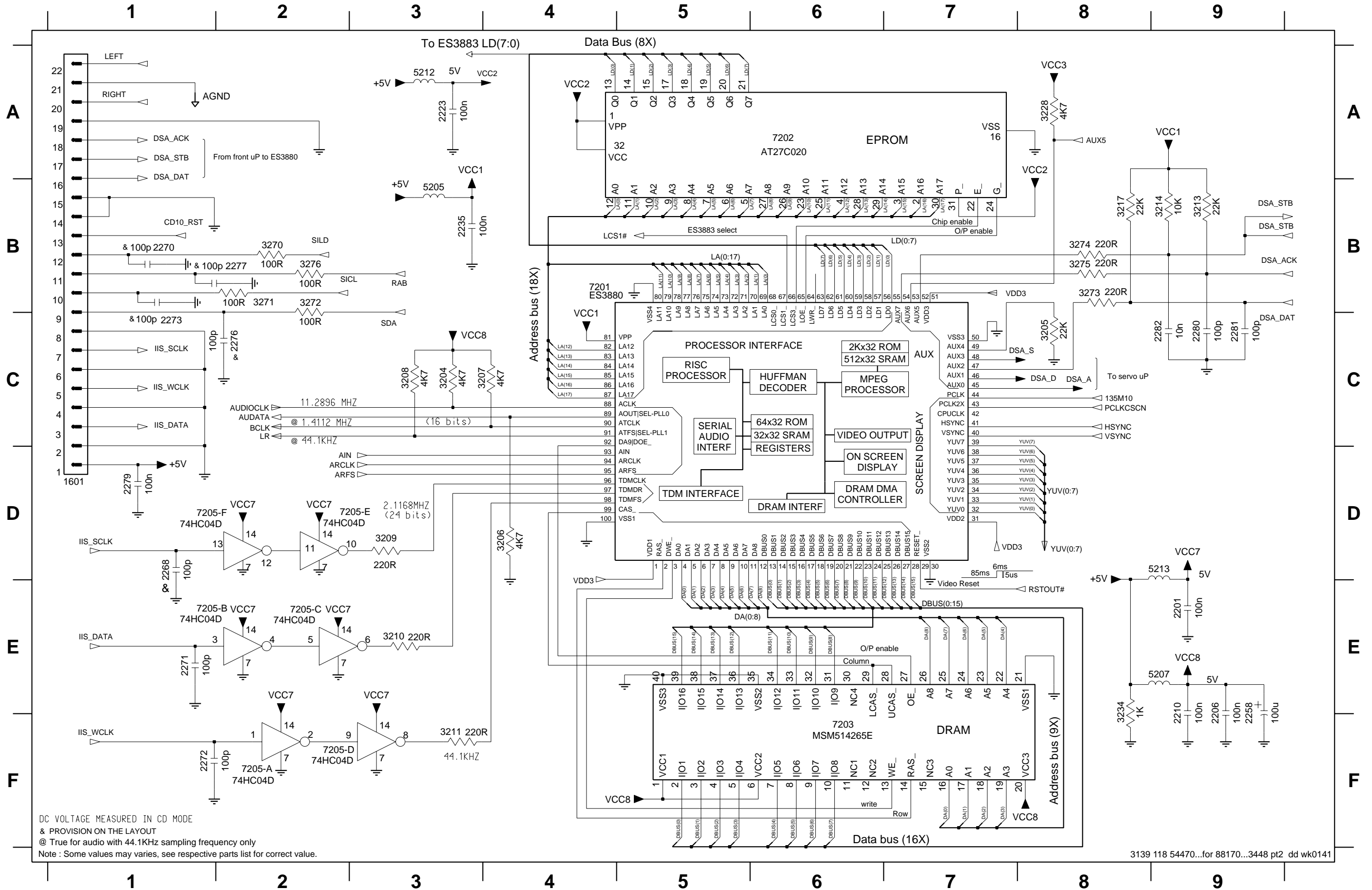
2201	A2	3211	A2	3271	B3
2202	B2	3212	C1	3272	B3
2203	A2	3213	A3	3273	B2
2204	B2	3214	B2	3274	B2
2206	A1	3215	B2	3275	A3
2210	B1	3216	B2	3276	B3
2213	B2	3217	B2	3277	B3
2214	B2	3218	C2	3278	B3
2215	B2	3219	B1	3279	B3
2216	C1	3220	B2	3281	D2
2218	C2	3221	B2	3282	D2
2220	C2	3222	B2	3283	D2
2223	A3	3223	B2	3284	D2
2224	C2	3224	B2	3285	D2
2225	C2	3225	B2	3286	D2
2226	C2	3226	B2	3287	C1
2227	C3	3227	C1	3288	C3
2228	C3	3228	C1	4001	C1
2229	C3	3229	C1	4002	B1
2230	B1	3230	C1	5201	C3
2231	C2	3231	C1	5205	A2
2233	B2	3232	C1	5211	D1
2234	B2	3233	C1	5212	A3
2235	A2	3234	B3	5213	A2
2238	D1	3235	D3	5215	B2
2240	D2	3236	C2	5216	C3
2250	D2	3237	C1	5217	B3
2251	D2	3238	C1	7201	A2
2255	D2	3239	C1	7202	A3
2256	C3	3240	C1	7203	A1
2257	D3	3241	B1	7204	C2
2259	C1	3242	B3	7205	A2
2261	C3	3243	C1	7206	C1
2262	C3	3244	C2	7207	D2
2263	C2	3245	C2	7208	C1
2265	D3	3246	C3	7209	D3
2266	D2	3247	C2	7211	B1
2267	D2	3248	C2	7212	B3
2268	B3	3249	C2	7213	C3
2270	B3	3250	C2	7214	B3
2271	B3	3252	C3		
2272	B3	3253	D1		
2273	B3	3254	D1		
2274	C3	3255	D1		
2275	C3	3256	D2		
2276	B3	3257	D2		
2277	B3	3258	D2		
2278	B3	3259	B3		
2279	B3	3260	B3		
2280	B3	3261	D2		
2281	B3	3262	D2		
2282	B3	3263	B2		
3204	A2	3264	B2		
3205	B2	3265	D2		
3206	A2	3266	D2		
3207	A2	3267	D2		
3208	A1	3268	C3		
3209	A2	3269	B3		
3210	A2	3270	B3		



1601	B3
1602	D3
1603	C3
2209	A3
2211	C1
2212	B1
2217	C2
2219	D3
2221	C2
2237	D1
2242	D2
2243	D3
2244	D1
2245	D2
2246	C2
2249	B1
2252	D3
2253	C3
2254	C1
2258	A1
2260	C2
2264	C1
2269	C2
2283	B3
2284	A3
3251	D3
5202	A3
5203	C3
5204	C3
5207	A1
5208	C1
5209	B1
5210	D3
6204	C3
6205	C3
6208	D3

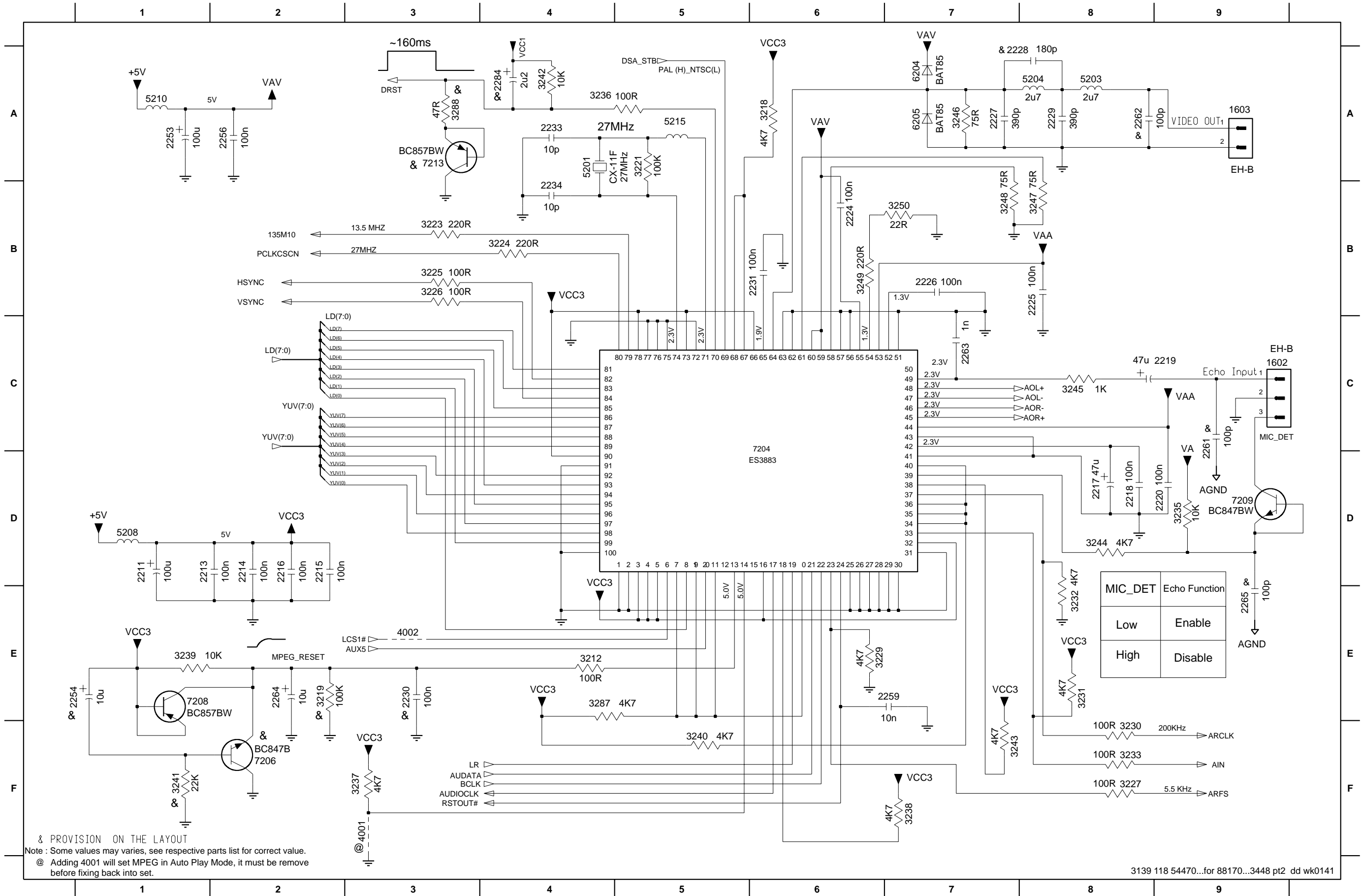
ES3880 CIRCUIT

1601 D1	2210 E9	2258 E9	2271 E1	2276 C2	2280 C9	3204 C3	3207 C4	3210 E3	3214 B9	3234 E8	3272 B2	3275 B8	5207 E9	7201 B4	7205-A F2	7205-D F2
2201 E9	2223 A3	2268 D1	2272 F1	2277 B2	2281 C9	3205 C8	3208 C3	3211 F3	3217 B8	3270 B2	3273 B8	3276 B2	5212 A3	7202 A6	7205-B E1	7205-E D2
2206 E9	2235 B3	2270 B1	2273 C1	2279 D1	2282 C9	3206 D4	3209 D3	3213 B9	3228 A8	3271 B2	3274 B8	5205 B3	5213 D9	7203 F6	7205-C E2	7205-F D1



ES3883 CIRCUIT

- 1602 C9 2213 D1 2216 D2 2219 C9 2225 B8 2228 A7 2231 B6 2253 A1 2259 E7 2263 C7 2284 A4 3219 E2 3224 B4 3227 F8 3231 E8 3235 D9 3238 F7 3241 F1 3244 D8 3247 B8 3250 B7 4001 F3 5203 A8 5210 A1 6205 A7 7208 E1
- 1603 A9 2214 D2 2217 D8 2220 D9 2226 B7 2229 A8 2233 A4 2254 E1 2261 C9 2264 E2 3212 E4 3221 A5 3225 B3 3229 E6 3232 E8 3236 A4 3239 E1 3242 A4 3245 C8 3248 B7 3287 E4 4002 E3 5204 A8 5215 A5 7204 D6 7209 D9
- 2211 D1 2215 D2 2218 D8 2224 B6 2227 A7 2230 E3 2234 B4 2256 A2 2262 A8 2265 E9 3218 A6 3223 B3 3226 B3 3230 F8 3233 F8 3237 F3 3240 F5 3243 F7 3246 A7 3249 B6 3288 A3 5201 A4 5208 D1 6204 A7 7206 F2 7213 A3



& PROVISION ON THE LAYOUT
 Note : Some values may varies, see respective parts list for correct value.
 @ Adding 4001 will set MPEG in Auto Play Mode, it must be remove before fixing back into set.

ELECTRICAL PARTS LIST - MPEG-01B BOARD**MISCELLANEOUS**

1601	2422 025 16837	Flex Socket 22pin Hort.
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CAPACITORS

2201	4822 126 14305	100nF 10% 16V
2202	4822 126 14305	100nF 10% 16V
2203	4822 126 14305	100nF 10% 16V
2204	4822 126 14305	100nF 10% 16V
2206	4822 126 14305	100nF 10% 16V
2209	4822 124 40207	100µF 20% 25V
2210	4822 126 14305	100nF 10% 16V
2211	4822 124 40207	100µF 20% 25V
2212	4822 124 40207	100µF 20% 25V
2213	4822 126 14305	100nF 10% 16V
2214	4822 126 14305	100nF 10% 16V
2215	4822 126 14305	100nF 10% 16V
2216	4822 126 14305	100nF 10% 16V
2217	4822 124 40433	47µF 20% 25V
2218	4822 126 14305	100nF 10% 16V
2219	4822 124 40433	47µF 20% 25V
2220	4822 126 14305	100nF 10% 16V
2221	4822 124 41584	100µF 20% 10V
2223	4822 126 14305	100nF 10% 16V
2224	4822 126 14305	100nF 10% 16V
2225	4822 126 14305	100nF 10% 16V
2226	4822 126 14305	100nF 10% 16V
2227	4822 126 14315	390pF 5% 50V
2229	4822 126 14315	390pF 5% 50V
2231	4822 126 14305	100nF 10% 16V
2233	4822 122 33741	10pF 10% 50V
2234	4822 122 33741	10pF 10% 50V
2235	4822 126 14305	100nF 10% 16V
2237	4822 124 40207	100µF 20% 25V
2238	4822 126 14494	22nF 10% 25V
2240	4822 126 14305	100nF 10% 16V
2242	4822 124 40248	10µF 20% 63V
2243	4822 124 41584	100µF 20% 10V
2244	4822 124 40433	47µF 20% 25V
2245	4822 124 40769	4,7µF 20% 100V
2246	4822 124 40769	4,7µF 20% 100V
2249	4822 124 40433	47µF 20% 25V
2250	3198 016 31020	1nF 5% 25V
2251	3198 016 31020	1nF 5% 25V
2252	4822 124 40248	10µF 20% 63V
2253	4822 124 41584	100µF 20% 10V
2255	5322 126 11583	10nF 10% 50V
2256	4822 126 14305	100nF 10% 16V
2257	3198 016 31020	1nF 5% 25V
2258	4822 124 40207	100µF 20% 25V
2259	5322 126 11583	10nF 10% 50V
2260	4822 124 40769	4,7µF 20% 100V
2263	3198 016 31020	1nF 5% 25V
2264	4822 124 40248	10µF 20% 63V

2266	3198 016 31020	1nF 5% 25V
2267	3198 016 31020	1nF 5% 25V
2269	4822 124 40769	4,7µF 20% 100V
2271	4822 122 31765	100pF 2% 63V
2272	4822 122 31765	100pF 2% 63V
2274	4822 126 13881	470pF 5% 50V
2275	4822 126 13881	470pF 5% 50V
2278	4822 126 14305	100nF 10% 16V
2279	4822 126 14305	100nF 10% 16V
2280	4822 122 31765	100pF 2% 63V
2281	4822 122 31765	100pF 2% 63V
2282	5322 126 11583	10nF 10% 50V
2283	4822 124 40433	47µF 20% 25V

RESISTORS

3204	4822 051 30472	4k7 5% 0,062W
3205	4822 051 30223	22k 5% 0,062W
3206	4822 051 30472	4k7 5% 0,062W
3207	4822 051 30472	4k7 5% 0,062W
3208	4822 051 30472	4k7 5% 0,062W
3209	4822 051 30221	220R 5% 0,062W
3210	4822 051 30221	220R 5% 0,062W
3211	4822 051 30221	220R 5% 0,062W
3212	4822 051 30101	100R 5% 0,062W
3213	4822 051 30223	22k 5% 0,062W
3214	4822 051 30103	10k 5% 0,062W
3215	4822 051 30479	47R 5% 0,062W
3216	4822 051 30103	10k 5% 0,062W
3217	4822 051 30223	22k 5% 0,062W
3218	4822 051 30472	4k7 5% 0,062W
3220	4822 051 30479	47R 5% 0,062W
3221	4822 117 13632	100k 1% 0,062W
3222	4822 051 30103	10k 5% 0,062W
3223	4822 051 30221	220R 5% 0,062W
3224	4822 051 30221	220R 5% 0,062W
3225	4822 051 30101	100R 5% 0,062W
3226	4822 051 30101	100R 5% 0,062W
3227	4822 051 30101	100R 5% 0,062W
3228	4822 051 30472	4k7 5% 0,062W
3229	4822 051 30472	4k7 5% 0,062W
3230	4822 051 30101	100R 5% 0,062W
3231	4822 051 30472	4k7 5% 0,062W
3232	4822 051 30472	4k7 5% 0,062W
3233	4822 051 30101	100R 5% 0,062W
3234	4822 051 30102	1k 5% 0,062W
3235	4822 051 30103	10k 5% 0,062W
3236	4822 051 30101	100R 5% 0,062W
3237	4822 051 30472	4k7 5% 0,062W
3238	4822 051 30472	4k7 5% 0,062W
3239	4822 051 30103	10k 5% 0,062W
3240	4822 051 30472	4k7 5% 0,062W
3242	4822 051 30103	10k 5% 0,062W

ELECTRICAL PARTS LIST - MPEG-01B BOARD

3243	4822 051 30472	4k7 5% 0,062W
3244	4822 051 30472	4k7 5% 0,062W
3245	4822 051 30102	1k 5% 0,062W
3246	4822 051 30759	75R 5% 0,062W
3247	4822 051 30759	75R 5% 0,062W
3248	4822 051 30759	75R 5% 0,062W
3249	4822 051 30221	220R 5% 0,062W
3250	4822 117 12139	22R 5% 0,062W
3251	4822 052 10478	△ 4R7 5% 0,33W
3252	4822 117 12139	22R 5% 0,062W
3253	4822 051 30339	33R 5% 0,062W
3254	4822 051 30479	47R 5% 0,062W
3255	4822 051 30479	47R 5% 0,062W
3256	4822 051 30392	3k9 5% 0,062W
3257	4822 051 30472	4k7 5% 0,062W
3258	4822 051 30472	4k7 5% 0,062W
3259	4822 051 30103	10k 5% 0,062W
3260	4822 051 30105	1M 5% 0,062W
3261	4822 051 30103	10k 5% 0,062W
3262	4822 051 30472	4k7 5% 0,062W
3263	4822 051 30479	47R 5% 0,062W
3264	4822 051 30103	10k 5% 0,062W
3265	4822 051 30103	10k 5% 0,062W
3266	4822 051 30472	4k7 5% 0,062W
3267	4822 051 30472	4k7 5% 0,062W
3268	4822 117 12139	22R 5% 0,062W
3269	4822 117 12139	22R 5% 0,062W
3270	4822 051 30101	100R 5% 0,062W
3271	4822 051 30101	100R 5% 0,062W
3272	4822 051 30101	100R 5% 0,062W
3273	4822 051 30221	220R 5% 0,062W
3274	4822 051 30221	220R 5% 0,062W
3275	4822 051 30221	220R 5% 0,062W
3276	4822 051 30101	100R 5% 0,062W
3277	4822 051 30103	10k 5% 0,062W
3278	4822 051 30223	22k 5% 0,062W
3279	4822 051 30103	10k 5% 0,062W
3281	4822 051 30103	10k 5% 0,062W
3282	4822 051 30103	10k 5% 0,062W
3283	4822 117 13632	100k 1% 0,062W
3284	4822 117 13632	100k 1% 0,062W
3285	4822 051 30101	100R 5% 0,062W
3286	4822 051 30101	100R 5% 0,062W
3287	4822 051 30472	4k7 5% 0,062W
4002	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5201	2422 543 01137	X'tal Resonator 27MHz
5202	5322 242 73686	Ceram Resonator 12MHz
5203	4822 157 11868	Coil 2,7µH 5%
5204	4822 157 11868	Coil 2,7µH 5%
5205	4822 157 11506	Chip Ind. 120R 100MHz

5207	4822 526 10704	FE Bead 100MHz
5208	4822 526 10704	FE Bead 100MHz
5209	4822 526 10704	FE Bead 100MHz
5210	4822 526 10704	FE Bead 100MHz
5211	4822 157 11506	Chip Ind. 120R 100MHz
5212	4822 157 11506	Chip Ind. 120R 100MHz
5213	4822 157 11506	Chip Ind. 120R 100MHz
5215	4822 157 11506	Chip Ind. 120R 100MHz
5216	4822 157 11506	Chip Ind. 120R 100MHz
5217	4822 157 11506	Chip Ind. 120R 100MHz

DIODES

6204	4822 130 31983	BAT85
6205	4822 130 31983	BAT85
6208	4822 130 34174	BZX79-B4V7

TRANSISTORS & INTEGRATED CIRCUITS

7201	9322 139 79671	ES3880
7202	9965 000 08683	AT27C020-70JC
7203	9322 164 13668	MSM514265E-60JS
7204	9322 138 97671	ES3883
7205	9337 142 60653	74HC04D
7207	4822 209 83357	NJM4560M
7208	5322 130 42756	BC857BW
7209	3198 010 42310	BC847BW
7211	9322 154 82668	LF35ABDT
7212	9352 701 41518	CV9210B-83C51RC+
7214	3198 010 42310	BC847BW

Note : Only the parts mentioned in this list are normal service spare parts.

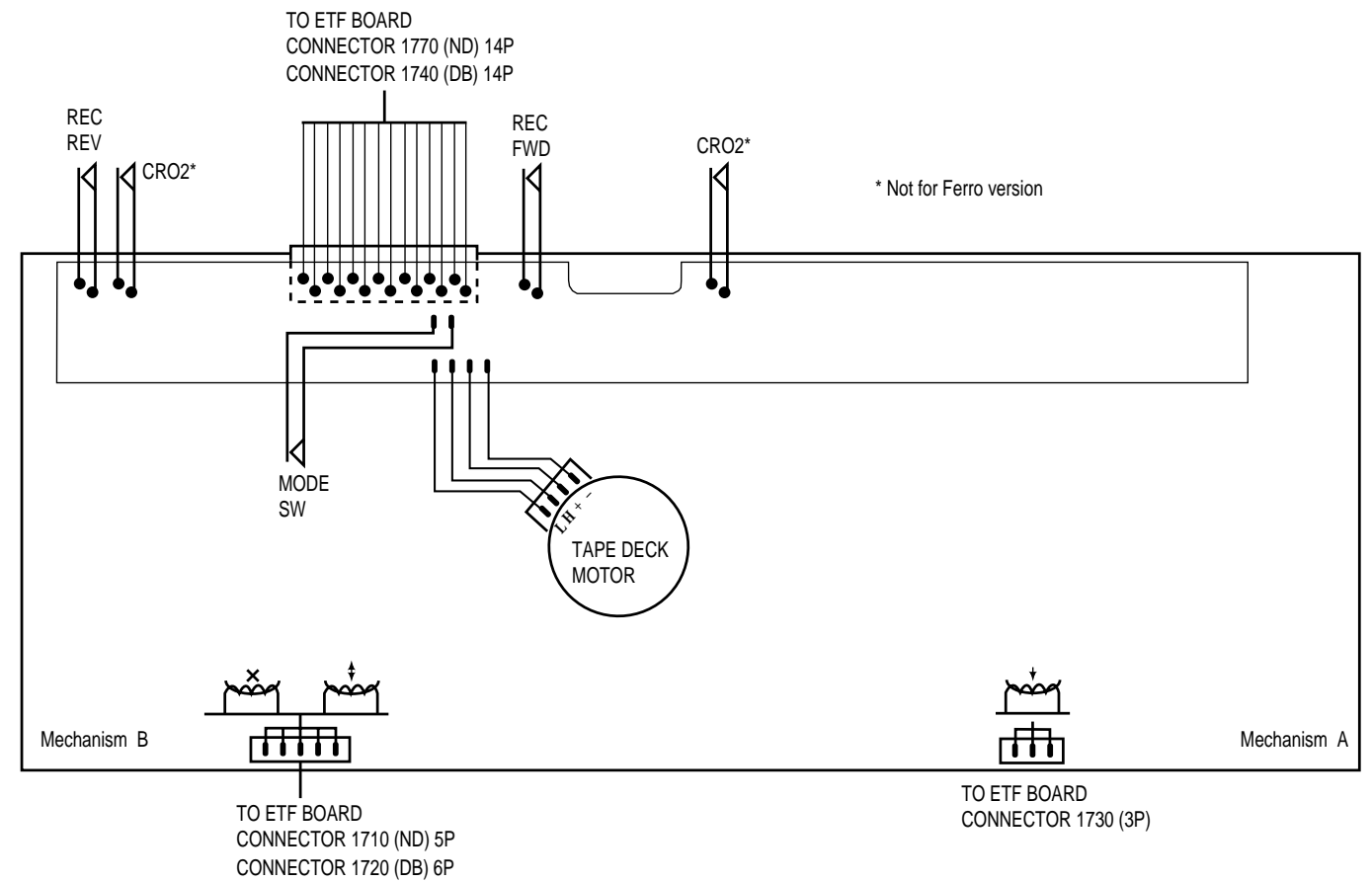
ETF7 TAPE MODULE

(Non-Dolby Version)

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Tapedeck wiring (Double deck)

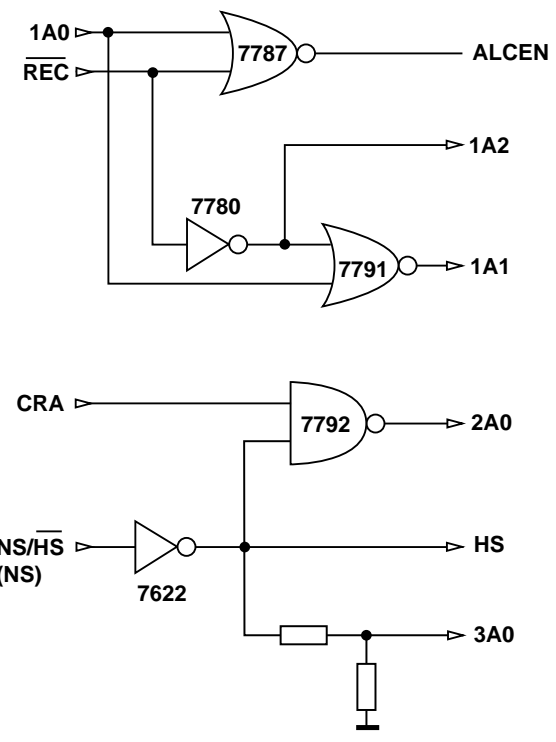
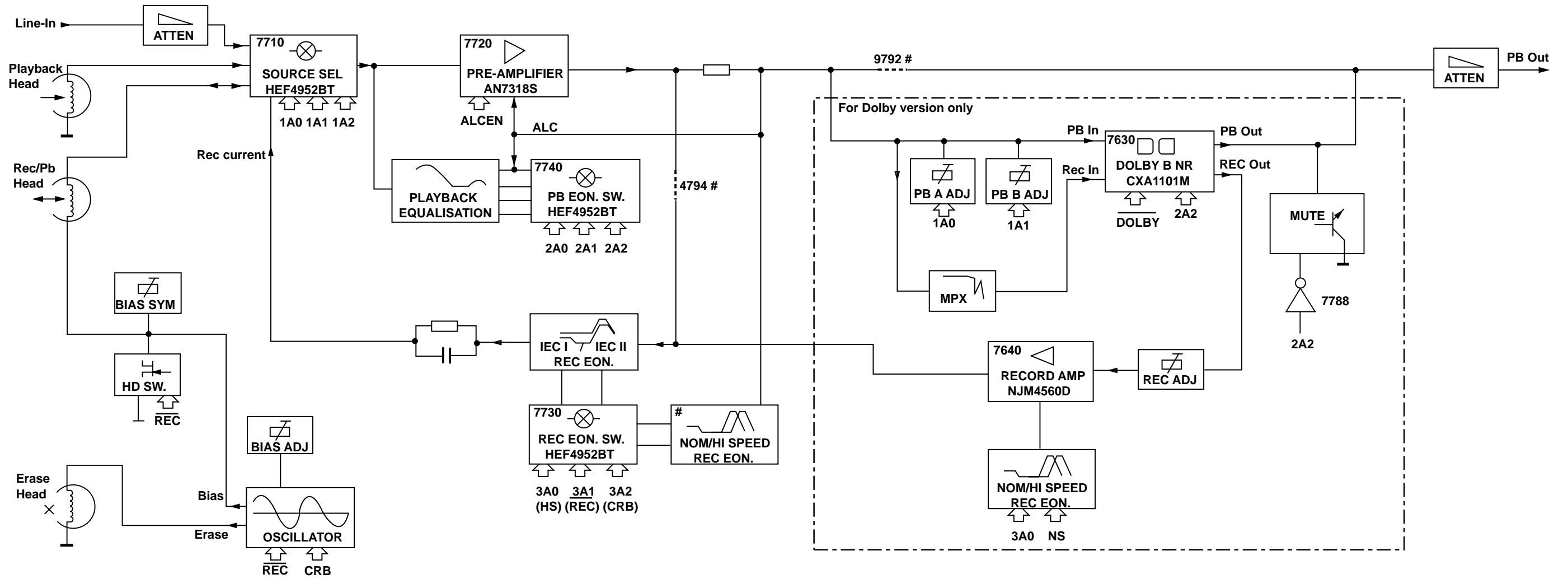


Variations table for Analog Circuit

	Autoreverse	Non-autoreverse	
	ND/DD/FR	ND/DD/FF	FF
	Chrome/Ferro	Chrome/Ferro	Ferro
2624	-	-	100nF
2701 , 2702	150pF	270pF	270pF
2703 , 2704	100pF	220pF	220pF
2717 , 2718	10nF	15nF	15nF
2721 , 2722	6,8nF	6,8nF	-
2727 , 2728	470pF	1nF	1nF
3616	10k	1k	1k
3618	6k8	-	-
3620	10k trimmer	-	-
3622	-	10k trimmer	10k trimmer
3672	4k7	-	-
3676	47k	-	-
3687	220R	220R	-
3688	680R	-	-
3723 , 3724	15k	18k	18k
3725 , 3726	10R	10R	-
3727 , 3728	5k6	6k8	6k8
3729 , 3730	3k3	4k7	4k7
3743 , 3744	1k5	2k2	2k2
3745 , 3746	3k3	5k6	5k6
3754 , 3755	1M	47R	47R

	Autoreverse	Non-autoreverse	
	ND/DD/FR	ND/DD/FF	FF
	Chrome/Ferro	Chrome/Ferro	Ferro
3769	12k	8k2	8k2
3772	6k8	5k6	5k6
4785	-	-	0R jumper
3774	15k	8k2	8k2
6614	1N4148	-	-
7616	BC857B	-	-
7622	BC847B	-	-

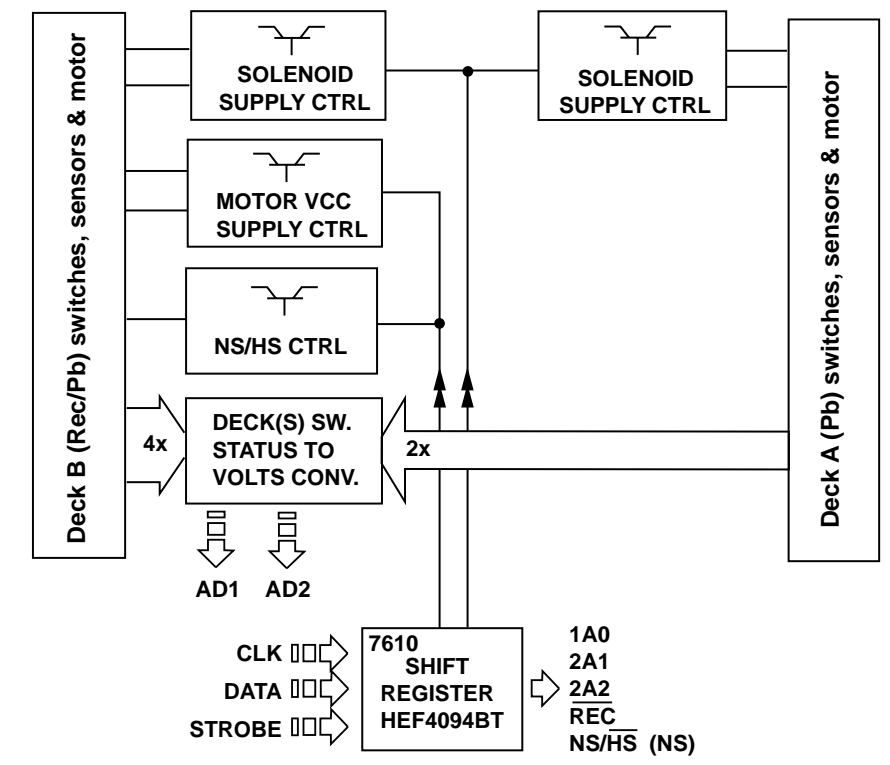
BLOCK DIAGRAM



NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers



Brief introduction

General

1. Playback Mode
Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.
2. Recording Mode
Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.
3. Dubbing Mode
In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.
4. Mode Selector
The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.
5. Amplifier PB/REC
Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.
6. Automatic Level Control (ALC)
ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762, 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.
7. Muting Circuit (For Non-Dolby version only)
Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.
8. IC7740 (HEF4952BT)
The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.
9. IC7730 (HEF4952BT)
The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).
10. Bias Level
Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.
11. Bias Symm (For Dolby B NR version only)
Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.
12. PB Switch
Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)
During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.
14. IC7610 (HEF4094BT)
IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)
IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by DOLBY, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.
16. 19kHz Filter
The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.
17. Level Adjust
The Variable resistor 3635, 3636, 3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz, 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.
18. Amplifier IC7640 (NJM4560M)
The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.
19. Muting Circuit
The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

CONNECTORS ASSIGNMENTS:**CONNECTOR 1701****INTERCONNECTION TO AF BOARD**

○	1	REC-L	Record input left
○	2	REC-R	Record input right
○	3	GND A	AF Ground
○	4	TAPE-L	Playback output left
○	5	+12V	D.C. supply (+12V) for AF electronics
○	6	TAPE-R	Playback output right
○	7	-CMOS	Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703**INTERCONNECTION TO AF BOARD**

○	1	GND M	Motor Ground
○	2	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706**INTERCONNECTION TO FRONT BOARD**

○	1	AD2	Deck sensing switches output voltage / Deck A EOT
○	2	AD1	Deck sensing switches output voltage / Deck B EOT
○	3	+5V	DC supply +5V for ADC network
○	4	GND P	Control & Oscillator Ground
○	5	CLK	HEF4094BT shift register Clock line
○	6	DATA	HEF4094BT shift register Data line
○	7	STROBE	HEF4094BT shift register Strobe line

CONNECTOR 1710**DECK B HEADS CONNECTOR (For Non-Dolby version only)**

○	1	B R/P HD L+	R/P Head left channel positive
○	2	GND A	R/P Head return ground
○	3	B R/P HD R+	R/P Head right channel positive
○	4	ERASE HEAD	Erase Head
○	5	GND A	Erase Head ground

CONNECTOR 1720**DECK B HEADS CONNECTOR (For Dolby B NR version only)**

○	1	B R/P HD L+	R/P Head left channel positive
○	2	B R/P HD L-	R/P Head left channel negative
○	3	B R/P HD R+	R/P Head right channel positive
○	4	B R/P HD R-	R/P Head right channel negative
○	5	ERASE HEAD	Erase Head
○	6	GND A	Erase Head ground

CONNECTOR 1730**DECK A HEAD CONNECTIONS (For Double Deck versions only)**

○	1	A PB HD L+	Pb Head left channel positive
○	2	GND A	Pb Head return ground shield
○	3	A PB HD R+	Pb Head right channel positive

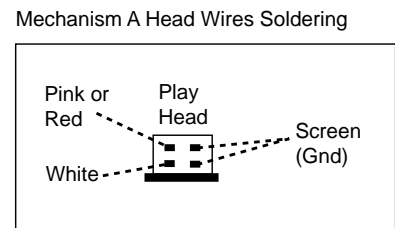
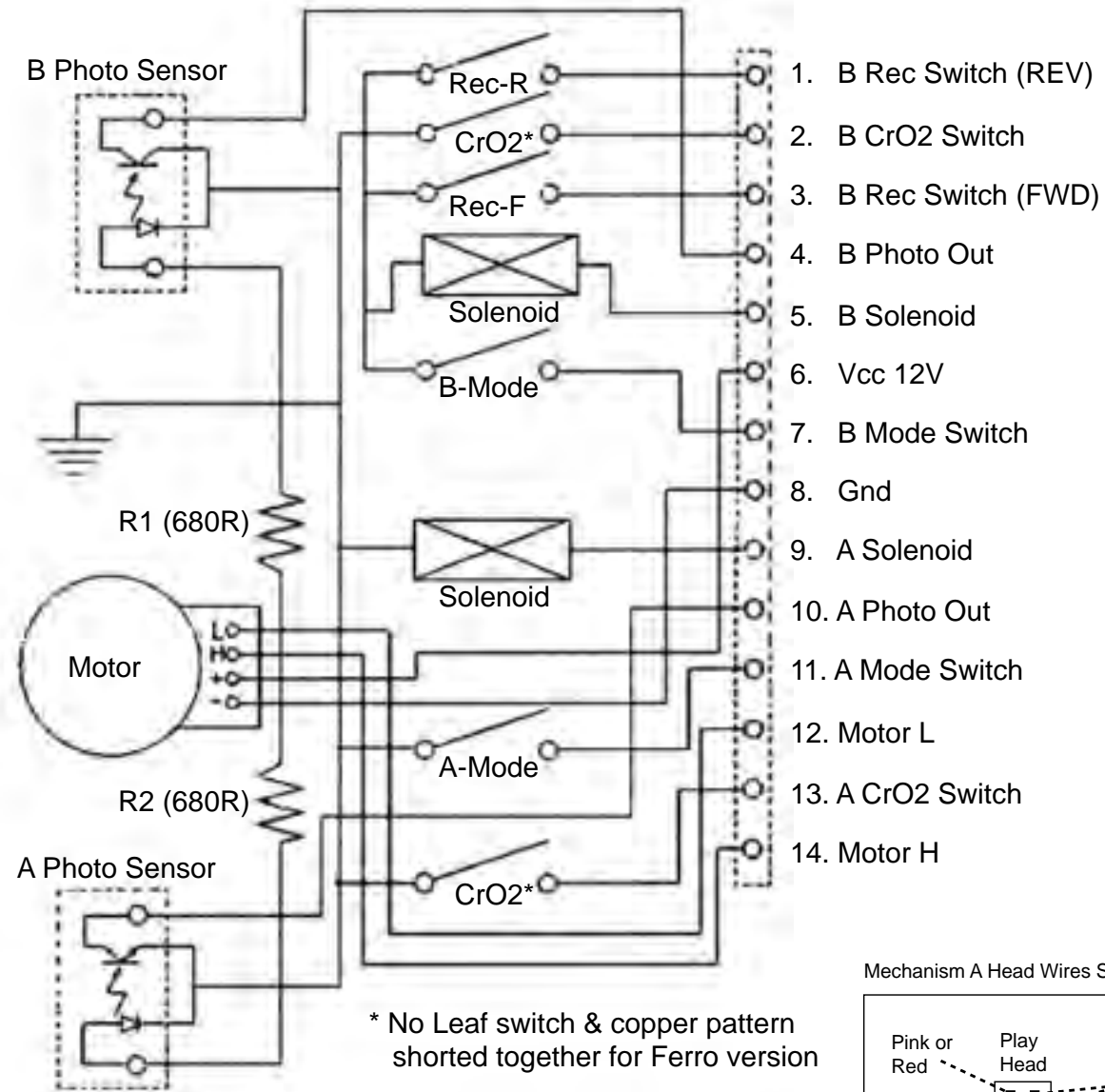
CONNECTOR 1740**DECK A & B CONTROL INTERFACE (For Dolby B NR version only)**

○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

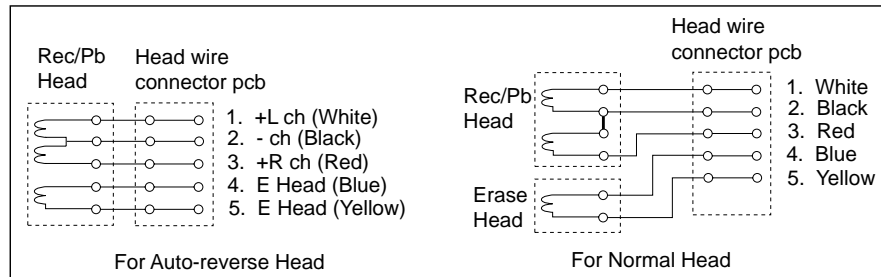
CONNECTOR 1770**DECK A & B CONTROL INTERFACE (For Non-Dolby version only)**

○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

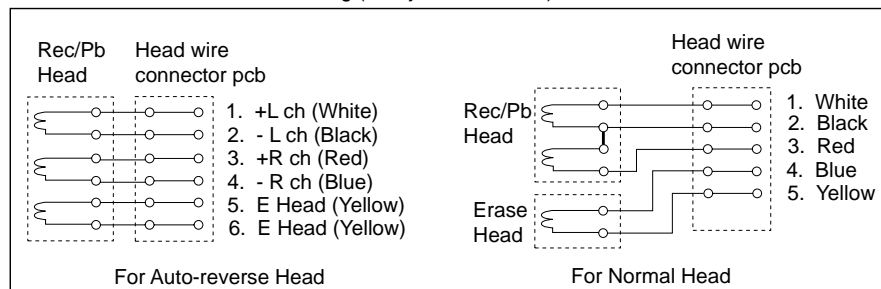
TAPE MECHANISM ELECTRONICS



Mechanism B Head Wires Soldering (Non-Dolby version)



