Mini System

FW-P88/22/37 & FW-C83/22

FW-C85/22/34/37

Service
Service
Service

Service Manual

COMPACT disc DIGITAL AUDIO

TABLE OF CONTENTS

	Page
Location of pc boards & Version variations	1-2
Technical Specifications	1-3
Measurement setup	1-4
Service Aids, Safety Instruction, etc.	1-5
Instruction for use: FW-P88/22 version excerpt	2-1
Disassembly Instructions & Service positions	3-1
Service Test Programs	3-4
Set Block diagram	4
Set Wiring diagram	5
Front Board	6
Tuner Board: ECO5 Sys	7B
Tuner 95	7D
ETF7 ND Tape Module	9
ETF7 DB Tape Module	9A
3CDC-LC Module	10
Power5-VA (70W/100W) Module	11
Power5-VA (120W/130W) Module	11A
AF8 Board	12
DPL Board	13
Set Mechanical Exploded view & parts list	14

CLASS 1
LASER PRODUCT

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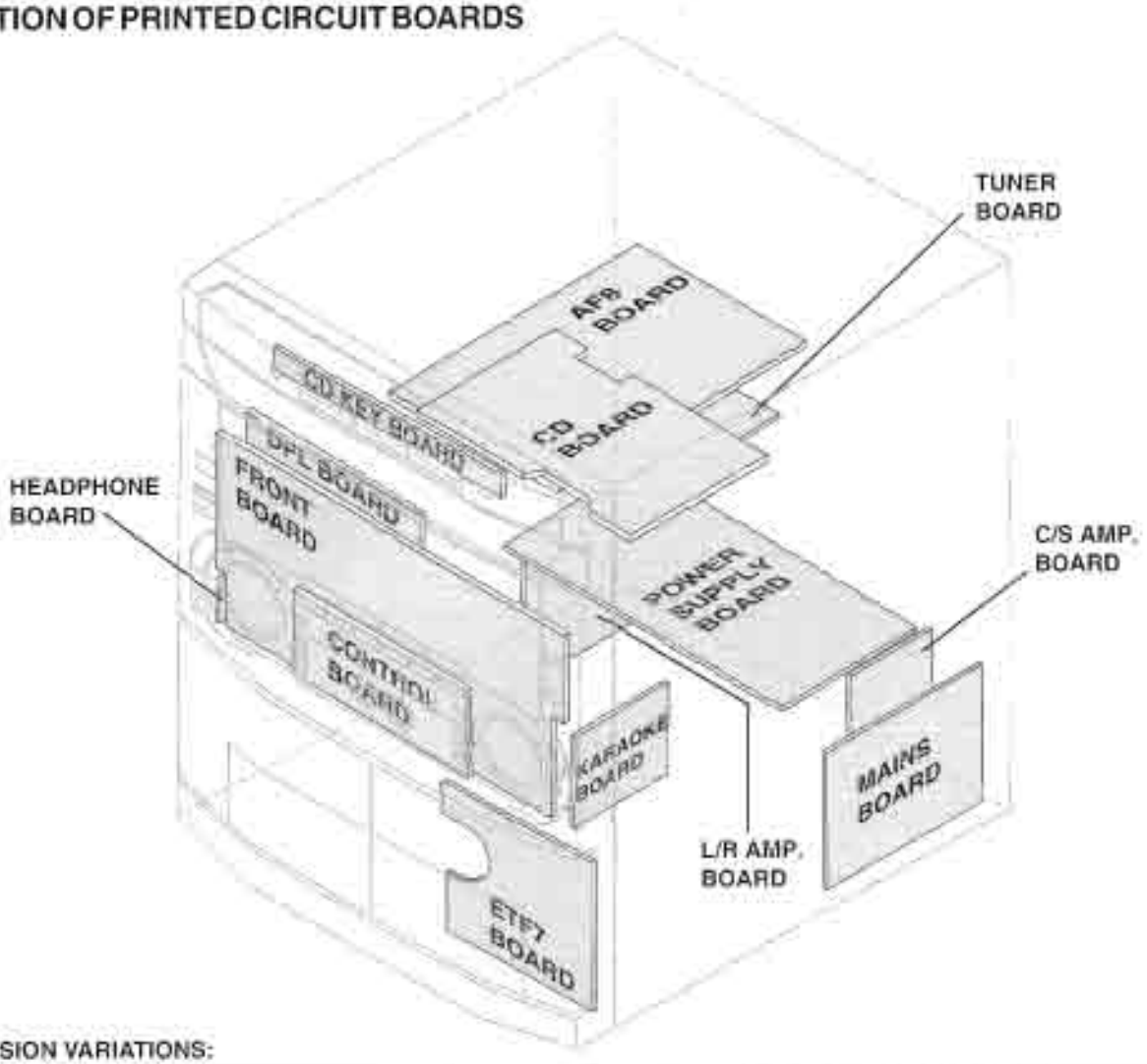
PCS 103 596

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

Type /Versions: / Features & Board in used:	FW-C85				FW-P88		FW-C83			
	/21 /21M	/22	/34	/37	/22	/37	/22			
Aux In	x	x	x	x	x	x	x			
Line Out	x	x	x	x	x	x	x			
Surround Out					x	x				
Subwooler Out	x	x	x	x	x	x	x			
Digital Out	x	x	x	x	x	x	x			
Matrix Surround										
CD Text		x	x		x		x			
Dolby B		x	x		x		x			
RDS		x	x		x		x			
News		x	x		x		x			
Dolby Prologic (DPL)					x	x				
Incredible Surround										
Karaoke Features	x									
Voltage Selector	x									
Low Power Standby (Clock Display Off)	x	x	x	x	x	x	x			
Tuner board - ECO5 Sys	x		x	x		x				
Tuner board - Tuner 95		x			x		x			
ETF7 ND/DD/FR - Chapter 9	x			x		x				
ETF7 DB/DD/FR - Chapter 9A		x	x		x		x			
Power5-VA (70W/100W) - Chapter 11		x	x	x	x		x			
Power5-VA (120W/130W) - Chapter 11A	x					x				
Center/Surround Channel					x	x				

SPECIFICATIONS

GENERAL:

Mains voltage : 110-127V/220-240V Switchable for /21/21M
120V for /37
220V for /33
220-230V for /22/34
230-240V for /30

Mains frequency : 50/60Hz

Power consumption : < 2W at Low Power Standby
: < 20W at Standby
: 130W at 1/8 rated power out (P88/22, C83/22)
: 170W at 1/8 rated power out (P88/37)
: 190W at 1/8 rated power out (C85/21/21M/22/34)
: 165W at 1/8 rated power out (C85/37)

Clock accuracy : < 4 seconds per day

Dimension centre unit : 265 x 310 x 390mm

TUNER:

FM

Tuning range	: 87.5-108MHz 65.81-74MHz for /34 1)
Grid	: 50kHz (& 30kHz for /34) 100kHz for /37
IF frequency	: 10.7MHz ± 25kHz
Aerial input	: 75ohm coaxial 300ohm click fit for /37
Sensitivity at 26dB S/N	: < 7µV
Selectivity at 600kHz bandwidth	: > 25dB
Image rejection	: > 25dB [> 75dB]
Distortion at RF=1mV, dev. 75kHz	: < 3%
-3dB Limiting point	: < 8µV
Crosstalk at RF=1mV, dev. 40kHz	: > 18dB

MW

Tuning range	: 531-1602kHz 530-1700kHz for /21/21M/37
Grid	: 9kHz 10kHz for /21/21M/37
IF frequency	: 450kHz ± 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%

LW

Tuning range	: 153-279kHz
Grid	: 3kHz
IF frequency	: 450kHz ± 1kHz
Aerial input	: Frame aerial
Sensitivity at 26dB S/N	: [< 7.0mV/M]
Selectivity at 18kHz bandwidth	: [> 24dB]
IF rejection	: [> 26dB]
Image rejection	: [> 35dB]
Distortion at RF=50mV, m=80%	: [< 5%]

AMPLIFIER:

Output power (6ohms, 1kHz, 10% THD)

L & R	: 2 x 150W	for FW-C85/21/21M
L & R	: 2 x 120W	for FW-C85/22/34
L & R	: 2 x 80W	for FW-P88/22, FW-C83/22
Surround	: 2 x 20W	for FW-P88/22
Center	: 40W	for FW-P88/22

Output power (6ohms, 60Hz-12.5kHz, 10% THD)

L & R	: 2 x 100W	for FW-C85/37
L & R	: 2 x 115W	for FW-P88/37
Surround	: 2 x 20W	for FW-P88/37
Center	: 40W	for FW-P88/37

Frequency response within -3dB : 60Hz-16kHz

Digital Sound Control (DSC) :
Optimal, Classic, Techno, Jazz, Rock, Vocal

Virtual Environment Control (VEC) :
Hall, Disco, Concert, Club, Cinema, Arcade

WOOX : 1, 2, 3

Headphone output at 32 ohms : 18mW ± 1dB

Input sensitivity

Aux in	: 500mV ± 2dB, 1kHz
Microphone	: 4mV ± 2dB

Output sensitivity

Line out (Left/Right)	: 500mV ± 2dB at 22 kohms
Subwoofer out (100Hz)	: 1.3V ± 2dB at 22 kohms at maximum volume
Surround out (1kHz)	: 500mV ± 2dB at 22 kohms

CASSETTE RECORDER:

Number of track	: 2 x 2 stereo
Tape speed	: 4.76 cm/sec ± 2%
Wow and flutter	: < 0.4% (DIN)
Fast-wind/Rewind time C60	: 130 sec
Bias system	: 75kHz ± 10kHz

Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz

Signal to noise ratio (unweighted): > 44dB

COMPACT DISC:

Measurement done at Set level at 6 ohms speaker loads.

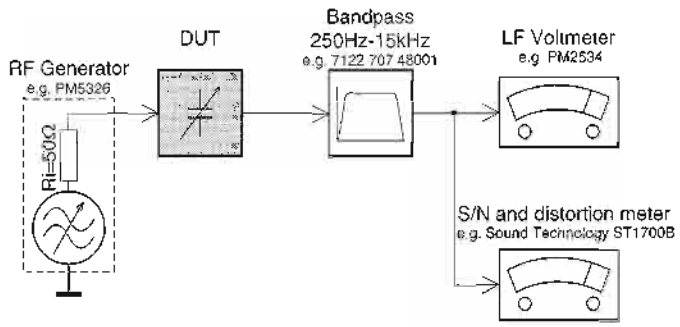
Frequency response	: < ±3dB for 63Hz-14kHz
Signal to Noise ratio (Unweighted)	: 60dBA
Signal to Noise ratio (A-weighted)	: 67dBA
THD (30Hz-16kHz)	: 1.5%
Channel difference (250Hz-10kHz)	: < ±2dB
Channel separation (20Hz-20kHz)	: 30dB
(1kHz)	: 40dB

[....] Values indicated are for "Tuner 95 Board" only.

1) Default setting is OFF, to switch on please refer page 3-4.

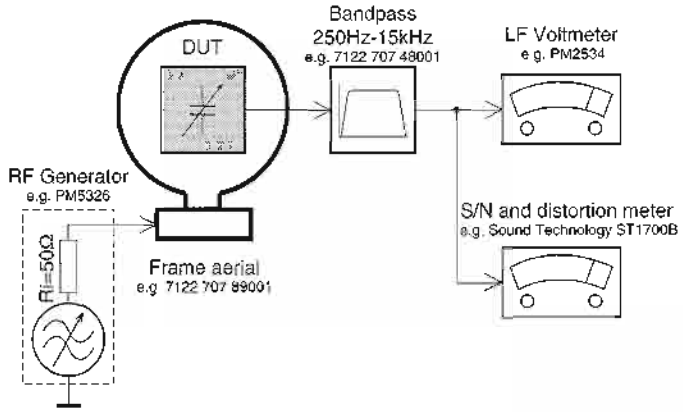
MEASUREMENT SETUP

Tuner FM



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

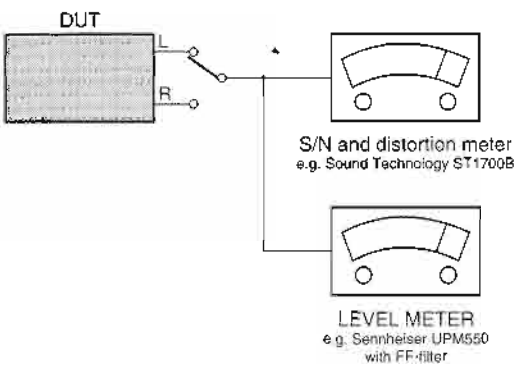
Tuner AM (MW,LW)



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).

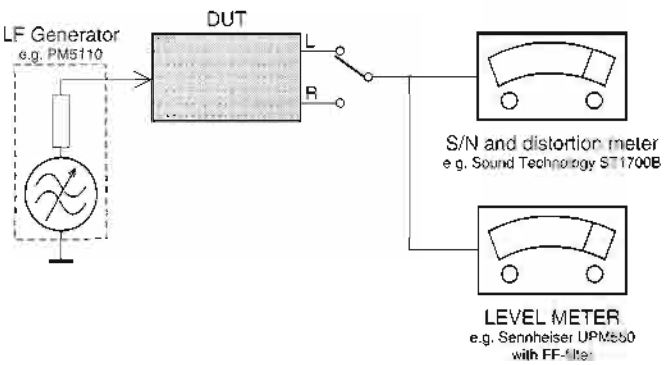
CD

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

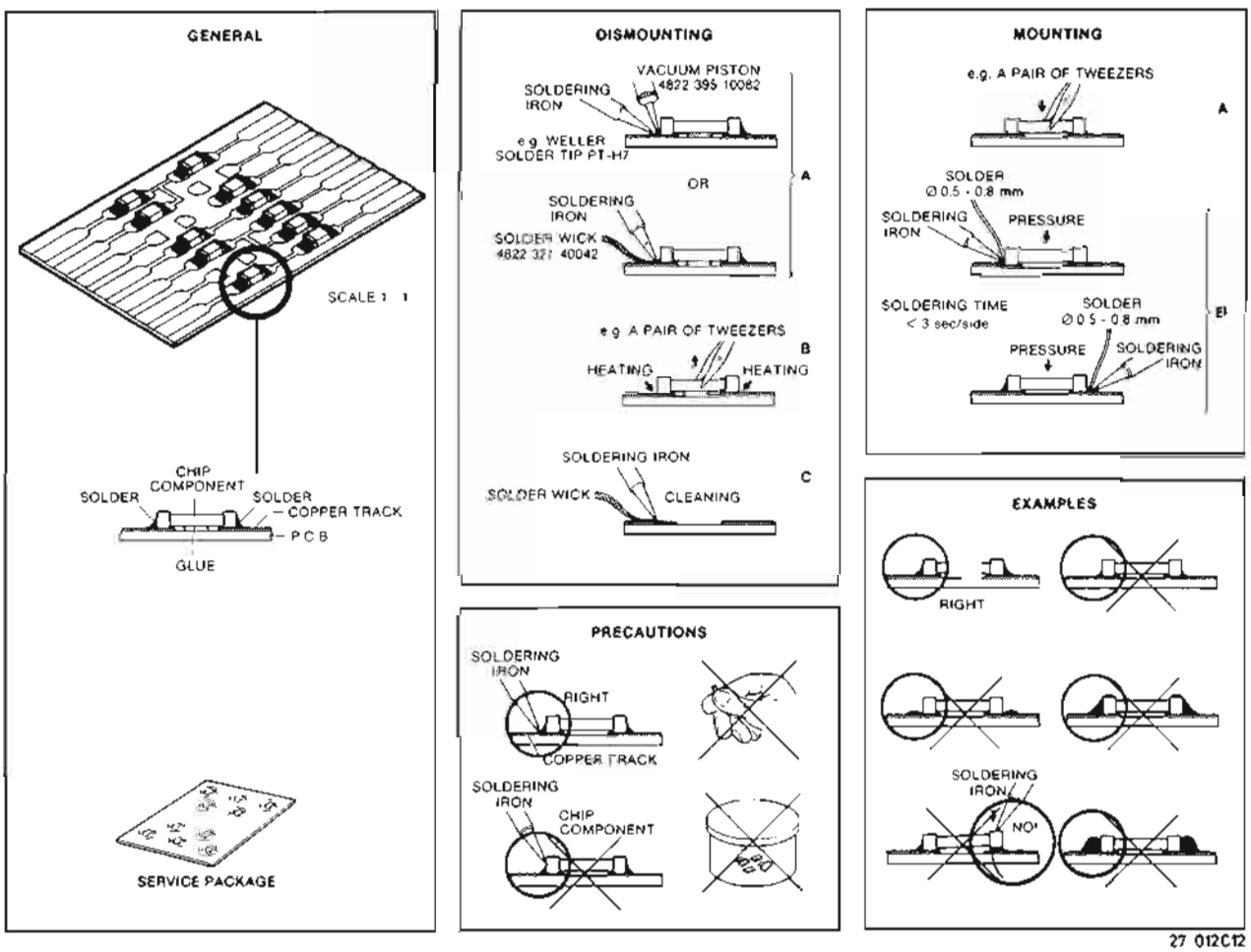
Compact Disc:

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 (1MΩ) 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



27 012C12

ESD

(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.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan 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 ridatta 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.

(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.

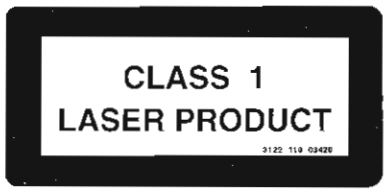
(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand 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."

"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 suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Äiä katso säteeseen!

(DK) **Advarse !**

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

GENERAL INFORMATION

General Information

- ***The type plate (which contains the serial number) is located at the rear of the system.***
- ***Recording is permissible if copyright or other rights of third parties are not infringed.***
- ***This product complies with the radio interference requirements of the European Community.***

Environmental Information

All unnecessary packaging has been omitted. We have tried to make the packaging easy to separate into three materials: cardboard (box), polystyrene foam (buffer) and polyethylene (bags, protective foam sheet).

Your system consists of materials which can be recycled and reused if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

Energy Star

As an ENERGY STAR® Partner, Philips has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Acknowledgement

DOLBY SURROUND PRO • LOGIC

DOLBY B NR

Dolby Pro Logic, Dolby B NR and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation. Manufactured under license from Dolby Laboratories Licensing Corporation.

Accessories *(Supplied)*

- Remote control
- Batteries (two AA size) for remote control
- AM loop antenna
- FM wire antenna
- AC power cord
- CS-540 speaker package (includes one pair of surround speakers and one center speaker)

SAFETY INFORMATION

English

Safety Information

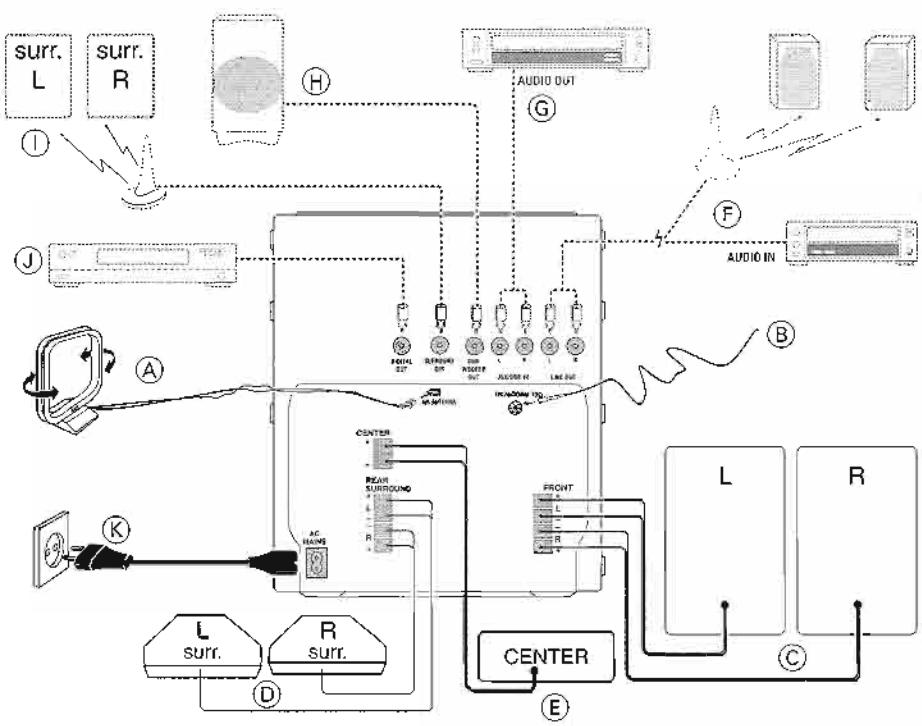
- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The typeplate is located at the rear of your system.
- When the system is switched on, do not move it around.
- Place the system on a solid base (e.g. a cabinet).
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system. Allow at least 10 cm clearance from the rear and the top of the unit and 5 cm from the each side.
- The system incorporates a built-in safety feature that prevents overheating.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the system yourself, as this will invalidate the warranty!
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the CD unit inside the system. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the system until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

5

PREPARATION

English

Rear Connections



Ⓐ AM Loop Antenna Connection

Connect the supplied loop antenna to the AM ANTENNA terminal. Place the AM loop antenna far away from the system and adjust its position for the best reception.

Ⓑ FM Wire Antenna Connection

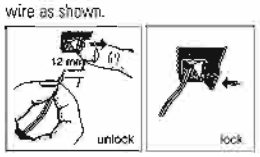
Connect the supplied FM wire antenna to the FM ANTENNA 75 Ω terminal. Adjust the position of the FM antenna for the best reception.

Outdoor Antenna

For better FM stereo reception connect an outdoor FM antenna to the FM ANTENNA 75 Ω terminal using a 75 Ω coaxial wire.

Ⓒ Speakers Connection

- Connect the right speaker to Front terminal R, with the colored wire to + and the black wire to −.
- Connect the left speaker to Front terminal L, with the colored wire to + and the black wire to −.
- Clip the stripped portion of the speaker wire as shown.



6

CAUTION:

- *For optimal sound performance, it is recommended to use the supplied speakers*
- *Do not connect more than one speaker to any one pair of + / — speaker terminal.*
- *Do not connect speakers with impedance lower than the speakers supplied. Please refer to SPECIFICATION section of this manual*

Ⓓ Rear Surround Speakers' Connection

Connect the black (non-marked) wires to the black REAR SURROUND terminals and the colored (marked) wires to the grey REAR SURROUND terminals.

Ⓔ Center Speaker Connection

Connect the black (non-marked) wires to the black CENTER terminal and the blue (marked wires) to the blue CENTER terminal

Ⓕ Line Out Connection *(wireless ready)*

You can connect the audio left and right LINE OUT terminals to a optional CD Recorder ANALOGUE IN terminals. This allows you to record in an analogue format.

You can also install additional optional front active speakers away from the system (e.g. in another room) to reduce the inconvenience of running long speaker wires across rooms. You can place as many remote speakers as you like provided they operate at the same radio frequency. Connect the wireless radio frequency transmitter to the LINE OUT terminals. Place the active speakers at your preferred location. Be sure to follow the instructions supplied with the active speakers.

Ⓖ Connecting other equipment to your system

You can 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 at the rear of the system.

Ⓗ Subwoofer Out Connection

Connect the optional active subwoofer to the SUBWOOFER OUT terminal. The subwoofer reproduces just the low bass sound effect (e.g. explosions, the rumble of spaceships, etc.). Be sure to follow the instructions supplied with the subwoofer.

Ⓘ Wireless Surround Out Connection

You may connect transmitter unit of the wireless rear speakers (not supplied) to the SURROUND OUT terminal.

Note

- *Availability of wireless transmitter and its peripherals are subjected to the approval of local authorities. Please check with respective local safety or approving authority.*

Ⓙ Digital Out Connection

You can record the digital sound from the CD, through this output, on any audio equipment with digital input (e.g. CD Recorder, Digital Audio Tape (DAT) deck, Digital to Analog Converter and Digital Signal Processor).

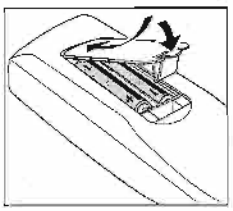
Connect one end of the cinch cable (not supplied) to the DIGITAL OUT socket and the other end to the audio equipment with digital input. When connecting the cinch cable, make sure it is fully inserted.

Ⓚ AC Power Supply

After all other connections have been made, connect the AC power cord to the system and to the wall outlet.

Inserting batteries into the Remote Control

- Insert the batteries (Type R06 or AA) into the remote control as shown in the battery compartment.



- To avoid damage from possible battery leakage, remove dead batteries or batteries that will not be used for a long time. For replacement, use type R06 or AA batteries.

English

7

English

Dolby Pro Logic

This state of the art Dolby Pro Logic mini system enables you to experience and enjoy a Home Cinema sound ambience. The Pro Logic system allows more accurate definition of the individual sound sources. It produces greater sound separation between channels and provides pinpoint sound localization. Pro Logic provides four sound outputs: Left, Center, Right and Surround (Rear). Front sounds are produced from the pair of Left and Right speakers and a Center speaker. The surround sound is reproduced by two speakers placed at the rear of the listening area. Although the surround sound is monaural (single-source), a pair of speakers is necessary to produce the correct diffused sound.

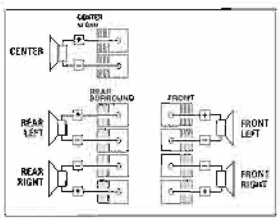
This Pro Logic decoder enables you to decode the following modes: ***Dolby Surround, Center Phantom, Dolby 3 Stereo*** or ***normal Stereo.***

Setting up the Dolby Pro Logic system

You must set up the system properly in order to enjoy the Home Cinema sound to the fullest. First, connect the speakers.

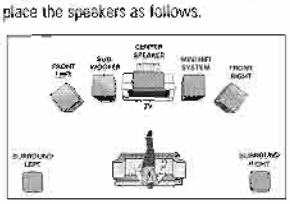
5-Speaker Connection

- ***Front speakers:*** *Connect the front speakers*
- ***Center speaker:*** *Connect the center speaker.*
- ***Rear (surround) speakers:*** *Connect either the wired rear surround speakers or a pair of wireless rear speakers (not supplied) to the SURROUND OUT terminals.*



Positioning the Speakers

To get the best surround sound effect, place the speakers as follows.



Front Left and Right Speakers

For the best sound, place the Left and Right speakers at an angle of approximately 45 degrees to the listener. If the speakers' magnetic field affects the television picture, increase the distance between the TV and the speakers.

Center Speaker

For the best sound, place the center speaker at the same height as the left and right speakers. Place the center speaker directly above or beneath the television.

Rear (surround) Speakers

The surround speakers should be placed at normal listening ear level or mounted on the wall at the back of the room. Most important, experiment when placing the surround speakers in order to obtain the best sound.

Test Tone

This feature enables you to adjust the Front Left, Front Right, Center and Surround Sound levels of the respective speakers in Dolby Pro Logic mode.

You must sit at the ideal sitting position and use the remote control to perform this operation.

1 Press **CD, TUNER, TAPE** or **AUX** to switch on the system.

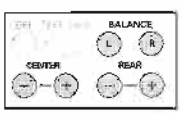
2 Press **TEST TONE**

→ A test signal is generated; it will move through the Left, Center, Right, and Surround speakers, in that order.

→ "TEST TONE" followed by "FRONT BALANCE, CENTER AND REAR LEVEL" will be displayed.

→ The test signal will last for about 90 seconds.

3 Press **BALANCE L** to adjust the sound of the front left speaker.



→ The display will show "BAL L xxx".

4 Press **BALANCE R** to adjust the sound of the front right speaker.

→ The display will show "BAL R +xx".

5 Press **CENTER** + or — to adjust the sound of the center speaker.

→ The display will show either "CENT +xx or -xx".

6 Press **REAR** + or — to adjust the sound of the surround speakers.

→ The display will show either "REAR +xx or -xx".

7 Adjust the sound of all the speakers until they are equal. When you are satisfied with the setting, press **TEST TONE** again to switch off the test signal.

Note:

- *It is advisable to set the speakers' level at normal listening level. "xx" denotes the sound level.*

8

DOLBY PRO LOGIC

English

When you have completed the Dolby Pro Logic setup, you are ready to enjoy Home Cinema sound.

- Press **DPL** ***(PRO LOGIC)*** repeatedly to select and cycle through the various sound modes.

Dolby Surround → Dolby Center Phantom → Dolby 3 Stereo → Stereo → Dolby Surround ...

→ The Dolby Pro Logic display panel will light up with the selection.

Dolby Surround

This setting is for a full Dolby Surround Pro Logic mode.

- Press **DPL** to select the Dolby Surround mode.
  → The message "DOLBY SURROUND" will be displayed.
  → The DPL display panel will light up.

Dolby Center Phantom

This setting is for use without the center speaker. It redistributes the center speaker sound to the left and right speakers, providing conventional stereo across the front.

- Press **DPL** to select the Dolby Pro Logic Center Phantom mode.
  → The message "DOLBY CENTER PHANTOM" will be displayed.
  → The DPL display panel will light up.

Dolby 3 Stereo

Use this setting when full surround is not required, but a wide stereo sound is desired. It only requires the left, right and center speakers.

- Press **DPL** to select the Dolby 3 Stereo mode.
  → The message "DOLBY 3 STEREO" will be displayed.
  → The DPL display panel will light up.

Normal Stereo

This setting is for normal stereo sound without Dolby Pro Logic. It only requires the left and right speakers.

- Press **DPL** to select the Stereo mode.
  → The message "STEREO" will be displayed.
  → The DPL display panel will light up.

Important!

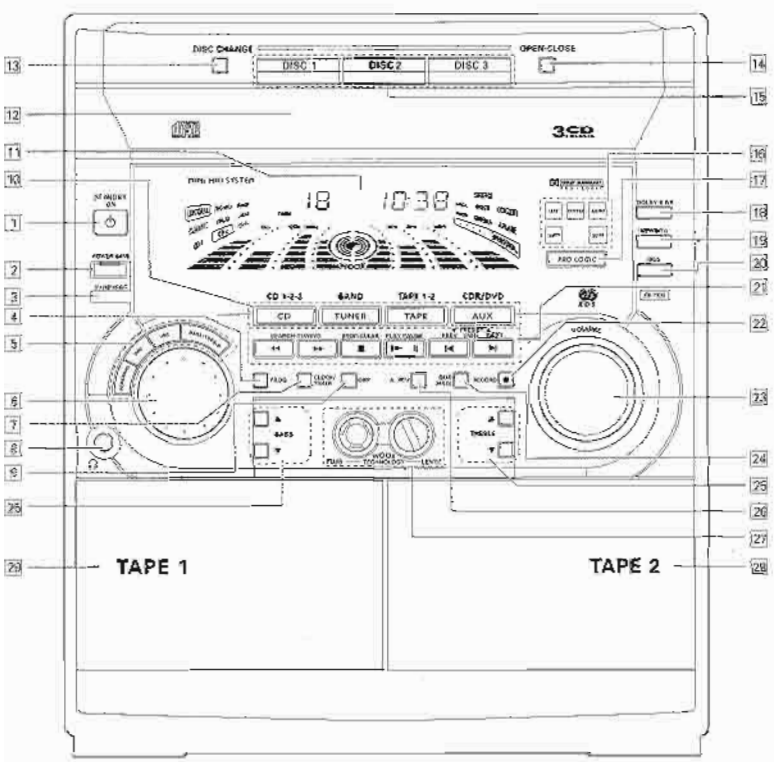
1. ***For the best Dolby Pro Logic sound, switch on DPL with DSC set to "Classic" and with VEC off.***
2. ***Dolby Pro Logic mode will automatically switch to normal Stereo mode when headphones are connected.***
3. ***Switch to normal stereo mode when you record on a tape.***

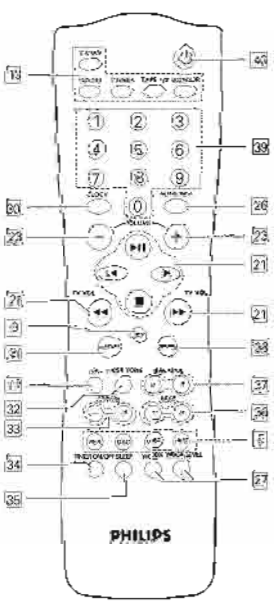
English

9

CONTROLS

English





10

Controls on the system and remote control

1 STANDBY ON
- to switch the system on or to standby mode.
- to use for EASY SET.

2 POWER SAVE
- to switch the system to energy saving mode.

3 IR SENSOR
- sensor for the infrared remote control.

4 PROG (PROGRAM)
for CD .... to program CD tracks
for TUNER .... to program preset radio stations.
for CLOCK .... to select 12 or 24 hour in clock setting mode *(on the system only)*

5 SOUND CONTROL – to select the desired sound feature : PERSONAL, DSC, VEC or BASS/TREBLE.

6 JOG
- to select the desired sound effect of PERSONAL/DSC/VEC setting. You must select the respective sound feature first.

PERSONAL
- to select up to 6 personal preferred Spectrum Analyzer settings : PERSONAL 1-6.

DSC
- to select the desired Digital Sound Control effect : OPTIMAL, CLASSIC, TECHNO, VOCAL, ROCK or JAZZ.

VEC
- to select the desired Virtual Environment Control effect : HALL, CLUB, DISCO, CINEMA, CONCERT or ARCADE.

7 CLOCK/TIMER
- to view the clock, set the clock or set the timer.

8 🎧
- to connect headphones.

9 DIM
- to select brightness for the display screen : DIM 1, DIM 2, DIM 3 or DIM OFF.

10 SOURCE – to select the following:

CD / (CD 1•2•3)
- to select CD mode. When CD playback is stopped, press to select disc tray 1, 2 or 3.

TUNER / (BAND)
- to select Tuner mode. When in tuner mode, press to select the waveband: FM, MW or LW.

TAPE / (TAPE 1• 2)
- to select Tape mode. When tape playback is stopped, press to select either tape deck 1 or 2.

AUX / (CDR/DVD)
- to select sound from an external source (e.g. TV, VCR, Laser Disc player, DVD player or CD Recorder). When in AUX mode, press to select either AUX or CDR/DVD.

TV/AV *(only on the remote control)*
- to select TV or Video mode.

11 DISPLAY SCREEN
- to view the current setting of the system.

12 CD CAROUSEL TRAY

13 DISC CHANGE
- to change CD(s)

14 OPEN•CLOSE
- to open or close the CD carousel tray

15 DISC 1 / DISC 2 / DISC 3 (CD DIRECT PLAY)
- to select a CD tray for playback.

16 DPL DISPLAY PANEL
- to view the selected Dolby Pro Logic setting.

17 DOLBY PRO LOGIC (DPL)
- to select Dolby Surround, Dolby Center Phantom, Dolby 3 Stereo or Stereo mode.

18 DOLBY B NR
- to switch on or off Dolby B NR.

19 NEWS/TA
- to hear News or Traffic Announcement data automatically

20 RDS (CD TEXT)
for TUNER . . to select RDS data in the following order: station name, program type and radio text.
for CD .. . to view the CD encoded information

21 MODE SELECTION

SEARCH ◀◀ ▶▶ (TUNING ◀◀ ▶▶)
for CD .. .. to search backward/ forward.
for TUNER .. .. to tune to a lower or higher radio frequency.
for TAPE ... to rewind or fast forward a tape.
for CLOCK . to set the hour *(on the system only)*
for TV VOL ... to adjust the TV volume if the remote operates your TV.

STOP•CLEAR ■
for CD . ... to stop CD playback or to clear a program.
for TUNER ... to stop programming.
for TAPE . . .. to stop playback or recording
for DEMO .. . *(on the system only)* to start or stop demonstration mode.

PLAY PAUSE ▶ II
for CD . .. .. to start or interrupt playback.
for TAPE .... to start playback.

|◀ PREV / SIDE / NEXT ▶| (PRESET ▼▲)
for CD .... to skip to the beginning of the current, previous, or next track.
for TUNER ... to select a preset radio station in memory.
for TAPE .. to select tape side (back or front) in tape deck 2 only.
for CLOCK ... to set the minute *(on the system only)*

22 RECORD
- to start recording on tape deck 2.

23 VOLUME
- to increase or decrease the volume.

24 DUB (HSD) (HIGH SPEED DUBBING)
- to dub a tape in normal or fast speed.

25 BASS/TREBLE CONTROL – to adjust BASS/TREBLE level

BASS ▲▼
- to increase or decrease the low tone

TREBLE ▲▼
- to increase or decrease the high tone

26 A. REV (AUTO REVERSE)
- available in tape deck 2 only.
- to select the desired play modes (⊐ / ⊐ / ⊂⊐)

27 wOOx PLUS
- to select between normal or enhanced wOOx sound effect.

wOOx LEVEL
- to select desired wOOx level WOOX 1, WOOX 2 or WOOX 3.

28 TAPE DECK 2

29 TAPE DECK 1

30 CLOCK
- to view clock display

31 REPEAT
- to repeat a CD track, a disc, or all available discs

32 TEST TONE
- to check the sound level of the Front Left, Front Right, Center and Surround speakers.

33 CENTER + / –
- to adjust the sound level of the center speaker.

34 TIMER ON/OFF
- to switch on or off timer

35 SLEEP
- to switch the system to standby mode at a selected time

36 REAR + / –
- to adjust the sound level of the surround speakers

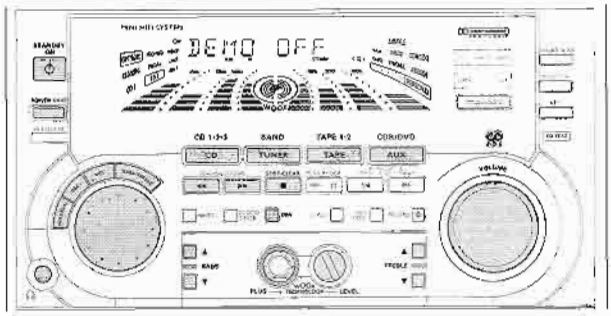
37 BALANCE L/R
- to balance the sound level of the Front Left and Right speakers

38 SHUFFLE
- to play all the available discs and their tracks in random order.

39 DIGIT 0 – 9
(numbers consisting of two figures must be keyed in within 2 seconds)
for CD .. .. to key in a CD track for playback or programming
for TUNER ... to key in a preset radio station.

40 ⏻
- to switch the system to standby mode.

Notes for remote control:
- ***First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. CD, TUNER, etc.).***
- ***Then select the desired function (▶, |◀, ▶|, etc.).***



Important:
Before you operate the system, complete the preparation procedures.

Demonstration mode

The system has a demonstration mode that shows the various features offered by the system. ***When the system is switched on for the first time, the demonstration mode will start automatically.***

Notes
- *During the demonstration, if you press any source (or standby-on) button, the system will switch to the respective mode (or standby)*
- *When the system is switched to standby or power save mode, the demonstration will resume 5 seconds later*

To stop the demonstration mode
- Press and hold ■ *(on the system only)* for ***5 seconds*** when the system is in demonstration mode.
  → The demonstration will stop.
  → "DEMO OFF" is displayed.
  → The system will switch to standby mode.

Notes.
- *When the system is switched on from the main power outlet, the CD carousel tray may open and close again to initialize the set.*
- *Even though the AC power cord is removed from and reconnected to the wall socket, the demonstration will remain off until it is switched on again.*

To start the demonstration mode
- Press and hold ■ *(on the system only)* for ***5 seconds*** when the system is in standby mode.
  → The demonstration will begin.

Easy Set

EASY SET allows you to store all available radio stations and RDS stations automatically.

1 Press and hold **STANDBY ON** *(on the system only)* for ***5 seconds***; when the system is in standby or demonstration mode.
  → "EASY SET" will be displayed, and followed by "TUNER" and then "AUTO".
  → EASY SET will start searching for all RDS radio stations with sufficient signal strength and then followed by radio stations on FM, MW and LW band respectively. Weak RDS radio stations may be stored in later presets.
  → All available RDS and radio stations with sufficient signal strength will be stored. Up to 40 presets may be stored.

2 The system will proceed to set the RDS time automatically with the stored RDS preset station.
- If no RDS station is available in the first preset station, the program will exit automatically.
  → After a radio station is found, "EASY SET" will be displayed and followed by "TIME".
- When searching RDS time,
  → "SEARCH RDS TIME" will be displayed.
  → When RDS time is read, "RDS TIME" will be displayed. The current time will be displayed for 2 seconds and stored automatically.

Notes:
- *EASY SET will start with the RDS station, if there are still presets available, it will continue to store the FM, MW and LW bands respectively*
- *When EASY SET is used, all previously stored radio stations will be replaced*
- *The last preset radio station or the first available RDS station will appear on the display when EASY SET is completed*
- *If RDS station does not transmit RDS time within 90 seconds, the program will exit automatically and the display will show "NO RDS TIME"*

Switching the system ON

- Press **CD**, **TUNER**, **TAPE** or **AUX**.

You can also switch on the system by pressing any one of the CD DIRECT PLAY buttons.

Switching the system to standby mode

- Press **STANDBY ON** or ⏻ on the remote control.
  → The system will switch to standby mode.

Switching the system to power save mode *(when Demonstration mode is stopped)*

- Press **POWER SAVE** to switch to energy saving mode (< 2 watts).
  → "LOW POWER STANDBY ON" will be displayed, after which the display screen goes blank.
  → The low power STANDBY ON LED will be lit.

Note
- *If the demonstration mode has not been disabled, it will resume 5 seconds later*

Selecting the Source

- Press the respective source selection button: **CD**, **TUNER**, **TAPE** or **AUX**.
  → The display indicates the selected source.

Note
- *For an external source, make sure you have connected the audio left and right OUT terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX/CDR IN terminals.*

Dim mode

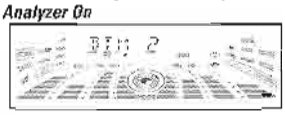
You can select the desired brightness for the display.

- Press **DIM** to select DIM 1, DIM 2, DIM 3 or DIM OFF display mode.
  → The **DIM** appears on the display.
  → "DIM 1", "DIM 2", "DIM 3" or "DIM OFF" will be displayed depending on the mode selected.

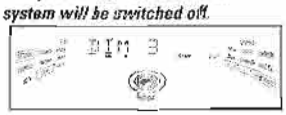
DIM OFF - normal brightness with Spectrum Analyzer On

DIM 1 - normal brightness with Spectrum Analyzer Off

DIM 2 - half brightness with Spectrum Analyzer On



DIM 3 - half brightness with Spectrum Analyzer Off and all LEDs on the system will be switched off.



Volume Control

Adjust **VOLUME** to increase or decrease the sound level.

For Personal Listening
Connect the headphones plug to the 🎧 socket at the front of the system. The speakers will be muted.

Sound Control

For Optimal sound listening, you can only select one of the following sound control at a time : PERSONAL, DSC, VEC or BASS/TREBLE.

PERSONAL SOUND
You can store upto 6 personal settings.

1 Press to select the **PERSONAL** feature
2 Adjust the **JOG** to select the desired Personal setting.
  → The selected personal setting number will be encircled.
  → If no name has been stored previously, "PERSONAL x" will be displayed. "x" is the setting number.

Personal Setting
You can adjust the personal setting to your desired level with the JOG control.

1 Press and hold **PERSONAL** for about ***5 seconds*** to switch on the personal setting mode.
→ "SELECT PRESET NUMBER" will be displayed.
2 Adjust the **JOG** to select the desired preset number for personal setting and press ▶▶ to confirm the selection.
→ "ADAPT LOW FREQ LEVEL" will be displayed.
3 Adjust the **JOG** to select the desired Spectrum Analyzer band level for low frequency.
→ The level will increase or decrease between +3 and −3.
4 Press ▶▶ to confirm the selection.
→ "ADAPT MID FREQ LEVEL" will be displayed and the next followed by "ADAPT HIGH FREQ LEVEL".
• Repeat ***step 3 - 4*** to select the desired mid and high frequencies Spectrum Analyzer band levels.
5 You can choose to edit the name for the personal setting.
→ The first character of setting name will be flashing.
6 Adjust the **JOG** to select the desired alphabet, number or symbol.
→ "A to Z", "0 to 9" or "#, -, +, \, /, _".
7 Press ▶▶ to confirm the selection.
→ The next character for editing will be flashing.
• Repeat ***step 6 - 7*** to store up to 10 characters.
8 To store the setting, press **PERSONAL** again.

• ***Before storing the setting, you can press ◀◀ to retrace the steps in the reverse order.***
• ***To exit without storing the setting, press ■ .***

Notes
– *During personal setting, if no button is pressed within 90 seconds, the system will exit personal setting mode automatically.*
– *w00x level cannot be stored as part of the personal setting.*
– *It is not possible to adjust Bass/Treble level during personal setting. "USE JOG" will be displayed.*

DIGITAL SOUND CONTROL (DSC)
The DSC feature enables you to adjust the system to suit your type of music.

1 Press to select the **DSC** feature.
2 Adjust the **JOG** to select the desired Digital Sound Control setting : OPTIMAL, CLASSIC, TECHNO, VOCAL, ROCK or JAZZ.
→ The selected digital sound is encircled.
→ "OPTIMAL, CLASSIC, TECHNO, VOCAL, ROCK or JAZZ" will be displayed.

Note
– *For neutral setting, select CLASSIC.*

VIRTUAL ENVIRONMENT CONTROL (VEC)
The VEC feature enables you to adjust the system to select a type of environment.

1 Press to select the **VEC** feature.
2 Adjust the **JOG** to select the desired Virtual Environment Control setting HALL, CLUB, DISCO, CINEMA, CONCERT or ARCADE.
→ The selected environment is encircled.
→ "HALL, CLUB, DISCO, CINEMA, CONCERT or ARCADE" will be displayed.

BASS/TREBLE
The BASS/TREBLE features enable you to define the sound processor settings for Bass and Treble.

1 Press to select the **BASS/TREBLE** feature.
→ The BASS and TREBLE LED will be lit.
→ "ADAPT BASS AND TREBLE LEVELS" will be displayed.
2 Use BASS/TREBLE CONTROL to select the desired BASS or TREBLE level respectively.
→ The BASS/TREBLE level will increase or decrease between level +3 and −3.
• Press **BASS** ▲ or ▼ to select the low tone level.
→ "BASS -x" or "BASS +x" will be displayed.
• Press **TREBLE** ▲ or ▼ to select the high tone level.
→ "TREBLE -x" or "TREBLE +x" will be displayed.

Note:
– *"x" denotes the sound level.*

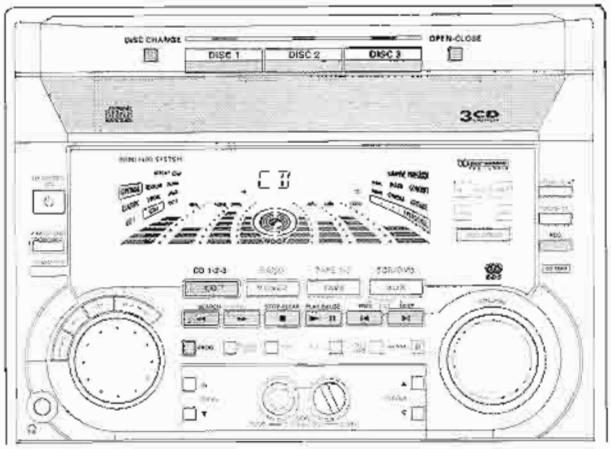
OPERATING THE SYSTEM

w00x
There are three w00x settings to enhance the bass response.

1 Press **w00x PLUS** *(or **w00x** on the remote control)* to select between normal or enhanced w00x effect.
• When normal w00x sound effect is selected:
→ The **w00x** display is switched off.
→ "w00x NORM" will be displayed.
• When enhanced w00x sound effect is selected:
→ The **w00x** appears on the display.
2 Adjust **w00x LEVEL** to select the desired levels of w00x.
→ The **w00x** display lights up.
→ "w00x 1, w00x 2 or w00x 3" will be displayed.

Notes.
– *When Personal or Bass/Treble sound control is selected, w00x will be switched off automatically.*
– *Some CDs or tapes might be recorded in high modulation. It may cause distortion at high volume. If this occurs, switch off w00x or reduce the volume.*

Automatic DSC-w00x / VEC-w00x selection
The best w00x setting is generated automatically for each DSC or VEC selection. You can manually select the w00x setting that best suits your listening environment.



Warning!

1) This system is designed for conventional CDs. Do not use any accessories such as disc stabilizer rings or CD treatment sheets, etc., which may damage the CD mechanism.

2) Do not load more than one disc into each tray.

3) When the CD changer is loaded with CDs, do not turn over or shake the system. This may jam the changer.

You may load three discs in the CD changer for continuous playback without interruption.

CD Text

It will enable you to know which album and its track you are selecting or playing on specially encoded CD.

- Press **RDS** (CD TEXT).

At stop mode

→ The title of album or total playing time will be displayed.

During Playback

→ The title of album, track title or elapsed time will be displayed.

- If the album and track title are not known.

→ "NO TEXT ON DISC" will be displayed.

Discs for playback

This system can play all digital audio CD, finalized digital audio CD-Recordable and finalized digital audio CD-Rewritable format discs.

Loading the CD Changer

1 Press **CD** to select CD mode.

2 Press **OPEN•CLOSE**.

→ The CD carousel tray slides out.

3 Load a CD with the printed side up in the right tray.

- You can load another disc in the left tray.
- To load the third disc, press the **DISC CHANGE** button.

→ The CD carousel will rotate until the empty tray is ready for loading.

4 Press **OPEN•CLOSE** to close the CD carousel tray.

→ The total number of tracks and the playing time of the selected disc appear on the display.

Note:

– *To ensure good system performance, wait until the CD changer completely reads the disc(s) before proceeding*

CD Direct Play

- You can play a CD directly by pressing the **DISC 1**, **DISC 2** or **DISC 3** button. The CD player will stop at the end of playback of the selected disc.

→ A lit button indicates that a disc is loaded in the disc tray.

→ The selected disc is enabled.

Playing a CD

1 Press **PLAY ►II** to start playback.

→ The disc tray, track number and elapsed playing time of the current track appear on the display.

- To interrupt playback, press **PAUSE ►II**.

→ The playing time flashes.

- To resume playback, press **PLAY ►II** again.

2 To stop playback, press ■.

Notes:

– *All the available discs will play once, then stop.*

– *When the CD has stopped playing, the system will switch to standby mode after 30 minutes if no button is pressed.*

Disc Change

You can change the outer two discs while the third inner disc is stopped or is playing.

1 Press **DISC CHANGE**.

→ The CD carousel tray slides out.

2 Replace the discs in the left and right disc trays.

- If you wish to change the inner disc during playback, press **DISC CHANGE** again.

→ "DISC CHANGE" will be displayed.

→ The CD will stop playing.

→ The CD carousel tray will close to retrieve the inner CD and then open again with the inner CD accessible.

3 Press **OPEN•CLOSE** to close the CD carousel tray.

Selecting a desired track

Selecting a desired track when playback is stopped

1 Press ⏮ or ⏭ *(or **Digit 0-9** on the remote control)* until the desired track appears on the display.

2 Press **PLAY ►II** to start playback.

→ The selected track number and elapsed playing time appear on the display.

Selecting a desired track during playback

- Press ⏮ or ⏭ *(or **Digit 0-9** on the remote control)* until the desired track appears on the display.

→ The selected track number and elapsed playing time appear on the display.

- If you press ⏮ once it will skip to the beginning of the current track and play the track again.

Note:

– *Pressing ⏮ during shuffling can only skip to the beginning of the current track.*

Searching for a particular passage during playback

- Press and hold ◄◄ or ►► until the desired passage is located.

→ The volume will be reduced.

- Play returns to normal when ◄◄ or ►► is released.

Programming Tracks

Programming tracks of a loaded CD is possible when playback is stopped. The display will indicate the total tracks stored in the program. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "PROGRAM FULL".

1 Load the desired discs in the disc trays.

2 Press **PROG** to start programming.

→ The PROGRAM starts flashing.

→ It will cancel any previously selected repeat mode.

3 Press the **CD** (CD 1•2•3) or **DISC 1/2/3** button to select the disc.

4 Press ⏮ or ⏭ *(or **Digit 0-9** on the remote control)* to select the desired track.

5 Press **PROG** to store the track.

- Repeat steps *3* to *5* to store other discs and tracks.

6 Press ■ once to end programming.

→ The total number of tracks programmed and total playing time appear on the display.

Notes:

– *If the total playing time is more than "99:59" or if one of the programmed tracks has a number greater than 30, then "- - : - -" appears on the display instead of the total playing time.*

– *If the system is reading the disc, programming is not possible, "READING" will be displayed and followed by "DISC x". "x" is the current read disc number*
– *During programming, if no button is pressed within 20 seconds, the system will exit program mode automatically*

Reviewing the program

Reviewing of the program is possible only when playback is stopped.

1 Press ⏮ or ⏭ repeatedly to review the programmed tracks.
2 Press ■ once to exit review mode.

Playing the program

1 Press **PLAY ▶II** to start program playback.
→ "PLAY PROGRAM" will be displayed.
→ The track number and elapsed playing time of the current track will appear on the display.
• If you press **REPEAT** during program playback, the current track or all programmed tracks will be played repeatedly.
→ "TRACK" or "PROGRAM" will be displayed.
→ The **REPEAT** and **PROGRAM** appear on the display.
2 Press ■ to stop program playback.

Notes:
– *If you press any of the CD DIRECT PLAY buttons, the system will play the selected disc or track and the stored program will be ignored temporarily. The **PROGRAM** display also will disappear temporarily from the display. It will reappear when playback of the selected disc ends.*
– *REPEAT DISC mode is not available when program playback begins.*

Erasing the program *(when playback is stopped)*

• Press ■.
→ "PROGRAM CLEARED" will be displayed.

Note:
– *The program will be erased when the system is disconnected from the power supply or when the CD carousel tray is opened.*

Shuffle *(only on remote control)*

In shuffle mode, the system plays all the available discs and their tracks in random order. Shuffle may be used also when tracks are programmed.

To shuffle all the discs and tracks

1 Press **SHUFFLE**.
→ "SHUFFLE" will be displayed.
→ The **SHUFFLE**, the disc and the track selected at random appear on the display.
• The discs and the tracks will be played in random order until you press ■.
• If you press **REPEAT** during shuffling, the current track or all available discs will be played repeatedly.
→ "TRACK" or "ALL DISC" will be displayed.
→ The **REPEAT** and **SHUFFLE** appear on the display.
2 Press **SHUFFLE** again to resume normal playback.
→ The **SHUFFLE** disappears from the display.

Note:
– *REPEAT DISC mode is not available when shuffle is selected.*

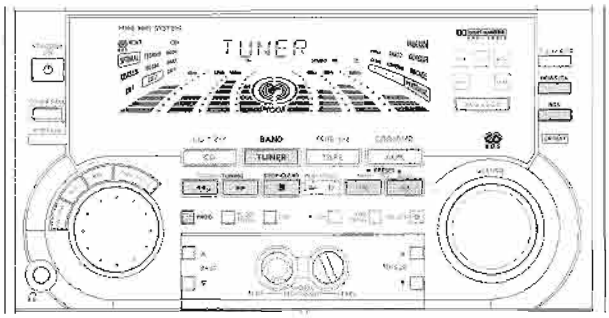
Repeat *(only on remote control)*

You can play the current track, a disc or all available discs repeatedly.

1 Press **REPEAT** on the remote control to select the various repeat modes.
→ "TRACK", "DISC", "ALL DISC" or "OFF" will be displayed.
→ The **REPEAT** appears on the display.
• The selected track, selected disc or all available discs will now be played repeatedly until you press ■.
2 Press **REPEAT** until the "OFF" mode is displayed to resume normal playback.
→ The **REPEAT** disappears from the display.

Notes:
– *REPEAT DISC mode is not available during program play or shuffle mode.*
– *You can also repeat shuffling a program*
→ *"TRACK" or "PROGRAM" will be displayed.*
→ *The **REPEAT**, **PROGRAM** and **SHUFFLE** appear on the display.*

TUNER



Note:
– *For 'EASY SET' feature, please refer to page 13.*

Tuning to radio stations

1 Press **TUNER** (BAND) to select TUNER mode.
→ "TUNER" will be displayed.
A few seconds later, the current radio frequency will be displayed.
2 Press **TUNER** (BAND) again to select the desired waveband : FM, MW or LW.
3 Press ◀◀ or ▶▶ for more than one second, then release.
→ The display will show "SEARCH" until a radio station with sufficient signal strength is found.
• Repeat this procedure until the desired station is reached.
• To tune to a weak station, briefly press ◀◀ or ▶▶ repeatedly until the display shows the desired frequency and/or when the best reception has been obtained.

Storing Preset Stations

You can store up to 40 radio stations in the memory. When a preset radio station is selected, the preset number appears next to the frequency on the display.

Automatic programming

1 Press **TUNER** (BAND).
2 Press **PROG** for more than one second.
→ The **PROGRAM** starts flashing and "AUTO" will be displayed.
→ The system will start searching for all radio stations with RDS and then followed by radio stations on FM, MW and LW band respectively.
→ **All** available stations will be stored automatically. The frequency and preset number will be displayed briefly.
→ The system will stop searching when all the available radio stations are stored or when the memory for 40 preset radio stations is used.
→ The system will remain tuned to the last stored preset radio station.

Notes:
– *You can cancel the automatic programming by pressing PROG or ■ (on the system only).*
– *If you want to reserve a section of preset numbers, for example preset numbers 1 to 9, select preset 10 before starting automatic programming, only the preset numbers 10 to 40 will be programmed.*

Manual programming

1 Press **TUNER** (BAND).
2 Press **TUNER** (BAND) again to select the desired waveband : FM, MW or LW.
3 Press **PROG** for less than one second.
→ The **PROGRAM** starts flashing.
→ The next available preset number will be displayed for selection.
4 Press ◀◀ or ▶▶ to tune to the desired frequency.
• If you wish to store the radio station to another preset number, press ▼ or ▲ *(or **Digit 0-9** on the remote control)* to select the desired preset number.
5 Press **PROG** again.
→ The **PROGRAM** disappears and the radio station will be stored.
• Repeat ***steps 3 – 5*** to store other preset radio stations.

Notes:
– *When 40 radio stations are stored and you attempt to store another radio station, the display will show "PROGRAM FULL". If you want to change an existing preset number, repeat steps 3 – 5.*
– *You can cancel manual programming by pressing ■ (on the system only).*
– *During programming, if no button is pressed within 20 seconds, the system will exit program mode automatically.*

Tuning to Preset Radio Stations

• Press ▼ or ▲ *(or **Digit 0-9** on the remote control)* to select the desired preset number.
→ The preset number, radio frequency, and waveband appear on the display.

Receiving RDS Radio Station

RDS (Radio Data System) is a broadcasting service that allows FM stations to send additional information along with the regular FM radio signal. This additional information can contain:

- **STATION NAME:** The radio station name is displayed.
- **PROGRAM TYPE:** The following program types exist and can be received by your tuner: News, Affairs, Info, Sport, Educate, Drama, Culture, Science, Varied, Pop M, Rock M, M.O.R. (middle of the road music), Light M, Classics, Other M, No type.
- **RADIO TEXT (RT):** text messages appear in the display.

When you have tuned to a RDS station, the RDS logo (RDS) and the radio station name will appear on the display.

- The display normally shows the radio station name if available.
  By repeatedly pressing **RDS** button you can change the type of display information:
  → The display shows in turn:
  STATION NAME → PROGRAM TYPE → RADIO TEXT → TUNER FREQUENCY → STATION NAME ...

Note
- *When you press the RDS button and the display shows "NO RDS", it indicates that either the tuned station is not transmitting RDS signal or it is a non RDS station*

RDS Clock
Some RDS station may be transmitting a real clock time at an interval of every minute.

Setting the time with RDS clock
1 Press **CLOCK/TIMER**.
→ "- - : - -" or current time appears on the display.
2 Press **CLOCK/TIMER** once more to enter clock setting mode.
→ "00:00" or current time starts flashing.
3 Press **RDS**.
→ The message "SEARCH RDS TIME" will be displayed.
→ If the station does not transmit RDS clock, "NO RDS TIME" will be displayed.
– When the RDS clock is read, "RDS TIME" will be displayed. The current clock time is displayed for 2 seconds and will be stored automatically.
→ If within 90 seconds, the RDS time is not detected, "NO RDS TIME" will be displayed.

Note
- *Some RDS station may be transmitting a real time clock at a minute interval. The accuracy of the transmitted time depends on the transmitting RDS station*

NEWS/TA (Traffic Announcement)

(only available in Radio Station with RDS)

You can activate NEWS or TA function in Standby, Demonstration or any source mode except Tuner mode. Once the News Program Type (for NEWS function) or Traffic Announcement data (for TA function) is detected in any of the selected RDS stations, it will switch to TUNER mode automatically.

NEWS/TA key toggles in the following sequence :

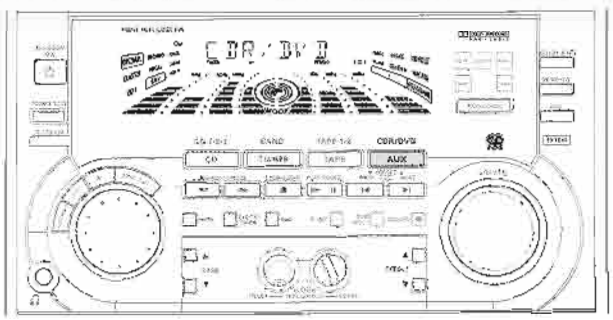
NEWS → TA → OFF → NEWS

To start NEWS or TA function
1 Press **NEWS/TA** to select NEWS function.
→ The **NEWS** and "NEWS" will be displayed.
- If you want to select TA function, press **NEWS/TA** again.
→ The **TA** and "TP" will be displayed.
2 When NEWS or TA is selected;
- It will scan stations stored in the first 5 preset and wait for the News Program Type / Traffic Announcement data to be available in any of these RDS stations. During the search :
  → The current source activity will remain uninterrupted.
  → If no RDS station is found in the first 5 presets, the NEWS/TA function will be switched off. The display will show "NO RDS NEWS" or "NO RDS TA" and **NEWS** or **TA** will disappear from the display.
- When NEWS/TA transmission is detected, the system will switch to Tuner mode.
  → The **NEWS** or **TA** starts flashing.

To cancel NEWS or TA function
- Press **NEWS/TA** until the **NEWS** or **TA** disappears and "TA OFF" is displayed.

Notes
- *If you are listening to a non RDS TUNER radio station and should you decide to hear NEWS or TA, first select other source (e.g. CD, TAPE or AUX), then press NEWS/TA.*
- *Before using the NEWS or TA feature, ensure that the first 5 presets are RDS stations.*
- *The NEWS/TA works only once for each activation*

- *During News bulletin or Traffic Announcement, you can press any available source or Tuner function keys to cancel NEWS/TA function and execute the relevant source mode*
- *If set is switched to Tuner source, the NEWS/TA function will be cancelled, "NEWS OFF" or "TA OFF" will be displayed immediately after the "TUNER" message.*

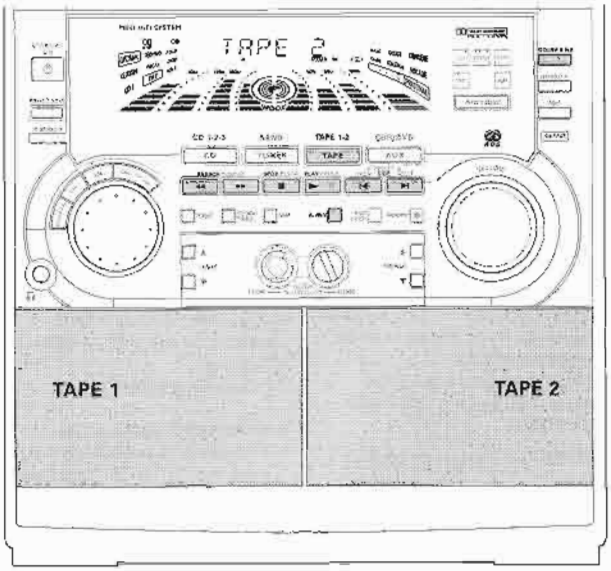


Selecting External Equipment

If you have connected the audio out terminals of the external equipment (TV, VCR, Laser Disc player, DVD player, or CD Recorder) to the AUX/CDR IN terminals, you can hear the enhanced sound from the system.

1 Press **AUX** (CDR/DVD) to select the CDR/DVD mode.
→ "CDR/DVD" will be displayed.
2 Press **AUX** (CDR/DVD) again to select external (normal AUX) mode.
→ "AUX" will be displayed.

Notes
- *There are two Auxiliary modes.*
  i. the normal AUX mode
  ii. the CDR mode, where the LINE OUT of this mini system is muted. You will not be able to record or listen to the sound from the LINE OUT.
- *You are advised not to listen to and record from the same source simultaneously.*
- *All the sound control features (e.g. DSC, wOOx, etc.) are available for selection*



Loading a tape

1 Press on the tape deck to open the tape deck door.
2 The tape deck door opens.
3 Load the tape with the open side downward and the full spool to the left.

4 Close the tape deck door.

Tape Side *(only on tape deck 2)*

- Press ⏮ or ⏭ to select the tape side for playback or recording.
  → The ◀ (BACK) or ▶ (FRONT) appear on the display, depending on the tape side selected.
  → "T2 < < <" or "T2 > > >" will be displayed.
  → When recording, the ◀ or ▶ display will be flashing.

Auto Reverse Playback *(only on tape deck 2)*

- Press **A. REV** to select the different playback modes.
  ⇉ ..... to record or playback on one side of the tape. The tape stops at the end of one side.
  ⇄ ..... to record or playback on both sides of the tape. The tape then stops.
  ⟲ ..... to playback continuously on both sides of the tape up to a maximum of 10 times per side unless you press ■.