Mechanism B Head Wires Soldering (Dolby B NR version)



TAPE ADJUSTMENT & CHECK TABLE

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420 3150Hz	PLAY B	1 or 2	frequency counter	3620	3150Hz +/- 0.5%
		PLAY A	LEFT RIGHT		check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 3150Hz	PLAY	1 or 2 LEFT RIGHT	W&F-meter	check	<0.4 % DIN
ADJUST AZIMUTH						
DECK A & B	SBC420 10kHz	PLAY FWD	1 or 2	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #	LEFT RIGHT		right hand screw	
CHECK PLAYBACK FREQUENCY RESPONSE						
DECK A & B	SBC420	PLAY	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig.1
ADJUST BIAS CURRENT						
DECK B	SBC419A^	RECORD	5 or 6	mV-meter	3773	995mV
	SBC420		LEFT RIGHT		check	750mV +/- 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig. 2 *
Inject 1kHz 8.85mV via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	THD-meter	check	<3% *

SBC419A^: 4822 397 30069
SBC420 : 4822 397 30071

For Auto-reverse version only
* If high frequencies are not within limits, decrease bias and re-measure.
If distortion is too high, increase bias and re-measure
^ Not applicable for Ferro version

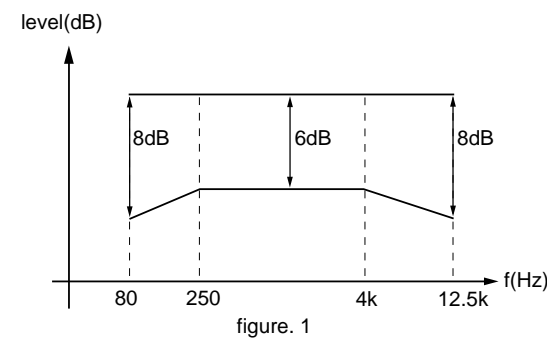


figure. 1

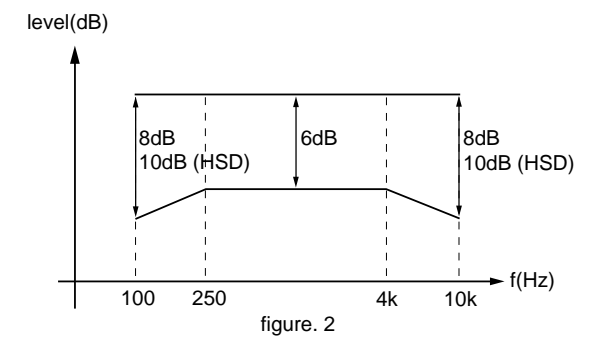
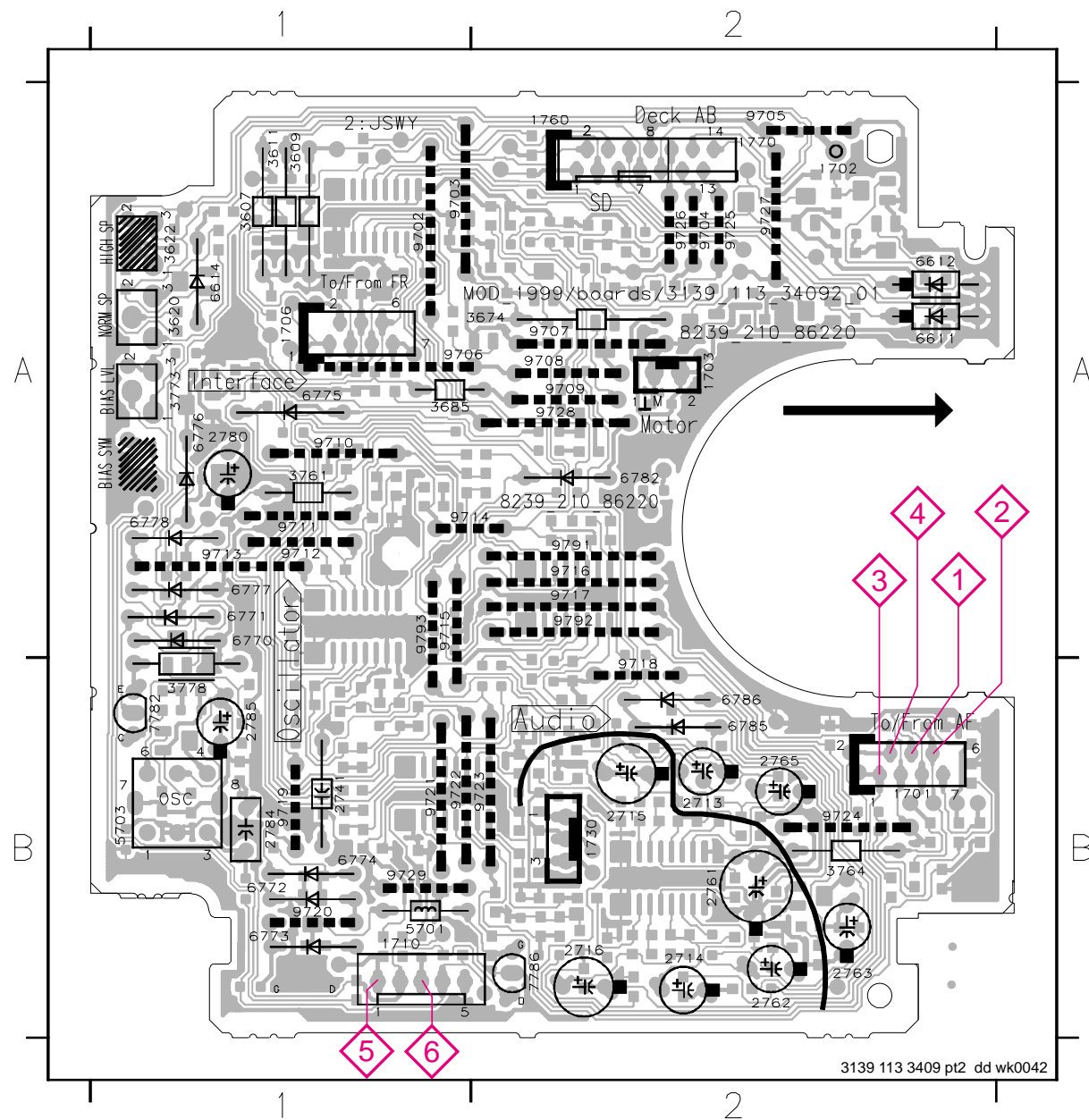


figure. 2

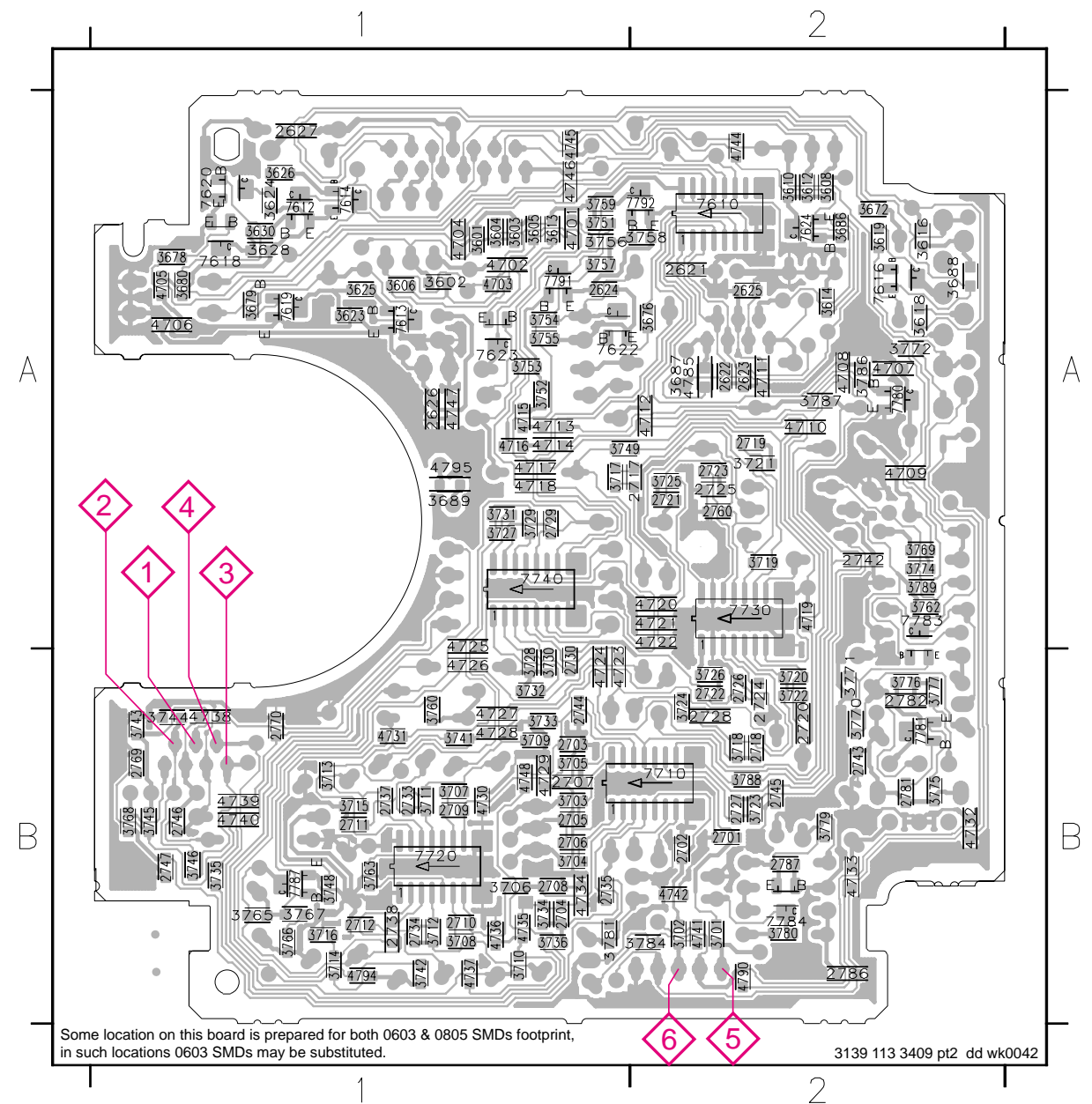
COMPONENT LAYOUT

1701 B2	2714 B2	2784 B1	3761 A1	6770 A1	6782 A2	9706 A1	9715 A1	9724 B2
1702 A2	2715 B2	2785 B1	3764 B2	6771 A1	6785 B2	9707 A2	9716 A2	9725 A2
1703 A2	2716 B2	3607 A1	3773 A1	6772 B1	6786 B2	9708 A2	9717 A2	9726 A2
1706 A1	2741 A1	3609 A1	3778 B1	6773 B1	7782 B1	9709 A2	9718 B2	9727 A2
1710 B1	2761 B2	3611 A1	5701 B1	6774 B1	7786 B2	9710 A1	9719 B1	9728 A2
1730 B2	2762 B2	3620 A1	5703 B1	6775 A1	9702 A1	9711 A1	9720 B1	9729 B1
1760 A2	2763 B2	3622 A1	6611 A2	6776 A1	9703 A1	9712 A1	9721 B1	9791 A2
1770 A2	2765 B2	3674 A2	6612 A2	6777 A1	9704 A2	9713 A1	9722 B1	9792 A2
2713 B2	2780 A1	3685 A1	6614 A1	6778 A1	9705 A2	9714 A1	9723 B2	9793 A1



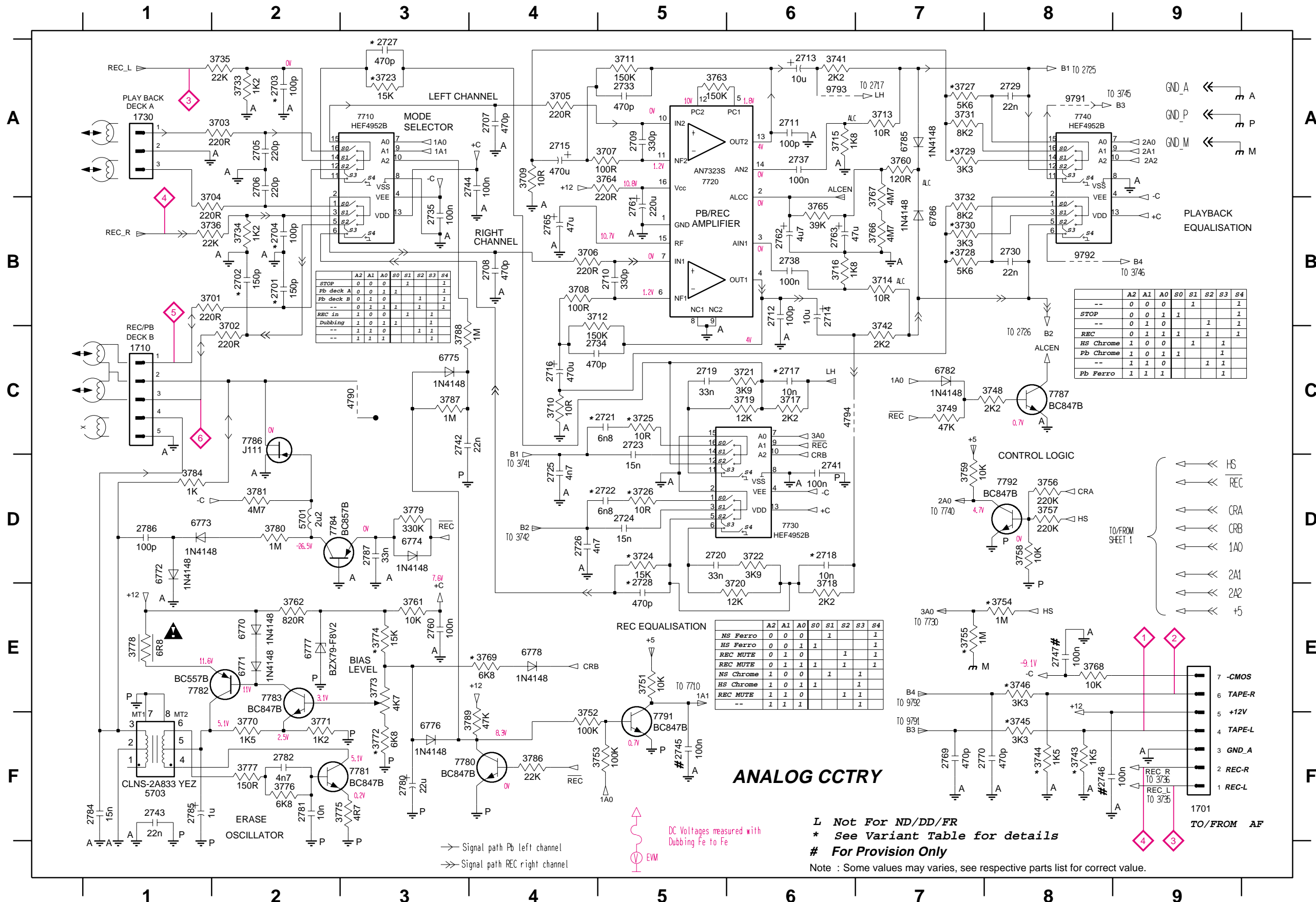
CHIP LAYOUT

2621 A2	2724 B2	3602 A1	3688 A2	3725 A2	3757 A1	4701 A1	4727 B1	7612 A1
2622 A2	2725 A2	3603 A1	3689 A1	3726 B2	3758 A2	4702 A1	4728 B1	7613 A1
2623 A2	2726 B2	3604 A1	3701 B2	3727 A1	3759 A1	4703 A1	4729 B1	7614 A1
2624 A1	2727 B2	3605 A1	3702 B2	3728 B1	3760 B1	4704 A1	4730 B1	7616 A2
2625 A2	2728 B2	3606 A1	3703 B1	3729 A1	3762 A2	4705 A1	4731 A1	7618 A1
2626 A1	2729 A1	3608 A2	3704 B1	3730 B1	3763 B1	4706 A1	4732 B2	7619 A1
2627 A1	2730 B1	3610 A2	3705 B1	3731 A1	3765 B1	4707 A2	4733 B2	7620 A1
2701 B2	2733 B1	3612 A2	3706 B1	3732 B1	3766 B1	4708 A2	4734 B1	7622 A1
2702 B2	2734 B1	3613 A1	3707 B1	3733 B1	3767 B1	4709 A2	4735 B1	7623 A1
2703 B1	2735 B1	3614 A2	3708 B1	3734 B1	3768 B1	4710 A2	4736 B1	7624 A2
2704 B1	2737 B1	3616 A2	3709 B1	3735 B1	3769 A2	4711 A2	4737 B1	7710 B2
2705 B1	2738 B1	3618 A2	3710 B1	3736 B1	3770 B2	4712 A2	4738 B1	7720 B1
2706 B1	2742 A2	3619 A2	3711 B1	3737 B1	3771 B2	4713 A1	4739 B1	7730 A2
2707 B1	2743 B2	3623 A1	3712 B1	3742 B1	3772 A2	4714 A1	4740 B1	7740 A1
2708 B1	2744 B1	3624 A1	3713 B1	3743 B1	3774 A2	4715 A1	4741 B2	7780 A2
2709 B1	2745 B2	3625 A1	3714 B1	3744 B1	3775 B2	4716 A1	4742 B2	7781 B2
2710 B1	2746 B1	3626 A1	3715 B1	3745 B1	3776 B2	4717 A1	4744 A2	7783 A2
2711 B1	2747 B1	3628 A1	3716 B1	3746 B1	3777 B2	4718 A1	4745 A1	7784 B2
2712 B1	2760 A2	3630 A1	3717 A1	3748 A1	3779 B2	4719 A2	4746 A1	7787 B1
2717 A2	2769 B1	3672 A2	3718 B2	3749 A1	3780 B2	4720 A2	4747 A1	7791 A1
2718 B2	2770 B1	3676 A2	3719 A2	3751 A1	3781 B1	4721 A2	4748 B1	7792 A2
2719 A2	2781 B2	3678 A1	3720 B2	3752 A1	3784 B2	4722 A2	4785 A2	
2720 B2	2782 B2	3679 A1	3721 A2	3753 A1	3786 A2	4723 B1	4790 B2	
2721 A2	2786 B2	3680 A1	3722 B2	3754 A1	3787 A2	4724 A1	4794 B1	
2722 B2	2787 B2	3686 A2	3723 B2	3755 A1	3788 B2	4725 A1	4795 A1	
2723 A2	3601 A1	3687 A2	3724 B2	3756 A1	3789 A2	4726 B1	7610 A2	



ANALOG CIRCUIT

1701 F9	2705 A2	2712 B6	2719 C5	2726 D4	2735 B3	2745 F5	2765 B4	2785 F1	3705 A4	3712 B4	3719 C6	3726 D5	3733 A2	3744 F8	3753 F5	3760 A7	3767 A7	3774 E3	3781 D2	4794 C6	6774 D3	6786 B7	7782 E1	9791 A8
1710 C1	2706 A2	2713 A6	2720 D5	2727 A3	2737 A6	2746 F8	2769 F7	2786 D1	3706 B4	3713 A7	3720 E6	3727 A7	3734 B2	3745 F8	3754 E8	3761 E3	3768 E8	3775 F3	3784 D1	5701 D2	6775 C3	6788 A3	7783 E2	9792 B8
1730 A1	2707 A4	2714 B6	2721 C5	2728 E5	2738 B6	2747 E8	2770 F8	2787 D3	3707 A5	3714 B7	3721 C6	3728 B7	3735 A2	3746 E8	3755 E7	3762 E2	3769 E4	3776 F2	3786 F4	5703 F1	6776 F3	6789 A5	7784 D2	9793 A6
2701 B2	2708 B4	2715 A4	2722 D5	2729 A8	2741 D6	2760 E3	2780 F3	3701 B1	3708 B4	3715 A6	3722 D6	3729 A7	3736 B1	3748 C8	3756 D8	3763 A5	3770 F2	3777 F2	3787 C3	6770 E2	6777 E2	7730 D6	7786 C2	
2702 B2	2709 A5	2716 C4	2723 C5	2730 B8	2742 C3	2761 B5	2781 F2	3702 C2	3709 A4	3716 B6	3723 A3	3730 B7	3741 A6	3749 C7	3757 D8	3764 A5	3771 F2	3778 E1	3788 C3	6771 E2	6778 E4	7740 A8	7787 C8	
2703 A2	2710 B5	2717 C6	2724 D5	2733 A5	2743 F1	2762 B6	2782 F2	3703 A2	3710 C4	3717 C6	3724 D5	3731 A7	3742 C7	3751 E5	3758 D8	3765 B6	3772 F3	3779 D3	3789 F4	6772 D1	6782 C7	7780 F4	7791 F5	
2704 B2	2711 A6	2718 D6	2725 D4	2734 C4	2744 A4	2763 B6	2784 F1	3704 B1	3711 A5	3718 E6	3725 C5	3732 B7	3743 F8	3752 F4	3759 D7	3766 B7	3773 E3	3780 D2	4790 C3	6773 D1	6785 A7	7781 F3	7792 D8	



STOP	A2	A1	A0	S0	S1	S2	S3	S4
Pb deck A	0	0	1	1	1	1	1	1
Pb deck B	0	1	1	1	1	1	1	1
REC In	1	0	0	1	1	1	1	1
Dubbing	1	1	0	1	1	1	1	1
--	1	1	1	1	1	1	1	1

STOP	A2	A1	A0	S0	S1	S2	S3	S4
--	0	0	0	1	1	1	1	1
REC	0	1	1	1	1	1	1	1
HS Chrome	1	0	0	1	1	1	1	1
Pb Chrome	1	0	1	1	1	1	1	1
--	1	1	0	1	1	1	1	1
Pb Ferro	1	1	1	1	1	1	1	1

REC EQUALISATION	A2	A1	A0	S0	S1	S2	S3	S4
NS Ferro	0	0	0	1	1	1	1	1
HS Ferro	0	0	1	1	1	1	1	1
REC MUTE	0	1	0	1	1	1	1	1
NS Chrome	1	0	0	1	1	1	1	1
HS Chrome	1	0	1	1	1	1	1	1
REC MUTE	1	1	0	1	1	1	1	1
--	1	1	1	1	1	1	1	1

ANALOG CCTRY

L Not For ND/DD/FR
 * See Variant Table for details
 # For Provision Only

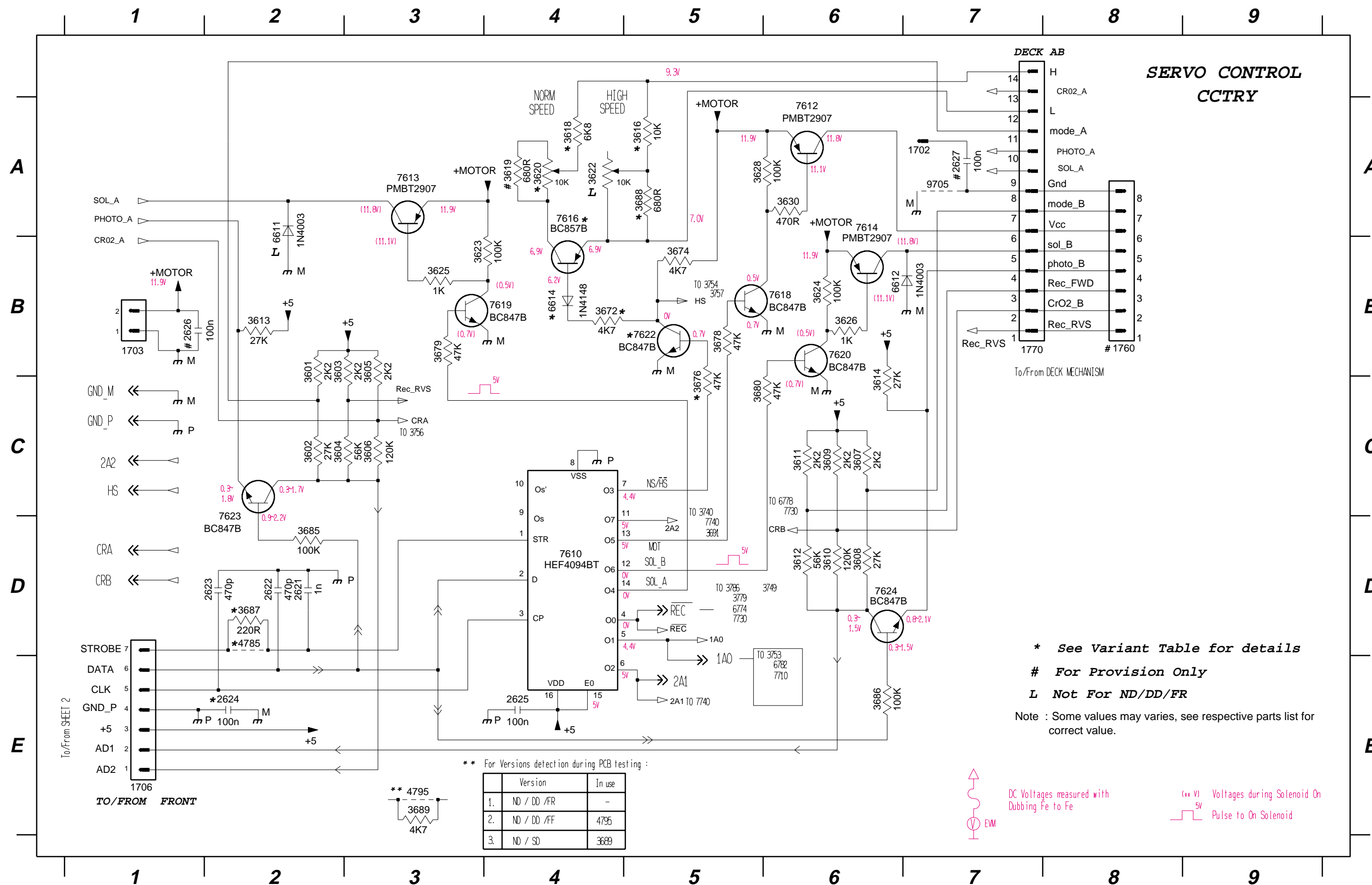
Note : Some values may varies, see respective parts list for correct value.

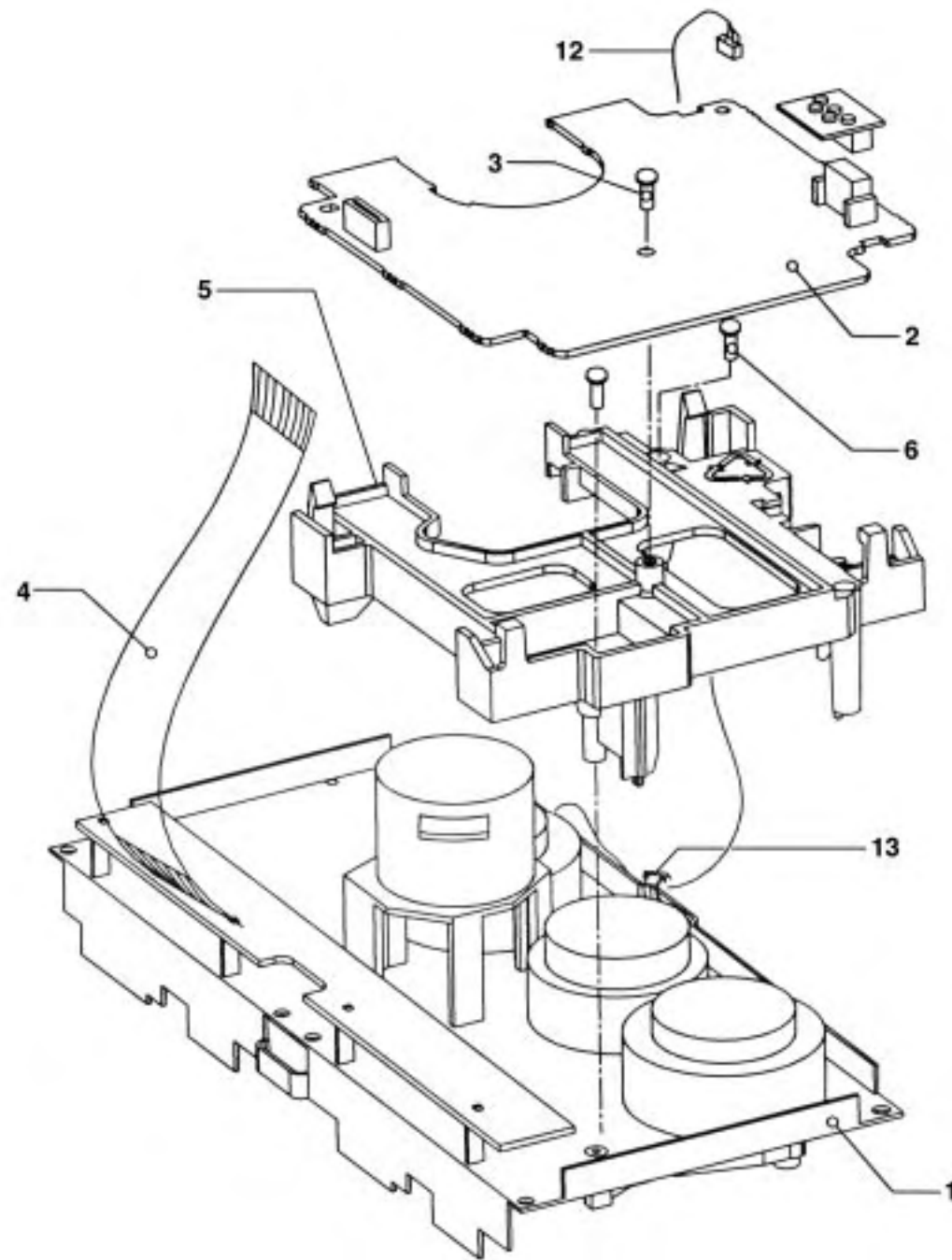
→ Signal path Pb left channel
 ⇨ Signal path REC right channel

DC Voltages measured with
 Dubbing Fe to Fe
 EVM

SERVO CONTROL CIRCUIT

1702 A7	1760 B8	2622 D2	2625 E4	3601 B2	3604 C2	3607 C6	3610 D6	3613 B2	3618 A4	3622 A4	3625 B3	3630 A6	3676 C5	3680 C5	3687 D2	4785 D2	6612 B6	7612 A6	7616 A4	7620 B6	7624 D6
1703 B1	1770 B7	2623 D2	2626 B1	3602 C2	3605 B3	3608 D6	3611 C6	3614 C6	3619 A4	3623 B3	3626 B6	3672 B4	3678 B5	3685 D2	3688 A5	4795 E3	6614 B4	7613 A3	7618 B6	7622 B5	9705 A7
1706 E1	2621 D2	2624 E2	2627 A7	3603 B2	3606 C3	3609 C6	3612 D6	3616 A5	3620 A4	3624 B6	3628 A5	3674 B5	3679 B3	3686 E6	3689 E3	6611 A2	7610 D4	7614 A6	7619 B4	7623 D2	



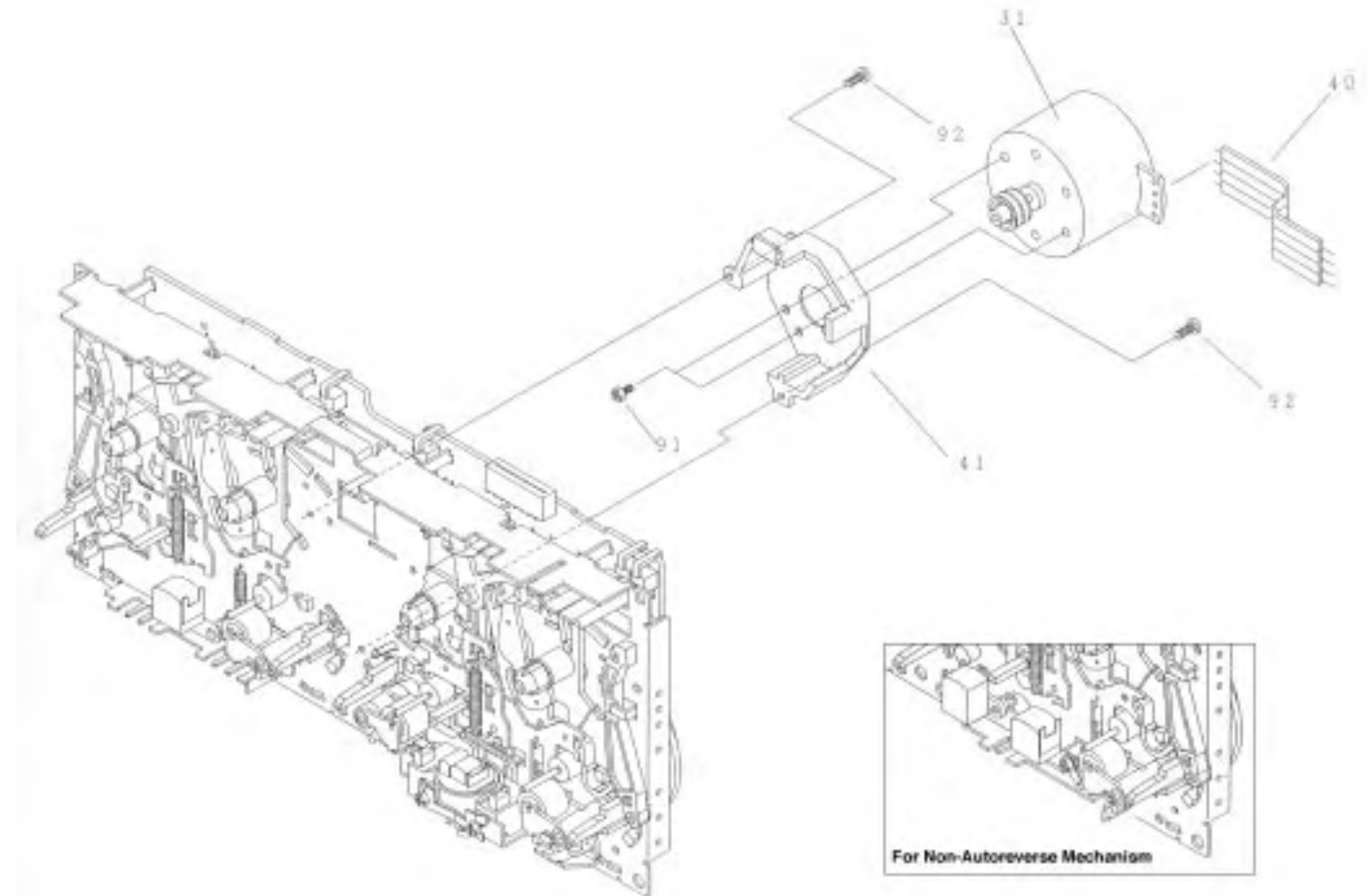


3139 118 77070 (incl. ...77060) dd wr226

TAPE MODULE EXPLODED VIEW

1	3139 118 77130	Autoreverse Mech. CWE44FR01
1	3139 118 77140	Non-Autoreverse Mech. CWE44FF02 Chrome/Ferro
1	3139 118 77950	Non-Autoreverse Mech. CWE44FF05 Ferro
3	-	Screw D3 x 10
6	-	Screw M2 x 16
7	3139 110 34080	Flex Cable 14 pin 7,5 cm

Note: Only the parts mentioned in this list are normal service spare parts.

**TAPE MECHANISM - MOTOR EXPLODED VIEW**

31	4822 361 11055	Motor Assembly
91	-	Screw M2,6 x 5
92	-	Screw M2 x 5

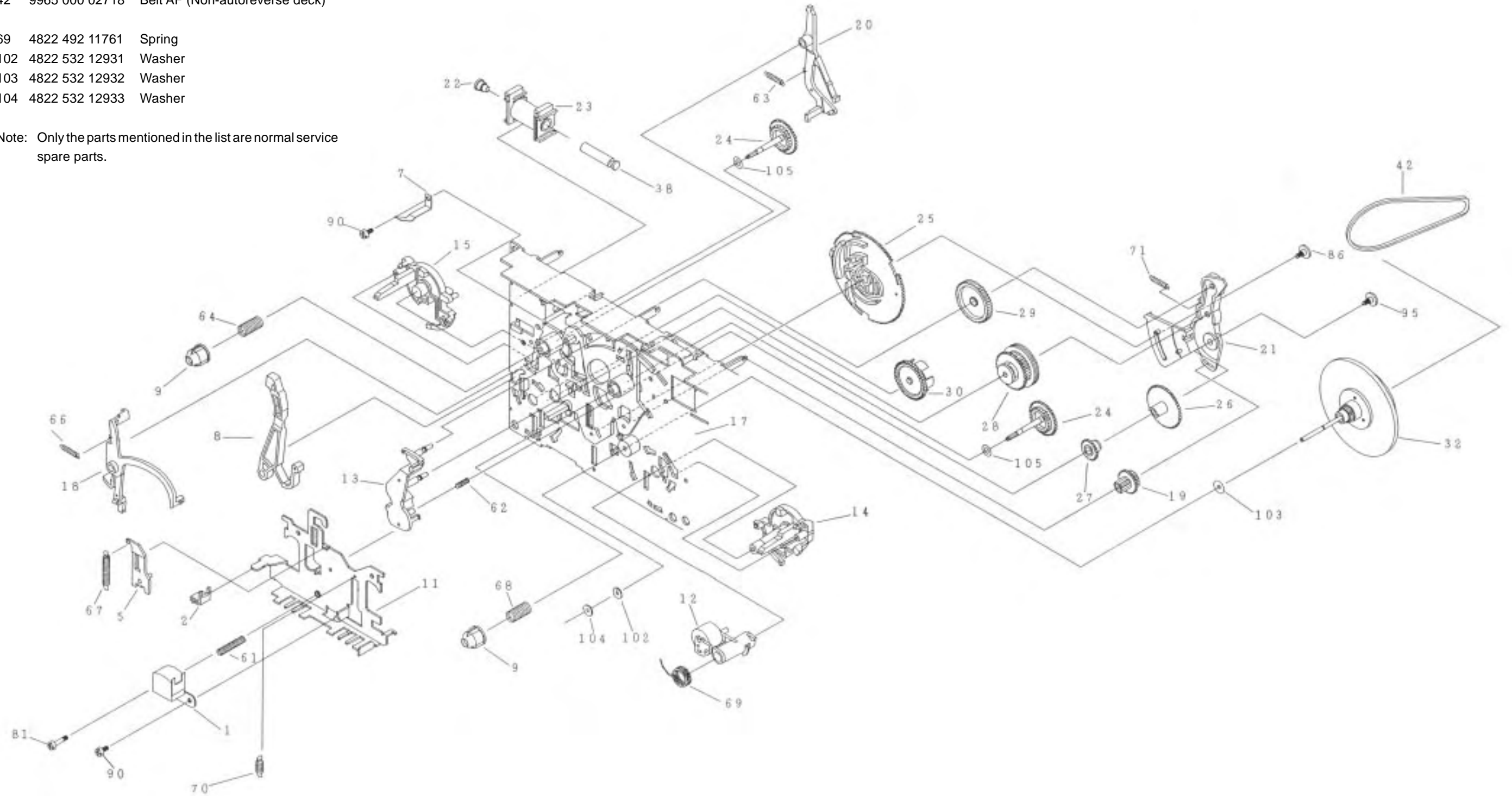
Note: Only the parts mentioned in this list are normal service spare parts.

TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	9965 000 02313	Play Head (Non-Autoreverse deck)
1	9965 000 02321	Play Head (Autoreverse deck)
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
42	9965 000 02315	Belt AF (Autoreverse deck)
42	9965 000 02718	Belt AF (Non-autoreverse deck)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

Note: Only the parts mentioned in the list are normal service spare parts.

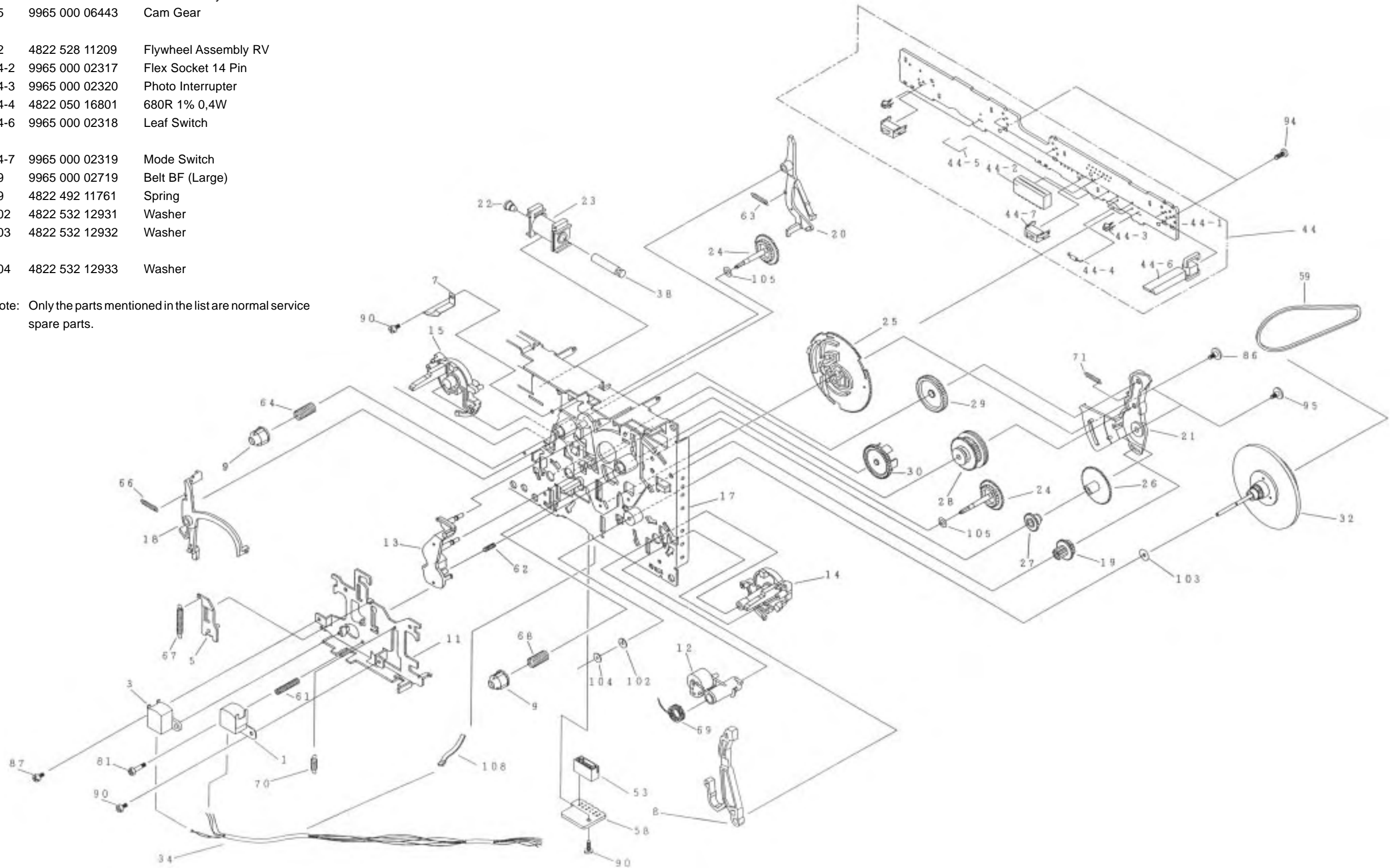


TAPE MECHANISM B - RECORD/PLAYBACK (Non-Autoreverse version)

MECHANICAL PARTS - REC/PB MECHANISM

1	9965 000 02313	Play Head
3	9965 000 02600	Head, Erase
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
59	9965 000 02719	Belt BF (Large)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

Note: Only the parts mentioned in the list are normal service spare parts.