Tape Playback

1 Press **TAPE** (TAPE 1•2) to select TAPE mode.
  → "TAPE 1" or "TAPE 2" will be displayed, and followed by "T 1" or "T2" with "< < <" or "> > >".
- Press **TAPE** (TAPE 1•2) again to select either tape deck 1 or tape deck 2.
2 Load the tape into the desired tape deck.
3 Press **PLAY** ▶II to start playback.
- If tape 1 is selected for playback;
  → "T 1" with ">" scrolling right will be displayed.
- If tape 2 is selected for playback;
  → "T2" with "<" or ">" scrolling left or right will be displayed depending on the tape side selected.

3a*(for playback on tape deck 2 only)*

- Press ⏮ or ⏭ to select tape side *(see Tape Side)*.
- Press **A. REV** to select the different type of playback mode *(see Auto Reverse Playback)*.

4 Press ■ to end playback.
  → "T 1" or "T2" with "< < <" or "> > >" will be displayed.

Note:
– *When the tape has stopped playing, the system will switch to standby mode after 30 minutes if no button is pressed.*

Rewind/Fast Forward

When playback is stopped

1 You can rewind or fast forward the tape by pressing ◀◀ or ▶▶ respectively.
  → If rewinding, "T 1 <" or "T2 <" with "<" scrolling left will be displayed.
  → If fast forwarding, "T 1 >" or "T2 >" with ">" scrolling right will be displayed.
  → The tape will stop automatically at the end of the rewinding or fast forwarding.
2 Press ■ to stop rewinding or fast forwarding.

During playback

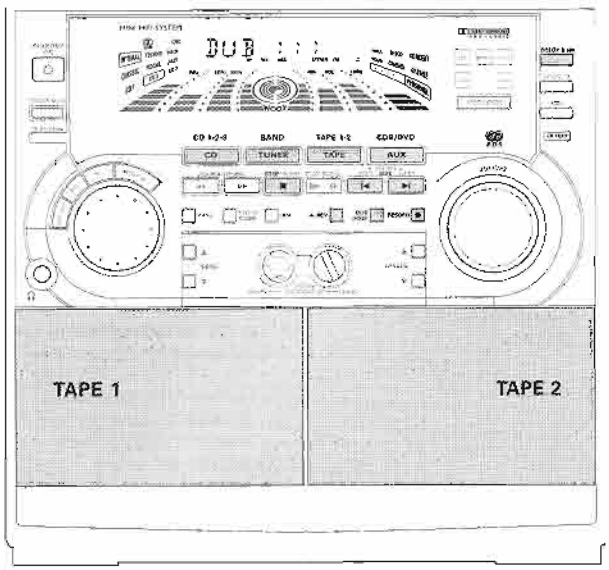
- Press and hold ◀◀ or ▶▶ until the desired passage is located.
  → "T 1" or "T2" with "< < <" or "> > >" scrolling left or right will be displayed depending on which button is pressed.
  → During searching, the sound is reduced to a low volume.
  → When you release ◀◀ or ▶▶, the tape continues playing.

Notes
– *During rewinding or fast forwarding of a tape, it is also possible to select another source (e.g. CD, TUNER, or AUX).*
– *Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.*
– *C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.*
– *Store the tapes at room temperature and do not put them too close to a magnetic field (for example, a transformer, TV, or speaker).*

Dolby B Noise Reduction System

1 Press **DOLBY B NR** to switch on Dolby B NR.
  → The ⧈ B NR appears in the display.
2 Press **DOLBY B NR** again to switch off Dolby B NR.
  → The ⧈ B NR disappears from the display.

Note:
– *A tape recorded with the Dolby B NR system should also be played in the Dolby B NR mode. If you forget to operate the DOLBY B NR button, the treble may be reproduced too strongly.*



SWITCH OFF DOLBY PRO LOGIC WHEN RECORDING

Notes

- *It is not possible to change tape side during recording*
- *For recording, use only tape of IEC type I (normal tape) or IEC type II (CrO_2).*
- *The tape is secured at both ends with leader tape. At the beginning and end of tape, nothing will be recorded for six to seven seconds*
- *The recording level is set automatically, regardless of the position of Volume, wOOx, DSC, etc*
  Dolby B NR can be selected for Tuner or CD recording
- *To prevent accidental recording, break out the tab on the left shoulder of the tape side you want to protect.*
- *If "CHECK TAPE" is displayed, the protection tab has been broken. Put a piece of clear adhesive tape over the opening. Do not cover the CrO_2 tape detection hole when covering the tab opening.*

Recording from other sources

(only on tape deck 2)

1 Press **TAPE** (TAPE 1•2) to select tape deck 2.
2 Load a blank tape into tape deck 2 with the open side downward.
3 Press ⏮ or ⏭ to select the recording tape side *(see Tape Side under TAPE section).*
4 Press **DOLBY B NR** to record with Dolby B NR.
5 Press **CD**, **TUNER** or **AUX**.
• Start playback of the selected source.
6 Press **RECORD** to start recording.
→ The REC starts flashing.
7 Press ■ to stop recording.

Notes:

- *Only ⥱ or ⥲ mode is available during recording*
- *During recording, it is not possible to listen to another source*

English

English

Dubbing tapes *(from tape deck 1 to tape deck 2)*

1 Press **TAPE** (TAPE 1•2) to select tape deck 2.
2 Load the prerecorded tape into tape deck 1 with full spool to the left and a blank tape into tape deck 2 with full spool aside.
3 Press ⏮ or ⏭ to select the recording tape side *(see Tape Side under TAPE section).*
4 Press **DUB (HSD)** ***once*** for normal speed dubbing or ***twice*** *(within 2 seconds)* for high speed dubbing.
→ "NORMAL" (normal speed) or "FAST" (high speed) will be displayed, followed by "DUB" with "<" or ">" scrolling left or right depending on the tape side selected.
→ The HSD appears on the display during high speed dubbing.
• Dubbing will start immediately.
→ The REC starts flashing.
5 Press ■ to stop dubbing.

Notes

- *Only ⥱ mode is available during dubbing.*
- *At the end of side A, flip the tapes to side B and repeat the procedure*
- *Dubbing of tapes is only possible from tape deck 1 to tape deck 2*
- *To ensure good dubbing, use tapes of the same length.*
- *During high speed dubbing in Tape mode, the sound is reduced to a low volume*
- *You can listen to another source while dubbing.*
- *Dolby B NR button has no influence during dubbing (dubbing from tape deck 1 to tape deck 2). An original tape recorded with Dolby B NR automatically produces a copy with Dolby B NR.*

CD Synchro Start Recording

1 Load a blank tape into tape deck 2 and a disc into a disc tray.
2 Press **CD** to select CD mode.
• You can program the tracks in the order you want them to be recorded (see Programming Tracks). If not, select the disc by pressing **CD** (CD 1•2•3) and the tracks are recorded according to the order on the selected disc.
3 Press **RECORD** to start recording.
→ The REC starts flashing.
• CD will start playback automatically.
4 Press ■ to stop recording.

One Touch Recording

• For One Touch Recording, as soon as you press **RECORD**, the current source (CD, TUNER or AUX) will be recorded on tape deck 2.

1 Load a blank tape in tape deck 2.
2 Press **RECORD** to start recording.
→ The REC starts flashing.
3 Press ■ to stop recording.

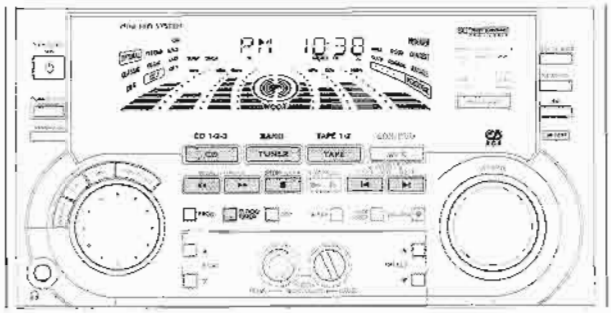
Note

- *When you press RECORD while in TAPE mode, "SELECT SOURCE" will be displayed. One Touch Recording is not possible in TAPE mode.*

Digital Recording via Digital Out

For CD digital recording, please refer to the Instructions Manual of the CD Recorder, digital audio equipment, etc.

CLOCK



View Clock

You can view the clock (if it is set) if the system is in Standby mode or when any sound source is selected (CD, TUNER, etc.). The clock will be displayed for about 7 seconds.

- Press **CLOCK/TIMER** briefly *(or **CLOCK** on the remote control)*.
  → "PM 10:38" or "22:38" (the current time) will be displayed depending on whether you have selected 12- or 24-hour mode.
  → "- - : - -" will be displayed if the clock is not set.

Note:
- *When the system goes into low power standby mode, the clock setting will not be displayed.*

Clock Setting

The clock can be set in either 12- or 24-hour mode, e.g. "PM 12:00" or "00:00". Before setting the clock, you must be in the View Clock mode.

1 Press **CLOCK/TIMER** to select clock mode.
2 Press **PROG** *(on the system only)* to select 12- and 24- hour mode.
  → If 12-hour mode is selected, "PM 12:00" starts flashing.
  → If 24-hour mode is selected, "00:00" starts flashing.
3 Set the hour with ◀◀ or ▶▶ on the system.
4 Set the minute with ⏮ or ⏭ on the system.
5 Press **CLOCK/TIMER** again to store the setting.
  → The clock starts.

- To exit without storing the setting, press ■ on the system.

Notes:
- *During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.*
- *When a power interruption occurs, the clock setting is erased.*
- *To set the time with RDS clock, see "Receiving RDS Radio Station" under TUNER section.*

TIMER

English

Timer Setting

- The system can switch on to CD, TUNER, or TAPE 2 mode automatically at a preset time. It can serve as an alarm to wake you up.
- Before setting the timer, make sure the clock is set correctly.
- The timer will always be switched on once it is set.
- **The volume of the timer will increase from the minimum level until the volume level before the set is switched to standby mode.**

1 Press and hold **CLOCK/TIMER** for more than ***2 seconds*** to select timer mode.
  → "PM 12:00" or "00:00" or the last timer setting starts flashing depending on whether you have selected 12- or 24-hour mode.
  → The **TIMER** starts flashing.
  – The selected source is lit while other available sources are flashing.
2 Press **CD**, **TUNER** or **TAPE** to select the desired source.
- Before selecting CD or TAPE, make sure a CD or tape is loaded in the CD tray or tape deck 2.
3 Press ◀◀ or ▶▶ on the system to set the hour for the timer to start.
4 Press ⏮ or ⏭ on the system to set the minute for the timer to start.

TIMER

English

5 Press **CLOCK/TIMER** to store the start time.
  → The timer is now set.
  → The **TIMER** remains on the display.
- At the preset time, the timer will be activated.
  → The selected source will be played.

Notes:
- *During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.*
- *If the source selected is TUNER, the last tuned frequency will be switched on.*
- *If the source selected is CD, playback will begin with the first track of the selected disc or program. If the CD trays are empty, TUNER will be selected instead.*
- *If the source selected is TAPE, and if the preset time is reached during high speed dubbing, the TUNER will be selected instead.*
- *The timer will not activate if a recording is in progress.*

To switch off the TIMER
- Press **TIMER ON/OFF** on the remote control.
  → The timer is now switched off.
  → The display will show "CANCEL" and the **TIMER** disappears.

To start the TIMER again *(for the same preset time and source)*
- Press **TIMER ON/OFF** on the remote control.
  → The timer is now on.
  → The **TIMER** appears on the display.

SLEEP TIMER

Sleep *(only on remote control)*

This feature allows you to select a length of time after which the system will switch to the standby mode automatically.

1 Press **SLEEP** on the remote control repeatedly to select a period of time.
  → The selections are as follows (time in minutes):
  60 → 45 → 30 → 15 → OFF → 60 ...
  → "SLEEP xx" or "OFF" will be displayed. "xx" is the time in minutes.
2 When you reach the desired length of time, stop pressing the **SLEEP** button.
  → After this amount of time passes, the system will switch to the standby mode.

To switch off the Sleep Timer
- Press **SLEEP** repeatedly until "OFF" is displayed, or press the **STANDBY ON** button.

MAINTENANCE

English

Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analog records.

Cleaning the CD lens

- After prolonged use, dirt or dust may accumulate at the CD lens. To ensure good playback quality, clean the CD lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with cleaner.

Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads, the capstan(s), and pressure roller(s) after every 50 hours of tape operation.
- Use a cotton swab slightly moistened with cleaning fluid or alcohol
- You can also clean the heads by playing a cleaning tape once

Demagnetizing the heads

- Use a demagnetizing tape available at your dealer.

TROUBLESHOOTING

Warning! Under no circumstances should you try to repair the set yourself as this will invalidate the guarantee. Do not open the set as there is a risk of electric shock.

- If a fault occurs, check the points listed below before taking the system for repair.
- Should any problems persist after you have made these checks, consult your nearest dealer or service center.

CD Player Operation

"NO DISC" is displayed.

- The disc is inserted upside down
- → *Place CD with printed side up*
- Moisture condensation at the lens
- → *Wait until lens has adjusted to normal room temperature.*
- There is no disc in the CD tray
- → *Insert a CD.*
- The CD is dirty, badly scratched or warped
- → *Clean or replace the CD.*
- The CD lens is dirty or dusty.
- → *See section under Maintenance (page 30)*

"DISC NOT FINALIZED" is displayed.

- The CD-RW or CD-R disc is not properly recorded for use with a standard CD player
- → *Read the instruction booklet of your CD-Rewritable or CD-Recorder on how to finalize a recording.*
- The CD is badly scratched or dirty
- → *Replace or clean CD*

Radio Reception

Poor radio reception.

- The signal is too weak
- → *Adjust the antenna*
- → *Connect an external antenna for better reception*
- The TV or VCR is too close to the stereo system.
- → *Separate the stereo system from the TV or VCR*

"NO RDS TEXT" is displayed.

- RDS text message is not available
- → *Select another RDS station.*

TROUBLESHOOTING

English

Tape Deck Operation

Recording or playback cannot be made or there is a decrease in audio level.

- Dirty tape heads, capstans or pressure rollers.
- → *See section on tape deck maintenance (page 30)*
- Magnetic build-up in the record/playback head.
- → *Use demagnetizing tape*

Tape deck door cannot open.

- Power failure or AC power plug disconnect from the wall outlet during tape playback.
- → *Reconnect the AC power plug and switch on the system again.*

Recorded material sounds strange.

- Tape was recorded in one of the Dolby Pro Logic modes
- → *Switch off Dolby Pro Logic mode when recording*

General

System does not react when any button is pressed.

- Electrostatic discharge
- → *Press STANDBY ON to switch the system off. Remove the AC power plug from the wall outlet, then reconnect the power plug and switch on the system again*

No or poor sound.

- Volume is not turned up
- → *Adjust VOLUME*
- The headphones are connected
- → *Disconnect the headphones*
- Speakers are not connected or are connected wrongly.
- → *Check that the speakers are connected correctly.*
- → *Make sure the stripped speaker wire is clamped.*

Reversed left and right sound.

- Speakers are connected wrongly
- → *Check the speaker connections and location*

Lack of bass sound or apparently imprecise physical location of musical instruments.

- Speakers are connected wrongly.
- → *Check the speaker connection for proper phasing, colored/black wires to colored/black terminals*

Remote control has no effect on the system.

- Wrong source is selected
- → *Select the source (CD, TUNER, etc.) before pressing the function button (▶, ⏮, ⏭, etc.)*
- The distance to the system is too large.
- → *Reduce the distance.*
- Batteries are inserted incorrectly
- → *Insert the batteries with their polarities (+/– signs) as indicated.*
- Batteries are exhausted.
- → *Replace the batteries*

Timer is not working.

- Clock is not set
- → *Set the clock.*
- Timer is not switched on
- → *Press TIMER ON/OFF to switch on the timer*
- Recording in progress.
- → *Stop recording*

Clock setting is erased.

- There was a power failure
- → *Reset the clock.*

System displays features automatically; buttons flash continuously.

- Demonstration mode is switched on.
- → *Press and hold ■ (on the system) for 5 seconds to switch off the demonstration.*

There is a howling sound at the external source.

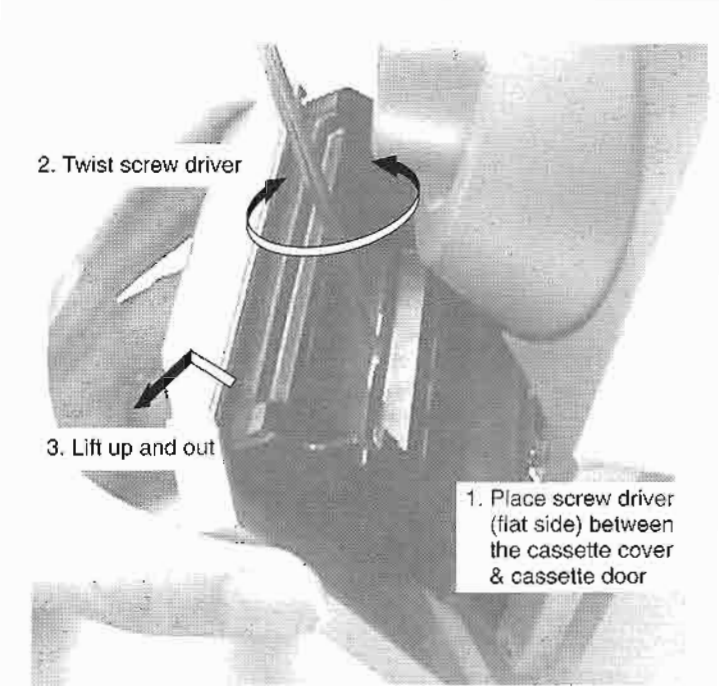
- You hear feedback when you are listening in AUX mode
- → *Press AUX to select CDR/DVD mode*

All lighted buttons are not lit.

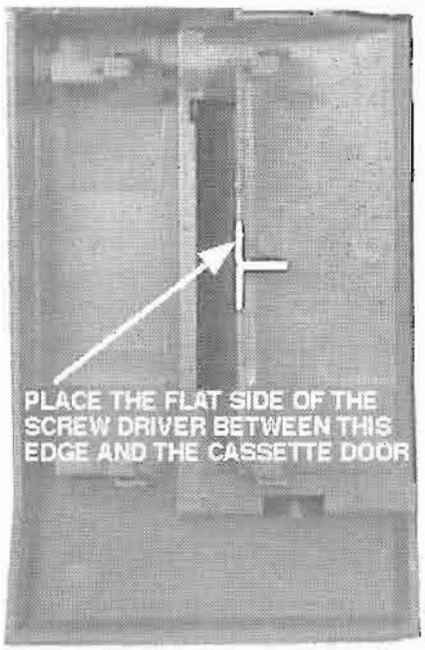
- Display is switch on in DIM 3 mode
- → *Press DIM until DIM OFF display mode is shown.*

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



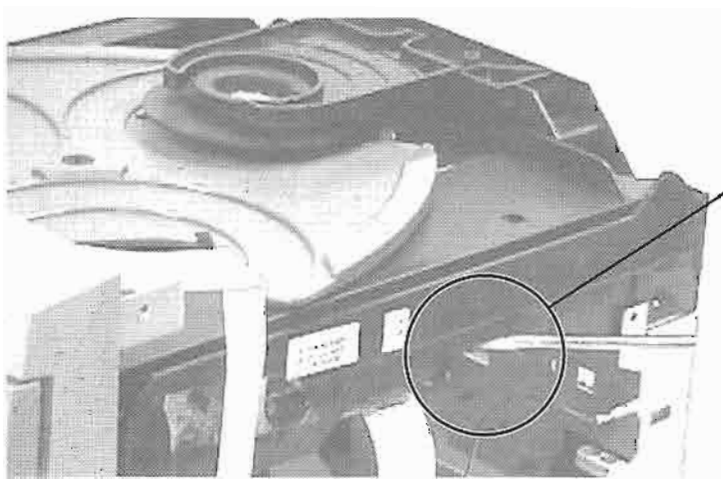
Remove Cassette Cover

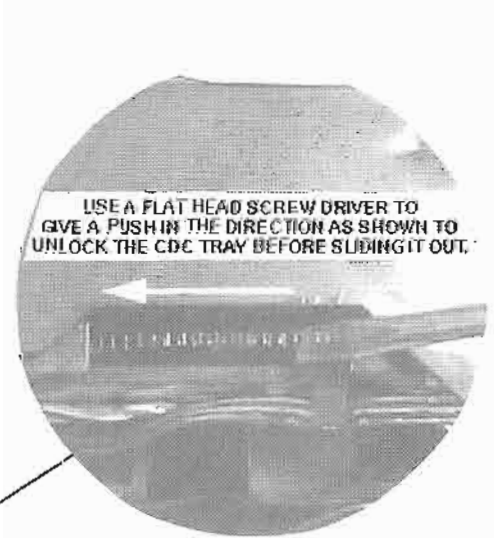


Cassette Cover

Dismantling of the CDC Module and Front Panel

1) Loosen 16 screws to remove the Cabinet Rear (pos 259) of the set :-
   - 5 screws each on the left side & right side of the Cabinet Rear.
   - 6 screws at the rear of the Cabinet Rear.
2) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.

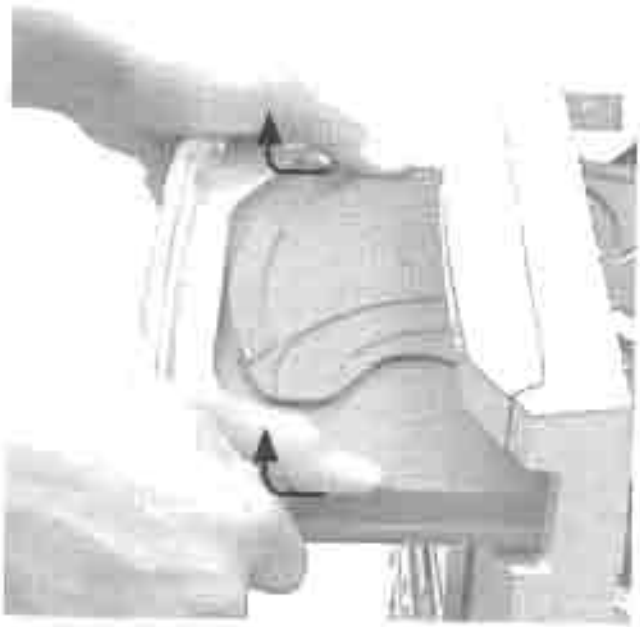




Sliding Out The CDC Tray

Dismantling of the CDC Module and Front Panel

3) Remove the Cover Tray CDC (pos 106) as indicated.



Remove Cover Tray CDC

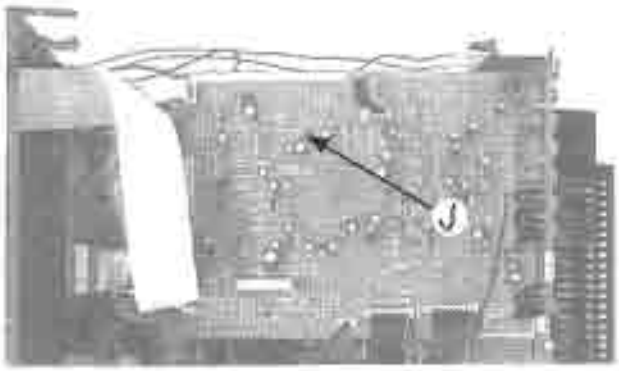
4) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1104) as indicated.
5) Remove 1 screw (pos 305) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 236).

Front View CDC

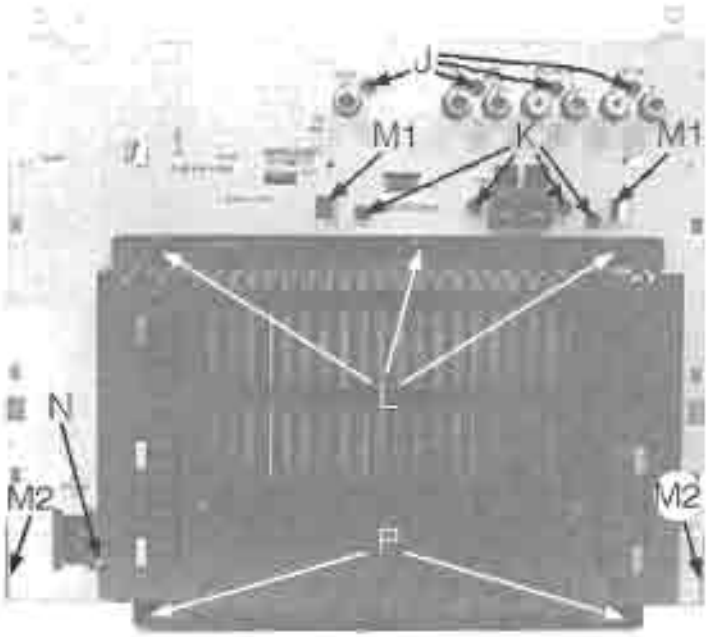
Remove CDC Module

Dismantling of Rear Portion

1) Remove 5 screws J as indicated to loosen the AF Board (pos 1101).
2) Remove 4 screws K and uncatch M1 as indicated to loosen the Tuner Board (pos 1102).
3) Remove 3 screws L and 1 screw N (if obstructed) and uncatch M2 as indicated to take out the Plate Rear (pos 234).
4) Remove 2 screws P to free the Power Module (pos 1105) from the Bottom Plate assembly.



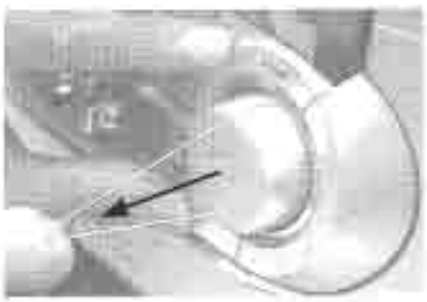
AF Board Top View



Repair Hints

1) The Knob Volume Rotary (pos 149) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 1.

Picture 1

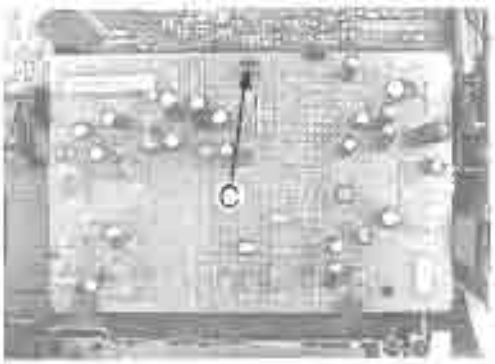


2) The Knob Jog Rotary (pos 138) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 2.

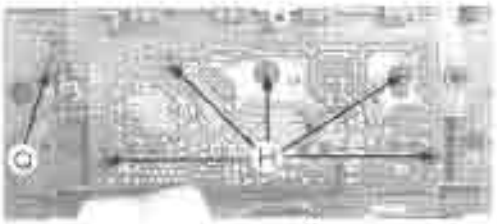
Picture 2

Dismantling of the Front Board

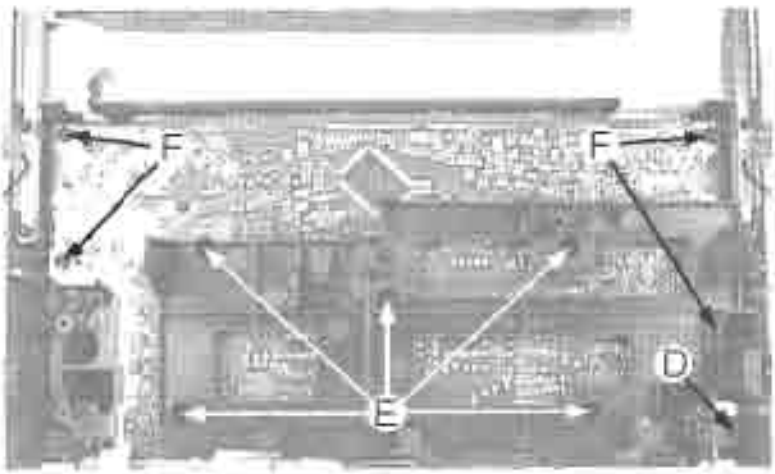
1) Remove 1 screw C as indicated to loosen the Dolby Pro logic Board (pos 1108).
2) Remove 1 screw D as indicated to loosen the Headphone Board (pos 1100-E).
3) Remove 5 screws E as indicated to loosen the Plate Front (pos 254).
4) Remove 4 screws F as indicated to loosen the Front Board (pos 1100-A).
5) Remove 5 screws H as indicated to loosen the Control Board (pos 1100-B).
6) Remove 1 screw Q as indicated to loosen the Blue Strip LED Board (pos 1100-F).



Remove Dolby Pro logic (DPL) Board

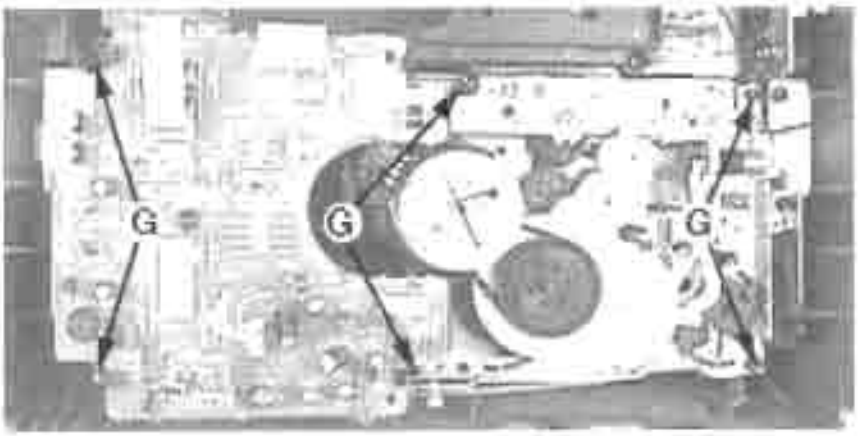


Remove Control and Blue Strip LED Boards



Dismantling of the ETF Tape Module

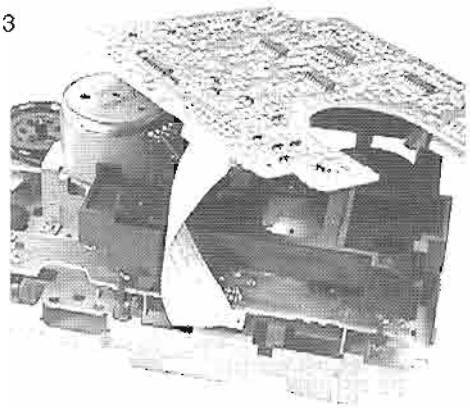
1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1103).



3) During repair it is possible to disconnect the Tuner board and CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

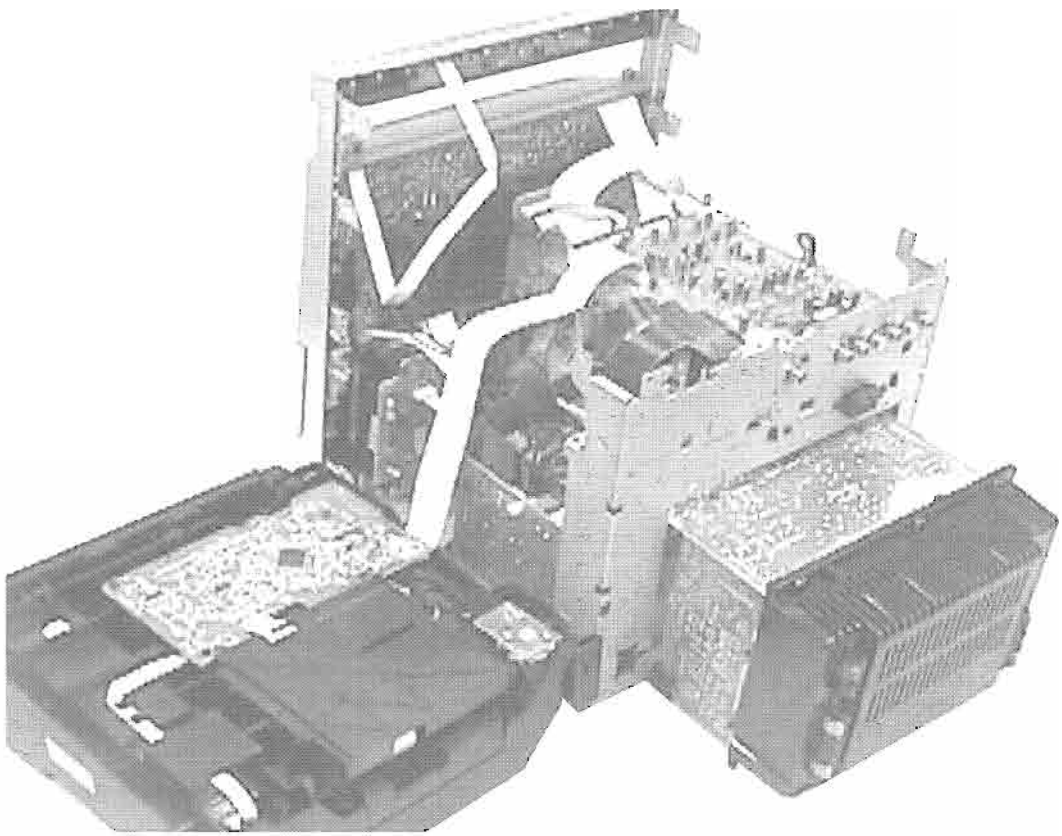
4) Due to the short flex cable wires in the ETF Module, the pc board should be disconnected and reconnected on the reverse side of the tape mechanism to keep it electrically connected during repair. See picture 3.

Picture 3



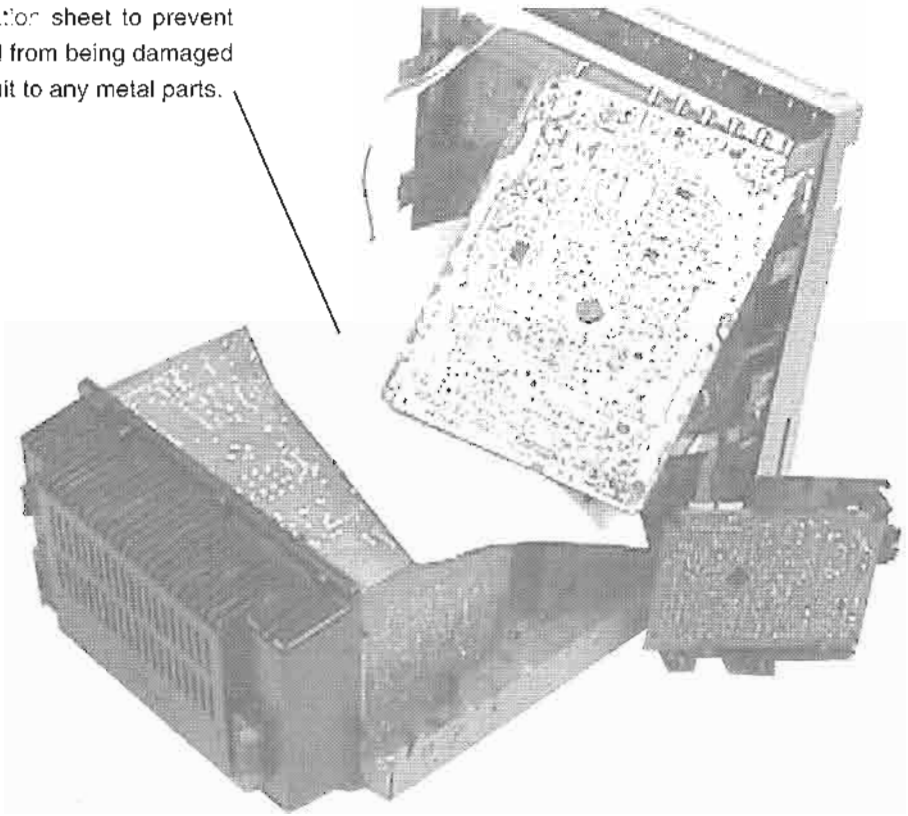
Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

Service pos A

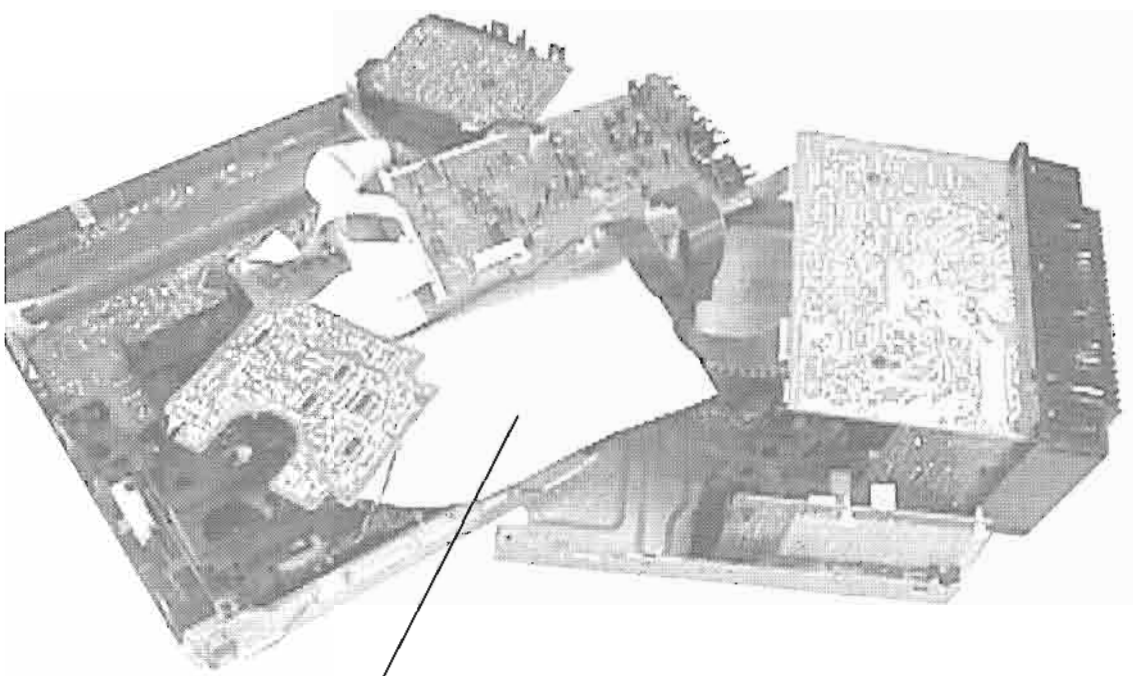


Service pos B

Use a insulation sheet to prevent the AF board from being damaged or short-circuit to any metal parts.

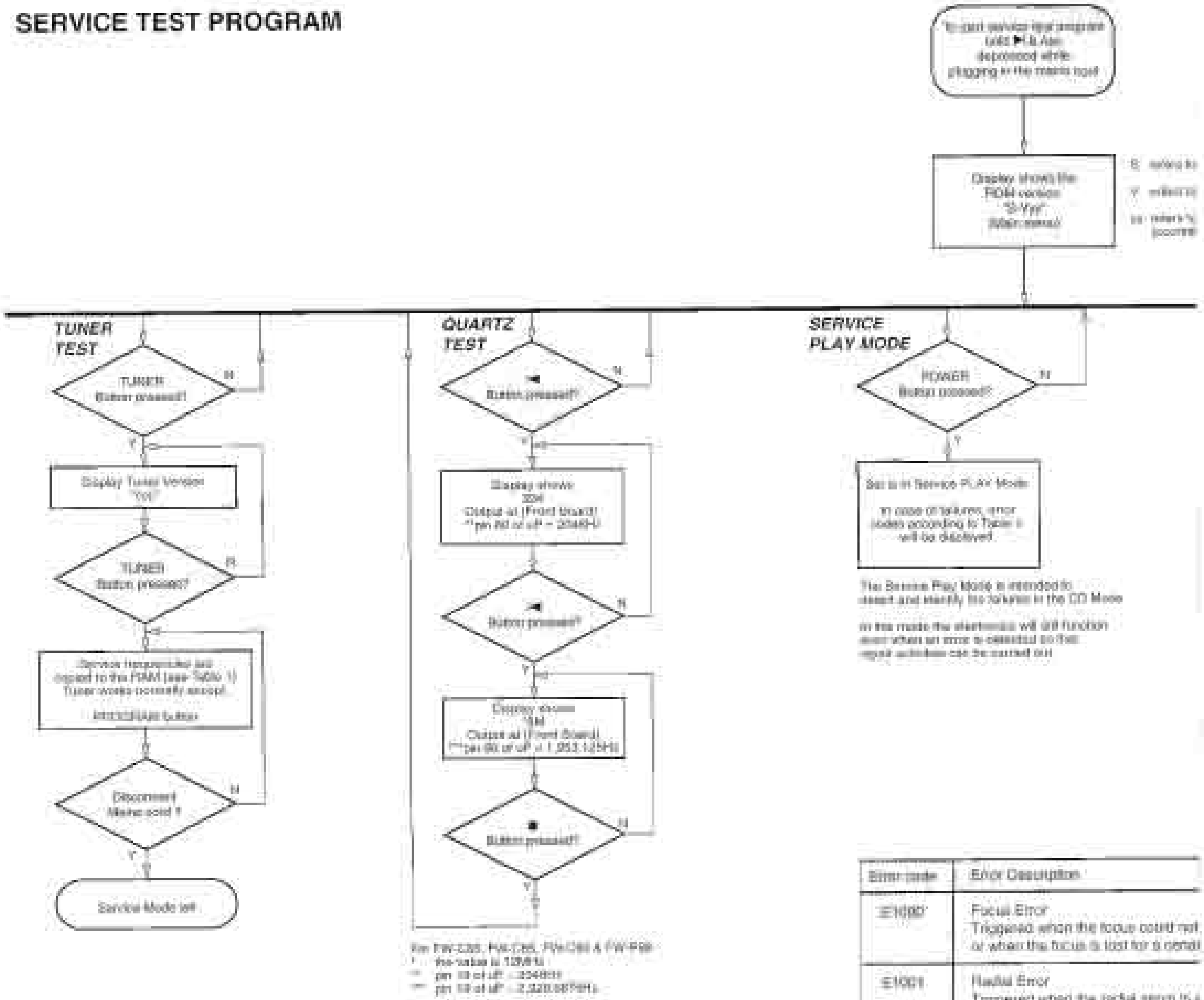


Service pos C



Use a insulation sheet to prevent the ETF board from being damaged or short-circuit to any metal parts.

SERVICE TEST PROGRAM



The Service Play Mode is intended to detect and identify the failures in the CD Mode.

In this mode the electronics will still function even when an error is detected so that repair activities can be carried out.

PRESET	Europe "EUR"	East Eur. "EAS"	East Eur. Extended band "EAS"	USA "USA"	Overseas "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	153kHz	87.5MHz	558kHz	98MHz	87.5/98MHz*
8	279kHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	198kHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	98MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	87.5MHz	98MHz	65.81MHz	87.5MHz	98/87.5MHz*

Table 1

Note: * Depending on the selected grid frequency (9 or 10kHz)
By holding the TUNER and ▶▶ buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Overseas (/21) version
- the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.

Error code	Error Description
E1000	Focus Error Triggered when the focus could not ... or when the focus is lost for a certai...
E1001	Radial Error Triggered when the radial servo is ...
E1002	Sledge In Error The sledge did not switch its inner p... 8 Sec. have passed by. (inner-switc...
E1003	Sledge Out Error The sledge did not come out of its i... 250 mSec. have passed by. (inner-...
E1005	Jump-offtrack error Triggered in normal play when the ... When this error occurred, software ... if it is recoverable, the disc will cont...
E1006	Subcode Error Triggered when a new subcode wa...
E1007	PLL Error The Phase Lock Loop could not loc...
E1008	Turntable Motor Error Generated when the CD could not ... Discmotor problem.
E1020	Focus Search Error The focus point has not been found...
E1070	The carousel switch is not open wi... defective and closed all the time, o... disc position.
E1071	The carousel position switch did no... switch is defective and never closes... two disc positions. The time-out is ...
E1079	The drawer could not enter the ma... the drawer is blocked by somethin... and does not close.

Service Mode

ersion

Software version number of the µProcessor
up from 01 to 99)

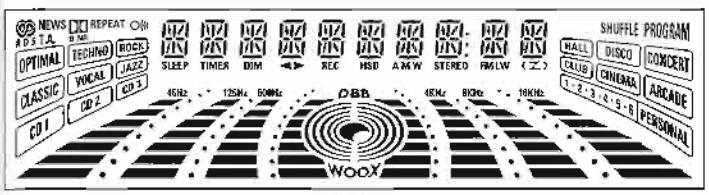
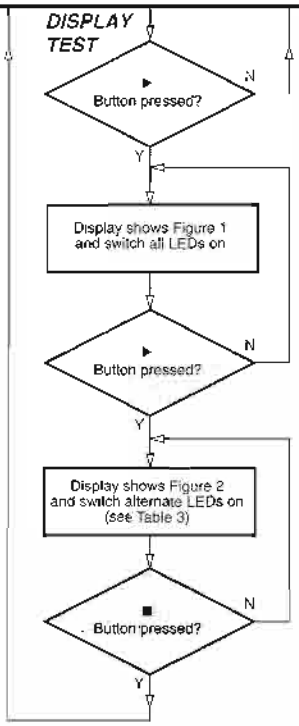


Figure 1

Figure 2



LEDs	FW-C80	FW-C83 , FW-C85 FW-C90	FW-P88
DISC 1	On	On	On
DISC 3	On	On	On
CD	On	On	On
TUNER	On		
TAPE		On	On
DECOR		On	On
BASS	On		
WOOX	On		
DPL CENTRE			On
STEREO RIGHT			On

Table 3

Various other Tests

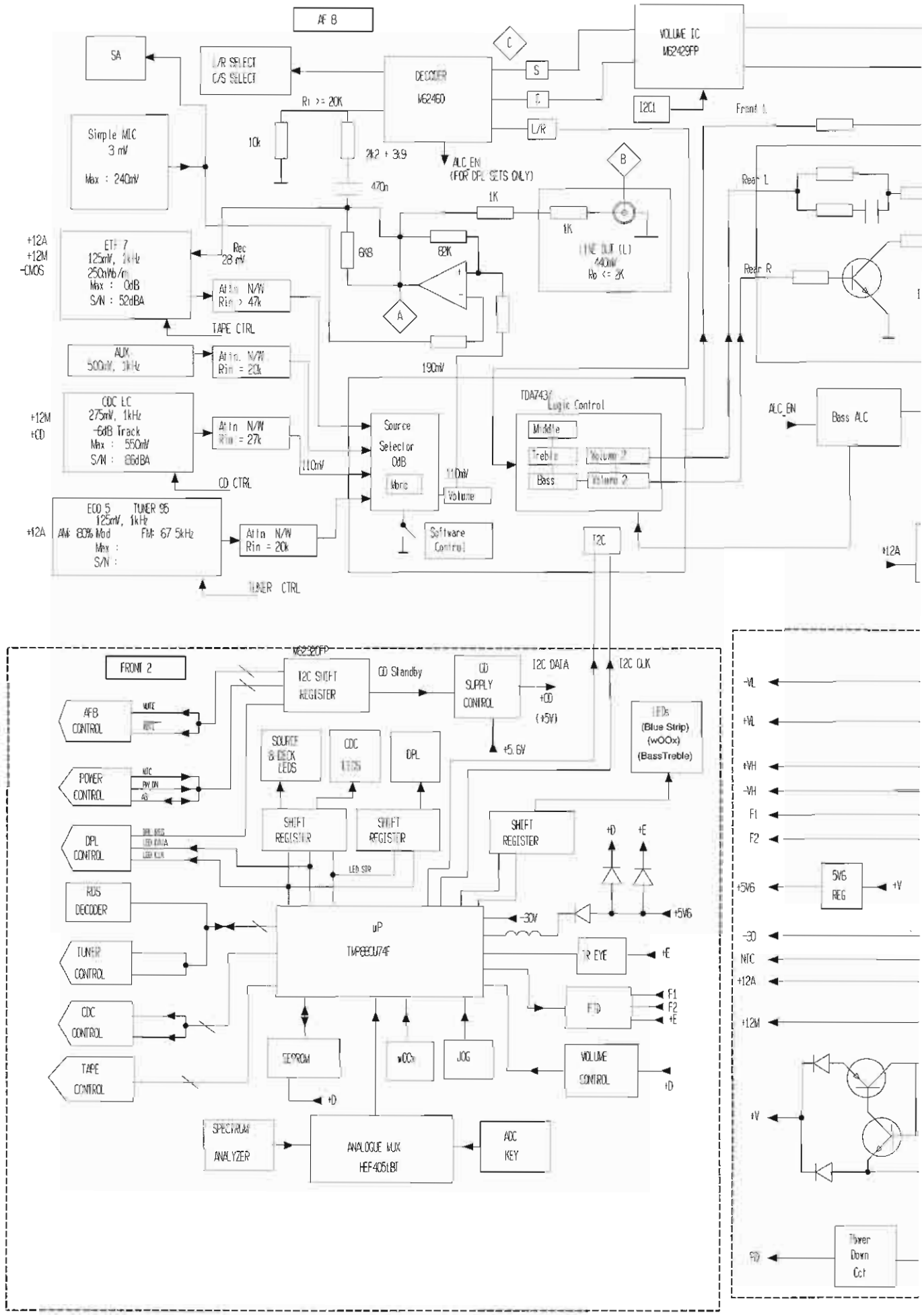
TEST	Activated with	ACTION
EEPROM TEST	►► ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERROR" will be displayed.
EEPROM FORMAT	◄◄	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost!!***
ROTARY ENCODER TEST	Rotary Volume Knob or Rotary WOOX Knob or Jog Shuttle Knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

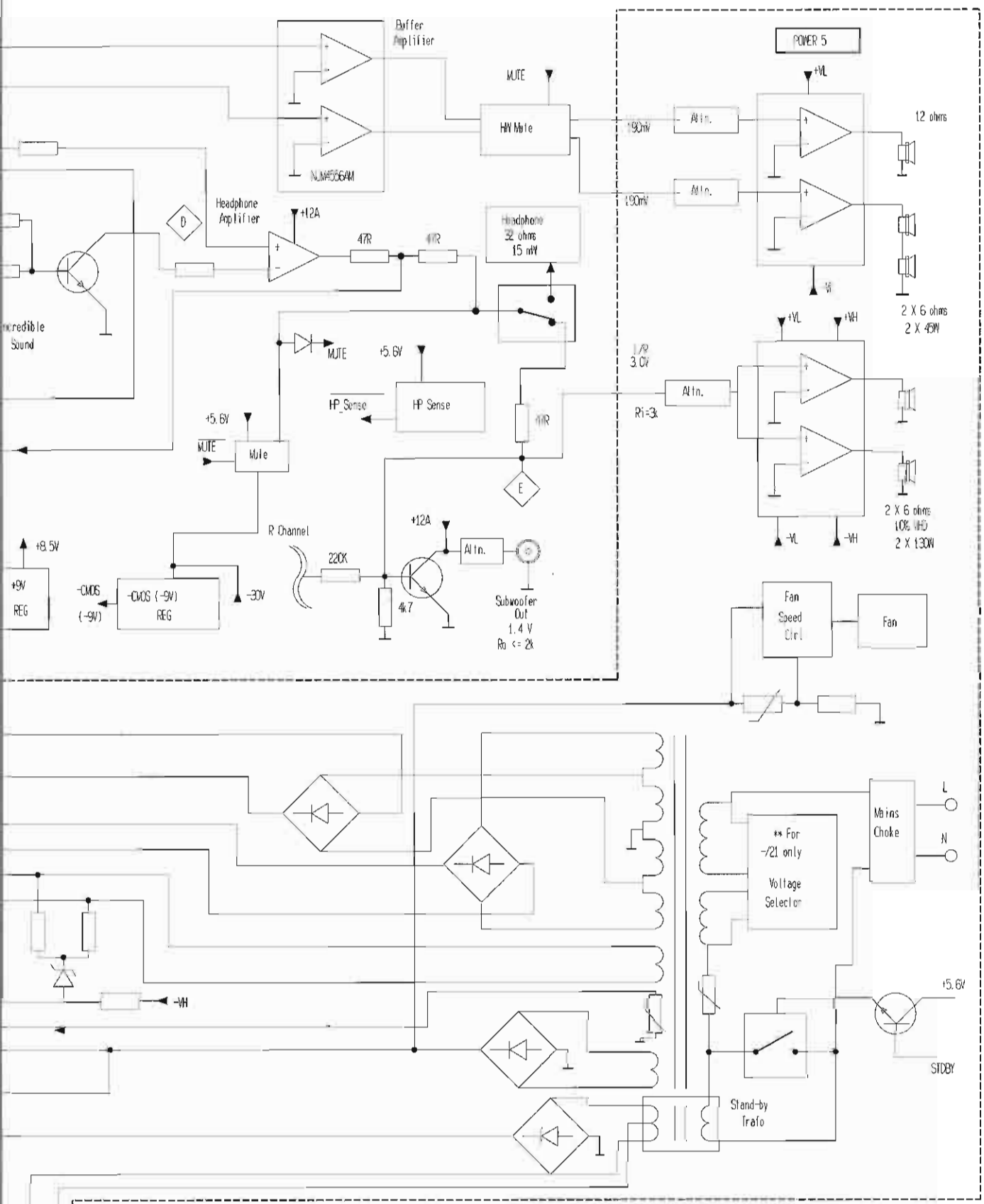
e found within a certain time when starting up the CD time during play.
-track for a certain time during play.
ition (inner-switch is still close) before approximately or sledge motor problem.
er position (inner-switch is still open) before approximately itch or sledge motor problem.
p destination could not be found within a certain time. ll try to recover by initiating the jump command again. e to play.
issing for a certain time during play.
within a certain time.
ached 75% of speed during startup within a certain time.
thin a certain time.
certain time. This can happen when either the switch is hen the carousel is blocked when located exactly at a
close within a certain time. This can happen when the electrically, or when the carousel is blocked in between proximately 5 Sec.
position is opening again. This can be caused because and cannot go fully inside, or the drawer switch is defective

able 2

A

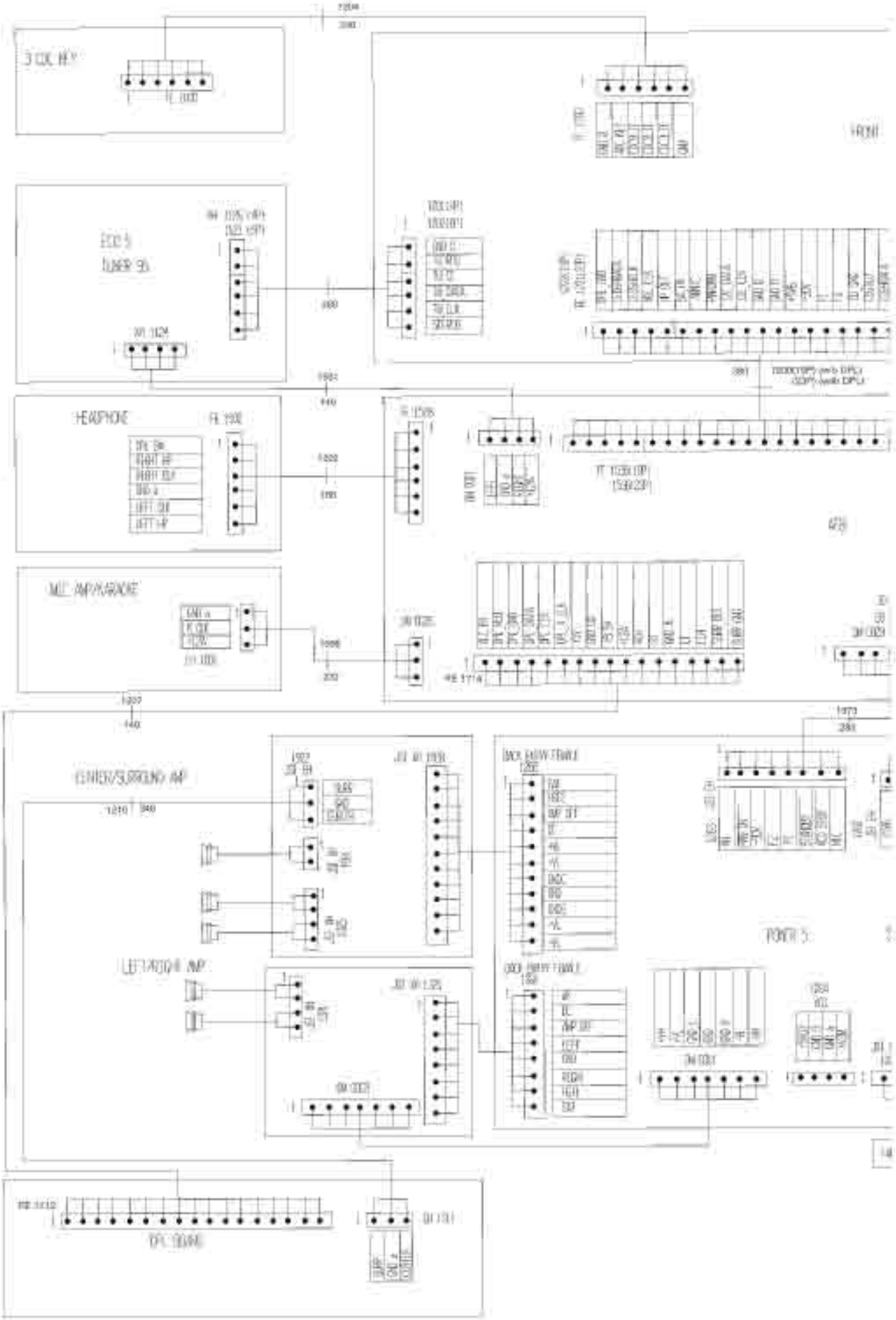
SET BLOCK DIAGRAM



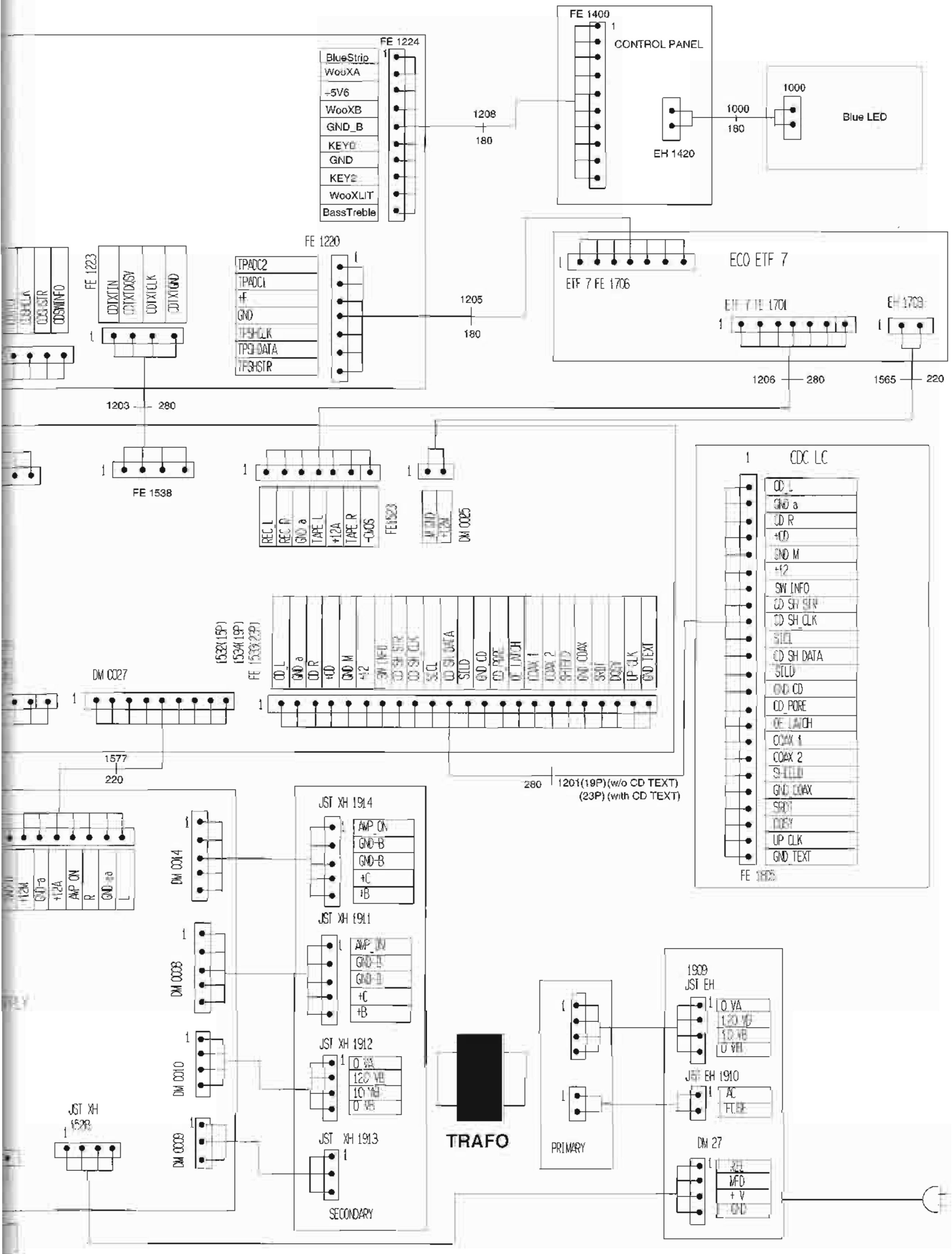

Buffer Amplifier
NJM4556AM
MUTE
HW Mute
POWER 5
+VL
190mV
Attn.
12 ohms
Headphone Amplifier
+12A
47R
Headphone 32 ohms 15 mW
2 X 6 ohms 2 X 45W
+VH
3.0V
Ri=3k
MUTE
+5.6V
HP Sense
HP_Sense
Mute
+5.6V
R Channel
220K
4k7
+12A
Attn.
Subwoofer Out 1.4 V Ro <= 2k
2 X 6 ohms 10% THD 2 X 130W
-VL
-VH
+8.5V
+9V REG
-CMOS (-9V)
-CMOS (-9V) REG
-30V
Fan Speed Ctrl
Fan
-VH
** For -/21 only
Voltage Selector
Mains Choke
L
N
+5.6V
STDBY
Stand-by Trafo

A

SET WIRING DIAGRAM



β

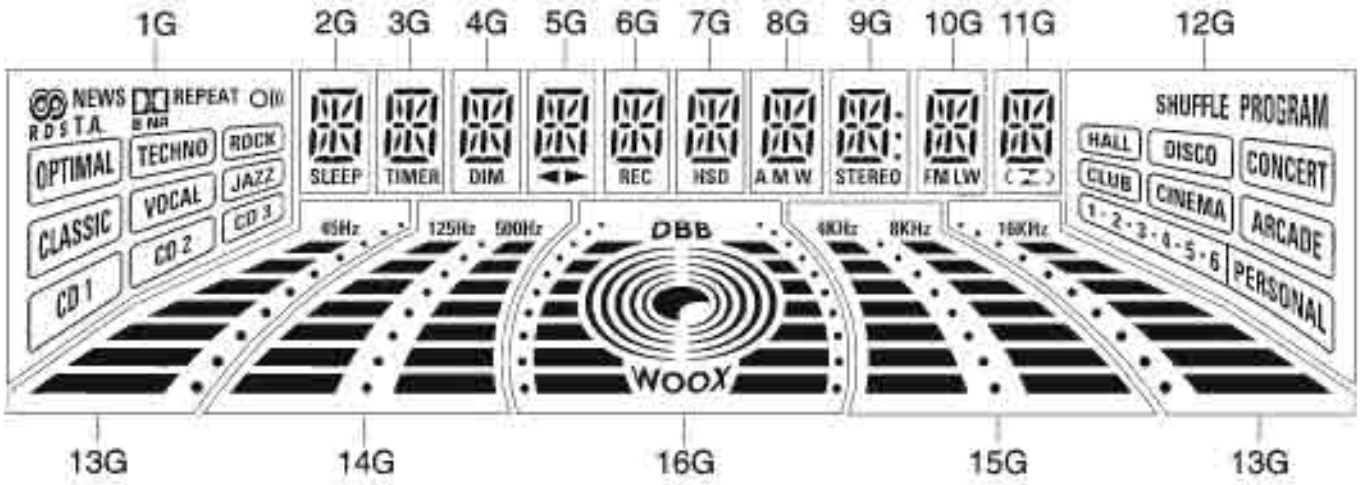

FE 1400
CONTROL PANEL
1000
Blue LED
1000
180
EH 1420
FE 1224
BlueStrip
WooXA
+5V6
WooXB
GND_B
KEY0
GND
KEY2
WooXLIT
BassTreble
1208
180
FE 1220
TPADC2
TPADC1
+F
GND
TPSHCLK
TPSHDATA
TPSHSTR
1205
180
FE 1223
CDTXTIN
CDTXTDQSY
CDTXTCLK
CDTXTGND
ECO ETF 7
ETF 7 FE 1706
1206
280
1565
220
1203
280
FE 1538
REC L
REC R
GND a
TAPE L
+12A
TAPE R
-CASS
FE1523
DM 0025
CDC LC
CD L
GND a
CD R
+CD
GND M
+12
SW INFO
CD SH SIR
CD SH CLK
CD SH DATA
GND CD
CD PORE
COAX 1
COAX 2
GND COAX
UP CLK
GND TEXT
DM 0027
1577
220
280
1201(19P)(w/o CD TEXT)
(23P) (with CD TEXT)
DM 0014
JST XH 1914
AMP ON
GND-B
GND-B
+C
+B
DM 0008
JST XH 1911
AMP ON
+C
+B
DM 0010
JST XH 1912
JST XH
DM 0009
JST XH 1913
SECONDARY
TRAFO
PRIMARY
1909
JST EH
0 VA
JST EH 1910
AC
DM 27
+ V
GND