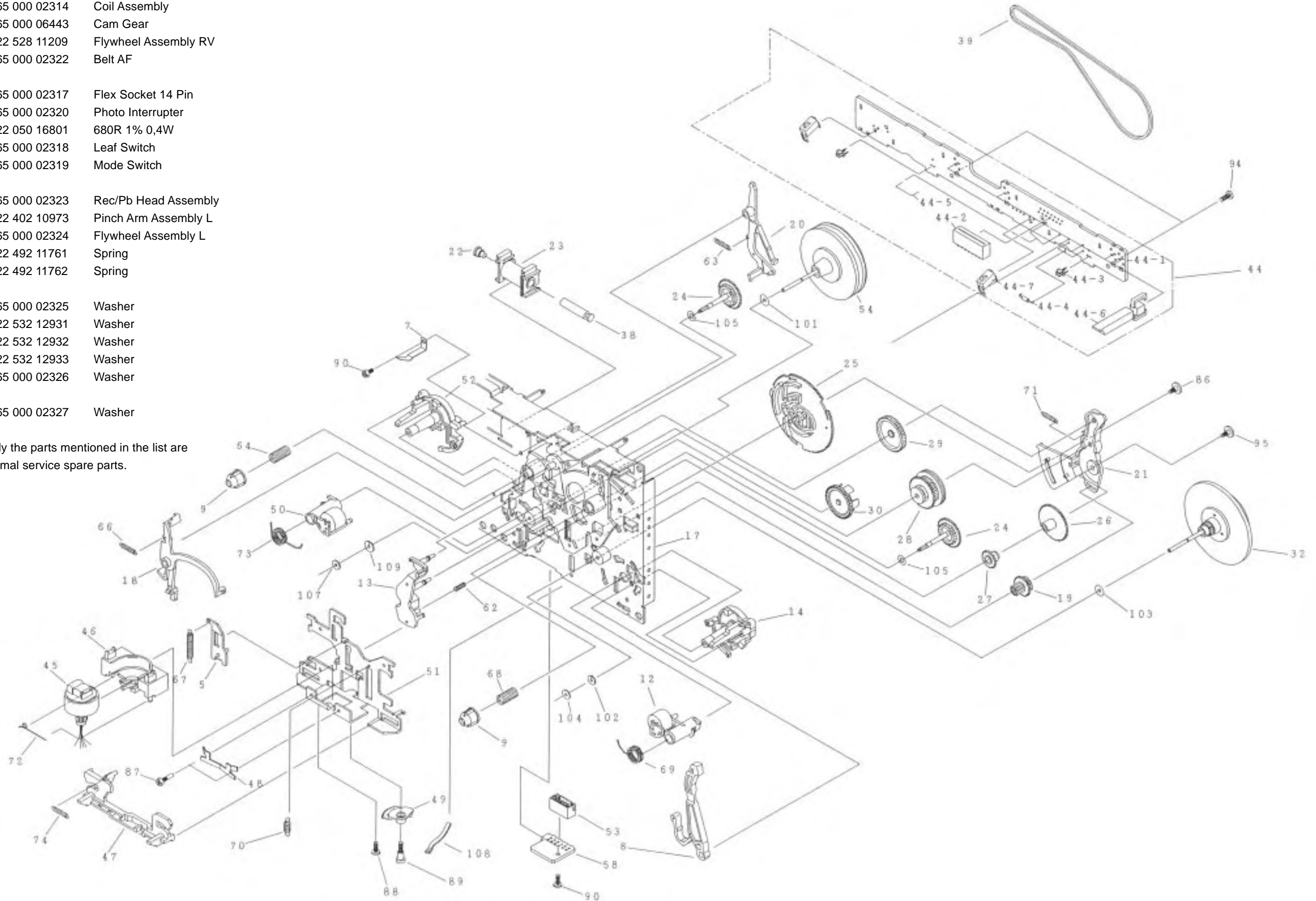


TAPE MECHANISM B - RECORD/PLAYBACK (Autoreverse version)

MECHANICAL PARTS - REC/PB MECHANISM

12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
39	9965 000 02322	Belt AF
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
45	9965 000 02323	Rec/Pb Head Assembly
50	4822 402 10973	Pinch Arm Assembly L
54	9965 000 02324	Flywheel Assembly L
69	4822 492 11761	Spring
73	4822 492 11762	Spring
101	9965 000 02325	Washer
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer
107	9965 000 02326	Washer
109	9965 000 02327	Washer

Note: Only the parts mentioned in the list are normal service spare parts.



ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

MISCELLANEOUS

1701	482226710953	Flex Socket 7pin Vert.
1706	482226710953	Flex Socket 7pin Vert.
1770	482226751255	Flex Socket 14pin Vert.

CAPACITORS

2621	532212231647	1nF 10% 63V
2622	532212234099	470pF 10% 63V
2623	532212234099	470pF 10% 63V
2624	482212614585	100nF 10% 50V only for Ferro
2625	482212614585	100nF 10% 50V
2701	532212233538	150pF 2% 63V Autoreverse
2701	482212233216	270pF 5% 63V Non-autoreverse
2702	532212233538	150pF 2% 63V Autoreverse
2702	482212233216	270pF 5% 63V Non-autoreverse
2703	532212232531	100pF 5% 50V Autoreverse
2703	482212233575	220pF 5% 63V Non-autoreverse
2704	532212232531	100pF 5% 50V Autoreverse
2704	482212233575	220pF 5% 63V Non-autoreverse
2705	482212233575	220pF 5% 63V
2706	482212233575	220pF 5% 63V
2707	532212234099	470pF 10% 63V
2708	532212234099	470pF 10% 63V
2709	532212231863	330pF 5% 63V
2710	532212231863	330pF 5% 63V
2711	532212232531	100pF 5% 50V
2712	532212232531	100pF 5% 50V
2713	482212440248	10μF 20% 63V
2714	482212440248	10μF 20% 63V
2715	482212480195	470μF 20% 10V
2716	482212480195	470μF 20% 10V
2717	482212233177	10nF 20% 50V Autoreverse
2717	482212613188	15nF 5% 63V Non-autoreverse
2718	482212233177	10nF 20% 50V Autoreverse
2718	482212613188	15nF 5% 63V Non-autoreverse
2719	482212612105	33nF 5% 50V
2720	482212612105	33nF 5% 50V
2721	532212231866	6,8nF 10% 63V not for Ferro
2722	532212231866	6,8nF 10% 63V not for Ferro
2723	482212613188	15nF 5% 63V
2724	482212613188	15nF 5% 63V
2725	532212610223	4,7nF 10% 63V
2726	532212610223	4,7nF 10% 63V
2727	532212234099	470pF 10% 63V Autoreverse
2727	532212231647	1nF 10% 63V Non-autoreverse
2728	532212234099	470pF 10% 63V Autoreverse
2728	532212231647	1nF 10% 63V Non-autoreverse
2729	532212232654	22nF 10% 63V
2730	532212232654	22nF 10% 63V
2733	532212234099	470pF 10% 63V
2734	532212234099	470pF 10% 63V
2735	482212614585	100nF 10% 50V
2737	482212614585	100nF 10% 50V

2738	482212614585	100nF 10% 50V
2741	482212611585	22nF +80/-20% 25V
2742	532212232654	22nF 10% 63V
2743	532212232654	22nF 10% 63V
2744	482212614585	100nF 10% 50V
2760	482212614585	100nF 10% 50V
2761	482212480144	220μF 20% 25V
2762	482212440769	4,7μF 20% 100V
2763	482212440433	47μF 20% 25V
2765	482212440433	47μF 20% 25V
2769	532212234099	470pF 10% 63V
2770	532212234099	470pF 10% 63V
2780	482212481151	22μF 20% 50V
2781	482212233177	10nF 20% 50V
2782	532212610223	4,7nF 10% 63V
2784	482212151305	15nF 10% 50V
2785	482212421913	1μF 20% 63V
2786	532212232531	100pF 5% 50V
2787	482212612105	33nF 5% 50V

RESISTORS

3601	482211711449	2k2 1% 0,1W
3602	482205120273	27k 5% 0,1W
3603	482211711449	2k2 1% 0,1W
3604	482211711148	56k 1% 0,1W
3605	482211711449	2k2 1% 0,1W
3606	482205120124	120k 5% 0,1W
3607	482211652256	2k2 5% 0,5W
3608	482205120273	27k 5% 0,1W
3609	482211652256	2k2 5% 0,5W
3610	482205120124	120k 5% 0,1W
3611	482211652256	2k2 5% 0,5W
3612	482211711148	56k 1% 0,1W
3613	482205120273	27k 5% 0,1W
3614	482205120273	27k 5% 0,1W
3616	482211710833	10k 1% 0,1W Autoreverse
3616	482205110102	1k 2% 0,25W Non-autoreverse
3618	482211711507	6k8 1% 0,1W Autoreverse
3620	482210011141	Trim. 10k 30% Autoreverse
3622	482210011141	Trim. 10k 30% Non-autoreverse
3623	482211710837	100k 1% 0,1W
3624	482211710837	100k 1% 0,1W
3625	482205110102	1k 2% 0,25W
3626	482205110102	1k 2% 0,25W
3628	482211710837	100k 1% 0,1W
3630	482205120471	470R 5% 0,1W
3672	482205120472	4k7 5% 0,1W Autoreverse
3674	482211652283	4k7 5% 0,5W
3676	482211710834	47k 1% 0,1W Autoreverse
3678	482211710834	47k 1% 0,1W
3679	482211710834	47k 1% 0,1W
3680	482211710834	47k 1% 0,1W

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

3685	482211652234	100k 5% 0,5W
3686	482211710837	100k 1% 0,1W
3687	482211711503	220R 1% 0,1W not for Ferro
3688	482211710361	680R 1% 0,1W Autoreverse
3701	482211711503	220R 1% 0,1W
3702	482211711503	220R 1% 0,1W
3703	482211711503	220R 1% 0,1W
3704	482211711503	220R 1% 0,1W
3705	482211711503	220R 1% 0,1W
3706	482211711503	220R 1% 0,1W
3707	482205120101	100R 5% 0,1W
3708	482205120101	100R 5% 0,1W
3709	482205120109	10R 5% 0,1W
3710	482205120109	10R 5% 0,1W
3711	482205120154	150k 5% 0,1W
3712	482205120154	150k 5% 0,1W
3713	482205120109	10R 5% 0,1W
3714	482205120109	10R 5% 0,1W
3715	482205120182	1k8 5% 0,1W
3716	482205120182	1k8 5% 0,1W
3717	482211711449	2k2 1% 0,1W
3718	482211711449	2k2 1% 0,1W
3719	482211711383	12k 1% 0,1W
3720	482211711383	12k 1% 0,1W
3721	482205120392	3k9 5% 0,1W
3722	482205120392	3k9 5% 0,1W
3723	482211683933	15k 1% 0,1W Autoreverse
3723	482211710965	18k 1% 0,1W Non-autoreverse
3724	482211683933	15k 1% 0,1W Autoreverse
3724	482211710965	18k 1% 0,1W Non-autoreverse
3725	482205120109	10R 5% 0,1W not for Ferro
3726	482205120109	10R 5% 0,1W not for Ferro
3727	482205120562	5k6 5% 0,1W Autoreverse
3727	482211711507	6k8 1% 0,1W Non-autoreverse
3728	482205120562	5k6 5% 0,1W Autoreverse
3728	482211711507	6k8 1% 0,1W Non-autoreverse
3729	482205120332	3k3 5% 0,1W Autoreverse
3729	482205120472	4k7 5% 0,1W Non-autoreverse
3730	482205120332	3k3 5% 0,1W Autoreverse
3730	482205120472	4k7 5% 0,1W Non-autoreverse
3731	482205120822	8k2 5% 0,1W
3732	482205120822	8k2 5% 0,1W
3733	482205120122	1k2 5% 0,1W
3734	482205120122	1k2 5% 0,1W
3735	482205120223	22k 5% 0,1W
3736	482205120223	22k 5% 0,1W
3741	482211711449	2k2 1% 0,1W
3742	482211711449	2k2 1% 0,1W
3743	482211711139	1k5 1% 0,1W Autoreverse
3743	482211711449	2k2 1% 0,1W Non-autoreverse
3744	482211711139	1k5 1% 0,1W Autoreverse
3744	482211711449	2k2 1% 0,1W Non-autoreverse
3745	482205120332	3k3 5% 0,1W Autoreverse
3745	482205120562	5k6 5% 0,1W Non-autoreverse
3746	482205120332	3k3 5% 0,1W Autoreverse
3746	482205120562	5k6 5% 0,1W Non-autoreverse
3748	482211711449	2k2 1% 0,1W
3749	482211710834	47k 1% 0,1W
3751	482211710833	10k 1% 0,1W
3752	482211710837	100k 1% 0,1W
3753	482211710837	100k 1% 0,1W
3754	482205120105	1M 5% 0,1W Autoreverse
3754	482205120479	47R 5% 0,1W Non-autoreverse
3755	482205120105	1M 5% 0,1W Autoreverse
3755	482205120479	47R 5% 0,1W Non-autoreverse
3756	482211713579	220k 1% 0,1W
3757	482211713579	220k 1% 0,1W
3758	482211710833	10k 1% 0,1W
3759	482211710833	10k 1% 0,1W
3760	482205120121	120R 5% 0,1W
3761	482205021003	10k 1% 0,6W
3762	482211711454	820R 1% 0,1W
3763	482205120154	150k 5% 0,1W
3764	482211683872	220R 5% 0,5W
3765	482205120393	39k 5% 0,1W
3766	482205120475	4M7 5% 0,1W
3767	482205120475	4M7 5% 0,1W
3768	482211710833	10k 1% 0,1W
3769	482211711383	12k 1% 0,1W Autoreverse
3769	482205120822	8k2 5% 0,1W Non-autoreverse
3770	482211711139	1k5 1% 0,1W
3771	482205120122	1k2 5% 0,1W
3772	482211711507	6k8 1% 0,1W Autoreverse
3772	482205120562	5k6 5% 0,1W Non-autoreverse
3773	482210012227	Trimmer 4k7 30% 0,1W
3774	482211683933	15k 1% 0,1W Autoreverse
3774	482205120822	8k2 5% 0,1W Non-autoreverse
3775	482205120478	4R7 5% 0,1W
3776	482211711507	6k8 1% 0,1W
3777	482211710353	150R 1% 0,1W
3778	482205210688	△ 6R8 5% 0,33W
3779	482205120334	330k 5% 0,1W
3780	482205120105	1M 5% 0,1W
3781	482205120475	4M7 5% 0,1W
3784	482205110102	1k 2% 0,25W
3786	482205120223	22k 5% 0,1W
3787	482205120105	1M 5% 0,1W
3788	482205120105	1M 5% 0,1W
3789	482211710834	47k 1% 0,1W
4701	482205120008	OR Jumper 0805
4702	482205120008	OR Jumper 0805
4703	482205120008	OR Jumper 0805
4704	482205120008	OR Jumper 0805
4705	482205120008	OR Jumper 0805

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD**RESISTORS**

4706	482205120008	OR Jumper 0805	6612	482213031878	1N4003G	
4707	482205120008	OR Jumper 0805	6614	482213030621	1N4148	Autoreverse
4708	482205120008	OR Jumper 0805	6770	482213030621	1N4148	
4709	482205120008	OR Jumper 0805	6771	482213030621	1N4148	
4710	482205120008	OR Jumper 0805	6772	482213030621	1N4148	
4711	482205120008	OR Jumper 0805	6773	482213030621	1N4148	
4712	482205120008	OR Jumper 0805	6774	482213030621	1N4148	
4713	482205120008	OR Jumper 0805	6775	482213030621	1N4148	
4714	482205120008	OR Jumper 0805	6776	482213030621	1N4148	
4715	482205120008	OR Jumper 0805	6777	482213034382	BZX79-F8V2	
4716	482205120008	OR Jumper 0805	6778	482213030621	1N4148	
4717	482205120008	OR Jumper 0805	6782	482213030621	1N4148	
4718	482205120008	OR Jumper 0805	6785	482213030621	1N4148	
4719	482205120008	OR Jumper 0805	6786	482213030621	1N4148	
4720	482205120008	OR Jumper 0805				
4721	482205120008	OR Jumper 0805				
4722	482205120008	OR Jumper 0805				
4723	482205120008	OR Jumper 0805				
4724	482205120008	OR Jumper 0805				
4725	482205120008	OR Jumper 0805				
4726	482205120008	OR Jumper 0805				
4727	482205120008	OR Jumper 0805				
4728	482205120008	OR Jumper 0805				
4729	482205120008	OR Jumper 0805				
4730	482205120008	OR Jumper 0805				
4731	482205120008	OR Jumper 0805				
4732	482205120008	OR Jumper 0805				
4733	482205120008	OR Jumper 0805				
4734	482205120008	OR Jumper 0805				
4735	482205120008	OR Jumper 0805				
4736	482205120008	OR Jumper 0805				
4737	482205120008	OR Jumper 0805				
4738	482205120008	OR Jumper 0805				
4739	482205120008	OR Jumper 0805				
4740	482205120008	OR Jumper 0805				
4741	482205120008	OR Jumper 0805				
4742	482205120008	OR Jumper 0805				
4744	482205120008	OR Jumper 0805				
4745	482205120008	OR Jumper 0805				
4746	482205120008	OR Jumper 0805				
4748	482205120008	OR Jumper 0805				
4785	482205120008	OR Jumper 0805 only for Ferro				
4790	482205120008	OR Jumper 0805				
4794	482205120008	OR Jumper 0805				
4795	482205120008	OR Jumper 0805				

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT			
7612	482213011201	PMBT2907			
7613	482213011201	PMBT2907			
7614	482213011201	PMBT2907			
7616	482213060373	BC857B			Autoreverse
7618	482213060511	BC847B			
7619	482213060511	BC847B			
7620	482213060511	BC847B			
7622	482213060511	BC847B			Autoreverse
7623	482213060511	BC847B			
7624	482213060511	BC847B			
7710	482220932919	HEF4952BT			
7720	932214000668	AN7323S			
7730	482220932919	HEF4952BT			
7740	482220932919	HEF4952BT			
7780	482213060511	BC847B			
7781	482213042804	BC817-25			
7782	482213044568	BC557B			
7783	482213060511	BC847B			
7784	482213060373	BC857B			
7786	482213063494	J111			
7787	482213060511	BC847B			
7791	482213060511	BC847B			
7792	482213060511	BC847B			

Note: Only the parts mentioned in this list are normal service spare parts.

COILS & FILTERS

5701	482215711477	Coil 2,2μH 5%
5703	482215620946	Osc Coil 100kHz

DIODES

6611	482213031878	1N4003G
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3CDC-LC-VCD
 (3 Disc Carousel Changer) Layout stage .1

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 Component Layout Main Board10-8
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Service hints

CAUTION

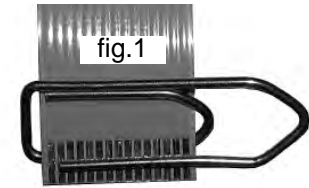
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- SWITCH OFF POWER SUPPLY
- ESD PROTECTION

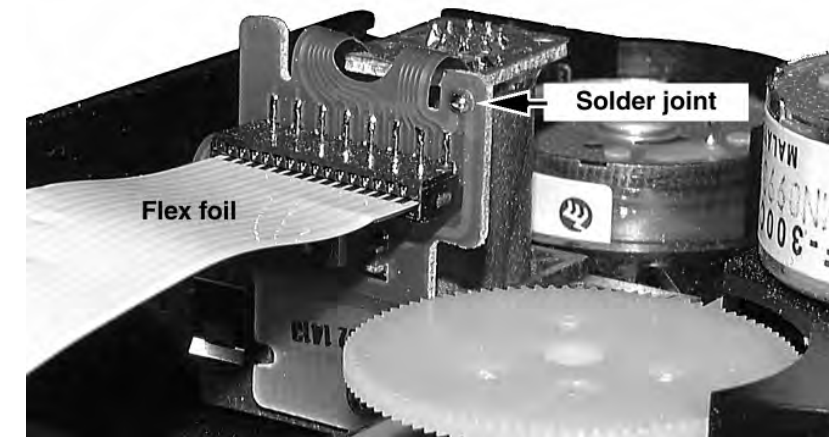
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:

1. Disconnect flexfoil cable from the old CD drive
2. Put a paperclip onto the flexfoil cable to short-circuit the contacts (fig.1)
3. Remove the old CD drive
4. Remove paperclip from the flexfoil cable and connect it to the new CD drive
5. Position the new CD drive on its studs
6. Remove solder joint from the Laser unit (see below)

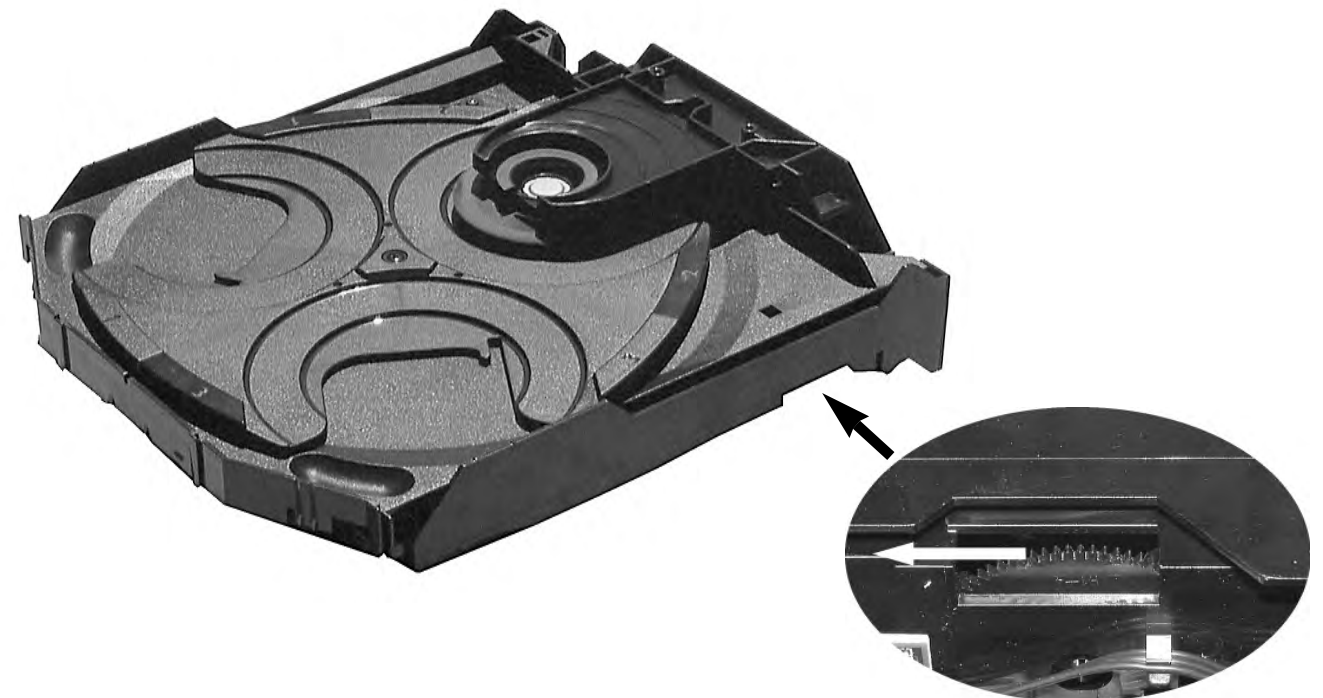


Attention: The laser diode of this CD drive is protected against ESD by a solder joint which short-circuits the laserdiode to ground.
 For proper functionality of the CD drive this solder joint must be removed **after** connecting the drive to the set.



Emergency open

- In case of a Supply fault, the tray can be opened manually.
1. Remove the top cover of the set to get access to the Changer Module.
 2. Turn gearwheel clockwise (as shown in picture below).

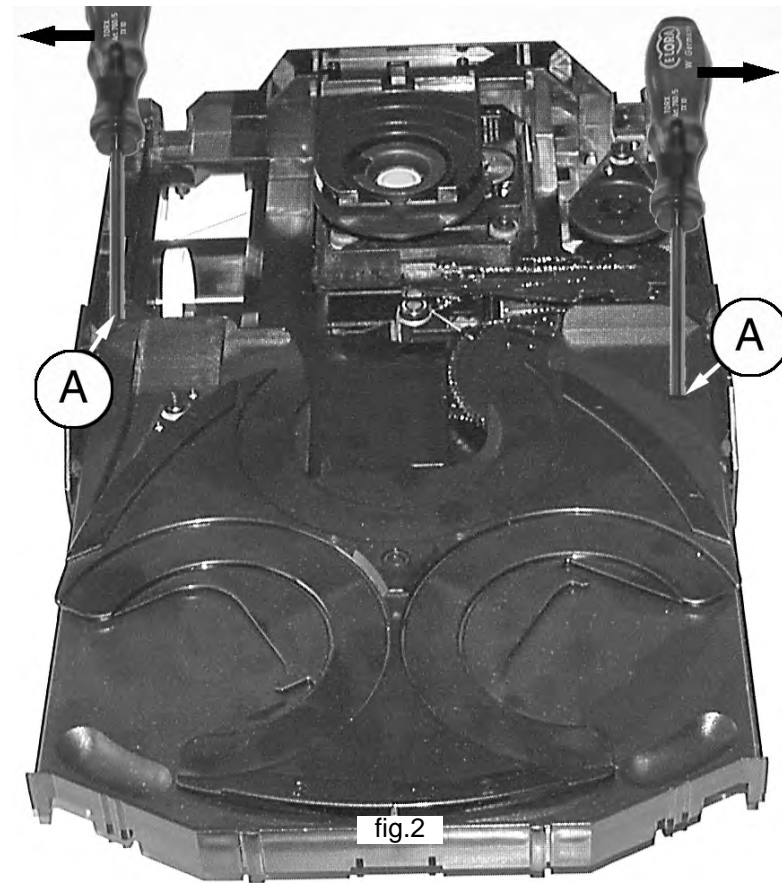
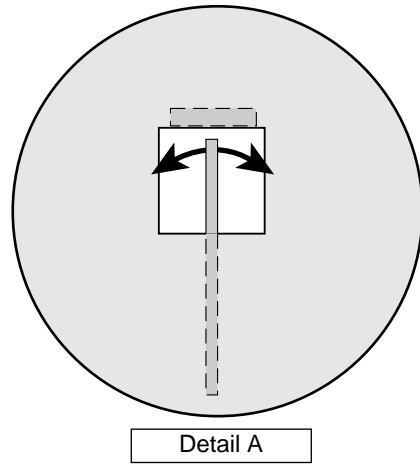


Service hints

10-3

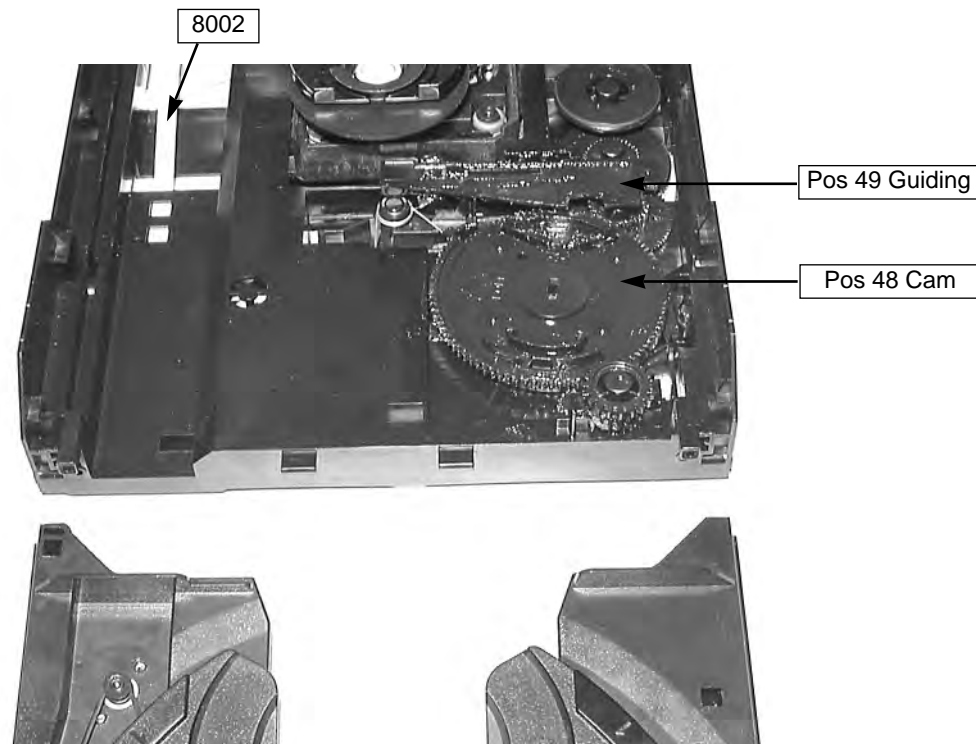
Dismantling of Tray

1. Open the tray.
2. Release 2x catch as shown in fig. 2 and Detail A
3. Pull tray out.



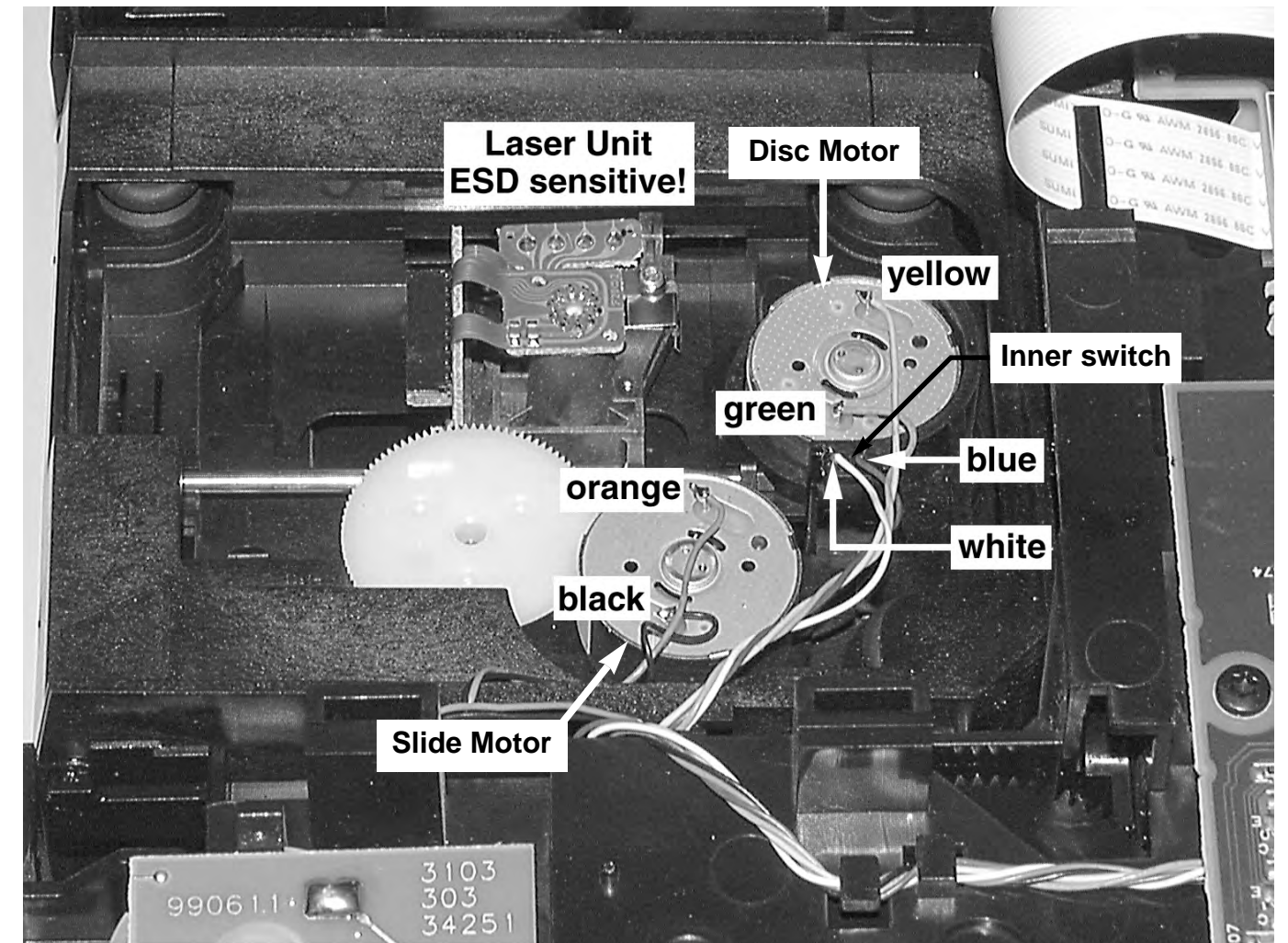
Assembling of Tray

1. Turn Cam (pos. 48) clockwise to end position.
2. If necessary - move Guiding (pos. 49) to the right end position.
3. Insert the Tray.