FRONT BOARD

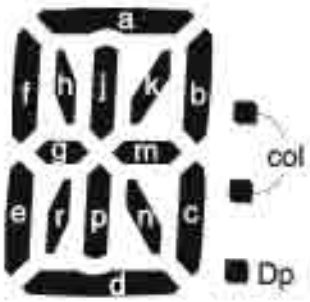
TABLE OF CONTENTS

FTD pin connection 6-1
Front Board - Component and Chip layouts 6-2
Front Board - Circuit diagram 6-3
Key-CDC part - Layouts & Circuit diagram 6-4
Headphone part - Layouts & Circuit diagram 6-4
Karaoke part - Layouts & Circuit diagram 6-4
Control part - Layouts & Circuit diagram 6-5
Blue Strip LED part - Layouts & Circuit diagram 6-5
Electrical parts list 6-6

FTD DISPLAY PIN CONNECTIONS



(1G)

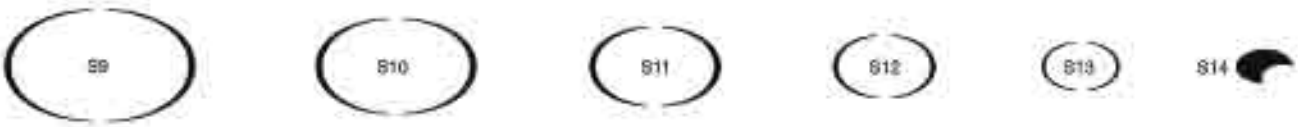


(2G~11G)

(12G)

(13G) (14G) (16G) (15G) (13G)

(13G) (14G) (16G) (15G) (13G)



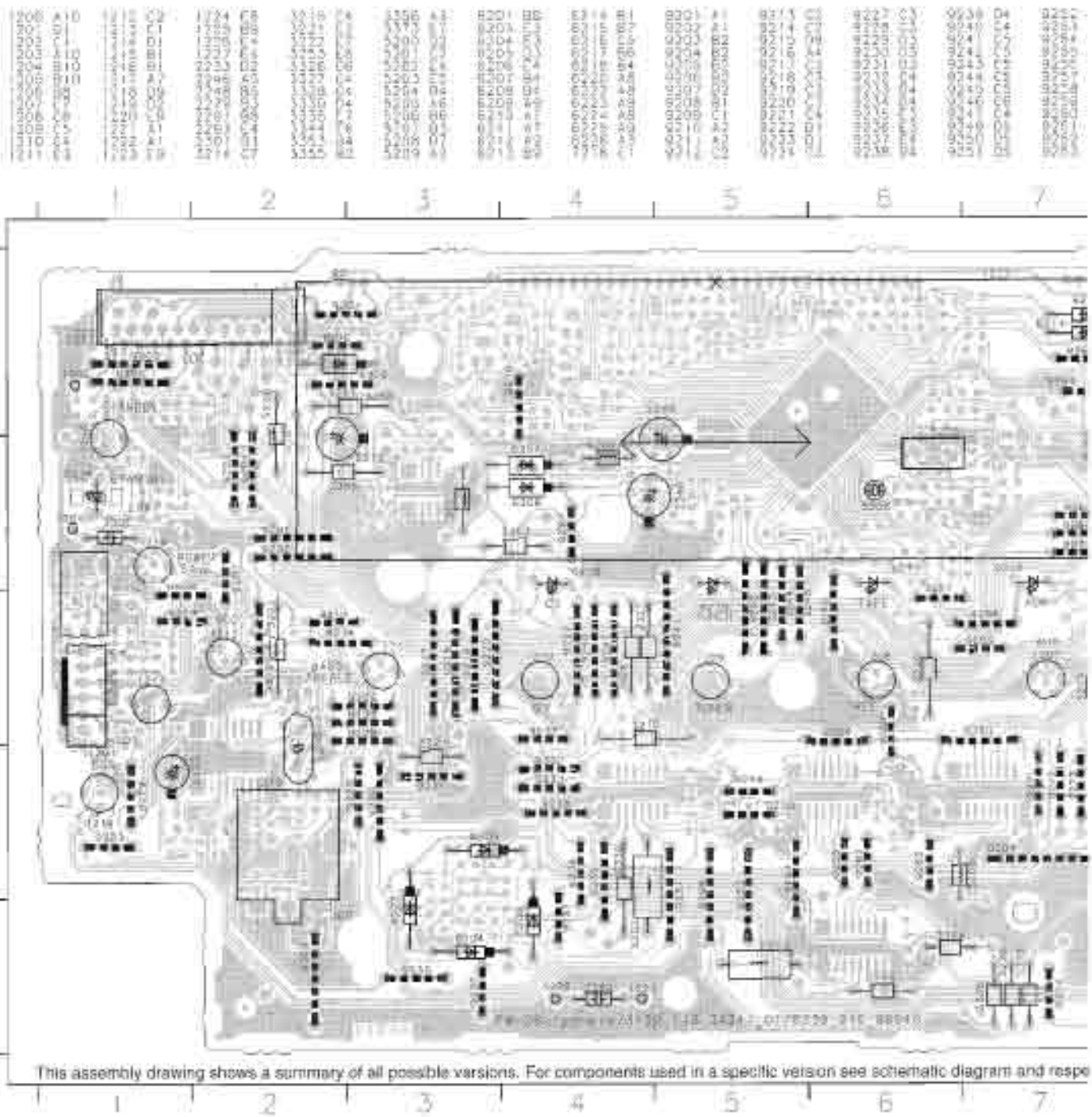
(16G)

FTD DISPLAY PIN CONNECTIONS

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G
P1	RDS	a	a	a	a	a	a	a	a	a	a	SHUFFLE	B1	B1	B1	B1
P2	NEWS	h	h	h	h	h	h	h	h	h	h	PROGRAM	B2	B2	B2	B2
P3	T.A.	j,p	j,p	j,p	j,p	j,p	j,p	j,p	j,p	j,p	j,p	(HALL)	B3	B3	B3	B3
P4	B.NR	k	k	k	k	k	k	k	k	k	k	(DISCO)	B4	B4	B4	B4
P5	REPEAT	b	b	b	b	b	b	b	b	b	b	(CONCERT)	B5	B5	B5	B5
P6		f	f	f	f	f	f	f	f	f	f	(CLUB)	B6	B6	B6	B6
P7	(OPTIMAL)	m	m	m	m	m	m	m	m	m	m	(CINEMA)	B7	B7	B7	B7
P8	(TECHNO)	g	g	g	g	g	g	g	g	g	g	(ARCADE)	S4	S6	S7	S8
P9	(ROCK)	c	c	c	c	c	c	c	c	c	c	S2	B8	B8	B8	S9
P10	(CLASSIC)	e	e	e	e	e	e	e	e	e	e	S3	B9	B9	B9	S10
P11	(VOCAL)	r	r	r	r	r	r	r	r	r	r	1	B10	B10	B10	S11
P12	(JAZZ)	n	n	n	n	n	n	n	n	n	n	2	B11	B11	B11	S12
P13	(CD 1)	d	d	d	d	d	d	d	d	d	d	3	B12	B12	B12	S13
P14	(CD 2)	SLEEP	TIMER	DIM	►	REC	HSD	A	STEREO	FM	⊼	4	B13	B13	B13	S14
P15	(CD 3)	-	-	-	◄	-	-	M	col	LW	☾	5	B14	B14	B14	WOOX
P16	S1	-	-	-	-	-	-	W	Dp	-	☽	6	S5	-	-	DBB

A

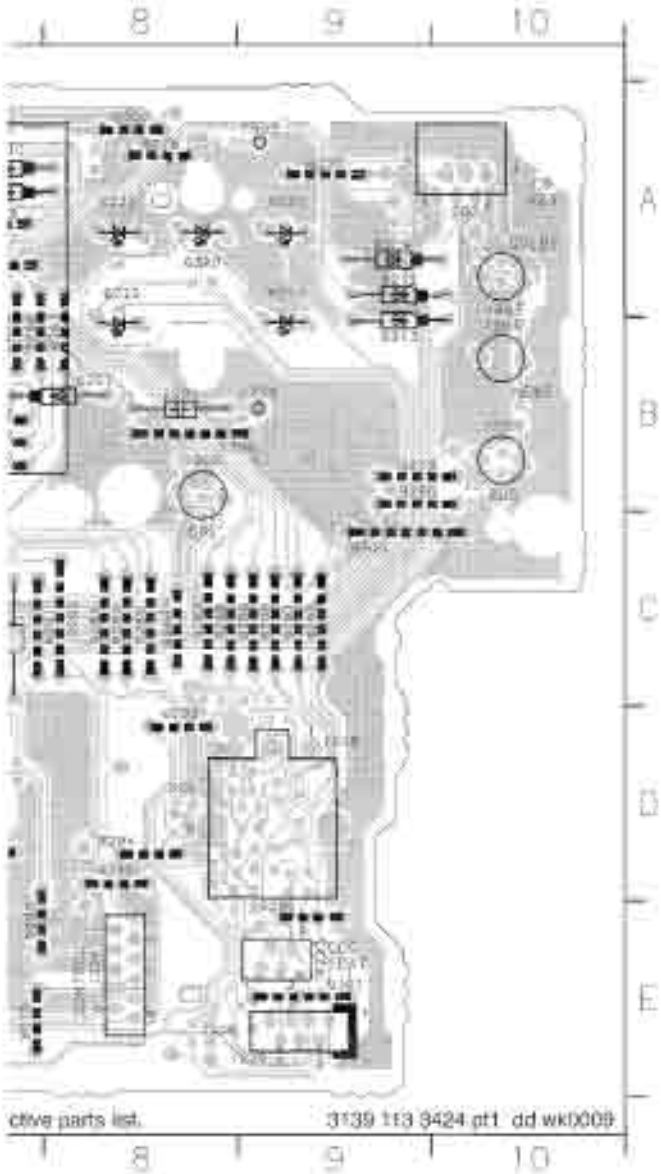
FRONT BOARD - COMPONENT LAYOUT

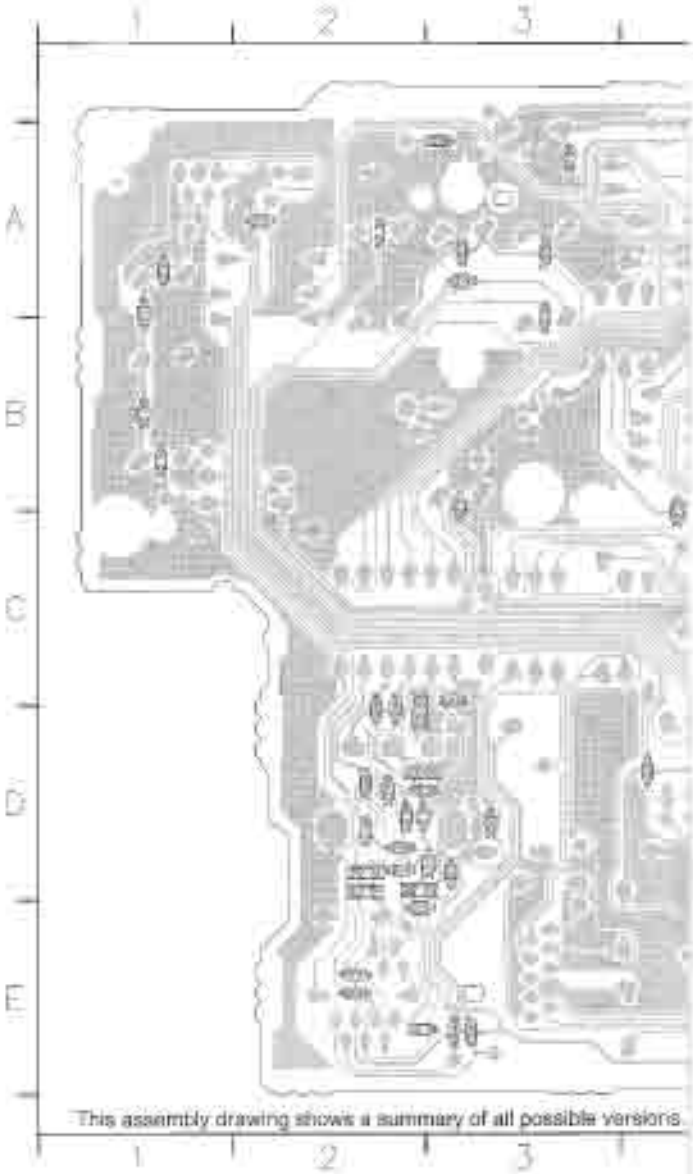


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respe

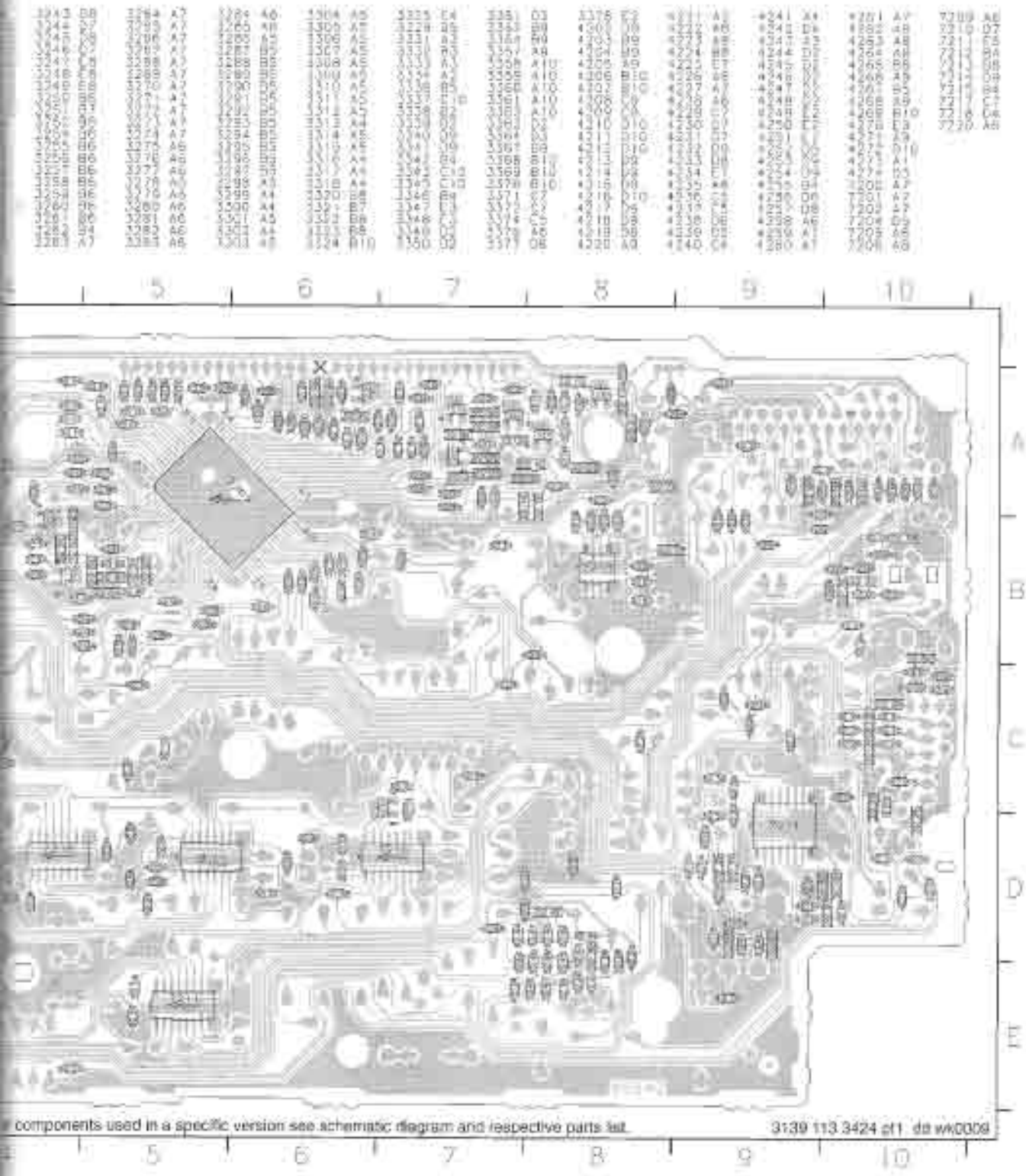
B

FRONT BOARD - CHIP LAYOUT





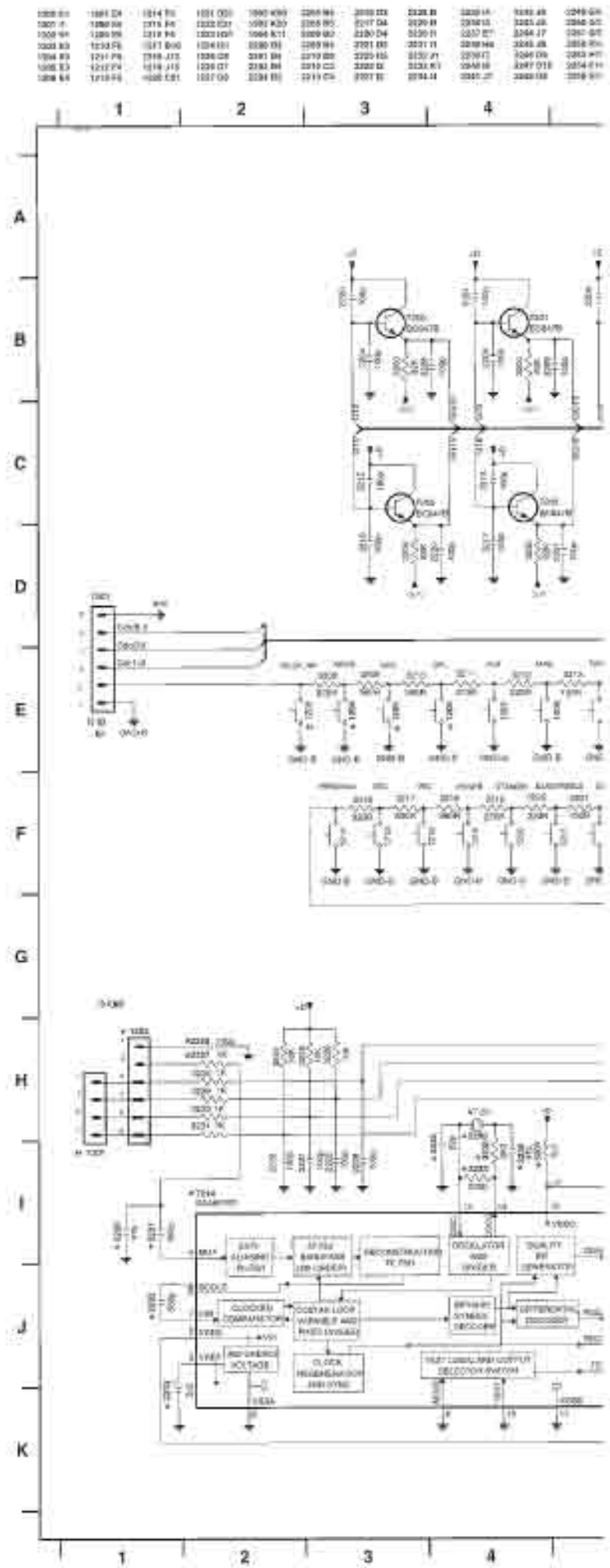
This assembly drawing shows a summary of all possible versions.



components used in a specific version see schematic diagram and respective parts list.

3139 113 3424 pt1 da wk0009

FRONT BOARD - CIRCUIT DIAGRAM

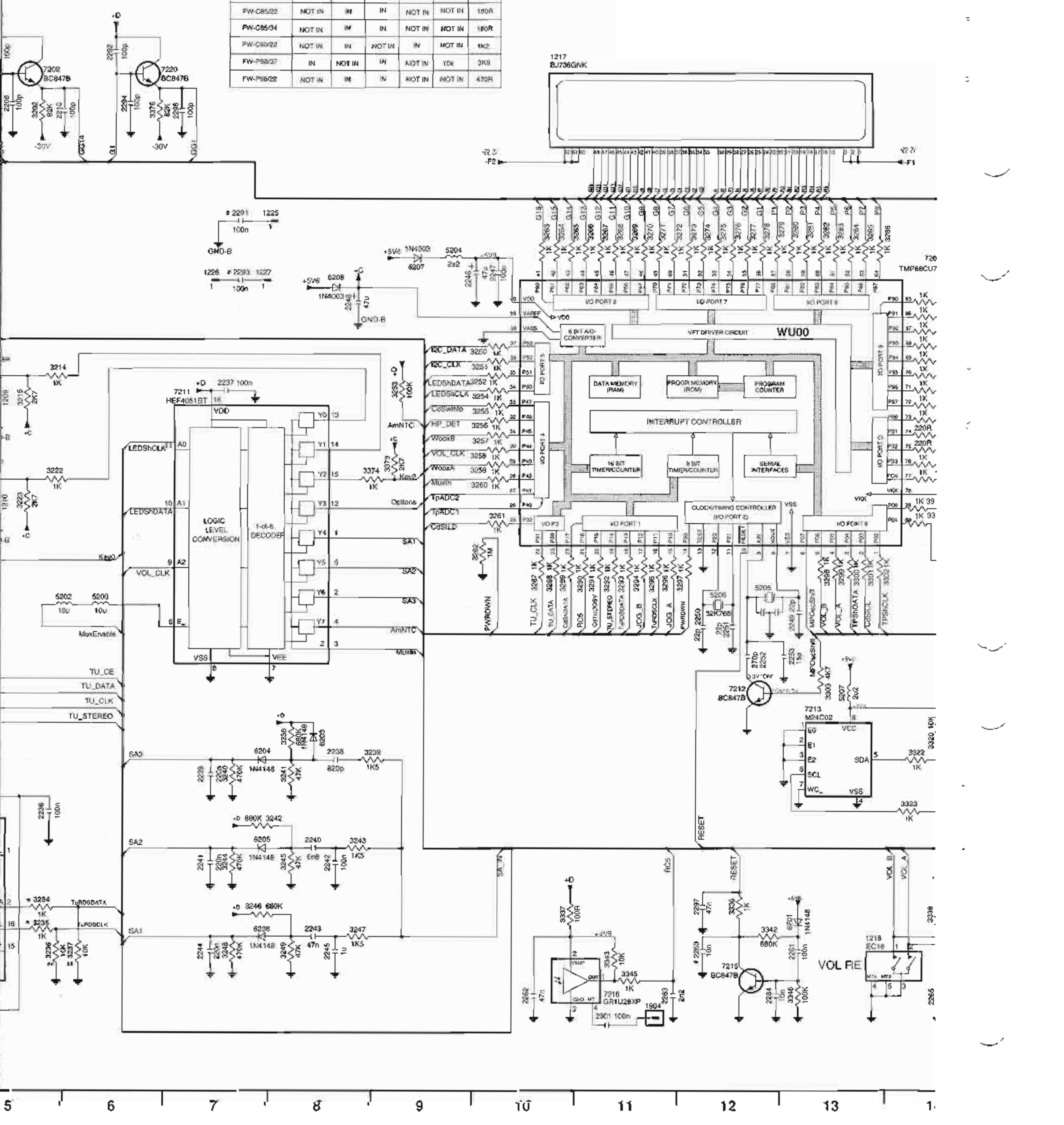


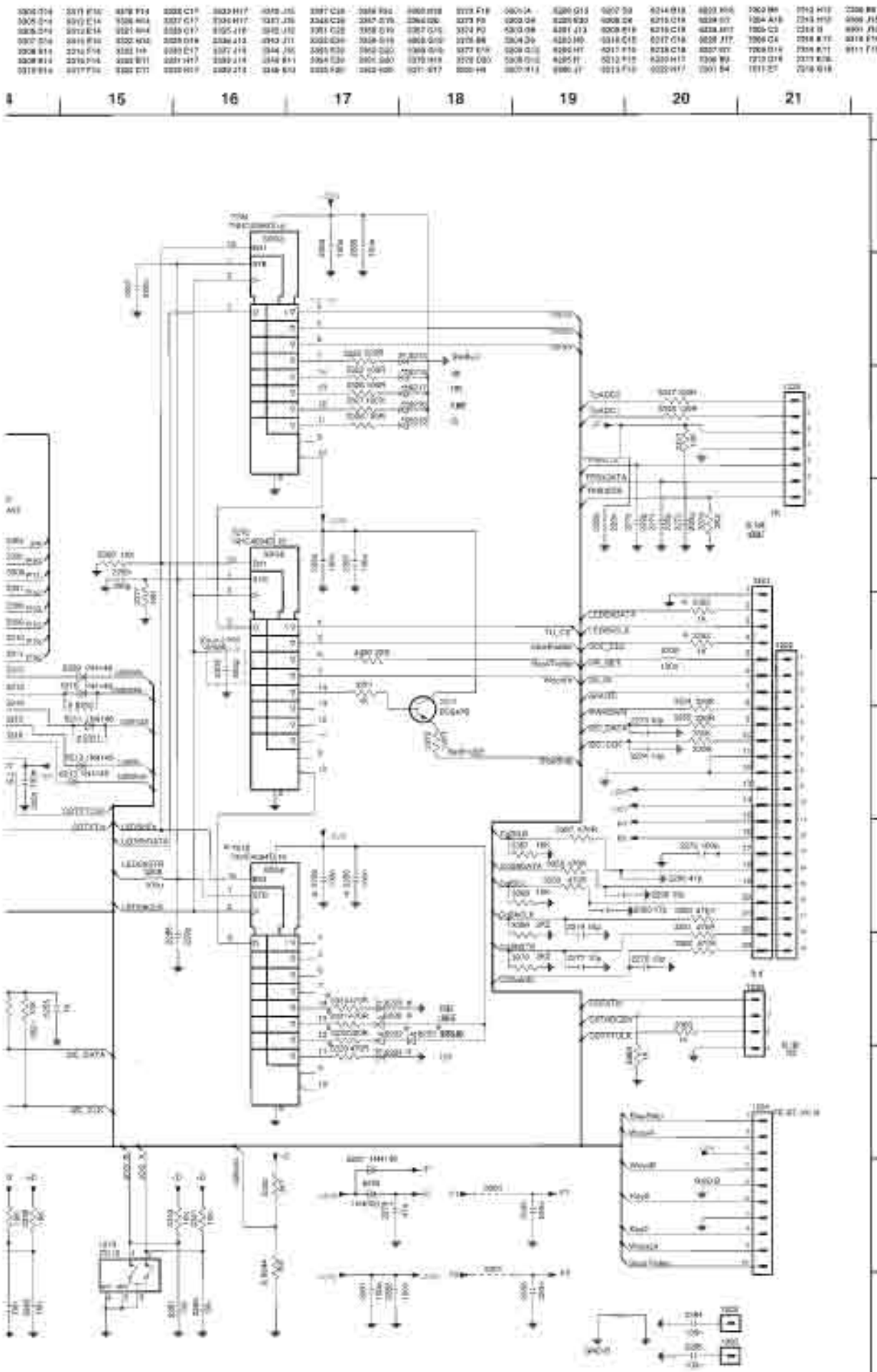
2256 A17	2263 K11	2270 D20	2277 H19	2284 K20	2291 C7	2299 G20	3204 D3	3213 E5	3220 F4	3227 H2	3234 J5	3241 I8	3248 J7	3255 E10	3262 G10	3269 C11	3276 C12	3283 C13	3290 G11	3297 G11
2257 B15	2264 K12	2271 D20	2278 H20	2285 K20	2292 B6	2300 G20	3205 D4	3214 E5	3221 F5	3228 H2	3235 J6	3242 I8	3249 J9	3256 E10	3263 C10	3270 C11	3277 C12	3284 C13	3291 G11	3298 G13
2258 D17	2265 K14	2272 D20	2279 J17	2286 A17	2293 D7	2301 K11	3208 E3	3215 E6	3222 F6	3229 H2	3236 J5	3243 I8	3250 E10	3257 E10	3264 C10	3271 C11	3278 C12	3285 C13	3292 G11	3299 G13
2259 D15	2266 K14	2273 F20	2280 J19	2287 D17	2294 B6	2302 E18	3209 E3	3216 F3	3223 F5	3230 H2	3237 J6	3244 J7	3251 E10	3258 F10	3265 C11	3272 C12	3279 C13	3286 C14	3293 G11	3300 G13
2260 J12	2267 K15	2274 F20	2281 K17	2288 H15	2296 B7	3200 B3	3210 E3	3217 F3	3224 H2	3231 H2	3238 H8	3245 J8	3252 E10	3259 F10	3266 C11	3273 C12	3280 C13	3287 G10	3294 G11	3301 G13
2261 J13	2268 K16	2275 G20	2282 K17	2289 G17	2297 J12	3201 B4	3211 E4	3218 F4	3225 H2	3232 I4	3239 H9	3246 J7	3253 E9	3260 F10	3267 C11	3274 C12	3281 C13	3288 G10	3295 G11	3302 G14
2262 K10	2269 D19	2276 G19	2283 K19	2290 G17	2298 G20	3202 B5	3212 E4	3219 F4	3226 H9	3233 I4	3240 I7	3247 J8	3254 E10	3261 F10	3268 C11	3275 C12	3282 C13	3289 G10	3296 G11	3303 H13

Variations table for Front Board

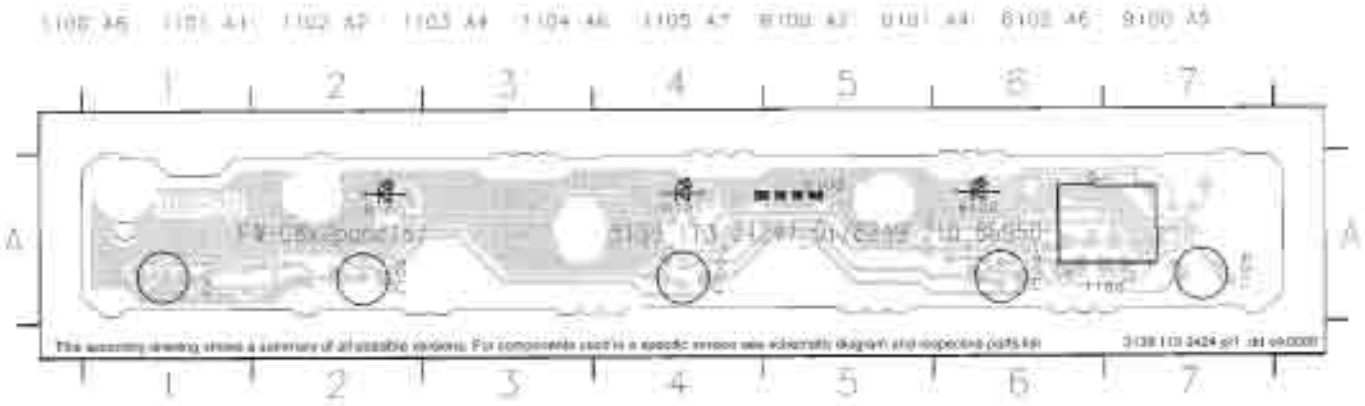
	1201	1203	1402	1419	3236 3237	3344
FW-C83/22	NOT IN	IN	IN	NOT IN	NOT IN	180R
FW-C85/37	IN	NOT IN	IN	NOT IN	10k	1K8
FW-C88/21	IN	NOT IN	IN	NOT IN	10k	27K
FW-C85/22	NOT IN	IN	IN	NOT IN	NOT IN	180R
FW-C85/34	NOT IN	IN	IN	NOT IN	NOT IN	180R
FW-C80/22	NOT IN	IN	NOT IN	IN	NOT IN	1K2
FW-P88/37	IN	NOT IN	IN	NOT IN	10k	3K9
FW-P88/22	NOT IN	IN	IN	NOT IN	NOT IN	470R

\# : Provision
* : RDS
@ : DPL Function
\## : Refer to variations table.
Note : Some values may varies, see respective parts list for correct value.

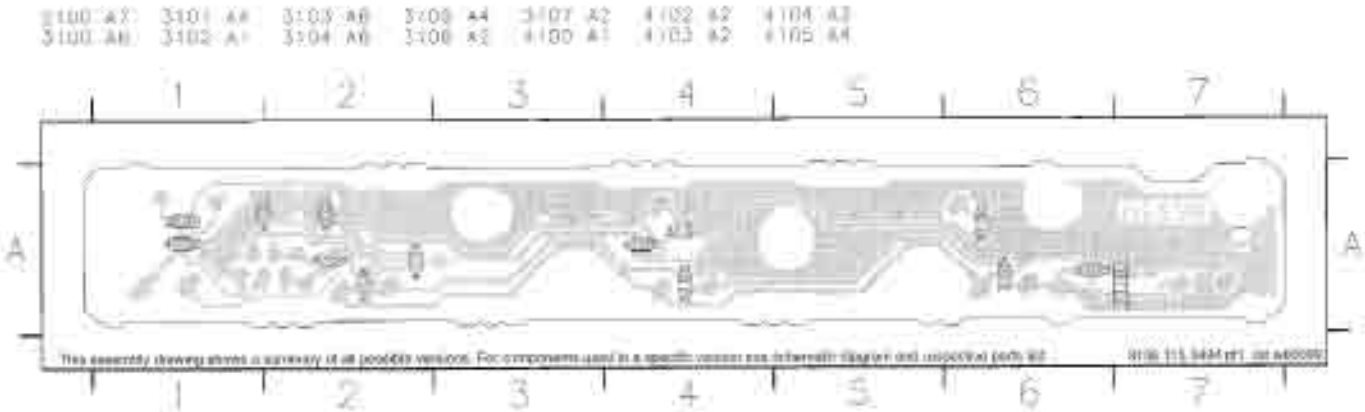




KEY-CDC BOARD - COMPONENT LAYOUT

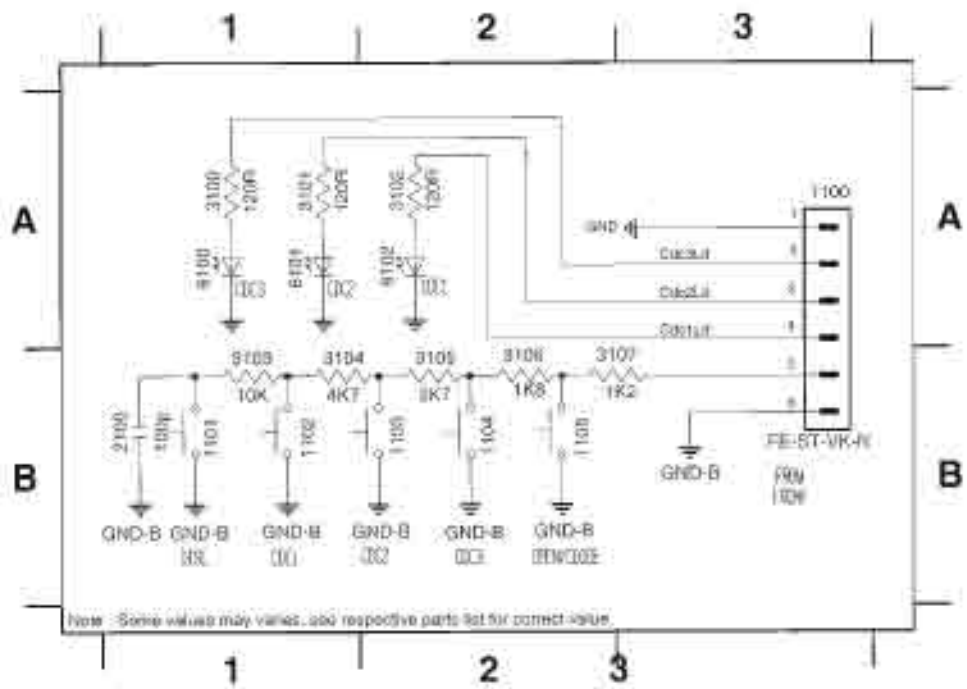


KEY-CDC BOARD - CHIP LAYOUT

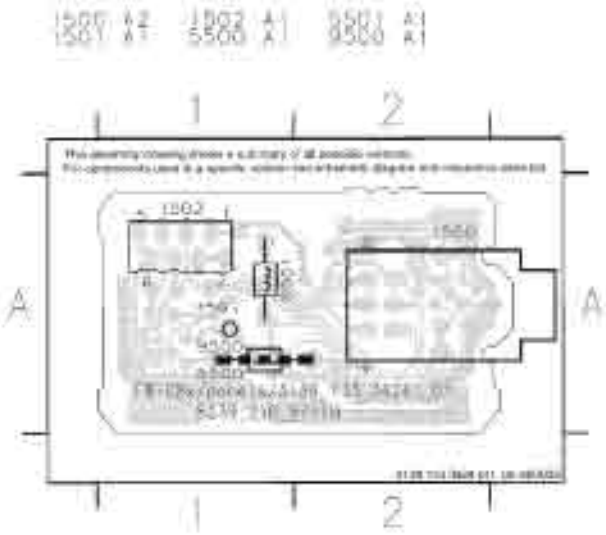


KEY-CDC PART - CIRCUIT DIAGRAM

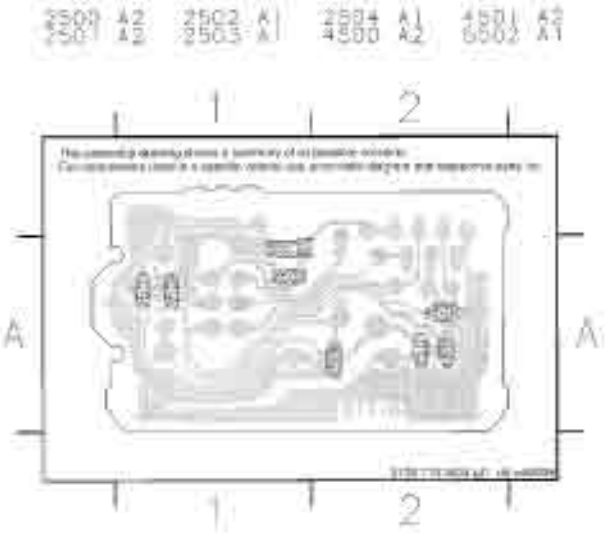
1100 A3	1102 B1	1104 B2	2100 B1	3101 A1	3103 B1	3105 B2	3107 B3	6101 A1
1101 B1	1103 B2	1105 B2	3100 A1	3102 A2	3104 B1	3106 B2	6100 A1	6102 A2



HEADPHONE BOARD - COMPONENT LAYOUT

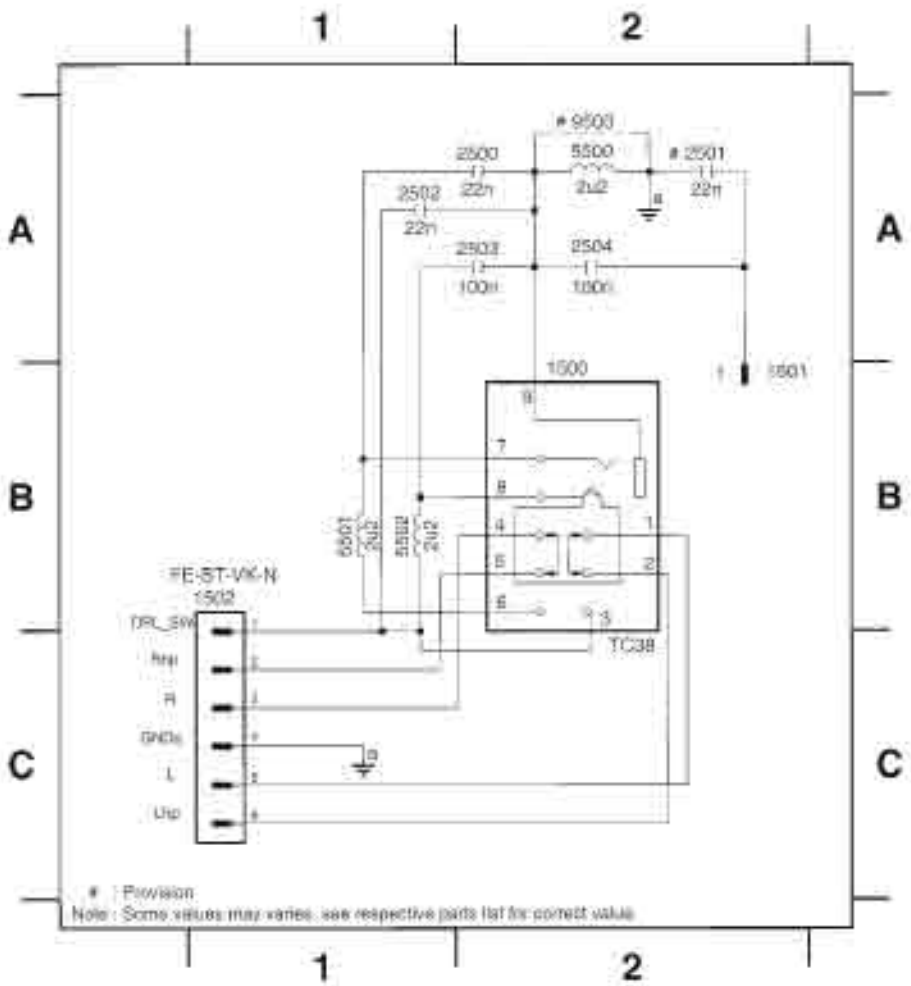


HEADPHONE BOARD - CHIP LAYOUT



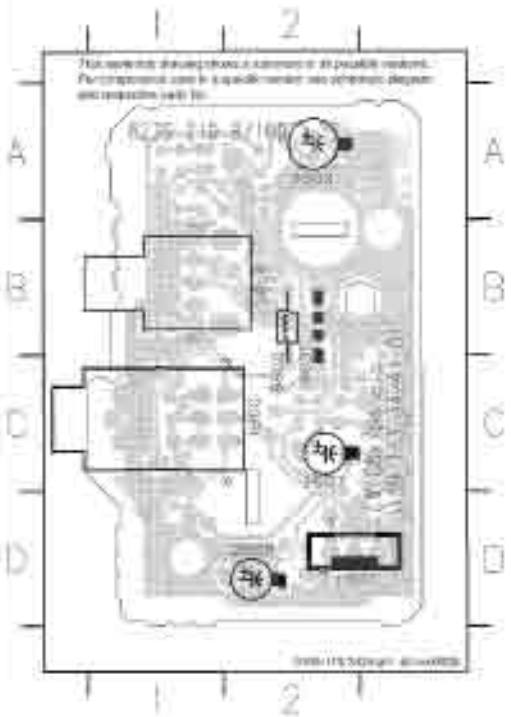
HEADPHONE PART - CIRCUIT DIAGRAM

1500 B2	1502 B1	2501 A2	2503 A2	5500 A2	5502 B1
1501 B2	2800 A2	2502 A1	2504 A2	5501 B1	9500 A2



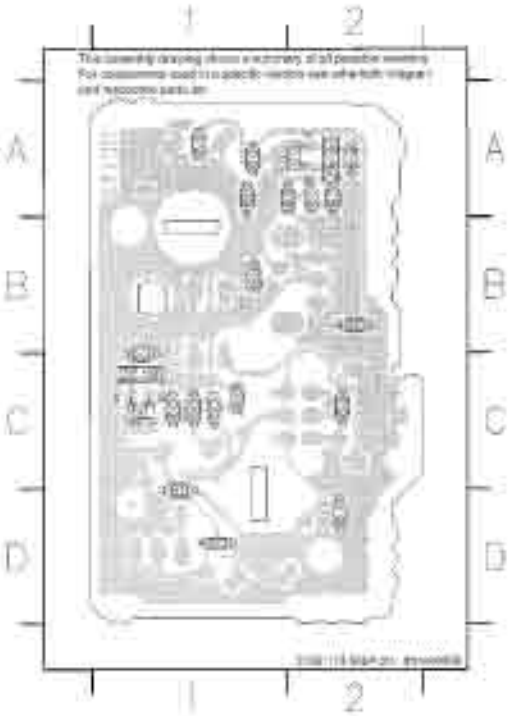
KARAOKE BOARD - COMPONENT LAYOUT

1600 C2 2602 C2 3600 C3
1601 C3 3606 B3 3603 C3
3602 A2 3608 B2



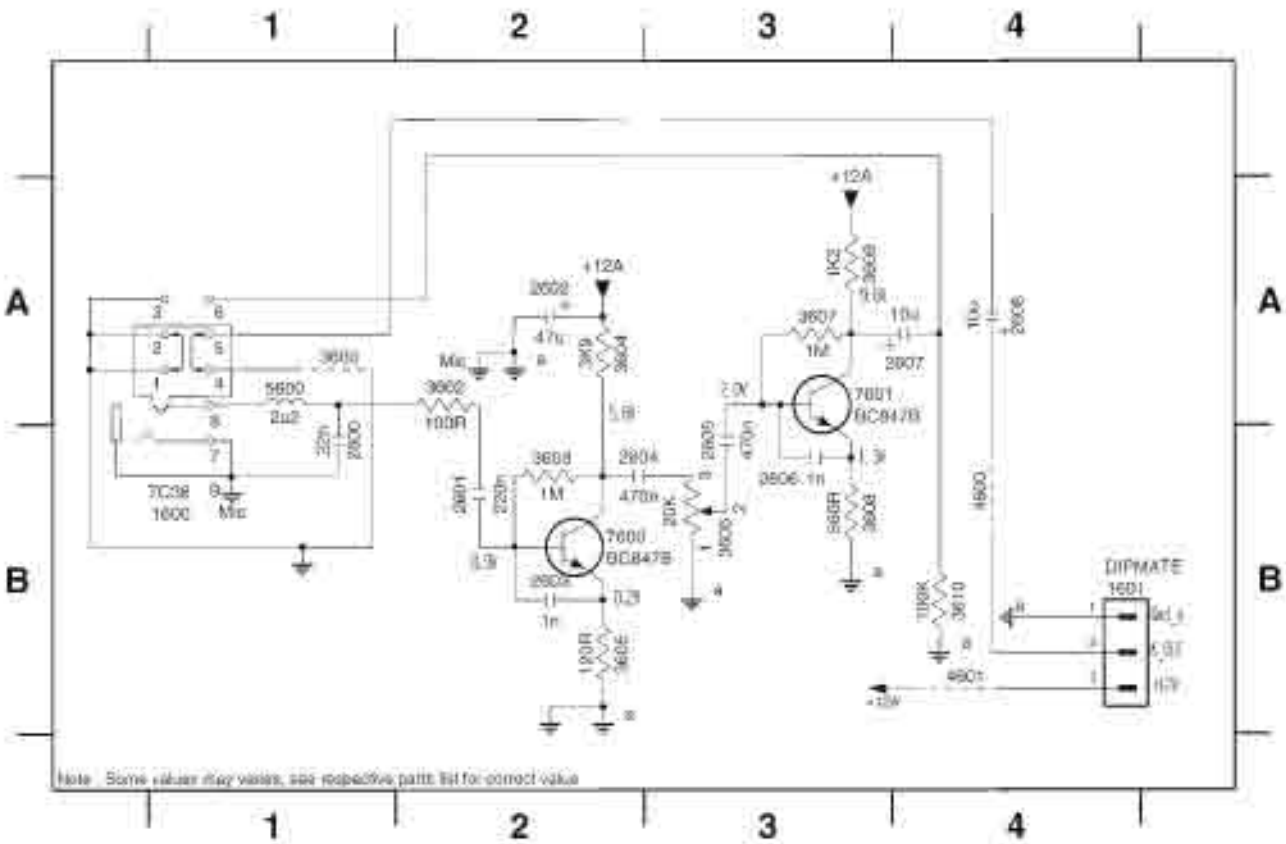
KARAOKE BOARD - CHIP LAYOUT

2600 B1 3603 A2 4601 C1
2601 A2 3604 A1 4602 A1
2603 A2 3605 A2 4603 B2
2604 A1 3607 C1 4604 C3
2605 C1 3608 C1 7600 A2
2606 C3 3609 C1 7601 C1
3600 B2 3610 B2
3602 A1 4600 D1



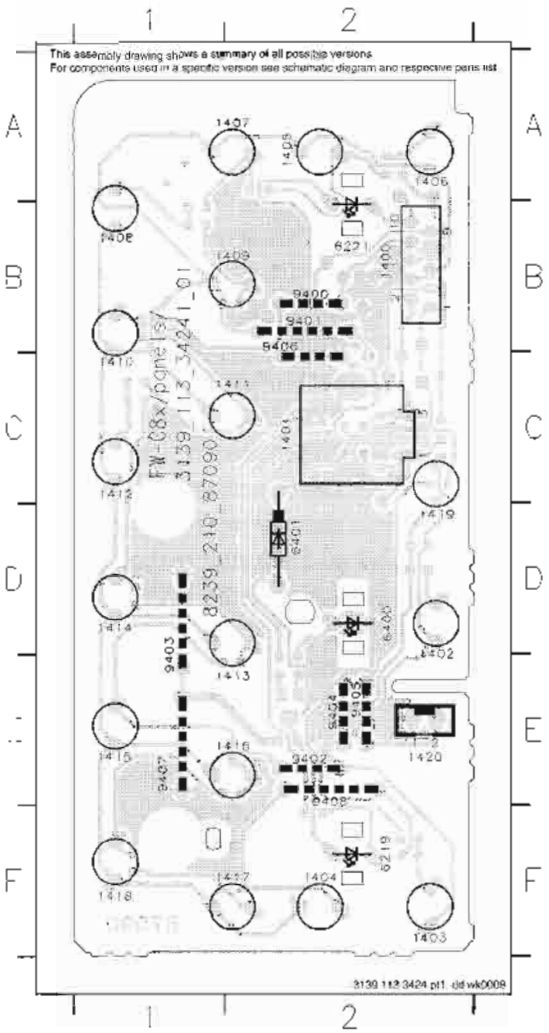
KARAOKE PART - CIRCUIT DIAGRAM

1600 B1 2600 B1 2602 A2 2604 B2 2606 B3 2608 A4 3602 A2 3604 A2 3606 B3 3608 B3 3610 B4 4601 B4 7600 B2
1601 B4 2601 B2 2603 B2 2605 B2 2607 A4 3600 A1 3603 B2 3605 B2 3607 A3 3609 A3 4600 B4 5600 A1 7601 A3



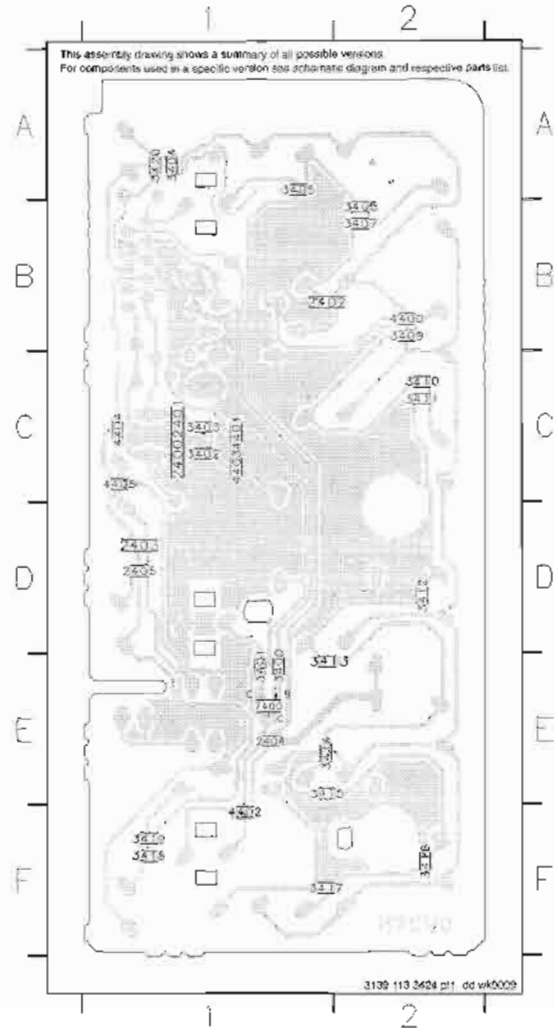
CONTROL BOARD - COMPONENT LAYOUT

1400 B2	1407 A2	1414 D1	6219 F2	9403 E1
1401 C2	1408 B1	1415 E1	6221 B2	9404 E2
1402 D2	1409 B2	1416 E2	6400 D2	9405 E2
1403 F2	1410 C1	1417 F2	6401 D2	9406 B2
1404 F2	1411 C2	1418 F1	9400 B2	9407 E1
1405 A2	1412 C1	1419 D2	9401 B2	9408 E2
1406 A2	1413 E2	1420 E2	9402 E2	



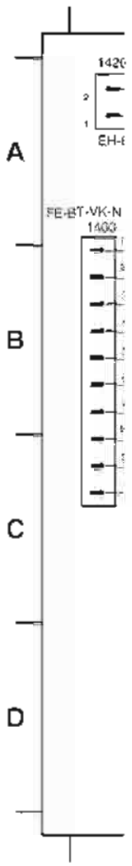
CONTROL BOARD - CHIP LAYOUT

2400 C1	3401 E1	3409 B2	3416 F2	4402 F1
2401 C1	3402 C1	3410 C2	3417 F1	4403 C1
2402 B1	3403 C1	3411 C2	3418 F1	4404 C1
2403 D1	3404 A1	3412 D2	3419 F1	4405 C1
2404 E1	3405 A1	3413 E1	3420 A1	7400 E1
2405 D1	3406 B2	3414 E1	4400 B2	
3400 E1	3407 B2	3415 E1	4401 C1	



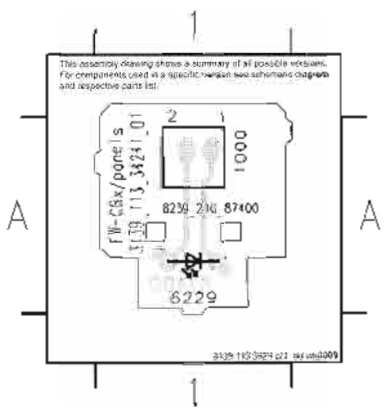
CONTR

1400 A1 1·
1401 A2 1·
1402 C7 1·



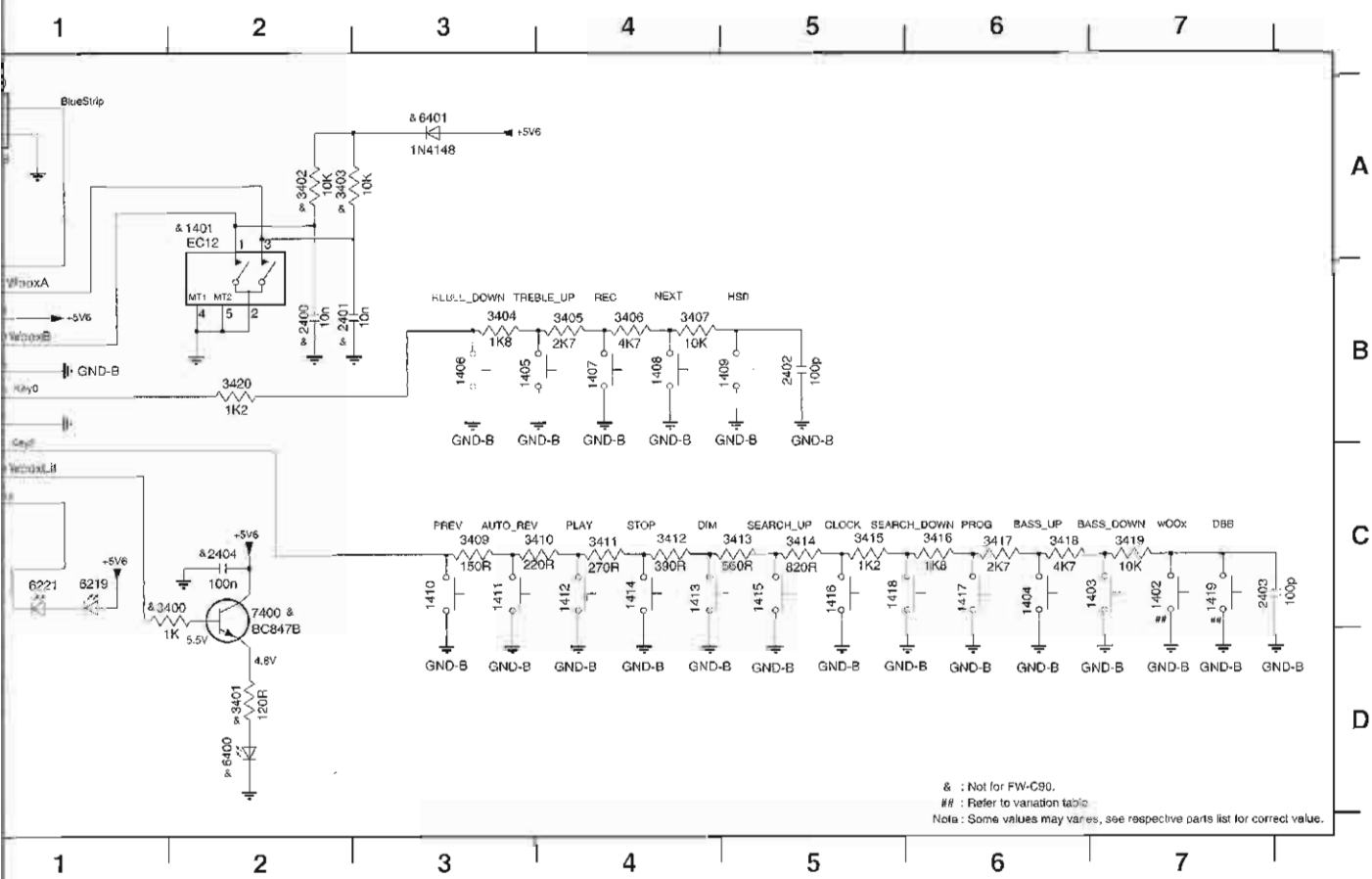
BLUE STRIP LED BOARD - COMPONENT LAYOUT

1000 A1 6229 A1



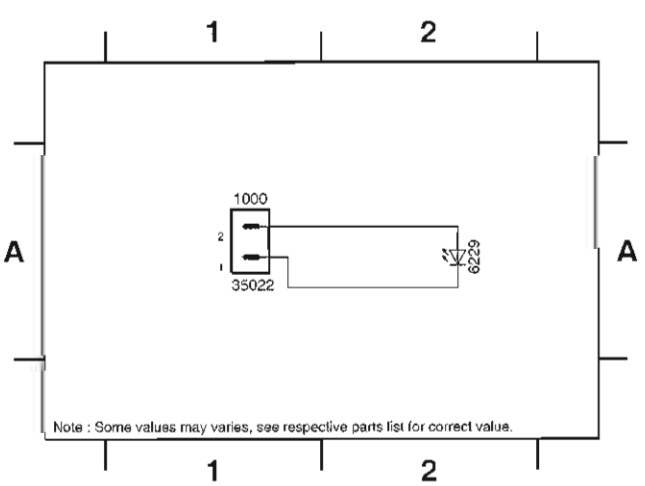
OL PART - CIRCUIT DIAGRAM

1403 C6 1406 B3 1409 B4 1412 C4 1415 C5 1418 C5 2400 B2 2403 C7 3401 D2 3404 B3 3407 B4 3411 C4 3414 C5 3417 C6 3420 B2 6400 D2
1404 C6 1407 B4 1410 C3 1413 C4 1416 C5 1419 C7 2401 B2 2404 C2 3402 A2 3405 B4 3409 C3 3412 C4 3415 C5 3418 C6 6219 C1 6401 A3
1405 B3 1408 B4 1411 C3 1414 C4 1417 C6 1420 A1 2402 B5 3400 C2 3403 A2 3406 B4 3410 C4 3413 C5 3416 C6 3419 C7 6221 C1 7400 C2



BLUE STRIP LED PART - CIRCUIT DIAGRAM

1000 A1 6229 A2



ELECTRICAL PARTS LIST - FRONT BOARD

MISCELLANEOUS

1100	482226511207	Flex Connector 6P
1101	482227613775	Tact Switch
1102	482227613775	Tact Switch
1103	482227613775	Tact Switch
1104	482227613775	Tact Switch
1105	482227613775	Tact Switch
1200	482226511207	Flex Connector 6P
1203	482227613775	Tact Switch
1204	482227613775	Tact Switch
1205	482227613775	Tact Switch
1206	482227613775	Tact Switch
1207	482227613775	Tact Switch
1208	482227613775	Tact Switch
1209	482227613775	Tact Switch
1210	482227613775	Tact Switch
1211	482227613775	Tact Switch
1212	482227613775	Tact Switch
1213	482227613775	Tact Switch
1214	482227613775	Tact Switch
1215	482227613775	Tact Switch
1216	482227613775	Tact Switch
1217	313911052250	FTD Display
1218	482227310365	Rotary Encoder 24P
1219	242212916385	Rotary Encoder 12P
1220	482226710953	Flex Connector 7P
1221	482226511182	Flex Connector 23P
1222	482226511545	Flex Connector 19P
1223	482226710793	Flex Connector 4P
1224	482226710729	Flex Connector 10P
1400	482226710729	Flex Connector 10P
1401	242212916386	Rotary Encoder 12P
1402	482227613775	Tact Switch
1403	482227613775	Tact Switch
1404	482227613775	Tact Switch
1405	482227613775	Tact Switch
1406	482227613775	Tact Switch
1407	482227613775	Tact Switch
1408	482227613775	Tact Switch
1409	482227613775	Tact Switch
1410	482227613775	Tact Switch
1411	482227613775	Tact Switch
1412	482227613775	Tact Switch
1413	482227613775	Tact Switch
1414	482227613775	Tact Switch
1415	482227613775	Tact Switch
1416	482227613775	Tact Switch
1417	482227613775	Tact Switch
1418	482227613775	Tact Switch
1500	482226511529	Headphone Socket
1502	482226710731	Flex Connector 6P

CAPACITORS

2100	532212232531	100pF 5% 50V
2200	532212232531	100pF 5% 50V
2201	532212232531	100pF 5% 50V
2202	532212232531	100pF 5% 50V
2204	532212232531	100pF 5% 50V
2205	532212232531	100pF 5% 50V
2206	532212232531	100pF 5% 50V
2208	532212232531	100pF 5% 50V
2209	532212232531	100pF 5% 50V
2210	532212232531	100pF 5% 50V
2212	532212232531	100pF 5% 50V
2213	532212232531	100pF 5% 50V
2216	532212232531	100pF 5% 50V
2217	532212232531	100pF 5% 50V
2220	532212232531	100pF 5% 50V
2221	532212232531	100pF 5% 50V
2225	532212232531	100pF 5% 50V
2226	532212232531	100pF 5% 50V
2227	532212232531	100pF 5% 50V
2228	532212232531	100pF 5% 50V
2229	532212232531	100pF 5% 50V
2230	482212613692	47pF 1% 63V
2231	482212233173	560pF 10% 50V
2232	482212233173	560pF 10% 50V
2233	482212422652	2,2µF 20% 50V
2234	482212613695	82pF 1% 63V
2235	482212613692	47pF 1% 63V
2236	482212614585	100nF 10% 50V
2237	482212614585	100nF 10% 50V
2238	482212233806	820pF 10% 63V
2239	482212614076	220nF +80/-20% 25V
2240	532212231866	6,8nF 10% 63V
2241	482212614076	220nF +80/-20% 25V
2242	482212614585	100nF 10% 50V
2243	482212613751	47nF 10% 63V
2244	482212614076	220nF +80/-20% 25V
2245	482212614043	1µF +80/-20% 16V
2246	482212481286	47µF 20% 16V
2247	482212614585	100nF 10% 50V
2248	482212481286	47µF 20% 16V
2249	532212232658	22pF 5% 50V
2250	532212232658	22pF 5% 50V
2251	532212232658	22pF 5% 50V
2252	482212233216	270pF 5% 50V
2253	482212613486	15pF 2% 63V
2254	482212613838	100nF +80/-20% 50V
2255	482212614043	1µF +80/-20% 16V
2256	482212614585	100nF 10% 50V
2257	482212233575	220pF 5% 63V
2258	482212614585	100nF 10% 50V

ELECTRICAL PARTS LIST - FRONT BOARD

2259	482212233575	220pF 5% 63V
2261	482212614585	100nF 10% 50V
2262	482212613751	47nF 10% 63V
2263	482212233127	2,2nF 10% 63V
2264	482212233177	10nF 20% 50V
2265	482212233177	10nF 20% 50V
2266	482212233177	10nF 20% 50V
2267	482212233177	10nF 20% 50V
2268	482212233177	10nF 20% 50V
2269	482212614076	220nF +80/-20% 25V
2270	482212233575	220pF 5% 63V
2271	482212233575	220pF 5% 63V
2272	482212233575	220pF 5% 63V
2273	532212232448	10pF 5% 63V
2274	532212232448	10pF 5% 63V
2275	482212614585	100nF 10% 50V
2276	532212232448	10pF 5% 63V
2277	532212232448	10pF 5% 63V
2278	532212232448	10pF 5% 63V
2279	482212481286	47µF 20% 16V
2280	482212613473	220nF +80/-20% 50V
2281	482212614585	100nF 10% 50V
2282	482212614585	100nF 10% 50V
2283	482212613473	220nF +80/-20% 50V
2284	482212614585	100nF 10% 50V
2285	482212614585	100nF 10% 50V
2286	482212614585	100nF 10% 50V
2287	482212614585	100nF 10% 50V
2288	482212233575	220pF 5% 63V
2289	482212614585	100nF 10% 50V
2290	482212614585	100nF 10% 50V
2292	532212232531	100pF 5% 50V
2294	532212232531	100pF 5% 50V
2296	532212232531	100pF 5% 50V
2297	482212613751	47nF 10% 63V
2298	482212613692	47pF 1% 63V
2299	482212613692	47pF 1% 63V
2300	482212613692	47pF 1% 63V
2301	482212612882	100nF +80/-20% 50V
2400	482212233177	10nF 20% 50V
2401	482212233177	10nF 20% 50V
2402	532212232531	100pF 5% 50V
2403	532212232531	100pF 5% 50V
2404	482212613838	100nF +80/-20% 50V
2405	482205120008	0R Jumper 0805
2500	532212232654	22nF 10% 63V
2502	532212232654	22nF 10% 63V
2503	482212614585	100nF 10% 50V
2504	482212613838	100nF +80/-20% 50V