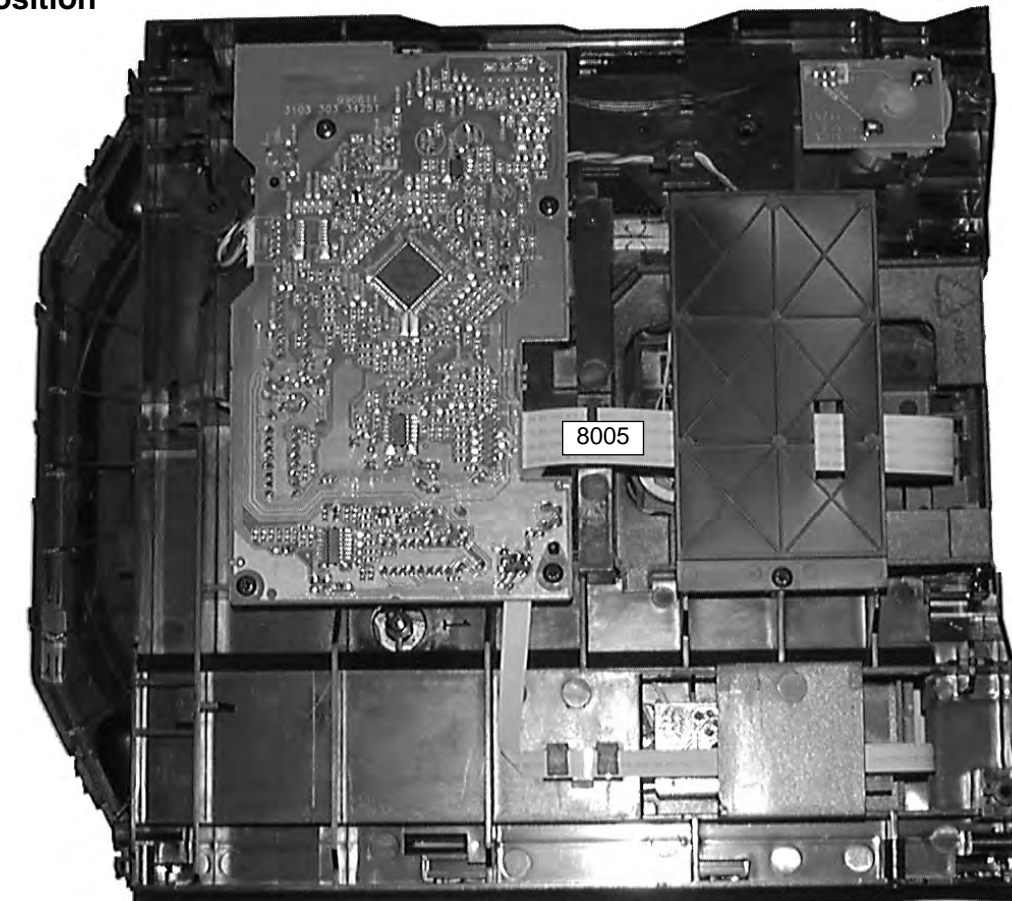


Wiring

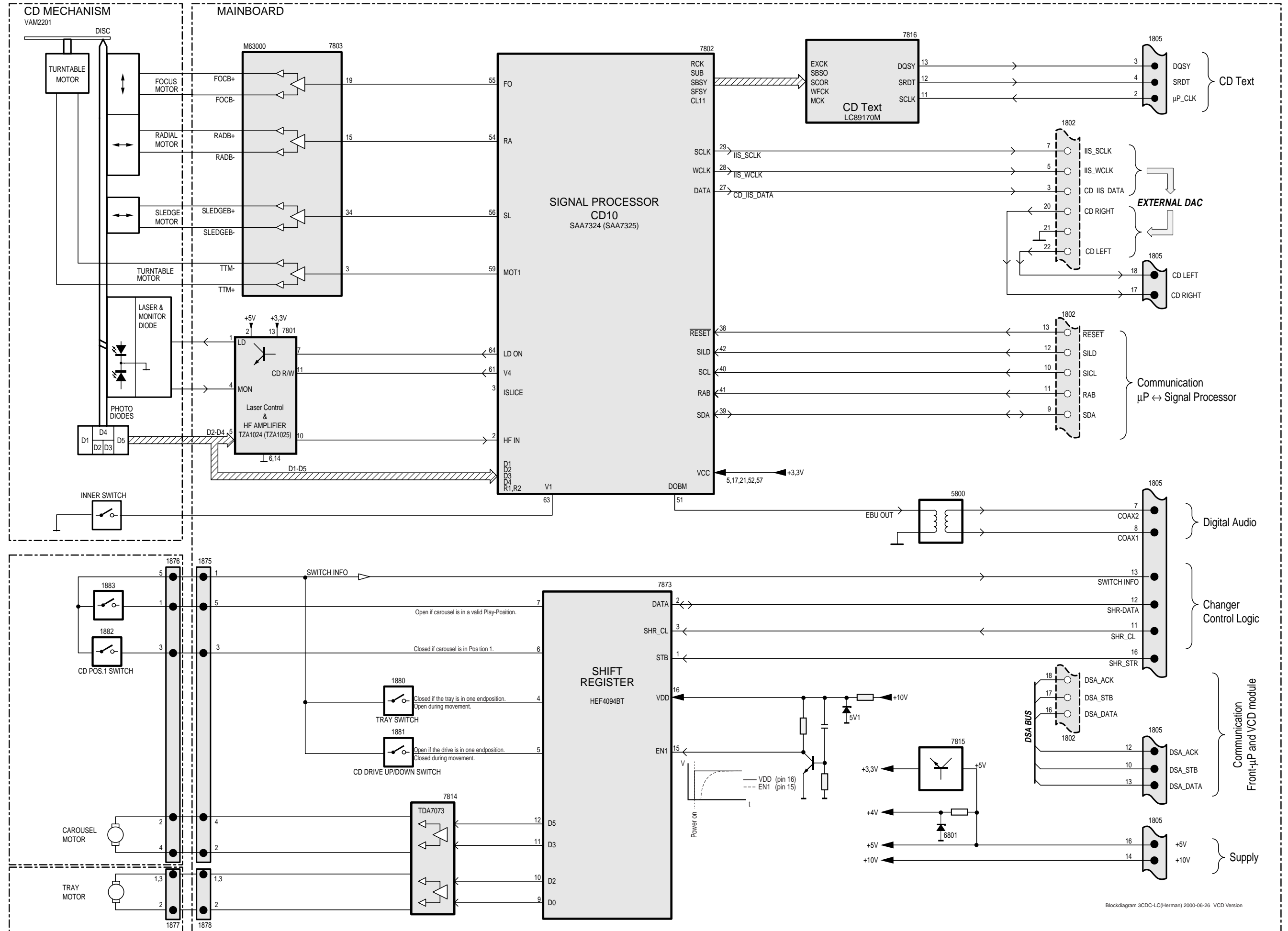
10-4



Service Position



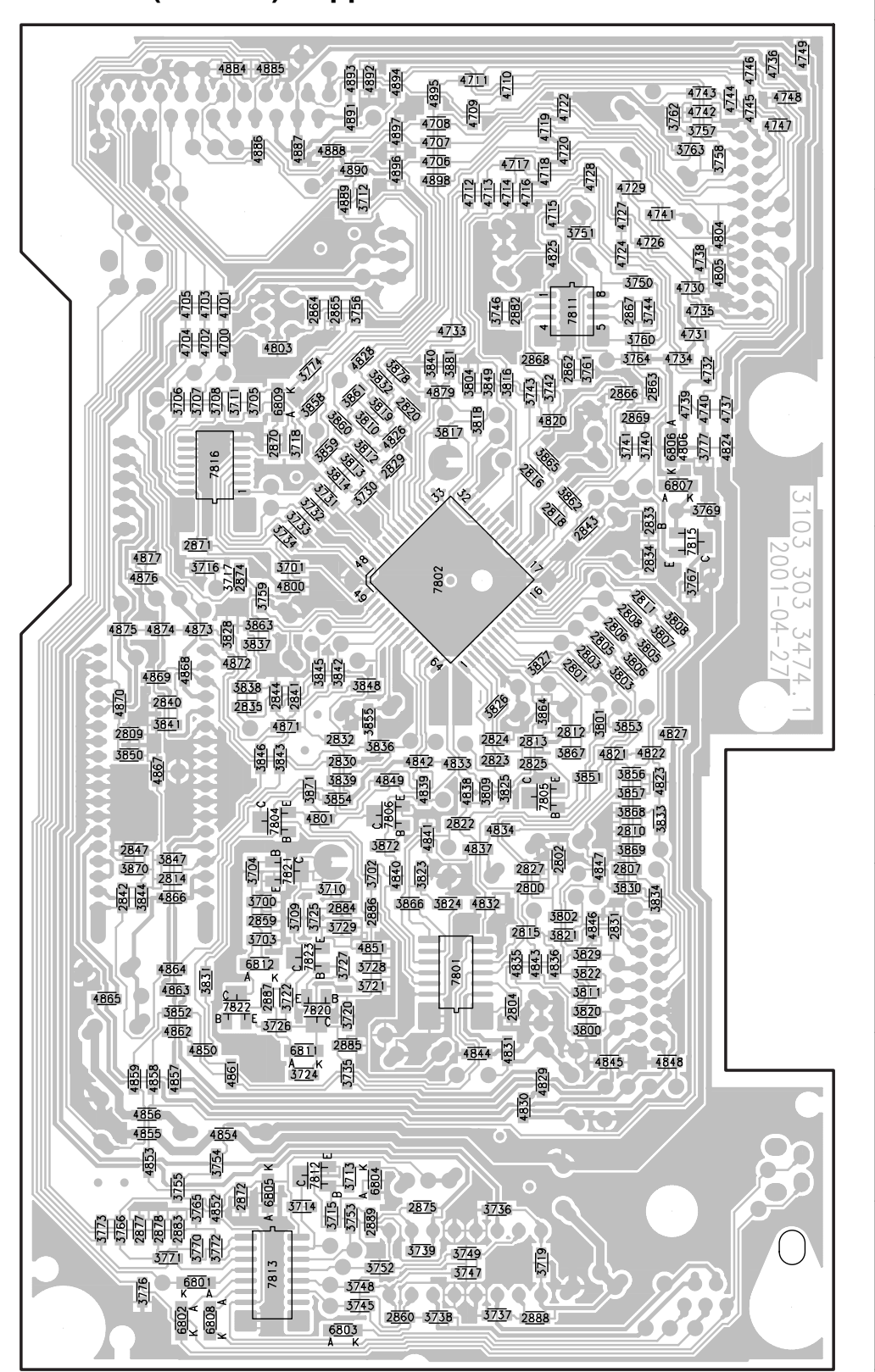
BLOCK DIAGRAM 3CDC-LC VCD Version



Mapping

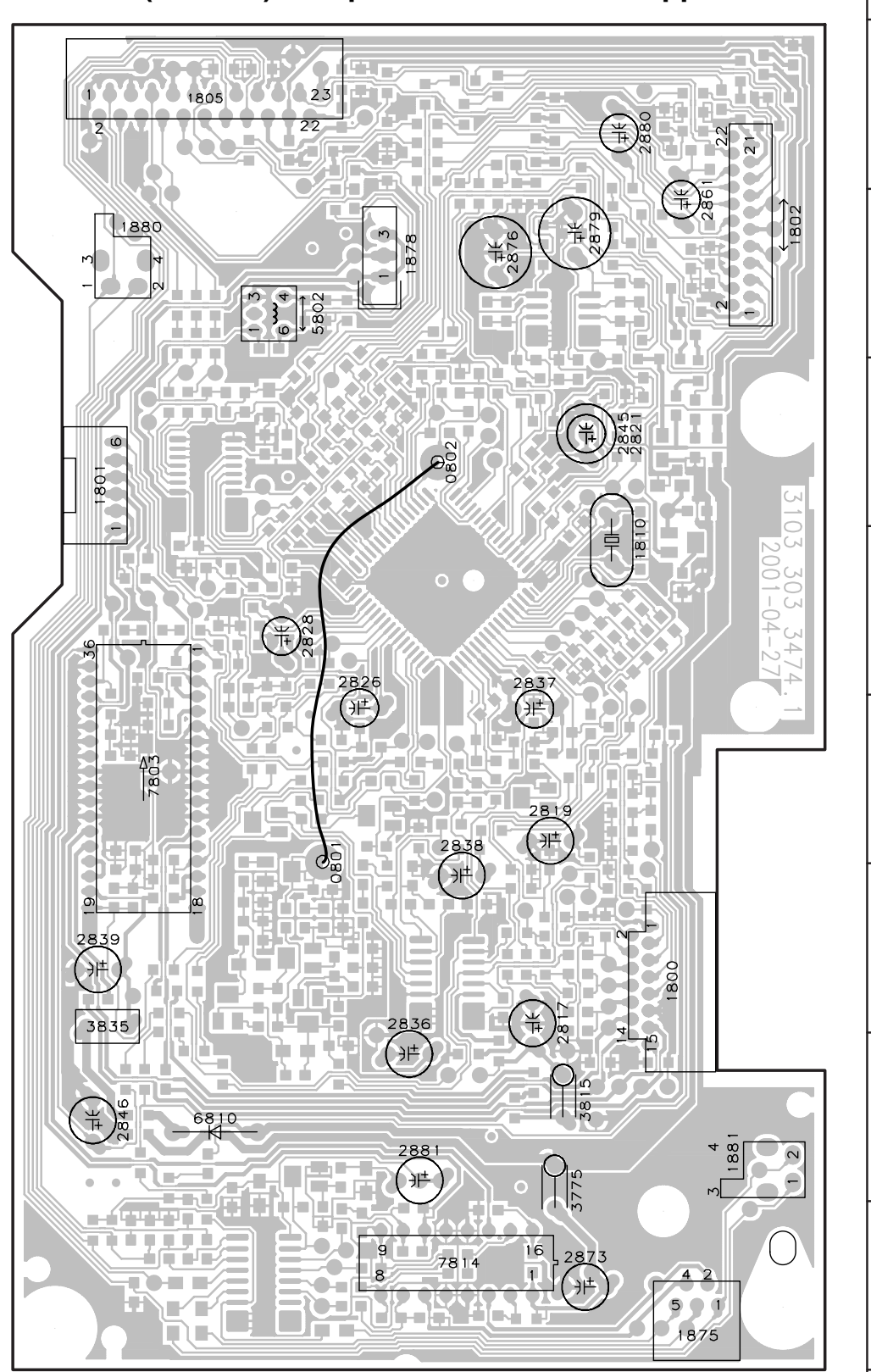
Copperside Componentside

3CDC-LC (Herman) Copperside view



	Copperside	Componentside
2800	F4	3729 F2
2801	D4	3730 C3
2802	F4	3731 C2
2803	D4	3732 C2
2804	F3	3733 C2
2805	D4	3734 D2
2806	D4	3735 G2
2807	F4	3736 H3
2808	D4	3737 H3
2809	E1	3738 H3
2810	F4	3739 H3
2811	D4	3740 C4
2812	F4	3741 C4
2813	F4	3742 C4
2814	F1	3743 C4
2815	F3	3744 B4
2816	C4	3745 H3
2818	C4	3746 B3
2820	C3	3747 H3
2822	E3	3748 H3
2823	E3	3749 H3
2824	E3	3750 B4
2825	F4	3751 B4
2827	F4	3752 H3
2829	C3	3753 H2
2830	E2	3754 G2
2831	F4	3755 G1
2832	E2	3756 B2
2833	C4	3757 A5
2834	D4	3758 A5
2835	E2	3759 D2
2840	E1	3760 B4
2841	E2	3761 C4
2842	F1	3762 A4
2843	D4	3763 A4
2844	E2	3764 C4
2847	E1	3765 H2
2859	F2	3766 H1
2860	H3	3767 D4
2862	C4	3769 C5
2863	C4	3770 H2
2864	B2	3771 H1
2865	B2	3772 H2
2866	C4	3773 H1
2867	B4	3774 C2
2868	C4	3776 H1
2869	C4	3777 C5
2870	C2	3800 F4
2871	D2	3801 F4
2872	G2	3802 F4
2874	D2	3803 D4
2875	H3	3804 C3
2877	H1	3805 D4
2878	H1	3806 D4
2882	B3	3807 D4
2883	H1	3808 D4
2884	F2	3809 E3
2885	G2	3810 C3
2886	F3	3811 F4
2887	F2	3812 C3
2888	H4	3813 C2
2889	H3	3814 C2
3700	F2	3816 C3
3701	D2	3817 C3
3702	F3	3818 C3
3703	F2	3819 C3
3704	F2	3820 F4
3705	C2	3821 F4
3706	C1	3822 F4
3707	C2	3823 F3
3708	C2	3824 F3
3709	F2	3825 E3
3710	F2	3826 E3
3711	C2	3827 D4
3712	B3	3828 D2
3713	G2	3829 F4
3714	H2	3830 F4
3715	H2	3831 F2
3716	D2	3832 C3
3717	D2	3833 E4
3718	C2	3834 F4
3719	H4	3836 E3
3720	F2	3837 D2
3721	F3	3838 D2
3722	F2	3839 E2
3724	G2	3840 C3
3725	F2	3841 E1
3726	F2	3842 D2
3727	F2	3843 E2
3728	F3	3844 F1
4827	E4	3845 D2
4828	C3	3846 E2
4829	G4	3847 E1
4830	G3	3848 D3
4831	G3	3849 C3
4832	F3	3850 E1
4833	E3	3851 E4
4834	E3	3852 F1
4835	F3	3853 E4
4836	F4	3854 E2
4837	E3	3855 E3
4838	E3	3856 E4
4839	E3	3857 E4
4840	F3	3858 C2
4841	E3	3859 C2
4842	E3	3860 C2
4843	F4	3861 C2
4844	G3	3862 C4
4845	G4	3863 D2
4846	F4	3864 E4
4847	F4	3865 C4
4848	G4	3866 F3
4849	E3	3867 E4
4850	G2	3868 E4
4851	F3	3869 E4
4852	H2	3870 F1
4853	G1	3871 E2
4854	G2	3872 C3
4855	G1	3873 E3
4856	G1	3874 E4
4857	G1	4700 B2
4858	G1	4701 B2
4859	G1	4702 B2
4861	G2	4703 B2
4862	F1	4704 B1
4863	F1	4705 B1
4864	F1	4706 A3
4865	F1	4707 A3
4866	F1	4708 A3
4867	E1	4709 A3
4868	D1	4710 A3
4869	D1	4711 A3
4870	E1	4712 B3
4871	E2	4713 B3
4872	D2	4714 B3
4873	D1	4715 B4
4874	D1	4716 B3
4875	D1	4717 A3
4876	D1	4718 A4
4877	D1	4719 A4
4878	C3	4720 A4
4879	C3	4721 A4
4882	A2	4722 A4
4883	A2	4723 A4
4884	A2	4724 B4
4885	A2	4725 B4
4886	A2	4726 B4
4887	A2	4727 B4
4888	A2	4728 A4
4889	B2	4729 A4
4890	A2	4730 B4
4891	A2	4731 B4
4892	A3	4732 C5
4893	A2	4733 B3
4894	A3	4734 C4
4895	A3	4735 B5
4896	A3	4736 A5
4897	A3	4737 C5
4898	A3	4738 B5
4899	A3	4739 C4
4900	H1	4740 C5
4901	H2	4741 B4
4902	H1	4742 A5
4903	G2	4743 A5
4904	C4	4744 A5
4905	C4	4745 A5
4907	C4	4746 A5
4908	H2	4747 A5
4909	G2	4748 A5
4910	G2	4749 A5
4911	G2	4748 A5
4912	F2	4749 A5
4913	F3	4800 D2
4914	D3	4801 E2
4915	E2	4802 B2
4916	E4	4804 B5
4917	E3	4805 B5
4918	B4	4806 C4
4919	B2	4811 G2
4920	H2	4812 F2
4921	F3	4813 H2
4922	D4	4814 G2
4923	C5	4822 E4
4924	C2	4823 E4
4925	C5	4824 C5
4926	F2	4825 B4
4927	F2	4826 C4
4928	F3	4826 C4

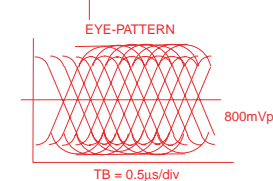
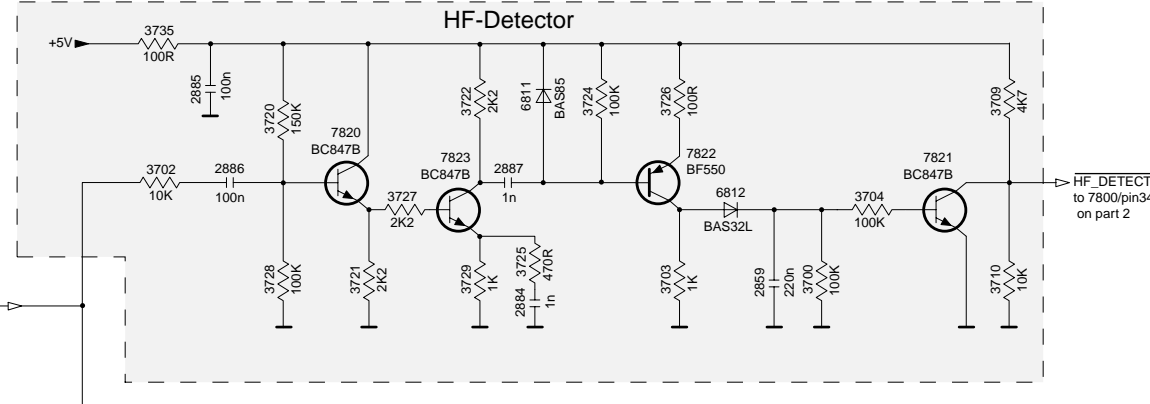
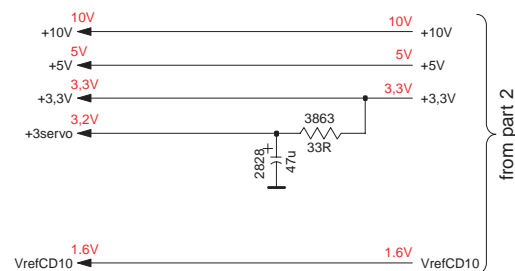
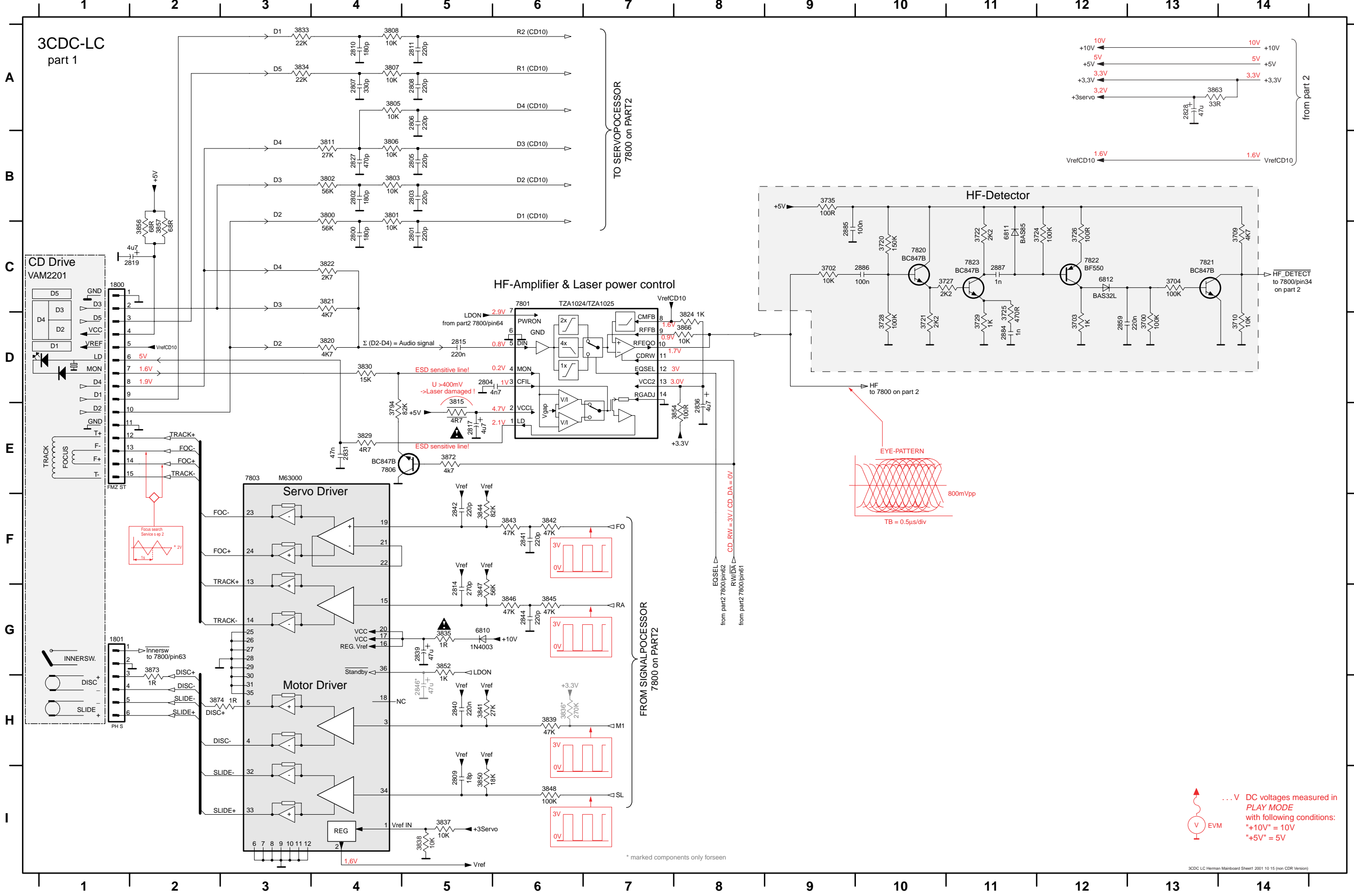
3CDC-LC (Herman) Components seen from Copperside



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

1800	C1	2803	B5	2808	A5	2815	D5	2830	H6	2839	G5	2848	H5	2886	C10	3704	C13	3722	C11	3728	D10	3802	B4	3808	A4	3822	C4	3834	A3	3839	H6	3845	G6	3852	H5	3866	D8	3874	H2	7801	D6	7822	C12		
1801	G1	2804	D6	2809	I5	2817	E5	2831	E4	2840	H5	2859	D13	2887	C11	3709	C14	3724	C12	3729	D11	3803	B4	3811	B4	3824	D8	3835	G5	3841	H5	3846	G6	3854	E8	3868	A4	3886	A10	3886	E3	7823	C13		
2800	C4	2805	B5	2810	A4	2819	C2	2832	I6	2841	F6	2860	A9	2870	D13	3710	D14	3725	D11	3735	B9	3805	A4	3815	E5	3829	E4	3836	H6	3842	F6	3847	G5	3856	C2	3869	A4	4801	E8	7806	E5				
2801	C5	2806	A5	2811	A5	2827	B4	2835	I5	2842	F5	2884	D11	3702	C9	3720	C10	3726	C12	3800	B4	3806	B4	3820	D4	3830	D4	3837	I5	3843	F6	3848	I6	3857	C2	3872	E5	6811	C11	7820	C10				
2802	B4	2807	A4	2814	G5	2828	A13	2836	E8	2844	G6	2885	C9	3703	D12	3721	D10	3727	C11	3801	B4	3807	A4	3821	C4	3833	A3	3838	I5	3844	F5	3850	I5	3863	A13	3873	G2	6812	C12	7821	C13				

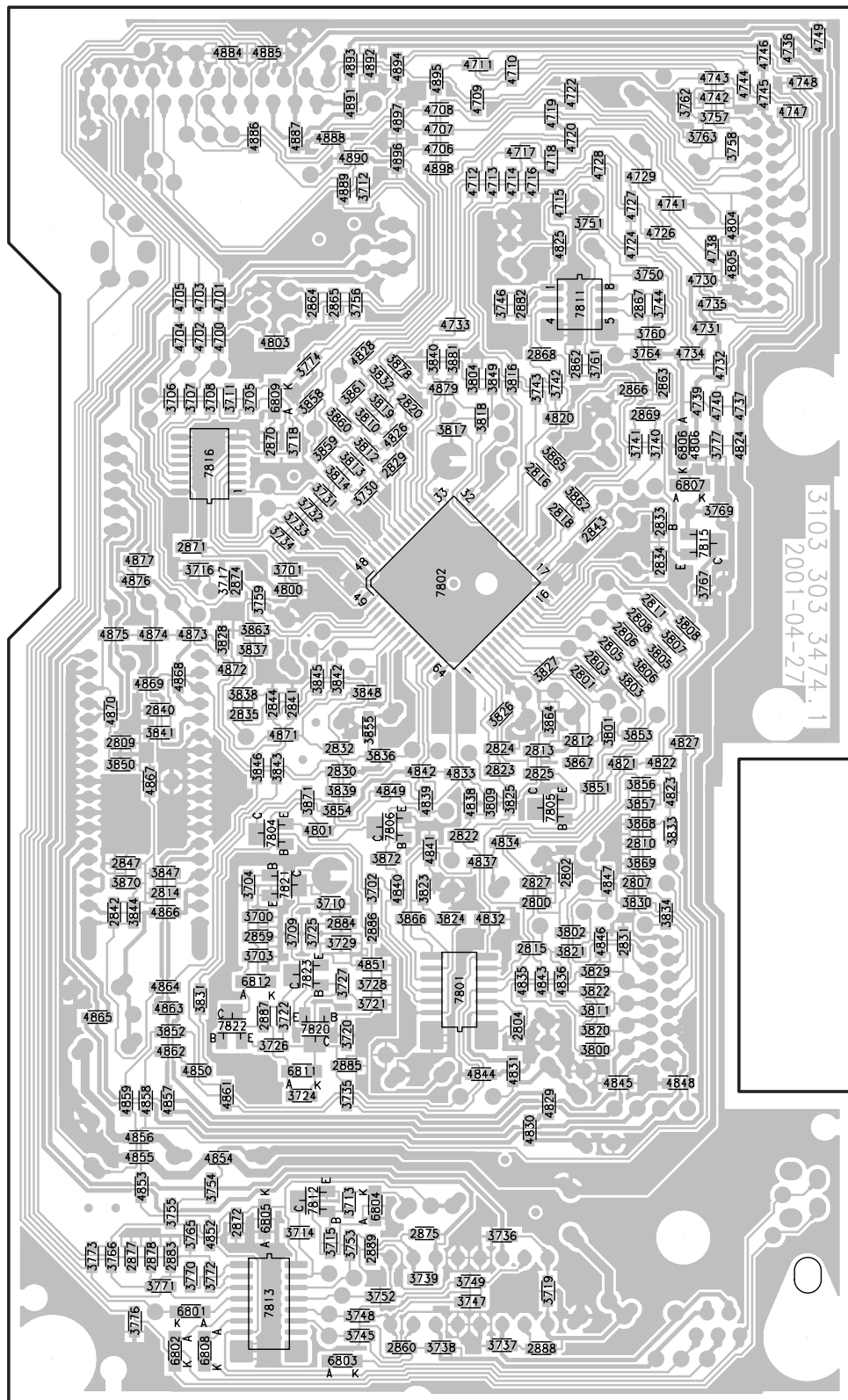


... V DC voltages measured in PLAY MODE with following conditions: "+10V" = 10V "+5V" = 5V

* marked components only foreseen

Mapping

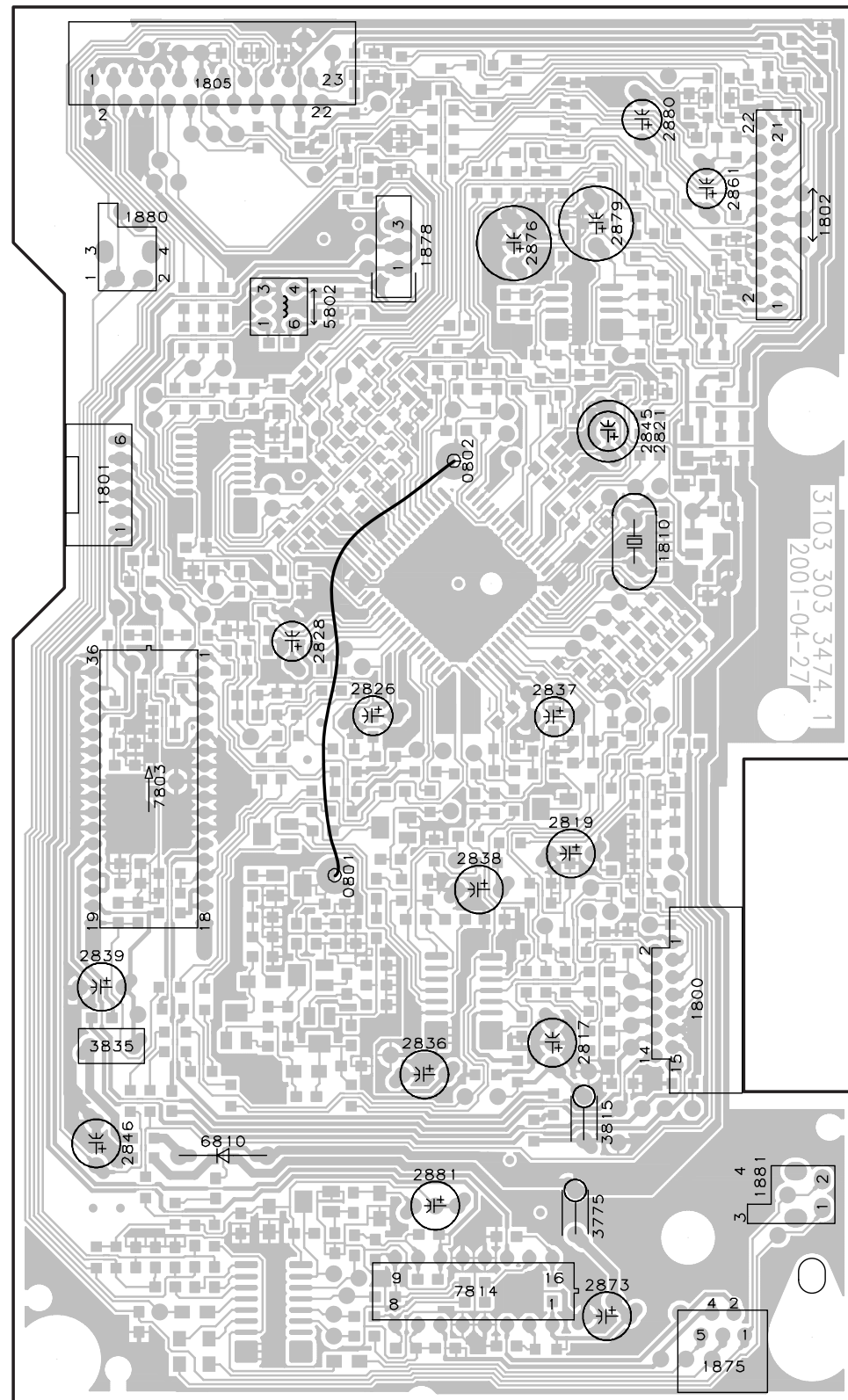
3CDC-LC (Herman) Copperside view



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

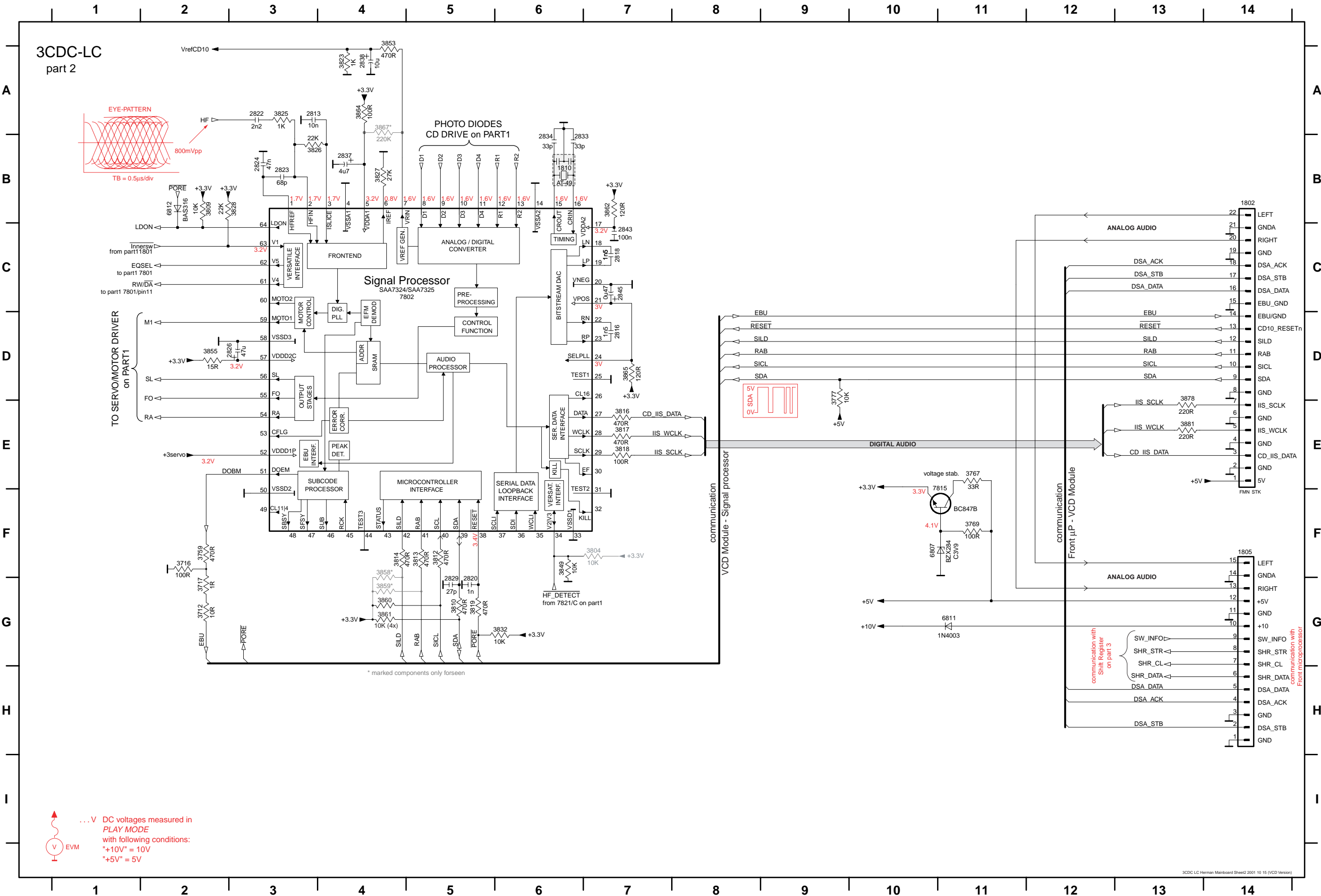
Copperside			Componentside		
2800 F4	3729 F2	3845 D2	4827 E4	7823 F2	0801 E2
2801 D4	3730 C3	3846 E2	4828 C3		0802 C3
2802 E4	3731 C2	3847 E1	4829 G4		1800 F4
2803 D4	3732 C2	3848 D3	4830 G3		1801 C1
2804 F3	3733 C2	3849 C3	4831 G3		1802 B5
2805 D4	3734 D2	3850 E1	4832 F3		1805 A2
2806 D4	3735 G2	3851 E4	4833 E3		1810 D4
2807 F4	3736 H3	3852 F1	4834 E3		1875 H5
2808 D4	3737 H3	3853 E4	4835 F3		1878 B3
2809 E1	3738 H3	3854 E2	4836 F4		1880 B1
2810 E4	3739 H3	3855 E3	4837 E3		1881 G5
2811 D4	3740 C4	3856 E4	4838 E3		2817 F4
2812 E4	3741 C4	3857 E4	4839 E3		2819 E4
2813 F4	3742 C4	3858 C2	4840 F3		2821 C4
2814 F1	3743 C4	3859 C2	4841 E3		2826 D3
2815 F3	3744 B4	3860 C2	4842 E3		2828 D2
2816 C4	3745 H3	3861 C2	4843 F4		2836 F3
2818 C4	3746 B3	3862 C4	4844 G3		2837 D4
2820 C3	3747 H3	3863 D2	4845 G4		2838 E3
2822 E3	3748 H3	3864 E4	4846 F4		2839 F1
2823 E3	3749 H3	3865 C4	4847 F4		2845 C4
2824 E3	3750 B4	3866 F3	4848 G4		2846 G1
2825 E4	3751 B4	3867 F4	4849 E3		2861 B5
2827 F4	3752 H3	3868 E4	4850 G2		2873 H4
2829 C3	3753 H2	3869 E4	4851 F3		2876 B3
2830 E2	3754 G2	3870 F1	4852 H2		2879 B4
2831 F4	3755 G1	3871 E2	4853 G1		2880 A4
2832 E2	3756 B2	3872 C3	4854 G2		2881 G3
2833 C4	3757 A5	3878 C3	4855 G1		3775 G4
2834 D4	3758 A5	3881 C3	4856 G1		3815 G4
2835 E2	3759 D2	4700 B2	4857 G1		3835 F1
2840 E1	3760 B4	4701 B2	4858 G1		5802 B2
2841 E2	3761 C4	4702 B2	4859 G1		6810 E2
2842 F1	3762 A4	4703 B2	4861 G2		7803 E1
2843 D4	3763 A4	4704 B1	4862 F1		7814 H3
2844 E2	3764 C4	4705 B1	4863 F1		
2847 E1	3765 H2	4706 A3	4864 F1		
2859 F2	3766 H1	4707 A3	4865 F1		
2860 H3	3767 D4	4708 A3	4866 F1		
2862 C4	3769 C5	4709 A3	4867 E1		
2863 C4	3770 H2	4710 A3	4868 D1		
2864 B2	3771 H1	4711 A3	4869 D1		
2865 B2	3772 H2	4712 B3	4870 E1		
2866 C4	3773 H1	4713 B3	4871 E2		
2867 B4	3774 C2	4714 B3	4872 D2		
2868 C4	3776 H1	4715 B4	4873 D2		
2869 C4	3777 C5	4716 B3	4874 D1		
2870 C2	3800 F4	4717 A3	4875 D1		
2871 D2	3801 E4	4718 A4	4876 D1		
2872 G2	3802 F4	4719 A4	4877 D1		
2874 D2	3803 D4	4720 A4	4879 C3		
2875 H3	3804 C3	4722 A4	4884 A2		
2877 H1	3805 D4	4724 B4	4885 A2		
2878 H1	3806 D4	4726 B4	4886 A2		
2882 B3	3807 D4	4727 B4	4887 A2		
2883 H1	3808 D4	4728 A4	4888 A2		
2884 F2	3809 E3	4729 A4	4889 B2		
2885 G2	3810 C3	4730 B4	4890 A2		
2886 F3	3811 F4	4731 B4	4891 A2		
2887 F2	3812 C3	4732 C5	4892 A3		
2888 H4	3813 C2	4733 B3	4893 A2		
2889 H3	3814 C2	4734 C4	4894 A3		
3700 F2	3816 C3	4735 B5	4895 A3		
3701 D2	3817 C3	4736 A5	4896 A3		
3702 F3	3818 C3	4737 C5	4897 A3		
3703 F2	3819 C3	4738 B5	4898 A3		
3704 F2	3820 F4	4739 C4	6801 H2		
3705 C2	3821 F4	4740 C5	6802 H1		
3706 C1	3822 F4	4741 B4	6803 H2		
3707 C2	3823 F3	4742 A5	6804 G3		
3708 C2	3824 F3	4743 A5	6805 G2		
3709 F2	3825 E3	4744 A5	6806 C4		
3710 F2	3826 E3	4745 A5	6807 C4		
3711 C2	3827 D4	4746 A5	6808 H2		
3712 B3	3828 D2	4747 A5	6809 C2		
3713 G2	3829 F4	4748 A5	6811 G2		
3714 H2	3830 F4	4749 A5	6812 F2		
3715 H2	3831 F2	4800 D2	7801 F3		
3716 D2	3832 C3	4801 E2	7802 D3		
3717 D2	3833 E4	4803 B2	7804 E2		
3718 C2	3834 F4	4804 B5	7805 E4		
3719 H4	3836 E3	4805 B5	7806 E3		
3720 F2	3837 D2	4806 C4	7811 B4		
3721 F3	3838 D2	4820 C4	7812 G2		
3722 F2	3839 E2	4821 E4	7813 H2		
3724 G2	3840 C3	4822 E4	7815 D4		
3725 F2	3841 E1	4823 E4	7816 C2		
3726 F2	3842 D2	4824 C5	7820 F2		
3727 F2	3843 E2	4825 B4	7821 F2		
3728 F3	3844 F1	4826 C3	7822 F2		

3CDC-LC (Herman) Components seen from Copperside

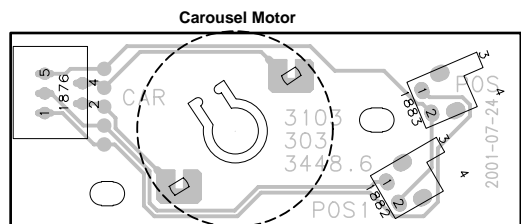
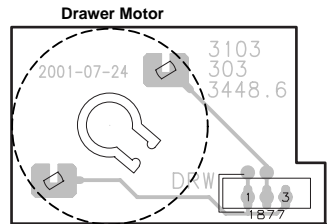
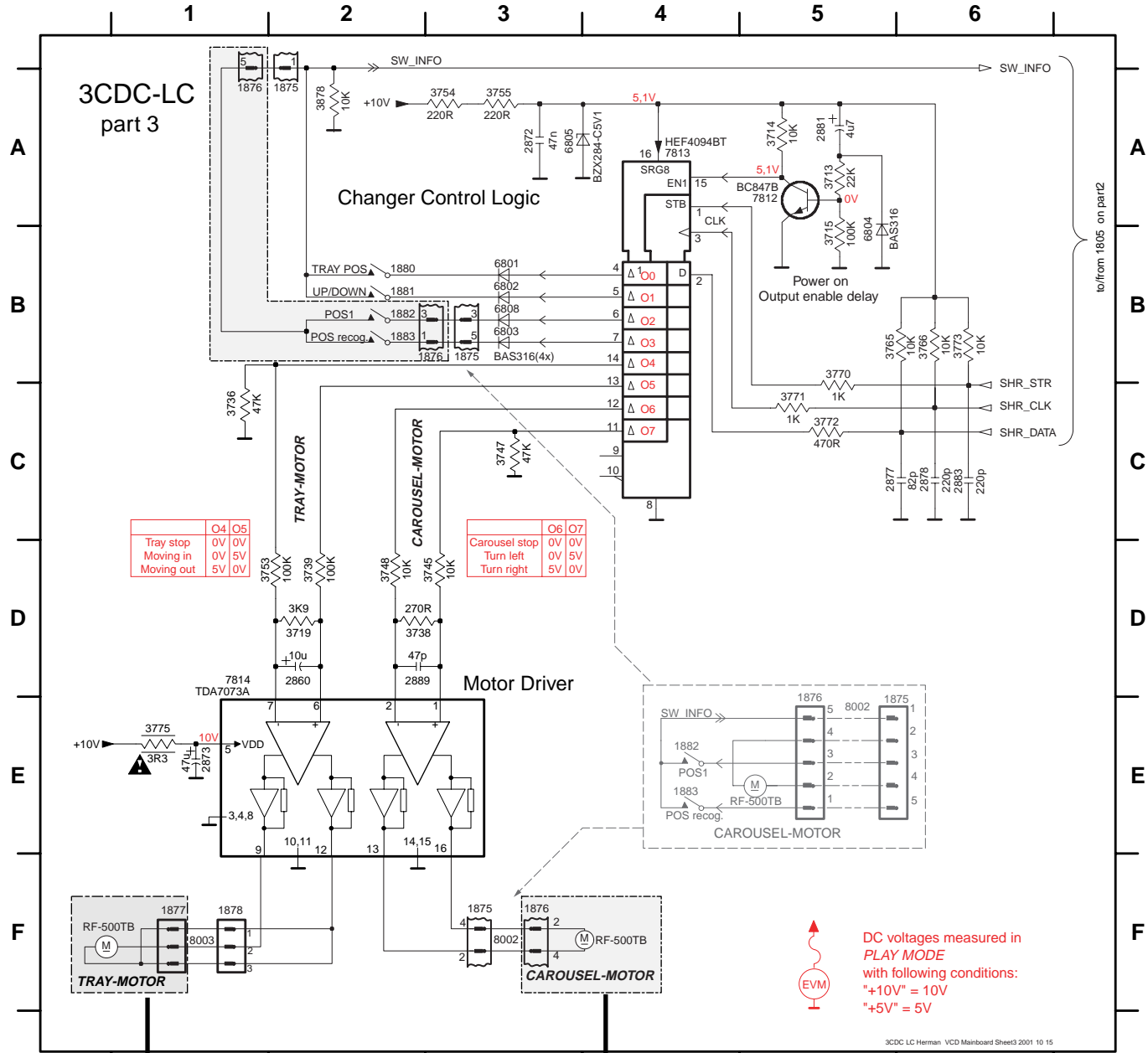


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

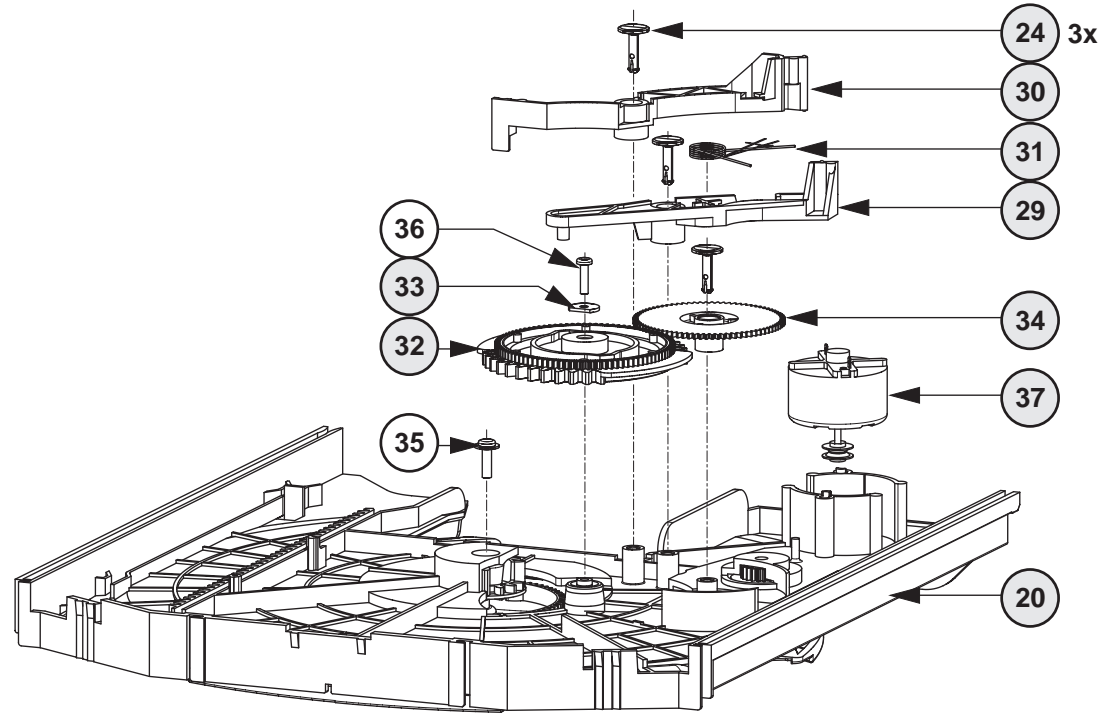
1802	B14	2816	D7	2823	B3	2833	B6	2843	C7	2870	I5	3705	H7	3712	G2	3718	H6	3733	I5	3767	E11	3804	F7	3812	F5	3817	E7	3825	A3	3832	G6	3858	G4	3862	B7	3878	E13	6807	F11	7802	C5
1805	F14	2818	C7	2824	B3	2834	B6	2845	C7	2871	H6	3706	I7	3712	I13	3730	I4	3734	I5	3769	F11	3808	I7	3813	F5	3818	E7	3826	B3	3849	F6	3859	G4	3864	A4	3881	E13	6809	H7	7815	F11
1810	B6	2820	G5	2826	D3	2837	B4	2854	I12	2874	H11	3707	I7	3716	F2	3731	I5	3759	F2	3774	H8	3809	B2	3814	F4	3819	G5	3827	B4	3853	A4	3860	G4	3865	D7	4808	C14	6811	G11	7816	I5
2813	A3	2822	A3	2829	G5	2838	A4	2865	I13	3701	I5	3711	I7	3717	G2	3732	I5	3759	H10	3777	D9	3810	G5	3816	E7	3823	A4	3828	B3	3855	D2	3861	G4	3867	A4	5800	I12	6812	B2		



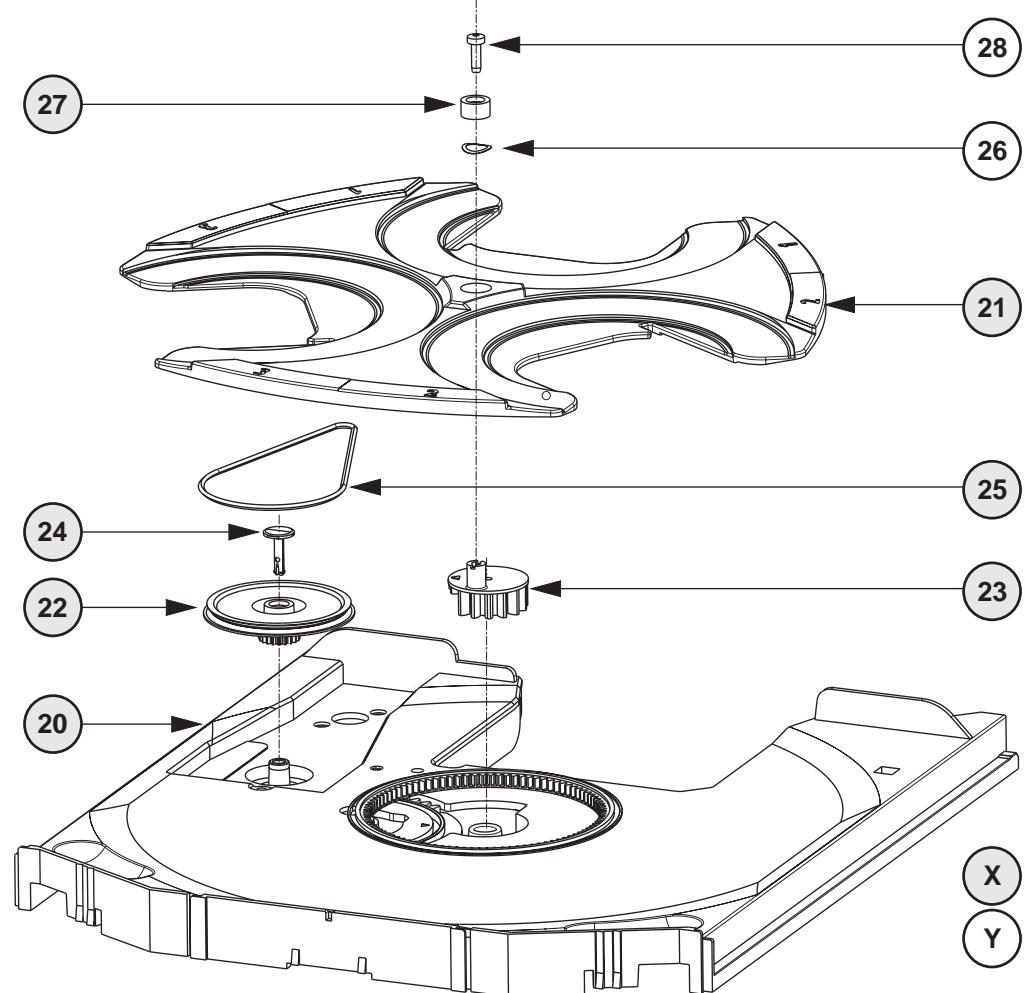
1875	F3	1876	B3	1880	B2	1883	E4	2878	C6	3714	A5	3739	D2	3754	A3	3771	C5	6801	B3	6808	B3	8003	F1
1875	E5	1876	F3	1881	B2	2860	D2	2881	A5	3715	B5	3745	D3	3755	A3	3772	C5	6802	B3	7812	A5		
1875	B3	1876	E5	1882	B2	2872	A3	2883	C6	3719	D2	3747	C3	3765	B6	3773	B6	6803	B3	7813	A4		
1875	A2	1877	F1	1882	E4	2873	E1	2889	D2	3736	C1	3748	D2	3766	B6	3775	E1	6804	B5	7814	E1		
1876	A1	1878	F1	1883	B2	2877	C6	3713	A5	3738	D2	3753	D2	3770	C5	3878	A2	6805	A4	8002	E5		



Drawer bottom view



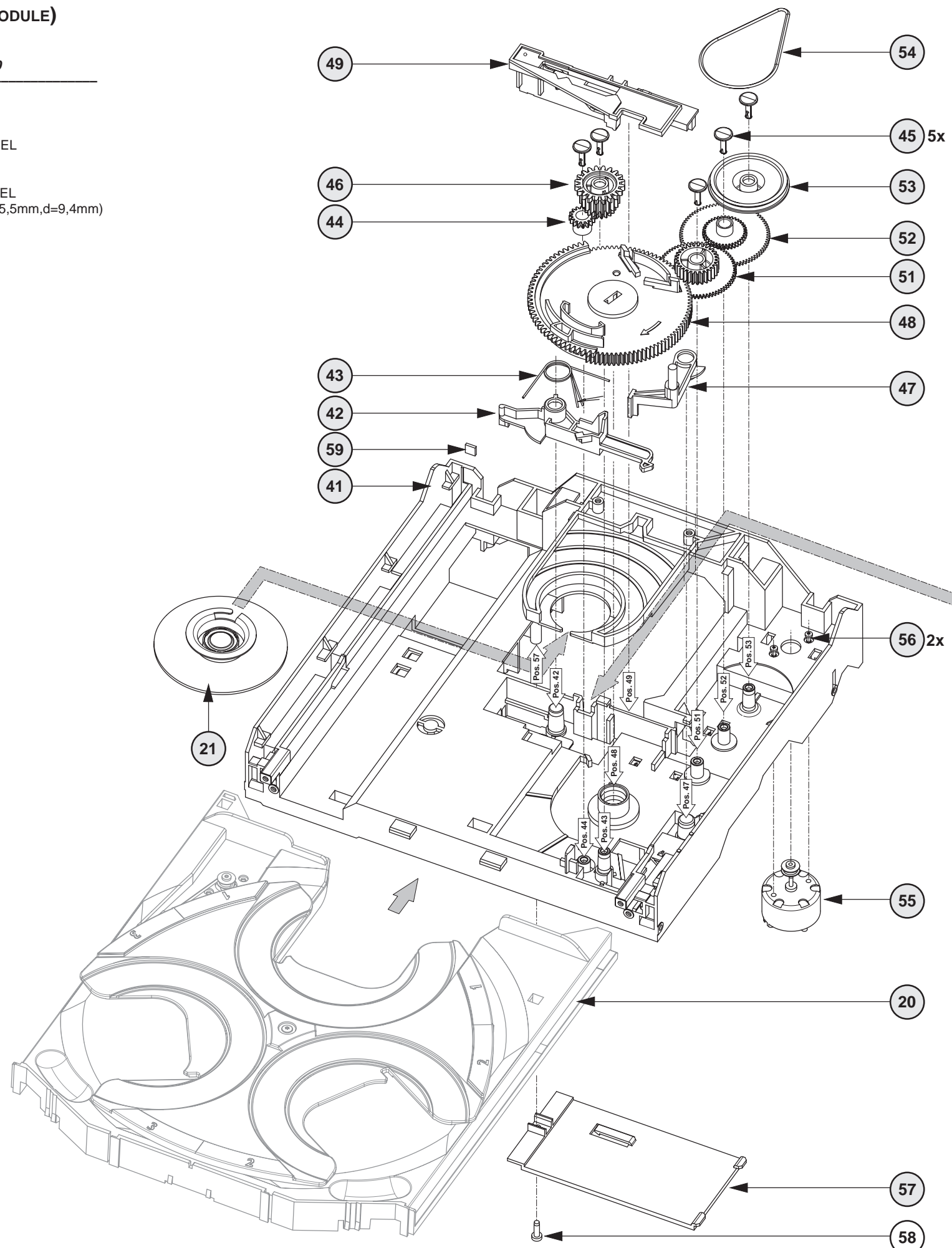
Drawer top view



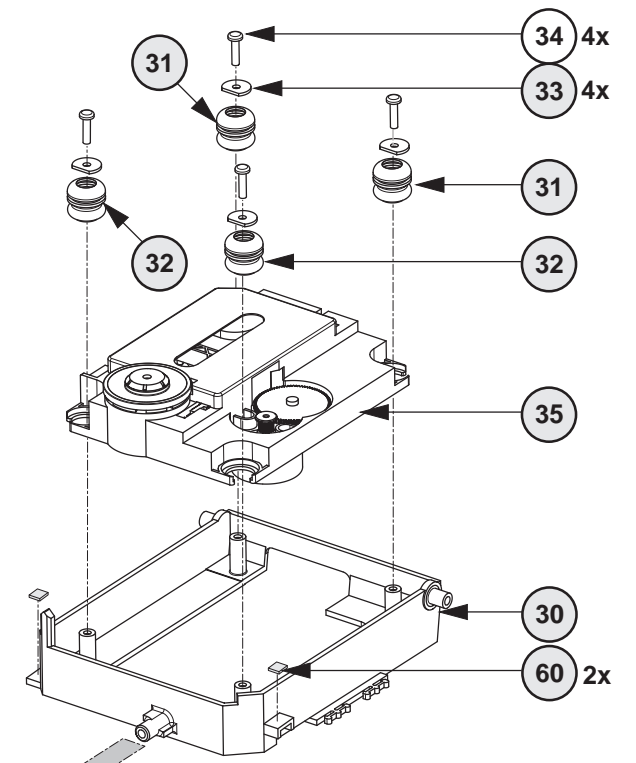
EXPLODED VIEW (3CDC-LC MODULE)

MECHANICAL PARTS *Drawer* → Chapter 10-10

20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
22	3103 304 06860	PULLEY DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
33	3103 304 06970	WASHER
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR



X spare part
Y non spare part



MECHANICAL PARTS *Loader* → this page

20	3103 304 66500	DRAWER
21	3140 117 58650	CLAMPER ASSY-VAM
30	3103 304 66560	SUPPORT
31	4822 529 10431	DAMPER - RUBBER (25DEG)
32	4822 529 10431	DAMPER - RUBBER (25DEG)
33	3103 304 06970	WASHER
35	9305 022 30107	CD Drive VAM2201/07
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 68890	COVER-VAM
59	4822 466 12146	RUBBER
60	3103 301 72260	RUBBER

ELECTRICAL PARTSLIST 3CDC-LC-VCD MODULE**MISCELLANEOUS**

35	9305 022 30107	CD Drive VAM2201/07
37	4822 361 10753	CAROUSEL MOTOR
55	4822 361 10753	TRAY MOTOR
1800	4822 265 10925	FLEX FOIL CONNECTOR 15P
1802	2422 025 16837	FLEX FOIL CONNECTOR 22P

1805	4822 265 10979	FLEX FOIL CONNECTOR 15P
1875	4822 267 10958	FLEX FOIL CONNECTOR 5P
1876	2422 025 08332	FLEX FOIL CONNECTOR 5P
1880	4822 276 13503	SWITCH, Tray position
1881	4822 276 13503	SWITCH, Drive up/down

1882	4822 276 13503	SWITCH, Position 1 recognized
1883	4822 276 13503	SWITCH, valid position recognized
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 91980	FLEX FOIL CABLE 15P, 170mm

CAPACITORS

2800	4822 126 10326	180pF	5%	
2801	4822 126 13883	220pF	5%	50V
2802	4822 126 14508	180pF	5%	50V
2803	4822 126 13883	220pF	5%	50V
2804	4822 126 13193	4,7nF	10%	63V

2805	4822 126 13883	220pF	5%	50V
2806	4822 126 13883	220pF	5%	50V
2807	5322 122 31863	330pF	5%	50V
2808	4822 126 13883	220pF	5%	50V
2809	4822 126 13879	220nF	20%	16V

2810	4822 126 10326	180pF	5%	
2811	4822 126 13883	220pF	5%	50V
2812	3198 017 34730	47nF	10%	16V
2813	4822 122 33177	10nF	20%	50V
2814	4822 122 33216	270pF	5%	50V

2815	4822 126 14076	220nF	20%	25V
2816	4822 126 13344	1,5nF	5%	63V
2817	4822 124 40769	4,7μF	20%	100V
2818	4822 126 13344	1,5nF	5%	63V
2819	4822 124 40769	4,7μF	20%	100V

2820	5322 126 11578	1nF	10%	63V
2822	2238 786 11554	2,2nF	5%	16V
2823	4822 126 13956	68pF	5%	63V
2824	4822 126 13751	47nF	10%	50V
2826	4822 124 12362	47μF	20%	4V

2827	5322 122 34099	470pF	10%	63V
2828	4822 124 12362	47μF	20%	4V
2829	4822 126 11669	27pF	10%	50V
2831	4822 126 13751	47nF	10%	50V
2833	4822 126 11671	33pF	5%	50V

2834	4822 126 11671	33pF	5%	50V
2835	3198 017 34730	47nF	10%	16V
2836	4822 124 40769	4,7μF	20%	100V
2837	4822 124 22726	4,7μF	20%	35V
2839	4822 124 40433	47μF	20%	25V

2840	4822 126 13751	47nF	10%	50V
2841	4822 122 33575	220pF	5%	50V
2842	4822 126 13883	220pF	5%	50V
2843	4822 126 14585	100nF	10%	50V
2844	5322 126 10794	220pF	10%	

2845	5322 124 41948	0,47μF	20%	50V
2846	5322 124 41948	0,47μF	20%	50V
2859	4822 126 14076	220nF	20%	25V
2860	4822 122 33777	47pF	5%	63V
2866	4822 126 13751	47nF	10%	50V

2872	3198 017 34730	47nF	10%	16V
2873	4822 124 80231	47μF	20%	16V
2875	4822 126 13879	220nF	20%	16V
2877	4822 126 14226	82pF		50V
2878	4822 126 13883	220pF	5%	50V

CAPACITORS

2881	4822 124 40769	4,7μF	20%	100V
2883	4822 126 13883	220pF	5%	50V
2884	5322 126 11578	1nF	10%	63V
2885	4822 126 14585	100nF	10%	50V
2886	4822 126 14585	100nF	10%	50V

2887	5322 126 11578	1nF	10%	63V
2888	4822 126 14585	100nF	10%	50V
2889	4822 122 33777	47pF	5%	63V

RESISTORS

3700	4822 117 10837	100kΩ	1%	0,1W
3702	4822 117 10833	10kΩ	1%	0,1W
3703	4822 051 10102	1kΩ	2%	0,25W
3704	4822 117 10837	100kΩ	1%	0,1W
3709	4822 051 20472	4,7kΩ	5%	0,1W

3710	4822 117 10833	10kΩ	1%	0,1W
3713	4822 051 30223	22kΩ	5%	0,06W
3714	4822 051 30103	10kΩ	5%	0,06W
3715	4822 117 13632	100kΩ	1%	0,06W
3719	4822 051 30123	12kΩ	5%	0,06W

3720	4822 051 20154	150kΩ	5%	0,1W
3721	4822 117 11449	2,2kΩ	1%	0,1W
3722	4822 117 11449	2,2kΩ	1%	0,1W
3724	4822 117 10837	100kΩ	1%	0,1W
3725	4822 051 20471	470Ω	5%	0,1W

3726	4822 117 11373	100Ω	1%	0,1W
3727	4822 117 11449	2,2kΩ	1%	0,1W
3728	4822 117 10837	100kΩ	1%	0,1W
3729	4822 051 20471	470Ω	5%	0,1W
3730	4822 051 20333	33kΩ	5%	0,1W

3735	4822 117 11373	100Ω	1%	0,1W
3736	4822 051 30103	10kΩ	5%	0,06W
3737	4822 117 13632	100kΩ	1%	0,06W
3738	4822 051 30223	22kΩ	5%	0,06W
3739	4822 051 30223	22kΩ	5%	0,06W

3745	4822 051 30563	56kΩ	5%	0,06W
3747	4822 051 30223	22kΩ	5%	0,06W
3748	4822 051 30563	56kΩ	5%	0,06W
3749	4822 051 30223	22kΩ	5%	0,06W
3752	4822 051 30393	39kΩ	5%	0,06W

3753	4822 051 30393	39kΩ	5%	0,06W
3754	4822 117 11503	220Ω	5%	0,1W
3755	4822 117 11503	220Ω	5%	0,1W
3765	4822 051 30103	10kΩ	5%	0,06W
3766	4822 117 10833	10kΩ	1%	0,1W

3767	4822 051 30339	33Ω	5%	0,06W
3769	4822 051 30101	100Ω	5%	0,06W
3770	4822 051 30102	1kΩ	5%	0,06W
3771	4822 051 30102	1kΩ	5%	0,06W
3772	4822 051 30471	470Ω	5%	0,06W

3773	4822 117 10833	10kΩ	1%	0,1W
3775	4822 052 10338	3,3Ω		NFR25
3776	4822 051 30103	10kΩ	5%	0,06W
3777	4822 051 30103	10kΩ	5%	0,06W
3800	4822 051 30563	56kΩ	5%	0,06W

3801	4822 051 30103	10kΩ	5%	0,06W
3802	4822 117 11148	56kΩ	1%	0,1W
3803	4822 117 10833	10kΩ	1%	0,1W
3805	4822 051 30103	10kΩ	5%	0,06W
3806	4822 051 30103	10kΩ	5%	0,06W

3807	4822 051 30103	10kΩ	5%	0,06W
3808	4822 051 30103	10kΩ	5%	0,06W
3809	4822 051 30103	10kΩ	5%	0,06W
3810	4822 051 30471	470Ω	5%	0,06W
3811	4822 051 20273	27kΩ	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LC-VCD MODULE**RESISTORS**

3812	4822 051 20471	470Ω	5%	0,1W
3813	4822 051 20471	470Ω	5%	0,1W
3814	4822 051 20471	470Ω	5%	0,1W
3815	4822 052 10478	4,7Ω	5%	NFR
3816	4822 051 20471	470Ω	5%	0,1W

3817	4822 051 30471	470Ω	5%	0,06W
3818	4822 117 11373	100Ω	1%	0,1W
3819	4822 051 20471	470Ω	1%	0,1W
3820	4822 051 30472	4,7kΩ	5%	0,06W
3821	4822 051 20472	4,7kΩ	5%	0,1W

3822	4822 051 30272	2,7kΩ	5%	0,06W
3823	4822 051 30102	1kΩ	5%	0,06W
3824	4822 051 30102	1kΩ	5%	0,06W
3825	4822 051 10102	1kΩ	2%	0,25W
3826	4822 051 20223	22kΩ	5%	0,1W

3827	4822 051 20273	27kΩ	5%	0,1W
3828	4822 051 30223	22kΩ	5%	0,06W
3829	4822 117 13608	4,7Ω	5%	0,06W
3830	4822 116 83933	15kΩ	1%	0,1W
3832	4822 117 10833	10kΩ	1%	0,1W

3833	4822 051 30223	22kΩ	5%	0,06W
3834	4822 051 20223	22kΩ	5%	0,1W
3835	4822 052 10108	1Ω	5%	NFR
3837	4822 117 10833	10kΩ	1%	0,1W
3838	4822 051 30103	10kΩ	5%	0,06W

3839	4822 051 20273	27kΩ	5%	0,1W
3841	4822 051 20273	27kΩ	5%	0,1W
3842	4822 117 10834	47kΩ	1%	0,1W
3843	4822 117 10834	47kΩ	1%	0,1W
3844	4822 117 12864	82kΩ	5%	0,6W

3845	4822 117 10834	47kΩ	1%	0,1W
3846	4822 117 10834	47kΩ	1%	0,1W
3847	4822 117 11148	56kΩ	1%	0,1W
3848	4822 117 10837	100kΩ	1%	0,1W
3850	4822 051 30183	18kΩ	5%	0,06W

3852	4822 051 10102	1kΩ	2%	0,25W
3853	4822 051 20471	470Ω	5%	0,1W
3854	4822 051 30101	100Ω	5%	0,06W
3855	4822 117 12971	15Ω	5%	0,06W
3856	4822 117 12521	68Ω	1%	0,1W

3857	4822 117 12521	68Ω	1%	0,1W
3860	4822 117 10833	10kΩ	1%	0,1W
3862	4822 051 20121	120Ω	5%	0,1W
3863	4822 051 30339	33Ω	5%	0,06W
3864	4822 051 30101	100Ω	5%	0,06W

3865	4822 051 30121	120Ω	5%	0,06W
3866	4822 051 30103	10kΩ	5%	0,06W
3871	4822 117 11149	82kΩ	1%	0,1W
3872	4822 051 20472	4,7kΩ	5%	0,1W
3878	4822 051 20008			CHIP JUMPER 0805

3881	4822 117 11503	220Ω	5%	0,1W
4707	4822 051 20008			CHIP JUMPER 0805
4708	4822 051 20008			CHIP JUMPER 0805
4709	4822 051 20008			CHIP JUMPER 0805
4710	4822 051 20008			CHIP JUMPER 0805

4711	4822 051 20008			CHIP JUMPER 0805
4713	4822 051 20008			CHIP JUMPER 0805
4714	4822 051 20008			CHIP JUMPER 0805
4717	4822 051 30008			CHIP JUMPER 0603
4724	4822 051 20008			

ELECTRICAL PARTSLIST 3CDC-LC-VCD MODULE**Technical remarks****RESISTORS**

4872	©	4822 051 20008	CHIP JUMPER 0805
4873	©	4822 051 20008	CHIP JUMPER 0805
4874	©	4822 051 20008	CHIP JUMPER 0805
4875	©	4822 051 20008	CHIP JUMPER 0805
4876	©	4822 051 20008	CHIP JUMPER 0805
4877	©	4822 051 30008	CHIP JUMPER 0603
4879	©	4822 051 20008	CHIP JUMPER 0805
4884	©	4822 051 20008	CHIP JUMPER 0805
4885	©	4822 051 20008	CHIP JUMPER 0805
4886	©	4822 051 20008	CHIP JUMPER 0805
4887	©	4822 051 30008	CHIP JUMPER 0603
4888	©	4822 051 20008	CHIP JUMPER 0805
4889	©	4822 051 20008	CHIP JUMPER 0805
4890	©	4822 051 20008	CHIP JUMPER 0805
4891	©	4822 051 30008	CHIP JUMPER 0603
4892	©	4822 051 20008	CHIP JUMPER 0805
4893	©	4822 051 20008	CHIP JUMPER 0805
4894	©	4822 051 20008	CHIP JUMPER 0805
4895	©	4822 051 20008	CHIP JUMPER 0805
4896	©	4822 051 20008	CHIP JUMPER 0805
4897	©	4822 051 20008	CHIP JUMPER 0805
4898	©	4822 051 20008	CHIP JUMPER 0805

COILS

1810		4822 242 10849	CRYSTAL 8,46MHz
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DIODES

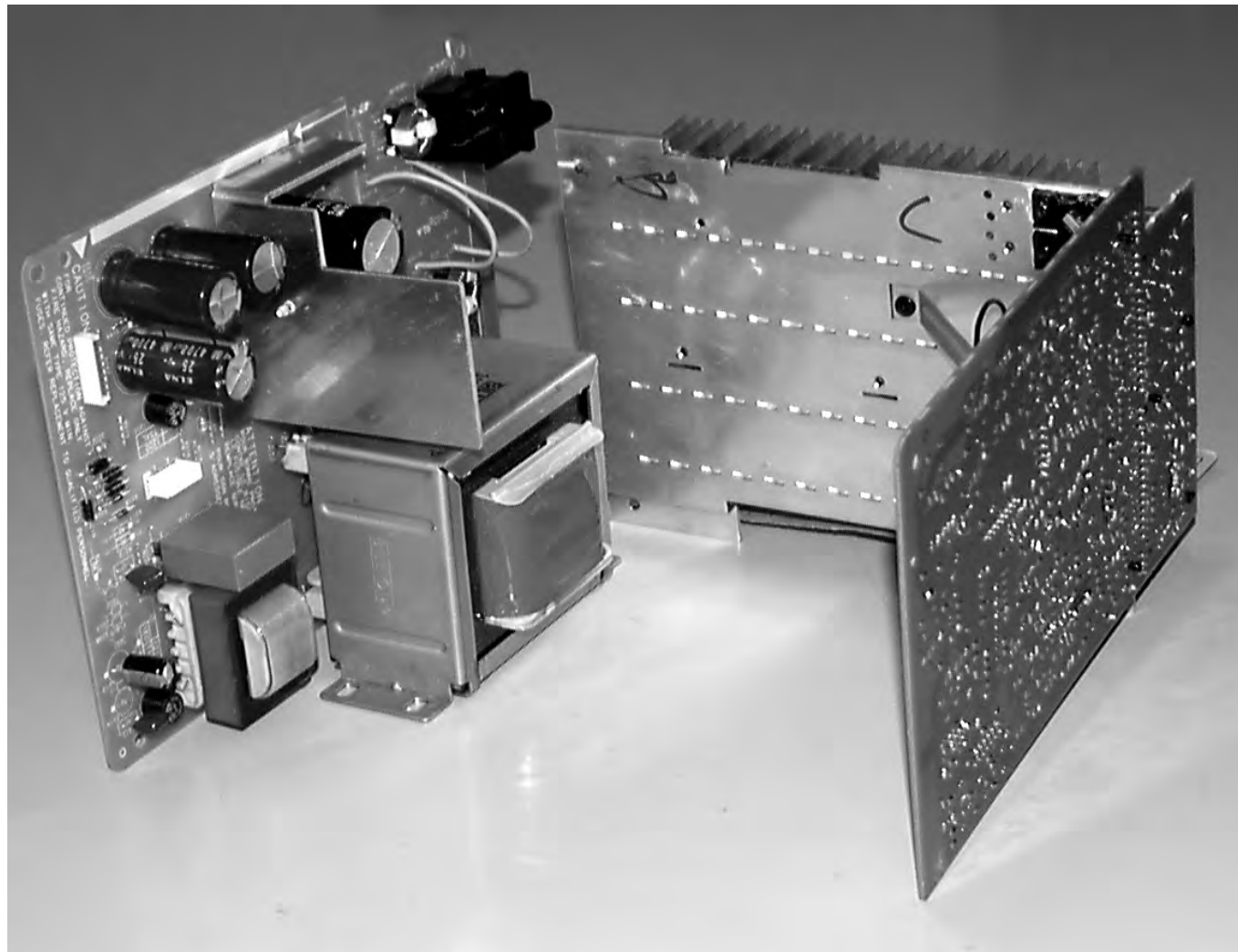
6801	©	4822 130 11397	BAS316
6802	©	4822 130 11397	BAS316
6803	©	4822 130 11397	BAS316
6804	©	4822 130 11397	BAS316
6805		4822 130 11383	BZX284-C5V1
6807		4822 130 11366	BZX284-C3V9
6808	©	4822 130 11397	BAS316
6810		4800 130 31878	1N4003G
6811	©	4822 130 82334	BAS85
6812	©	4822 130 80446	BAS32L

TRANSISTORS

7806	©	4822 130 60511	BC847B
7812	©	4822 130 60511	BC847B
7815	©	4822 130 60511	BC847B
7820	©	4822 130 60511	BC847B
7821	©	4822 130 60511	BC847B
7822		4822 130 42131	BF550
7823	©	4822 130 60511	BC847B

INTEGRATED CIRCUITS

7801	©	9352 622 36118	TZA1025T/V2 HF-Amplifier
7802	©	9352 641 81557	SAA7327M2B Signal processor
7803	©	9322 158 56682	M63000SP MOTOR DRIVER
7813	©	5322 209 11306	HEF4094BT, SHIFT REGISTER
7814		4822 209 32636	LA6531, MOTOR DRIVER



POWER 2001 Module

(30 - 70W Version)

stage .9

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Circuit details:

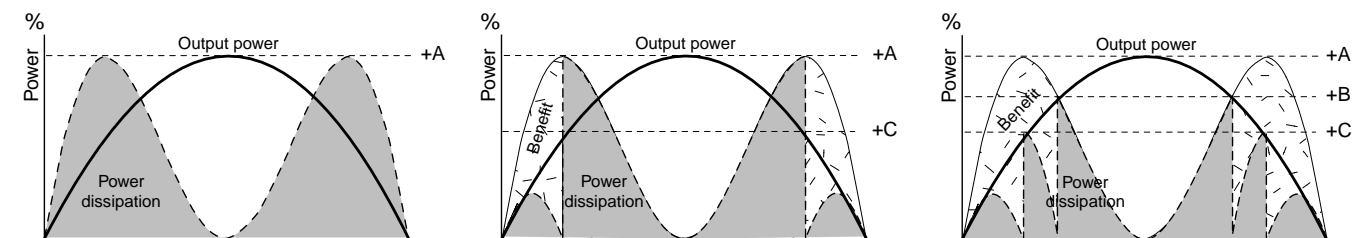
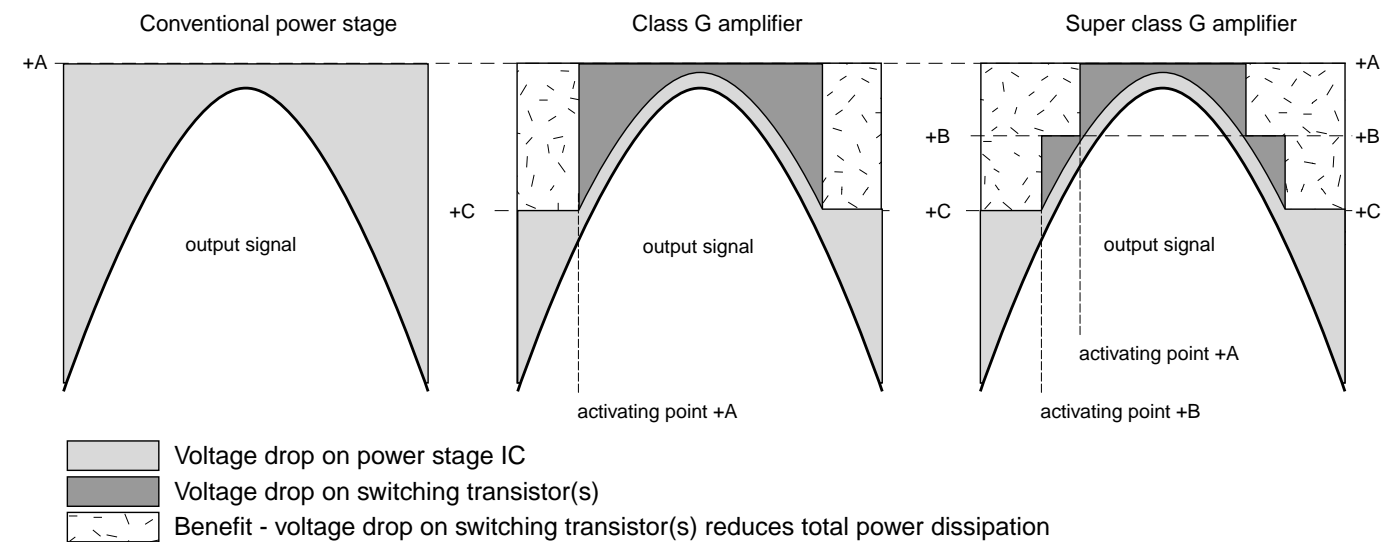
Amplifier:

Attention: In the POWER 2001 module the power amplifier IC AN7591 is used as a bridge-amplifier.
Any connection from output to ground will destroy the output stages!

- Via the AMP_ON control line, connected to pins 6 (Stby), the power amplifiers are switched on/off by the μ P.
High level (approx. 4,5V): power amplifiers switched on
Low level (approx. 0V): power amplifiers switched off
- Super class G - operation

The power amplifiers operate as so-called super class G - amplifiers:
The supply pins 12 (Vcc) are not just connected to one fixed DC-supply as in conventional amplifiers.
Dependent on the output power there are three different DC-voltages supplied to the power amplifiers:
⇒ +C1 (+20V) for low output power
⇒ +B1 (+29V) for medium output power
⇒ +A1 (+41V for high output power

Principle / benefit of Super Class G



Circuit details continued:

• **Low power standby feature**

An additional small standby transformer, reduces power consumption in standby-mode. In case power is switched on, the control line ECO is low → relay 1210 is activated → contacts 1 and 2 are closed → transformer 5001 is connected to mains. When the set is switched off (standby) the control line ECO is high → relay 1210 is not activated → main transformer is disconnected. Via standby transformer and rectifiers 6210-6214 the supply voltage LOW_PWR_SUP is substituted. This voltage is always available and so the microprocessor is kept running.

• **DC voltages +A1, +B1, +C1**

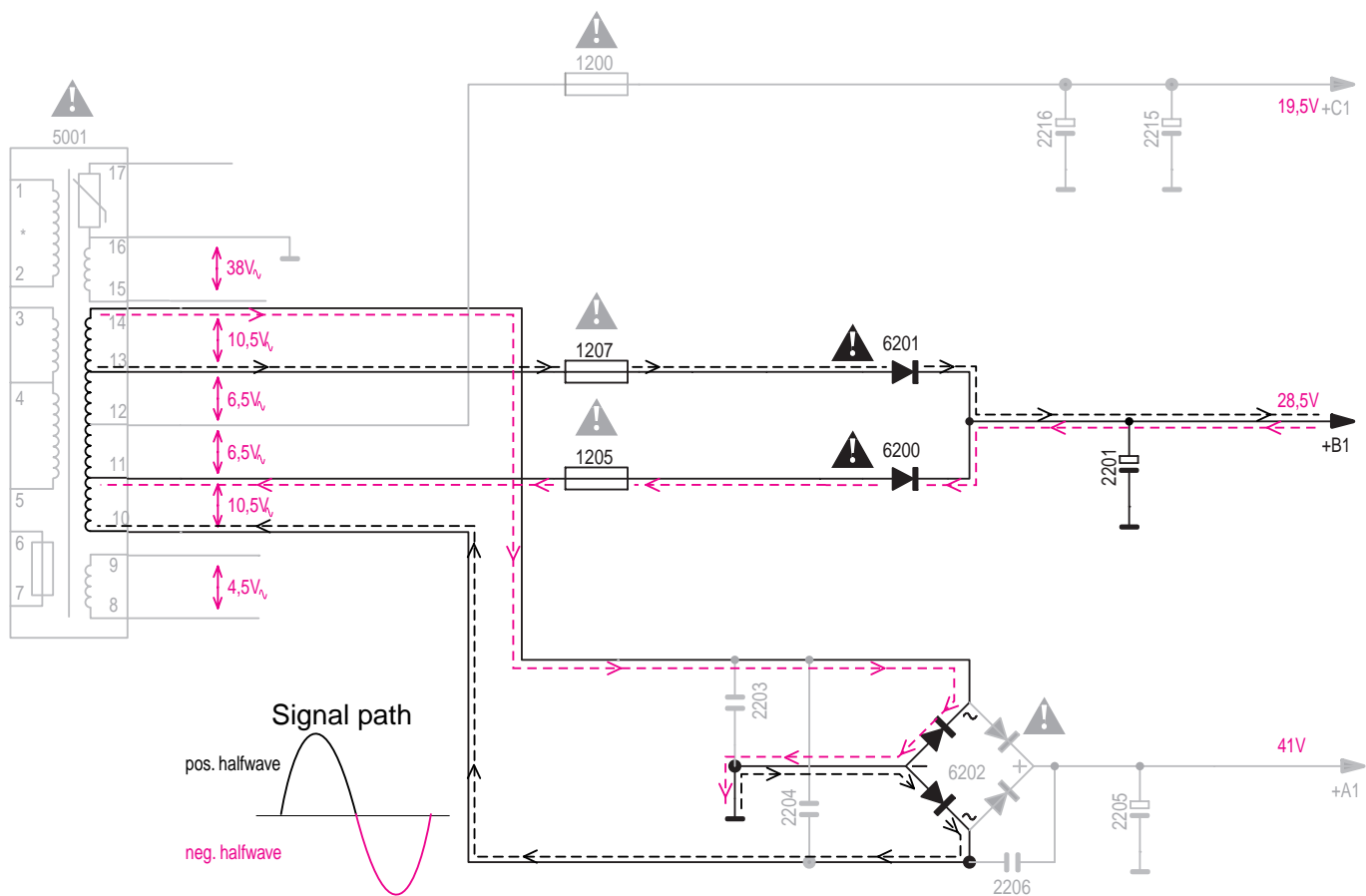
These voltages supply the Super Class G amplifier, described on previous page. The whole power supply is optimized for the special characteristic of this type of amplifier. For that reason several “tricky” details have been applied to ensure optimal efficiency and symmetrical load to the mains transformer.

Generation of +A1

Common full wave rectifying with bridge rectifier 6202, using 100% secondary winding of mains transformer (pin 10-14).

Generation of +B1

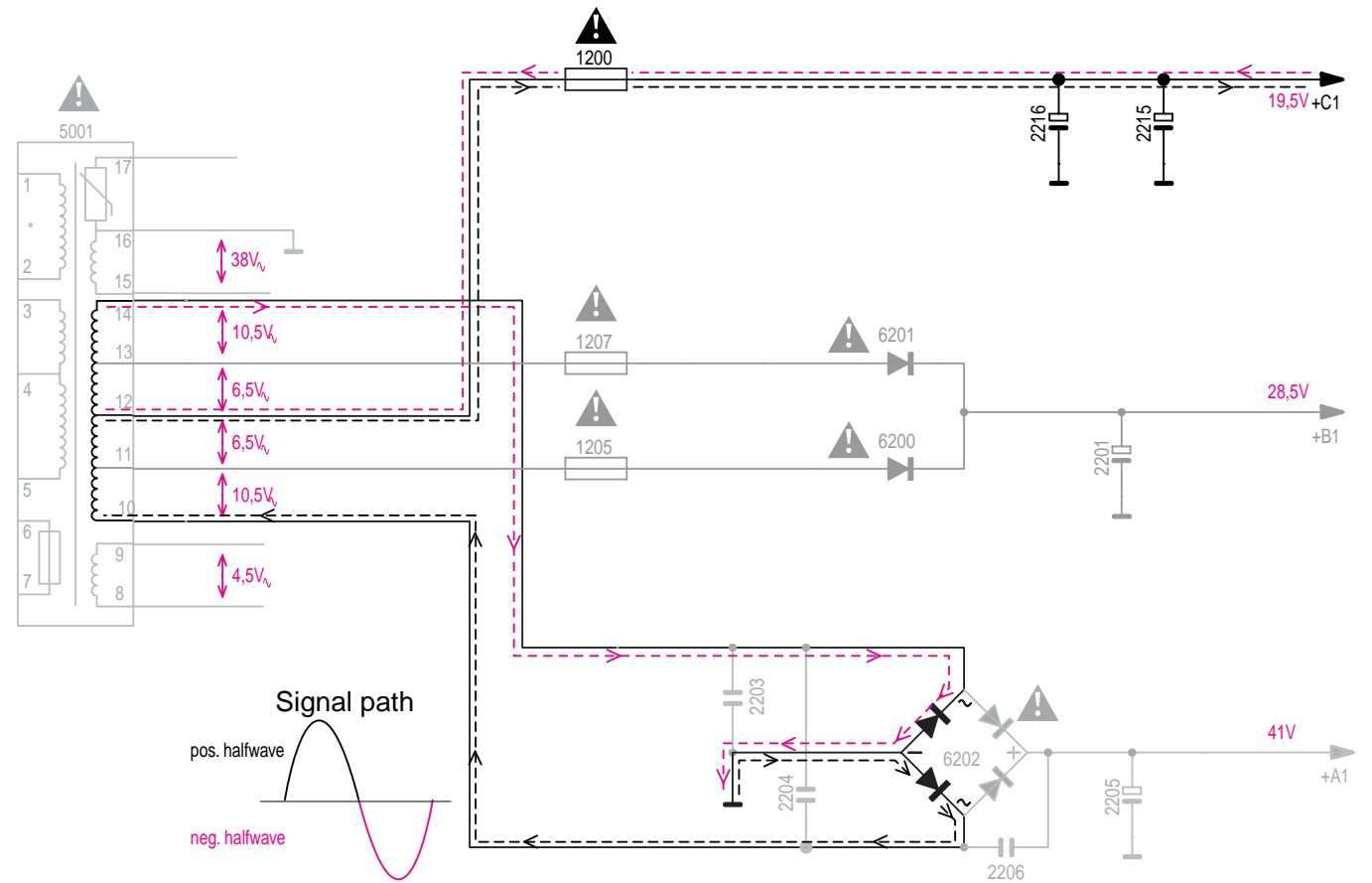
The supply for +B1 consists of one full wave rectifier:
 – 2 diodes of bridge rectifier 6202, with 6200(6220 in parallel) 6201(6221 in parallel) for generation of +B1 using approx. 70% secondary winding of mains transformer (pin 10-13 respectively pin 11-14).
 As example for generation of +B1 see picture 1.