RESISTORS

3100	482205120121	120R 5% 0,1W
3101	482205120121	120R 5% 0,1W
3102	482205120121	120R 5% 0,1W
3103	482211710833	10k 1% 0,1W
3104	482205120472	4k7 5% 0,1W
3105	482211712955	2k7 1% 0,1W
3106	482205120182	1k8 5% 0,1W
3107	482205120122	1k2 5% 0,1W
3200	482211711149	82k 1% 0,1W
3201	482211711149	82k 1% 0,1W
3202	482211711149	82k 1% 0,1W
3204	482211711149	82k 1% 0,1W
3205	482211711149	82k 1% 0,1W
3208	482211711454	820R 1% 0,1W
3209	482205120561	560R 5% 0,1W
3210	482205120391	390R 5% 0,1W
3211	482211711504	270R 1% 0,1W
3212	482211711503	220R 1% 0,1W
3213	482211710353	150R 1% 0,1W
3214	482205011002	1k 1% 0,4W
3215	482211652263	2k7 5% 0,5W
3216	482211711454	820R 1% 0,1W
3217	482205120561	560R 5% 0,1W
3218	482205120391	390R 5% 0,1W
3219	482211711504	270R 1% 0,1W
3220	482211711503	220R 1% 0,1W
3221	482211683868	150R 5% 0,5W
3222	482205011002	1k 1% 0,4W
3223	482211712955	2k7 1% 0,1W
3224	482211710833	10k 1% 0,1W
3225	482211710833	10k 1% 0,1W
3226	482211710833	10k 1% 0,1W
3227	482205110102	1k 2% 0,25W
3228	482205110102	1k 2% 0,25W
3229	482205110102	1k 2% 0,25W
3230	482205110102	1k 2% 0,25W
3231	482205110102	1k 2% 0,25W
3232	482211711449	2k2 1% 0,1W
3233	482211713579	220k 1% 0,1W
3234	482205110102	1k 2% 0,25W
3235	482205110102	1k 2% 0,25W
3236	482211710833	10k 1% 0,1W
3237	482211710833	10k 1% 0,1W
3238	482205120684	680k 5% 0,1W
3239	482211711139	1k5 1% 0,1W
3240	482205120474	470k 5% 0,1W
3241	482211710834	47k 1% 0,1W
3242	482205120684	680k 5% 0,1W
3243	482211711139	1k5 1% 0,1W
3244	482205120474	470k 5% 0,1W

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

3245	482211710834	47k 1% 0,1W
3246	482205120684	680k 5% 0,1W
3247	482211711139	1k5 1% 0,1W
3248	482205120474	470k 5% 0,1W
3249	482211710834	47k 1% 0,1W
3250	482205110102	1k 2% 0,25W
3251	482205110102	1k 2% 0,25W
3252	482205110102	1k 2% 0,25W
3253	482211652234	100k 5% 0,5W
3254	482205110102	1k 2% 0,25W
3255	482205110102	1k 2% 0,25W
3256	482205110102	1k 2% 0,25W
3257	482205110102	1k 2% 0,25W
3258	482205110102	1k 2% 0,25W
3259	482205110102	1k 2% 0,25W
3260	482205110102	1k 2% 0,25W
3261	482205110102	1k 2% 0,25W
3262	482205120105	1M 5% 0,1W
3263	482205110102	1k 2% 0,25W
3264	482205110102	1k 2% 0,25W
3265	482205110102	1k 2% 0,25W
3266	482205110102	1k 2% 0,25W
3267	482205110102	1k 2% 0,25W
3268	482205110102	1k 2% 0,25W
3269	482205110102	1k 2% 0,25W
3270	482205110102	1k 2% 0,25W
3271	482205110102	1k 2% 0,25W
3272	482205110102	1k 2% 0,25W
3273	482205110102	1k 2% 0,25W
3274	482205110102	1k 2% 0,25W
3275	482205110102	1k 2% 0,25W
3276	482205110102	1k 2% 0,25W
3277	482205110102	1k 2% 0,25W
3278	482205110102	1k 2% 0,25W
3279	482205110102	1k 2% 0,25W
3280	482205110102	1k 2% 0,25W
3281	482205110102	1k 2% 0,25W
3282	482205110102	1k 2% 0,25W
3283	482205110102	1k 2% 0,25W
3284	482205110102	1k 2% 0,25W
3285	482205110102	1k 2% 0,25W
3286	482205110102	1k 2% 0,25W
3287	482205110102	1k 2% 0,25W
3288	482205110102	1k 2% 0,25W
3289	482205110102	1k 2% 0,25W
3290	482205110102	1k 2% 0,25W
3291	482205110102	1k 2% 0,25W
3292	482205110102	1k 2% 0,25W
3293	482205110102	1k 2% 0,25W
3294	482205110102	1k 2% 0,25W
3295	482205110102	1k 2% 0,25W
3296	482205110102	1k 2% 0,25W
3297	482205110102	1k 2% 0,25W
3298	482205110102	1k 2% 0,25W
3299	482205110102	1k 2% 0,25W
3300	482205110102	1k 2% 0,25W
3301	482205110102	1k 2% 0,25W
3302	482205110102	1k 2% 0,25W
3303	482205120472	4k7 5% 0,1W
3304	482205110102	1k 2% 0,25W
3305	482205110102	1k 2% 0,25W
3306	482205110102	1k 2% 0,25W
3307	482205110102	1k 2% 0,25W
3308	482205110102	1k 2% 0,25W
3309	482205110102	1k 2% 0,25W
3310	482205110102	1k 2% 0,25W
3311	482205110102	1k 2% 0,25W
3312	482205110102	1k 2% 0,25W
3313	482205110102	1k 2% 0,25W
3314	482205110102	1k 2% 0,25W
3315	482205110102	1k 2% 0,25W
3316	482205110102	1k 2% 0,25W
3317	482205110102	1k 2% 0,25W
3318	482205110102	1k 2% 0,25W
3320	482211710833	10k 1% 0,1W
3321	482211710833	10k 1% 0,1W
3322	482205110102	1k 2% 0,25W
3323	482205110102	1k 2% 0,25W
3324	482211711503	220R 1% 0,1W
3325	482205120101	100R 5% 0,1W
3326	482211652175	100R 5% 0,5W
3327	482211652175	100R 5% 0,5W
3328	482211652175	100R 5% 0,5W
3329	482211710833	10k 1% 0,1W
3330	482211652186	22R 5% 0,5W
3331	482205120471	470R 5% 0,1W
3332	482211711503	220R 1% 0,1W
3333	482205120471	470R 5% 0,1W
3334	482205120471	470R 5% 0,1W
3335	482211652263	2k7 5% 0,5W
3336	482205110102	1k 2% 0,25W
3337	482205120101	100R 5% 0,1W
3338	482211710833	10k 1% 0,1W
3339	482211710833	10k 1% 0,1W
3340	482211710833	10k 1% 0,1W
3341	482211710833	10k 1% 0,1W
3342	482205120684	680k 5% 0,1W
3343	482211710833	10k 1% 0,1W
3344	482211652213	180R 5% 0,5W
3344	482211683883	470R 5% 0,5W /FW-P88/22

ELECTRICAL PARTS LIST - FRONT BOARD

3344	482211652276	3k9 5% 0,5W	/FW-P88/37
3344	482211652249	1k8 5% 0,5W	/FW-C85/37
3345	482205110102	1k 2% 0,25W	
3346	482211710837	100k 1% 0,1W	
3347	482205120101	100R 5% 0,1W	
3348	482205120101	100R 5% 0,1W	
3351	482211710833	10k 1% 0,1W	
3352	482205110102	1k 2% 0,25W	
3353	482205011002	1k 1% 0,4W	
3354	482205120334	330k 5% 0,1W	
3355	482211683872	220R 5% 0,5W	
3356	482211683872	220R 5% 0,5W	
3357	482205120471	470R 5% 0,1W	
3358	482205120471	470R 5% 0,1W	
3359	482205120471	470R 5% 0,1W	
3360	482205120471	470R 5% 0,1W	
3361	482205120471	470R 5% 0,1W	
3362	482205120471	470R 5% 0,1W	
3363	482205110102	1k 2% 0,25W	
3364	482205110102	1k 2% 0,25W	
3367	482211710833	10k 1% 0,1W	
3368	482211710833	10k 1% 0,1W	
3369	482211711449	2k2 1% 0,1W	
3370	482211711449	2k2 1% 0,1W	
3371	482205110102	1k 2% 0,25W	
3372	482205120121	120R 5% 0,1W	
3373	482211652263	2k7 5% 0,5W	
3374	482205110102	1k 2% 0,25W	
3376	482211711149	82k 1% 0,1W	
3377	482211710833	10k 1% 0,1W	
3378	482211711449	2k2 1% 0,1W	
3400	482205110102	1k 2% 0,25W	
3401	482205120121	120R 5% 0,1W	
3402	482211710833	10k 1% 0,1W	
3403	482211710833	10k 1% 0,1W	
3404	482205120182	1k8 5% 0,1W	
3405	482211712955	2k7 1% 0,1W	
3406	482205120472	4k7 5% 0,1W	
3407	482211710833	10k 1% 0,1W	
3409	482211710353	150R 1% 0,1W	
3410	482211711503	220R 1% 0,1W	
3411	482211711504	270R 1% 0,1W	
3412	482205120391	390R 5% 0,1W	
3413	482205120561	560R 5% 0,1W	
3414	482211711454	820R 1% 0,1W	
3415	482205120122	1k2 5% 0,1W	
3416	482205120182	1k8 5% 0,1W	
3417	482211712955	2k7 1% 0,1W	
3418	482205120472	4k7 5% 0,1W	
3419	482211710833	10k 1% 0,1W	
3420	482205120122	1k2 5% 0,1W	
4100	482205120008	0R Jumper 0805	
4102	482205120008	0R Jumper 0805	
4103	482205120008	0R Jumper 0805	
4104	482205120008	0R Jumper 0805	
4105	482205120008	0R Jumper 0805	
4202	482205120008	0R Jumper 0805	
4203	482205120008	0R Jumper 0805	
4204	482205120008	0R Jumper 0805	
4205	482205120008	0R Jumper 0805	
4206	482205120008	0R Jumper 0805	
4207	482205120008	0R Jumper 0805	
4208	482205120008	0R Jumper 0805	
4209	482205120008	0R Jumper 0805	
4210	482205120008	0R Jumper 0805	
4211	482205120008	0R Jumper 0805	
4212	482205120008	0R Jumper 0805	
4213	482205120008	0R Jumper 0805	
4214	482205120008	0R Jumper 0805	
4215	482205120008	0R Jumper 0805	
4216	482205120008	0R Jumper 0805	
4217	482205120008	0R Jumper 0805	
4218	482205120008	0R Jumper 0805	
4219	482205120008	0R Jumper 0805	
4220	482205120008	0R Jumper 0805	
4221	482205120008	0R Jumper 0805	
4222	482205120008	0R Jumper 0805	
4223	482205120008	0R Jumper 0805	
4224	482205120008	0R Jumper 0805	
4225	482205120008	0R Jumper 0805	
4226	482205120008	0R Jumper 0805	
4227	482205120008	0R Jumper 0805	
4228	482205120008	0R Jumper 0805	
4229	482205120008	0R Jumper 0805	
4230	482205120008	0R Jumper 0805	
4231	482205120008	0R Jumper 0805	
4232	482205120008	0R Jumper 0805	
4233	482205120008	0R Jumper 0805	
4234	482205120008	0R Jumper 0805	
4235	482205120008	0R Jumper 0805	
4236	482205120008	0R Jumper 0805	
4237	482205120008	0R Jumper 0805	
4238	482205120008	0R Jumper 0805	
4239	482205120008	0R Jumper 0805	
4240	482205120008	0R Jumper 0805	
4241	482205120008	0R Jumper 0805	
4242	482205120008	0R Jumper 0805	
4243	482205120008	0R Jumper 0805	
4244	482205120008	0R Jumper 0805	
4245	482205120008	0R Jumper 0805	

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

4246	482205120008	0R Jumper 0805
4247	482205120008	0R Jumper 0805
4248	482205120008	0R Jumper 0805
4249	482205120008	0R Jumper 0805
4250	482205120008	0R Jumper 0805
4251	482205120008	0R Jumper 0805
4252	482205120008	0R Jumper 0805
4253	482205120008	0R Jumper 0805
4254	482205120008	0R Jumper 0805
4255	482205120008	0R Jumper 0805
4256	482205120008	0R Jumper 0805
4257	482205120008	0R Jumper 0805
4258	482205120008	0R Jumper 0805
4259	482205120008	0R Jumper 0805
4260	482205120008	0R Jumper 0805
4261	482205120008	0R Jumper 0805
4262	482205120008	0R Jumper 0805
4263	482205120008	0R Jumper 0805
4264	482205120008	0R Jumper 0805
4265	482205120008	0R Jumper 0805
4266	482205120008	0R Jumper 0805
4267	482205120008	0R Jumper 0805
4268	482205120008	0R Jumper 0805
4269	482205120008	0R Jumper 0805
4270	482205120008	0R Jumper 0805
4271	482205120008	0R Jumper 0805
4272	482205120008	0R Jumper 0805
4273	482205120008	0R Jumper 0805
4274	482205120008	0R Jumper 0805
4400	482205120008	0R Jumper 0805
4401	482205120008	0R Jumper 0805
4402	482205120008	0R Jumper 0805
4403	482205120008	0R Jumper 0805
4404	482205120008	0R Jumper 0805
4405	482205120008	0R Jumper 0805
4500	482205120008	0R Jumper 0805
4501	482205120008	0R Jumper 0805

COILS & FILTERS

5200	482224272195	QUARZ 4,332MHz
5201	482215762552	Coil 2,2µH 5%
5202	482215751462	Coil 10µH 10%
5203	482215751462	Coil 10µH 10%
5204	482215762552	Coil 2,2µH 5%
5205	532224273686	RES CER 12MHz
5206	482224270938	RES XTL 32,768kHz
5207	482215762552	Coil 2,2µH 5%
5208	482215711228	Coil 100µH 5%
5209	482215711228	Coil 100µH 5%
5500	482215762552	Coil 2,2µH 5%
5501	482215762552	Coil 2,2µH 5%
5502	482215710586	Coil 2,2µH 10%

DIODES

6100	482213010791	LTL-1CHGE
6101	482213010791	LTL-1CHGE
6102	482213010791	LTL-1CHGE
6201	482213030621	1N4148
6203	482213030621	1N4148
6204	482213030621	1N4148
6205	482213030621	1N4148
6206	482213030621	1N4148
6207	482213031878	1N4003G
6208	482213031878	1N4003G
6209	482213030621	1N4148
6210	482213030621	1N4148
6211	482213030621	1N4148
6212	482213030621	1N4148
6213	482213030621	1N4148
6214	482213082978	LTL-1CHPE
6215	482213010791	LTL-1CHGE
6216	482213010791	LTL-1CHGE
6217	482213010791	LTL-1CHGE
6218	482213010791	LTL-1CHGE
6219	482213010791	LTL-1CHGE
6220	932215338676	LED VS LO3336UV-E7898
6221	482213010791	LTL-1CHGE
6222	932215338676	LED VS LO3336UV-E7898
6223	932215338676	LED VS LO3336UV-E7898
6224	932215338676	LED VS LO3336UV-E7898
6225	932215338676	LED VS LO3336UV-E7898
6226	482213031878	1N4003G
6229	932215337676	LED VS LB3333RT-E7898
6400	932215337676	LED VS LB3333RT-E7898
6401	482213030621	1N4148

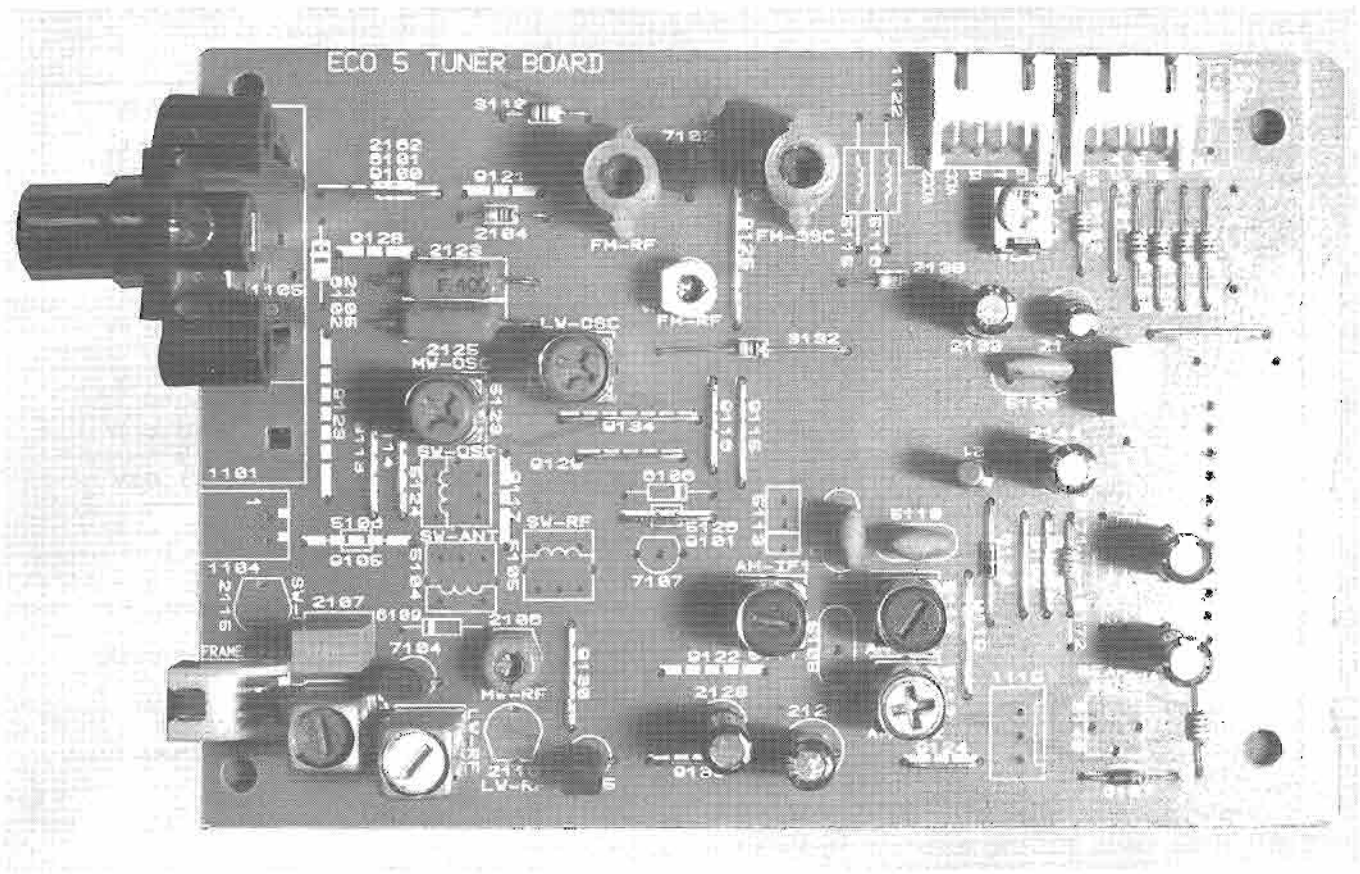
TRANSISTORS & INTEGRATED CIRCUITS

7200	482213060511	BC847B
7201	482213060511	BC847B
7202	482213060511	BC847B
7204	482220915449	74HC4094D
7205	482213060511	BC847B
7206	482213060511	BC847B
7209	313911052290	TMP88CU74YF - 'C83S52291'
7210	482220915449	74HC4094D
7211	532220911446	HEF4051BT
7212	482213060511	BC847B
7213	932214526668	M24C02-WMN6
7214	482220931981	SAA6579T/V1
7215	482213060511	BC847B

ELECTRICAL PARTS LIST - FRONT BOARD

7216	482213010165	GR1U28XP
7217	482213060511	BC847B
7218	482220915449	74HC4094D
7220	482213060511	BC847B
7400	482213060511	BC847B

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



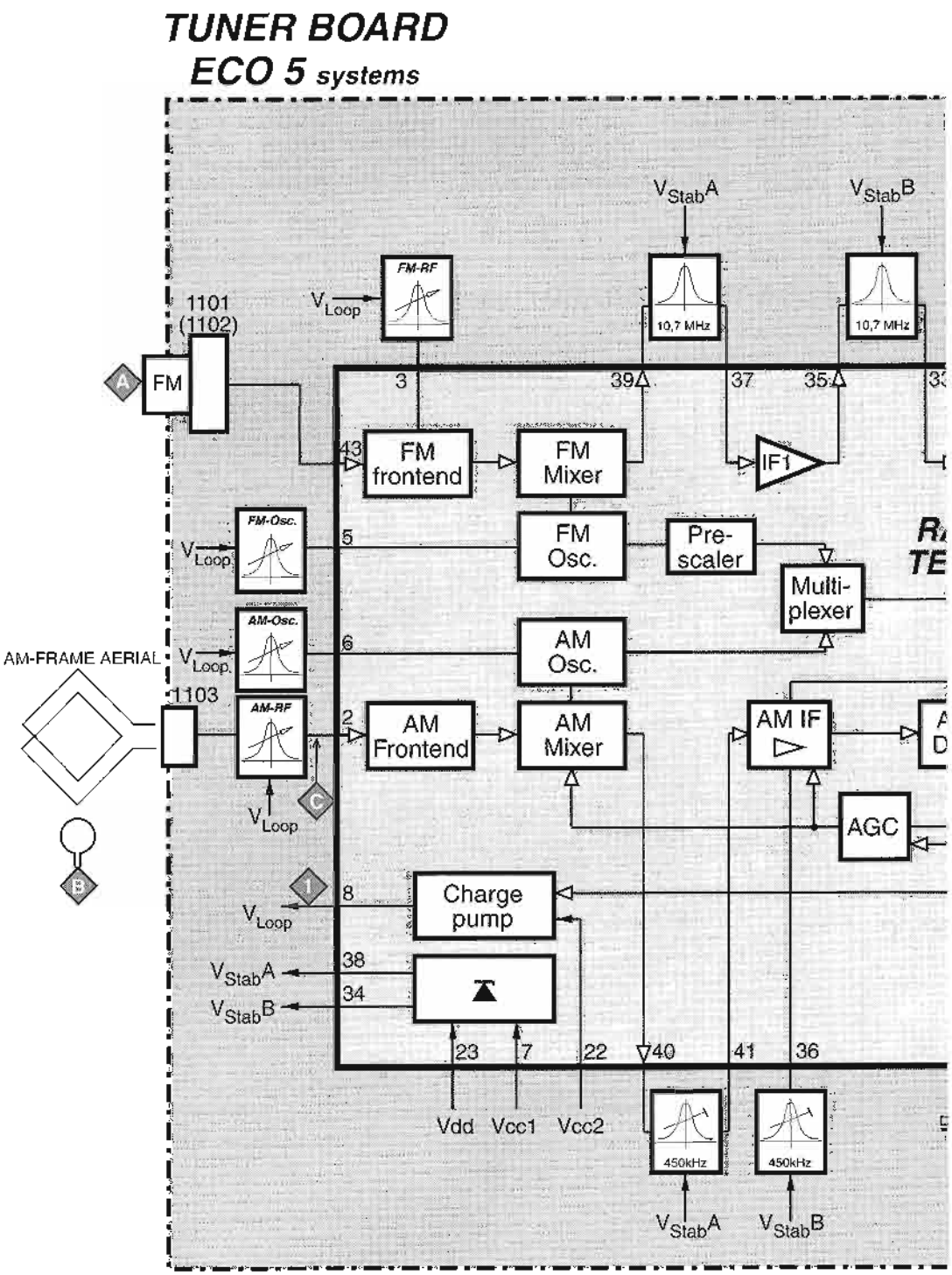
TUNER BOARD ECO5

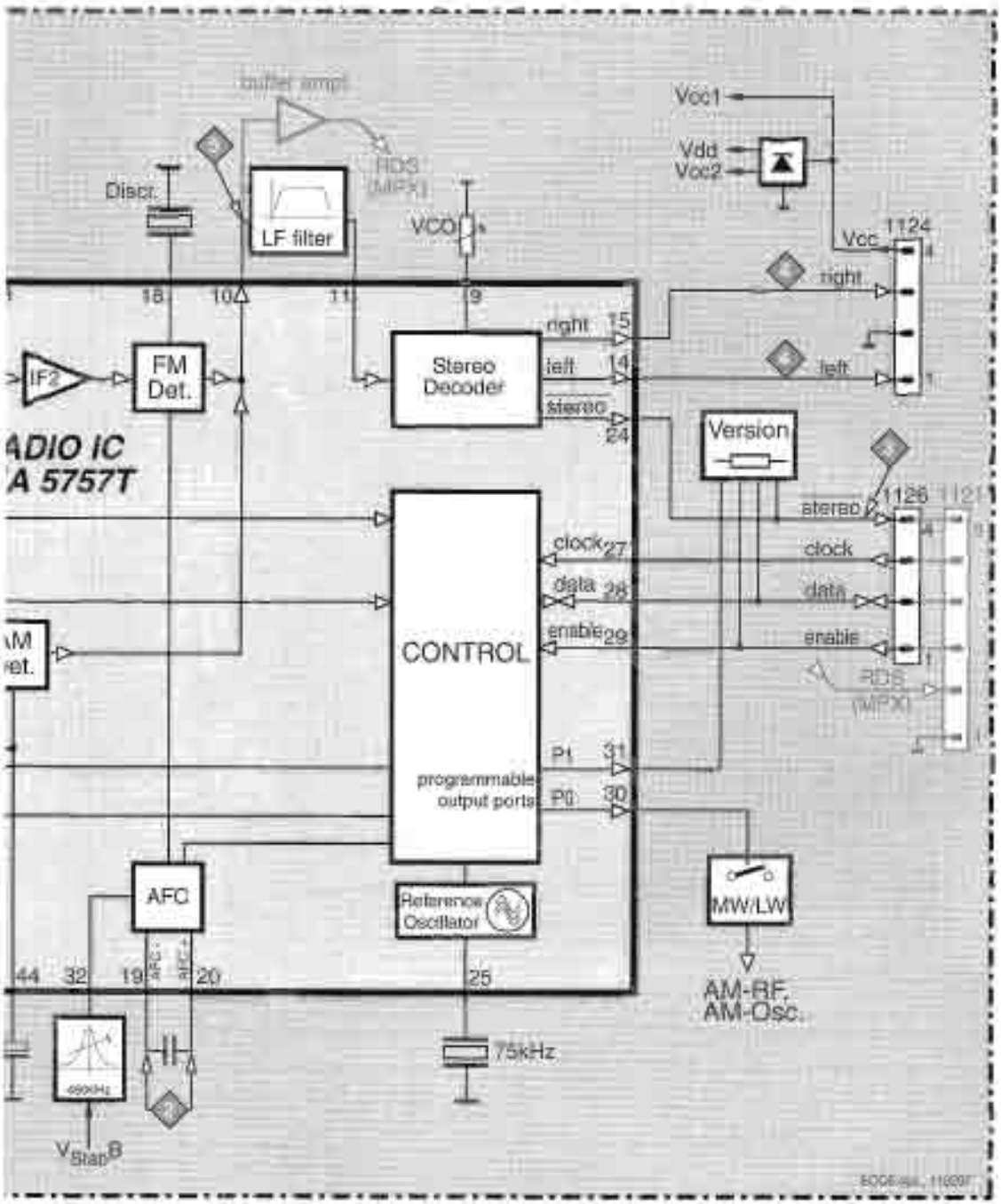
TABLE OF CONTENTS

Blockdiagram 7B-1
Adjustmant table 7B-2
Component layout 7B-2
Circuit diagram 7B-3
Partslist 7B-4

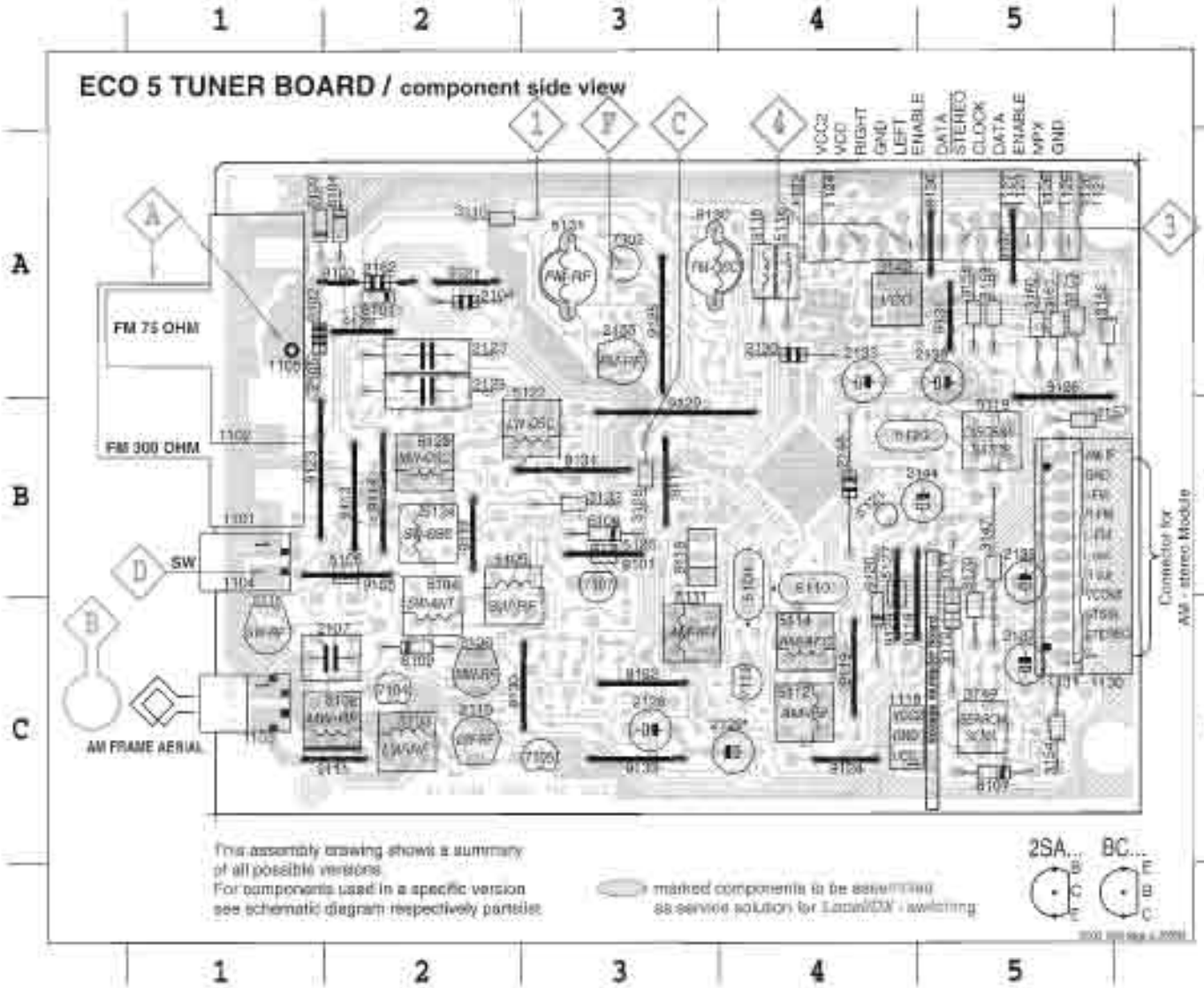
B

BLOCKDIAGRAM

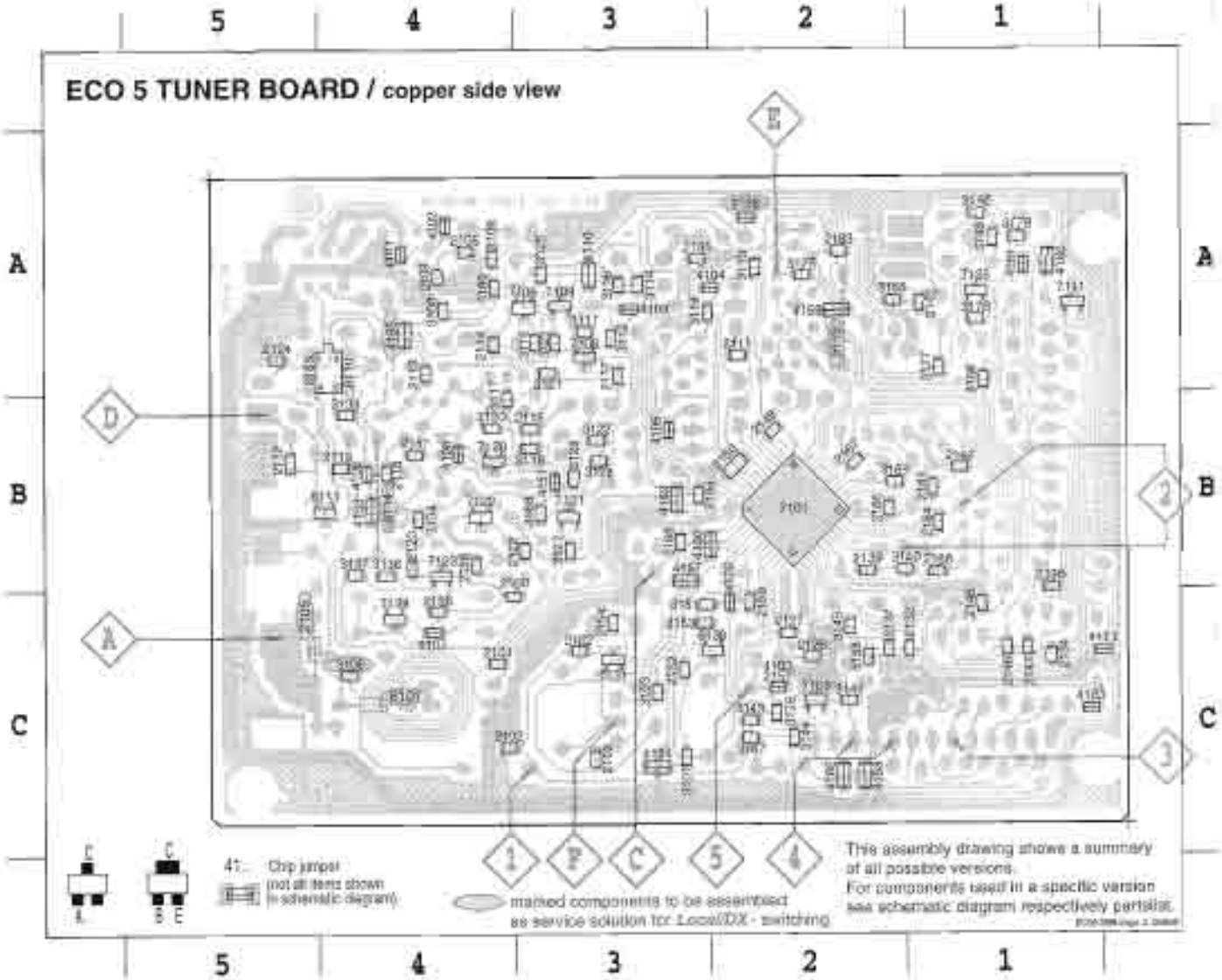



buffer ampl.
RDS (MPX)
Discr.
LF filter
VCO
Vcc1
Vdd
Vcc2
Vcc
1124
right
left
18
10
11
9
right 15
left 14
stereo 24
Stereo Decoder
FM Det.
IF2
ADIO IC
A 5757T
Version
1126
1121
stereo
clock 27
data 28
enable 29
clock
data
enable
RDS (MPX)
CONTROL
P1 31
P0 30
programmable output ports
AFC
Reference Oscillator
MW/LW
44
32
19
20
25
AM-RF, AM-Osc.
75kHz
$V_{Stab}B$

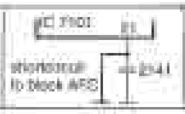
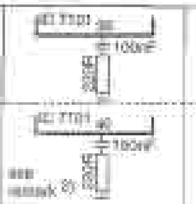
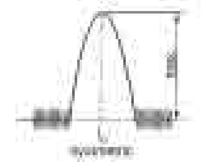
1101 A1	2106 C2	2137 C5	3149 C5	3173 A5	5114 C4	5130 A3	7104 C2	9117 B2	9129 B3
1102 A1	2107 C2	2138 A5	3152 A5	5102 C2	5115 A4	5131 A3	7105 C3	9118 B4	9130 C3
1103 C1	2110 C2	2144 B5	3154 C5	5103 C2	5116 A4	6101 A2	7107 B3	9119 C4	9131 A5
1104 B1	2115 C1	2148 B4	3157 B5	5104 C2	5119 B5	6102 A1	7119 C4	9120 B4	9133 C3
1105 A1	2123 A2	2156 A3	3158 A5	5105 B2	5120 B4	6103 A1	9100 A2	9121 A2	9134 B2
1119 C5	2125 A2	2162 A2	3159 A5	5106 B2	5121 B4	6104 A2	9101 B3	9122 C3	9136 A5
1120 A5	2128 C3	3105 B3	3160 A5	5109 B4	5122 B3	6106 B3	9105 B2	9123 B1	9137 A5
1130 B5	2129 C4	3110 A2	3161 A5	5110 B4	5123 B2	6107 C5	9111 C2	9124 C4	
1131 B5	2130 A4	3132 B3	3170 C5	5111 C3	5124 B2	6109 C2	9113 B2	9125 A3	
2104 A2	2133 A4	3142 A4	3171 C5	5112 C4	5126 B3	6120 C4	9114 B2	9126 B5	
2105 A1	2135 B5	3147 B5	3172 C5	5113 B3	5127 B4	7102 A3	9115 B3	9128 A2	



2101 C4	2118 B4	2139 B2	2153 C3	2166 B2	3112 A3	3123 A3	3143 C2	3175 A2	4105 B3	4153 B4	6105 A4	7120
2102 C4	2119 B4	2141 R1	2154 C3	2167 B2	3113 A2	3125 A3	3144 C2	3176 C2	4106 B4	4154 C3	6110 A4	7121
2103 C3	2120 B4	2142 B1	2156 C4	2168 B1	3114 A3	3126 B2	3145 C2	3177 A1	4107 C4	4155 A4	6111 B4	7122
2106 A4	2122 B3	2143 A1	2157 B4	3101 C3	3115 A3	3127 B3	3146 A1	3178 A1	4108 B4	4156 A2	6130 C2	7123
2109 A4	2124 A5	2145 C1	2158 B4	3102 C3	3116 A3	3128 B3	3148 A1	3179 A1	4109 A3	4157 B3	6131 C3	7124
2111 A2	2126 C2	2148 C1	2159 C2	3103 C3	3117 B4	3133 B4	3153 C2	3180 A4	4110 A3	4158 C2	7101 B2	7125
2112 B5	2127 C2	2147 C1	2160 C4	3104 B3	3118 B3	3134 B4	3155 A2	3181 C3	4111 C1	4159 A2	7103 C2	
2113 A4	2131 C2	2149 B2	2161 A3	3106 C4	3119 A3	3136 B4	3156 A1	4101 A4	4120 C2	4160 A1	7106 A3	
2114 A4	2132 C1	2150 B2	2163 A2	3108 A4	3120 B4	3137 B4	3157 C2	4102 A4	4150 B2	4161 A1	7108 A3	
2116 B3	2134 C1	2151 C2	2164 B1	3109 A4	3121 A3	3140 B2	3158 B3	4103 C2	4151 B3	4162 C1	7109 A3	
2117 A3	2136 B1	2152 C3	2165 B3	3111 A3	3122 B3	3141 C2	3159 B2	4104 A2	4152 B3	4163 C1	7111 A1	



TUNER ADJUSTMENT TABLE (ECO5 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	1	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		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, 50mV continuous wave	F		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 short wire to ground (pin 4)	C Δf=±15kHz V_{RF} = 3mV		5111	4	
			see remark 2)	5112		
AM AFC **MW**		C continuous wave V_{RF} = 10mV		5114	2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B	1494kHz	2106	4	
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V_{RF} as low as possible	1500kHz	2106		
	560kHz		560kHz	5102		

Use service test program. 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)

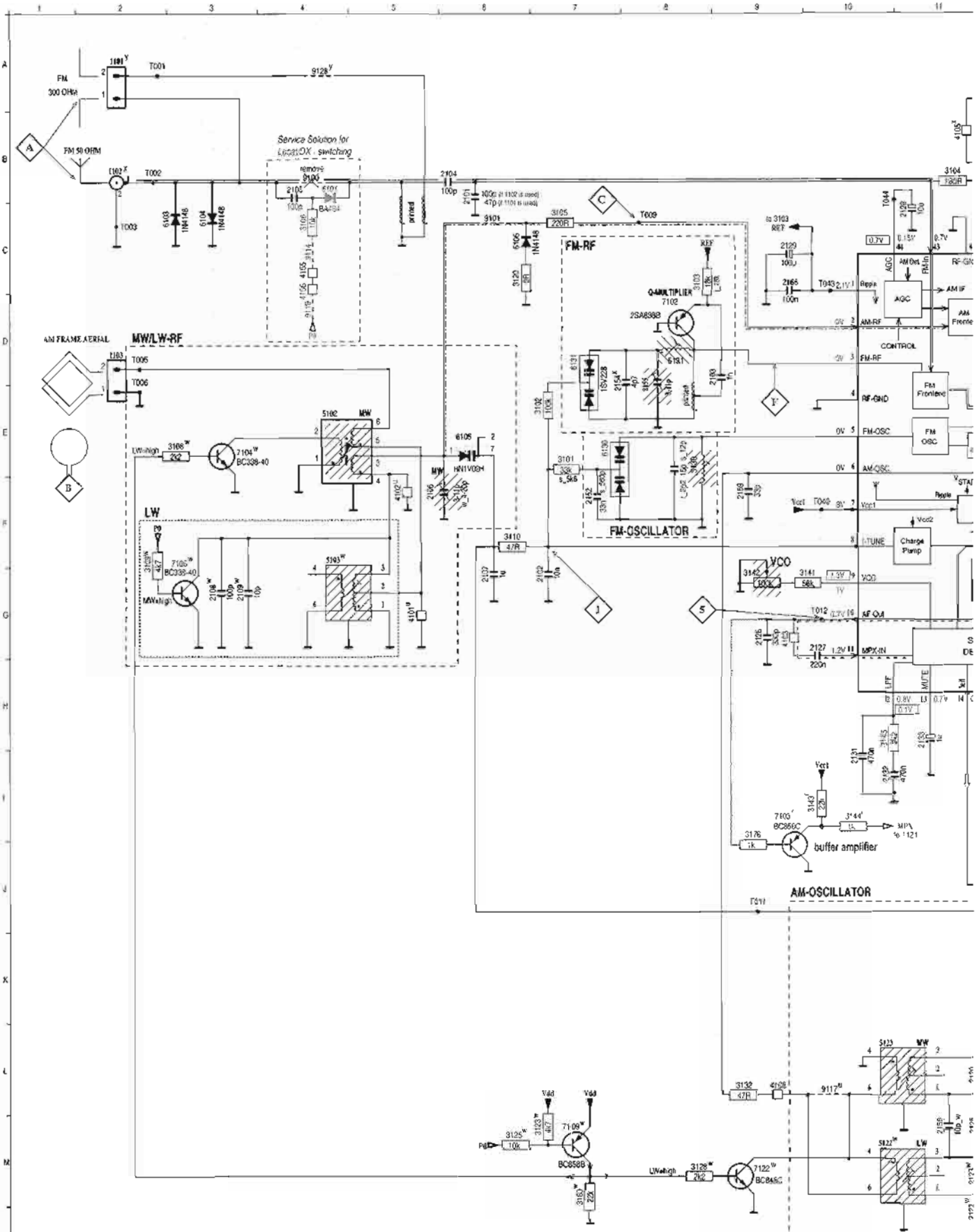
[2] RC network serves for damping the IF-filter while adjusting the other one.

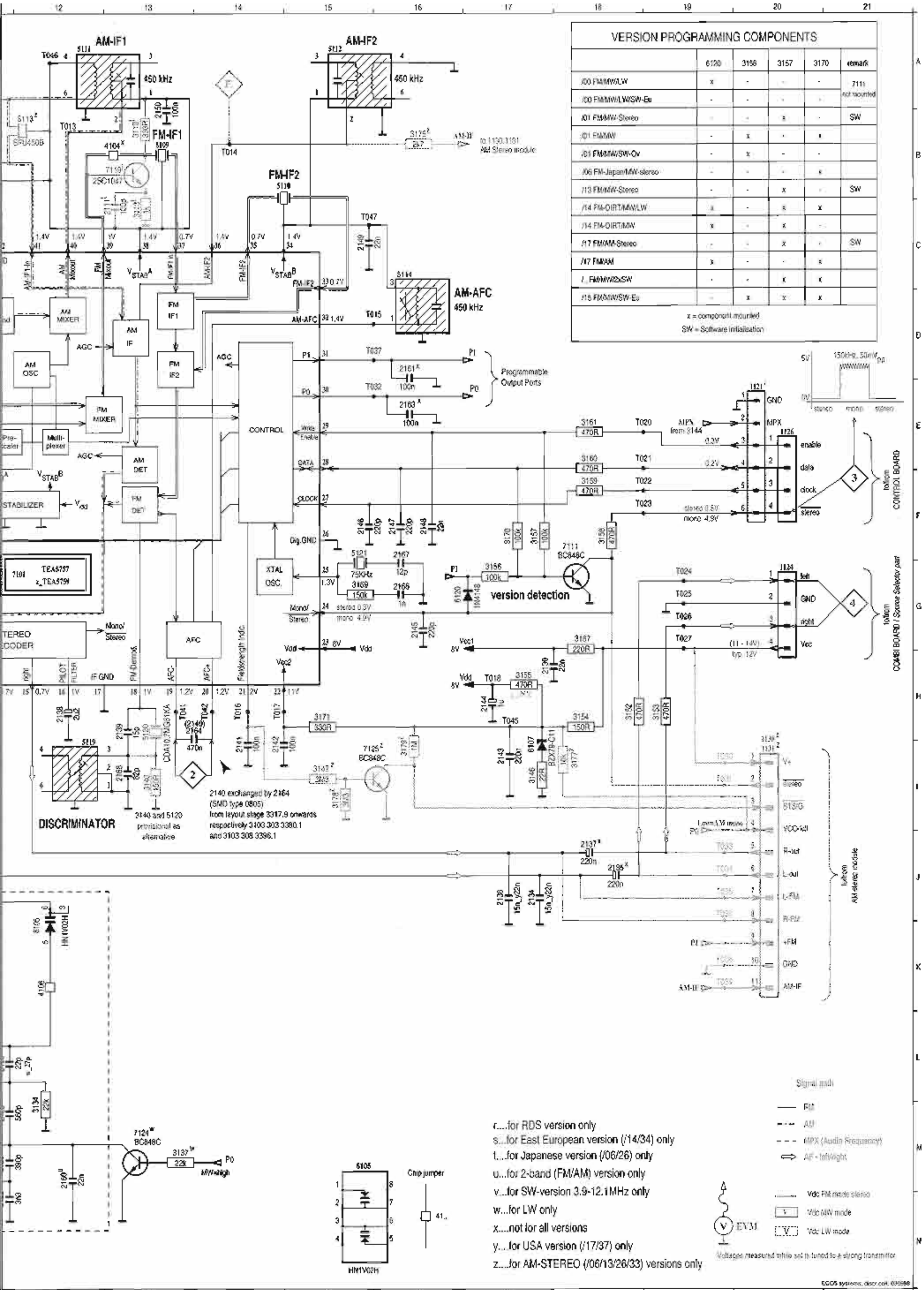
[3] For AM-RF adjustments the original frame antenna has to be used !

[4] MW has to be aligned before LW.

↕ Repeat

TUNER BOARD ECO5 / Systems





VERSION PROGRAMMING COMPONENTS					
	6120	3156	3157	3170	remark
/00 FM/MW/LW	x	-	-	-	7111 not mounted
/00 FM/MW/LW/SW-Eu	-	-	-	-	
/01 FM/MW-Stereo	-	-	x	-	SW
/01 FM/MW	-	x	-	x	
/01 FM/MW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FM/MW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FM/AM-Stereo	-	-	x	-	SW
/17 FM/AM	x	-	-	x	
/_ FM/MW/2xSW	-	-	x	x	
/16 FM/MW/SW-Eu	-	x	x	x	

x = component mounted
SW = Software initialisation

r....for RDS version only
s...for East European version (/14/34) only
t...for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y...for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

1101 A 1
1102 B 2
1103 D 2
1121 E20
1124 G20
1126 E20
1130 I20
1131 I20
2101 C 6
2102 G 7
2103 D 9
2104 B 6
2106 F 5
2107 G 6
2108 G 3
2109 G 3
2111 C13
2120 L11
2122 N11
2123 M11
2125 M11
2126 G 9
2127 G10
2128 C11
2129 C 9
2130 H17
2131 I10
2132 I10
2133 H11
2134 J17
2135 J18
2136 J17
2137 J18
2138 H12
2139 H13
2140 H14
2141 H14
2142 H14
2143 I17
2144 H17
2145 G16
2146 F15
2147 F16
2148 F16
2149 C15
2150 B13
2152 F 7
2153 E 8
2154 E 7
2155 D 8
2158 M11
2159 F 9
2160 M12
2161 D16
2163 E16
2164 H14
2165 C 9
2166 G16
2167 F16
2168 I 13
3101 E 7
3102 E 7
3103 C 8
3104 B11
3105 C 7
3108 E 3
3109 F 2
3110 F 6
3113 C13
3119 B13
3120 C 6
3123 M 7
3125 M 6
3128 M 8
3132 L 9
3134 M12
3137 M13
3140 I13
3141 G10
3142 G 9
3143 I10
3144 I10
3145 H10
3146 I17
3147 I15
3152 H18
3153 H19
3154 H18
3155 H17
3156 G17
3157 F17
3158 F18
3159 F18
3160 E18
3161 E18
3167 G18
3169 G15
3170 F17
3171 H15
3175 B16
3176 J 9
3177 I18
3178 I15
3179 I16
3180 M7
4101 G 5
4102 F 5
4103 G 9
4104 B13
4105 B11
4106 K12
4108 L 9
5102 E 4
5103 F 4
5109 B13
5110 B14
5111 A13
5112 A15
5113 B12
5114 C16
5119 I 12
5120 H13
5121 F15
5122 M11
5123 L11
5130 E 8
5131 D 8
6103 C 2
6104 C 3
6105 K12
6105 E 6
6106 C 6
6107 H17
6120 G16
6130 E 7
6131 D 7
7101 G11
7102 D 8
7103 I 9
7104 E 3
7105 F 2
7109 M 7
7111 F18
7119 B13
7122 M 9
7124 M13
7125 I16
9100 B 4
9101 C 8
9117 L10
9128 A 4

ECOS systems, discr.coil. 030988

ELECTRICAL PARTS LIST - ECO5 TUNER BOARD

MISCELLANEOUS

1101	4822 267 31505	Antenna Socket 300R	
1102	4822 267 10283	Antenna Socket Coax IEC 75R	

CAPACITORS

2101	5322 122 32531	100pF 5% 50V	
2101	4822 126 13692	47pF 1% 63V	for USA
2102	4822 122 33177	10nF 20% 50V	
2103	5322 122 34123	1nF 10% 50V	
2104	4822 122 33195	100pF 10% 50V	
2106	4822 125 50355	Trimmer 4-20pF	for LW version
2106	4822 125 60101	Trimmer 3-11pF 100V	
2107	4822 121 51319	1µF 10% 63V	
2108	5322 122 32531	100pF 5% 50V	for LW version
2109	5322 122 32448	10pF 5% 50V	for LW version
2120	4822 126 13691	27pF 1% 63V	for LW version
2120	5322 122 32656	22pF 5% 50V	
2122	4822 122 33691	3,3nF 10% 63V	for LW version
2125	4822 121 51381	560pF 5% 400V	
2126	5322 122 31863	330pF 5% 50V	
2127	4822 126 13473	220nF +80/-20% 50V	
2128	4822 124 41579	10µF 20% 50V	
2129	4822 124 41584	100µF 20% 10V	
2130	4822 126 11585	22nF+80/- 20% 25V	
2131	4822 122 33325	470nF 16V	
2132	4822 122 33325	470nF 16V	
2131	4822 126 13482	470nF +80/- 20% 16V	
2132	4822 126 13482	470nF +80/- 20% 16V	
2133	4822 124 40242	1µF 20% 63V	
2134	4822 126 13186	15nF 5% 63V	
2134	5322 122 32654	22nF 10% 63V	for USA
2135	4822 124 40746	0,22µF 20% 63V	
2136	4822 126 13186	15nF 5% 63V	
2136	5322 122 32654	22nF 10% 63V	for USA
2137	4822 124 40746	0,22µF 20% 63V	
2138	4822 124 41576	2,2µF 20% 50V	
2139	4822 126 14236	50V 15pF 5%	
2140	4822 121 51252	470nF 5% 63V	
2141	4822 126 10002	100nF 20% 25V	
2142	4822 126 10002	100nF 20% 25V	
2143	4822 126 13473	220nF +80/-20% 50V	
2144	4822 124 40242	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 126 11585	22nF+80/- 20% 25V	
2149	5322 122 32654	22nF 10% 63V	
2150	4822 122 31947	100nF 20% 63V	
2152	5322 116 80853	560pF 5% 63V	for East. Europe
2152	4822 126 12105	33nF 5% 63V	
2153	4822 122 32139	12pF 2% 63V	for East. Europe
2153	4822 122 32504	15pF 2% 63V	
2155	4822 125 60101	Trimmer 3-11pF 100V	
2158	5322 122 32448	10pF 5% 50V	for LW version
2159	5322 122 32659	33pF 5% 50V	
2160	5322 122 32654	22nF 10% 63V	
2161	4822 126 10002	100nF 20% 25V	
2163	4822 126 10002	100nF 20% 25V	
2164	4822 126 13482	470nF +80/- 20% 16V	
2165	4822 126 10002	100nF 20% 25V	
2166	5322 122 34123	1nF 10% 50V	
2167	4822 122 32139	12pF 2% 63V	
2168	4822 126 13695	82pF 1% 63V	

RESISTORS

3101	4822 051 20562	5k6 5% 0,1W	for East. Europe
3101	4822 051 20333	33k 5% 0,1W	
3102	4822 051 20104	100k 5% 0,1W	
3103	4822 117 10965	18k 1% 0,1W	
3104	4822 117 11448	180R 1% 0,1W	
3105	4822 116 83872	220R 5% 0,5W	
3108	4822 117 11449	2k2 1% 0,1W	for LW version
3109	4822 051 20472	4k7 5% 0,1W	for LW version
3110	4822 116 52195	47R 5% 0,5W	
3120	4822 051 20008	0R Jumper 0805	
3123	4822 051 20472	4k7 5% 0,1W	for LW version
3125	4822 117 10833	10k 1% 0,1W	for LW version
3128	4822 117 11449	2k2 1% 0,1W	for LW version
3132	4822 116 52195	47R 5% 0,5W	
3134	4822 051 20223	22k 5% 0,1W	
3137	4822 051 20223	22k 5% 0,1W	for LW version
3140	4822 051 20008	0R Jumper 0805	
		5120=CDA10.7MG40K	
3140	4822 117 10353	150R 1% 0,1W	
		5120=CDA10.7MG61KA	
3141	4822 051 20563	56k 5% 0,1W	
3142	4822 100 11163	Trimmer 100k 30% 0,1W	
3143	4822 051 20223	22k 5% 0,1W	for RDS version
3144	4822 051 10102	1k 2% 0,25W	for RDS version
3145	4822 117 11449	2k2 1% 0,1W	
3148	4822 051 20229	22R 5% 0,1W	
3152	4822 116 83883	470R 5% 0,5W	
3153	4822 051 20471	470R 5% 0,1W	
3154	4822 116 83868	150R 5% 0,5W	
3155	4822 051 20471	470R 5% 0,1W	
3156	4822 051 20104	100k 5% 0,1W	for 21/30/33 only
3157	4822 116 52234	100k 5% 0,5W	for East. Europe
3158	4822 116 83883	470R 5% 0,5W	
3159	4822 116 83883	470R 5% 0,5W	
3160	4822 116 83883	470R 5% 0,5W	
3161	4822 116 83883	470R 5% 0,5W	
3167	4822 117 11503	220R 1% 0,1W	
3169	4822 051 20154	150k 5% 0,1W	
3170	4822 116 52234	100k 5% 0,5W	
3171	4822 116 52219	330R 5% 0,5W	

ELECTRICAL PARTS LIST - ECO5 TUNER BOARD

3176	4822 051 10102	1k 2% 0,25W	for RDS version
3180	4822 051 20223	22k 5% 0,1W	for LW version
4101	4822 051 20008	0R Jumper 0805	for 2-Band only
4102	4822 051 20008	0R Jumper 0805	for 2-Band only
4103	4822 051 20008	0R Jumper 0805	
4104	4822 051 20008	0R Jumper 0805	
4105	4822 051 20008	0R Jumper 0805	
4106	4822 051 20008	0R Jumper 0805	
4108	4822 051 20008	0R Jumper 0805	
4111	4822 051 20008	0R Jumper 0805	
4120	4822 051 20008	0R Jumper 0805	
4150	4822 051 10008	0R Jumper 1206	
4151	4822 051 20008	0R Jumper 0805	
4152	4822 051 10008	0R Jumper 1206	
4153	4822 051 10008	0R Jumper 1206	
4154	4822 051 10008	0R Jumper 1206	
4155	4822 051 10008	0R Jumper 1206	
4156	4822 051 20008	0R Jumper 0805	
4157	4822 051 10008	0R Jumper 1206	
4158	4822 051 10008	0R Jumper 1206	
4159	4822 051 10008	0R Jumper 1206	
4162	4822 051 10008	0R Jumper 1206	

COILS & FILTERS

5102	4822 157 71634	MW RF Coil	
5103	4822 157 71635	LW RF Coil	for LW version
5109	4822 242 70665	Ceram Filter 10,7MHz	
5110	4822 242 70665	Ceram Filter 10,7MHz	
5111	4822 158 60511	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 10,7MHz	
5120	4822 242 82065	Cer. Disc. 10,7MG40K	
5120	4822 242 10251	Cer. Disc.10,7MG61KA-TF21	
5121	4822 242 10261	Quartz 75kHz	
5122	4822 157 60517	Osc. Coil LW	for LW version
5123	4822 157 60517	Osc. Coil MW	
5130	4822 156 30947	RF-Coil 1.5T	
5131	4822 156 30947	RF-Coil 1.5T	

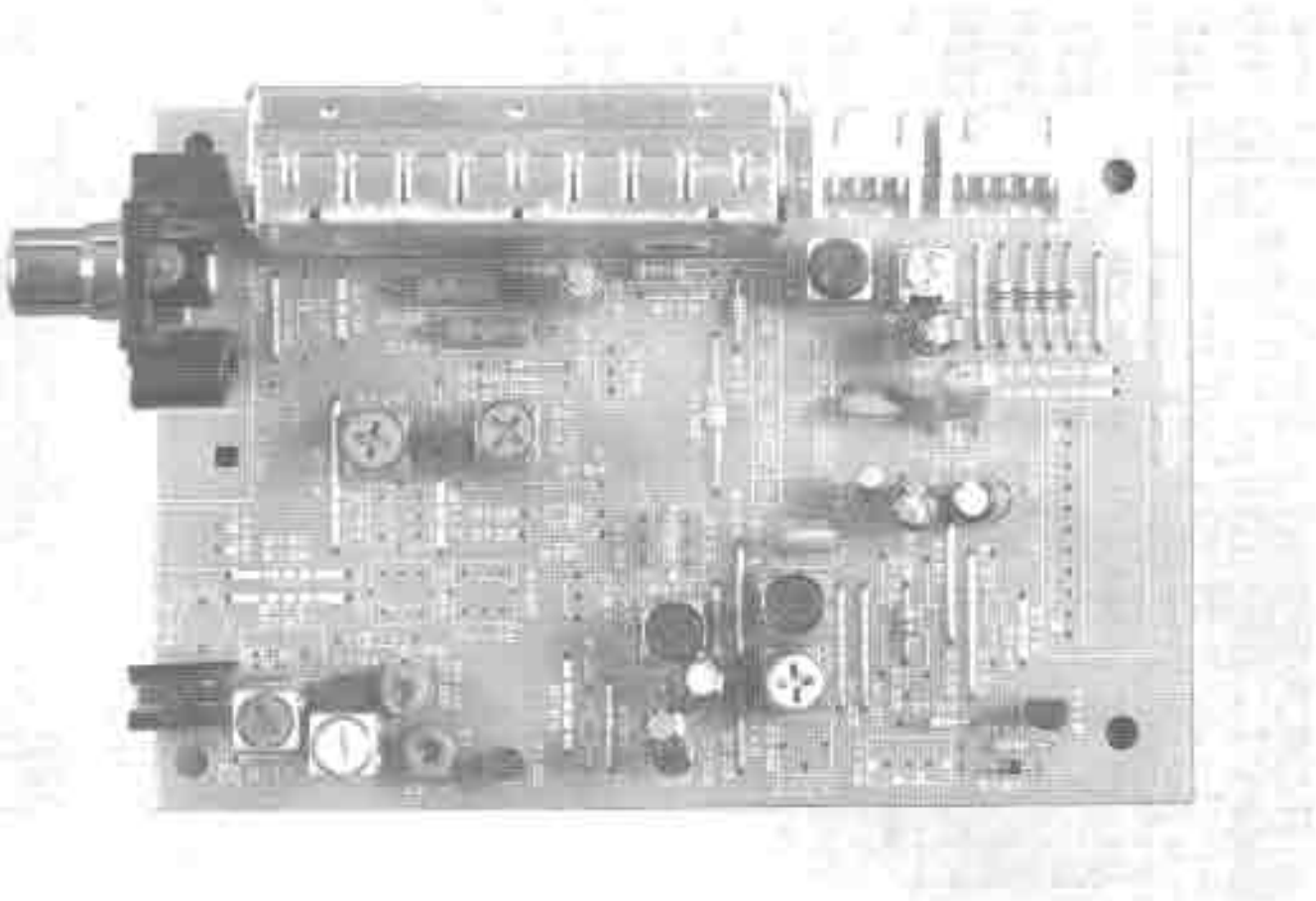
DIODES

6103	4822 130 30621	1N4148	
6104	4822 130 30621	1N4148	
6105	4822 130 83075	HN1V02H-B	
6106	4822 130 30621	1N4148	
6107	4822 130 34488	BZX79-B11	
6120	4822 130 30621	1N4148	not for /21/30/33
6130	4822 130 82833	1SV228	
6131	4822 130 82833	1SV228	

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90924	TEA5757H/V1	
7102	4822 130 60093	2SA838B	
7103	4822 130 42513	BC858C	for RDS version
7104	5322 130 44779	BC338-40	for LW version
7105	5322 130 44779	BC338-40	for LW version
7109	5322 130 41983	BC858B	for LW version
7111	5322 130 42136	BC848C	
7122	5322 130 42136	BC848C	for LW version
7124	5322 130 42136	BC848C	for LW version

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

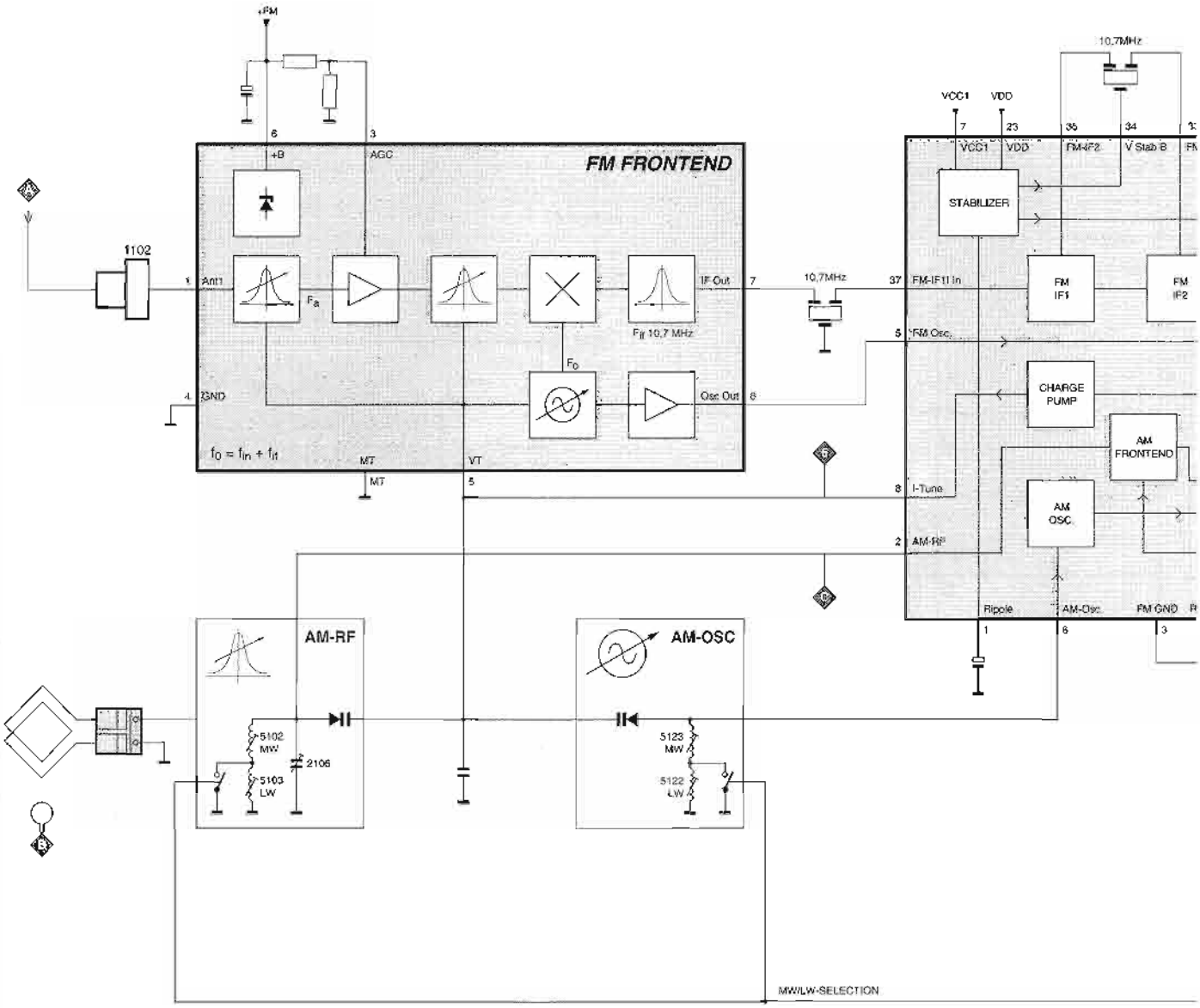


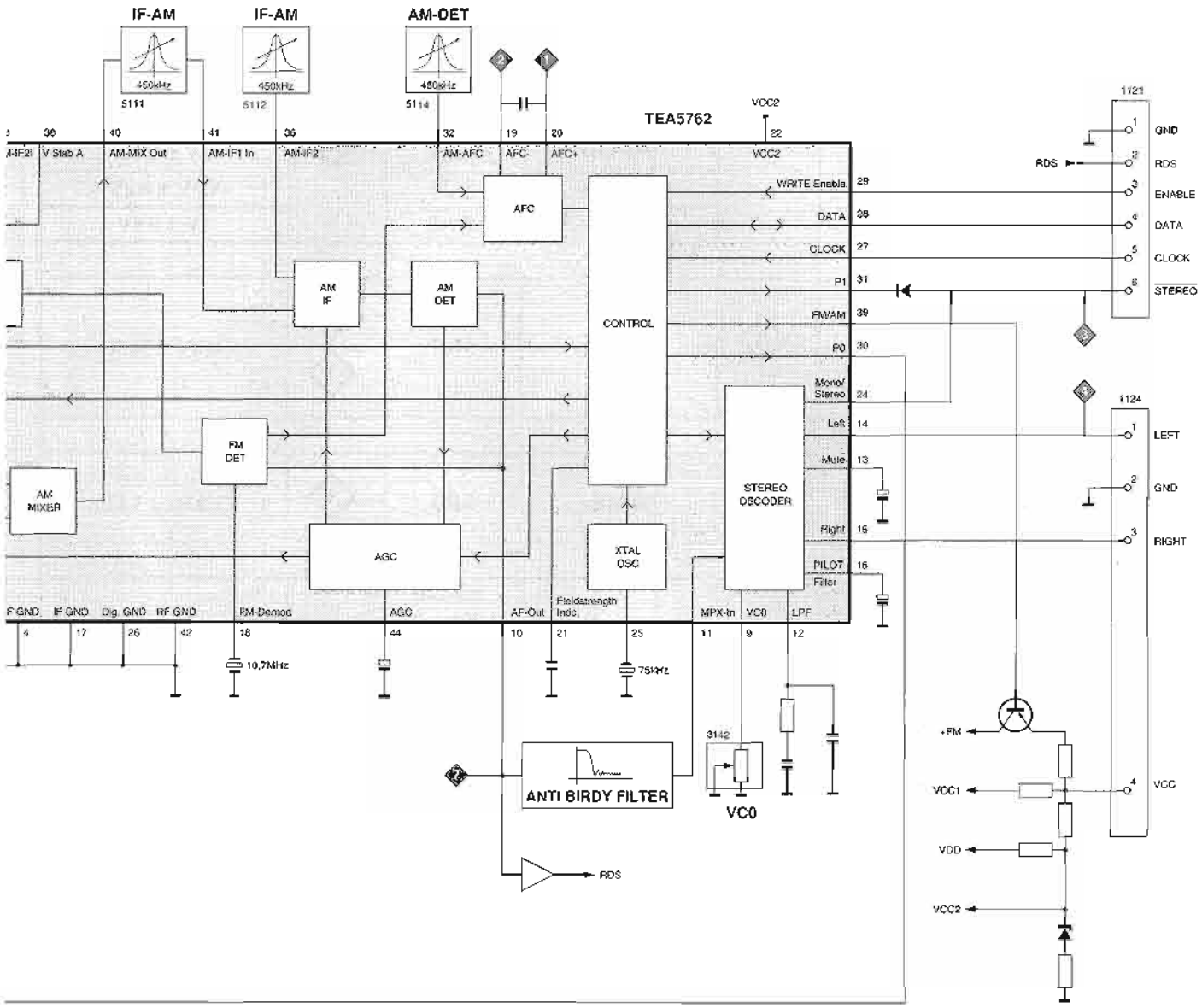
TUNER 95 BOARD

TABLE OF CONTENTS

Blockdiagram 7D-1
Adjustment table 7D-2
Component layout 7D-2
Circuit diagram 7D-3
Partslist 7D-4

BLOCKDIAGRAM




IF-AM
IF-AM
AM-DET
450kHz
5111
5112
5114
TEA5762
VCC2
AM-IF2
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC
AFC+
VCC2
WRITE Enable
DATA
CLOCK
P1
FMAM
P0
Mono/ Stereo
Left
Mute
Right
PILOT Filter
AM IF
AM DET
FM DET
AM MIXER
AGC
CONTROL
XTAL OSC
STEREO DECODER
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indic.
MPX-In
VC0
LPF
10,7MHz
75kHz
ANTI BIRDY FILTER
VC0
RDS
1121
GND
RDS
ENABLE
DATA
CLOCK
STEREO
1124
LEFT
GND
RIGHT
+FM
VCC1
VDD
VCC2
VCC

TUNER 95 bis Adjustment Table (FM, MW, LW with Frame antenna)

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM (50)			108 MHz	check		7 ... 9V
87.5 - 108 MHz			87.5 MHz	check		1.3 ... 2V
MW (9)			1602 kHz	5123		8.3V ± 0.2V
531 - 1602 kHz			531 kHz	check	◇6	1V ± 0.4V
LW (3)			279 kHz	5122		8.3V ± 0.2V
153 - 279 kHz			153 kHz	check		1V ± 0.4V
FM – DETECTION						
FM	98 MHz 1mV continuous wave *short pin 21 (IC7101) to ground*	◇A	98 MHz	5107	◇1 ◇2	0mV ± 3mV
FM – VCO						
FM	98 MHz 1 mV continuous wave	◇A	98 MHz	3142	◇3	152kHz ± 1 kHz
DISTORTION						
FM	98 MHz 1 mV 90 % L + 9 % pilot mod = 1kHz	◇A	98MHz	mixcoil inside Tuner 1110	◇4	Distortion minimum
AM – IF						
MW	450kHz Δf = 10kHz Low as possible Swept signal	100pF 50Ω ◇C	MW	5111	◇7	symmetrical and max. height
				5112		
	450kHz continuous wave			5114	◇1 ◇2	0mV ± 2mV
AM - RF						
MW	558kHz Mod = 1kHz 30 % AM 1494 kHz	◇B	558kHz	5102	◇7	MAX
			1494kHz	2106		
LW	198kHz mod = 1kHz 30 % AM	*	198kHz	5103		MAX

adjtable for 3104.217.04121/04341

* Signal send via a frame antenna
(..) = tuning grid in kHz

↕ repeat

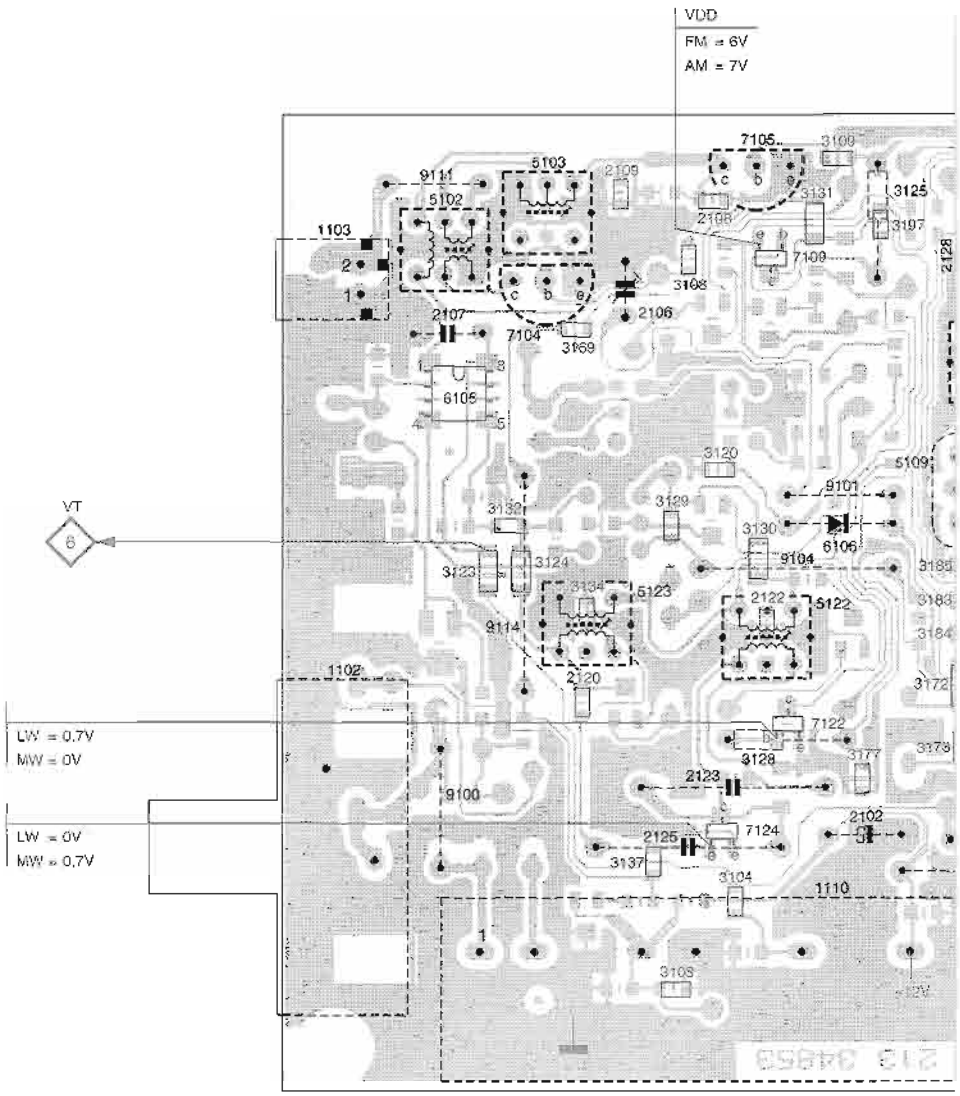
B

1102	F4	2107	C4	2128	C7	2136	G10	2144	E10	2160	E9	3120	D6	3132	E5	3143	G8	3153	G9
1103	C4	2108	C6	2129	C8	2137	E11	2145	G11	2161	E9	3123	E4	3134	E5	3144	H9	3154	C10
1110	G7	2109	C5	2130	F8	2138	E10	2147	G11	2162	C11	3124	E5	3137	G5	3145	F9	3155	C10
1121	H11	2120	F5	2131	F9	2139	E8	2148	F9	3103	H6	3125	C7	3138	D9	3146	B10	3158	G11
1124	H9	2122	E6	2132	F9	2140	F10	2150	F8	3104	G6	3128	F6	3139	F8	3147	H9	3159	G11
1126	G10	2123	F6	2133	F10	2141	E10	2151	F9	3107	G7	3129	E6	3140	H8	3150	C11	3160	G11
2102	G7	2125	G6	2134	G10	2142	E9	2152	F9	3108	C6	3130	E6	3141	G9	3151	C10	3161	G11
2106	C5	2127	F9	2135	G11	2143	C10	2158	D10	3109	B7	3131	C6	3142	G10	3152	G9	3162	D9

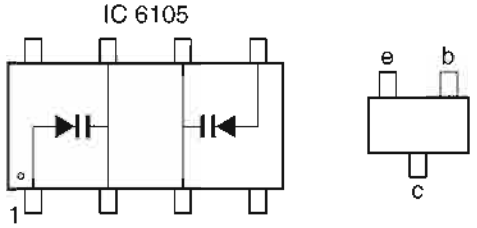
1 2 3 4 5 6 7

TUNER 95 bis Combi: Copper side view

A B C D E F G H I J



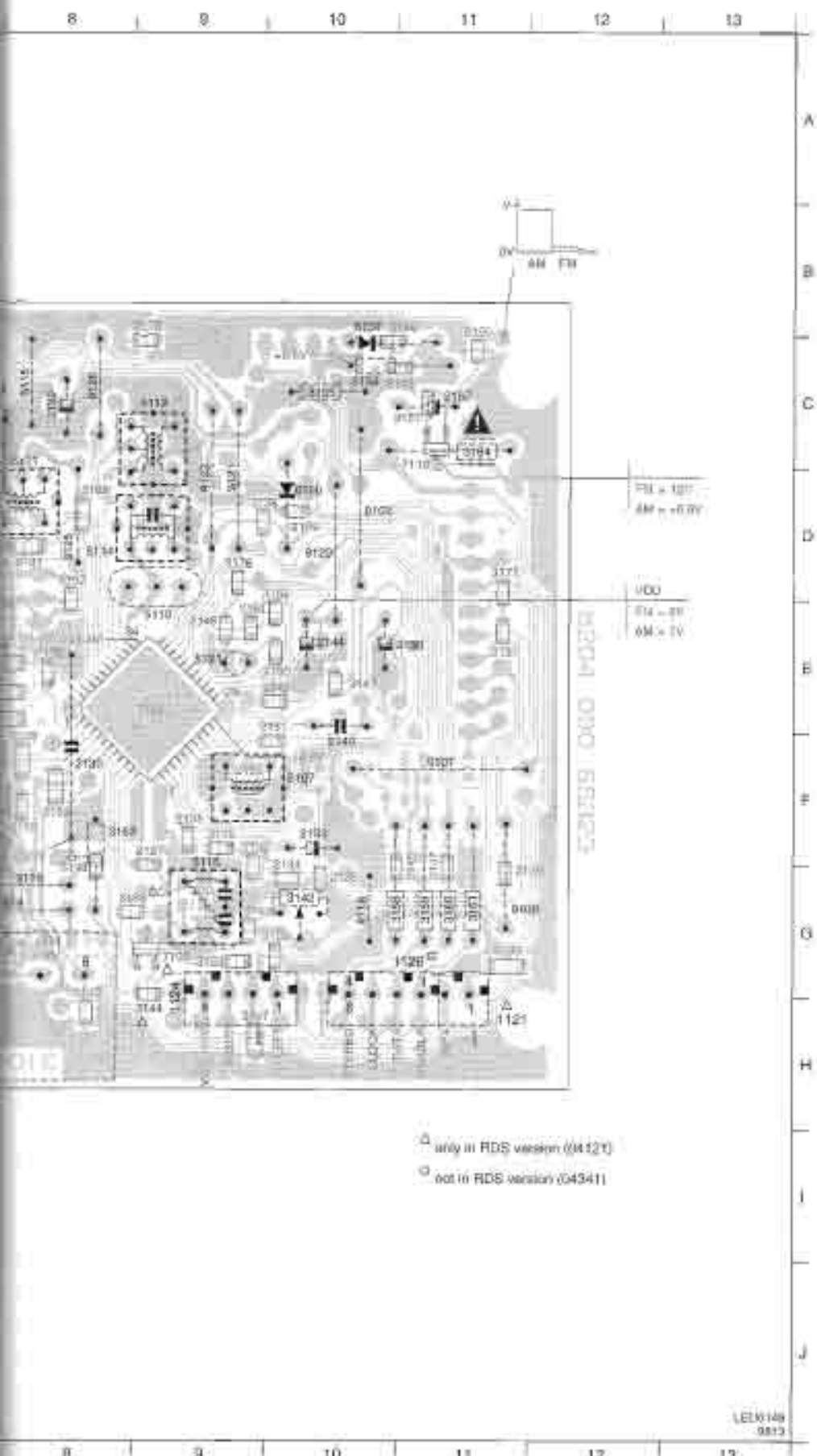
IC 6105



TUNER 95 bis
3104 217 04121/04341 bl 110 - 01

1 2 3 4 5 6 7

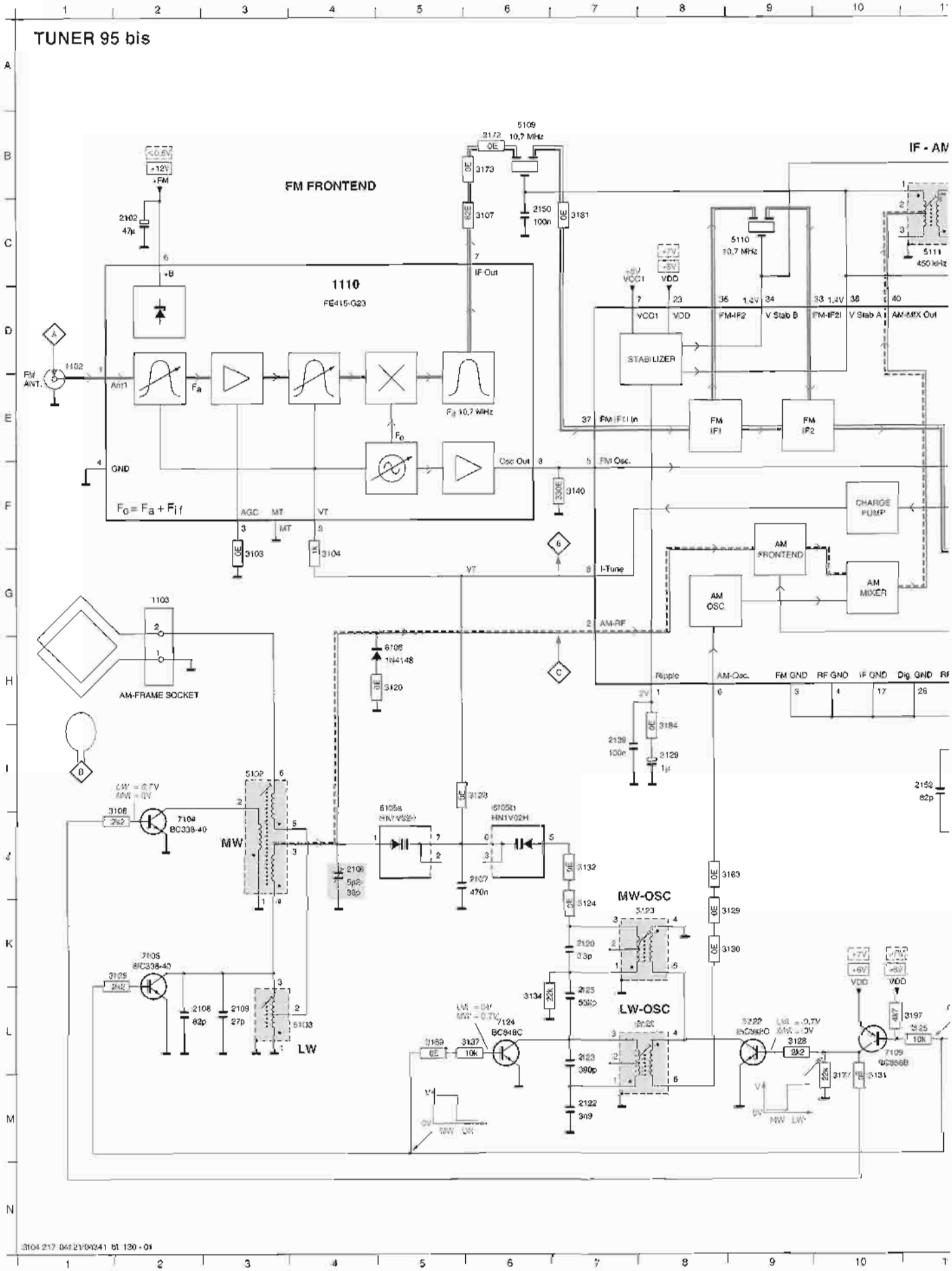
3163	F8	3176	D6	3186	C11	5111	C8	9106	E7	7110	D11	9108	D11	9120	D9
3164	C11	3177	F7	3192	D8	5113	C8	9107	B10	7122	F7	9111	C4	9123	D9
3165	D8	3178	B8	3197	C7	5114	D8	9120	D10	7124	G8	9114	E5	9125	D8
3167	F8	3181	D8	5102	C4	5115	C8	7101	E8	9100	F4	9115	C6	9126	C8
3169	D6	3183	E7	5103	C5	5121	E8	7103	G9	9101	E7	9116	G8		
3171	D11	3184	E7	5107	F10	5122	E7	7104	D6	9102	D10	9118	C10		
3172	F7	3185	E7	5109	D7	5123	E8	7105	B6	9104	E6	9119	G7		
3173	F7	3188	G8	5110	E8	5125	D4	7109	C6	9107	F11	9120	D10		



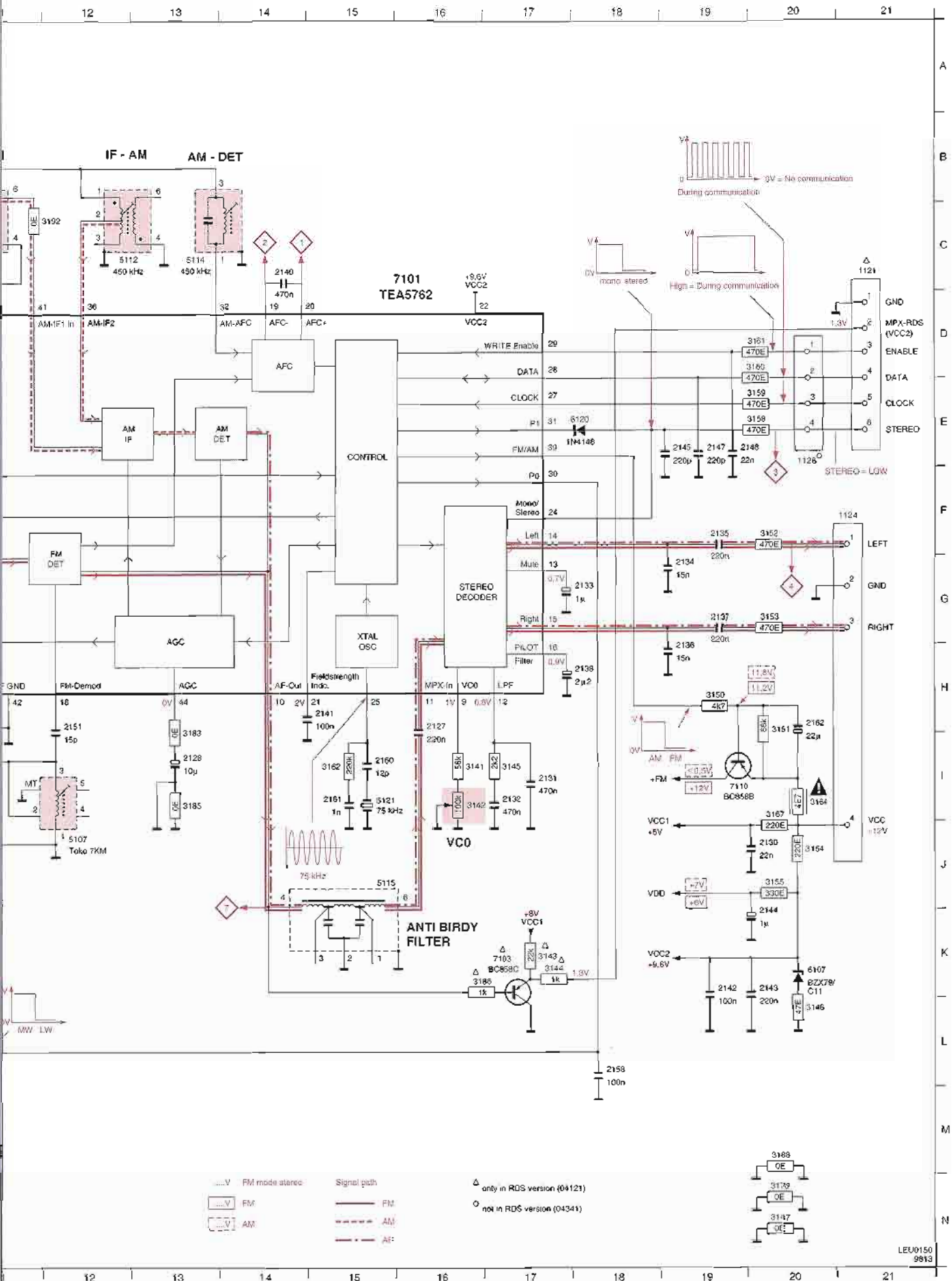
△ only in RDS version (04121)

▽ not in RDS version (04341)

1102	D1	1124	F21	2107	J6	2122	M7	2128	I13	2132	I17	2136	H19	2140	C14	2144	K20	2150	C6	2160	I15	3104	G4	3120	H5	3128	L9	3132	J7	3
1103	G2	1126	E20	2108	L2	2123	L7	2129	I8	2133	G18	2137	G19	2141	H15	2145	E19	2151	H12	2161	I15	3107	C6	3123	I6	3129	K8	3134	L6	3
1110	D4	2102	C2	2109	L3	2125	L7	2130	J20	2134	G19	2138	H16	2142	K19	2147	E19	2152	I11	2162	H20	3105	J1	3124	K7	3130	K8	3137	L5	3
1121	C21	2106	J4	2120	K7	2127	H16	2131	I17	2135	F19	2139	I7	2143	K20	2148	E19	2158	L18	3103	G3	3109	K1	3125	L11	3131	M10	3140	F7	3



41	I16	3145	I17	3151	I20	3155	J20	3161	D19	3167	E20	3177	M10	3184	I8	3192	C12	5107	J12	5112	C12	5122	L7	6106	H5	7103	K17	7110	I19
42	I16	3146	L20	3152	F20	3158	E19	3162	I15	3169	L5	3178	N20	3185	I13	3197	L11	5109	B6	5114	C13	5123	K7	6107	K20	7104	J2	7122	L9
43	K17	3147	N20	3153	G20	3159	E19	3163	J8	3172	B6	3181	C7	3186	K16	5102	I3	5110	C9	5115	J15	6105a	I5	6120	E17	7105	K2	7124	L6
44	K17	3150	H19	3154	J20	3160	D19	3164	I20	3173	B6	3183	I13	3188	M20	5103	L4	5111	C11	5121	I15	6105b	I6	7101	C15	7109	L10		



FM mode stereo
FM
AM
Signal path
FM
AM
AF
only in RDS version (04121)
not in RDS version (04341)

ELECTRICAL PARTS LIST - TUNER 95 BOARD

MISCELLANEOUS

1102	4822 267 10283	Socket Coaxial IEC 75R
1103	4822 265 31184	JST Connector 2 pin
1110	4822 210 10739	Frontend Assembly FE415-G23

CAPACITORS

2102	4822 124 40433	47µF 20% 25V
2106	4822 125 60102	Trimmer 5.2-30pF 100V
2107	4822 121 51252	470nF 5% 63V
2108	4822 126 13695	82pF 1% 63V
2109	4822 126 13691	27pF 1% 63V
2120	5322 122 32659	33pF 5% 50V
2122	5322 126 10465	3,9nF 10% 50V
2123	4822 121 10766	390pF 1% 630V
2125	4822 121 10578	560pF 1% 630V
2127	4822 122 32927	220nF +80/-20% 50V
2128	4822 124 41579	10µF 20% 50V
2129	4822 124 40242	1µF 20% 63V
2130	4822 126 11585	22nF +80/-20% 25V
2131	4822 122 33325	470nF 16V
2132	4822 122 33325	470nF 16V
2133	4822 124 40242	1µF 20% 63V
2134	4822 126 13188	15nF 5% 63V
2135	4822 122 32927	220nF +80/-20% 50V
2136	4822 126 13188	15nF 5% 63V
2137	4822 122 32927	220nF +80/-20% 50V
2138	4822 124 41576	2,2µF 20% 50V
2139	4822 126 10002	100nF 20% 25V
2140	4822 121 51252	470nF 5% 63V
2141	4822 122 31947	100nF 20% 63V
2142	4822 122 31947	100nF 20% 63V
2143	4822 122 32927	220nF +80/-20% 50V
2144	4822 124 40242	1µF 20% 63V
2145	4822 122 33575	220pF 5% 50V
2147	4822 122 33575	220pF 5% 50V
2148	4822 122 33809	22nF 20% 50V
2150	4822 122 31947	100nF 20% 63V
2151	4822 126 14238	15pF 5% 50V
2152	4822 126 13695	82pF 1% 63V
2158	4822 122 31947	100nF 20% 63V
2160	4822 122 32139	12pF 2% 63V
2161	5322 122 34123	1nF 10% 50V
2162	4822 124 81151	22µF 50V

RESISTORS

3103	4822 051 20008	0R Jumper 0805
3104	4822 051 10102	1k 2% 0,25W
3107	4822 051 20829	82R 5% 0,1W
3108	4822 117 11449	2k2 1% 0,1W
3109	4822 117 11449	2k2 1% 0,1W
3120	4822 051 20008	0R Jumper 0805
3123	4822 051 10008	0R Jumper 1206
3124	4822 051 10008	0R Jumper 1206
3125	4822 116 83864	10k 5% 0,5W
3128	4822 116 52256	2k2 5% 0,5W
3129	4822 051 20008	0R Jumper 0805
3130	4822 051 10008	0R Jumper 1206
3131	4822 051 10008	0R Jumper 1206
3132	4822 051 20008	0R Jumper 0805
3134	4822 051 20223	22k 5% 0,1W
3137	4822 117 10833	10k 1% 0,1W
3138	4822 051 20008	0R Jumper 0805
3139	4822 051 10008	0R Jumper 1206
3140	4822 051 20331	330R 5% 0,1W
3141	4822 117 11146	56k 1% 0,1W
3142	4822 100 11163	Trimmer 100k 30% 0,1W
3143	4822 051 20223	22k 5% 0,1W
3144	4822 051 10102	1k 2% 0,25W
3145	4822 117 11449	2k2 1% 0,1W
3146	4822 051 20479	47R 5% 0,1W
3147	4822 051 10008	0R Jumper 1206
3150	4822 051 20472	4k7 5% 0,1W
3151	4822 051 20683	68k 5% 0,1W
3152	4822 051 20471	470R 5% 0,1W
3153	4822 051 20471	470R 5% 0,1W
3154	4822 116 83872	220R 5% 0,5W
3155	4822 116 52219	330R 5% 0,5W
3158	4822 116 83883	470R 5% 0,5W
3159	4822 116 83883	470R 5% 0,5W
3160	4822 116 83883	470R 5% 0,5W
3161	4822 116 83883	470R 5% 0,5W
3162	4822 117 13579	220k 1% 0,1W
3163	4822 051 10008	0R Jumper 1206
3164	4822 052 10478	⚠ 4R7 5% 0,33W
3165	4822 051 10008	0R Jumper 1206
3167	4822 116 83872	220R 5% 0,5W
3169	4822 051 20008	0R Jumper 0805
3171	4822 051 20008	0R Jumper 0805
3172	4822 051 10008	0R Jumper 1206
3173	4822 051 20008	0R Jumper 0805
3176	4822 051 20008	0R Jumper 0805
3177	4822 051 20223	22k 5% 0,1W
3178	4822 051 10008	0R Jumper 1206
3181	4822 051 10008	0R Jumper 1206
3183	4822 051 10008	0R Jumper 1206
3184	4822 051 10008	0R Jumper 1206
3185	4822 051 10008	0R Jumper 1206
3186	4822 051 10102	1k 2% 0,25W
3188	4822 051 10008	0R Jumper 1206
3192	4822 051 20008	0R Jumper 0805
3197	4822 051 20472	4k7 5% 0,1W

COILS & FILTERS

5102	4822 157 71534	MW Aerial
5103	4822 157 71535	LW Aerial

ELECTRICAL PARTS LIST - TUNER 95 BOARD

5107	4822 157 11443	FM Discriminator 10,7MHz
5109	4822 157 71639	Ceram Filter 10,7MHz
5110	4822 242 70665	Ceram Filter 10,7MHz
5111	4822 158 60511	AM-IF Filter 450kHz
5112	4822 157 70302	AM-IF Filter 450kHz
5114	4822 157 70302	AM_IF Filter 450kHz
5115	4822 157 71636	Anti-Birdy Filter
5121	4822 242 10261	X'tal Resonator 75kHZ
5122	4822 157 60517	RF Coil AM
5123	4822 157 60517	RF Coil AM

DIODES

6105	4822 130 83075	HN1V02H-B
6106	4822 130 30621	1N4148
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1
7103	4822 130 42513	BC858C
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7110	5322 130 41983	BC858B
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

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

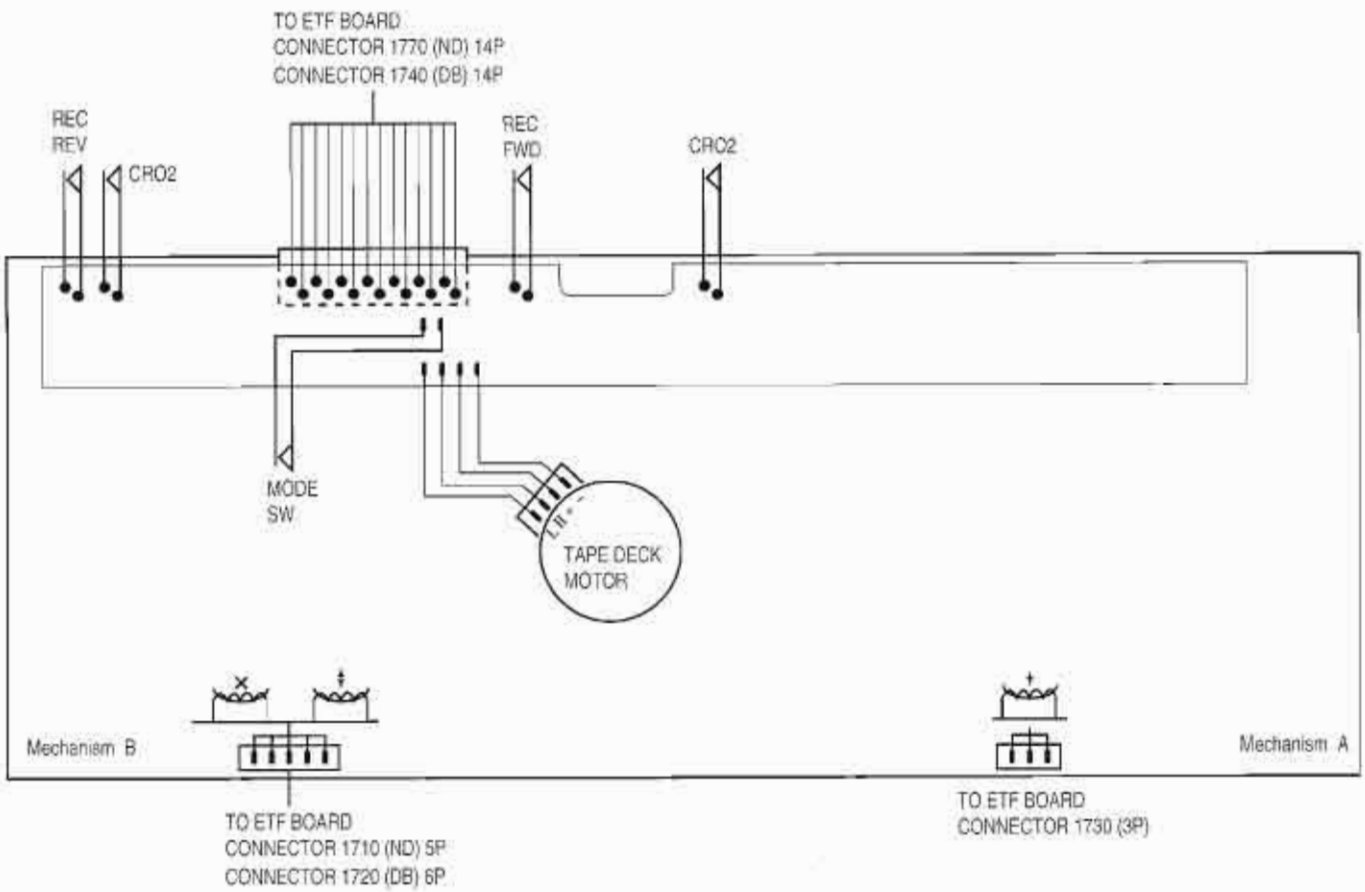
ETF7 TAPE MODULE

(Non-Dolby Version)

TABLE OF CONTENTS

Tape Module Wiring & variation table 9-1
Block diagram 9-2
Brief Introduction 9-3
Connector assignment 9-4
Tape deck electronics & Tape adjustments 9-5
ETF7 Non-Dolby board layouts 9-6
Analog Circuit diagram 9-7
Servo Circuit diagram 9-8
Exploded views & parts list 9-9
Electrical parts list 9-13

Tapedeck wiring (Double deck)



OPTIONS / VARIANTS TABLE

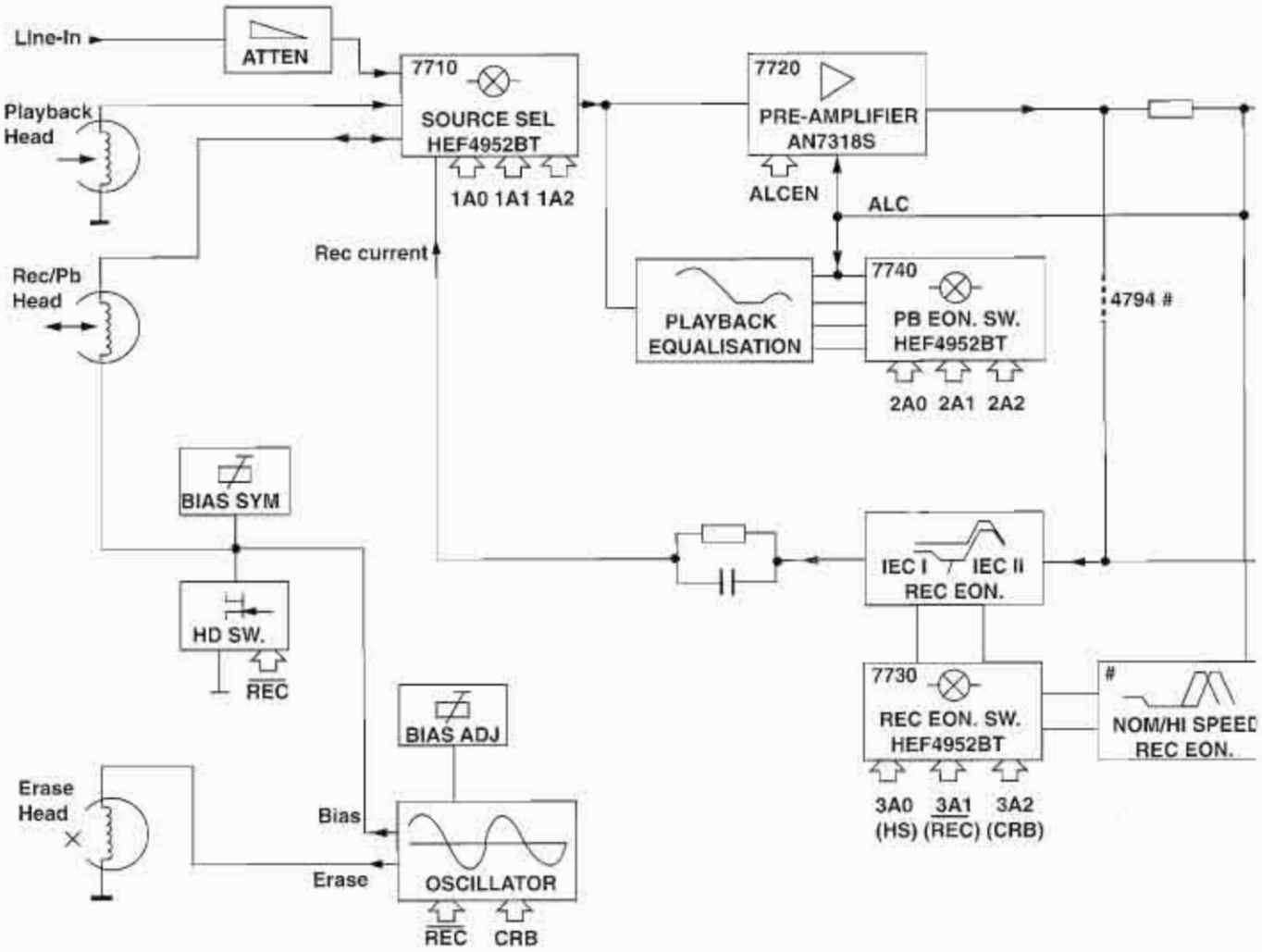
MODULE	ETF7		
VARIANT	1	2	3
FEATURES	DB/DD/FR	ND/DD/FR	ND/DD/FF
Deck configuration	double	double	double
Deck type (Tokyo Pigeon)	CWE	CWE	CWE
Autoreverse	yes (B)	yes (B)	no
Auto Replay	no	no	yes (A+B)
Motor configuration	single	single	single
Auto tape type selection	yes	yes	yes
Dolby type B Noise Reduction	yes	no	no
19 kHz pilot suppression	yes	no	no
Normal / High speed dubbing	yes	yes	no
Cue/Review & Fwd/Rewind	yes	yes	yes

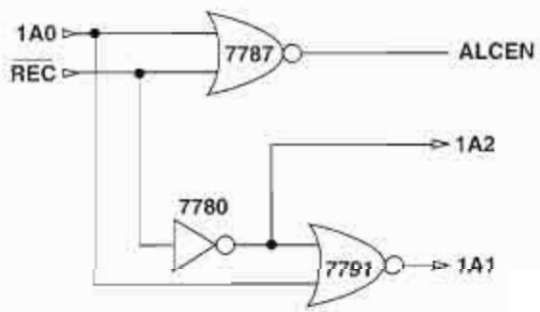
DB = Dolby B NR
DD = Double Deck
FF = Non-Autoreverse
FR = Autoreverse Deck B
ND = Non-Dolby
SD = Single Deck

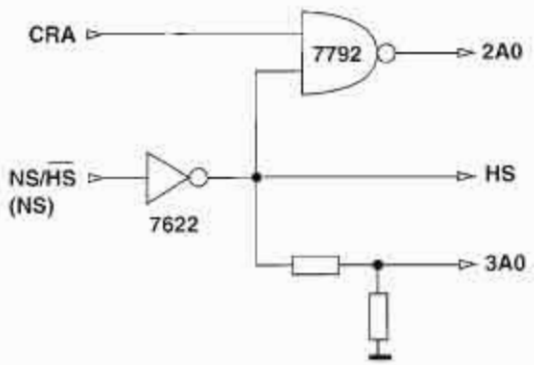
Variations table for Analog Circuit

	Autoreverse	Non-autoreverse
	ND/DD/FR	ND/DD/FF
2701 , 2702	150pF	270pF
2703 , 2704	100pF	220pF
2717 , 2718	10nF	15nF
2727 , 2728	470pF	1nF
3616	10k	1k
3618	6k8	-
3620	10k trimmer	-
3622	-	10k trimmer
3672	4k7	-
3676	47k	-
3688	680R	-
3723 , 3724	15k	18k
3727 , 3728	5k6	6k8
3729 , 3730	3k3	4k7
3743 , 3744	1k5	2k2
3745 , 3746	3k3	5k6
3754 , 3755	1M	47R
3769	12k	8k2
3772	6k8	5k6
3774	15k	8k2
6614	1N4148	-
7616	BC857B	-
7622	BC847B	-

BLOCK DIAGRAM



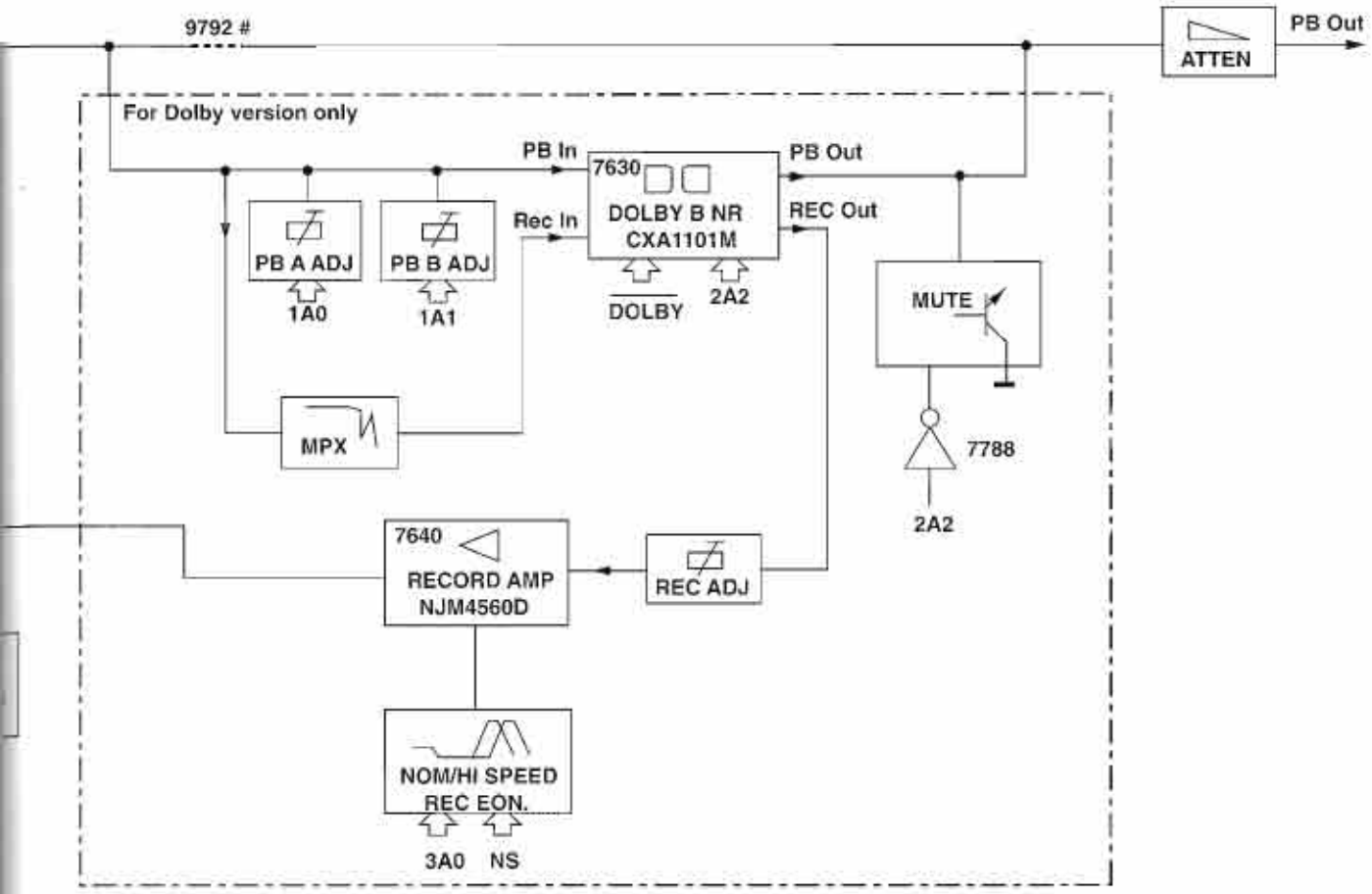


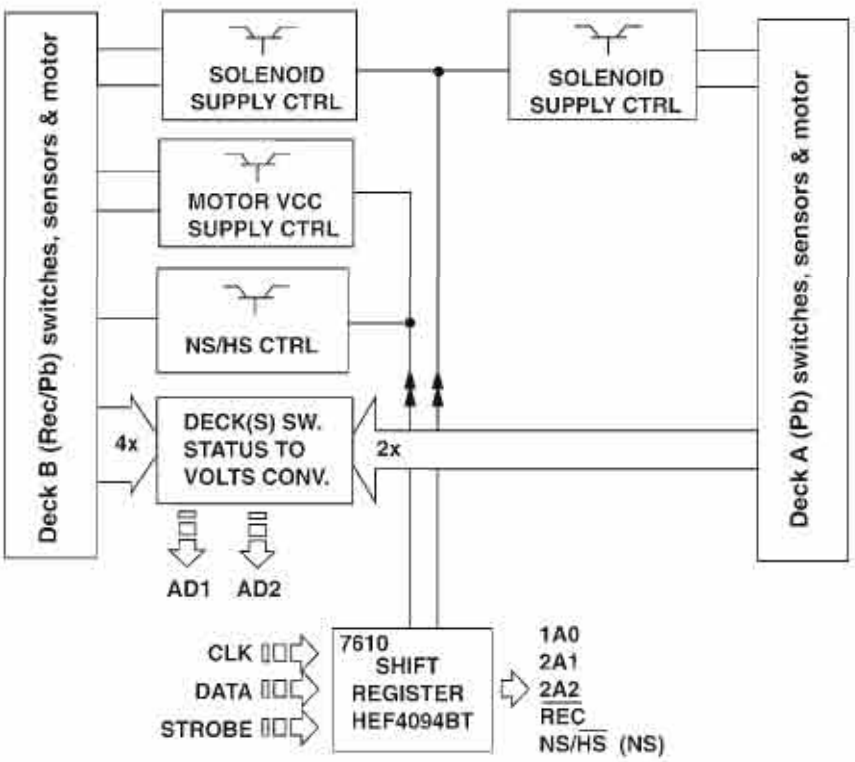


NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers


9792 #
ATTEN
PB Out
For Dolby version only
PB In
7630
DOLBY B NR
CXA1101M
PB Out
REC Out
Rec In
PB A ADJ
PB B ADJ
1A0
1A1
DOLBY
2A2
MUTE
MPX
7788
2A2
7640
RECORD AMP
NJM4560D
REC ADJ
NOM/HI SPEED
REC EON.
3A0
NS


Deck B (Rec/Pb) switches, sensors & motor
SOLENOID SUPPLY CTRL
SOLENOID SUPPLY CTRL
MOTOR VCC SUPPLY CTRL
NS/HS CTRL
4x
DECK(S) SW. STATUS TO VOLTS CONV.
2x
Deck A (Pb) switches, sensors & motor
AD1
AD2
CLK
DATA
STROBE
7610
SHIFT REGISTER
HEF4094BT
1A0
2A1
2A2
REC
NS/HS (NS)

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 $\overline{\text{DOLBY}}$, 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 CONNECTON ***(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 CONNECTON ***(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

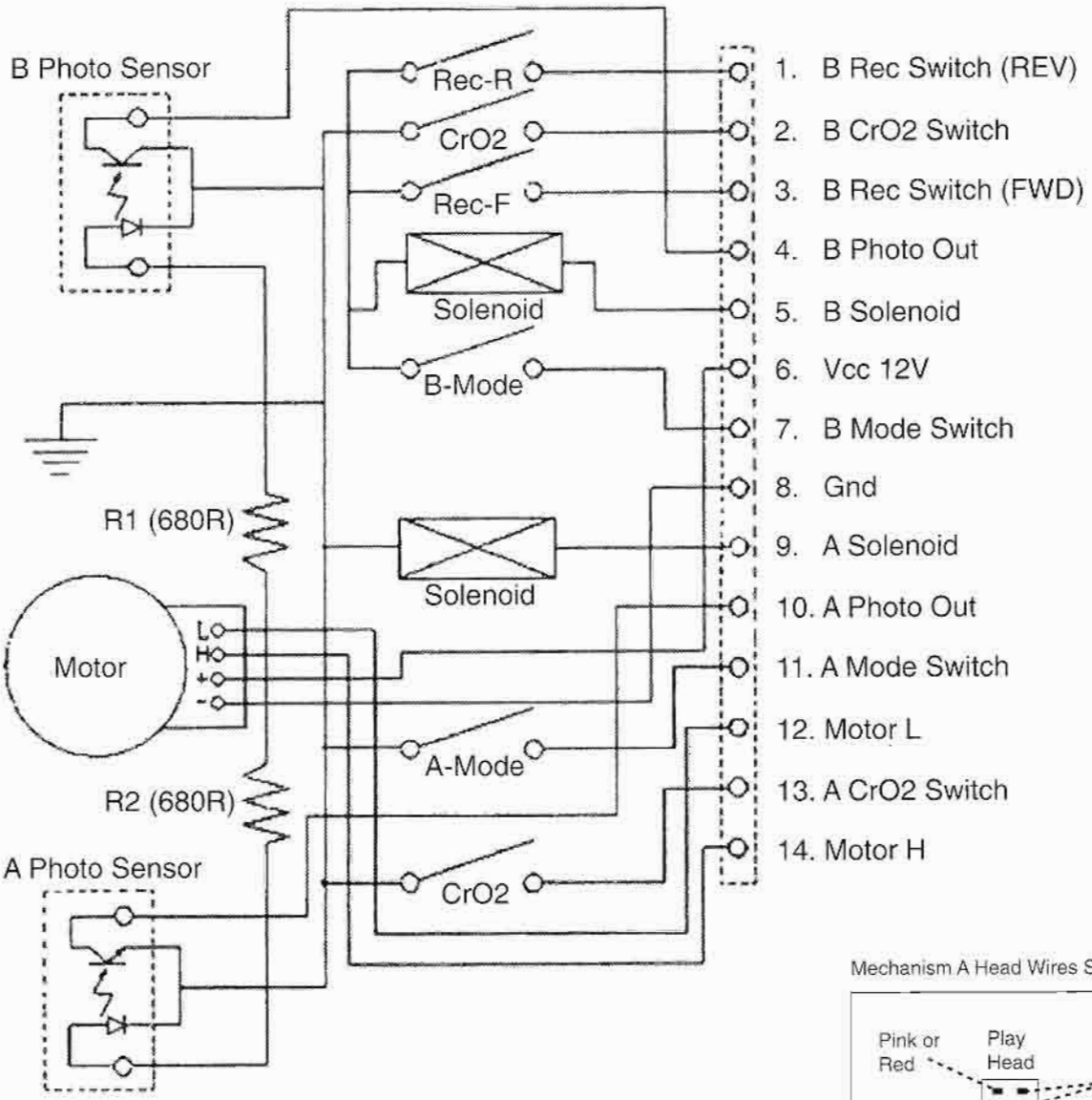
CONNECTOR 1740 DECK A & B CONTROL INTERFACE ***(For Dolby B NR version only)***

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

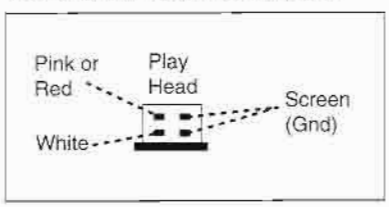
CONNECTOR 1770 DECK A & B CONTROL INTERFACE ***(For Non-Dolby version only)***

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

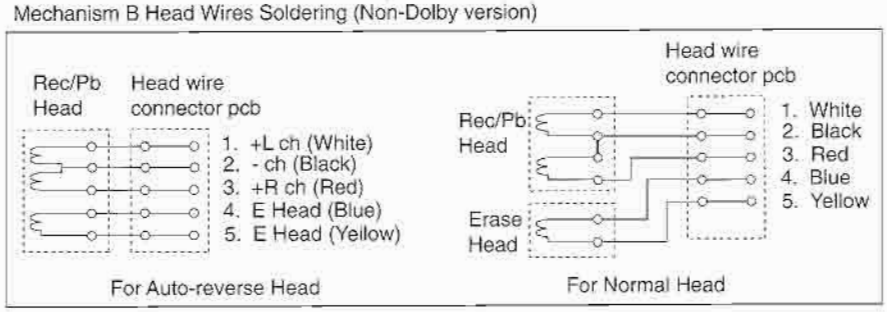
TAPE MECHANISM ELECTRONICS



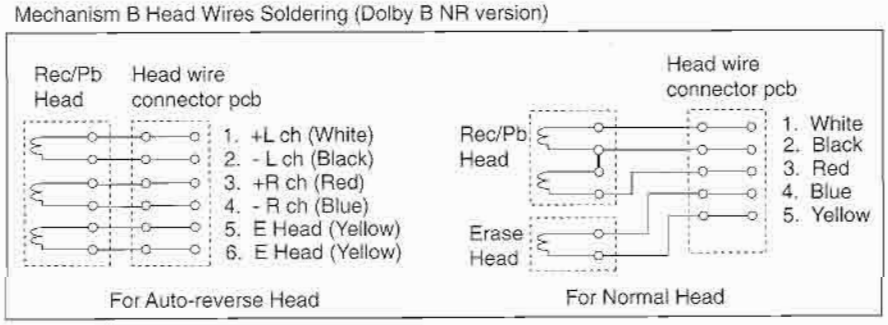
Mechanism A Head Wires Soldering



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	ADJUST to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420 3150Hz	PLAY B	◇1 or ◇2 LEFT RIGHT	frequency counter	3620	3150Hz ± 0.5%
		PLAY A			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 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			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 LEFT RIGHT	mV-meter	3773	995mV
	SBC420				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-meaure

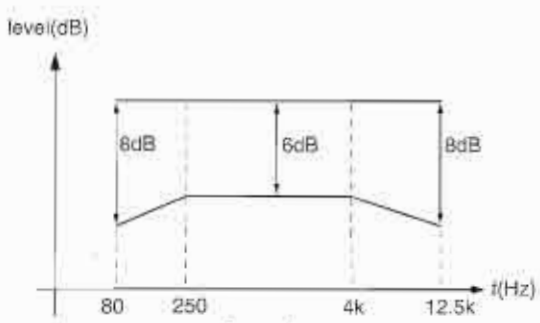


figure. 1

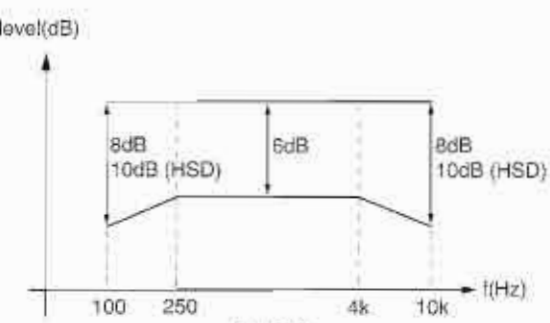
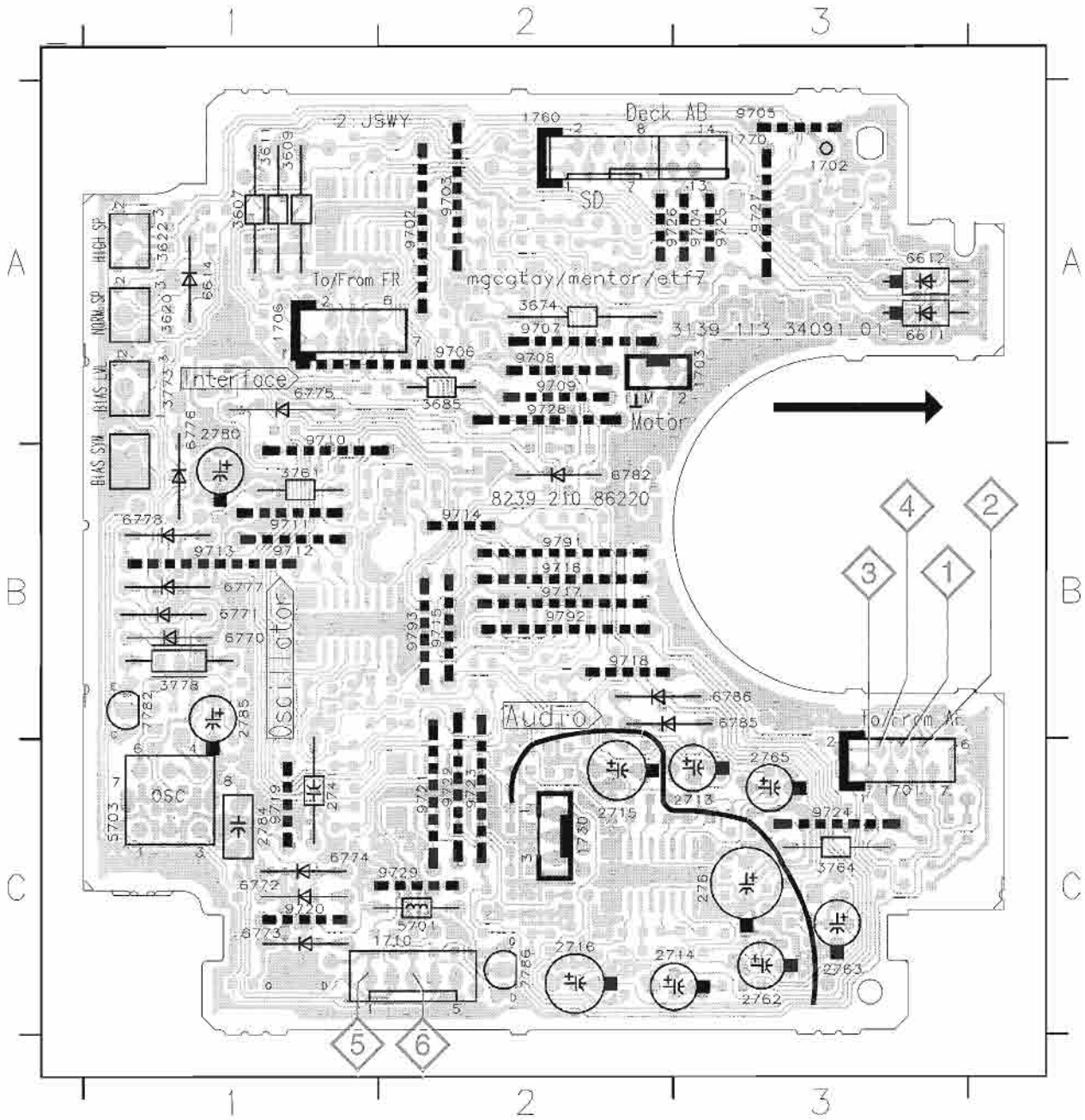


figure. 2

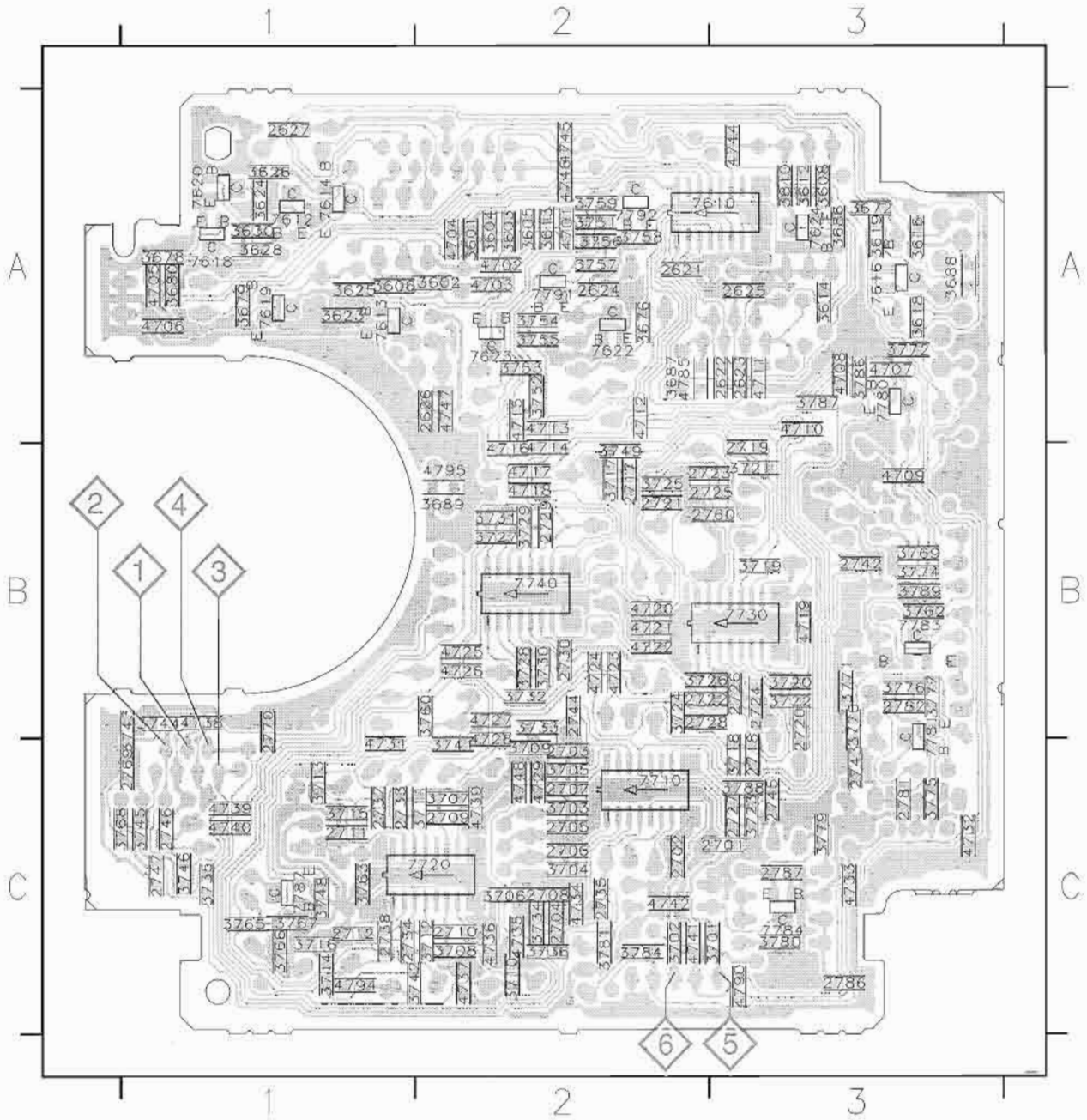
COMPONENT LAYOUT

1701 C3	2715 C2	3607 A1	3778 B1	6774 C1	9702 A2	9712 B1	9722 C2	9793 B2
1702 A3	2716 C2	3609 A1	5701 C2	6775 A1	9703 A2	9713 B1	9723 C2	
1703 A3	2741 C1	3611 A1	5703 C1	6776 A1	9704 A3	9714 B2	9724 C3	
1706 A1	2761 C3	3620 A1	6611 A3	6777 B1	9705 A3	9715 B2	9725 A3	
1710 C2	2762 C3	3622 A1	6612 A3	6778 B1	9706 A2	9716 B2	9726 A2	
1730 C2	2763 C3	3674 A2	6614 A1	6782 B2	9707 A2	9717 B2	9727 A3	
1760 A2	2765 C3	3685 A2	6770 B1	6785 B3	9708 A2	9718 B2	9728 A2	
1770 A3	2780 A1	3761 B1	6771 B1	6786 B3	9709 A2	9719 C1	9729 C2	
2713 C3	2784 C1	3764 C3	6772 C1	7782 B1	9710 A1	9720 C1	9791 B2	
2714 C3	2785 B1	3773 A1	6773 C1	7786 C2	9711 B1	9721 C2	9792 B2	