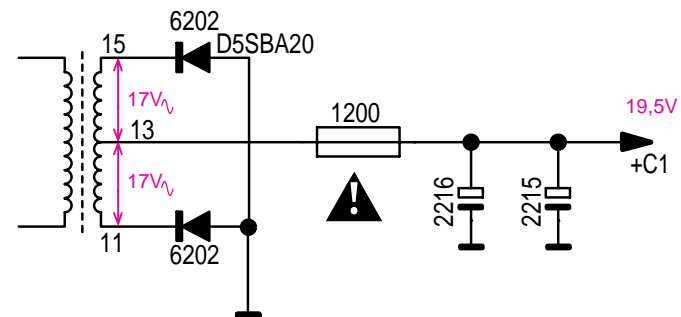
picture 1

Generation of +C1

Full wave rectifying with 2 diodes of bridge rectifier 6202, using 50% secondary winding of mains transformer (pin 13-15/13-11). See picture 2 below.

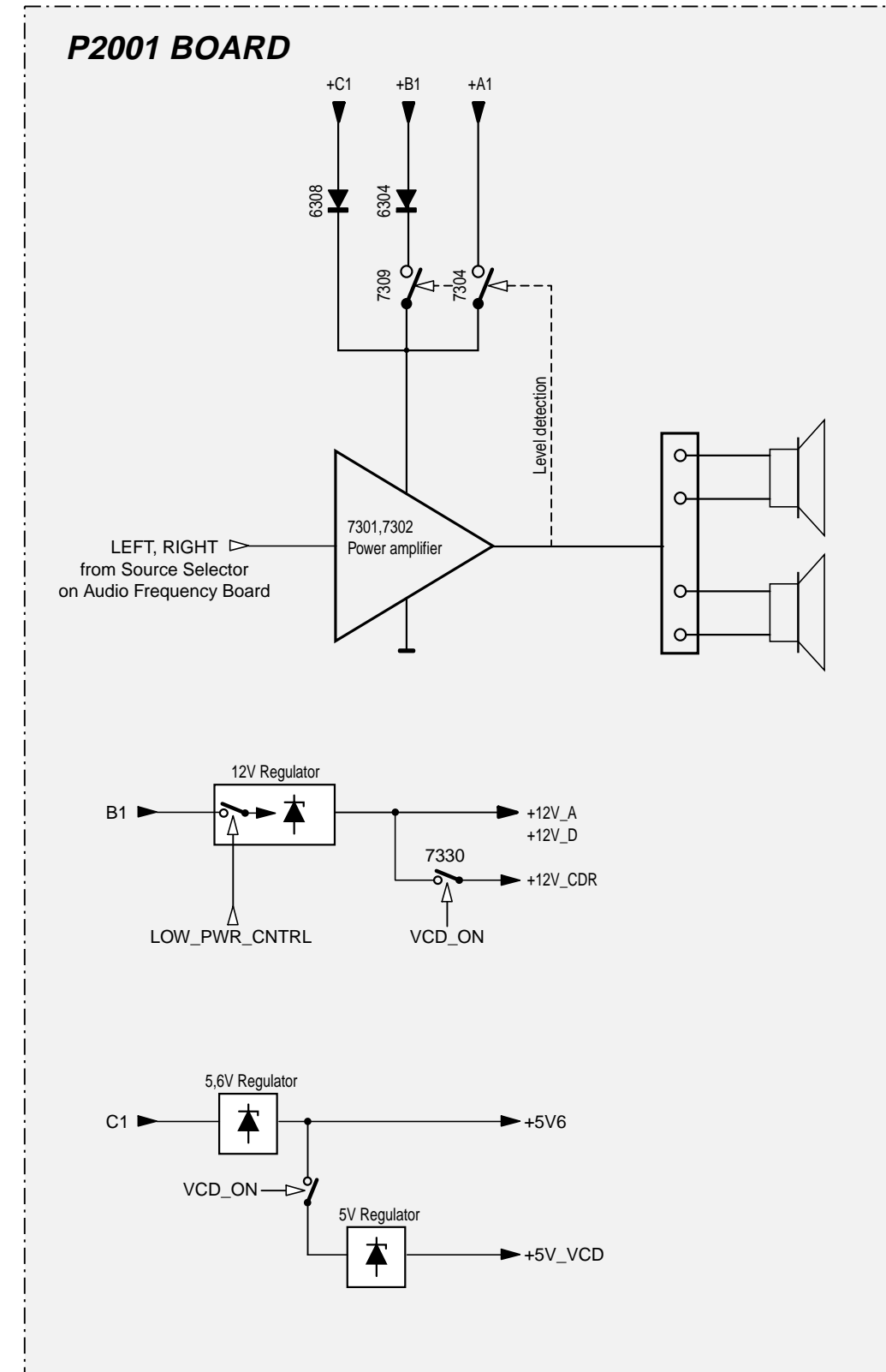
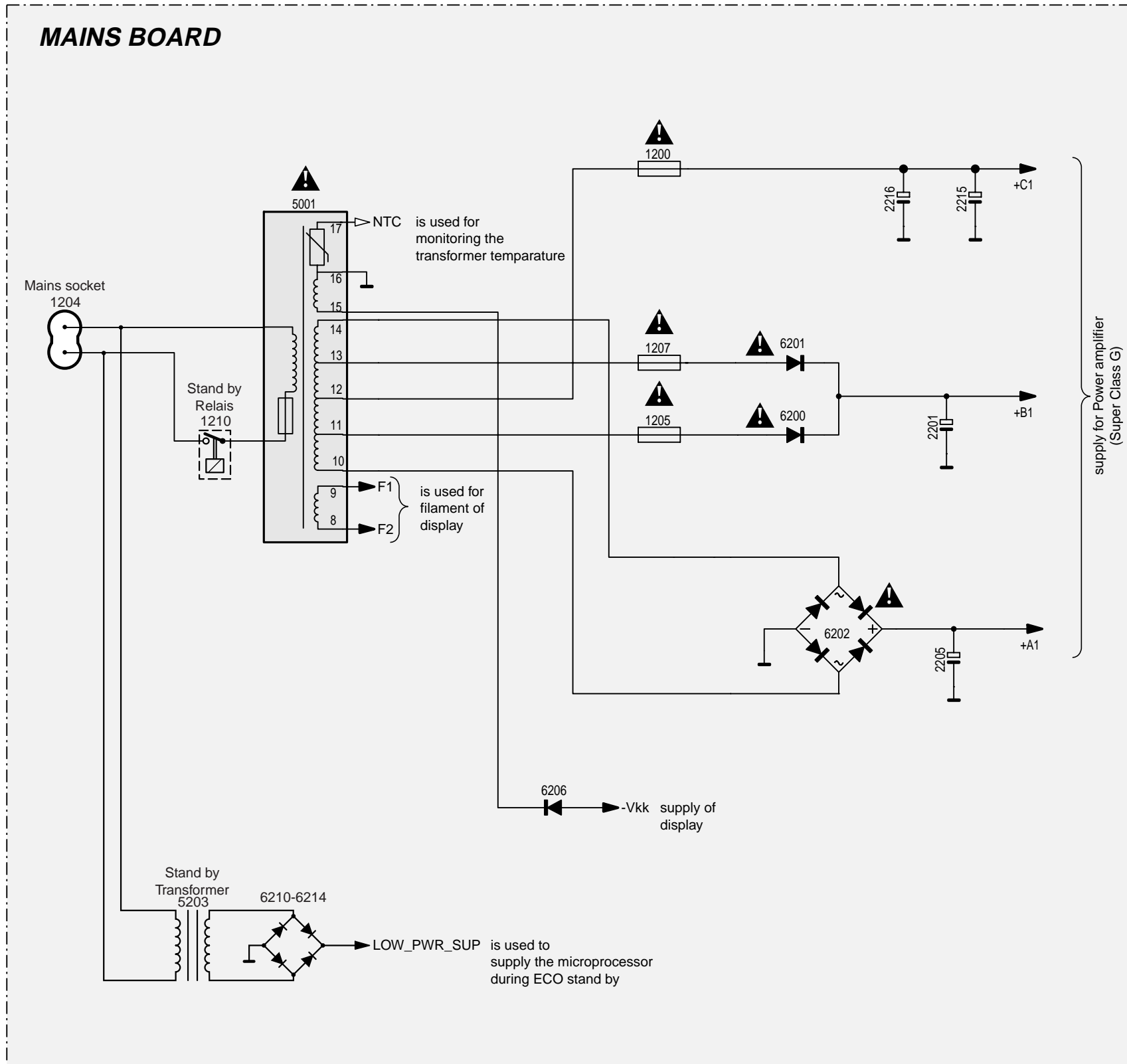


simplified:

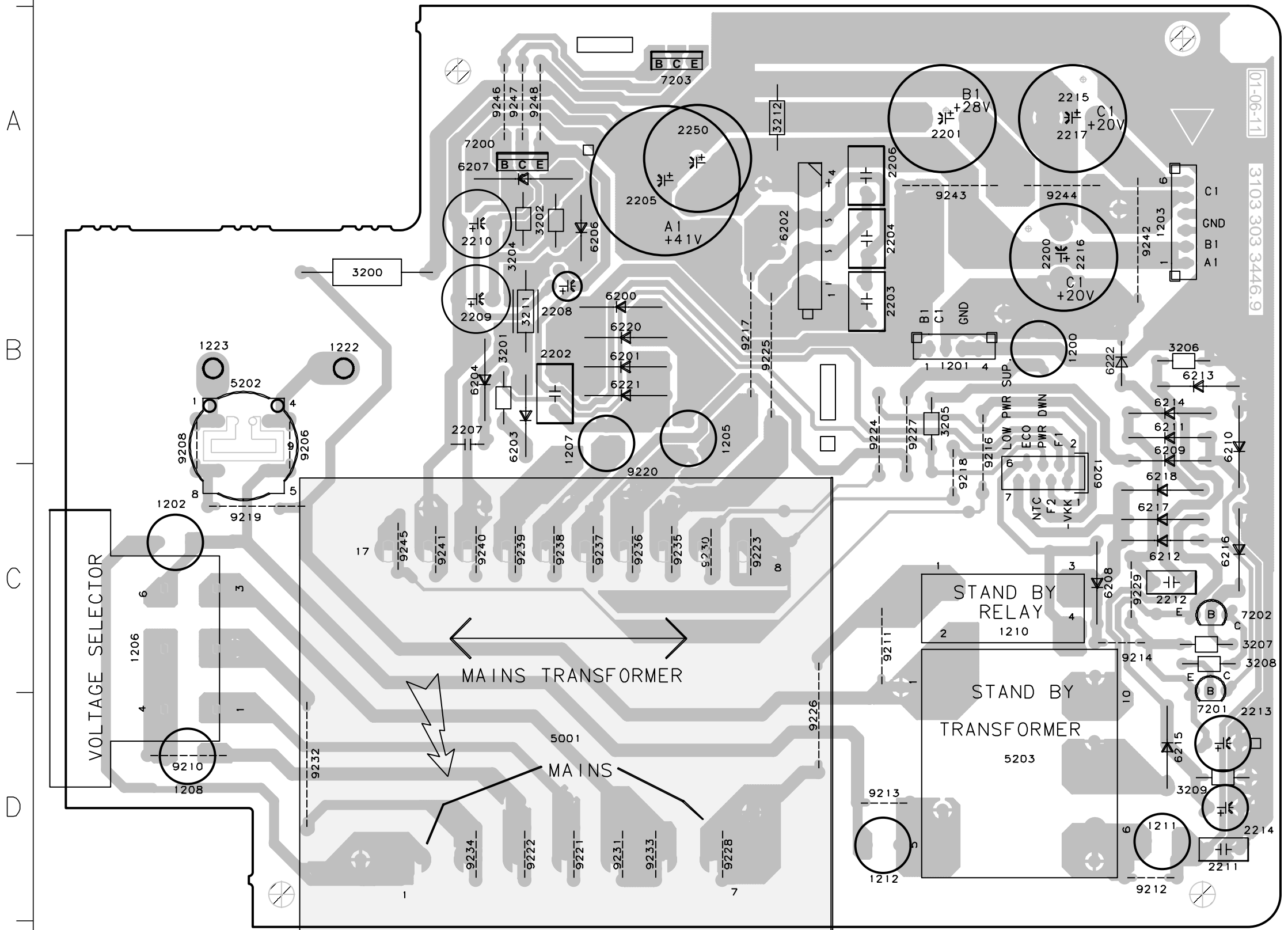


picture 2

Block Diagram

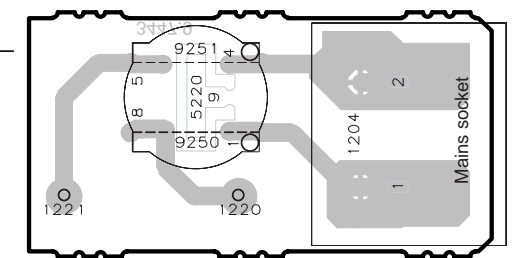


Mains Board Copperside view



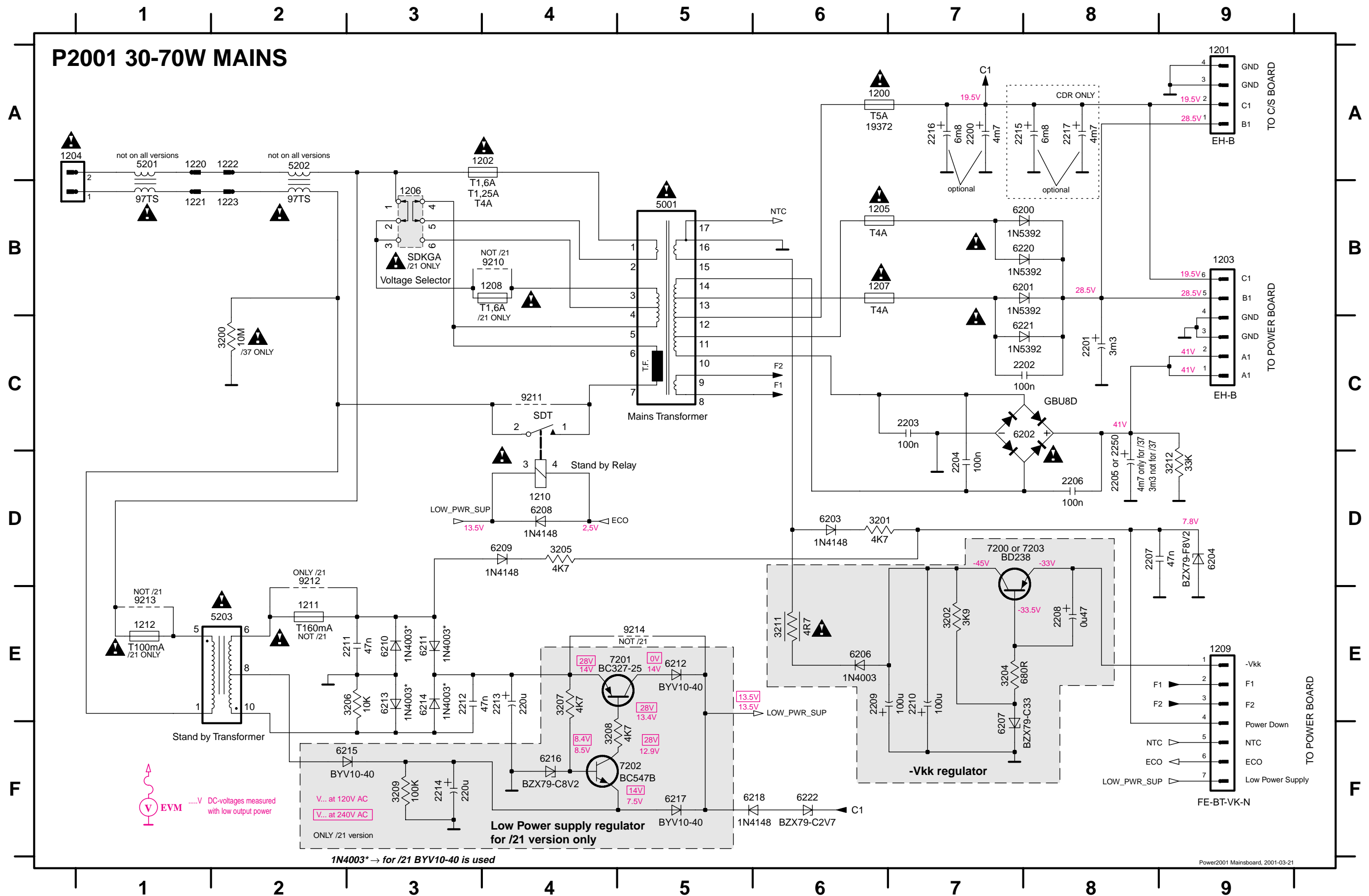
1200 B5	6210 C5
1201 B4	6211 B5
1202 C1	6212 C5
1203 A5	6213 B5
1205 B3	6214 B5
1206 C1	6215 D5
1207 C3	6216 C5
1208 D1	6217 C5
1209 C5	6218 C5
1210 C5	6220 B3
1211 D5	6221 B3
1212 D4	6222 B5
1222 B2	7200 A2
1223 B1	7201 D5
2200 B5	7202 C5
2201 A4	7203 A3
2202 B3	9206 B2
2203 B4	9208 B1
2204 B4	9210 D1
2205 B3	9211 D4
2206 A4	9212 D5
2207 B2	9213 D4
2208 B3	9214 C5
2209 B2	9216 B4
2210 B2	9217 B3
2211 D5	9218 C4
2212 C5	9219 C1
2213 D5	9220 C3
2214 D5	9221 D3
2215 A5	9222 D3
2216 B5	9223 C4
2217 A5	9224 B4
2250 A3	9225 B4
3200 B2	9226 D4
3201 B2	9227 B4
3202 B3	9228 D3
3204 A3	9229 C5
3205 B4	9230 C3
3206 B5	9231 D3
3207 C5	9232 D2
3208 C5	9233 D3
3209 D5	9234 D2
3211 B3	9235 C3
3212 A4	9236 C3
5001 C2	9237 C3
5202 B1	9238 C3
5203 D5	9239 C3
6200 B3	9240 C2
6201 B3	9241 C2
6202 B4	9242 B5
6203 B2	9243 A4
6204 B2	9244 A5
6206 B3	9245 C2
6207 A2	9246 A2
6208 C5	9247 A2
6209 C5	9248 A3

Mains Socket



This assembly drawing shows a summary of all possible versions.
 For components used in a specific version see schematic diagram respectively partslist.

1200 A6	1207 B6	1222 A2	2204 D7	2210 E7	2216 A7	3204 E7	3211 E6	6201 B8	6208 D4	6214 E3	6221 C8	9208 B2	9215 F6
1201 A9	1208 B4	1223 B2	2205 D8	2211 E3	2217 A8	3205 E4	3212 D9	6202 C8	6209 E4	6215 F3	7200 D7	9210 B4	
1202 A4	1209 E9	2200 A7	2206 D8	2212 E3	2250 D8	3206 E3	5001 C5	6203 D6	6210 E3	6216 F4	7201 E4	9211 C4	
1203 B9	1210 D4	2201 C8	2207 D8	2213 E4	3200 C2	3207 E4	5202 A2	6204 D9	6211 E3	6217 F5	7202 F5	9212 D2	
1205 B6	1211 E2	2202 C8	2208 E8	2214 F3	3201 D6	3208 F4	5203 E1	6206 E6	6212 E5	6218 F6	7203 D7	9213 E1	
1206 B3	1212 E1	2203 C7	2209 E6	2215 A7	3202 E7	3209 F3	6200 B8	6207 F7	6213 E3	6220 B8	9206 A2	9214 E5	

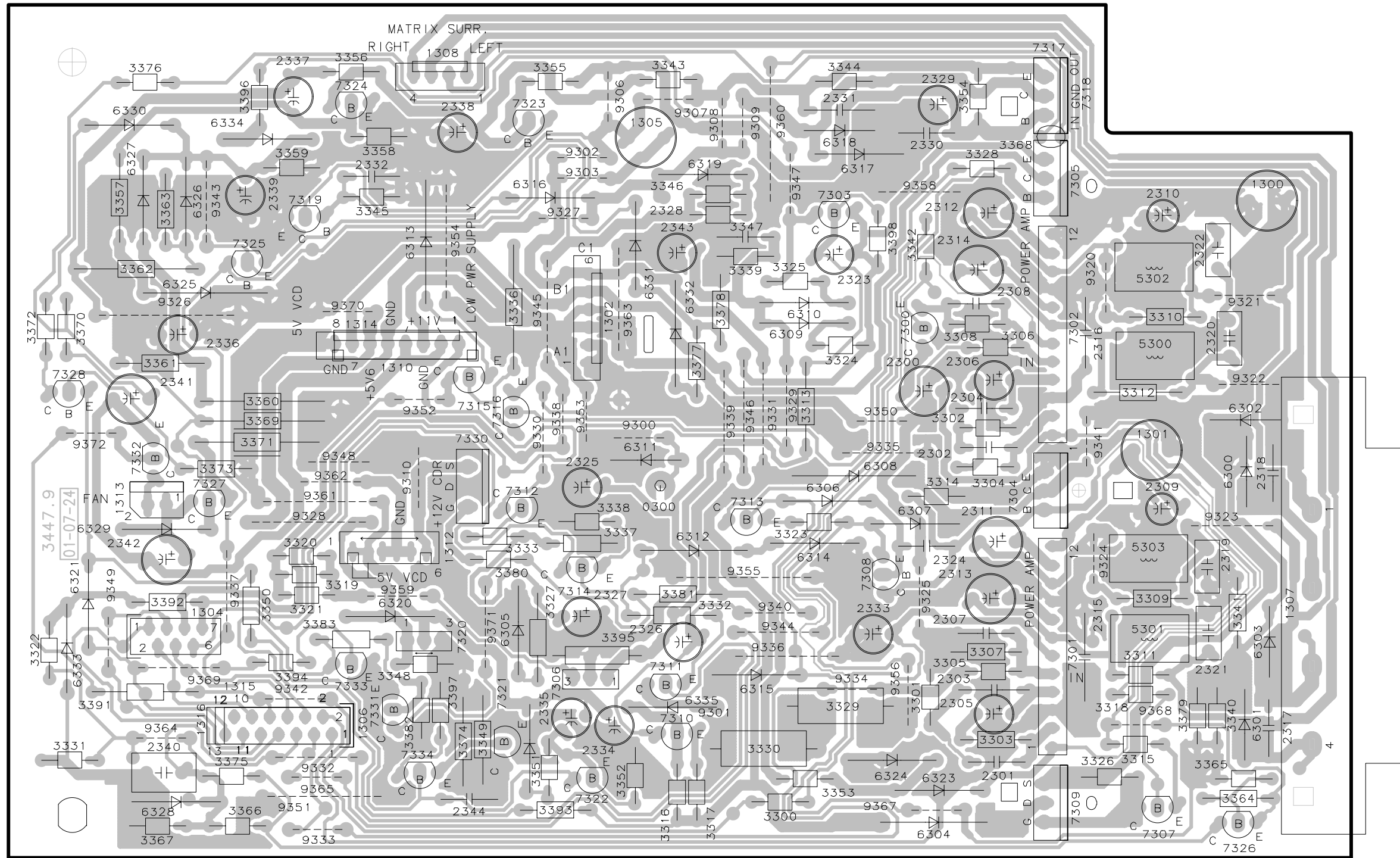


1N4003* → for /21 BYV10-40 is used

0300 B3	1307 B5	1316 C1	2306 A4	2313 B4	2320 A5	2327 B3	2334 C3	2341 B1	3303 C4	3310 A5	3317 C3	3324 A3	3331 C1	3340 C5	3347 A3	3354 A4	3361 A1	3368 A4	3375 C1	3382 C2	7301 C4
1300 A5	1308 A2	2300 B4	2307 C4	2314 A4	2321 C5	2328 A3	2335 C2	2342 B1	3304 B4	3311 C5	3318 C5	3325 A3	3332 B3	3341 B5	3348 C2	3355 A2	3362 A1	3369 B1	3376 A1	3383 C1	7302 A4
1301 B5	1310 A2	2301 C4	2308 A4	2315 C4	2322 A5	2329 A4	2336 A1	2343 A3	3305 C4	3312 B5	3319 B1	3326 C5	3333 B2	3342 A4	3349 C2	3356 A1	3363 A1	3370 A1	3377 B3	3391 C1	7303 A3
1302 A3	1312 B2	2302 B4	2309 B5	2316 A4	2323 A3	2330 A4	2337 A1	2344 C2	3306 A4	3313 B3	3320 B1	3327 B2	3336 A2	3343 A3	3350 B1	3357 A1	3364 C5	3371 B1	3378 A3	3392 B1	7304 B4
1304 C1	1313 B1	2303 C4	2310 A5	2317 C5	2324 B4	2331 A3	2338 A2	3300 C3	3307 C4	3314 B4	3321 B1	3328 A4	3337 B3	3344 A3	3351 C2	3358 A2	3365 C5	3372 A1	3379 C5	3393 C2	7305 A4
1305 A3	1314 A2	2304 B4	2311 B4	2318 B5	2325 B2	2332 A2	2339 A1	3301 C4	3308 A4	3315 C5	3322 C1	3329 C3	3338 B3	3345 A2	3352 C3	3359 A1	3366 C1	3373 B1	3380 B2	3394 C1	7306 C2
1306 C2	1315 C1	2305 C4	2312 A4	2319 B5	2326 C3	2333 B4	2340 C1	3302 B4	3309 B5	3316 C3	3323 B3	3330 C3	3339 A3	3346 A3	3353 C3	3360 B1	3367 C1	3374 C2	3381 B3	3395 C2	7307 C5

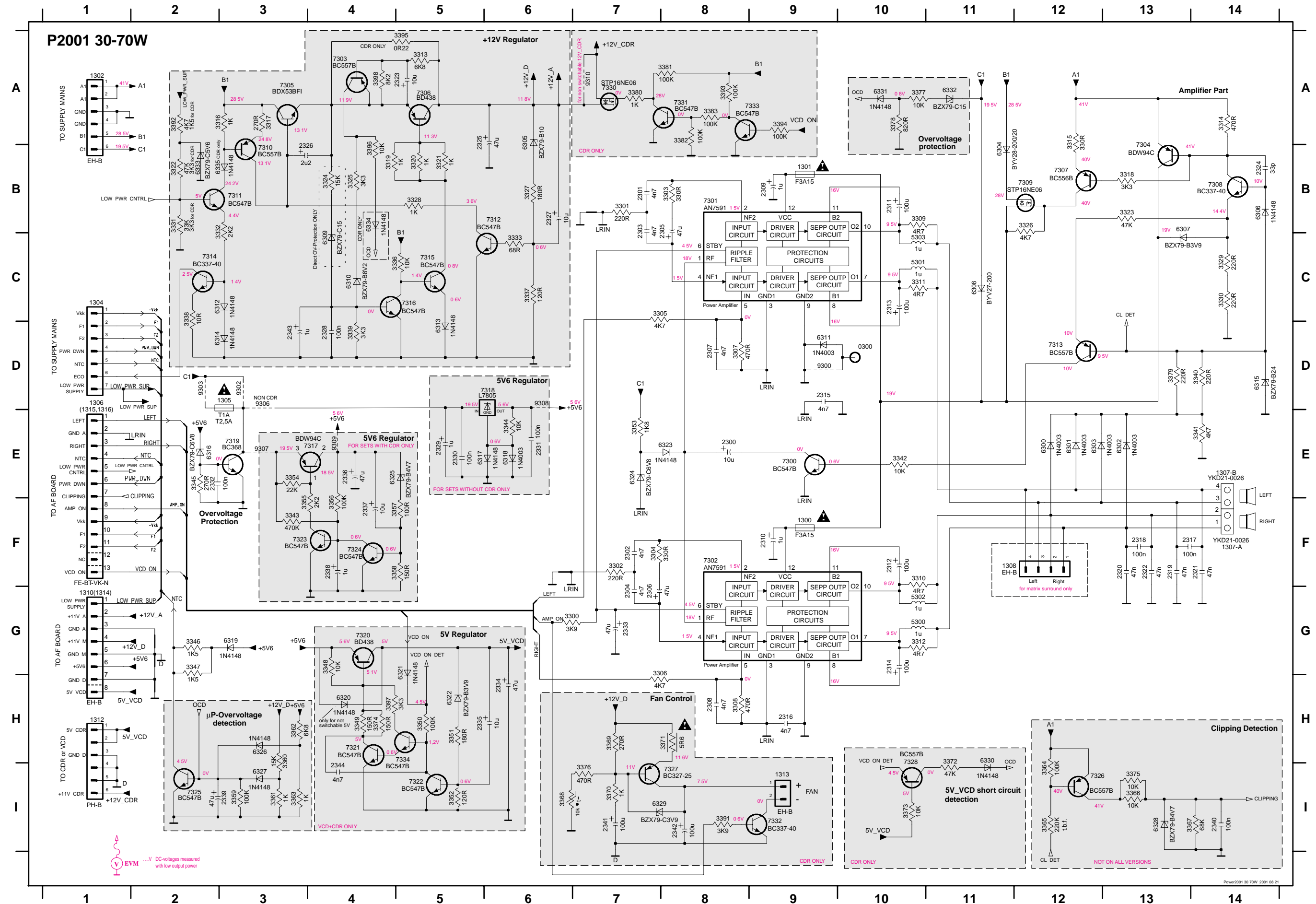
5300 A5	7311 C3	6301 B5	7312 B2	5302 A5	7313 B3	5303 B5	7314 B3	6300 B5	7315 B2	6301 C5	7316 B2	6302 B5	7317 A4	6303 C5	7318 A4	6304 C4	7319 A1	6305 C2	7320 C2	6306 B3	7321 C2	6307 B4	7322 C2	6308 B3	7323 A2	6309 A3	7324 A1	6310 A4	7325 A1	6311 B3	7326 C5	6312 B3	7327 B1	6313 A2	7328 B1	6314 B3	7330 B2	6315 C3	7331 C2	6316 A2	7332 B1	6317 A4	7333 C1	6318 A3	7334 C2	6319 A3	9300 B3	6320 B2	9301 C3	6321 B1	9302 A2	6322 C2	9303 A2	6323 C4	9306 A3	6324 C4	9307 A3	6325 A1	9308 A3	6326 A1	9309 A3	6327 A1	9310 B2	6328 C1	9312 A4	6329 B1	9321 A5	6330 A1	9322 B5	6331 A3	9323 B5	6332 A3	9324 B4	6333 C1	9325 B4	6334 A1	9326 A1	6335 C3	9327 A2	7300 A4	9328 B1	9329 B3	9330 B2	9331 B3	9332 C1	9333 C1	9334 C3	9335 B4	9336 C3	9337 B1	9338 B2	9339 B3	9340 B3	9341 B4	9342 C1	9343 A1	9344 C3	9345 A2	9346 B3	9347 A3	9348 B1	9349 C1	9350 B4	9351 C1	9352 B2	9353 B2	9354 A2	9355 B3	9356 C4	9358 A4	9359 B2	9360 A3	9361 B1	9362 B1	9363 A3	9364 C1	9365 C1	9367 C4	9368 C5	9369 C1	9370 A1	9371 C2	9372 B1
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Power Board Copperside view



This assembly drawing shows a summary of all possible versions.
 For components used in a specific version see schematic diagram respectively partslist.

0300	D10	1307-a	F14	1315	D1	2305	B8	2312	F10	2319	F13	2326	B3	2333	G7	2340	I14	3303	B8	3310	F10	3317	A3	3324	B4	3331	B2	3340	D14	3347	G2	3354	E3	3361	I3	3368	I6	3375	I13	3382	A8	6300	E12	6307	B13	6314	D2	6321	H5	6328	I13	7302	F8	7309	B12	7316	C5	7323	F3	7331	A8	9308	D4
1300	F9	1307-b	E14	1316	D1	2306	G7	2313	C10	2320	F13	2327	B6	2334	H6	2341	I7	3304	F7	3311	C10	3318	B13	3325	B4	3332	B3	3341	E10	3348	G4	3355	F3	3362	H3	3369	H7	3376	I7	3383	A8	6301	E12	6308	C11	6315	D14	6322	H5	6329	I7	7303	A4	7310	B3	7317	E3	7324	F4	7332	I9	9309	D4
1301	B9	1308	F12	2300	E8	2307	D8	2314	G10	2321	F14	2328	D4	2335	H5	2342	I8	3305	C7	3312	G10	3319	B4	3326	B12	3333	C6	3342	E10	3349	H4	3356	F4	3363	I3	3370	I7	3377	A10	3391	I8	6302	E13	6309	C4	6316	F5	6323	E8	6330	H11	7304	A13	7311	B3	7318	D6	7325	I2	9300	D9	9310	A5
1302	A1	1310	G1	2301	B7	2308	H8	2315	D9	2322	F13	2329	E5	2336	E4	2343	D3	3306	H7	3313	A5	3320	B6	3327	B6	3334	C5	3343	F3	3350	H5	3357	F3	3364	H2	3371	H8	3378	A10	5300	G10	6303	E12	6310	C4	6317	E6	6324	E7	6331	A10	7305	A3	7312	B6	7319	F6	7326	I12	9302	D3		
1304	C1	1312	H1	2302	F7	2309	B9	2316	H9	2323	A4	2330	E5	2337	F4	2344	B4	3307	D8	3314	A14	3321	B5	3328	B3	3335	C6	3344	E6	3351	H5	3358	I5	3365	I2	3372	I11	3379	D13	5301	C10	6304	B11	6311	D9	6318	E6	6325	E5	6332	A11	7306	A5	7313	D12	7320	G4	7327	H8	9303	D2		
1305	D3	1313	I9	2303	B7	2310	F9	2317	F13	2324	B4	2331	E6	2338	F4	2345	B4	3308	H8	3315	A12	3322	B2	3329	C14	3336	C2	3345	F5	3352	I5	3359	H3	3366	I3	3373	I10	3380	A7	5302	G10	6305	A6	6312	C2	6319	G3	6326	H2	6333	E2	7307	B12	7314	C2	7321	H4	7328	H10	9306	D3		
1306	E1	1314	G1	2304	G7	2311	B10	2318	F13	2325	A5	2332	F5	2339	I2	2346	F7	3309	B10	3316	A3	3323	B13	3330	C14	3337	D4	3346	G2	3353	E7	3360	H3	3367	I4	3374	H4	3381	A8	5303	C10	6306	B14	6313	D5	6320	H4	6327	H3	7301	B8	7308	B14	7315	C5	7322	I5	7330	A7	9307	E3		



ELECTRICAL PARTSLIST POWER2001 MODULE

MISCELLANEOUS

1200 ▲	2422 086 10963	FUSE RAD 5A 250V IEC
1202 ▲	4822 071 51252	FUSE 1.25A for sets without 5203
1202 ▲	4822 071 51602	FUSE 1,6A for sets with 5203
1202 ▲	4822 253 10126	FUSE T4A
1204 ▲	2422 030 00328	MAINS SOCKET /37
1204 ▲	4822 265 31015	MAINS SOCKET /21, /22
1205 ▲	2422 086 10786	FUSE RAD 4A 250V IEC
1206 ▲	2422 129 16478	VOLTAGE SELECTOR
1207 ▲	2422 086 10786	FUSE RAD 4A 250V IEC
1208 ▲	4822 071 51252	FUSE 1.25A for sets without 5203
1208 ▲	4822 071 51602	FUSE 1,6A for sets with 5203
1209	4822 267 10953	FLEX FOIL CONNECTOR 7P
1210 ▲	4822 280 10382	STAND 1P 9V
1211 ▲	2422 086 10771	FUSE RAD 160mA 250V IEC
1212 ▲	4822 071 51001	FUSE 100mA

1300 ▲	4822 252 11225	FUSE F3.15A IEC 250V
1301 ▲	4822 252 11225	FUSE F3.15A IEC 250V
1304	4822 267 10953	FLEX FOIL CONNECTOR 7P
1305 ▲	4822 071 51002	FUSE T1A for sets without 5203
1305 ▲	4822 071 52502	FUSE T2,5A for sets with 5203

1306	4822 267 10738	FFC-CONNECTOR 13P
1307	4822 267 31176	SPEAKER TERMINAL
5203 ▲	3103 308 30600	STANDBY TRANSFORMER /21
5203 ▲	3103 308 30610	STANDBY TRANSFORMER /22
5203 ▲	3103 308 30800	STANDBY TRANSFORMER /37

8010	3139 110 34600	FLEX FOIL CABLE 7Pin, 280mm
	4822 492 11735	SPRING FIXATION TRANSISTOR

CAPACITORS

2200	4822 124 12012	4700µF	20%	25V
2201	4822 124 42367	3300µF	20%	35V
2202	5322 121 42386	100nF	5%	63V
2203	5322 121 42386	100nF	5%	63V
2204	5322 121 42386	100nF	5%	63V

2205	4822 124 80415	4700µF	20%	50V	only for /37
2206	5322 121 42386	100nF	5%	63V	
2207	4822 122 33449	47nF	30%	50V	
2208	5322 124 41948	0,47µF	20%	50V	
2209	2020 012 93547	100µF	20%	63V	

2211	4822 121 43526	47nF	5%	100V
2212	4822 121 43526	47nF	5%	100V
2213	4822 124 11769	220µF	20%	50V
2214	4822 124 40207	100µF	20%	25V
2217	4822 124 12012	4700µF	20%	25V

2250	2020 012 93774	3300µF	20%	50V	not for /37
2300	4822 124 40248	10µF	20%	63V	
2301	4822 126 11714	4,7nF	20%	16V	
2302	4822 126 11714	4,7nF	20%	16V	
2303	4822 126 11714	4,7nF	20%	16V	

2304	4822 126 11714	4,7nF	20%	16V
2305	4822 124 40433	47µF	20%	25V
2306	4822 124 40433	47µF	20%	25V
2307	4822 126 11714	4,7nF	20%	16V
2308	4822 126 11714	4,7nF	20%	16V

2309	4822 124 21913	1µF	20%	63V
2310	4822 124 21913	1µF	20%	63V
2311	4822 124 40207	100µF	20%	25V
2312	4822 124 40207	100µF	20%	25V
2313	4822 124 40207	100µF	20%	25V

2314	4822 124 40207	100µF	20%	25V	
2315	4822 126 11714	4,7nF	20%	16V	
2316	4822 126 11714	4,7nF	20%	16V	
2317	4822 126 12882	100nF	20%	50V	
2318	4822 126 12882	100nF	20%	50V	

2319	4822 121 43526	47nF	5%	100V
2320	4822 121 43526	47nF	5%	100V
2321	4822 121 43526	47nF	5%	100V
2322	4822 121 43526	47nF	5%	100V
2323	4822 124 40248	10µF	20%	63V

2324	4822 122 33069	33pF	5%	50V
2325	4822 124 40433	47µF	20%	25V
2326	4822 124 22652	2,2µF	20%	50V
2327	4822 124 40248	10µF	20%	63V

CAPACITORS

2328	4822 126 12882	100nF	20%	50V
2329	4822 124 21913	1µF	20%	63V
2330	4822 126 12882	100nF	20%	50V
2331	4822 126 12882	100nF	20%	50V
2332	4822 126 12882	100nF	20%	50V
2333	4822 124 40433	47µF	20%	25V
2334	4822 124 40433	47µF	20%	25V
2335	4822 124 40248	10µF	20%	63V
2336	4822 124 40433	47µF	20%	25V
2337	4822 124 40248	10µF	20%	63V
2338	4822 124 21913	1µF	20%	63V
2339	4822 124 40433	47µF	20%	25V
2341	4822 124 23052	100µF	20%	16V
2342	4822 124 23052	100µF	20%	16V
2343	4822 124 21913	1µF	20%	63V

RESISTORS

3200	4822 053 21106	10MΩ	5%	0,5W
3201	4822 116 52283	4,7kΩ	5%	0,5W
3202	4822 116 52276	3,9kΩ	5%	0,5W
3204	4822 116 52228	680Ω	5%	0,5W
3205	4822 116 52283	4,7kΩ	5%	0,5W
3206	4822 050 21003	10kΩ	2%	0,25W
3207	4822 116 52283	4,7kΩ	5%	0,5W
3208	4822 116 52283	4,7kΩ	5%	0,5W
3209	4822 116 52234	100kΩ	5%	0,5W
3211	4822 052 10478	4,7Ω	5%	NFR
3212	4822 050 23303	33kΩ	1%	0,6W
3300	4822 116 52276	3,9kΩ	5%	0,5W
3301	4822 116 83872	220Ω	5%	0,5W
3302	4822 116 83872	220Ω	5%	0,5W
3303	4822 116 52219	330Ω	5%	0,5W

3304	4822 116 52219	330Ω	5%	0,5W
3305	4822 116 52283	4,7kΩ	5%	0,5W
3306	4822 116 52283	4,7kΩ	5%	0,5W
3307	4822 116 83883	470Ω	5%	0,16W
3308	4822 116 83883	470Ω	5%	0,16W
3309	4822 050 24708	4,7Ω	1%	0,6W
3310	4822 050 24708	4,7Ω	1%	0,6W
3311	4822 050 24708	4,7Ω	1%	0,6W
3312	4822 050 24708	4,7Ω	1%	0,6W
3313	4822 116 83961	6,8kΩ	5%	0,16W
3314	4822 116 83883	470Ω	5%	0,16W
3315	4822 116 52219	330Ω	5%	0,5W
3316	4822 050 11002	1kΩ	5%	0,2W
3317	4822 116 83876	270Ω	5%	0,16W
3318	4822 116 52269	3,3kΩ	5%	0,5W

3319	4822 050 11002	1kΩ	5%	0,2W
3320	4822 050 11002	1kΩ	5%	0,2W
3321	4822 050 11002	1kΩ	5%	0,2W
3322	4822 116 83884	47kΩ	5%	0,16W
3322	4822 116 52269	3,3kΩ	5%	0,16W
3323	4822 116 83884	47kΩ	5%	0,16W
3324	4822 116 52244	15kΩ	5%	0,5W
3325	4822 116 52269	3,3kΩ	5%	0,5W
3326	4822 116 52283	4,7kΩ	5%	0,5W
3327	4822 116 52213	180Ω	5%	0,5W
3328	4822 050 11002	1kΩ	5%	0,2W
3329	4822 053 11221	220Ω	5%	2W
3330	4822 053 11221	220Ω	5%	2W
3331	4822 050 23303	33kΩ	1%	0,6W
3331	4822 116 52269	3,3kΩ	5%	0,16W

3332	4822 116 52256	2,2kΩ	5%	0,16W
3333	4822 116 52199	68Ω	5%	0,16W
3336	4822 050 21003	10kΩ	2%	0,25W
3337	4822 116 52206	120Ω	5%	0,5W
3338	4822 116 52176	10Ω	5%	0,5W
3339	4822 116 52269	3,3kΩ	5%	0,5W
3340	4822 116 83872	220Ω	5%	0,5W
3341	4822 116 52283	4,7kΩ	5%	0,5W
3342	4822 050 21003	10kΩ	2%	0,25W
3343	4822 116 52285	470kΩ	5%	0,5W
3344	4822 050 21003	10kΩ	2%	0,25W

ELECTRICAL PARTSLIST POWER2001 MODULE

RESISTORS

3345	4822 116 83876	270Ω	5%	0,16W
3346	4822 116 52243	1,5kΩ	5%	0,16W
3347	4822 116 52243	1,5kΩ	5%	0,16W
3348	4822 050 21003	10kΩ	2%	0,25W
3349	4822 116 52213	180Ω	5%	0,5W
3350	4822 050 21003	10kΩ	2%	0,25W
3351	4822 116 83868	150Ω	5%	0,5W
3352	4822 116 52206	120Ω	5%	0,5W
3353	4822 116 52249	1,8kΩ	5%	0,16W
3354	4822 116 52257	2,2kΩ	5%	0,5W
3355	4822 116 52256	2,2kΩ	5%	0,16W
3356	4822 116 52234	100kΩ	5%	0,5W
3357	4822 116 52175	100Ω	5%	0,5W
3358	4822 116 83868	150Ω	5%	0,5W
3359	4822 116 52234	100kΩ	5%	0,5W

3360	4822 116 52244	15kΩ	5%	0,5W
3361	4822 050 11002	1kΩ	5%	0,2W
3362	4822 116 83961	6,8kΩ	5%	0,16W
3363	4822 050 11002	1kΩ	5%	0,2W
3368	2322 640 63103	10kΩ	NTC	
3369	4822 116 83876	270Ω	5%	0,16W
3370	4822 050 11002	1kΩ	5%	0,2W
3371	4822 052 10568	5,6Ω	5%	0,33W
3372	4822 116 83884	47kΩ	5%	0,16W
3373	4822 050 21003	10kΩ	2%	0,25W
3374	4822 116 52213	180Ω	5%	0,5W
3376	4822 116 83883	470Ω	5%	0,16W
3377	4822 050 21003	10kΩ	2%	0,25W
3378	4822 116 52231	820Ω	5%	0,5W
3379	4822 116 83872	220Ω	5%	0,5W

3380	4822 050 11002	1kΩ	5%	0,2W
3381	4822 116 52234	100kΩ	5%	0,5W
3382	4822 116 52234	100kΩ	5%	0,5W
3383	4822 116 52234	100kΩ	5%	0,5W
3391	4822 116 52276	3,9kΩ	5%	0,5W

3392	4822 116 52283	4,7kΩ	5%	0,5W	not for CDR
3392	4822 116 52243	1,5kΩ	5%	0,5W	for CDR only

COILS

5202	4822 157 11832	400µH	
5220	4822 157 11832	400µH	
5300	4822 157 62255	COIL 18,5 TURNS	
5301	4822 157 62255	COIL 18,5 TURNS	
5302	4822 157 62255	COIL 18,5 TURNS	
5303	4822 157 62255	COIL 18,5 TURNS	

DIODES

6200 ▲	4822 130 31878	1N4003G	
6201 ▲	4822 130 31878	1N4003G	
6202	4822 130 11139	GBU8D	
6203	4822 130 30621	1N4148	
6204	3198 010 58280	BZX79-B8V2	
6206	4822 130 31878	1N4003G	
6207	4822 130 34142	BZX79-B33	
6208	4822 130 30621	1N4148	
6209	4822 130 30621	1N4148	
6210	4822 130 31878	1N4003G	
6210	4822 130 32245	BYV10-40	only for /21
6211	4822 130 3187		

BRIEF INTRODUCTION OF THE AF9 BOARD

The AF9 Board consists of the following features :

a. TDA7468D IC

TDA7468D IC (7501) which includes functions such as source selection, loudness control, dynamic bass control, treble control, volume control and muting function. Sound features such as ALC, DBB, DSC and IS are controllable via I²C Bus from the microprocessor.