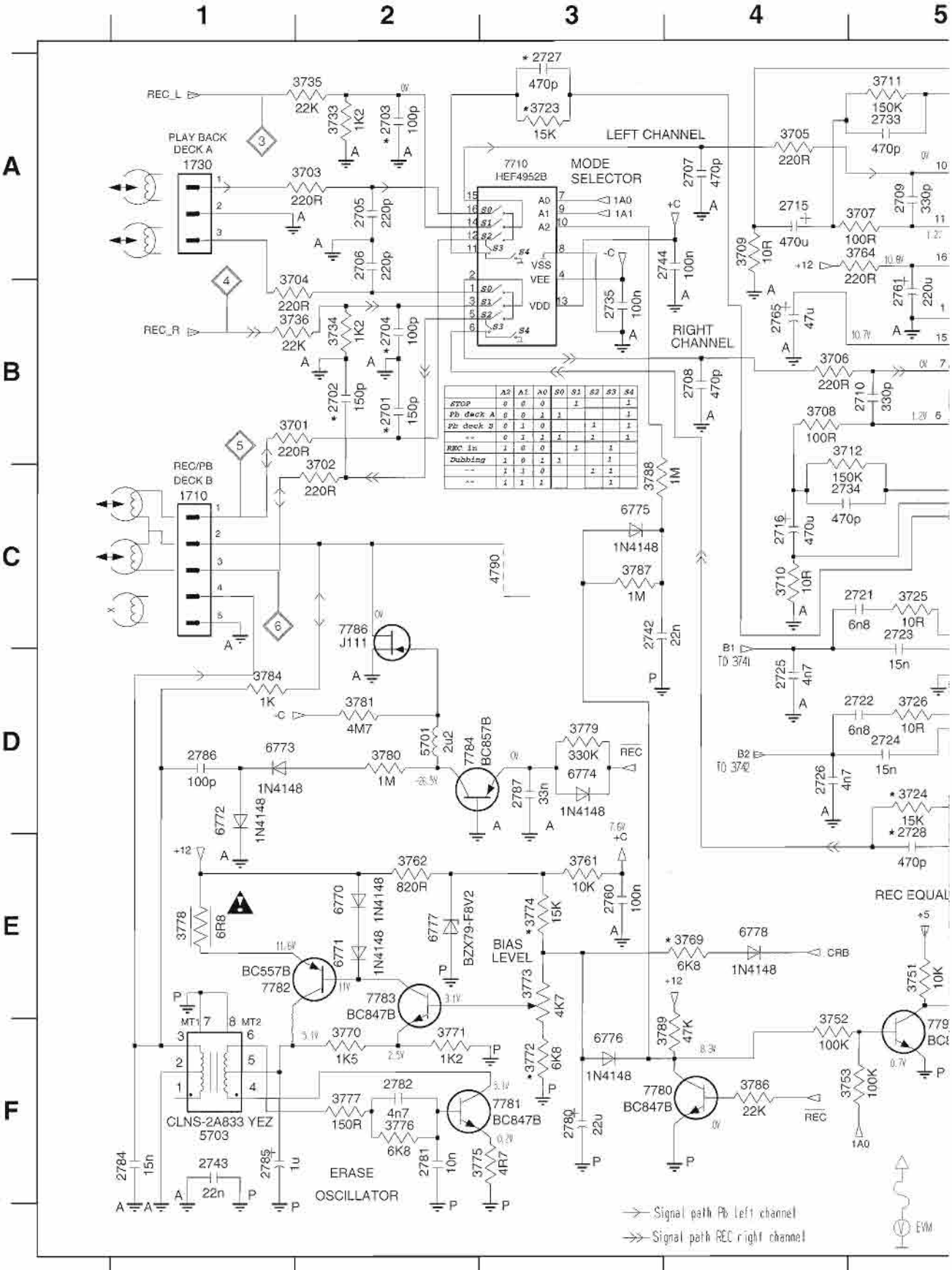
CHIP LAYOUT

2621 A2	2724 B3	3602 A2	3688 A3	3725 B2	3757 A2	4701 A2	4727 B2	7612 A1
2622 A3	2725 B3	3603 A2	3689 B2	3726 B2	3758 A2	4702 A2	4728 C2	7613 A1
2623 A3	2726 B3	3604 A2	3701 C3	3727 B2	3759 A2	4703 A2	4729 C2	7614 A1
2624 A2	2727 C3	3605 A2	3702 C2	3728 B2	3760 B2	4704 A2	4730 C2	7616 A3
2625 A3	2728 B2	3606 A1	3703 C2	3729 B2	3762 B3	4705 A1	4731 C1	7618 A1
2626 A2	2729 B2	3608 A3	3704 C2	3730 B2	3763 C1	4706 A1	4732 C3	7619 A1
2627 A1	2730 B2	3610 A3	3705 C2	3731 B2	3765 C1	4707 A3	4733 C3	7620 A1
2701 C3	2733 C1	3612 A3	3706 C2	3732 B2	3766 C1	4708 A3	4734 C2	7622 A2
2702 C2	2734 C1	3613 A2	3707 C2	3733 B2	3767 C1	4709 B3	4735 C2	7623 A2
2703 C2	2735 C2	3614 A3	3708 C2	3734 C2	3768 C1	4710 A3	4736 C2	7624 A3
2704 C2	2737 C1	3616 A3	3709 C2	3735 C1	3769 B3	4711 A3	4737 C2	7710 C2
2705 C2	2738 C1	3618 A3	3710 C2	3736 C2	3770 B3	4712 A2	4738 B1	7720 C2
2706 C2	2742 B3	3619 A3	3711 C2	3741 C2	3771 B3	4713 A2	4739 C1	7730 B3
2707 C2	2743 C3	3623 A1	3712 C2	3742 C1	3772 A3	4714 B2	4740 C1	7740 B2
2708 C2	2744 B2	3624 A1	3713 C1	3743 B1	3774 B3	4715 A2	4741 C2	7780 A3
2709 C2	2745 C3	3625 A1	3714 C1	3744 B1	3775 C3	4716 B2	4742 C2	7781 B3
2710 C2	2746 C1	3626 A1	3715 C1	3745 C1	3776 B3	4717 B2	4744 A3	7783 B3
2711 C1	2747 C1	3628 A1	3716 C1	3746 C1	3777 B3	4718 B2	4745 A2	7784 C3
2712 C1	2760 B3	3630 A1	3717 B2	3748 C1	3779 C3	4719 B3	4746 A2	7787 C1
2717 B2	2769 C1	3672 A3	3718 C3	3749 B2	3780 C3	4720 B2	4747 A2	7791 A2
2718 C3	2770 B1	3676 A2	3719 B3	3751 A2	3781 C2	4721 B2	4748 C2	7792 A2
2719 B3	2781 C3	3678 A1	3720 B3	3752 A2	3784 C2	4722 B2	4785 A2	
2720 B3	2782 B3	3679 A1	3721 B3	3753 A2	3786 A3	4723 B2	4790 C3	
2721 B2	2786 C3	3680 A1	3722 B3	3754 A2	3787 A3	4724 B2	4794 C1	
2722 B2	2787 C3	3686 A3	3723 C3	3755 A2	3788 C3	4725 B2	4795 B2	
2723 B2	3601 A2	3687 A2	3724 B2	3756 A2	3789 B3	4726 B2	7610 A3	

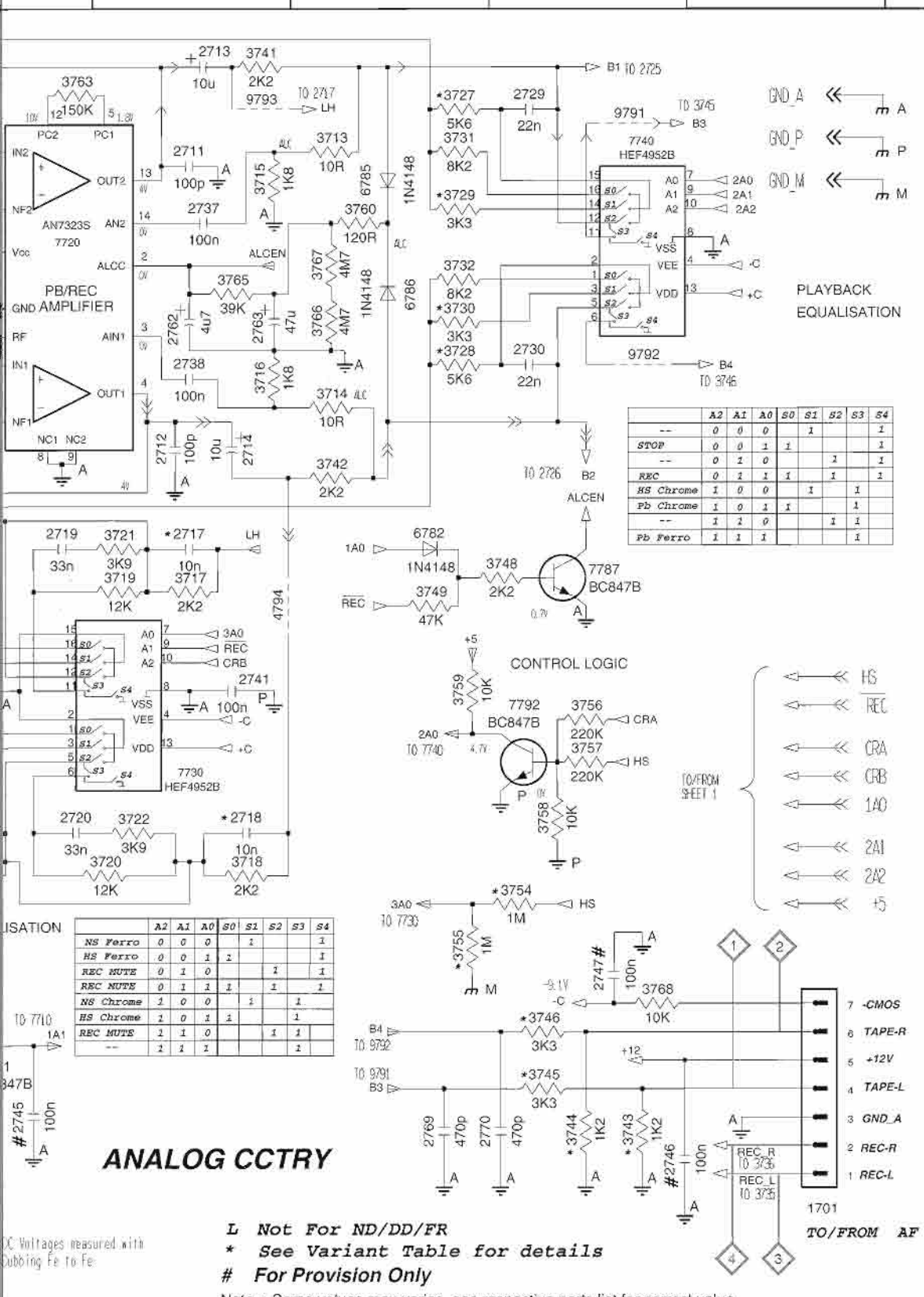


ANALOG CIRCUIT

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
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
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
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
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
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
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



3733 A2	3744 F8	3753 F5	3760 A7	3767 A7	3774 E3	3781 D2	4794 C6	6774 D3	6786 B7	7782 E1	9791 A8
3734 B2	3745 F8	3754 E8	3761 E3	3768 E8	3775 F3	3784 D1	5701 D2	6775 C3	7710 A3	7783 E2	9792 B8
3735 A2	3746 E8	3755 E7	3762 E2	3769 E4	3776 F2	3786 F4	5703 F1	6776 F3	7720 A5	7784 D2	9793 A6
3736 B1	3748 C8	3756 D8	3763 A5	3770 F2	3777 F2	3787 C3	6770 E2	6777 E2	7730 D6	7786 C2	
3741 A6	3749 C7	3757 D8	3764 A5	3771 F2	3778 E1	3788 C3	6771 E2	6778 E4	7740 A8	7787 C8	
3742 C7	3751 E5	3758 D8	3765 B6	3772 F3	3779 D3	3789 F4	6772 D1	6782 C7	7780 F4	7791 F5	
3743 F8	3752 F4	3759 D7	3766 B7	3773 E3	3780 D2	4790 C3	6773 D1	6785 A7	7781 F3	7792 D8	



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

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

ANALOG CCTRY

DC Voltages measured with Dubbing Fe to Fe

L Not For ND/DD/FR

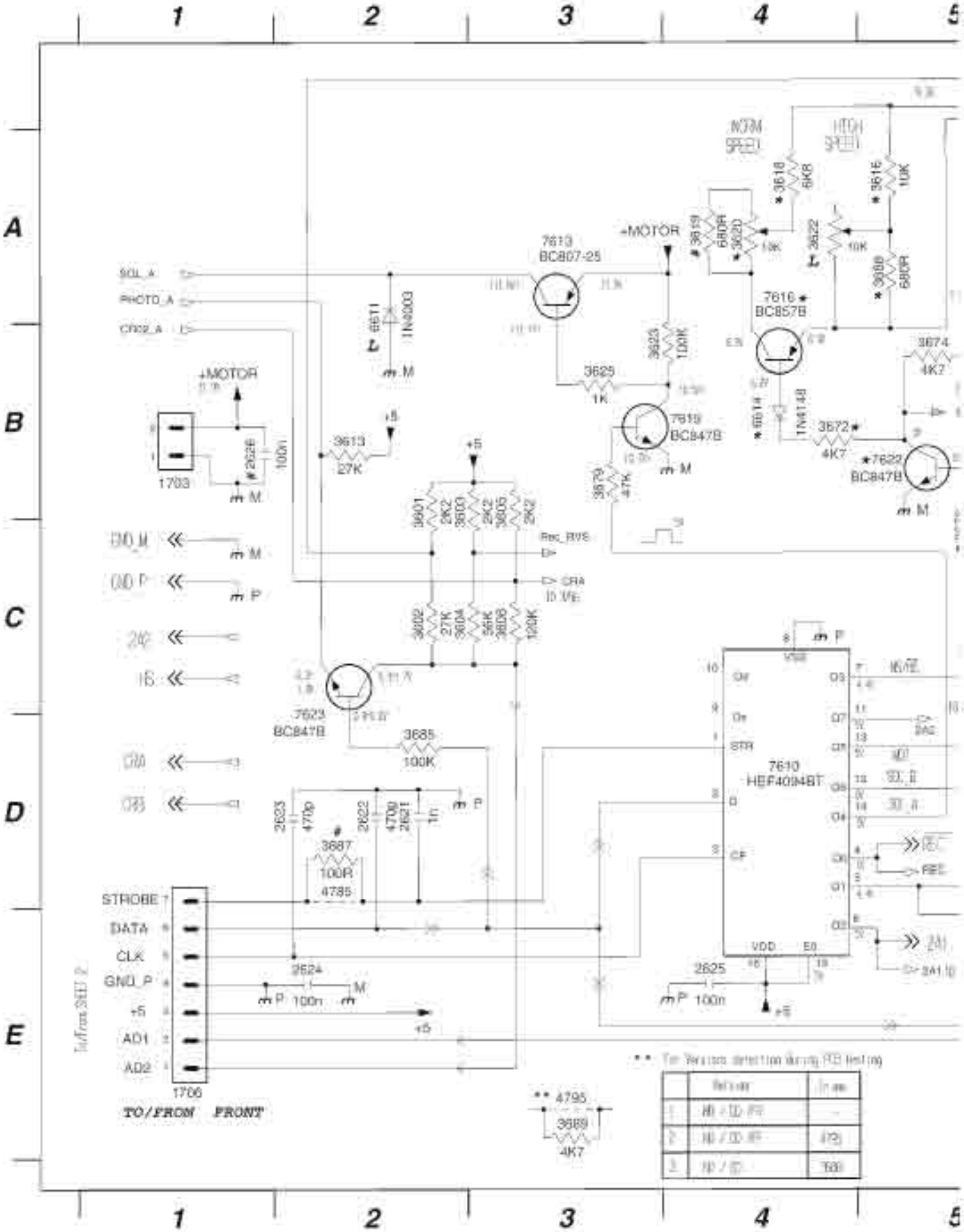
** See Variant Table for details*

 # For Provision Only

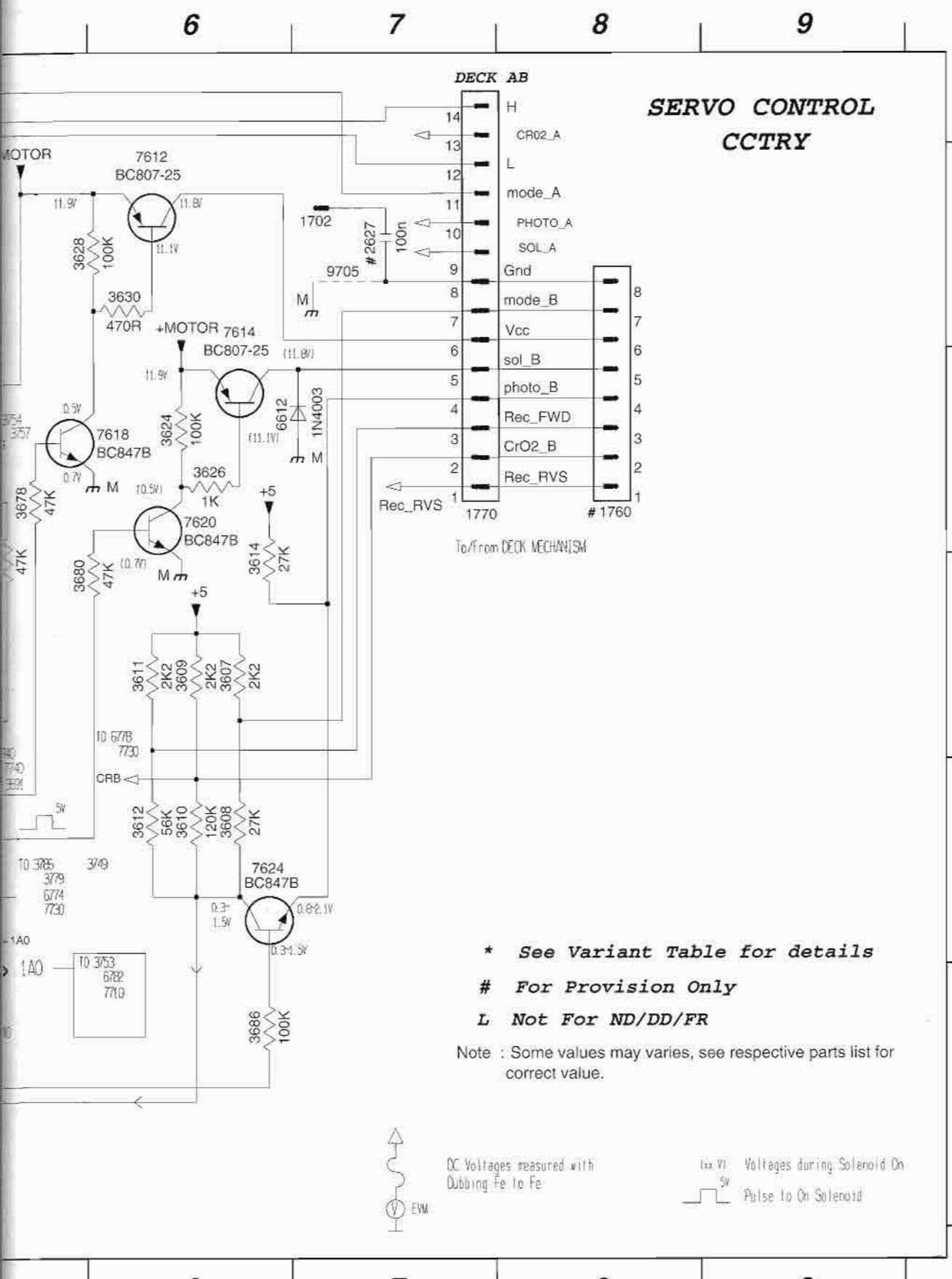
Note : Some values may varies, see respective parts list for correct value.

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	363
1703 B1	1770 B7	2623 D2	2626 B1	3602 C2	3605 B3	3608 D6	3611 C6	3614 C6	3619 A4	3623 B3	3626 B6	361
1706 E1	2621 D2	2624 E2	2627 A7	3603 B2	3606 C3	3609 C6	3612 D6	3616 A5	3620 A4	3624 B6	3626 A5	361



A6 3676 C5 3680 C5 3687 D2 4785 D2 6612 B6 7612 A6 7616 A4 7620 B6 7624 D6
B4 3678 B5 3685 D2 3688 A5 4795 E3 6614 B4 7613 A3 7618 B6 7622 B5 9705 A7
B5 3679 B3 3686 E6 3689 E3 6611 A2 7610 D4 7614 A6 7619 B4 7623 D2

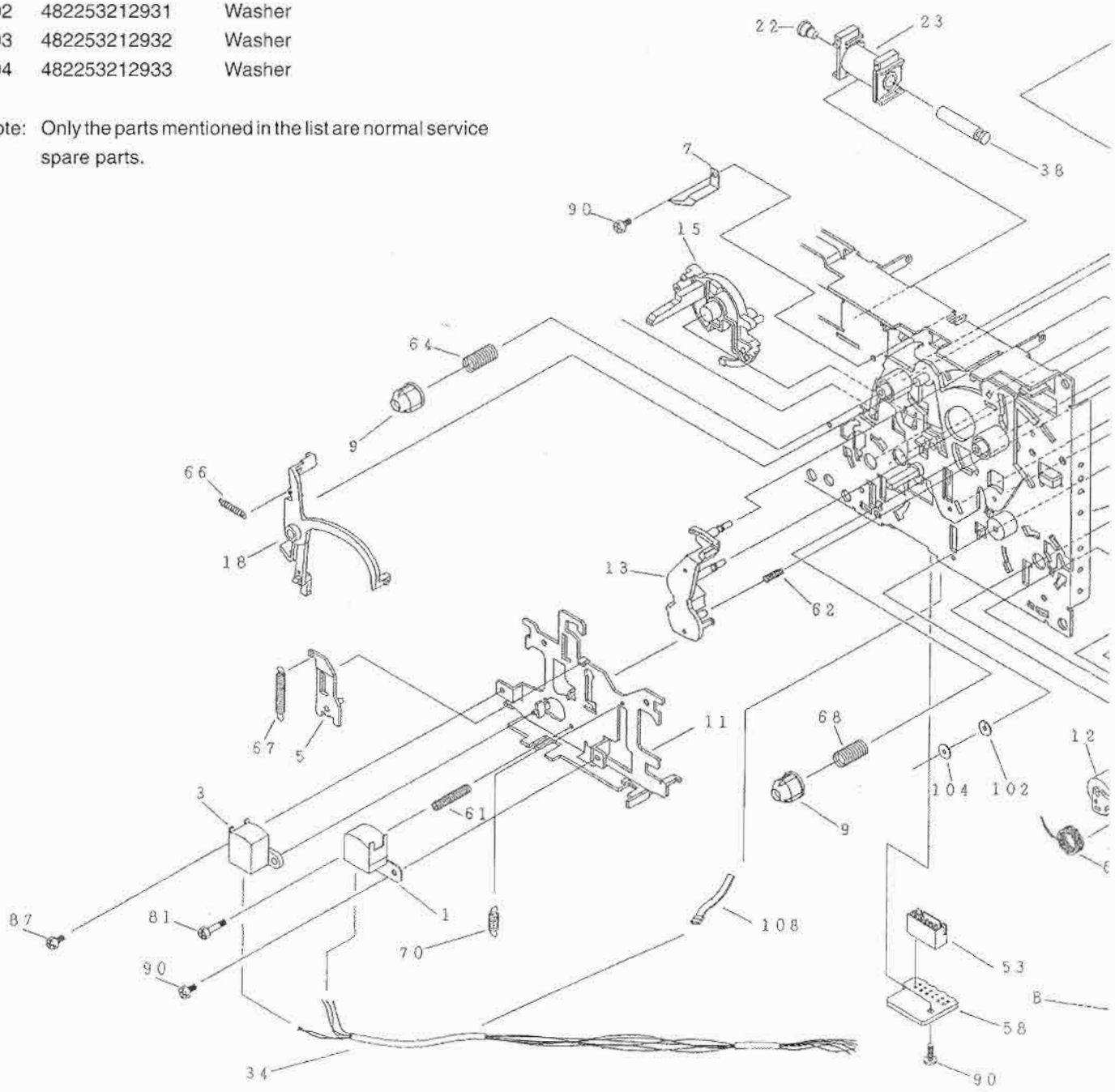


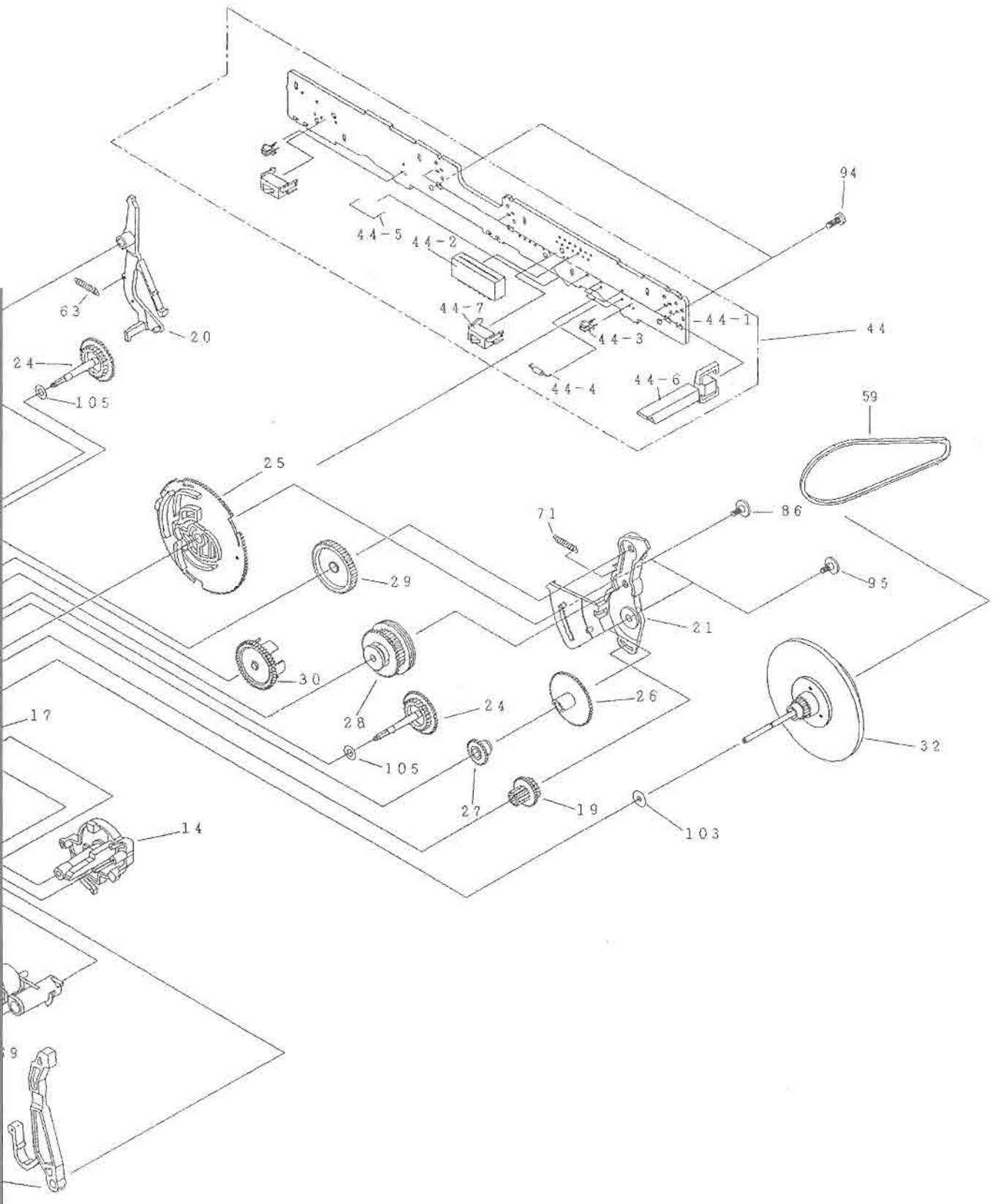
TAPE MECHANISM B - RECORD/PLAYBACK *(Non-Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

1	996500002313	Play Head
3	996500002600	Head, Erase
12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
44-2	996500002317	Flex Socket 14 Pin
44-3	996500002320	Photo Interrupter
44-4	482205016801	680R 1% 0,4W
44-6	996500002318	Leaf Switch
44-7	996500002319	Mode Switch
59	996500002719	Belt BF (Large)
69	482249211761	Spring
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer

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



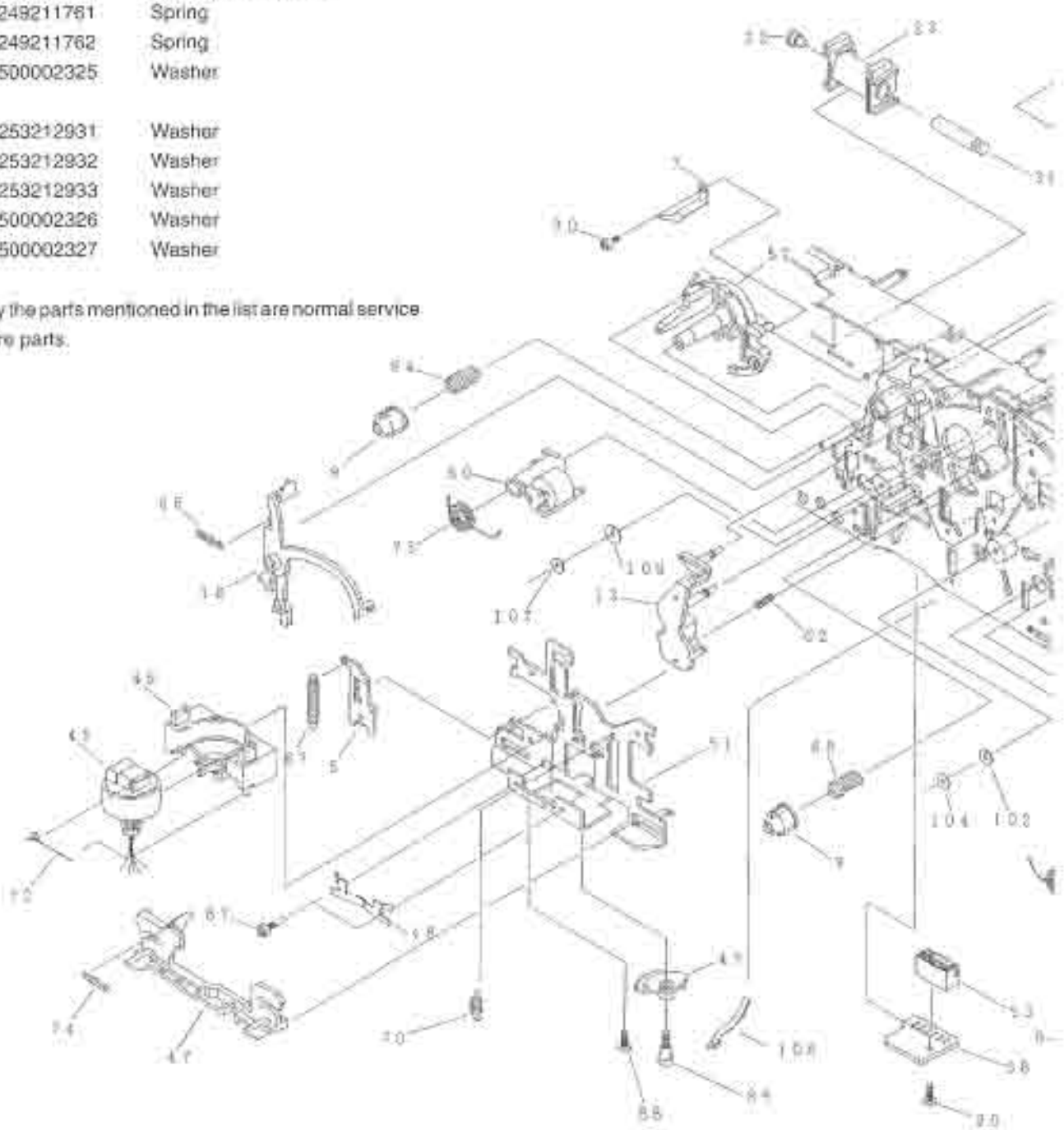

94
44-5
44-2
44-7
44-1
44
44-3
44-4
44-6
63
20
24
105
59
25
71
86
29
95
21
30
28
24
26
17
105
27
19
103
32
14

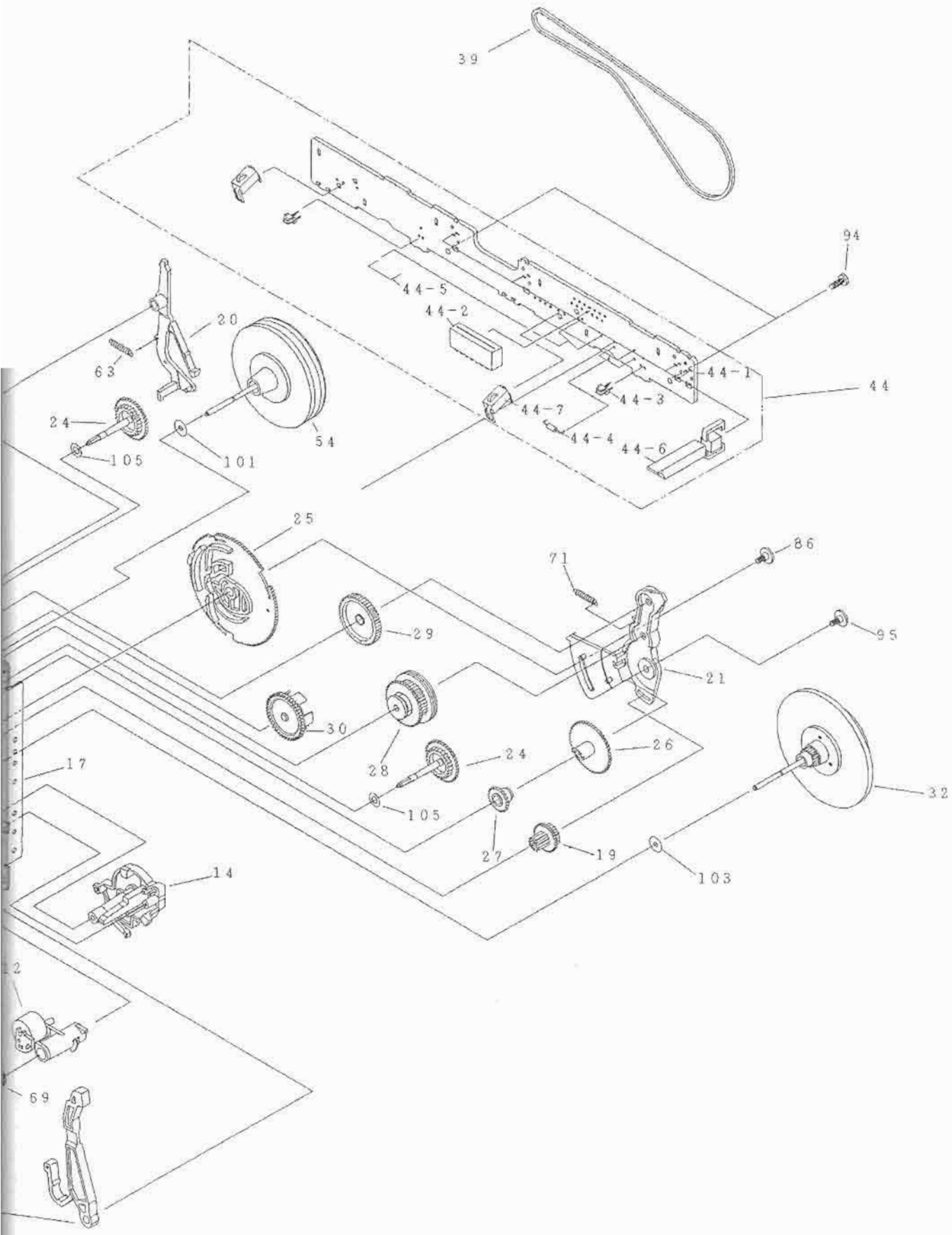
TAPE MECHANISM B - RECORD/PLAYBACK *(Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

17	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
39	996500002322	Belt AF
44-2	996500002317	Flex Socket 14 Pin
44-3	996500002320	Photo Interrupter
44-4	482205016801	680R 1% 0,4W
44-5	996500002318	Leaf Switch
44-7	996500002319	Mode Switch
45	996500002323	Rec/Pb Head Assembly
50	482240210973	Pinch Arm Assembly L
54	996500002324	Flywheel Assembly L
69	482249211761	Spring
73	482249211762	Spring
101	996500002325	Washer
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer
107	996500002326	Washer
109	996500002327	Washer

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




39
94
44-5
44-2
20
63
44-1
44
24
44-7
44-3
44-4
44-6
105
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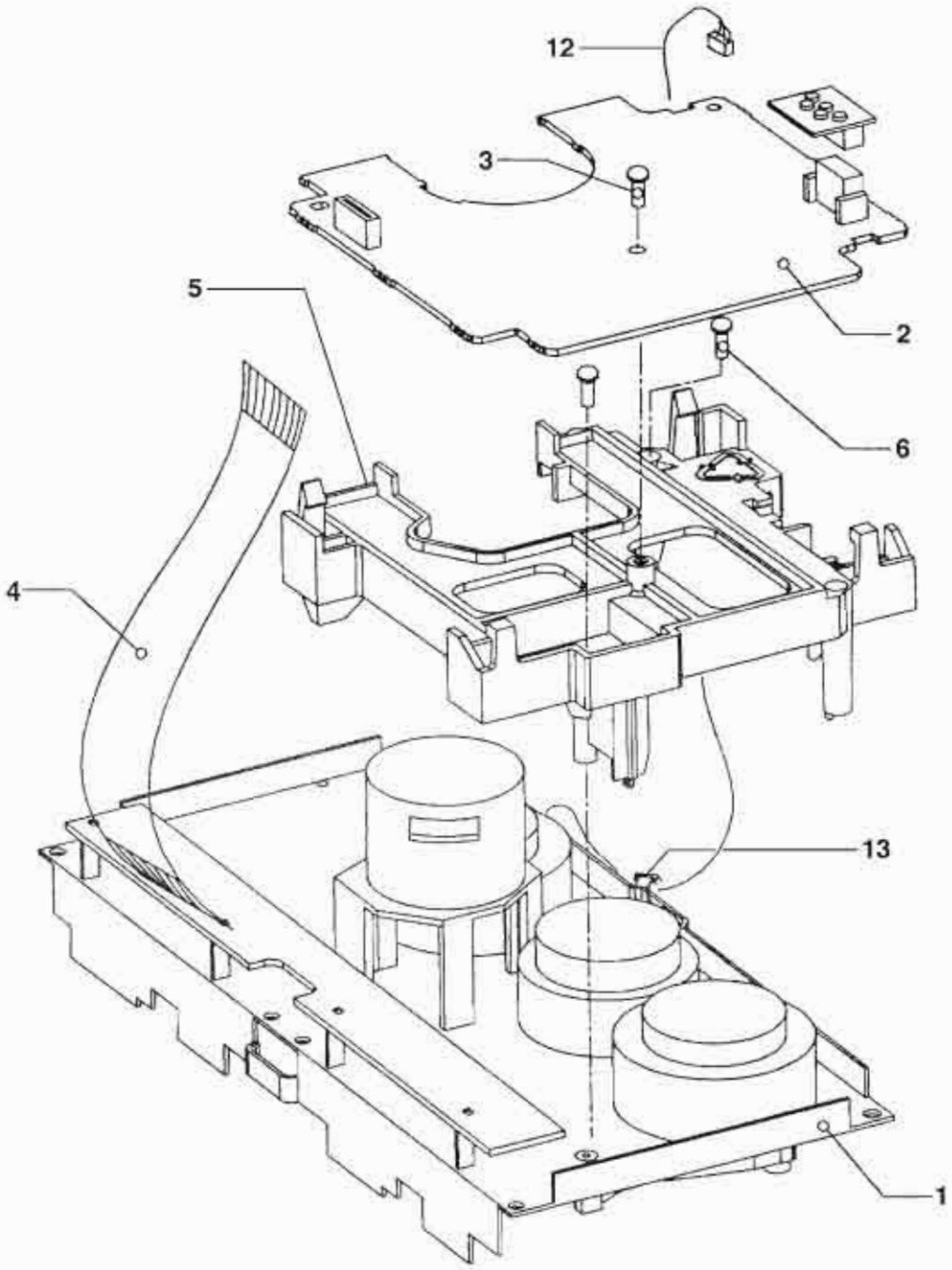
26
17
105
27
19
103
32
14
12
69

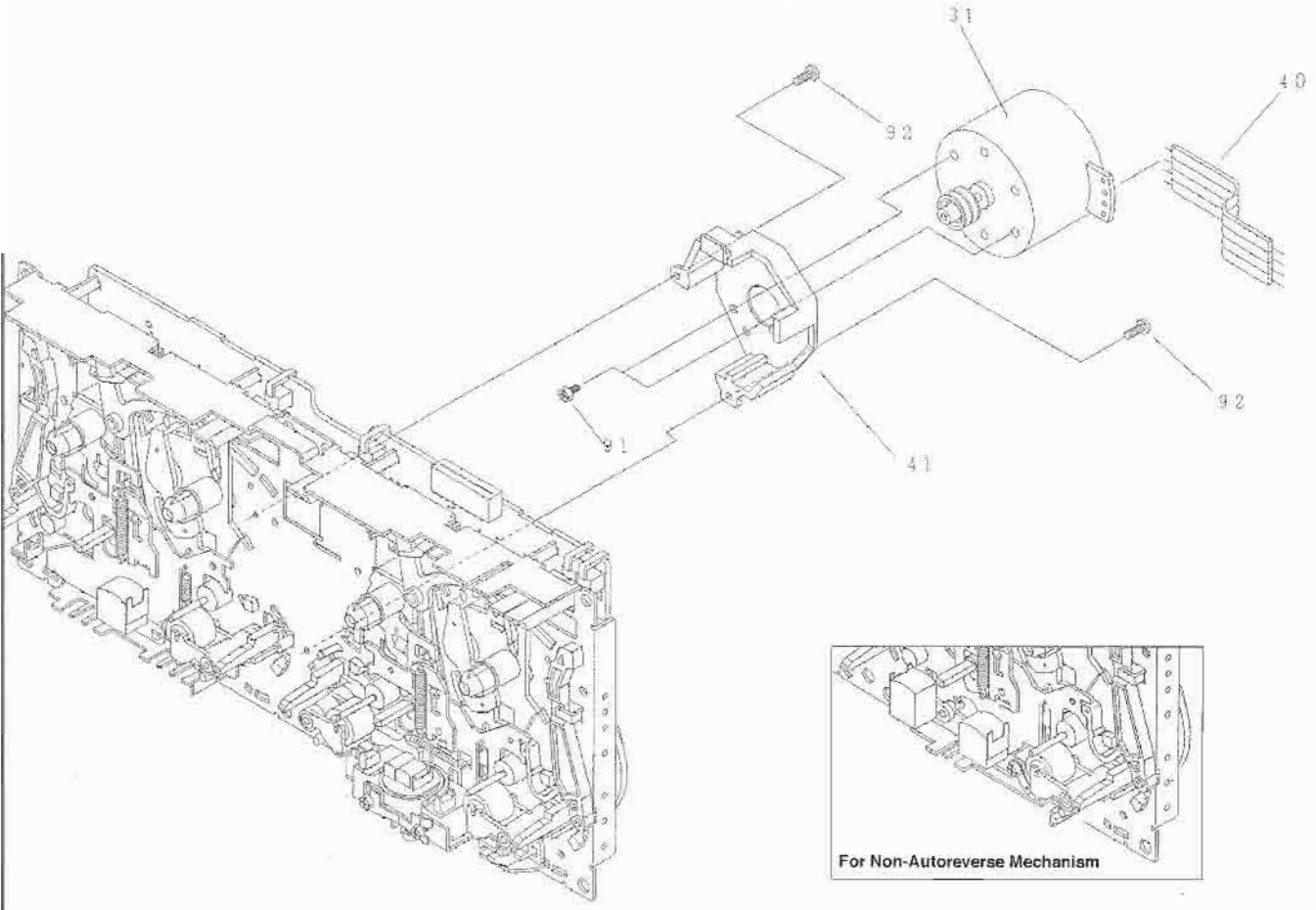


3139 118 77070 (incl. ...77080) dd wk926

TAPE MODULE EXPLODED VIEW

1	313911877130	Autoreverse Mech. CWE44FR01
1	313911877140	Non-Autoreverse Mech. CWE44FF02
3	-	Screw D3 x 10
6	-	Screw M2 x 16
7	313911034080	Flex Cable 14 pin 7,5 cm

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



For Non-Autoreverse Mechanism

TAPE MECHANISM - MOTOR EXPLODED VIEW

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

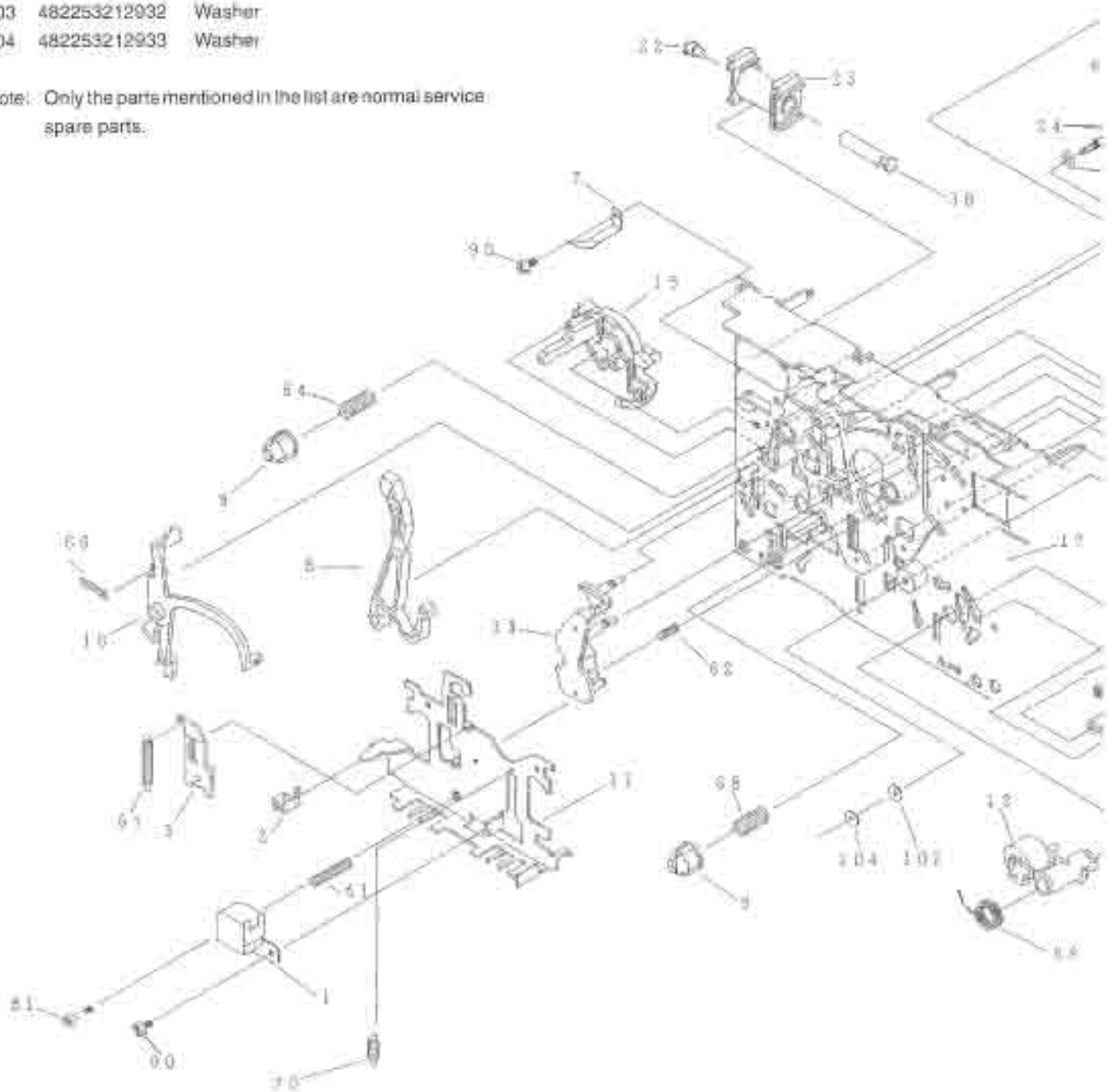
Note: Only the parts mentioned in this list are normal service spare parts.

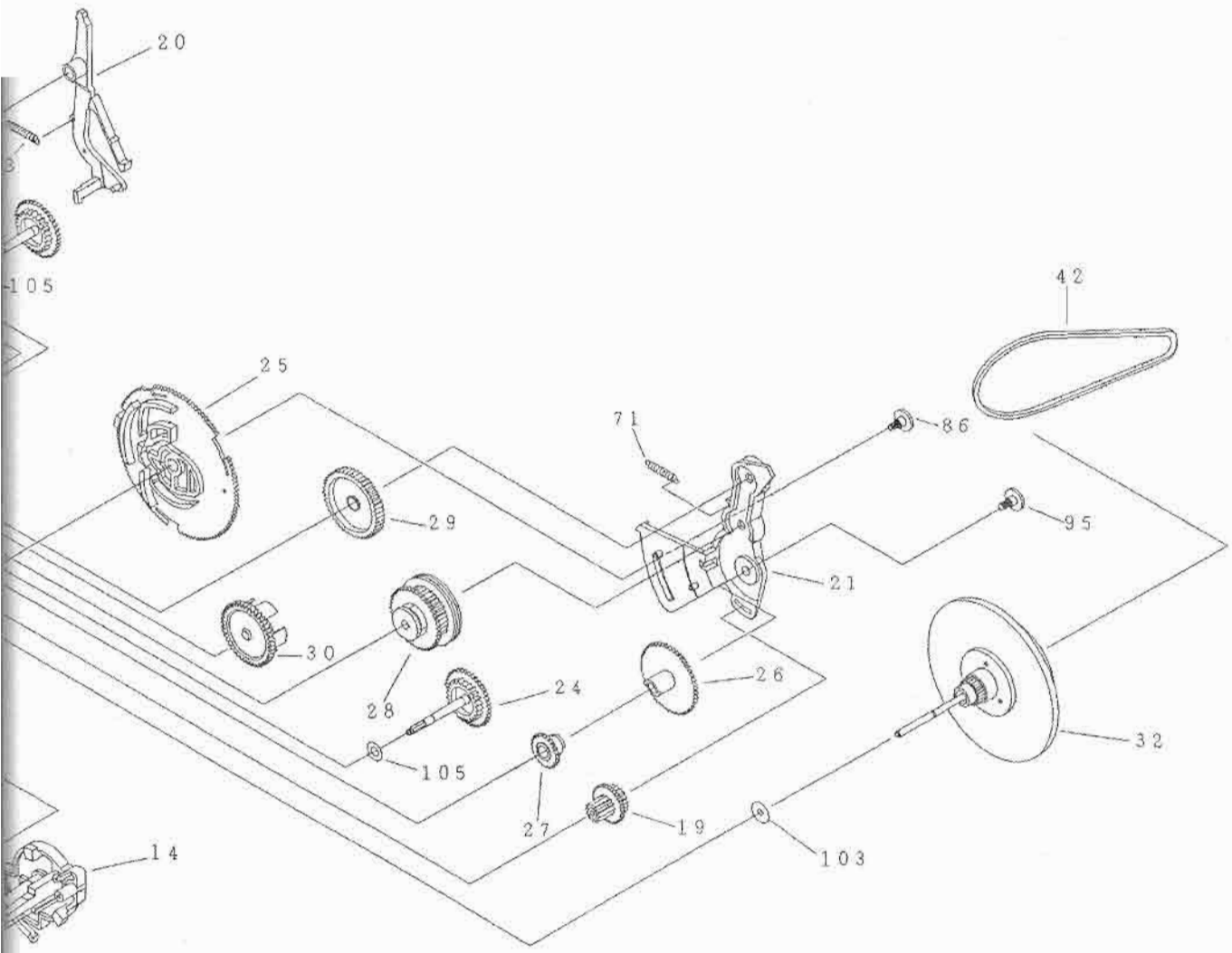
TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	996500002313	Play Head (Non-Autoreverse deck)
1	996500002321	Play Head (Autoreverse deck)
12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
42	996500002315	Belt AF (Autoreverse deck)
42	996500002718	Belt AF (Non-autoreverse deck)
69	482249211761	Spring
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer

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




20
105
42
25
71
86
29
95
21
30
28
24
26
32
105
27
19
103
14

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
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
2722	532212231866	6,8nF 10% 63V
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	Trimmer 10k 30% 0,1W Autorev.
3622	482210011141	Trimmer 10k 30% 0,1W Non-autorev.
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	
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	
3726	482205120109	10R 5% 0,1W	
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	0R Jumper 0805	
4702	482205120008	0R Jumper 0805	
4703	482205120008	0R Jumper 0805	
4704	482205120008	0R Jumper 0805	
4705	482205120008	0R Jumper 0805	
4706	482205120008	0R Jumper 0805	

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

RESISTORS

4707	482205120008	0R Jumper 0805	
4708	482205120008	0R Jumper 0805	
4709	482205120008	0R Jumper 0805	
4710	482205120008	0R Jumper 0805	
4711	482205120008	0R Jumper 0805	
4712	482205120008	0R Jumper 0805	
4713	482205120008	0R Jumper 0805	
4714	482205120008	0R Jumper 0805	
4715	482205120008	0R Jumper 0805	
4716	482205120008	0R Jumper 0805	
4717	482205120008	0R Jumper 0805	
4718	482205120008	0R Jumper 0805	
4719	482205120008	0R Jumper 0805	
4720	482205120008	0R Jumper 0805	
4721	482205120008	0R Jumper 0805	
4722	482205120008	0R Jumper 0805	
4723	482205120008	0R Jumper 0805	
4724	482205120008	0R Jumper 0805	
4725	482205120008	0R Jumper 0805	
4726	482205120008	0R Jumper 0805	
4727	482205120008	0R Jumper 0805	
4728	482205120008	0R Jumper 0805	
4729	482205120008	0R Jumper 0805	
4730	482205120008	0R Jumper 0805	
4731	482205120008	0R Jumper 0805	
4732	482205120008	0R Jumper 0805	
4733	482205120008	0R Jumper 0805	
4734	482205120008	0R Jumper 0805	
4735	482205120008	0R Jumper 0805	
4736	482205120008	0R Jumper 0805	
4737	482205120008	0R Jumper 0805	
4738	482205120008	0R Jumper 0805	
4739	482205120008	0R Jumper 0805	
4740	482205120008	0R Jumper 0805	
4741	482205120008	0R Jumper 0805	
4742	482205120008	0R Jumper 0805	
4744	482205120008	0R Jumper 0805	
4745	482205120008	0R Jumper 0805	
4746	482205120008	0R Jumper 0805	
4748	482205120008	0R Jumper 0805	
4785	482205120008	0R Jumper 0805	
4790	482205120008	0R Jumper 0805	
4794	482205120008	0R Jumper 0805	
4795	482205120008	0R Jumper 0805	

COILS & FILTERS

5701	482215711477	Coil 2.2µH 5%
5703	482215620946	Osc Coil 100kHz

DIODES

6611	482213031878	1N4003G	
6612	482213031878	1N4003G	
6614	482213030621	1N4148	Autoreverse
6770	482213030621	1N4148	
6771	482213030621	1N4148	
6772	482213030621	1N4148	
6773	482213030621	1N4148	
6774	482213030621	1N4148	
6775	482213030621	1N4148	
6776	482213030621	1N4148	
6777	482213034362	BZX79-F8V2	
6778	482213030621	1N4148	
6782	482213030621	1N4148	
6785	482213030621	1N4148	
6786	482213030621	1N4148	

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT	
7612	532213060845	BC807-25	
7613	532213060845	BC807-25	
7614	532213060845	BC807-25	
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

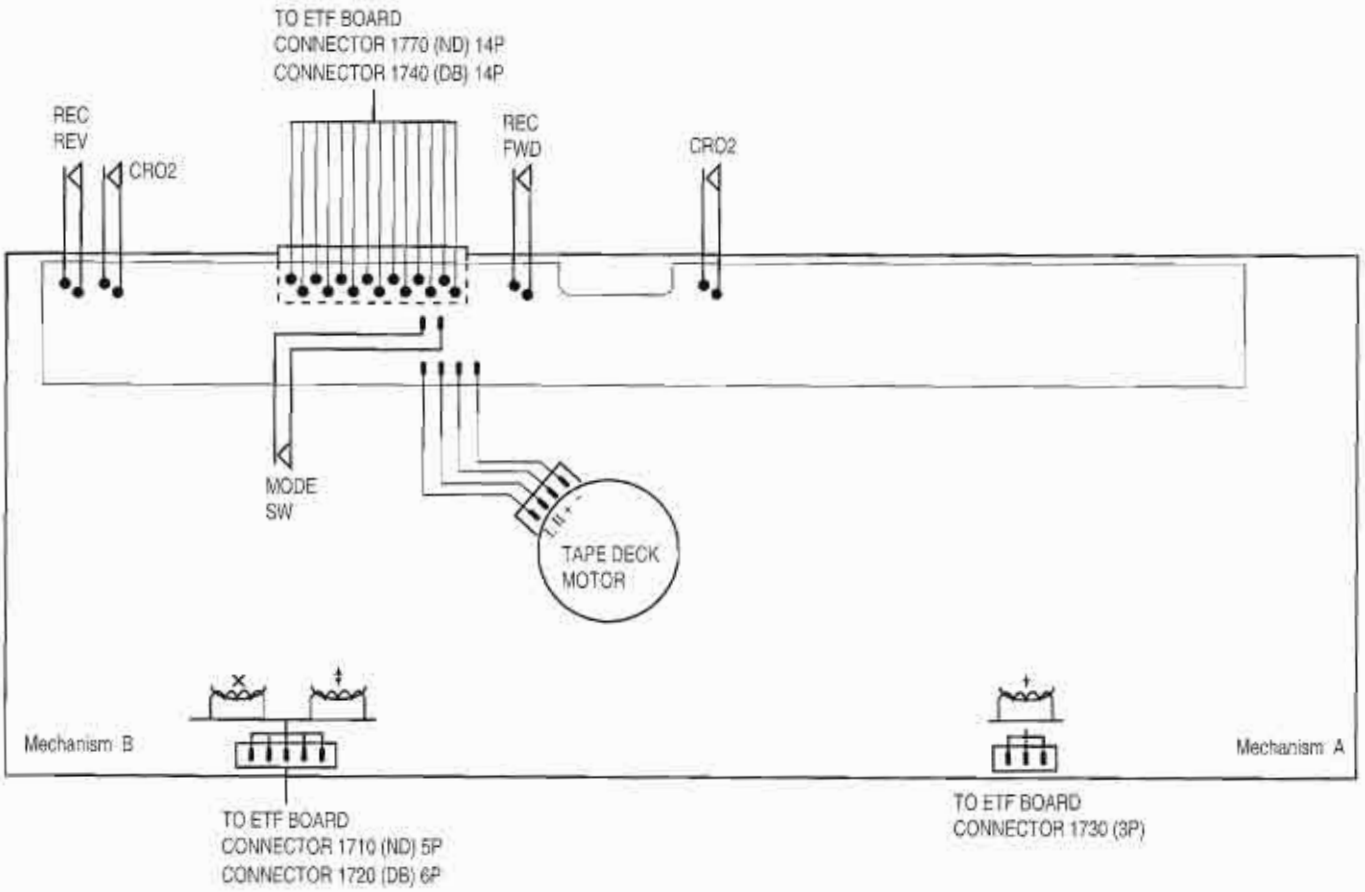
ETF7 TAPE MODULE

(Dolby Version)

TABLE OF CONTENTS

Tape Module Wiring & variation table 9-1
Block diagram 9-2
Brief Introduction 9-3
Connector assignment 9-4
Tape deck electronics & Tape adjustments 9-5
ETF7 Dolby board layouts 9-6
Analog Circuit diagram 9-7
Servo Circuit diagram 9-8
Dolby Circuit diagram 9-9
Exploded views & parts list 9-10
Electrical parts list 9-13

Tapedeck wiring (Double deck)

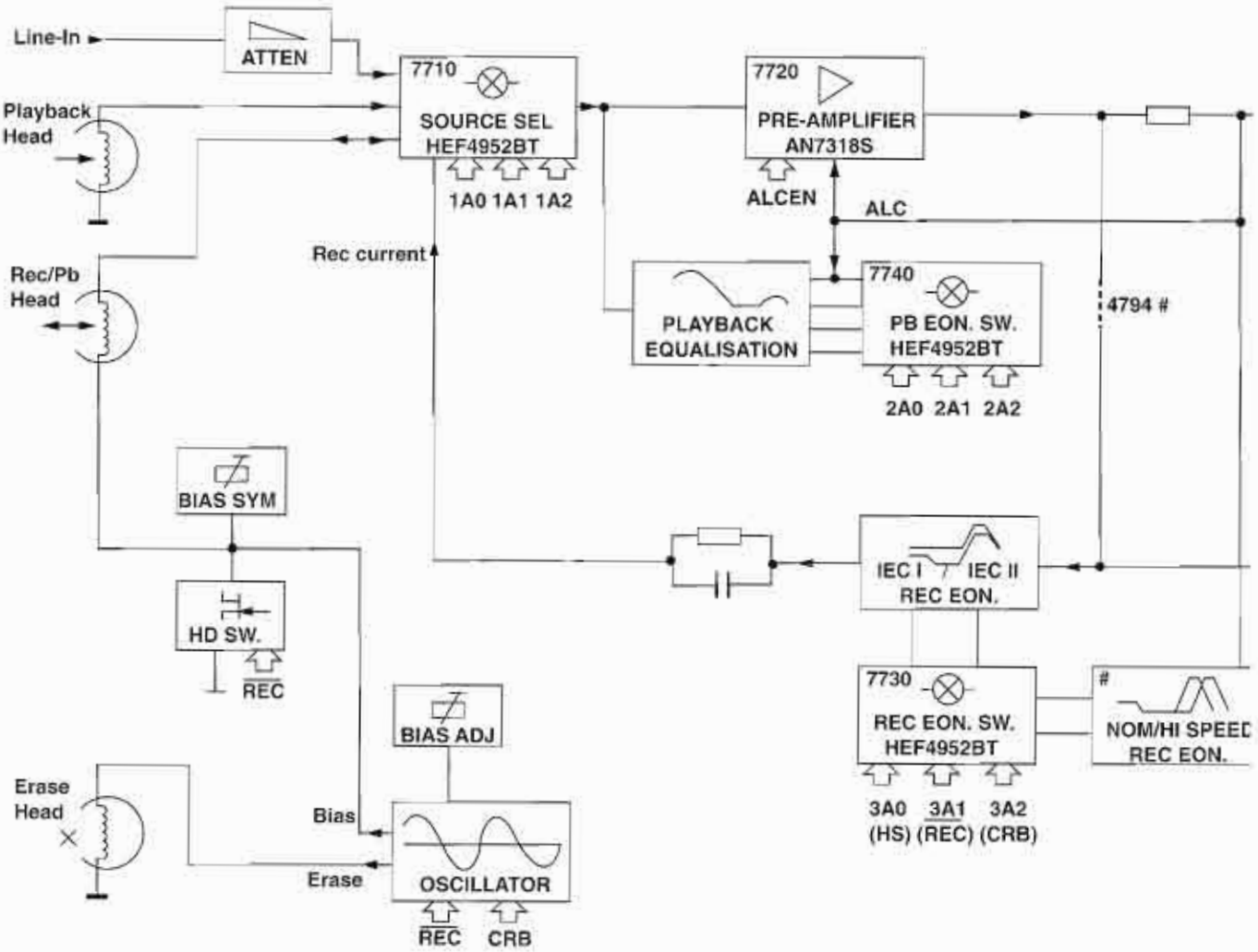


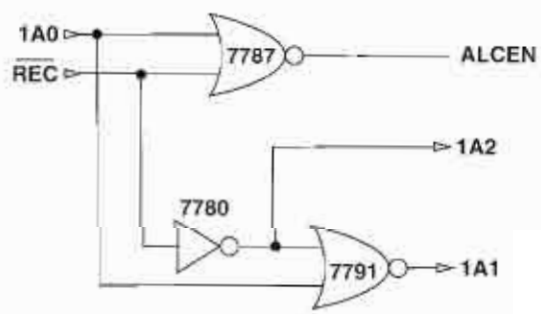
OPTIONS / VARIANTS TABLE

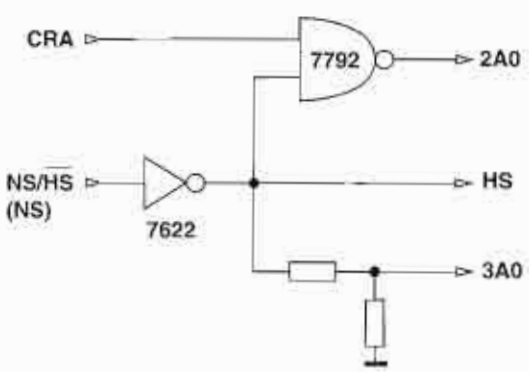
MODULE	ETF7		
VARIANT	1	2	3
FEATURES	DB/DD/FR	ND/DD/FR	ND/DD/FF
Deck configuration	double	double	double
Deck type (Tokyo Pigeon)	CWE	CWE	CWE
Autoreverse	yes (B)	yes (B)	no
Auto Replay	no	no	yes (A+B)
Motor configuration	single	single	single
Auto tape type selection	yes	yes	yes
Dolby type B Noise Reduction	yes	no	no
19 kHz pilot suppression	yes	no	no
Normal / High speed dubbing	yes	yes	no
Cue/Review & Fwd/Rewind	yes	yes	yes

DB = Dolby B NR
DD = Double Deck
FF = Non-Autoreverse
FR = Autoreverse Deck B
ND = Non-Dolby
SD = Single Deck

BLOCK DIAGRAM



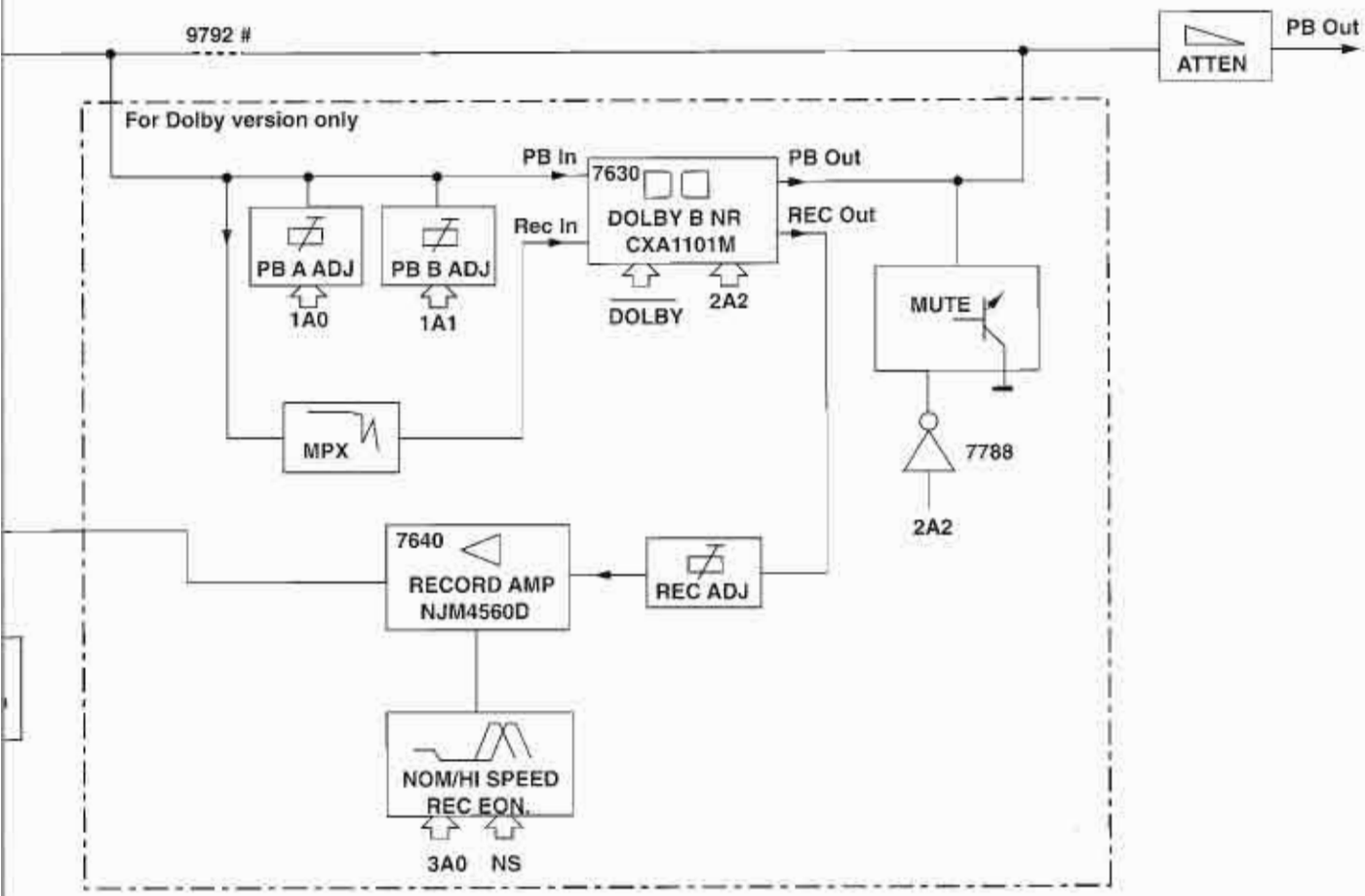


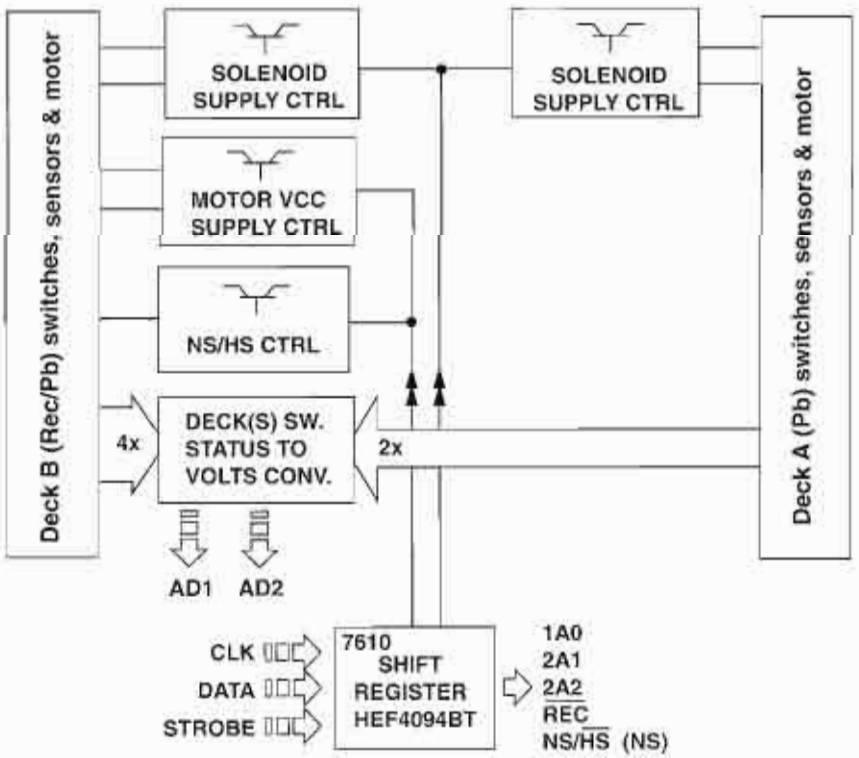


NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers


9792 #
ATTEN
PB Out
For Dolby version only
PB In
7630
DOLBY B NR
CXA1101M
PB Out
REC Out
Rec In
PB A ADJ
PB B ADJ
1A0
1A1
DOLBY
2A2
MUTE
MPX
7788
2A2
7640
RECORD AMP
NJM4560D
REC ADJ
NOM/HI SPEED
REC EQN.
3A0
NS


Deck B (Rec/Pb) switches, sensors & motor
SOLENOID SUPPLY CTRL
SOLENOID SUPPLY CTRL
MOTOR VCC SUPPLY CTRL
NS/HS CTRL
4x
DECK(S) SW. STATUS TO VOLTS CONV.
2x
Deck A (Pb) switches, sensors & motor
AD1
AD2
CLK
DATA
STROBE
7610
SHIFT REGISTER
HEF4094BT
1A0
2A1
2A2
REC
NS/HS (NS)

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 $\overline{\text{DOLBY}}$, 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 CONNECTON ***(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 CONNECTON ***(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)***

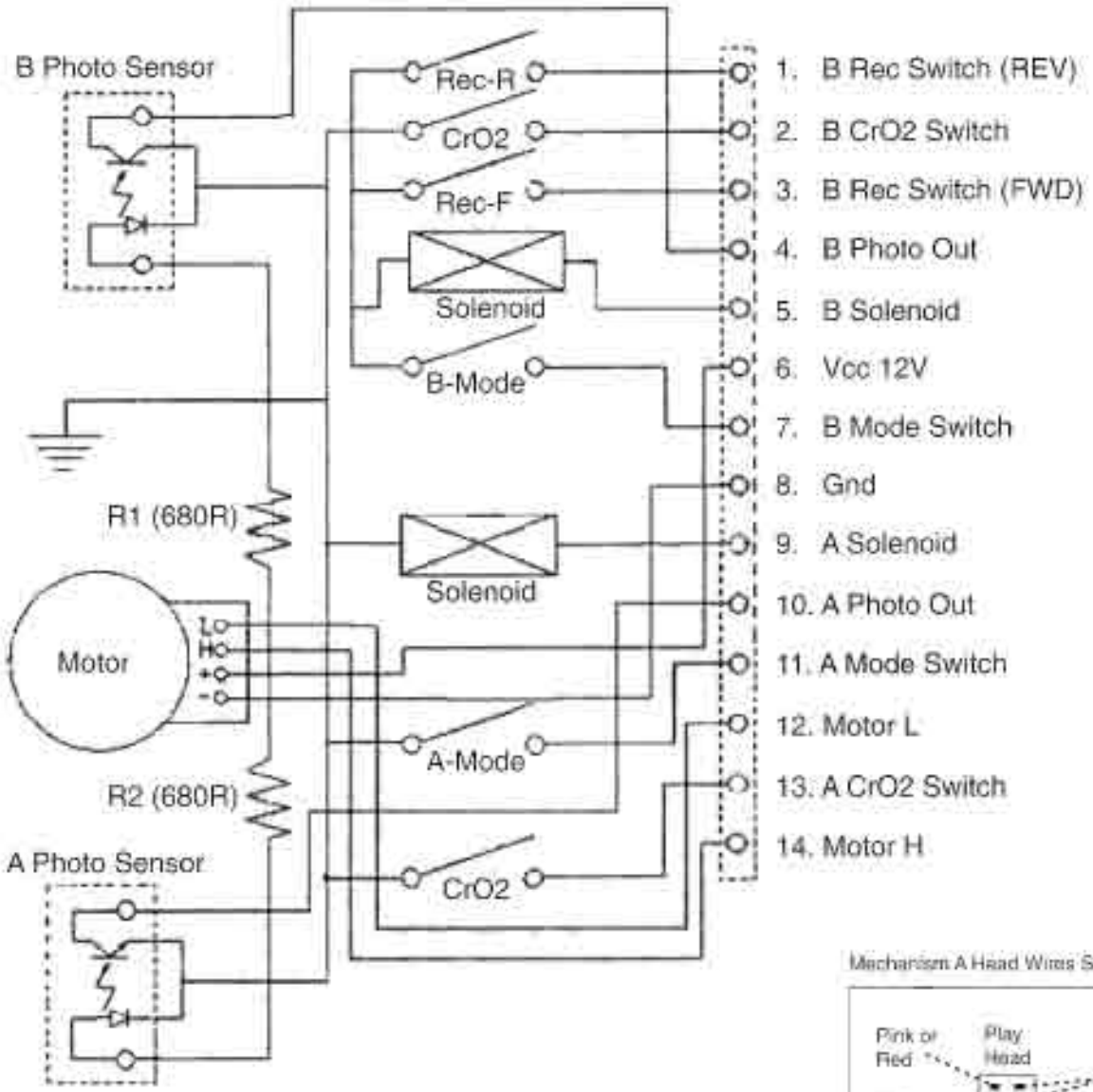
O	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
O	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
O	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
O	4	PHOTO B	Photo sensor output (tape movement indication)	
O	5	SOL B	Solenoid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

CONNECTOR 1770

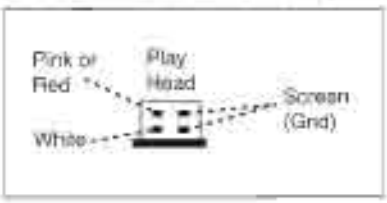
DECK A & B CONTROL INTERFACE ***(For Non-Dolby version only)***

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

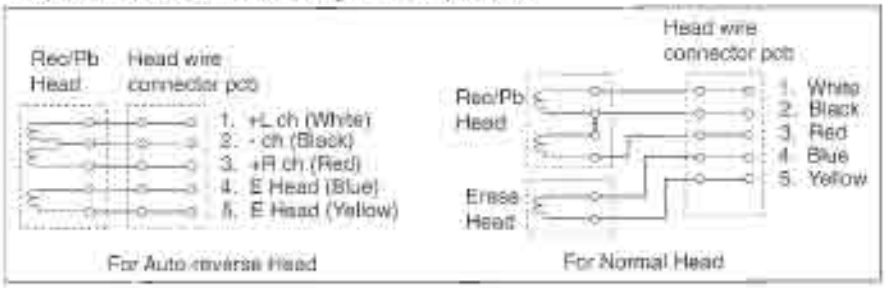
TAPE MECHANISM ELECTRONICS



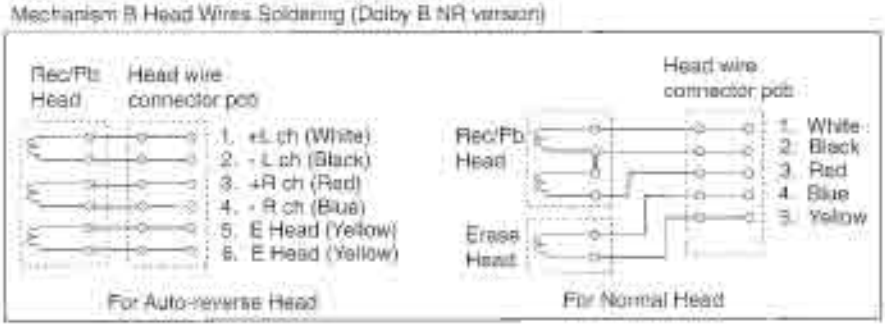
Mechanism A Head Wires Soldering



Mechanism B Head Wires Soldering (Non-Dolby version)



Mechanism B Head Wires Soldering (Dolby B NR version)



General

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST MOTOR SPEED						
HIGH SPEED	SBC420 (4822 397 30071) 3150Hz	DUBBING	1 or 2 LEFT RIGHT	frequency counter	3622 *	5040Hz ± 0.5%
NORMAL SPEED		PLAY B			3620	3150Hz ± 0.5%
		PLAY A			check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 (4822 397 30071) 3150Hz	PLAY	1 or 2 LEFT RIGHT	W&F-meter	check only	≤0.4 % DIN or ≤0.35 % CCIR *
ADJUST AZIMUTH						
DECK A & B	SBC420 (4822 397 30071) 10kHz	PLAY FWD	1 or 2 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			right hand screw	

Playback

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST DOLBY PLAYBACK LEVEL *						
DECK A	TCC-130 (4822 397 30269) 200nWb/m	PLAY	7 or 8 LEFT RIGHT	mV-meter	3641(L), 3642(R)	548mV ±0.5dB
DECK B		PLAY FWD			3635(L), 3636(R)	
		PLAY REV #			Check	548mV ±1dB
CHECK PLAYBACK FREQUENCY RESPONSE						
PB. FREQ. RESP.	SBC420 (4822 397 30071)	PLAY	1 or 2 LEFT RIGHT	mV-meter	Check	limits see fig.1

* For Dolby version only

 # For Auto-reverse version only

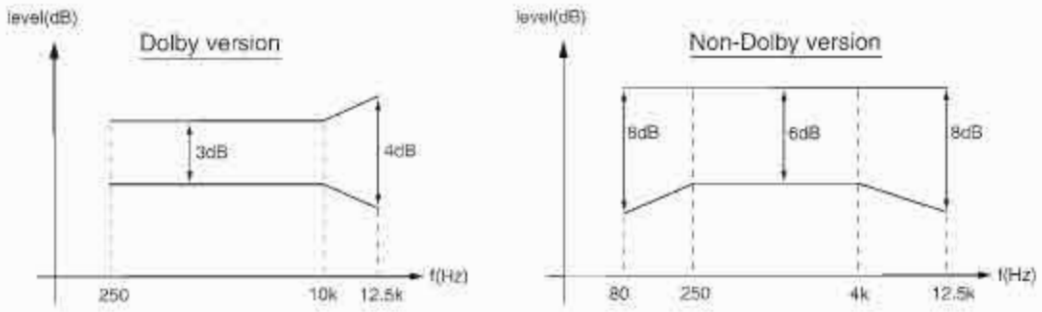


figure. 1

Recording

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
PRE-ADJUST BIAS AND BIAS-SYMMETRY						
DECK B	CrO_2	RECORD	◇5 LEFT or ◇6 RIGHT	mV-meter	3773	995mV
					3785 *	left = right
	FERRO				check only	750mV ± 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via ◇3 or ◇4	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	◇1 LEFT or ◇2 RIGHT	mV-meter	check only	limits see fig.2
Inject 1kHz 8.85mV via ◇3 or ◇4	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	◇1 LEFT or ◇2 RIGHT	THD-meter	check only	≤3%
Remark: If high frequencies are not within limits, decrease bias and re-measure. If distortion is too high increase bias and re-measure.						
ADJUST DOLBY RECORD LEVEL *						
Inject 400Hz 8.85mV via ◇3 or ◇4	CrO_2	RECORD	◇9 LEFT or ◇10 RIGHT	mV-meter	3655 & 3556	420mV
	RECORDED CASSETTE	PLAY	◇7 LEFT or ◇8 RIGHT	mV-meter	check	170mV ± 1dB
Remark: If measured value is out, re-adjust record level up or down slightly to attain play level.						

* For Dolby version only

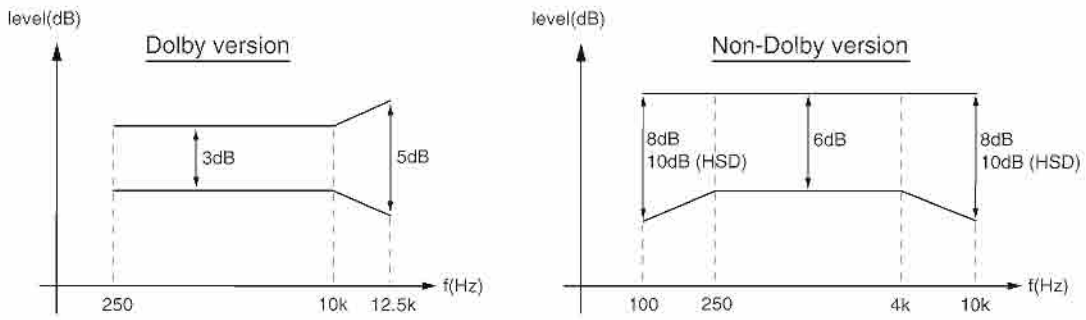
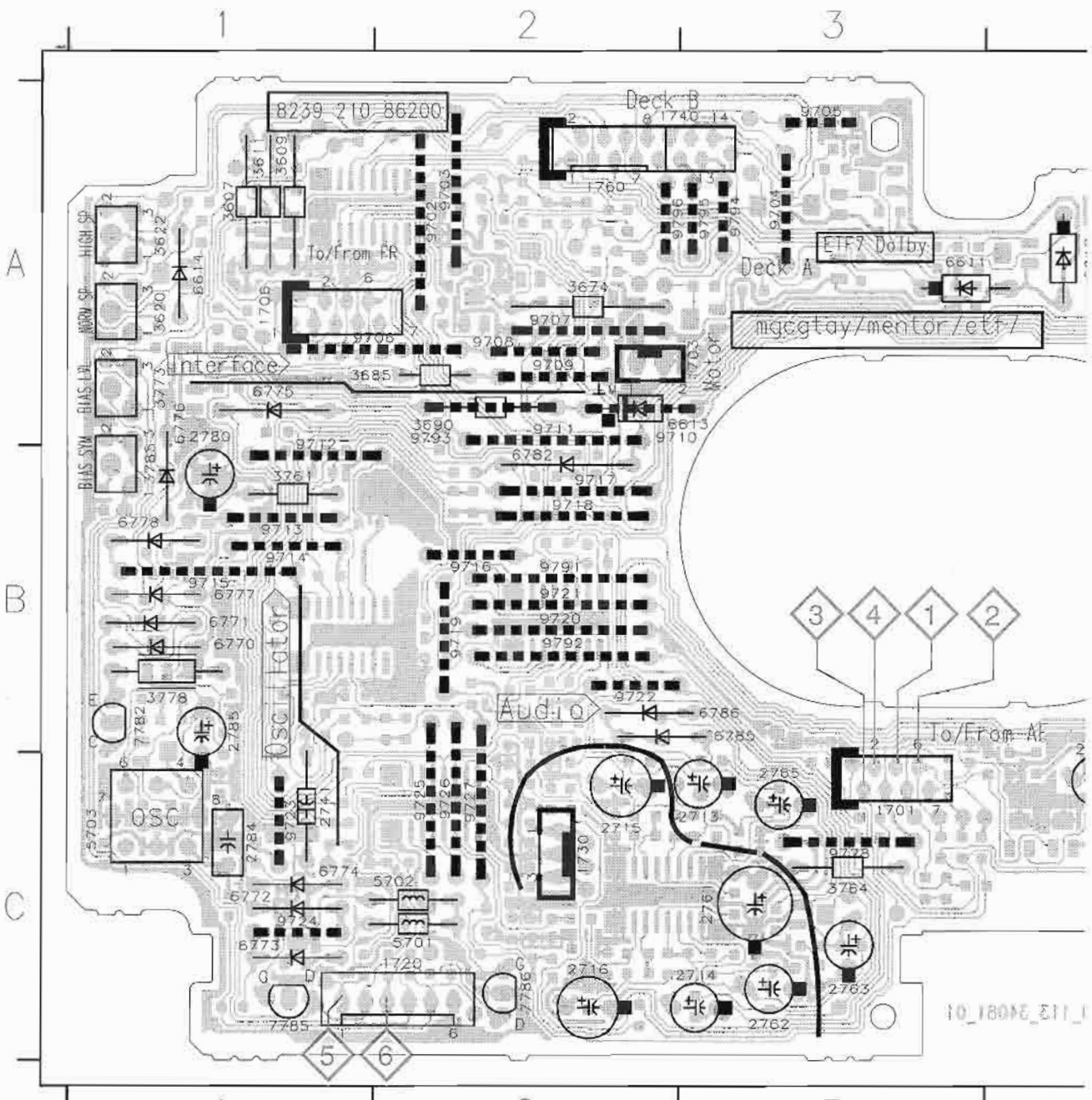


figure. 2

COMPONENT LAYOUT

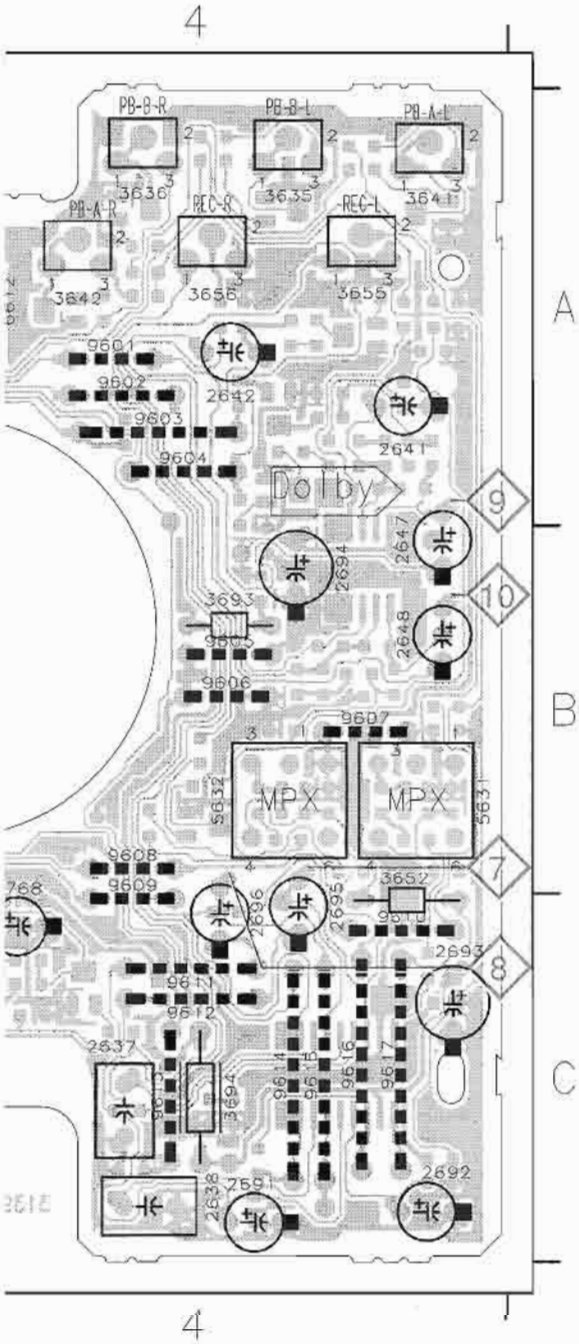
1701 C3	2647 B4	2716 C2	3609 A1	3674 A2	5632 B4	6773 C1	7786 C2	96
1703 A3	2648 B4	2741 C1	3611 A1	3685 A1	5701 C2	6774 C1	9601 A4	96
1706 A1	2691 C4	2761 C3	3620 A1	3690 A2	5702 C2	6775 A1	9602 A4	96
1720 C2	2692 C4	2762 C3	3622 A1	3693 B4	5703 C1	6776 A1	9603 A4	96
1730 C2	2693 C4	2763 C3	3635 A4	3694 C4	6611 A3	6777 B1	9604 A4	96
1740 A2	2694 B4	2765 C3	3636 A4	3761 B1	6612 A4	6778 B1	9605 B4	96
1760 A2	2695 C4	2768 B4	3641 A4	3764 C3	6613 A3	6782 B2	9606 B4	96
2637 C4	2696 C4	2780 A1	3642 A4	3773 A1	6614 A1	6785 B3	9607 B4	97
2638 C4	2713 C3	2784 C1	3652 B4	3778 B1	6770 B1	6786 B3	9608 B4	97
2641 A4	2714 C3	2785 B1	3655 A4	3785 B1	6771 B1	7782 B1	9609 B4	97
2642 A4	2715 C2	3607 A1	3656 A4	5631 B4	6772 C1	7785 C1	9610 C4	97

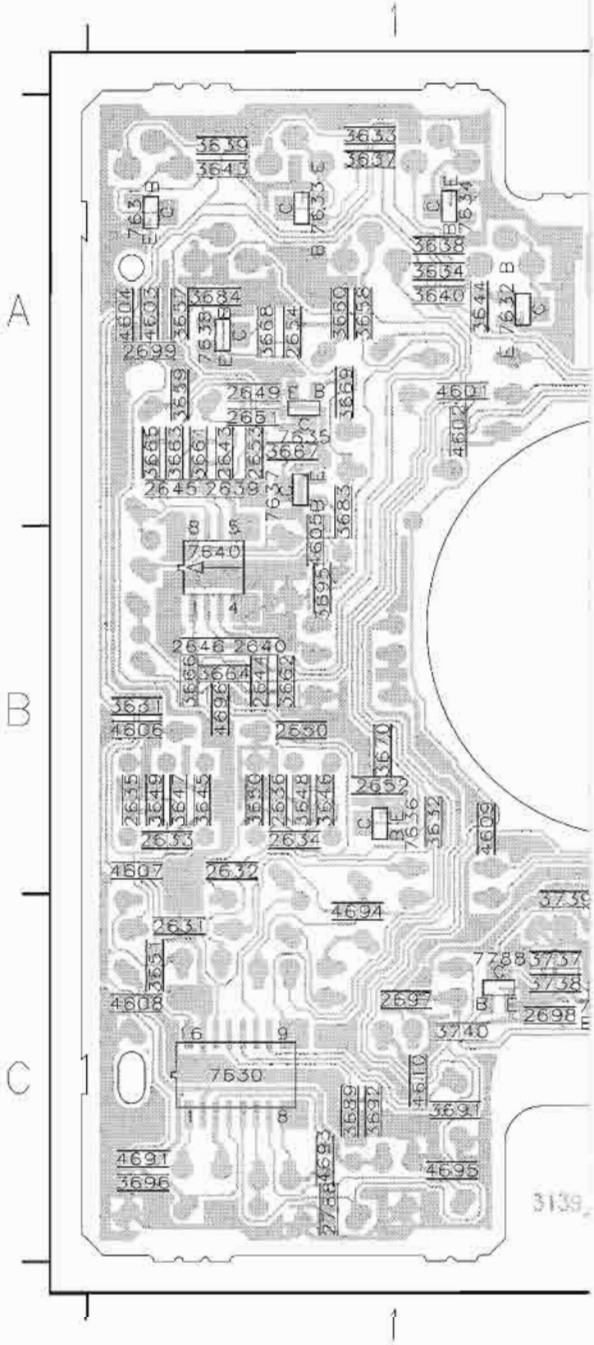


CHIP LAYOUT

2621	A3	2699	A1	2742	B4	3616	
2622	A4	2701	C4	2743	C4	3618	
2623	A4	2702	C3	2744	B3	3619	
2624	A3	2703	C3	2745	B1	3623	
2625	A4	2704	C3	2746	C4	3624	
2626	A2	2705	C3	2760	B4	3625	
2631	C1	2706	C3	2769	B2	3626	
2632	B1	2707	C3	2770	B2	3628	
2633	B1	2708	C3	2781	C4	3630	
2634	B1	2709	C3	2782	B4	3631	
2635	B1	2710	C3	2786	C4	3632	
2636	B1	2711	C2	2787	C4	3633	
2639	A1	2712	C2	2788	C1	3634	
2640	B1	2717	B3	2789	C2	3637	
2643	A1	2718	B4	2790	C2	3638	
2644	B1	2719	B4	3601	A3	3639	
2645	A1	2720	B4	3602	A3	3640	
2646	B1	2727	C4	3603	A3	3643	
2649	A1	2728	B3	3604	A3	3644	
2650	B1	2729	B3	3605	A3	3645	
2651	A1	2730	B3	3606	A3	3646	
2652	B1	2733	C2	3608	A4	3647	
2653	A1	2734	C2	3610	A4	3648	
2654	A1	2735	C3	3612	A4	3649	
2697	C1	2737	C2	3613	A3	3650	
2698	C1	2738	C2	3614	A4	3651	

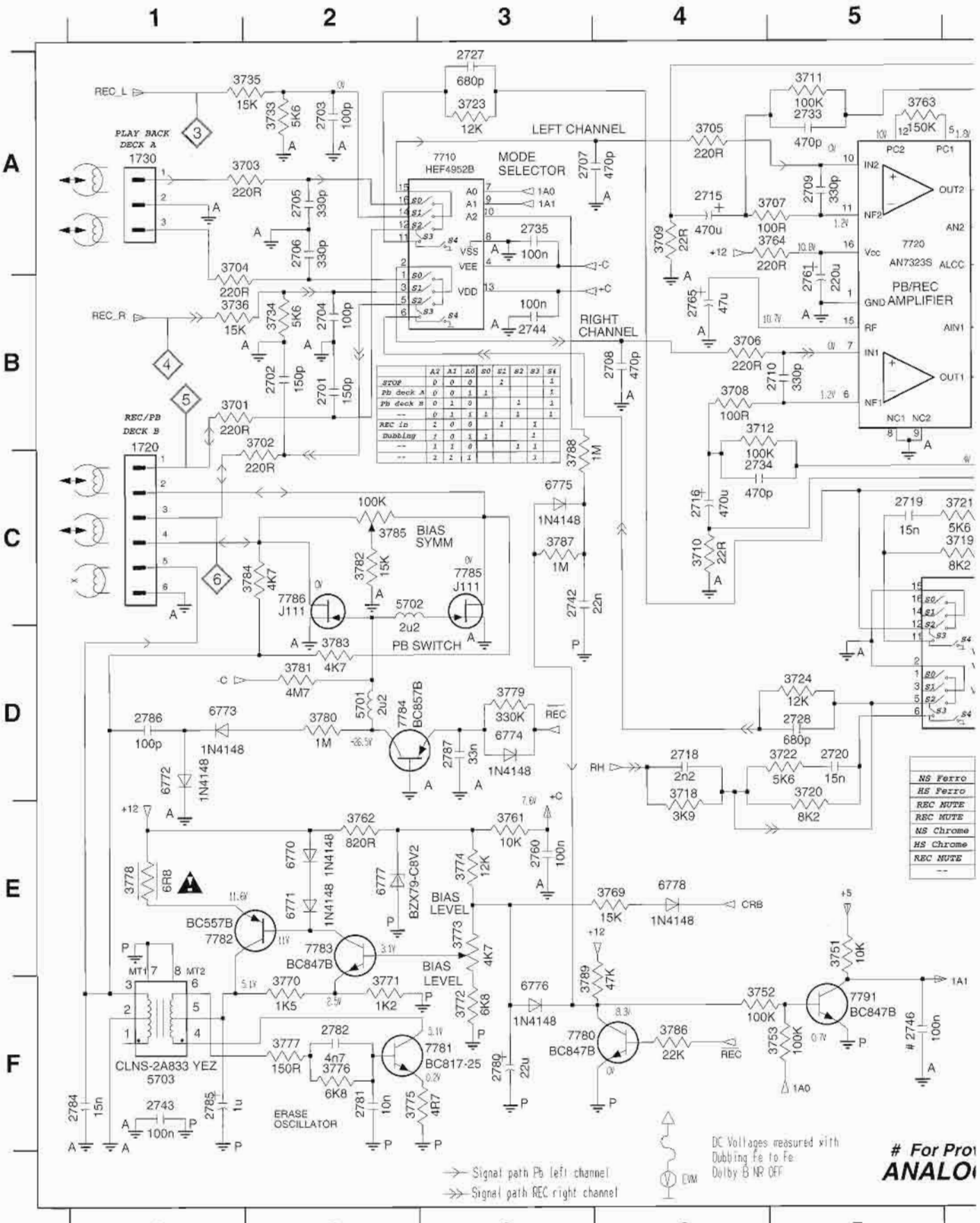
I1	C4	9706	A1	9717	B2	9728	C3
I2	C4	9707	A2	9718	B2	9791	B2
I3	C4	9708	A2	9719	B2	9792	B2
I4	C4	9709	A2	9720	B2	9793	A2
I5	C4	9710	A2	9721	B2	9794	A3
I6	C4	9711	A2	9722	B2	9795	A3
I7	C4	9712	A1	9723	C1	9796	A2
D2	A2	9713	B1	9724	C1		
D3	A2	9714	B1	9725	C2		
D4	A3	9715	B1	9726	C2		
D5	A3	9716	B2	9727	C2		

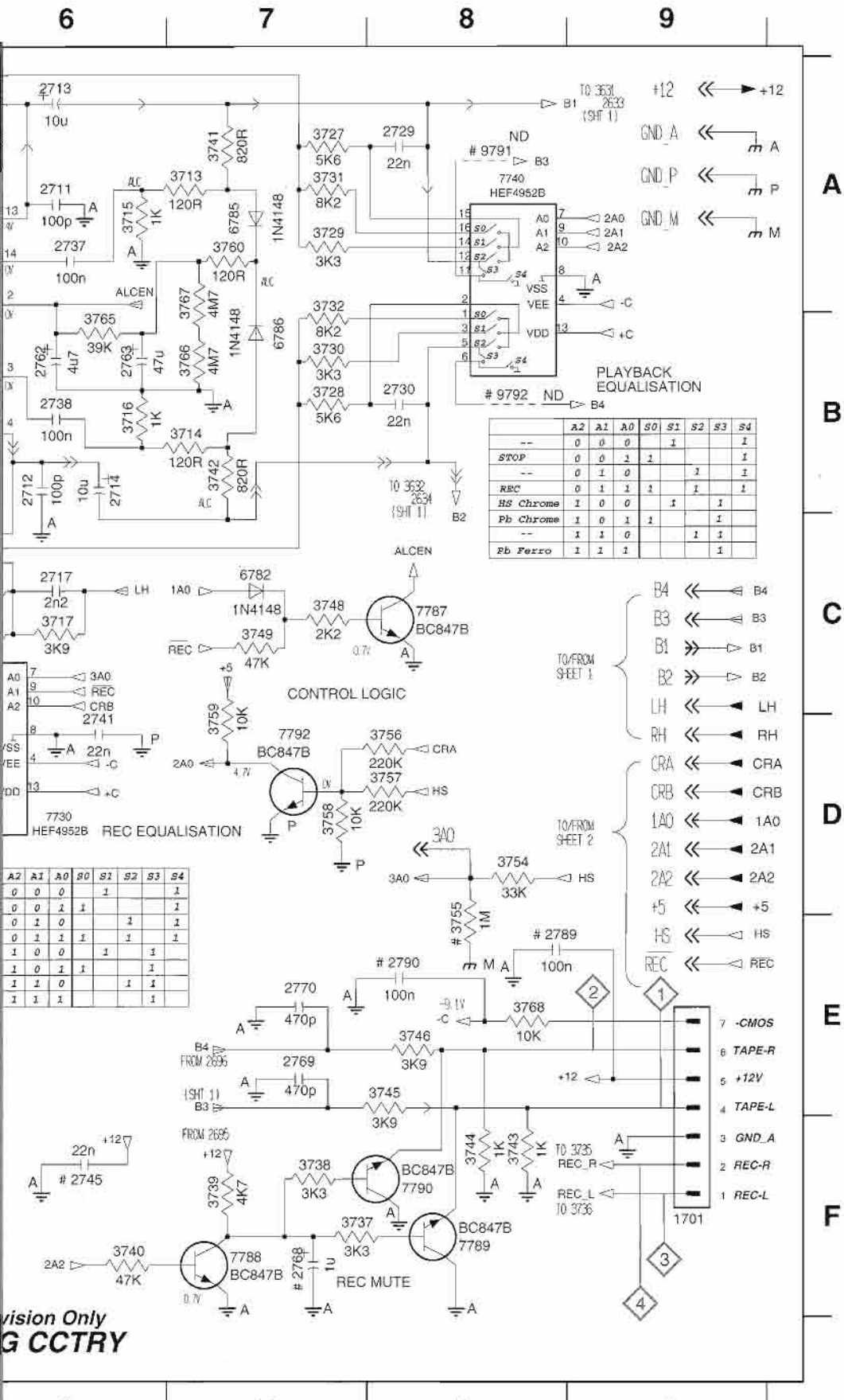




3657	A1	3695	B1	3727	B3	3755	A3	3786	A4	4707	A4	4733	C3	7623	A3
3658	A1	3696	C1	3728	B3	3756	A3	3787	A4	4708	A4	4734	C3	7624	A4
3659	A1	3701	C4	3729	B3	3757	A3	3788	C4	4709	A4	4735	C2	7630	C1
3660	A1	3702	C3	3730	B3	3758	A3	3789	B4	4710	B4	4736	C3	7631	A1
3661	A1	3703	C3	3731	B3	3759	A3	4601	A1	4711	A4	4737	C3	7632	A1
3662	B1	3704	C3	3732	B3	3760	B3	4602	A1	4712	B4	4738	C3	7633	A1
3663	A1	3705	C3	3733	B3	3762	B4	4603	A1	4713	A4	4739	C3	7634	A1
3664	B1	3706	C3	3734	C3	3763	C2	4604	A1	4714	A3	4740	B2	7635	A1
3665	A1	3707	C3	3735	C3	3765	C2	4605	B1	4715	B3	4741	C2	7636	B1
3666	B1	3708	C3	3736	C3	3766	C2	4606	B1	4716	B3	4742	C2	7637	A1
3667	A1	3709	C3	3737	C1	3767	C2	4607	B1	4717	B3	4743	C2	7638	A1
3668	A1	3710	C3	3738	C1	3768	C2	4608	C1	4718	B3	4781	A4	7640	B1
3669	A1	3711	C3	3739	C1	3769	B4	4609	B1	4719	B3	4783	A4	7710	C3
3670	B1	3712	C3	3740	C1	3770	B4	4610	C1	4720	B3	4785	A3	7720	C3
3672	A4	3713	C2	3741	C3	3771	B4	4691	C1	4721	B3	4786	A4	7730	B4
3676	A3	3714	C2	3742	C2	3772	A4	4693	C1	4722	B3	4787	B4	7740	B3
3678	A2	3715	C2	3743	B2	3774	B4	4694	C1	4723	B4	4788	C2	7780	A4
3679	A2	3716	C2	3744	C1	3775	C4	4695	C1	4724	B3	7610	A4	7781	B4
3680	A2	3717	B3	3745	C2	3776	B4	4696	B1	4725	B3	7612	A2	7783	B4
3683	A1	3718	B4	3746	C2	3777	B4	4697	C1	4726	B3	7613	A2	7784	C4
3684	A1	3719	B4	3748	C2	3779	C4	4701	A3	4727	C4	7614	A2	7787	C2
3686	A4	3720	B4	3749	B3	3780	C4	4702	A3	4728	C4	7616	A4	7788	C1
3687	A3	3721	B4	3751	A3	3781	C3	4703	A3	4729	C3	7618	A1	7789	C1
3689	C1	3722	B4	3752	A3	3782	B4	4704	A2	4730	B3	7619	A2	7790	C1
3691	C1	3723	C4	3753	A3	3783	C3	4705	A2	4731	B3	7620	A2	7791	A3
3692	C1	3724	B3	3754	A3	3784	C3	4706	A2	4732	B3	7622	A3	7792	A3

ANALOG CIRCUIT



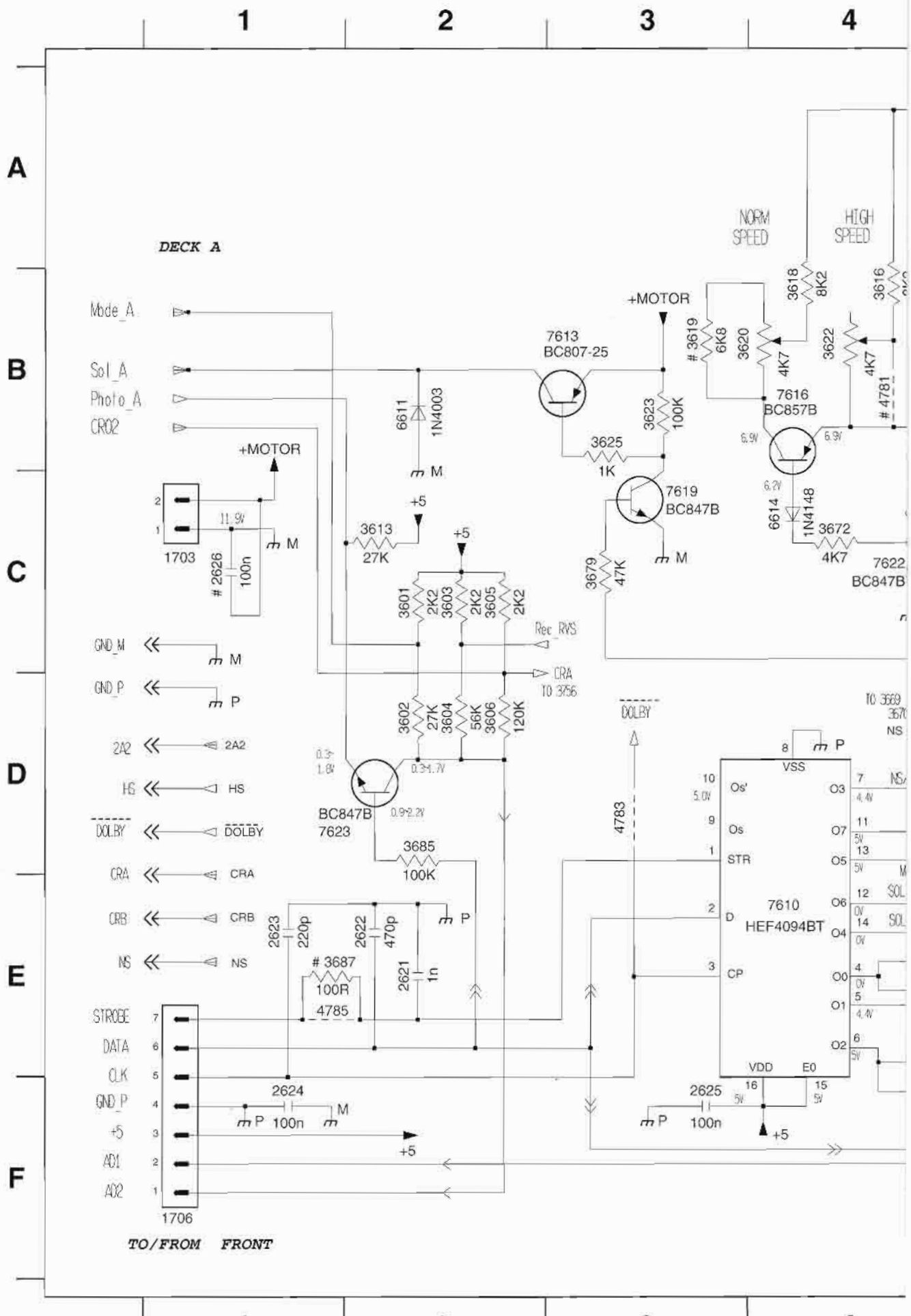


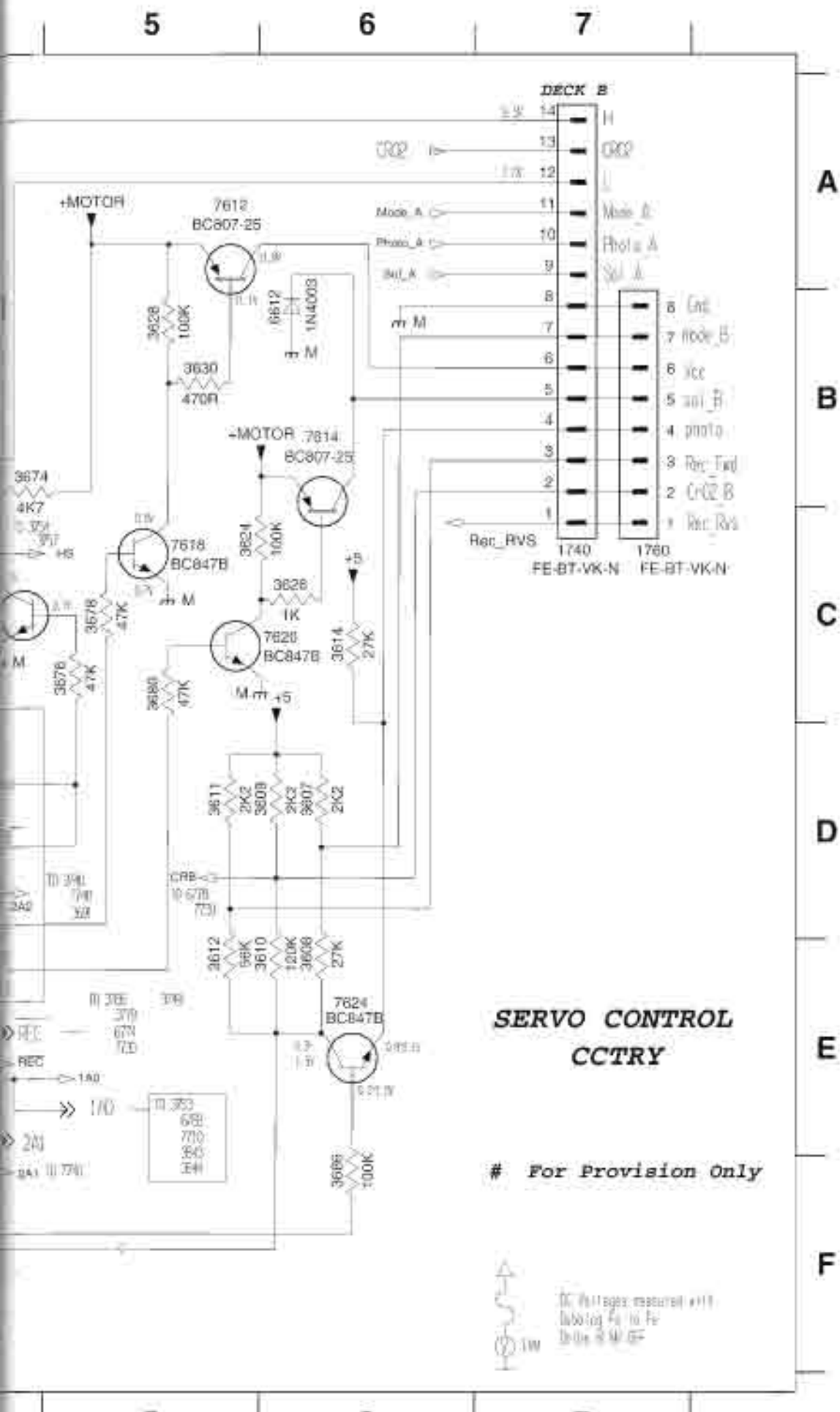
	A2	A1	A0	S0	S1	S2	S3	S4
--	0	0	0		1			1
STOP	0	0	1	1				1
--	0	1	0			1		1
REC	0	1	1	1		1		1
HS Chrome	1	0	0		1		1	
Pb Chrome	1	0	1	1			1	
--	1	1	0			1	1	
Pb Ferro	1	1	1				1	

A2	A1	A0	S0	S1	S2	S3	S4
0	0	0		1			1
0	0	1	1				1
0	1	0			1		1
0	1	1	1		1		1
1	0	0		1		1	
1	0	1	1			1	
1	1	0			1	1	
1	1	1				1	

1701 F9	3720 D5	6775 C3
1720 C1	3721 C6	6776 F3
1730 A1	3722 D5	6777 E2
2701 B2	3723 A3	6778 E4
2702 B2	3724 D5	6782 C7
2703 A2	3727 A7	6785 A7
2704 B2	3728 B7	6786 B7
2705 A2	3729 A7	7710 A3
2706 A2	3730 B7	7720 A5
2707 A3	3731 A7	7730 D6
2708 B4	3732 A7	7740 A8
2709 A5	3733 A2	7780 F4
2710 B5	3734 B2	7781 F3
2711 A6	3735 A2	7782 E1
2712 B6	3736 B1	7783 E2
2713 A6	3737 F7	7784 D2
2714 B6	3738 F7	7785 C3
2715 A4	3739 F7	7786 C2
2716 C4	3740 F6	7787 C8
2717 C6	3741 A7	7788 F7
2718 D4	3742 B7	7789 F8
2719 C5	3743 F8	7790 F8
2720 D5	3744 F8	7791 F5
2727 A3	3745 E8	7792 D7
2728 D5	3746 E8	9791 A8
2729 A8	3748 C7	9792 B8
2730 B8	3749 C7	
2733 A5	3751 E5	
2734 C4	3752 F4	
2735 A3	3753 F5	
2737 A6	3754 D8	
2738 B6	3755 E8	
2741 D6	3756 D8	
2742 C3	3757 D8	
2743 F1	3758 D7	
2744 B3	3759 D7	
2745 F6	3760 A7	
2746 F5	3761 E3	
2760 E3	3762 E2	
2761 B5	3763 A5	
2762 B6	3764 A5	
2763 B6	3765 B6	
2765 B4	3766 B7	
2768 F7	3767 A7	
2769 E7	3768 E8	
2770 E7	3769 E4	
2780 F3	3770 F2	
2781 F2	3771 F2	
2782 F2	3772 F3	
2784 F1	3773 E3	
2785 F1	3774 E3	
2786 D1	3775 F2	
2787 D3	3776 F2	
2789 E8	3777 F2	
2790 E8	3778 E1	
3701 B1	3779 D3	
3702 B2	3780 D2	
3703 A2	3781 D2	
3704 A1	3782 C2	
3705 A4	3783 D2	
3706 B4	3784 C2	
3707 A5	3785 C2	
3708 B4	3786 F4	
3709 A4	3787 C3	
3710 C4	3788 C3	
3711 A5	3789 F3	
3712 B4	5701 D2	
3713 A7	5702 C2	
3714 B7	5703 F1	
3715 A6	6770 E2	
3716 B6	6771 E2	
3717 C6	6772 D1	
3718 D4	6773 D1	
3719 C6	6774 D3	

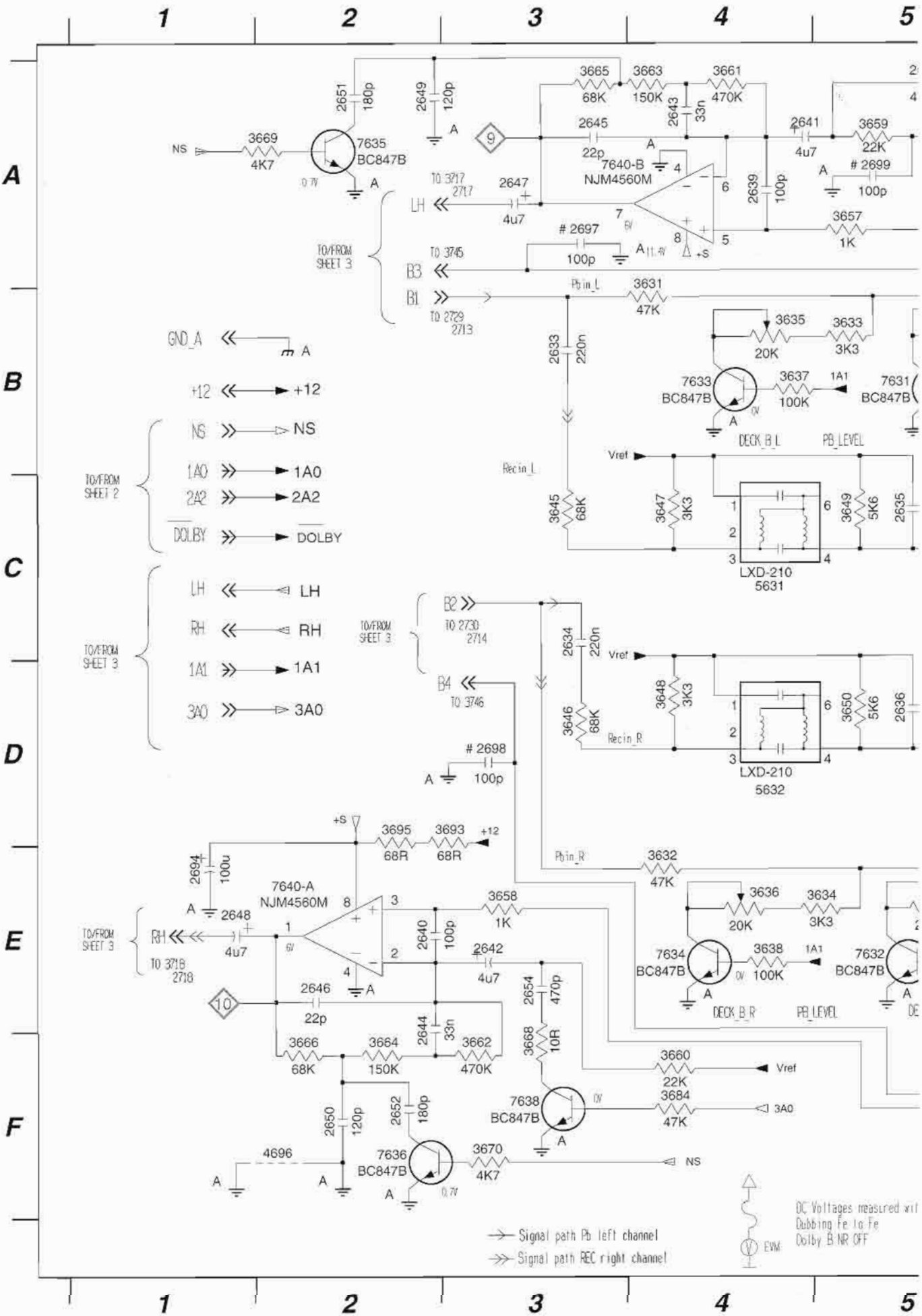
SERVO CONTROL CIRCUIT

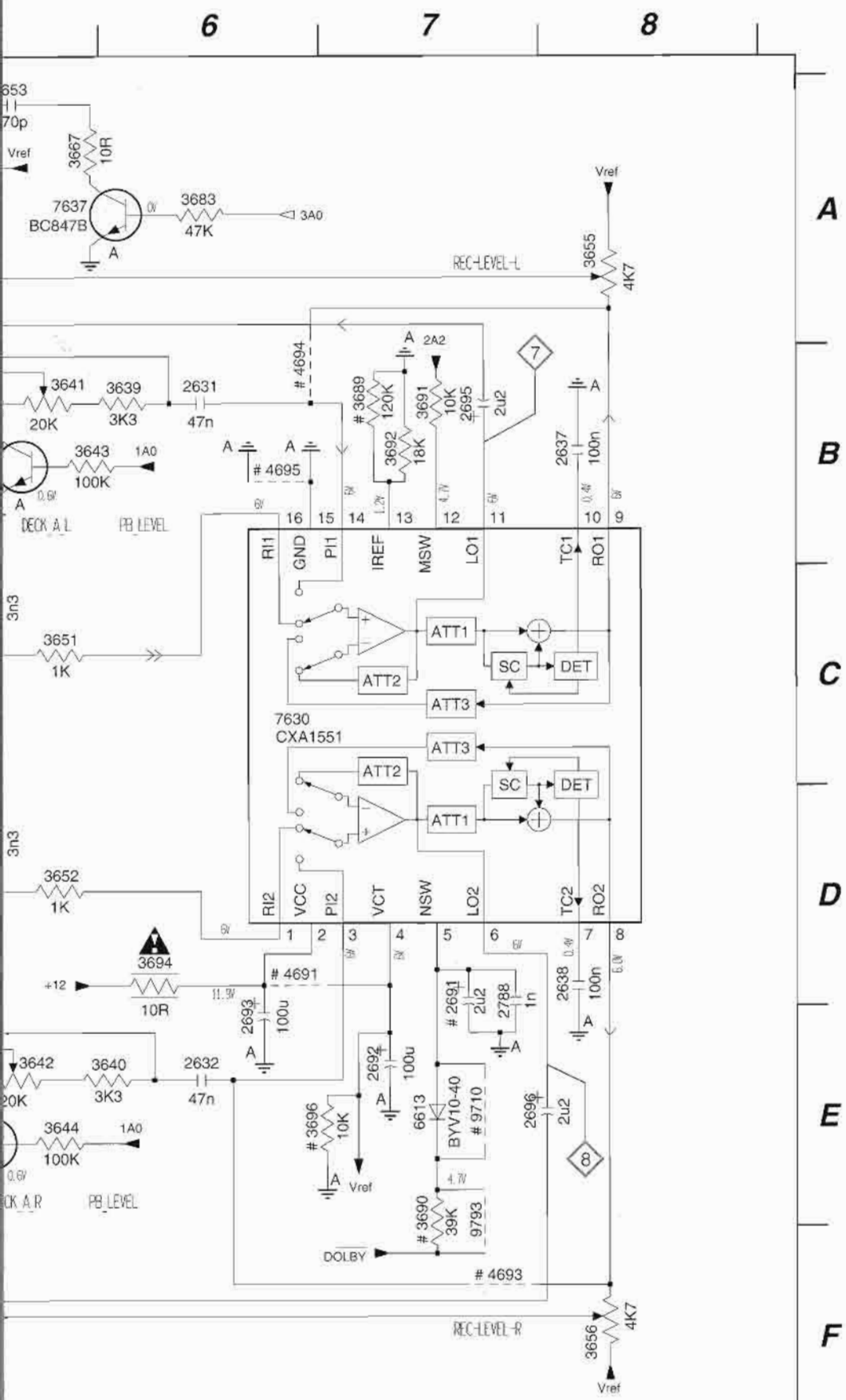




1703 C1
1706 F1
1740 C7
1760 C7
2621 E2
2622 E2
2623 E1
2624 F1
2625 F3
2626 C1
3601 C2
3602 D2
3603 C2
3604 D2
3605 C2
3606 D2
3607 D6
3608 E6
3609 D6
3610 E6
3611 D5
3612 E5
3613 C2
3614 C6
3615 B4
3618 B4
3619 B3
3620 B3
3622 B4
3623 B3
3624 C5
3625 B3
3626 C6
3628 B5
3630 B6
3672 C4
3674 B4
3676 C5
3678 C5
3679 C3
3680 C5
3685 D2
3686 F6
3687 E1
4781 B4
4783 D3
4785 E1
6611 B2
6612 B6
6614 C4
7610 E4
7612 A5
7613 B2
7614 B6
7616 B4
7618 C5
7619 C3
7620 C6
7622 C4
7623 D1
7624 E6

DOLBY CIRCUIT





DOLBY CCTRY

Required For Sets With Dolby B NR Only

 # For Provision Only

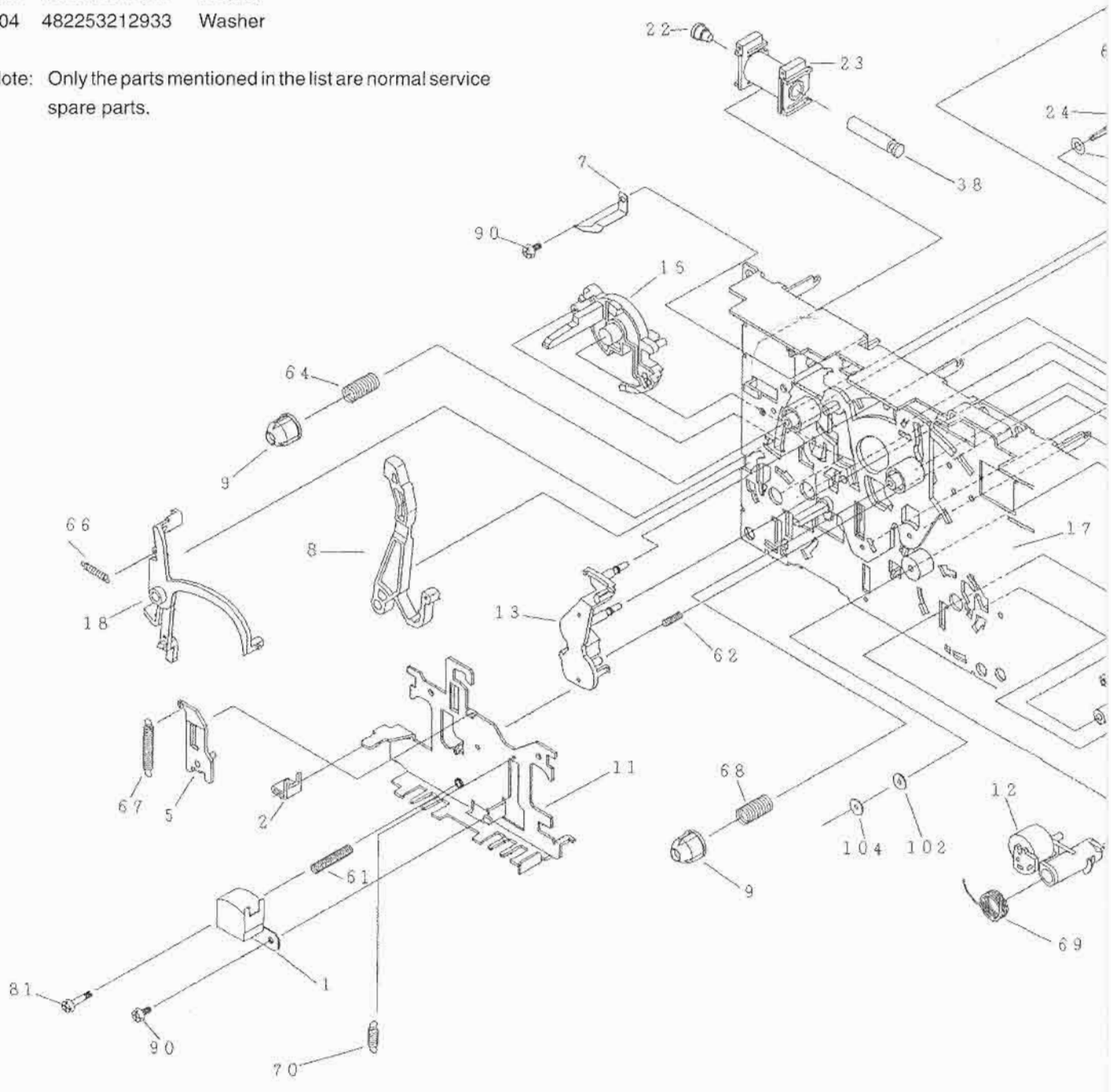
2631 B6
2632 E6
2633 B3
2634 C3
2635 C5
2636 D5
2637 B8
2638 D8
2639 A4
2640 E2
2641 A4
2642 E3
2643 A4
2644 E2
2645 A3
2646 E2
2647 A3
2648 E1
2649 A2
2650 F2
2651 A2
2652 F2
2653 A5
2654 E3
2691 D7
2692 E7
2693 E6
2694 E1
2695 B7
2696 E7
2697 A3
2698 D3
2699 A5
2788 D7
3631 B4
3632 E4
3633 B5
3634 E5
3635 B4
3636 E4
3637 B4
3638 E4
3639 B6
3640 E6
3641 B5
3642 E5
3643 B5
3644 E5
3645 C3
3646 D3
3647 C4
3648 D4
3649 C5
3650 D5
3651 C5
3652 D5
3655 A8
3656 F8
3657 A5
3658 E3
3659 A5
3660 F4
3661 A4
3662 F3
3663 A4
3664 F2
3665 A3
3666 F2
3667 A5
3668 F3
3669 A2
3670 F3
3683 A6
3684 F4
3689 B7
3690 E7
3691 B7
3692 B7
3693 D3
3694 D6
3695 D2
3696 E6
4691 D6
4693 F7
4694 B6
4695 B6
4696 F2
5631 C4
5632 D4
6613 E7
7630 C6
7631 B5
7632 E5
7633 B4
7634 E4
7635 A2
7636 F2
7637 A5
7638 F3
7640-A E2
7640-B A4
9710 E7
9793 E7