The TDA7468D IC caters for 4 input sources namely TUNER, TAPE, CD and AUX. It also has a Mic mix input. In our application, software will switch the input source to previous source MUTE during STANDBY mode and some other occasions where noise from other input source is undesirable.

Note that the input to the TDA7468D IC must be ac coupled to prevent 'pop' noise. Input networks are included to provide appropriate attenuation for various sources.

b. SIMPLE MIC MIXING

The AF9 Board has provisions which can be configured to cater for one of the following:

MM : which caters for Mic mixing with additional Mic amplifier board.

NM : non Mic mixing.

c. DOLBY PRO LOGIC (DPL) INTERFACE

The AF9 Board has provisions which can be configured to cater for DPL.

d. LINE OUT

Line out cinch socket for connection to external amplifier.

e. SUB-WOOFER OUT

Sub-woofer out cinch socket for connection to active sub-woofer speaker.

f. INCREDIBLE SURROUND

Incredible surround effect using transistor circuit to create phase shifting and spatial effect.

g. HEADPHONE AMPLIFIER

Headphone amplifier to drive 32 ohm to 1kohm headphone.

h. CD STANDBY CONTROL

CD Standby Control circuit which switches on the supply to CD servo control IC, digital out buffer IC, HF circuit and the laser light pen in CD mode only.

i. ATTENUATION NETWORK

Attenuation network is provided at the output of the AF9 Board for interfacing with power board of different output power.

j. CD DIGITAL OUT

CD Digital out cinch socket for connection to external digital audio decoders.

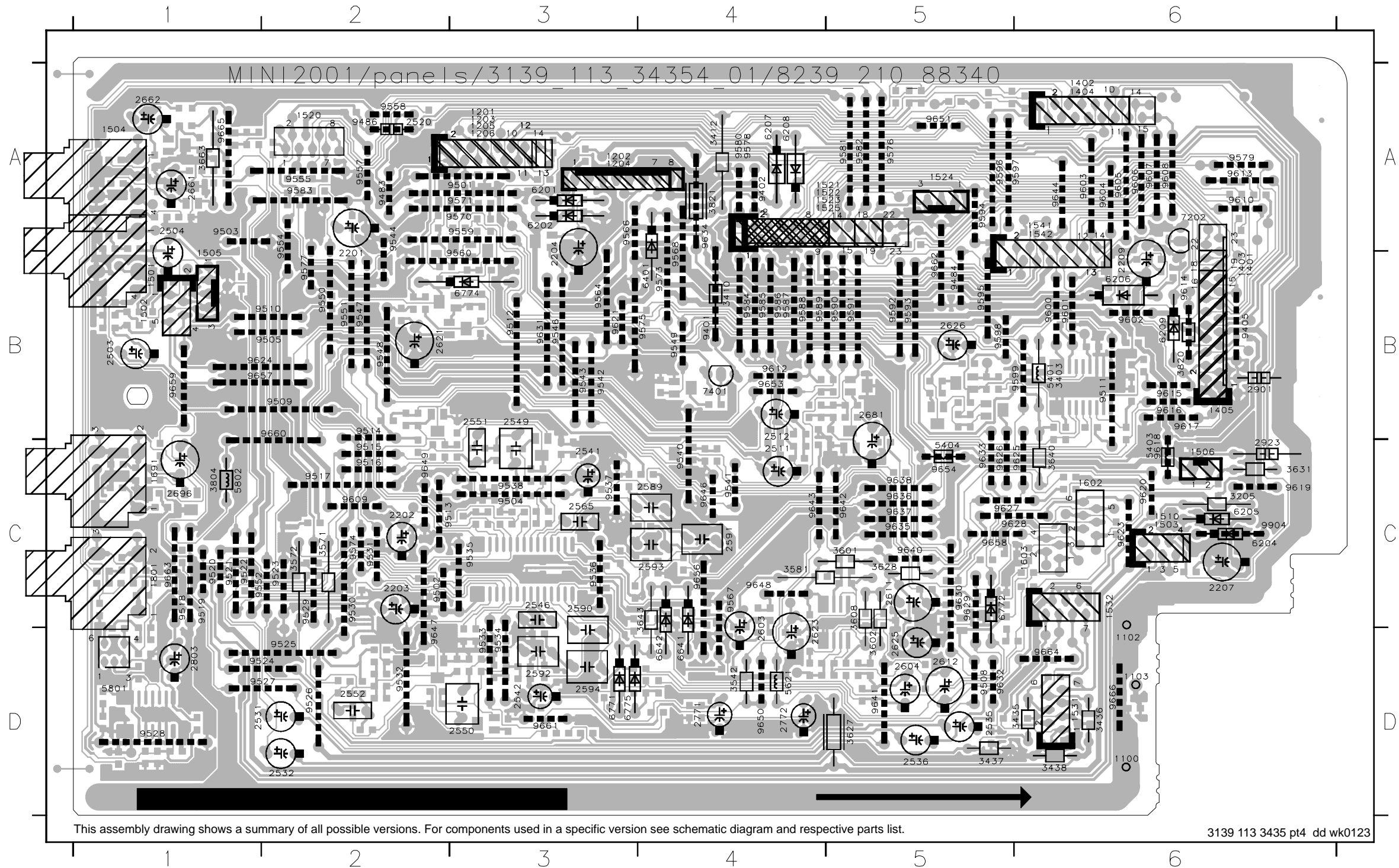
AF9 BOARD

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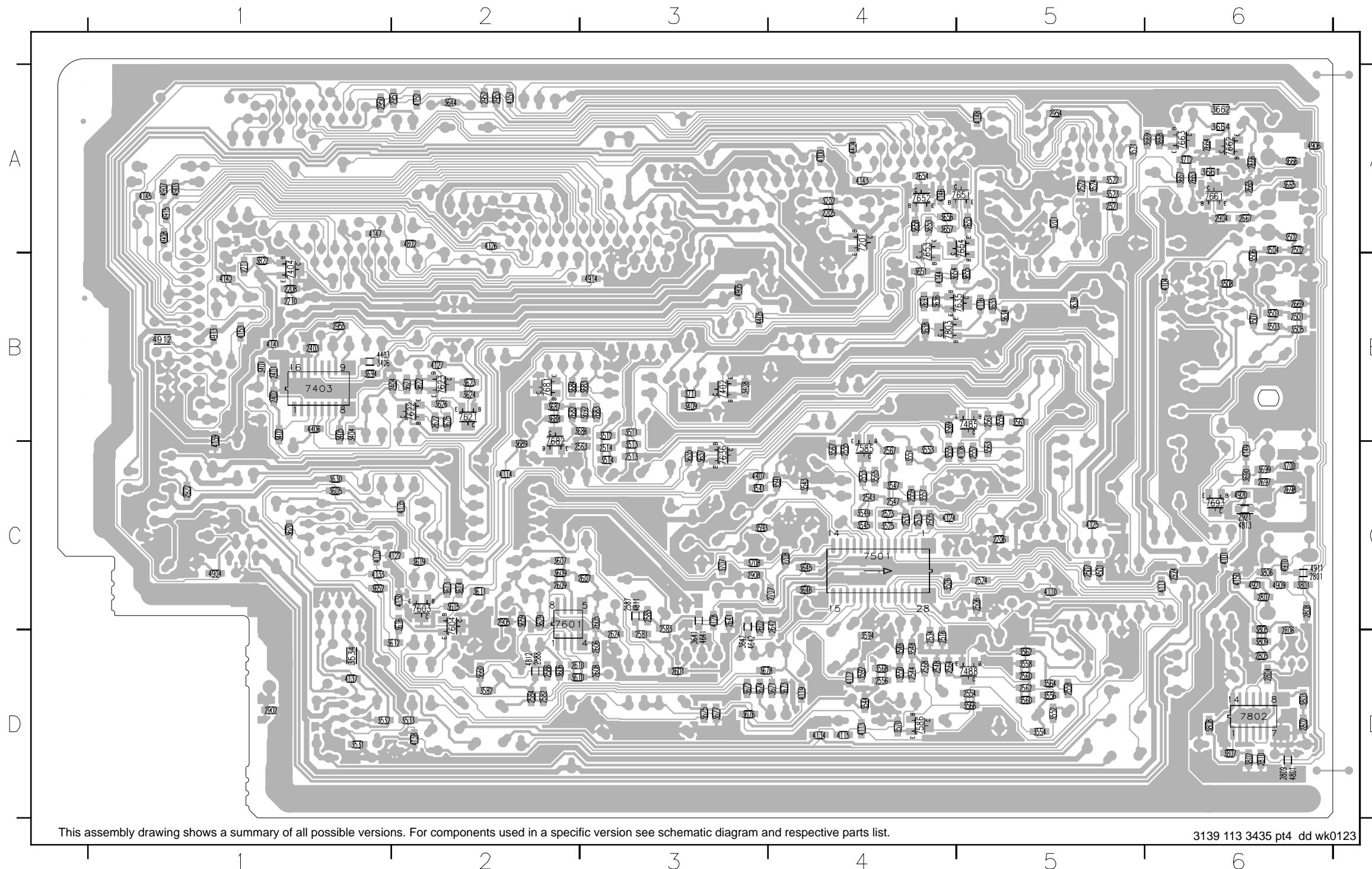
AF9 BOARD - COMPONENT LAYOUT

1100 D6	1503 C6	1603 C6	2535 D5	2603 D4	2923 C6	3627 D5	6202 A3	9401 B4	9513 C2	9529 C2	9547 B2	9570 A3	9587 B4	9603 A6	9620 C6	9637 C5	9657 B1
1102 D6	1504 A1	1691 C1	2536 D5	2604 D5	3205 C6	3628 C5	6204 C6	9402 A4	9514 B2	9530 C2	9548 B2	9571 A3	9588 B4	9604 A6	9621 B3	9638 C5	9658 C5
1103 D6	1505 B1	1801 C1	2541 C3	2611 C5	3403 B6	3631 C6	6205 C6	9405 B6	9515 C2	9531 C2	9549 B4	9573 B4	9589 B4	9605 A6	9623 C6	9640 C5	9659 B1
1201 A3	1506 C6	2201 B2	2542 D3	2612 D5	3410 B4	3640 C6	6206 B6	9483 A2	9516 C2	9532 D2	9550 B2	9574 C2	9590 B5	9606 A6	9624 B1	9641 D5	9660 B2
1202 A3	1510 C6	2202 C2	2546 C3	2621 B2	3412 A4	3643 C4	6207 A4	9484 B5	9517 C2	9533 D3	9551 B2	9575 B4	9591 B5	9607 A6	9625 C6	9642 C5	9661 D3
1203 A3	1520 A2	2203 C2	2549 B3	2623 D4	3435 D6	3663 A1	6208 A4	9486 A2	9518 C1	9534 D3	9552 C1	9576 A5	9592 B5	9608 A6	9626 C5	9643 C4	9662 B5
1204 A3	1521 A5	2204 B3	2550 D3	2625 D5	3436 D6	3804 C1	6209 B6	9501 A3	9519 C1	9535 C3	9554 A2	9577 B2	9593 B5	9609 C2	9627 C5	9644 A6	9663 C1
1205 A3	1522 A5	2207 C6	2551 B3	2626 B5	3437 D5	3820 B6	6401 B4	9502 C1	9520 C1	9536 C3	9555 A2	9578 A4	9594 A5	9610 A6	9628 C5	9646 C4	9664 D6
1206 A3	1523 A5	2209 B6	2552 D2	2661 A1	3438 D6	3821 A4	6641 D4	9503 A1	9521 C1	9537 C3	9557 A2	9579 A6	9595 B5	9612 B4	9629 C5	9647 D2	9665 A1
1401 B6	1524 A5	2503 B1	2565 C3	2662 A1	3542 D4	5401 B6	6642 D4	9504 C3	9522 C1	9538 C3	9558 A2	9580 A4	9596 A5	9613 A6	9630 C5	9648 C4	9666 D6
1402 A6	1525 A5	2504 A1	2589 C4	2681 B5	3571 C2	5403 C6	6771 D3	9505 B2	9523 C2	9540 C4	9559 A3	9581 A5	9597 A6	9614 B6	9631 B3	9649 C2	9904 C6
1403 B6	1531 D6	2511 C4	2590 C3	2696 C1	3572 C2	5404 C5	6772 C5	9508 D5	9524 D2	9541 C4	9560 B3	9582 A5	9598 B5	9615 B6	9632 D5	9650 D4	
1404 A6	1532 C6	2512 B4	2591 C4	2771 D4	3581 C4	5621 D4	6774 B3	9509 B2	9525 D2	9542 B3	9564 B3	9583 A2	9599 B6	9616 B6	9633 C5	9651 A5	
1405 B6	1541 A6	2520 A2	2592 D3	2772 D4	3601 C5	5801 D1	6775 D3	9510 B2	9526 D2	9543 B3	9566 A3	9584 B4	9600 B6	9617 B6	9634 A4	9653 B4	
1501 B1	1542 A6	2531 D1	2593 C4	2803 D1	3602 D5	5802 C1	7202 A6	9511 B6	9527 D2	9544 A2	9567 C4	9585 B4	9601 B6	9618 C6	9635 C5	9654 C5	
1502 B1	1602 C6	2532 D2	2594 D3	2901 B6	3608 C5	6201 A3	7401 B4	9512 B3	9528 D1	9546 B3	9568 B4	9586 B4	9602 B6	9619 C6	9636 C5	9656 C4	



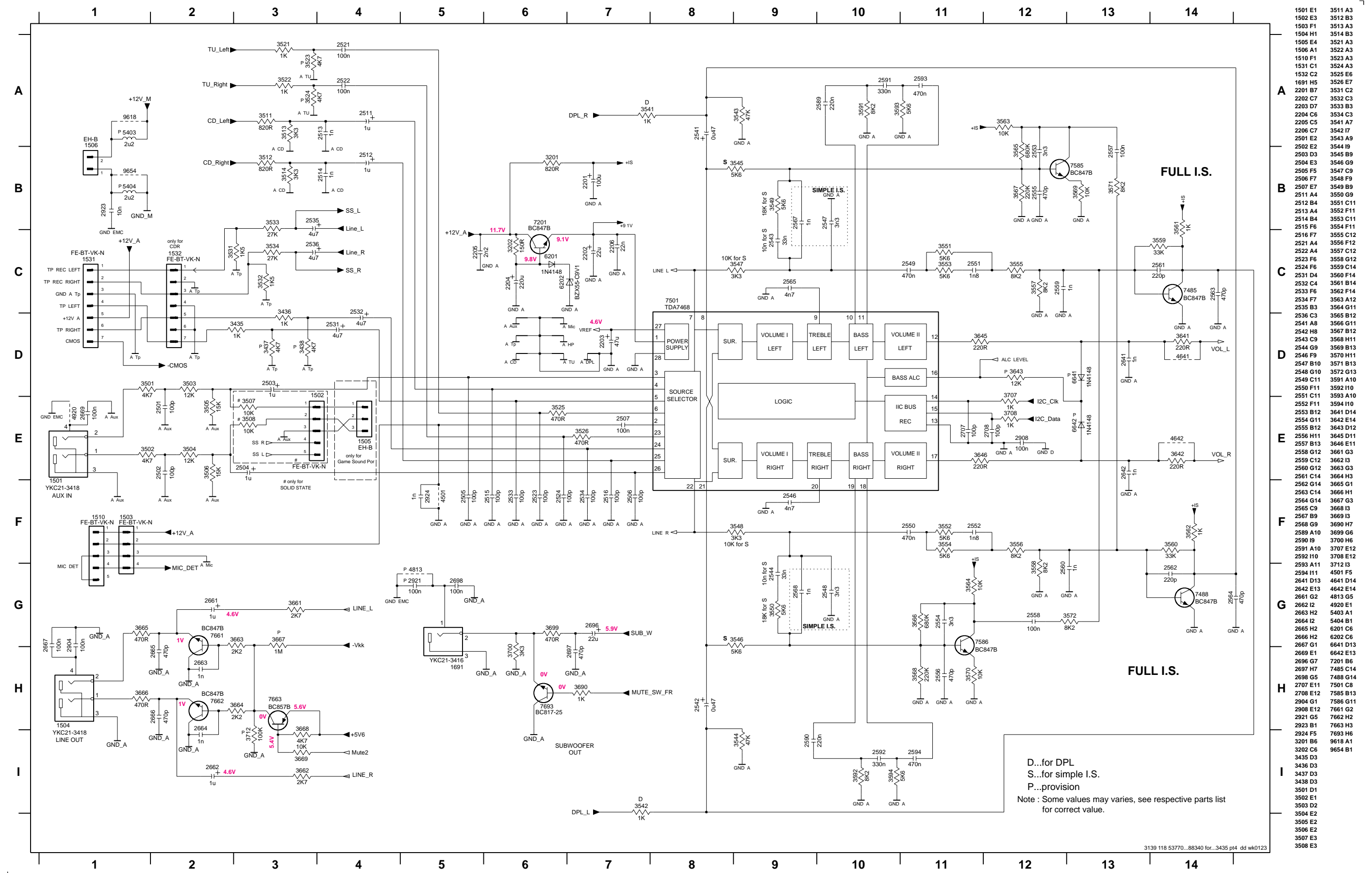
AF9 BOARD - CHIP LAYOUT

2205 A4	2523 C4	2567 C4	2641 C3	2805 D6	3202 A4	3521 A5	3552 D5	3591 C4	3624 B2	3654 B4	3676 D3	3803 D6	4124 C4	4148 A5	4904 C1	7501 C4	7693 C6
2206 C5	2524 C5	2568 D4	2642 C4	2806 D6	3401 B1	3522 A5	3553 C4	3592 D4	3625 B2	3655 B5	3677 D3	3805 C6	4125 C5	4149 C6	4905 B3	7585 C4	7802 D6
2208 B1	2533 C4	2581 D3	2653 A5	2807 C6	3402 B1	3523 A5	3554 D5	3593 C3	3626 B2	3656 A4	3678 D3	3806 C6	4126 A2	4150 C6	4906 A6	7586 D4	7803 B4
2210 B1	2534 D4	2582 D2	2654 A4	2808 C6	3404 B1	3524 A5	3555 C4	3594 D4	3629 C2	3657 A4	3683 B3	3807 D6	4127 B2	4151 A2	4907 A1	7601 C2	
2211 B1	2543 C4	2583 C3	2663 A6	2809 D6	3405 B1	3525 C4	3556 D5	3605 C1	3630 C1	3658 A4	3684 B2	3808 D6	4128 C3	4152 A2	4908 A1	7603 C2	
2401 B1	2544 D4	2584 D2	2664 A6	2810 D6	3406 B1	3526 C4	3557 C4	3606 D2	3633 B5	3659 C2	3686 B3	3809 D6	4130 C2	4153 B1	4909 C6	7604 C2	
2402 B1	2547 C4	2585 C3	2665 A6	2902 D1	3408 B3	3531 D1	3558 D5	3607 C2	3634 B5	3660 D2	3687 B2	3822 B1	4132 C1	4403 B1	4910 C6	7621 B2	
2403 B1	2548 D4	2586 D2	2666 A6	2904 A6	3409 B3	3532 D1	3559 B5	3609 C2	3635 C3	3661 A6	3688 B2	4100 A4	4133 C1	4404 A4	4911 C6	7622 B2	
2404 B2	2553 C4	2587 C3	2667 A6	2905 C2	3501 B6	3533 D2	3560 D5	3610 D2	3636 B4	3662 A6	3689 C2	4101 C6	4134 D4	4405 B3	4912 B1	7623 B2	
2501 B6	2554 D5	2588 D2	2669 B6	2908 C3	3502 A6	3534 D1	3561 B5	3611 C2	3637 C3	3664 A6	3690 C6	4104 B6	4135 C2	4406 B1	4913 B1	7635 B5	
2502 A6	2555 C4	2601 D3	2682 B2	2921 C6	3503 B6	3541 C3	3562 D5	3612 D2	3638 B4	3665 A6	3692 B3	4108 C5	4137 D1	4407 C3	4914 B3	7636 C3	
2505 C4	2556 D4	2602 C3	2683 B3	2922 C1	3504 A6	3543 C4	3563 C5	3613 C2	3639 B5	3666 A6	3694 B1	4110 C5	4138 D2	4501 C5	4915 A1	7651 A5	
2506 C5	2557 C5	2605 C3	2691 B4	2924 C6	3505 B6	3544 D4	3564 D5	3614 C2	3641 D3	3667 A6	3699 C6	4111 C6	4139 B1	4641 D3	4920 C6	7652 A4	
2507 C5	2558 D5	2606 D3	2697 C6	2950 A1	3506 B6	3545 C4	3565 C4	3615 C2	3642 D3	3668 A6	3700 C6	4112 D4	4141 B1	4642 D3	4921 C6	7653 A4	
2513 C3	2559 C4	2607 C3	2698 C6	2951 A2	3507 B6	3546 D4	3566 D5	3616 C2	3644 A2	3669 A6	3707 C3	4113 D4	4142 B1	4801 D6	7201 A4	7654 A5	
2514 C3	2560 D5	2608 D3	2707 C4	2952 A2	3508 B6	3547 C4	3567 C4	3619 C2	3645 C4	3671 D4	3708 C3	4114 C2	4143 A4	4802 A2	7402 B3	7661 A6	
2515 C4	2561 B5	2609 C2	2708 C4	2953 A2	3511 B3	3548 D4	3568 D4	3620 C1	3646 C4	3672 D3	3711 B3	4115 D4	4144 B4	4811 C3	7403 B1	7662 A6	
2516 D4	2562 D5	2610 D2	2801 C6	2954 A5	3512 B3	3549 D4	3569 B4	3621 B2	3651 B4	3673 D4	3712 A6	4116 B5	4145 A1	4812 D2	7404 B1	7663 A6	
2521 A5	2563 C3	2622 B2	2802 D6	2955 B1	3513 C3	3550 C4	3570 D4	3622 B2	3652 C1	3674 D3	3801 C6	4119 D4	4146 A4	4813 C6	7485 B5	7681 B2	
2522 A5	2564 D4	2624 D3	2804 D6	3201 A5	3514 C3	3551 C4	3582 D2	3623 B2	3653 A4	3675 D3	3802 D6	4122 C2	4147 A1	4903 A1	7488 D5	7682 B2	



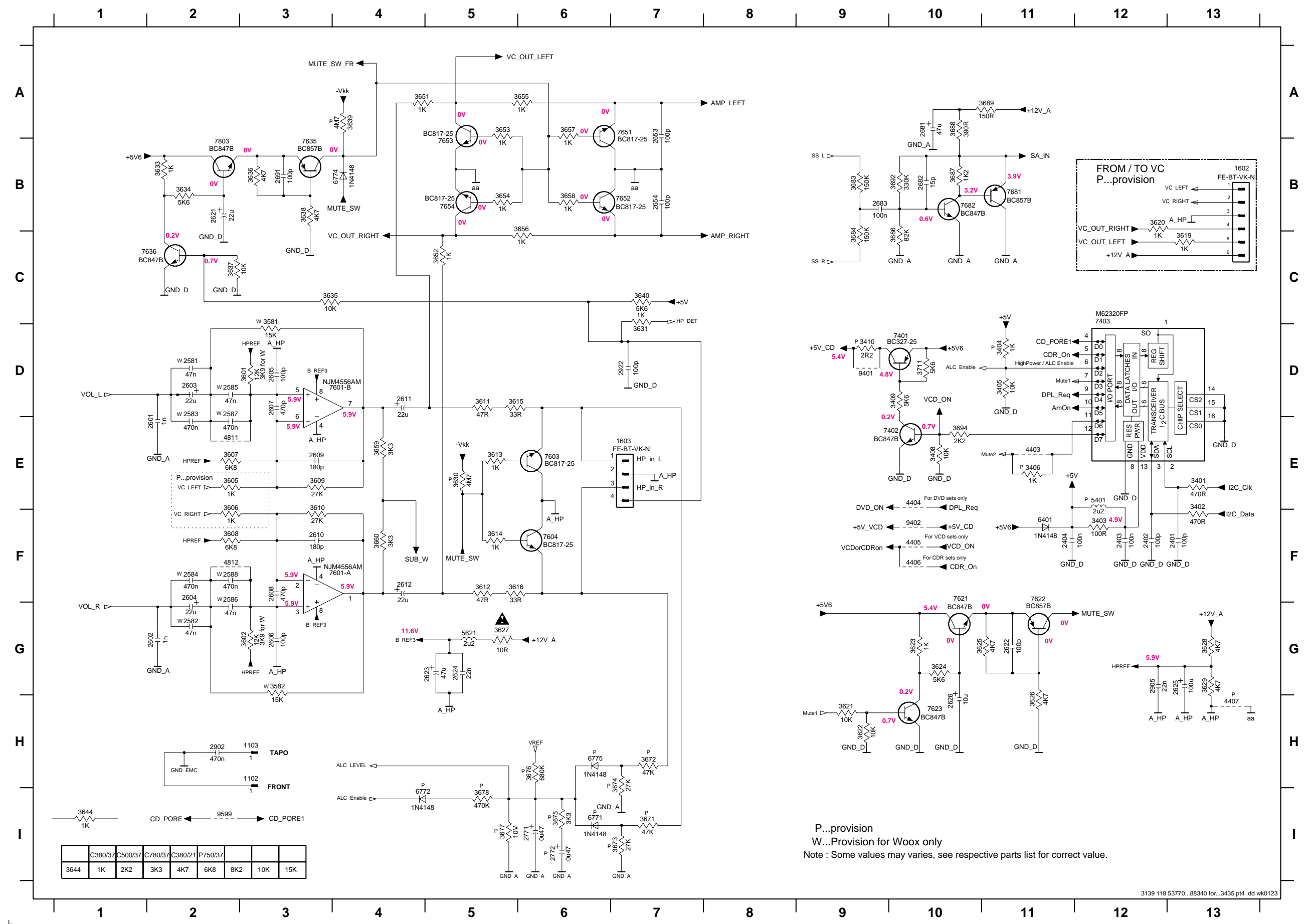
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

AF9 BOARD - CIRCUIT DIAGRAM (PART 1)



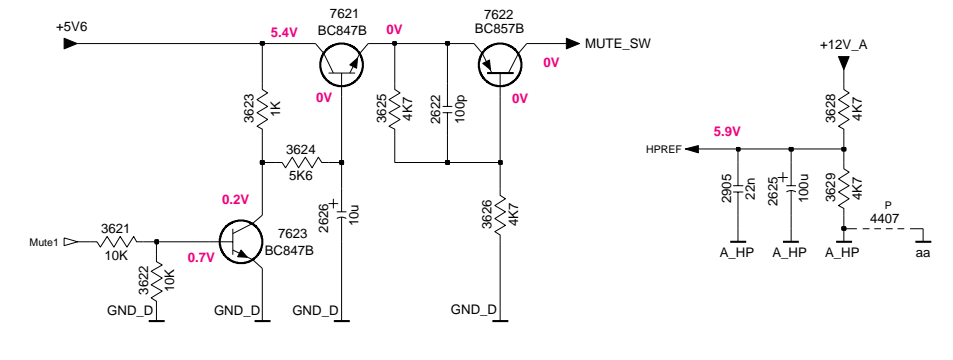
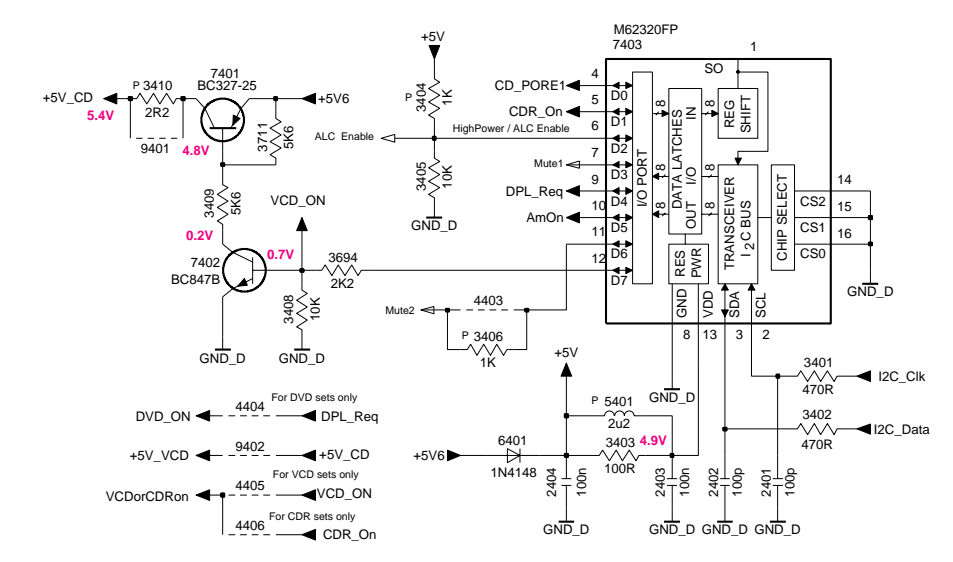
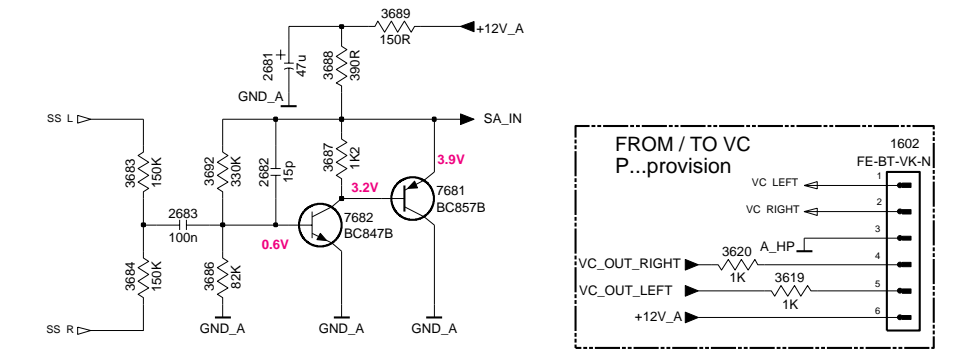
- 1501 E1
- 1502 E3
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- 1505 E4
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- 1510 F1
- 1531 C1
- 1532 C2
- 1533 C1
- 1534 B3
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- 1536 B3
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- 1538 B3
- 1539 C3
- 1540 A7
- 1541 A7
- 1542 A7
- 1543 A9
- 1544 B9
- 1545 B9
- 1546 G9
- 1547 C9
- 1548 F9
- 1549 B9
- 1550 G9
- 1551 C11
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- 1555 C12
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- 1558 G12
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- 1573 A10
- 1574 C11
- 1575 H10
- 1576 C11
- 1577 A10
- 1578 H10
- 1579 D14
- 1580 E14
- 1581 D12
- 1582 D11
- 1583 E11
- 1584 G3
- 1585 G12
- 1586 I3
- 1587 G3
- 1588 H3
- 1589 G1
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- 1593 H6
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- 1695 B3
- 1696 B3
- 1697 B3
- 1698 B3
- 1699 B3
- 1700 B3

AF9 BOARD - CIRCUIT DIAGRAM (PART 2)



- 1102 H3
- 1103 H3
- 1602 B13
- 1603 E7
- 2401 F13
- 2402 F12
- 2403 F12
- 2404 F11
- 2581 D2
- 2582 G2
- 2583 D2
- 2584 F2
- 2585 D2
- 2586 F2
- 2587 D2
- 2588 F2
- 2601 E2
- 2602 G2
- 2603 D2
- 2604 F2
- 2605 D3
- 2606 G3
- 2607 D3
- 2608 F3
- 2609 E3
- 2610 F3
- 2611 D4
- 2612 F4
- 2621 B2
- 2622 G11
- 2623 G5
- 2624 G5
- 2625 G13
- 2626 H10
- 2653 A7
- 2654 B7
- 2681 A10
- 2682 B10
- 2683 B9
- 2691 B3
- 2771 I6
- 2772 I6
- 2902 H2
- 2905 G12
- 2922 D7
- 3401 E13
- 3402 E13
- 3403 F12
- 3404 D11
- 3405 D11
- 3406 E11
- 3408 E10
- 3409 D10
- 3410 D9
- 3581 D3
- 3582 G3
- 3602 G3
- 3605 E2
- 3606 F2
- 3607 E2
- 3608 F2
- 3609 E3
- 3610 F3
- 3611 D5
- 3612 F5
- 3613 E5
- 3614 F5
- 3615 D5
- 3616 F5
- 3619 C13
- 3620 B12
- 3621 H9
- 3622 H9
- 3623 G10
- 3624 G10
- 3625 G10
- 3626 H11
- 3627 G5
- 3628 G13
- 3629 G13
- 3630 E5
- 3631 D7
- 3633 B2
- 3634 B2
- 3635 C3
- 3636 B3
- 3637 C2
- 3638 B3
- 3639 A4
- 3640 C7
- 3644 I1
- 3651 A4
- 3652 C5
- 3653 A5
- 3654 B5
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- 3656 C6
- 3657 A6
- 3658 B6
- 3659 E4
- 3660 F4
- 3671 I7
- 3672 H7
- 3673 I7
- 3674 H7
- 3675 I6
- 3676 H6
- 3677 I5
- 3678 I5
- 3683 B9
- 3684 C9
- 3686 C10
- 3687 B10
- 3688 A10
- 3689 A11
- 3692 B10
- 3694 E10
- 3711 D10
- 4403 E11
- 4404 E10
- 4405 F10
- 4406 F10
- 4407 H13
- 4811 E2
- 4812 F2
- 5401 E12
- 5621 G5
- 6401 F11
- 6771 I6
- 6772 I4
- 6774 B4
- 6775 H6
- 7401 D10
- 7402 E10
- 7403 C12
- 7601-A G3
- 7601-B D3
- 7603 E6
- 7604 F6
- 7621 F10
- 7622 F11
- 7623 H10
- 7635 B3
- 7636 C2
- 7651 A7
- 7652 B7
- 7653 B5
- 7654 B5
- 7681 B11
- 7682 B10
- 7803 B2
- 9401 D9
- 9402 F10
- 9599 I2

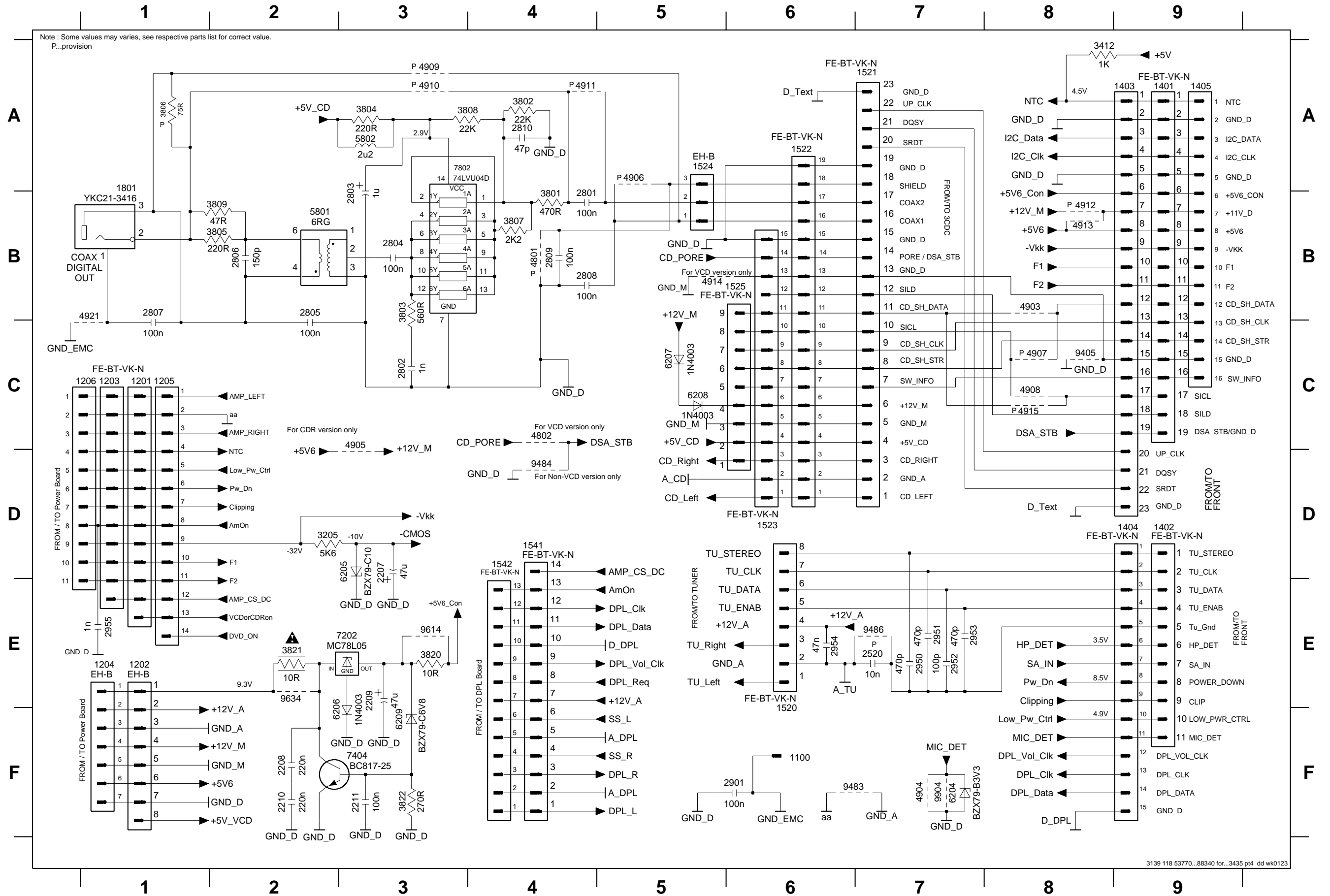
	C380/37	C500/37	C780/37	C380/21	P750/37		
3644	1K	2K2	3K3	4K7	6K8	8K2	10K



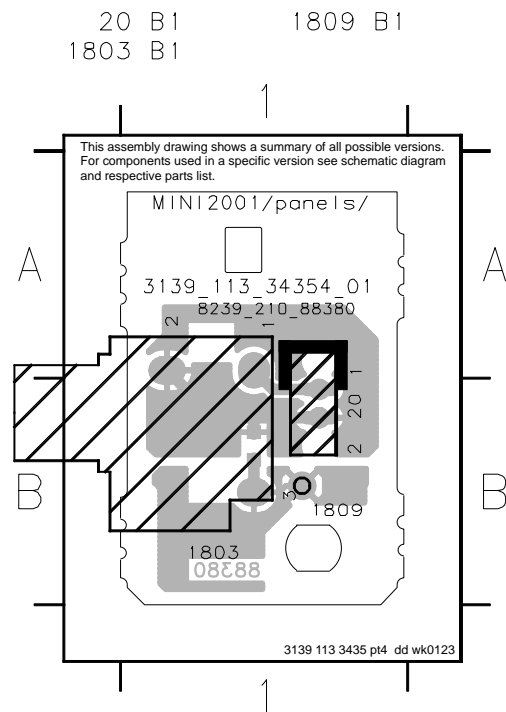
P...provision
 W...Provision for Woox only
 Note : Some values may varies, see respective parts list for correct value.

AF9 BOARD - CIRCUIT DIAGRAM (PART 3)

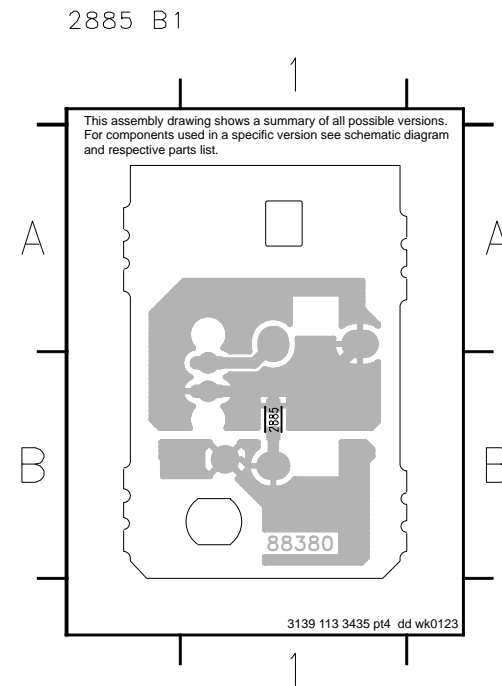
1100 F6	1203 C1	1206 C1	1403 A9	1520 E6	1523 D6	1541 D4	2207 D3	2210 F2	2801 B4	2804 B3	2807 B1	2810 A4	2951 E7	2954 E6	3412 A8	3803 B3	3806 A1	3809 B2	3822 F3	4903 B8	4906 A5	4909 A3	4912 B8	4915 C8	5802 A3	6206 F3	6209 F3	7802 A3	9484 D4	9634 E2
1201 C1	1204 E1	1401 A9	1404 D9	1521 A7	1524 A5	1542 D4	2208 F2	2211 F3	2802 C3	2805 B2	2808 B4	2901 F6	2952 E7	2955 E1	3801 B4	3804 A3	3807 B4	3820 E3	4801 B4	4904 F7	4907 C8	4910 A3	4913 B8	4921 B1	6204 F7	6207 C5	7202 E3	9405 C8	9486 E7	9904 F7
1202 E1	1205 C1	1402 D9	1405 A9	1522 A6	1525 B5	1801 A1	2209 E3	2520 E7	2803 B3	2806 B2	2809 B4	2950 E7	2953 E7	3205 D2	3802 A4	3805 B2	3808 A3	3821 E2	4802 C4	4905 C3	4908 C8	4911 A4	4914 B5	5801 B2	6205 D3	6208 C5	7404 F3	9483 F6	9614 E3	



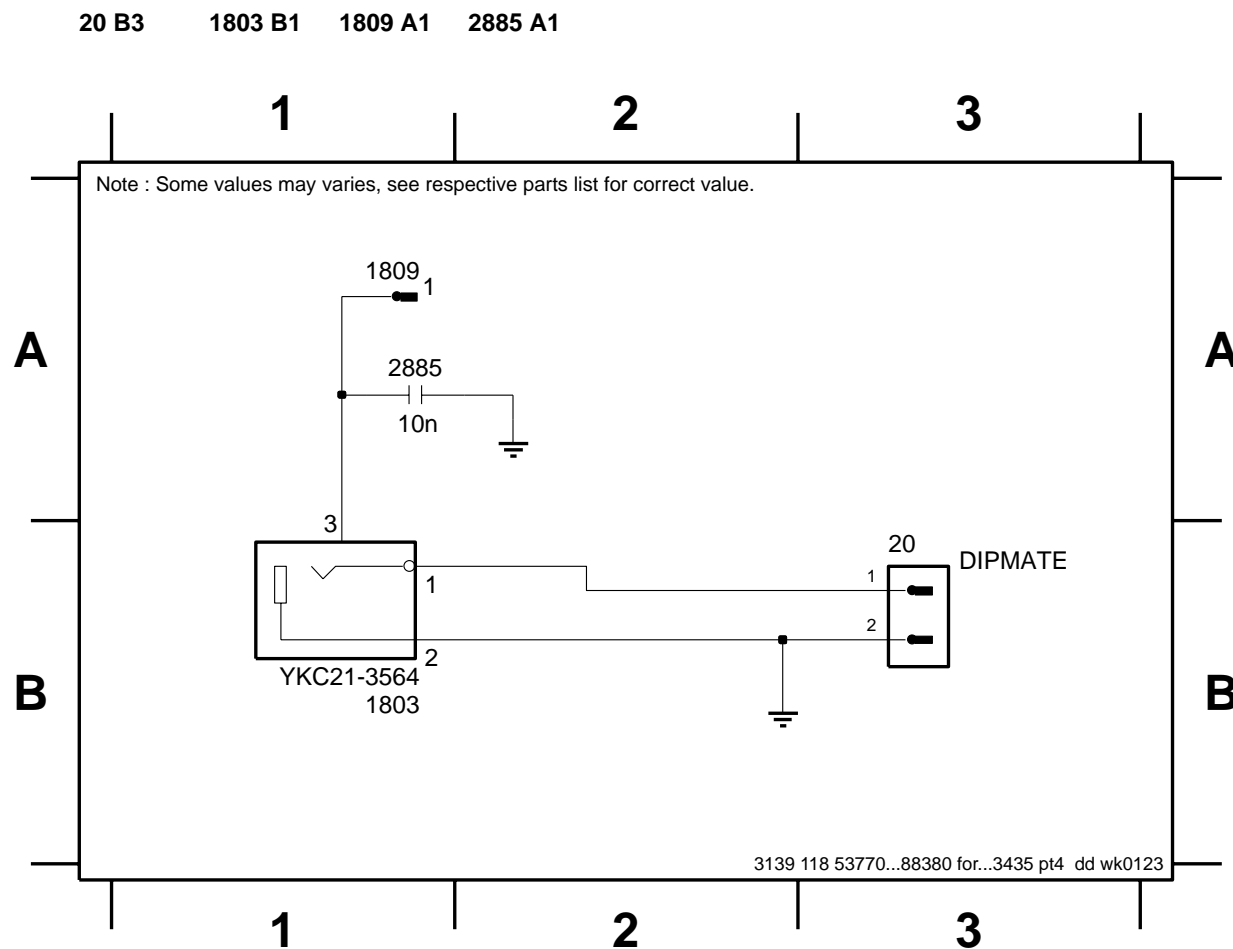
VIDEO OUT CINCH BOARD - COMPONENT LAYOUT



VIDEO OUT CINCH BOARD - CHIP LAYOUT



VIDEO OUT CINCH PART - CIRCUIT DIAGRAM



ELECTRICAL PARTS LIST - AF9 BOARD

MISCELLANEOUS

1201	4822 267 10738	Flex Connector 13P
1401	4822 265 11553	Flex Connector 19P
1402	4822 267 11039	Flex Connector 11P
1501	4822 265 20553	Cinch Socket - Aux in
1503	4822 267 10733	Flex Connector 4P
1520	4822 265 11515	Flex Connector 8P
1523	4822 265 10981	Flex Connector 15P
1531	4822 267 10953	Flex Connector 7P
1603	4822 267 10733	Flex Connector 4P
1803	4822 267 31996	Cinch Socket - Video out

CAPACITORS

2201	4822 124 40207	100uF 20% 25V
2202	4822 124 81151	22uF 50V
2203	4822 124 40433	47uF 20% 25V
2204	4822 124 40196	220uF 20% 16V
2205	4822 126 14238	2,2nF 50V
2206	4822 126 14494	22nF 10% 25V
2207	4822 124 40433	47uF 20% 25V
2401	4822 122 31765	100pF 2% 63V
2402	4822 122 31765	100pF 2% 63V
2403	4822 126 14305	100nF 10% 16V
2404	4822 126 14305	100nF 10% 16V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 121 51252	470nF 5% 63V
2504	4822 121 51252	470nF 5% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 126 14305	100nF 10% 16V
2511	4822 121 51252	470nF 5% 63V
2512	4822 121 51252	470nF 5% 63V
2513	3198 016 31020	1nF 25V
2514	3198 016 31020	1nF 25V
2515	4822 122 31765	100pF 2% 63V
2516	4822 122 31765	100pF 2% 63V
2521	4822 126 14305	100nF 10% 16V
2522	4822 126 14305	100nF 10% 16V
2523	4822 122 31765	100pF 2% 63V
2524	4822 122 31765	100pF 2% 63V
2531	4822 124 40769	4,7uF 20% 100V
2532	4822 124 40769	4,7uF 20% 100V
2533	4822 122 31765	100pF 2% 63V
2534	4822 122 31765	100pF 2% 63V
2535	4822 124 40769	4,7uF 20% 100V
2536	4822 124 40769	4,7uF 20% 100V
2541	4822 124 41407	0,47uF 20% 63V
2542	4822 124 41407	0,47uF 20% 63V
2543	5322 126 11583	10nF 10% 50V
2544	5322 126 11583	10nF 10% 50V
2546	4822 121 43856	4,7nF 5% 250V
2547	5322 126 11579	3,3nF 10% 63V

2548	5322 126 11579	3,3nF 10% 63V
2565	4822 121 43856	4,7nF 5% 250V
2567	3198 016 31020	1nF 25V
2568	3198 016 31020	1nF 25V
2589	4822 121 42408	220nF 5% 63V
2590	4822 121 42408	220nF 5% 63V
2591	5322 121 42661	330nF 5% 63V
2592	5322 121 42661	330nF 5% 63V
2593	4822 121 51252	470nF 5% 63V
2594	4822 121 51252	470nF 5% 63V
2601	3198 016 31020	1nF 25V
2602	3198 016 31020	1nF 25V
2603	4822 124 81151	22uF 50V
2604	4822 124 81151	22uF 50V
2605	4822 122 31765	100pF 2% 63V
2606	4822 122 31765	100pF 2% 63V
2607	4822 126 13881	470pF 5% 50V
2608	4822 126 13881	470pF 5% 50V
2609	4822 126 14508	180pF 5% 50V
2610	4822 126 14508	180pF 5% 50V
2611	4822 124 81151	22uF 50V
2612	4822 124 81151	22uF 50V
2621	4822 124 81151	22uF 50V
2622	4822 122 31765	100pF 2% 63V
2623	4822 124 40433	47uF 20% 25V
2624	3198 017 42230	22nF 50V
2625	4822 124 40207	100uF 20% 25V
2626	4822 124 40769	4,7uF 20% 100V
2641	3198 016 31020	1nF 25V
2642	3198 016 31020	1nF 25V
2653	4822 122 31765	100pF 2% 63V
2654	4822 122 31765	100pF 2% 63V
2669	4822 126 14305	100nF 10% 16V
2681	4822 124 40433	47uF 20% 25V
2682	4822 122 33752	15pF 5% 50V
2683	4822 126 14305	100nF 10% 16V
2691	4822 122 31765	100pF 2% 63V
2707	4822 122 31765	100pF 2% 63V
2708	4822 122 31765	100pF 2% 63V
2771	4822 124 41407	0,47uF 20% 63V
2885	5322 126 11583	10nF 10% 50V
2901	4822 126 12882	100nF +80/-20% 50V
2902	3198 017 44740	470nF 10V
2905	3198 017 42230	22nF 50V
2908	4822 126 14305	100nF 10% 16V
2950	4822 126 13881	470pF 5% 50V
2951	4822 126 13881	470pF 5% 50V
2952	4822 122 31765	100pF 2% 63V
2953	4822 126 13881	470pF 5% 50V

RESISTORS

3201	4822 117 12968	820R 5% 0,62W
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ELECTRICAL PARTS LIST - AF9 BOARD

RESISTORS

3202	4822 051 30151	150R 5% 0,062W	3621	4822 051 30103	10k 5% 0,062W
3205	4822 116 52289	5k6 5% 0,5W	3622	4822 051 30103	10k 5% 0,062W
3401	4822 051 30471	470R 5% 0,062W	3623	4822 051 30102	1k 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W	3624	4822 051 30562	5k6 5% 0,063W
3403	4822 116 52175	100R 5% 0,5W	3625	4822 051 30472	4k7 5% 0,062W
3405	4822 051 30103	10k 5% 0,062W	3626	4822 051 30472	4k7 5% 0,062W
3408	4822 051 30103	10k 5% 0,062W	3627	4822 052 10109	△ 10R 5% 0,33W
3412	4822 050 11002	1k 1% 0,4W	3628	4822 116 52283	4k7 5% 0,5W
3435	4822 050 11002	1k 1% 0,4W	3629	4822 051 30472	4k7 5% 0,062W
3436	4822 050 11002	1k 1% 0,4W	3631	4822 050 11002	1k 1% 0,4W
3501	4822 051 30472	4k7 5% 0,062W	3633	4822 051 30102	1k 5% 0,062W
3502	4822 051 30472	4k7 5% 0,062W	3634	4822 051 30562	5k6 5% 0,063W
3503	4822 051 30123	12k 5% 0,062W	3635	4822 051 30103	10k 5% 0,062W
3504	4822 051 30123	12k 5% 0,062W	3636	4822 051 30472	4k7 5% 0,062W
3505	4822 051 30153	15k 5% 0,062W	3637	4822 051 30103	10k 5% 0,062W
3506	4822 051 30153	15k 5% 0,062W	3638	4822 051 30472	4k7 5% 0,062W
3511	4822 117 12968	820R 5% 0,62W	3640	4822 116 52289	5k6 5% 0,5W
3512	4822 117 12968	820R 5% 0,62W	3644	4822 051 30332	3k3 5% 0,062W
3513	4822 051 30332	3k3 5% 0,062W	3645	4822 051 30221	220R 5% 0,062W
3514	4822 051 30332	3k3 5% 0,062W	3646	4822 051 30221	220R 5% 0,062W
3521	4822 051 30102	1k 5% 0,062W	3651	4822 051 30102	1k 5% 0,062W
3522	4822 051 30102	1k 5% 0,062W	3652	4822 051 30102	1k 5% 0,062W
3525	4822 051 30471	470R 5% 0,062W	3653	4822 051 30102	1k 5% 0,062W
3526	4822 051 30471	470R 5% 0,062W	3654	4822 051 30102	1k 5% 0,062W
3531	4822 051 30152	1k5 5% 0,062W	3655	4822 051 30102	1k 5% 0,062W
3532	4822 051 30152	1k5 5% 0,062W	3656	4822 051 30102	1k 5% 0,062W
3533	4822 051 30273	27k 5% 0,062W	3657	4822 051 30102	1k 5% 0,062W
3534	4822 051 30273	27k 5% 0,062W	3658	4822 051 30102	1k 5% 0,062W
3543	4822 117 12925	47k 1% 0,063W	3683	4822 051 30154	150k 5% 0,062W
3544	4822 117 12925	47k 1% 0,063W	3684	4822 051 30154	150k 5% 0,062W
3545	4822 051 30562	5k6 5% 0,063W	3686	4822 117 12864	82k 5% 0,6W
3546	4822 051 30562	5k6 5% 0,063W	3687	4822 117 11817	1k2 1% 1/16W
3547	4822 051 30103	10k 5% 0,062W	3688	4822 051 30391	390R 5% 0,062W
3548	4822 051 30103	10k 5% 0,062W	3689	4822 051 30151	150R 5% 0,062W
3549	4822 051 30183	18k 5% 0,062W	3692	4822 051 30334	330k 5% 0,062W
3550	4822 051 30183	18k 5% 0,062W	3694	4822 051 30222	2k2 5% 0,062W
3591	4822 117 12902	8k2 1% 0,063W	3707	4822 051 30102	1k 5% 0,062W
3592	4822 117 12902	8k2 1% 0,063W	3708	4822 051 30102	1k 5% 0,062W
3593	4822 051 30562	5k6 5% 0,063W	4100	4822 051 30008	OR Jumper 0603
3594	4822 051 30562	5k6 5% 0,063W	4101	4822 051 30008	OR Jumper 0603
3601	4822 116 52238	12k 5% 0,5W	4104	4822 051 30008	OR Jumper 0603
3602	4822 116 52238	12k 5% 0,5W	4108	4822 051 30008	OR Jumper 0603
3607	4822 051 30682	6k8 5% 0,062W	4110	4822 051 30008	OR Jumper 0603
3608	4822 116 83961	6k8 5%	4111	4822 051 30008	OR Jumper 0603
3609	4822 051 30273	27k 5% 0,062W	4112	4822 051 30008	OR Jumper 0603
3610	4822 051 30273	27k 5% 0,062W	4113	4822 051 30008	OR Jumper 0603
3611	4822 051 30479	47R 5% 0,062W	4114	4822 051 30008	OR Jumper 0603
3612	4822 051 30479	47R 5% 0,062W	4115	4822 051 30008	OR Jumper 0603
3613	4822 051 30102	1k 5% 0,062W	4116	4822 051 30008	OR Jumper 0603
3614	4822 051 30102	1k 5% 0,062W	4119	4822 051 30008	OR Jumper 0603
3615	4822 051 30339	33R 5% 0,062W	4122	4822 051 30008	OR Jumper 0603
3616	4822 051 30339	33R 5% 0,062W	4124	4822 051 30008	OR Jumper 0603

ELECTRICAL PARTS LIST - AF9 BOARD

4125	4822 051 30008	OR Jumper 0603	7501	9322 150 74668	TDA7468D
4126	4822 051 30008	OR Jumper 0603	7601	4822 209 31378	NJM4556AM
4127	4822 051 30008	OR Jumper 0603	7603	4822 130 42804	BC817-25
4128	4822 051 30008	OR Jumper 0603	7604	4822 130 42804	BC817-25
4130	4822 051 30008	OR Jumper 0603	7621	4822 130 60511	BC847B
4132	4822 051 30008	OR Jumper 0603	7622	4822 130 60373	BC857B
4133	4822 051 30008	OR Jumper 0603	7623	4822 130 60511	BC847B
4134	4822 051 30008	OR Jumper 0603	7635	4822 130 60373	BC857B
4135	4822 051 30008	OR Jumper 0603	7636	4822 130 60511	BC847B
4137	4822 051 30008	OR Jumper 0603	7651	4822 130 42804	BC817-25
4138	4822 051 30008	OR Jumper 0603	7652	4822 130 42804	BC817-25
4139	4822 051 30008	OR Jumper 0603	7653	4822 130 42804	BC817-25
4141	4822 051 30008	OR Jumper 0603	7654	4822 130 42804	BC817-25
4142	4822 051 30008	OR Jumper 0603	7663	4822 130 60373	BC857B
4143	4822 051 30008	OR Jumper 0603	7681	4822 130 60373	BC857B
4144	4822 051 30008	OR Jumper 0603	7682	4822 130 60511	BC847B
4145	4822 051 30008	OR Jumper 0603	7803	4822 130 60511	BC847B
4146	4822 051 30008	OR Jumper 0603			
4147	4822 051 30008	OR Jumper 0603			
4148	4822 051 30008	OR Jumper 0603			
4151	4822 051 30008	OR Jumper 0603			
4152	4822 051 30008	OR Jumper 0603			
4153	4822 051 30008	OR Jumper 0603			
4403	4822 051 30008	OR Jumper 0603			
4405	4822 051 30008	OR Jumper 0603			
4641	4822 051 30008	OR Jumper 0603			
4642	4822 051 30008	OR Jumper 0603			
4802	4822 051 30008	OR Jumper 0603			
4811	4822 051 30008	OR Jumper 0603			
4812	4822 051 30008	OR Jumper 0603			
4907	4822 051 30008	OR Jumper 0603			
4913	4822 051 30008	OR Jumper 0603			
4914	4822 051 30008	OR Jumper 0603			
4915	4822 051 30008	OR Jumper 0603			
4921	4822 051 30008	OR Jumper 0603			

COILS & FILTERS

5621	4822 157 62552	Coil 2,2uH 5%
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DIODES

6201	4822 130 30621	1N4148
6202	4822 130 30862	BZX55-C9V1
6204	3198 010 53380	BZX79-B3V3
6205	4822 130 61219	BZX79-C10
6207	4822 130 31878	1N4003G
6208	4822 130 31878	1N4003G
6401	4822 130 30621	1N4148
6774	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7201	4822 130 60511	BC847B
7403	4822 209 17345	M62320FP

Note : Only the parts mentioned in this list are normal service spare parts.

VCD GND ISOLATOR BOARD

VCDGNDISOLATOR BOARD - COMPONENT LAYOUT

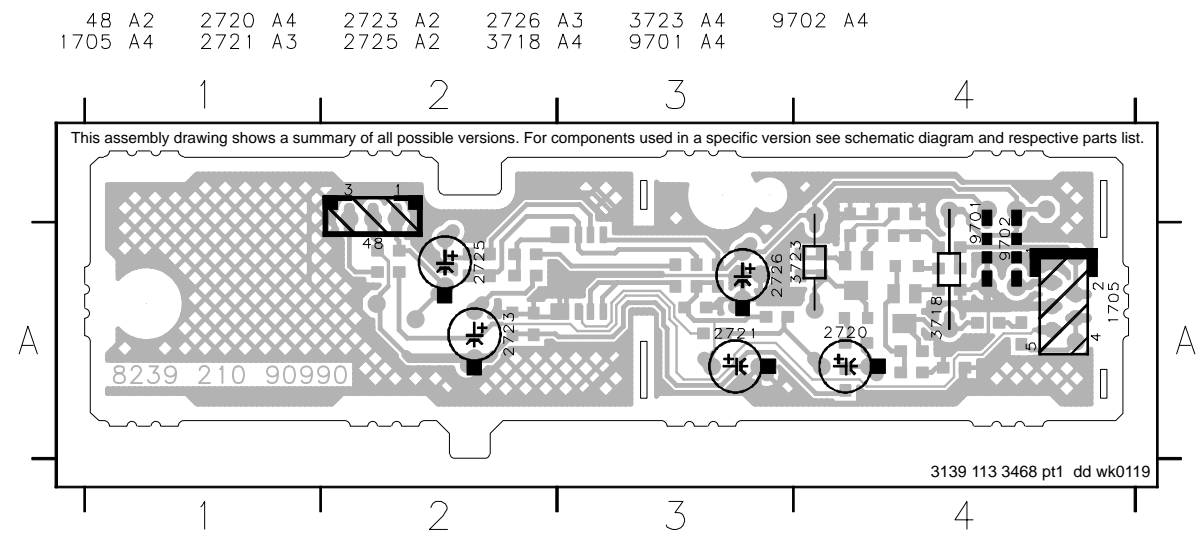
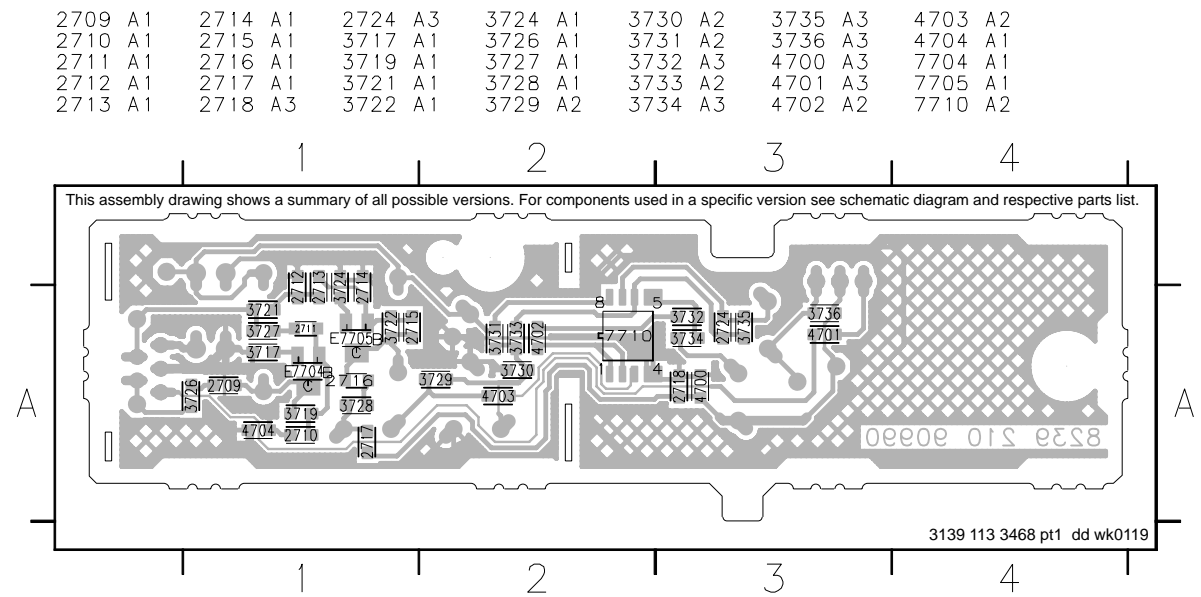


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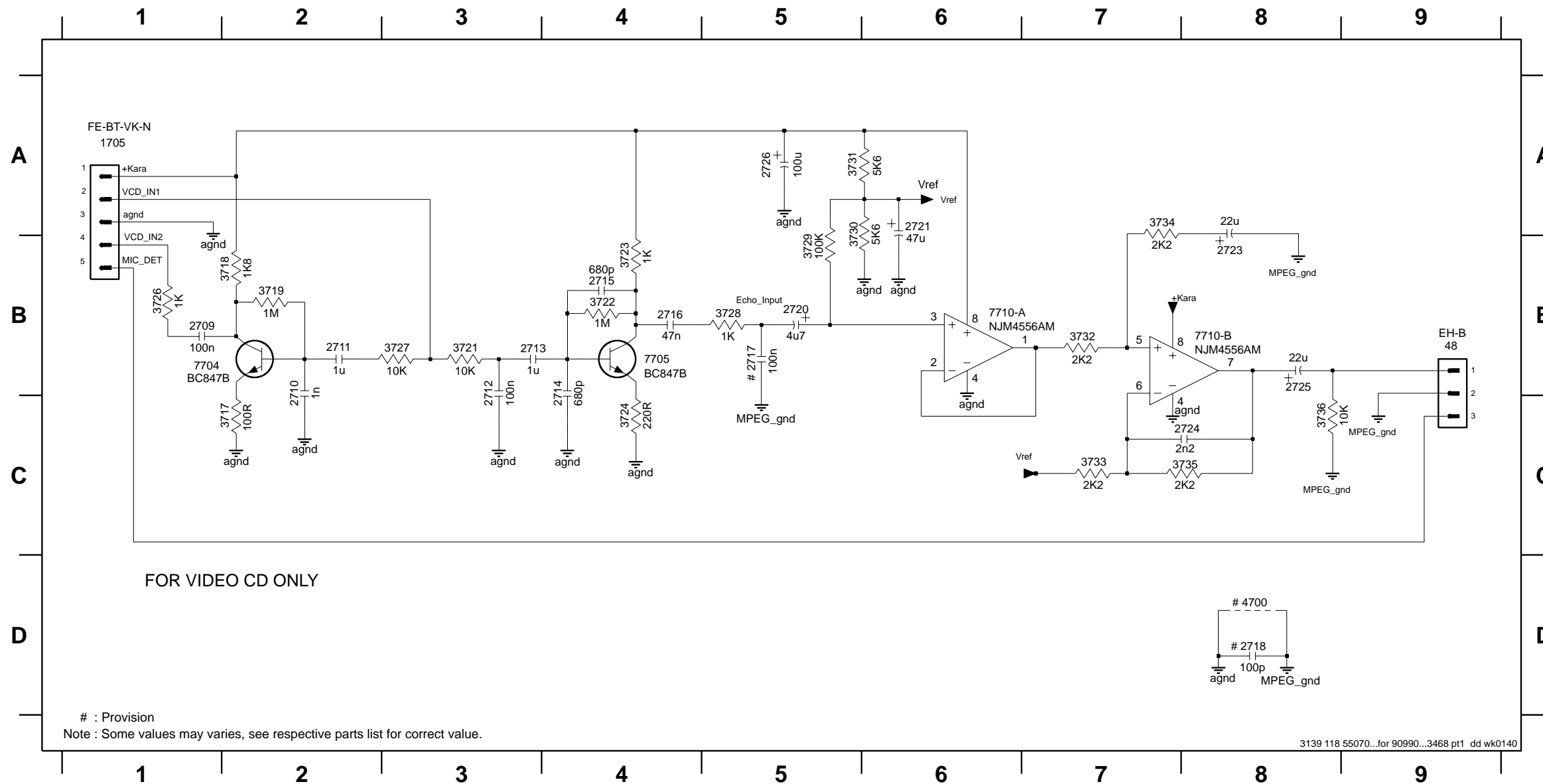
Component & Chip layout	13-1
Circuit diagram.....	13-2
Electrical parts list.....	13-2

VCD GND ISOLATOR BOARD - CHIP LAYOUT



VCD GND ISOLATOR BOARD - CIRCUIT DIAGRAM

48 B9	2710 B2	2713 B3	2716 B4	2720 B5	2724 C8	3717 C2	3721 B3	3724 C4	3728 B5	3731 A6	3734 A7	4700 D8	7710-A B6
1705 A1	2711 B2	2714 B4	2717 B5	2721 A6	2725 B8	3718 B2	3722 B4	3726 B1	3729 A5	3732 B7	3735 C8	7704 B1	7710-B B8
2709 B1	2712 B3	2715 B4	2718 D8	2723 B8	2726 A5	3719 B2	3723 B4	3727 B3	3730 A5	3733 C7	3736 C8	7705 B4	



ELECTRICAL PARTS LIST - VCD GND ISOLATOR BOARD

MISCELLANEOUS

1705 4822 267 10954 Flex Connector 5P

CAPACITORS

2709 4822 126 14305 100nF 10% 16V
 2710 5322 126 11578 1nF 10% 50V
 2711 4822 126 14043 1µF +80/-20% 16V
 2712 4822 126 14305 100nF 10% 16V
 2713 3198 017 41050 1µF 10V
 2714 3198 016 36810 680pF 25V
 2715 4822 126 13909 680pF 10% 50V
 2716 3198 017 34730 47nF 16V
 2720 4822 124 40769 4,7µF 20% 100V

2721 4822 124 40433 47µF 20% 25V
 2723 4822 124 81151 22µF 50V
 2724 4822 126 14238 2,2nF 50V
 2725 4822 124 81151 22µF 50V
 2726 4822 124 40207 100µF 20% 25V

RESISTORS

3717 4822 051 30101 100R 5% 0,062W
 3718 4822 116 52249 1k8 5% 0,5W
 3719 4822 051 30105 1M 5% 0,062W
 3721 4822 051 30103 10k 5% 0,062W
 3722 4822 051 30105 1M 5% 0,062W

ELECTRICAL PARTS LIST - VCD GND ISOLATOR BOARD

3723 4822 050 11002 1k 1% 0,4W
 3724 4822 051 30221 220R 5% 0,062W
 3726 4822 051 30102 1k 5% 0,062W
 3727 4822 051 30103 10k 5% 0,062W
 3728 4822 051 30102 1k 5% 0,062W
 3729 4822 117 13632 100k 1% 0,62W
 3730 4822 051 30562 5k6 5% 0,063W
 3731 4822 051 30562 5k6 5% 0,063W
 3732 4822 051 30222 2k2 5% 0,062W
 3733 4822 051 30222 2k2 5% 0,062W
 3734 4822 051 30222 2k2 5% 0,062W
 3735 4822 051 30222 2k2 5% 0,062W

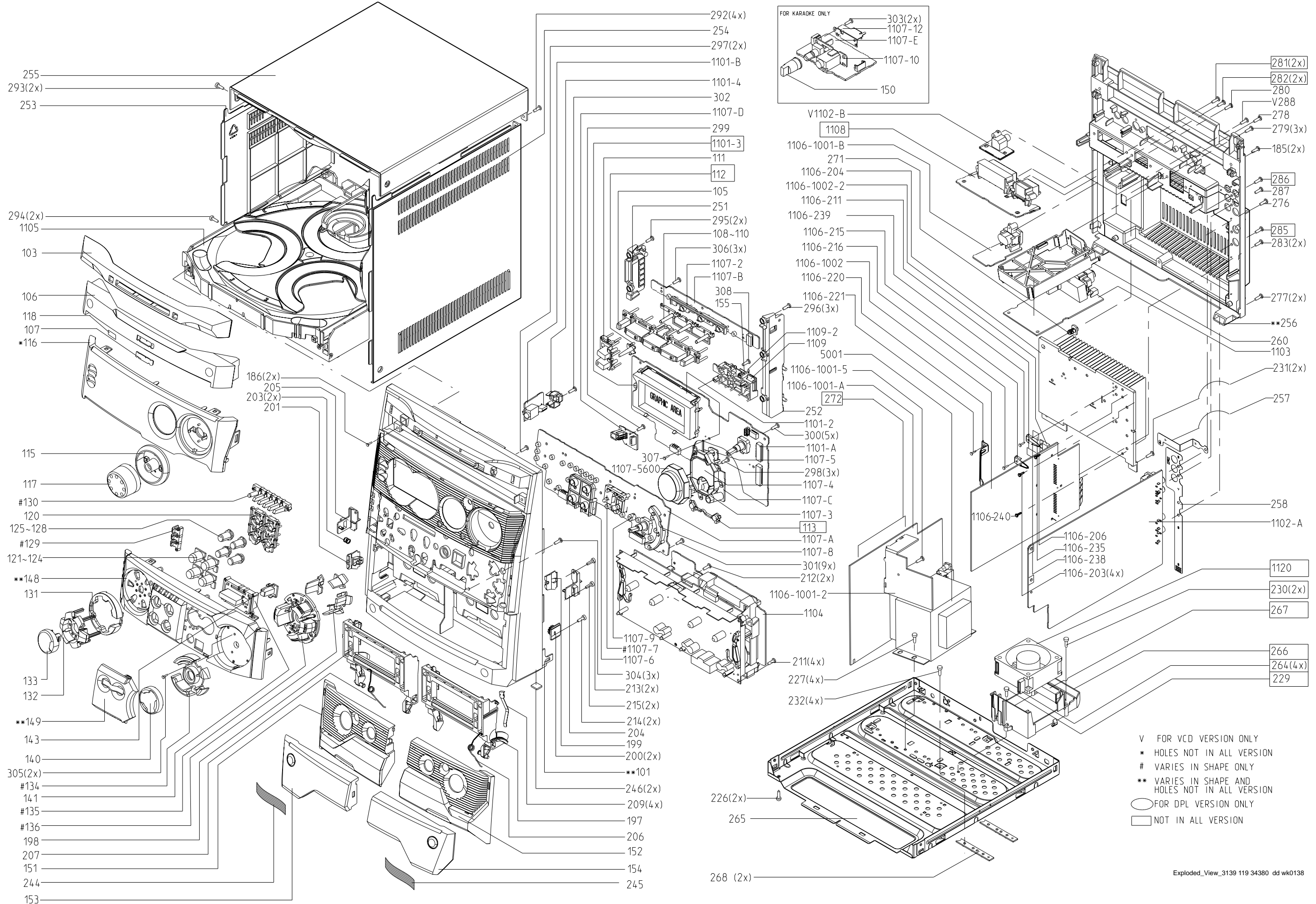
3736 4822 051 30103 10k 5% 0,062W
 4701 4822 051 30008 0R Jumper 0603
 4702 4822 051 30008 0R Jumper 0603
 4703 4822 051 30008 0R Jumper 0603
 4704 4822 051 30008 0R Jumper 0603

TRANSISTORS & INTEGRATED CIRCUITS

7704 4822 130 60511 BC847B
 7705 4822 130 60511 BC847B
 7710 4822 209 31378 NJM4556AM

Note : Only the parts mentioned in this list are normal service spare parts.

SET MECHANICAL EXPLODED VIEW



V FOR VCD VERSION ONLY
 * HOLES NOT IN ALL VERSION
 # VARIES IN SHAPE ONLY
 ** VARIES IN SHAPE AND HOLES NOT IN ALL VERSION
 ○ FOR DPL VERSION ONLY
 □ NOT IN ALL VERSION

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT**SCREW LISTS - MAIN UNIT**

0101	3140 117 65071	Cabinet Front	0209	4822 492 42787	Spring Cassette
0103	3139 118 14320	Window CDC	0246	4822 462 40683	Foot Rubber (SQ)
0105	3139 118 16820	Button Set CDC	0251	3139 114 72750	Bracket CDC Left
0106	3139 118 15600	Cover Tray VCD	0252	3139 114 72760	Bracket CDC Right
0107	4822 454 13408	Badge Philips	0253	3139 114 73570	Panel Left
0111	3139 118 14870	Button Power	0254	3139 114 73580	Panel Right
0115	3139 118 14370	Cover Ring Volume/VU Chrome	0255	3139 114 73590	Cover Top
0116	3140 117 65081	Window Display	0256	3139 114 73870	Panel Rear
0117	3139 118 16840	Knob Volume Rotary	0271	3139 114 71010	Stopper Heatsink
0118	3139 110 00150	Badge Super Error Correction	0350	3140 118 51401	L/R Loudspeaker Box
0120	3139 114 72360	Frame Button Set Source Select	0351	4822 303 50063	FM Aerial
0121	3139 118 15640	Button Cap Source-VCD	0356	3139 228 89700	Remote Control
0122	3139 118 15650	Button Cap Source-VTuner	0384	2422 549 45067	Antenna AM Loop
0123	3139 118 15660	Button Cap Source-VTape	0385	2422 070 98151 Δ	Mains Cord
0124	3139 118 15670	Button Cap Source-VAux	0387	3140 115 30031	Instruction For Use
0125	3139 114 72410	Lightguide Source-CD	0395	4822 263 21206	Cable Cinch 1,7m
0126	3139 114 72420	Lightguide Source-Tuner	1204	3139 110 35010	FFC Foil 07P/340/07P AD
0127	3139 114 72430	Lightguide Source-Tape	1300	4822 320 12246	FFC Foil 13P/220/13P AD
0128	3139 114 72440	Lightguide Source-Aux	1401	3139 110 34970	FFC Foil 19P/180/19P AD
0129	3139 118 15320	Button Set Title/PBC/Return	1402	3139 110 34610	FFC Foil 11P/180/11P AD
0130	3139 118 14440	Button Prog/Time-Disp	1403	3139 110 35130	FFC Foil 06P/180/06P AD
0131	3139 118 16850	Cover Ring Func Control	1404	3139 110 35280	FFC Foil 10P/120/10P AD
0132	3139 118 14460	Button Set Func Control	1405	3139 110 35000	FFC Foil 08P/120/08P AD
0133	3139 118 15610	Cap Func Control	1406	4822 320 12752	FFC Foil 07P/180/07P AD
0134	3140 117 65141	Cover Ring DSC/VAC/DBB/IS	1407	3139 110 34010	FFC Foil 06P/140/06P AD
0135	3140 117 65131	Button DSC/VAC/DBB/IS	1501	3139 110 35120	FFC Foil 04P/400/04P BD
0140	3139 118 14500	Knob Jog Rotary	1502	3139 110 33940	CWAS FFC BD 04P 180
0141	3139 118 16630	Button Max	1503	3139 110 35880	FFC Foil 15P/180/15P BD
0148	3139 118 17250	Cover Orn Control	1507	3139 110 35330	FFC Foil 05P/180/05P AD
0149	3140 117 65151	Cover Control Max	1601	3139 110 35050	FFC Foil 08P/220/08P AD
0150	3139 118 15580	Knob Karaoke	1702	4822 320 12654	FFC Foil 07P/220/07P AD
0151	3139 118 16800	Cover Cassette Left	5001	3103 308 30640 Δ	Mains Transformer
0152	3139 118 16810	Cover Cassette Right	5002	4322 020 90860	Toroid Ring
0153	3139 114 74910	Lens Cassette Left			
0154	3139 114 74920	Lens Cassette Right			
0197	3139 114 68630	Door Cassette Right			
0198	3139 114 68620	Door Cassette Left			
0199	4822 402 10621	Push-Catch			
0200	4822 529 10322	Damper Assembly			
0201	3139 114 68640	Push Catch Left			
0203	4822 492 11344	Spring Compression			
0204	4822 402 11246	Bracket Right			
0205	4822 402 11245	Bracket Left			
0206	3139 111 01380	Spring Torsion Right			
0207	3139 111 01390	Spring Torsion Left			

LEFT/RIGHT LOUDSPEAKER BOX BREAKDOWN

9965 000 11085	Woofers 5,25" 6R 60W	185	D3 x 12
9965 000 11086	Tweeter	186	D3 x 12
9965 000 07467	Cosmetic Cap	211	D3 x 12
9965 000 09597	Piezo Assembly	212	D3 x 12
9965 000 09598	Woofers Ring	213	D3 x 12
9965 000 07457	Cloth Frame Assembly	214	M3 x 12
9965 000 03233	Grommet (Dia. 11mm)	215	M3 x 6
		226	M3 x 6
		227	M3 x 6
		231	M3 x 6

Note : Only the parts mentioned in this list are normal service spare parts.

232	M3 x 6
276	M3 x 6
277	M3 x 10
278	D3 x 16
279	D3 x 12
280	D3 x 12
283	D3 x 12
287	D3 x 12
288	D3 x 12
292	M3 x 12
293	M3 x 12
294	M3 x 10
295	D3 x 12
296	D3 x 12
297	D2 x 8
298	D3 x 10
299	D3 x 10
300	D3 x 12
301	D3 x 12
302	D3 x 12
303	D3 x 12
304	D3 x 12
305	D2 x 8
306	D3 x 12
307	D3 x 12
308	D3 x 12

Note : Only the parts mentioned in this list are normal service spare parts.