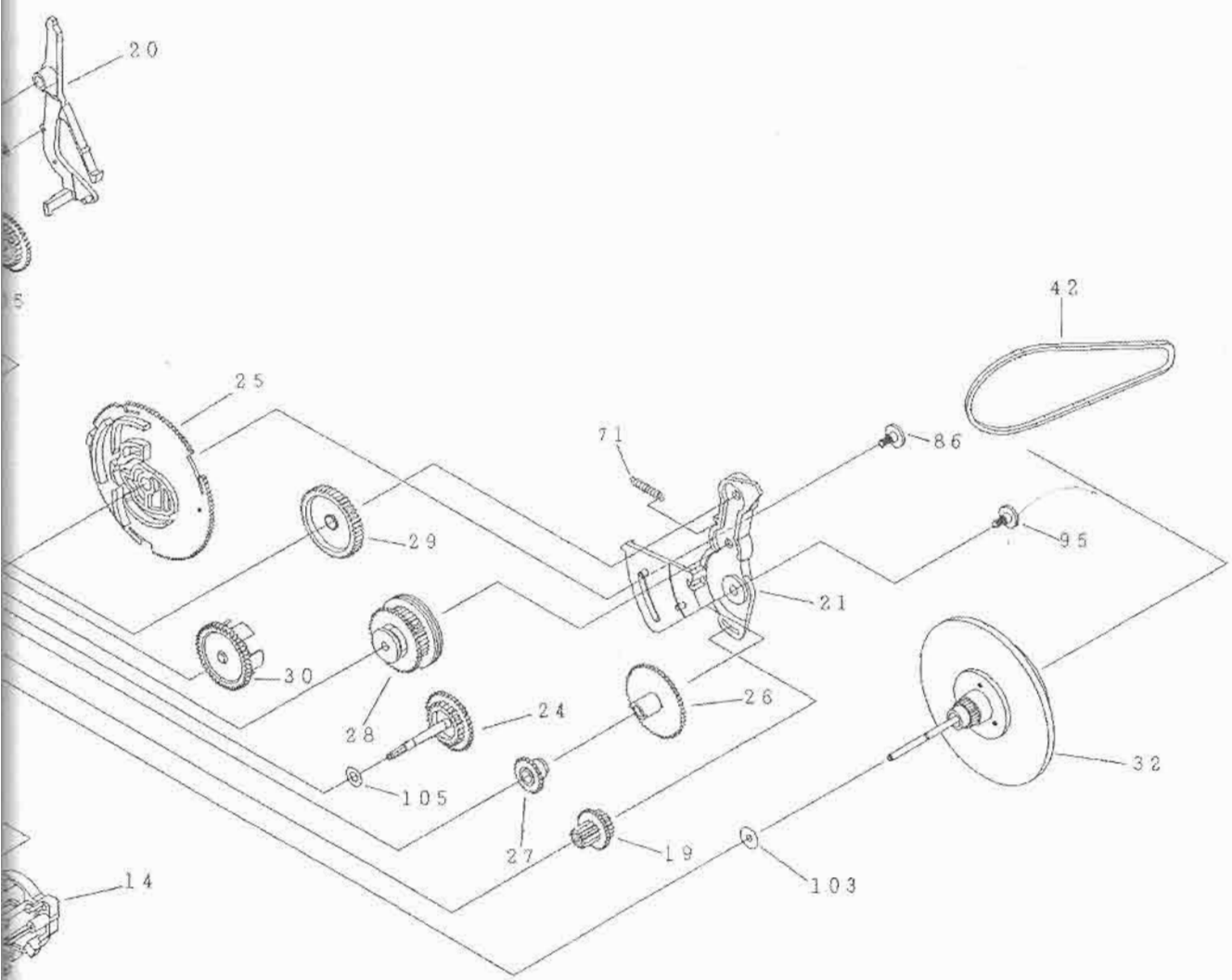
TAPE MECHANISM A - PLAY

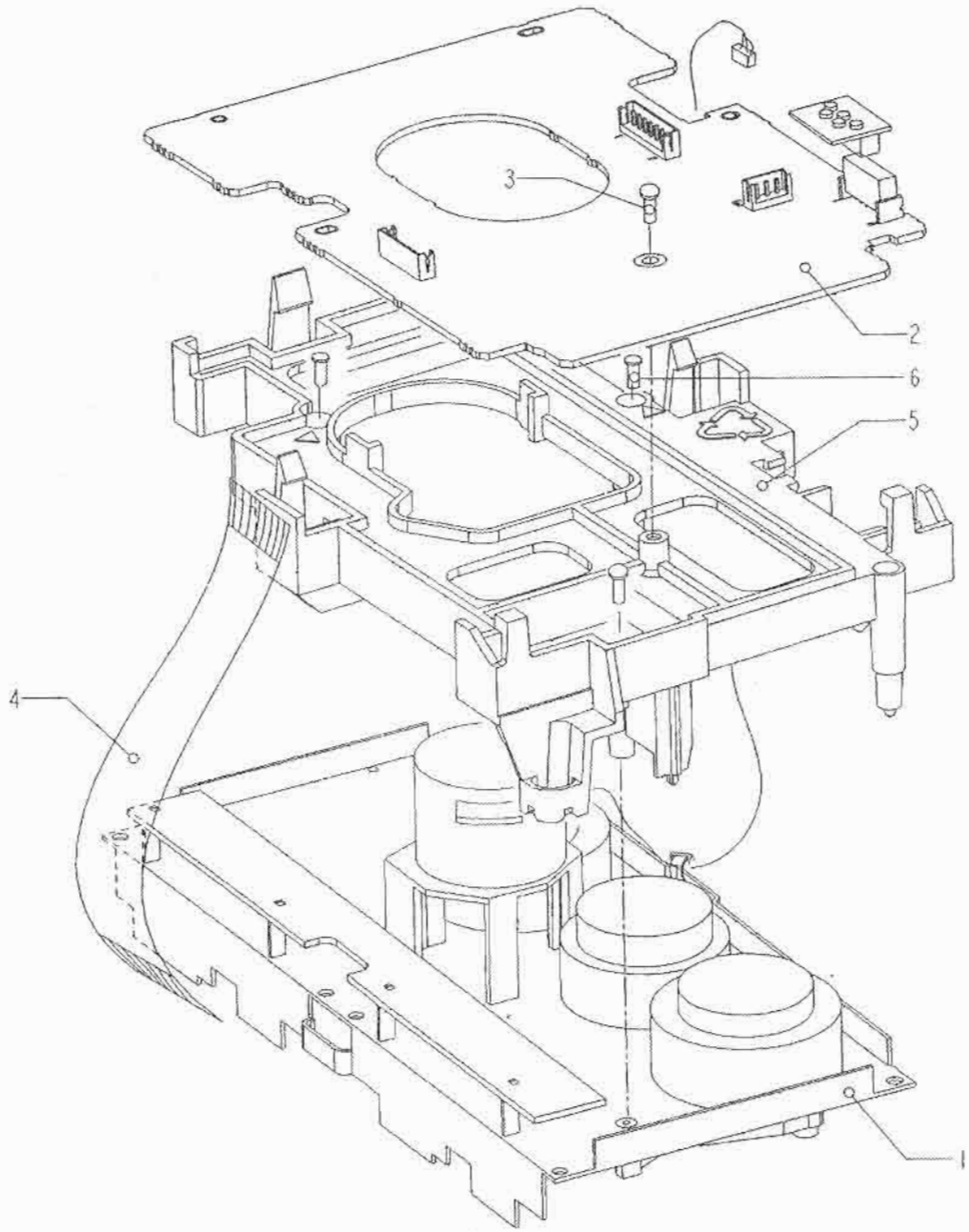
MECHANICAL PARTS - PLAY MECHANISM

1	996500002313	Play Head (Non-Autoreverse deck)
1	996500002321	Play Head (Autoreverse deck)
12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
42	996500002315	Belt AF (Autoreverse deck)
42	996500002718	Belt AF (Non-autoreverse deck)
69	482249211761	Spring
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer

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



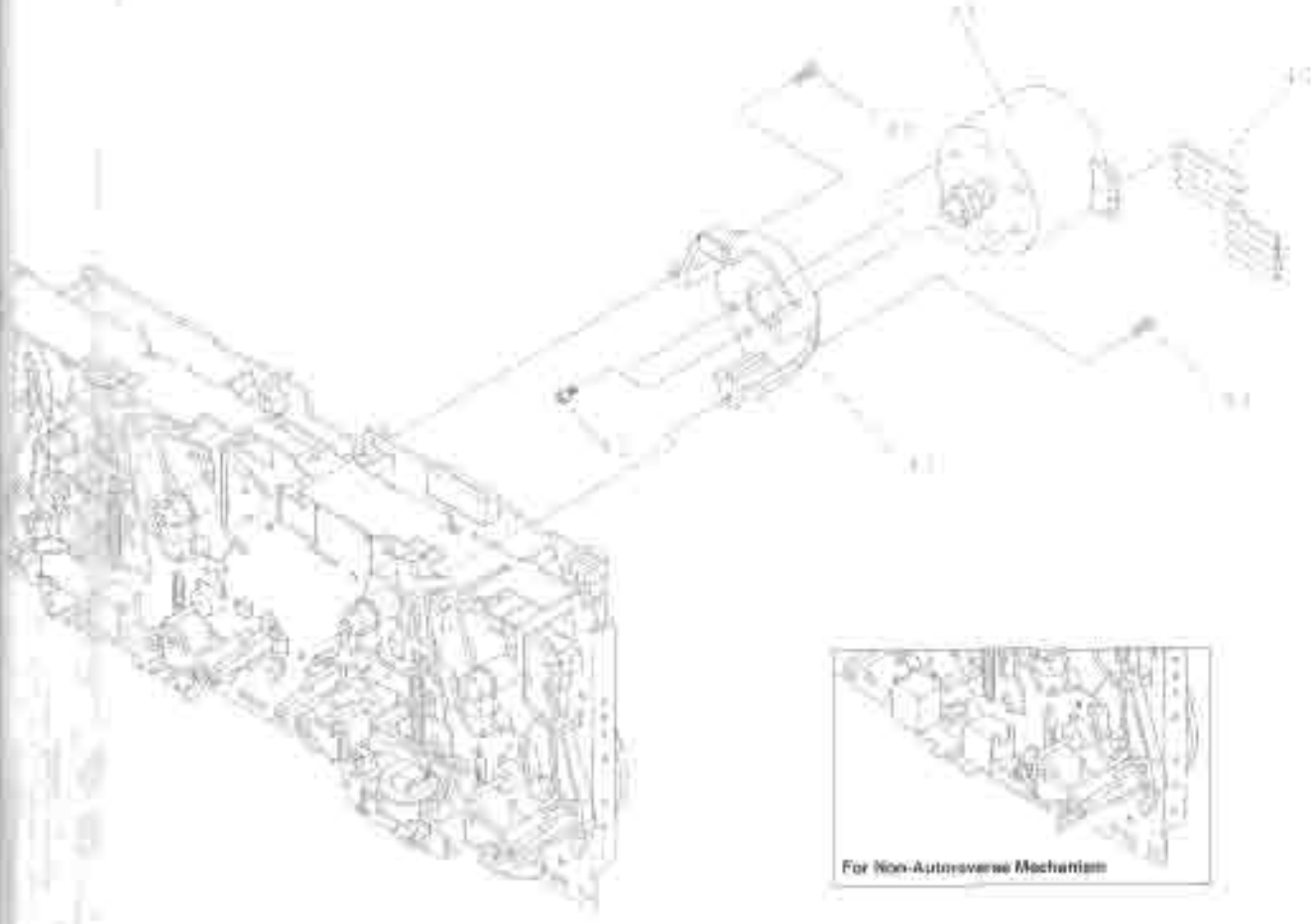

20
42
25
71
86
29
95
21
30
28
24
26
32
105
27
19
103
14



TAPE MODULE EXPLODED VIEW

1	313911877150	Autoreverse Mech. CWE44FR03
3	-	Screw D3 x 10
4	313911034080	Flex Cable 14 pin 7,5 cm
6	-	Screw M2 x 16

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



TAPE MECHANISM - MOTOR EXPLODED VIEW

31	996500003006	Motor Assembly
91	-	Screw M2,6 x 5
92	-	Screw M2 x 5

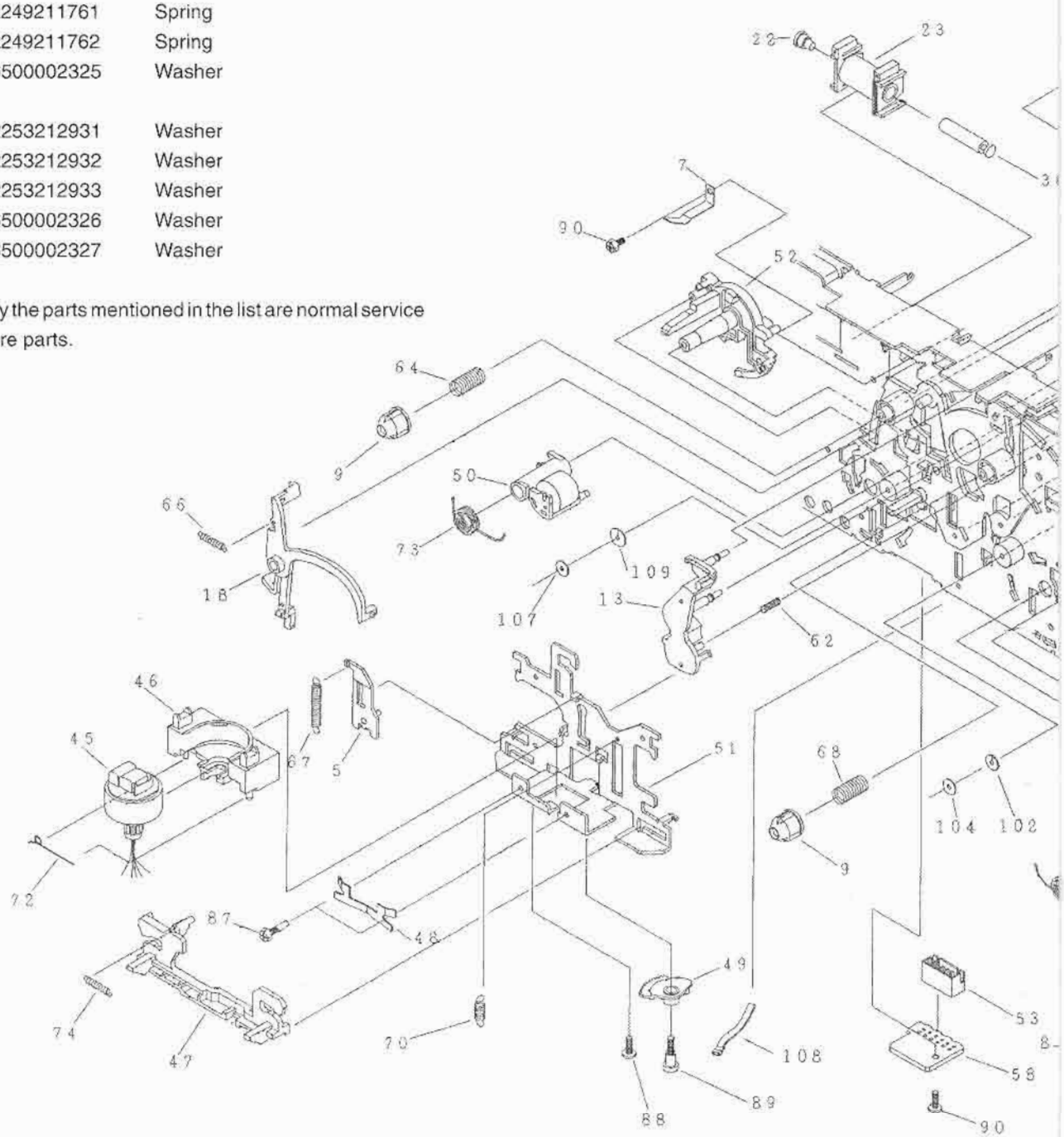
Note: Only the parts mentioned in this list are normal service spare parts.

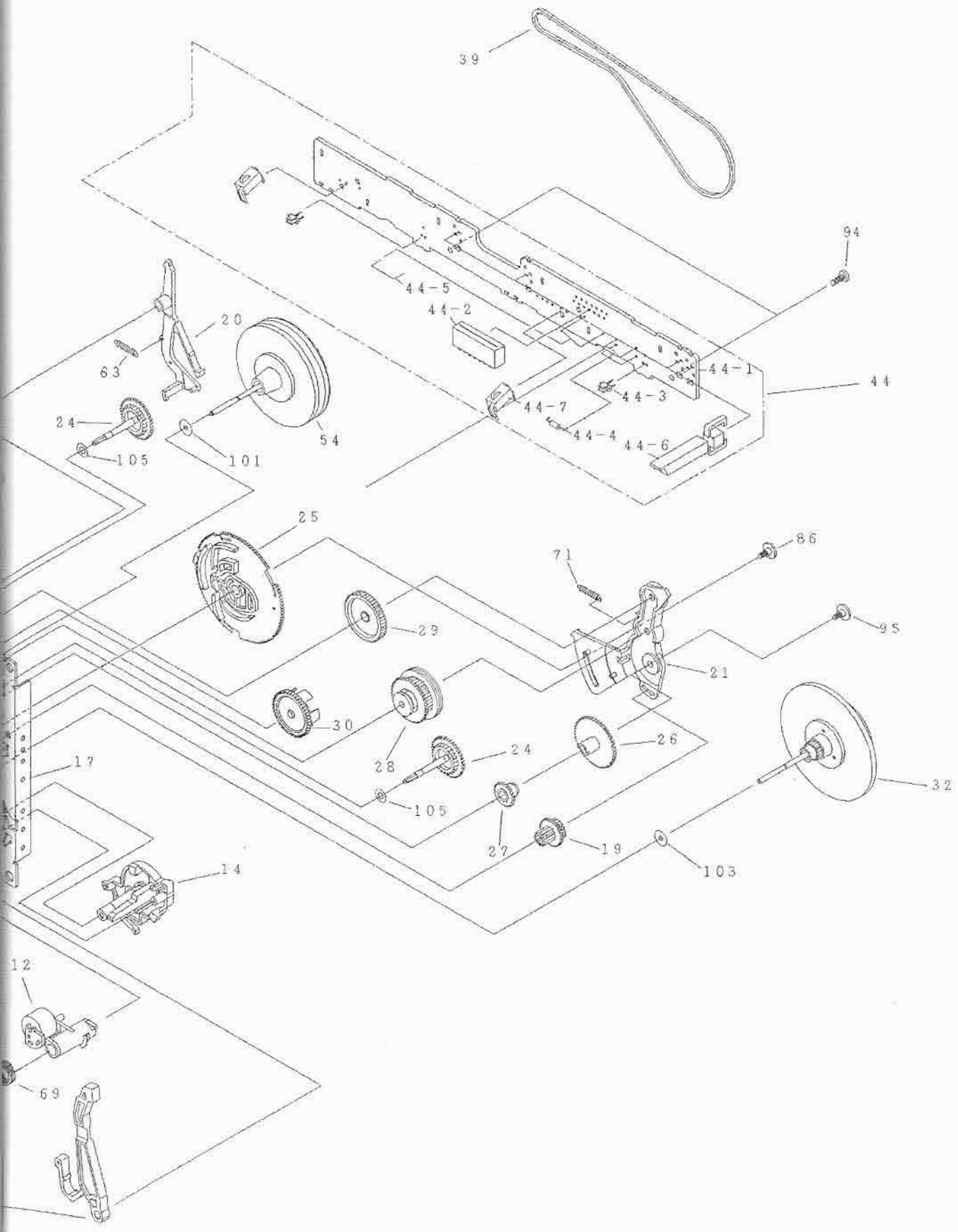
TAPE MECHANISM B - RECORD/PLAYBACK *(Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
39	996500003001	Belt BF
44-2	996500002317	Flex Socket 14 Pin
44-3	996500002320	Photo Interrupter
44-4	482205016801	680R 1% 0,4W
44-6	996500002318	Leaf Switch
44-7	996500002330	Mode Switch
45	996500003002	Rec/Pb Head Assembly
50	482252810975	Pinch Arm Assembly L
54	996500002324	Flywheel Assembly L
69	482249211761	Spring
73	482249211762	Spring
101	996500002325	Washer
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer
107	996500002326	Washer
109	996500002327	Washer

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




39
94
44-5
44-2
44-1
44
44-3
44-7
44-4
44-6
20
63
24
105
101
54
25
29
71
86
95
21
30
28
24
26
32
17
105
27
19
103
14
12
69

ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

MISCELLANEOUS

1701	482226710953	Flex Connector 7P
1706	482226710953	Flex Connector 7P
1740	482226751255	Flex Connector 14P

CAPACITORS

2621	532212231647	1nF 10% 63V
2622	532212234099	470pF 10% 63V
2623	482212233575	220pF 5% 63V
2624	482212614585	100nF 10% 50V
2625	482212614585	100nF 10% 50V
2631	482212613751	47nF 10% 63V
2632	482212613751	47nF 10% 63V
2633	482212613473	220nF +80/-20% 50V
2634	482212613473	220nF +80/-20% 50V
2635	482212233891	3,3nF 10% 63V
2636	482212233891	3,3nF 10% 63V
2637	532212142386	100nF 5% 63V
2638	532212142386	100nF 5% 63V
2639	532212232531	100pF 5% 50V
2640	532212232531	100pF 5% 50V
2641	482212440769	4,7µF 20% 100V
2642	482212440769	4,7µF 20% 100V
2643	482212612105	33nF 5% 50V
2644	482212612105	33nF 5% 50V
2645	532212232658	22pF 5% 50V
2646	532212232658	22pF 5% 50V
2647	482212440769	4,7µF 20% 100V
2648	482212440769	4,7µF 20% 100V
2649	532212233861	120pF 10% 50V
2650	532212233861	120pF 10% 50V
2651	482212610326	180pF 5% 63V
2652	482212610326	180pF 5% 63V
2653	532212234099	470pF 10% 63V
2654	532212234099	470pF 10% 63V
2692	482212441584	100µF 20% 10V
2693	482212440207	100µF 20% 25V
2694	482212440207	100µF 20% 25V
2695	482212422652	2,2µF 20% 50V
2696	482212422652	2,2µF 20% 50V
2701	532212233538	150pF 2% 63V
2702	532212233538	150pF 2% 63V
2703	532212232531	100pF 5% 50V
2704	532212232531	100pF 5% 50V
2705	532212231863	330pF 5% 63V
2706	532212231863	330pF 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	482212233127	2,2nF 10% 63V
2718	482212233127	2,2nF 10% 63V
2719	482212613188	15nF 5% 63V
2720	482212613188	15nF 5% 63V
2727	482212232535	680pF 10% 63V
2728	482212232535	680pF 10% 63V
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	482212614585	100nF 10% 50V
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 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
2788	532212231647	1nF 10% 63V

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	482205120822	8k2 5% 0,1W

ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

3618	482205120822	8k2 5% 0,1W
3620	482210012227	4k7 30% 0,1W
3622	482210012227	4k7 30% 0,1W
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
3631	482211710834	47k 1% 0,1W
3632	482211710834	47k 1% 0,1W
3633	482205120332	3k3 5% 0,1W
3634	482205120332	3k3 5% 0,1W
3635	482210011771	20k 30% 0,1W
3636	482210011771	20k 30% 0,1W
3637	482211710837	100k 1% 0,1W
3638	482211710837	100k 1% 0,1W
3639	482205120332	3k3 5% 0,1W
3640	482205120332	3k3 5% 0,1W
3641	482210011771	20k 30% 0,1W
3642	482210011771	20k 30% 0,1W
3643	482211710837	100k 1% 0,1W
3644	482211710837	100k 1% 0,1W
3645	482205120683	68k 5% 0,1W
3646	482205120683	68k 5% 0,1W
3647	482205120332	3k3 5% 0,1W
3648	482205120332	3k3 5% 0,1W
3649	482205120562	5k6 5% 0,1W
3650	482205120562	5k6 5% 0,1W
3651	482205110102	1k 2% 0,25W
3652	482205011002	1k 1% 0,4W
3655	482210012227	4k7 30% 0,1W
3656	482210012227	4k7 30% 0,1W
3657	482205110102	1k 2% 0,25W
3658	482205110102	1k 2% 0,25W
3659	482205120223	22k 5% 0,1W
3660	482205120223	22k 5% 0,1W
3661	482205120474	470k 5% 0,1W
3662	482205120474	470k 5% 0,1W
3663	482205120154	150k 5% 0,1W
3664	482205120154	150k 5% 0,1W
3665	482205120683	68k 5% 0,1W
3666	482205120683	68k 5% 0,1W
3667	482205120109	10R 5% 0,1W
3668	482205120109	10R 5% 0,1W
3669	482205120472	4k7 5% 0,1W
3670	482205120472	4k7 5% 0,1W
3672	482205120472	4k7 5% 0,1W
3674	482211652283	4k7 5% 0,5W
3676	482211710834	47k 1% 0,1W
3678	482211710834	47k 1% 0,1W
3679	482211710834	47k 1% 0,1W
3680	482211710834	47k 1% 0,1W
3683	482211710834	47k 1% 0,1W
3684	482211710834	47k 1% 0,1W
3685	482211652234	100k 5% 0,5W
3686	482211710837	100k 1% 0,1W
3691	482211710833	10k 1% 0,1W
3692	482211710965	18k 1% 0,1W
3693	482211652199	68R 5% 0,5W
3694	482205210109	⚠ 10R 5% 0,33W
3695	482211712521	68R 1% 0,1W
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	482205120229	22R 5% 0,1W
3710	482205120229	22R 5% 0,1W
3711	482211710837	100k 1% 0,1W
3712	482211710837	100k 1% 0,1W
3713	482205120121	120R 5% 0,1W
3714	482205120121	120R 5% 0,1W
3715	482205110102	1k 2% 0,25W
3716	482205110102	1k 2% 0,25W
3717	482205120392	3k9 5% 0,1W
3718	482205120392	3k9 5% 0,1W
3719	482205120822	8k2 5% 0,1W
3720	482205120822	8k2 5% 0,1W
3721	482205120562	5k6 5% 0,1W
3722	482205120562	5k6 5% 0,1W
3723	482211711383	12k 1% 0,1W
3724	482211711383	12k 1% 0,1W
3727	482205120562	5k6 5% 0,1W
3728	482205120562	5k6 5% 0,1W
3729	482205120332	3k3 5% 0,1W
3730	482205120332	3k3 5% 0,1W
3731	482205120822	8k2 5% 0,1W
3732	482205120822	8k2 5% 0,1W
3733	482205120562	5k6 5% 0,1W
3734	482205120562	5k6 5% 0,1W
3735	482211683933	15k 1% 0,1W
3736	482211683933	15k 1% 0,1W
3737	482205120332	3k3 5% 0,1W
3738	482205120332	3k3 5% 0,1W
3739	482205120472	4k7 5% 0,1W
3740	482211710834	47k 1% 0,1W
3741	482211711454	820R 1% 0,1W
3742	482211711454	820R 1% 0,1W
3743	482205110102	1k 2% 0,25W
3744	482205110102	1k 2% 0,25W

ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

RESISTORS

3745	482205120392		3k9 5% 0,1W
3746	482205120392		3k9 5% 0,1W
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	482205120333		33k 5% 0,1W
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	482211683933		15k 1% 0,1W
3770	482211711139		1k5 1% 0,1W
3771	482205120122		1k2 5% 0,1W
3772	482211711507		6k8 1% 0,1W
3773	482210012227		4k7 30% 0,1W
3774	482211711383		12k 1% 0,1W
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
3782	482211683933		15k 1% 0,1W
3783	482205120472		4k7 5% 0,1W
3784	482205120472		4k7 5% 0,1W
3785	532210011539		100k 30% 0,1W
3786	482205120223		22k 5% 0,1W
3787	482205120105		1M 5% 0,1W
3788	482205120105		1M 5% 0,1W
3789	482211710834		47k 1% 0,1W
4601	482205120008		0R Jumper 0805
4602	482205120008		0R Jumper 0805
4603	482205120008		0R Jumper 0805
4604	482205120008		0R Jumper 0805
4605	482205120008		0R Jumper 0805
4606	482205120008		0R Jumper 0805
4607	482205120008		0R Jumper 0805
4608	482205120008		0R Jumper 0805
4610	482205120008		0R Jumper 0805
4696	482205120008		0R Jumper 0805
4697	482205120008		0R Jumper 0805
4701	482205120008		0R Jumper 0805
4702	482205120008		0R Jumper 0805
4703	482205120008		0R Jumper 0805
4704	482205120008		0R Jumper 0805
4705	482205120008		0R Jumper 0805
4706	482205120008		0R Jumper 0805
4707	482205120008		0R Jumper 0805
4708	482205120008		0R Jumper 0805
4709	482205120008		0R Jumper 0805
4710	482205120008		0R Jumper 0805
4711	482205120008		0R Jumper 0805
4712	482205120008		0R Jumper 0805
4713	482205120008		0R Jumper 0805
4714	482205120008		0R Jumper 0805
4715	482205120008		0R Jumper 0805
4716	482205120008		0R Jumper 0805
4717	482205120008		0R Jumper 0805
4718	482205120008		0R Jumper 0805
4719	482205120008		0R Jumper 0805
4720	482205120008		0R Jumper 0805
4721	482205120008		0R Jumper 0805
4722	482205120008		0R Jumper 0805
4723	482205120008		0R Jumper 0805
4724	482205120008		0R Jumper 0805
4725	482205120008		0R Jumper 0805
4726	482205120008		0R Jumper 0805
4727	482205120008		0R Jumper 0805
4728	482205120008		0R Jumper 0805
4729	482205120008		0R Jumper 0805
4730	482205120008		0R Jumper 0805
4731	482205120008		0R Jumper 0805
4732	482205120008		0R Jumper 0805
4733	482205120008		0R Jumper 0805
4734	482205120008		0R Jumper 0805
4735	482205120008		0R Jumper 0805
4736	482205120008		0R Jumper 0805
4737	482205120008		0R Jumper 0805
4738	482205120008		0R Jumper 0805
4739	482205120008		0R Jumper 0805
4740	482205120008		0R Jumper 0805
4741	482205120008		0R Jumper 0805
4742	482205120008		0R Jumper 0805
4743	482205120008		0R Jumper 0805
4783	482205120008		0R Jumper 0805
4785	482205120008		0R Jumper 0805
4786	482205120008		0R Jumper 0805
4787	482205120008		0R Jumper 0805
4788	482205120008		0R Jumper 0805

COILS & FILTERS

5631	482215711865	Filter MPX 20kHz

ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

5632	482215711865	Filter MPX 20kHz
5701	482215711477	Coil 2,2µH 5%
5702	482215711477	Coil 2,2µH 5%
5703	482215620946	Osc. Coil 100kHz

DIODES

6611	482213031878	1N4003G
6612	482213031878	1N4003G
6613	482213032245	BYV10-40
6614	482213030621	1N4148
6770	482213030621	1N4148
6771	482213030621	1N4148
6772	482213030621	1N4148
6773	482213030621	1N4148
6774	482213030621	1N4148
6775	482213030621	1N4148
6776	482213030621	1N4148
6777	482213034382	BZX79-C8V2
6778	482213030621	1N4148
6782	482213030621	1N4148
6785	482213030621	1N4148
6786	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT
7612	532213060845	BC807-25
7613	532213060845	BC807-25
7614	532213060845	BC807-25
7616	482213060373	BC857B
7618	482213060511	BC847B
7619	482213060511	BC847B
7620	482213060511	BC847B
7622	482213060511	BC847B
7623	482213060511	BC847B
7624	482213060511	BC847B
7630	482220917322	CXA1551M
7631	482213060511	BC847B
7632	482213060511	BC847B
7633	482213060511	BC847B
7634	482213060511	BC847B
7635	482213060511	BC847B
7636	482213060511	BC847B
7637	482213060511	BC847B
7638	482213060511	BC847B
7640	482220983357	NJM4560M
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
7785	482213063494	J111
7786	482213063494	J111
7787	482213060511	BC847B
7788	482213060511	BC847B
7789	482213060511	BC847B
7790	482213060511	BC847B
7791	482213060511	BC847B
7792	482213060511	BC847B

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

3CDC-LC

(3 Disc Carrousel Changer)

TABLE OF CONTENTS

Servicing Hints 10-2
Wiring 10-4
Blockdiagram 10-5
Component Layout Main Board 10-6
Circuit Diagram part1 10-7
Component Layout Main Board 10-8
Circuit Diagram part2 10-9
Exploded View 10-10
Partslist 10-12

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

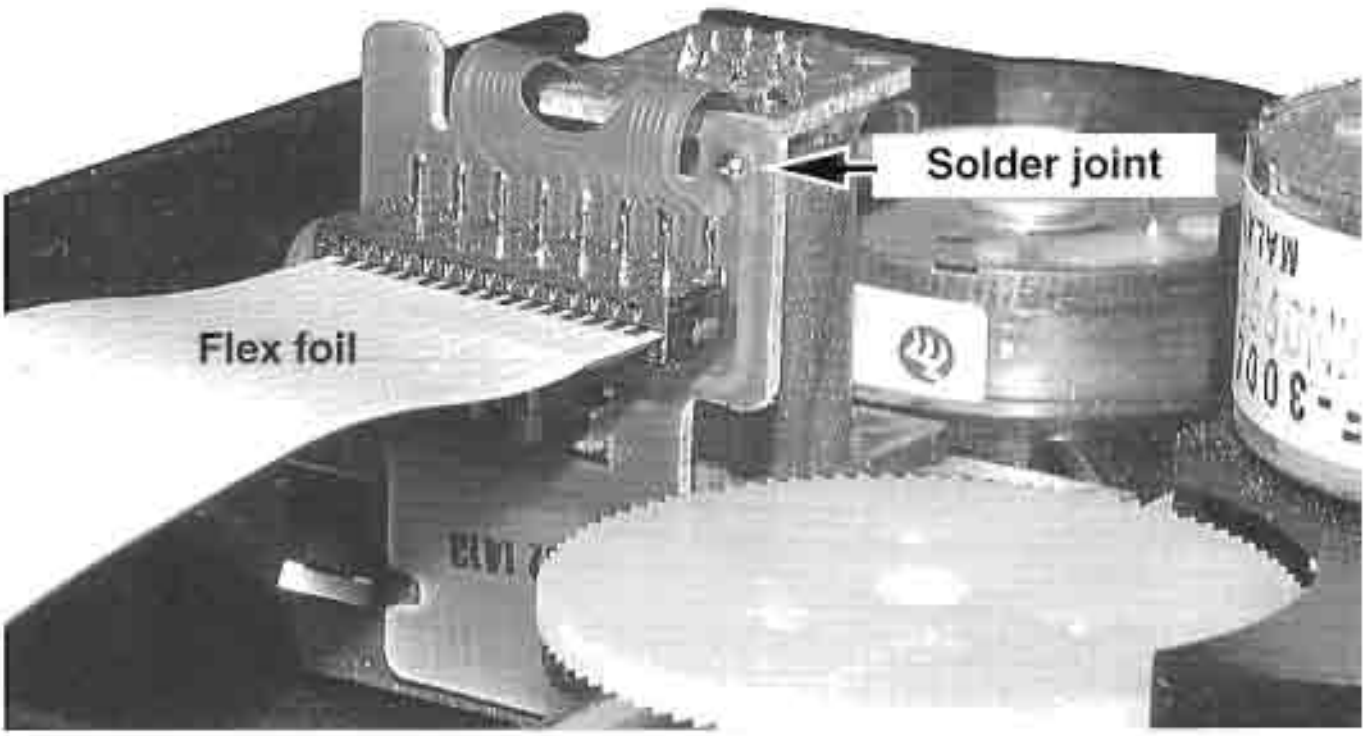
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

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

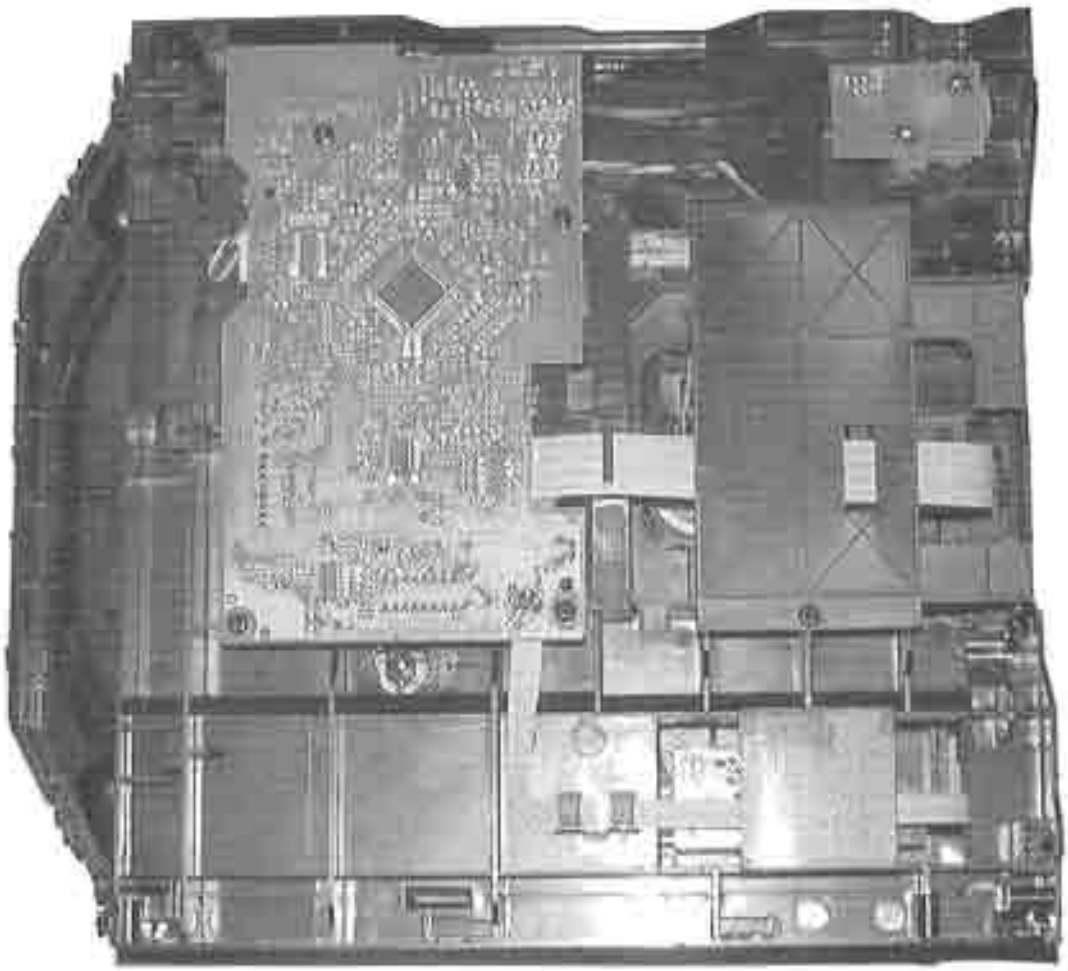
1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit


fig.1

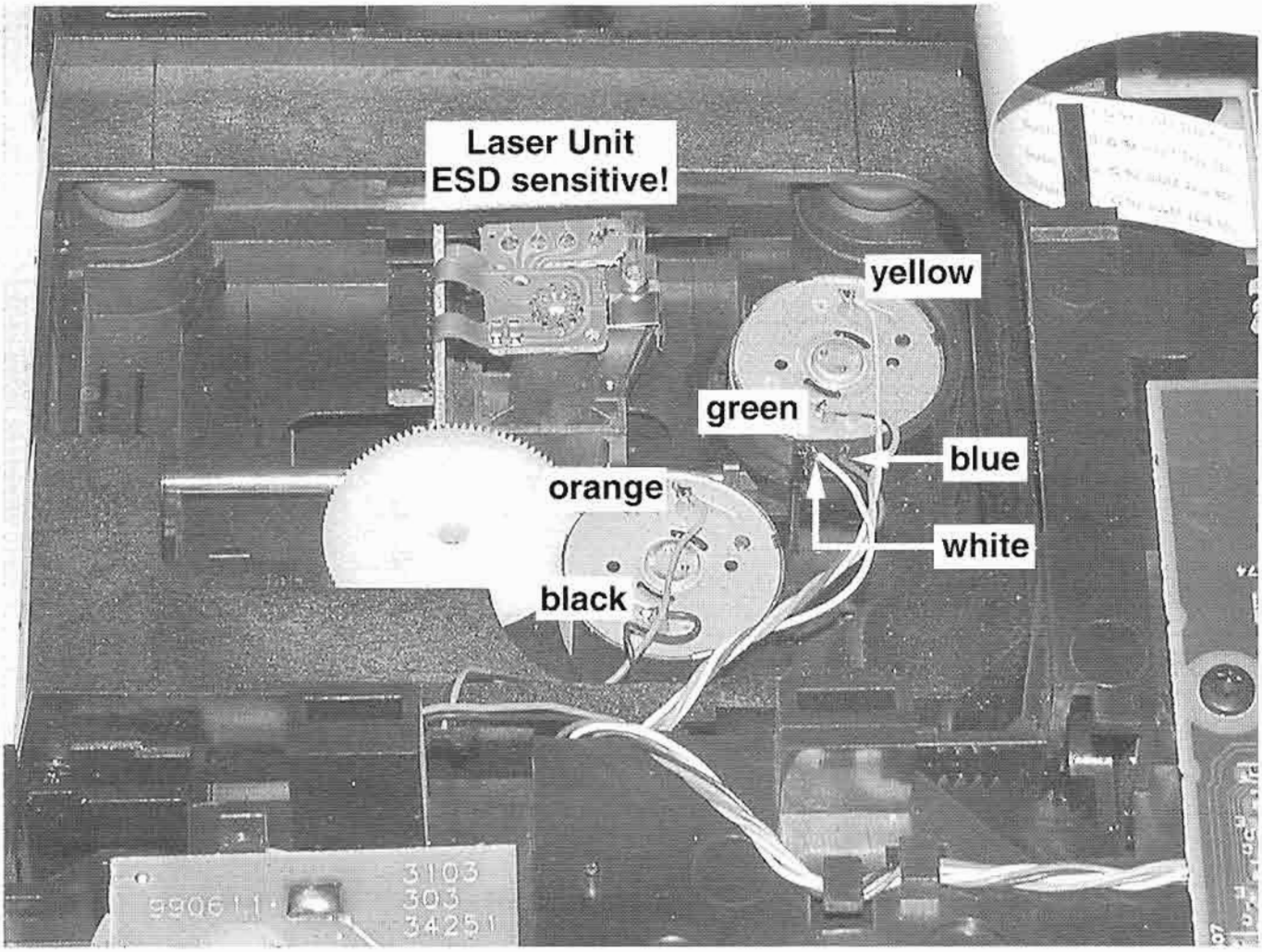
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



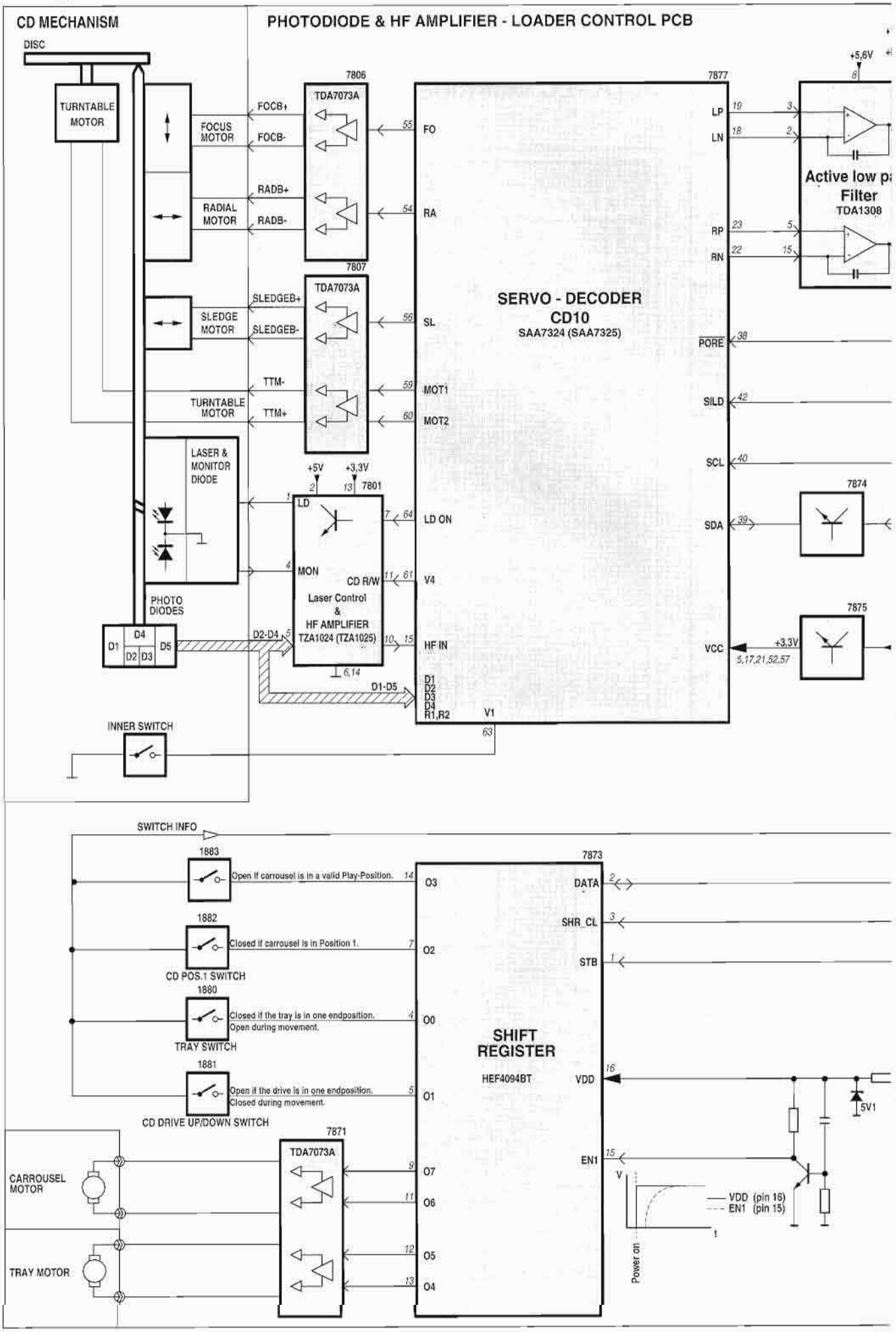
Service Position

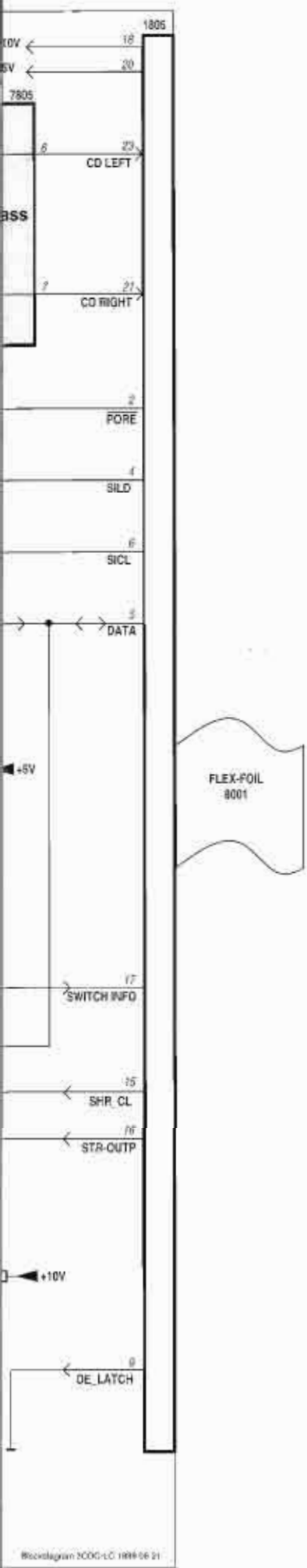


Wiring

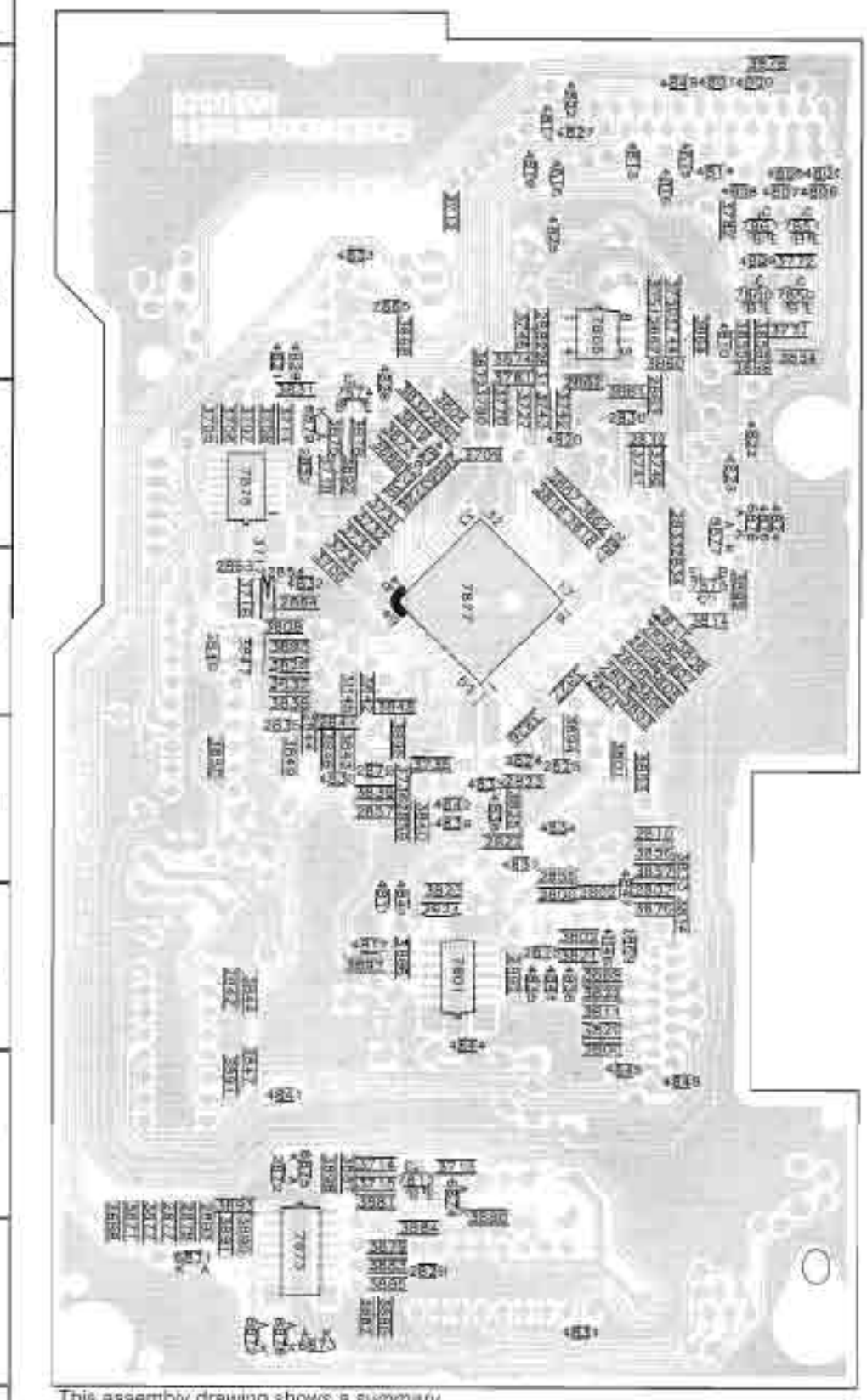

Laser Unit
ESD sensitive!
yellow
green
blue
orange
white
black
3103
303
34251

Blockdiagram




1805
18
20
7805
6
23
CD LEFT
7
21
CD RIGHT
2
PORE
4
SILD
6
SICL
5
DATA
+5V
FLEX-FOIL
8001
17
SWITCH INFO
15
SHR_CL
16
STR-OUTP
+10V
9
OE_LATCH

3CDC-LC Mainboard Copperside view



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

Map

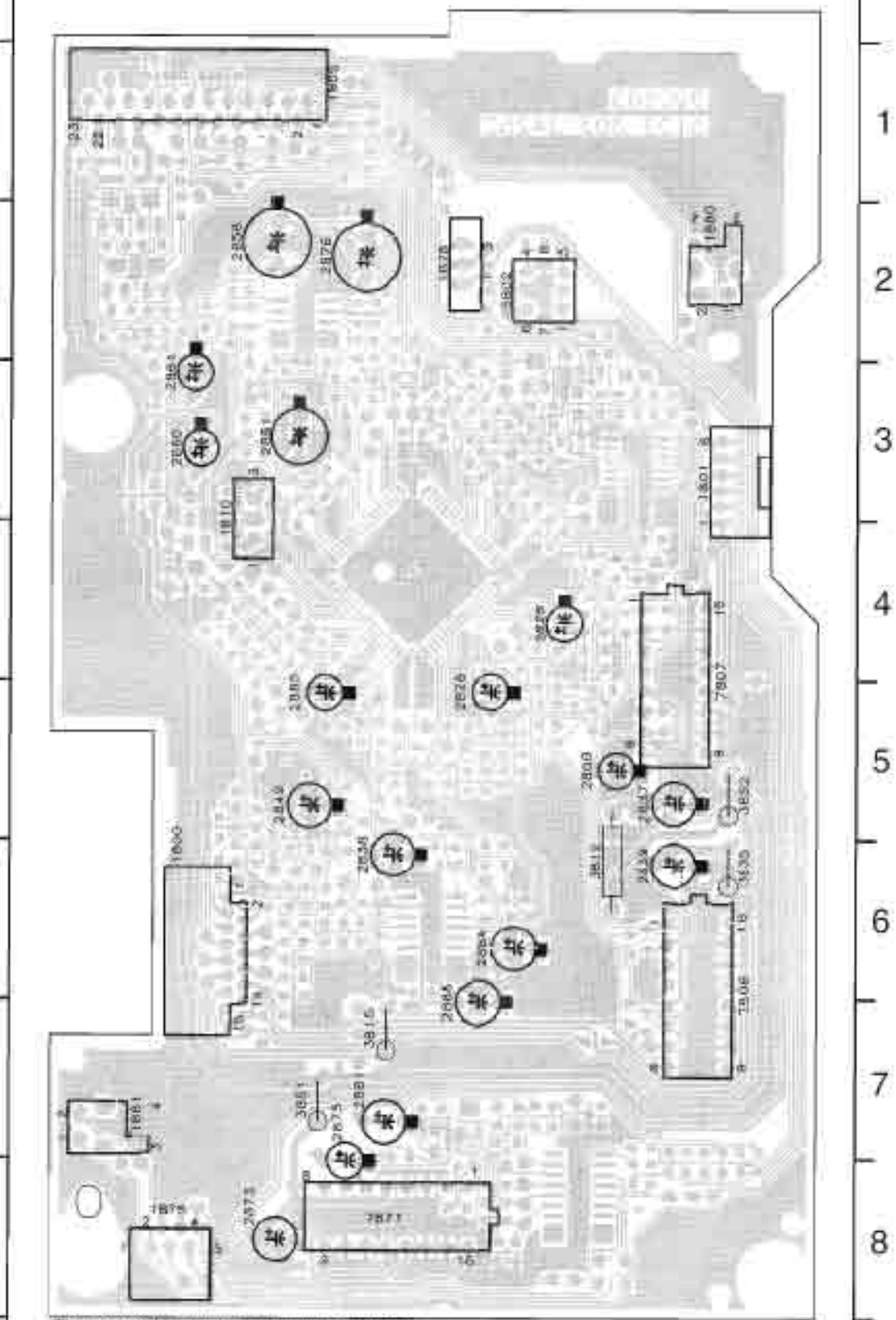
Copperside		3751	B2
2800	B6	3770	C3
2801	B4	3771	A2
2802	B6	3772	A2
2803	B4	3780	G3
2805	B4	3781	C2
2806	B4	3782	A2
2807	B6	3800	B6
2808	B4	3801	B5
2810	B5	3802	B6
2811	B4	3803	B4
2815	C8	3804	C3
2816	C3	3805	B4
2818	B3	3806	B4
2822	C5	3807	B4
2823	C5	3808	B4
2824	C5	3809	D4
2825	B5	3811	B6
2829	C8	3814	B4
2830	B3	3819	C3
2831	C2	3820	B6
2832	B3	3821	B6
2833	B3	3822	B6
2834	B4	3823	C8
2836	D5	3824	C8
2840	E4	3825	C5
2841	D5	3826	C5
2842	D6	3827	B4
2844	D6	3828	D4
2850	C3	3831	D3
2852	D3	3832	C3
2853	D4	3833	B5
2854	D4	3834	B6
2855	B5	3837	D4
2856	C3	3838	D4
2857	D5	3839	D5
2858	C5	3840	C5
2862	B3	3841	D4
2863	B3	3842	D4
2864	D4	3843	D5
2865	C2	3844	D6
2867	B2	3845	D4
2869	B6	3846	D5
2872	D7	3847	D7
2877	E8	3848	C4
2878	E8	3849	D5
2879	D5	3850	E5
2882	C2	3853	B5
2887	B3	3854	A2
2891	D7	3855	A2
2892	C8	3856	B5
2893	E8	3857	B5
3700	D4	3858	A2
3705	E3	3859	A2
3706	D3	3860	B2
3707	D3	3861	B3
3708	D3	3862	B3
3709	C3	3863	D4
3711	D3	3864	B2
3712	C1	3866	C6
3713	C7	3867	B3
3714	D7	3868	C2
3715	D7	3869	B6
3716	D4	3870	B6
3717	D4	3871	E8
3718	D3	3872	C2
3727	C3	3873	C3
3728	C3	3874	C2
3730	C3	3875	D3
3731	D3	3876	D3
3732	D3	3877	E8
3733	D3	3878	A1
3734	D4	3879	C8
3735	C5	3880	C7
3736	C5	3881	D7
3740	B3	3882	D8
3741	B3	3883	C8
3742	B3	3884	C8
3743	C3	3885	C8
3744	B2	3886	D8
3746	C2	3887	D7
3750	B2	3888	E8

B

ping

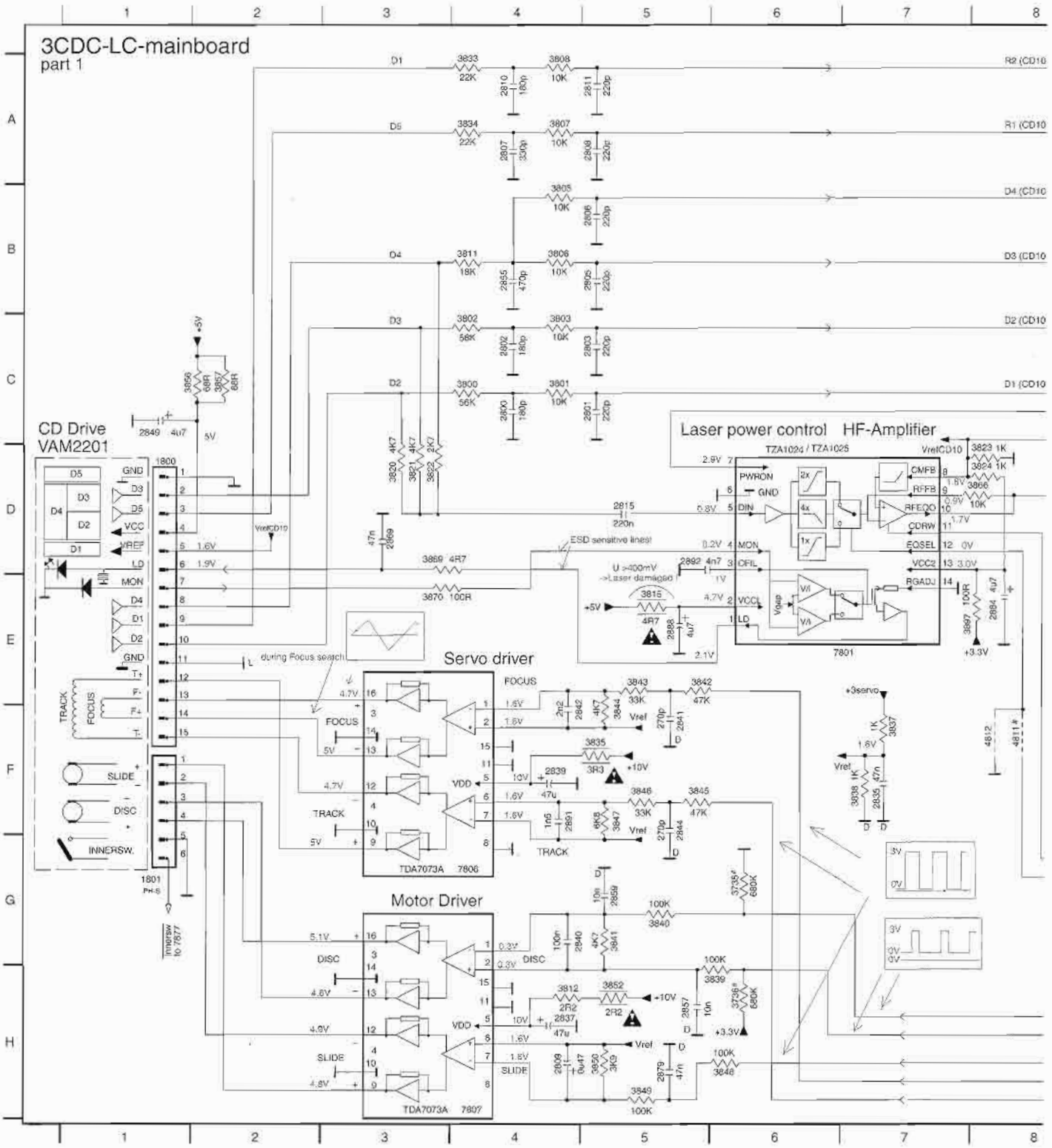
		Componentside	
3889	D3	1800	A6
3890	D8	1801	E3
3891	D8	1805	B1
3892	D3	1810	B3
3893	D7	1875	A2
3894	B5	1878	C2
3895	C5	1880	E2
3897	D8	1881	A7
3898	D7	2809	D5
3899	A4	2826	C5
4800	A1	2828	D4
4801	B1	2837	D5
4802	B1	2838	C6
4803	D2	2839	D6
4804	A1	2849	B5
4805	A1	2851	B3
4806	A1	2858	B2
4807	A1	2860	A3
4808	A1	2861	A3
4809	A2	2873	B8
4810	B2	2875	B7
4811	D6	2876	B2
4812	D6	2881	C7
4813	B1	2884	C6
4814	B1	2885	B5
4815	B1	2888	C7
4816	B1	3812	D6
4817	C1	3815	C7
4818	C1	3835	E6
4819	C1	3851	B7
4820	B3	3852	E5
4821	D2	5802	D2
4822	A3	7806	E6
4823	A3	7807	E5
4824	A3	7871	C8
4825	C2		
4826	C3		
4827	B1		
4828	D3		
4829	D2		
4830	D5		
4831	B8		
4832	D4		
4833	C5		
4834	B5		
4835	C6		
4836	B6		
4837	C5		
4838	C5		
4839	C5		
4840	C6		
4841	D7		
4842	C5		
4843	C6		
4844	C6		
4845	B7		
4846	B6		
4847	B6		
4848	B7		
4849	B1		
4876	A3		
5871	E8		
5872	D6		
5873	D6		
5874	C7		
5875	D7		
5876	A3		
5877	B3		
5878	D8		
5879	D3		
7801	C6		
7805	B2		
7812	C7		
7850	A2		
7851	A2		
7860	A2		
7861	A2		
7873	D8		
7874	D3		
7875	B4		
7876	D3		
7877	C4		

3CDC-LC Mainboard Componentside view

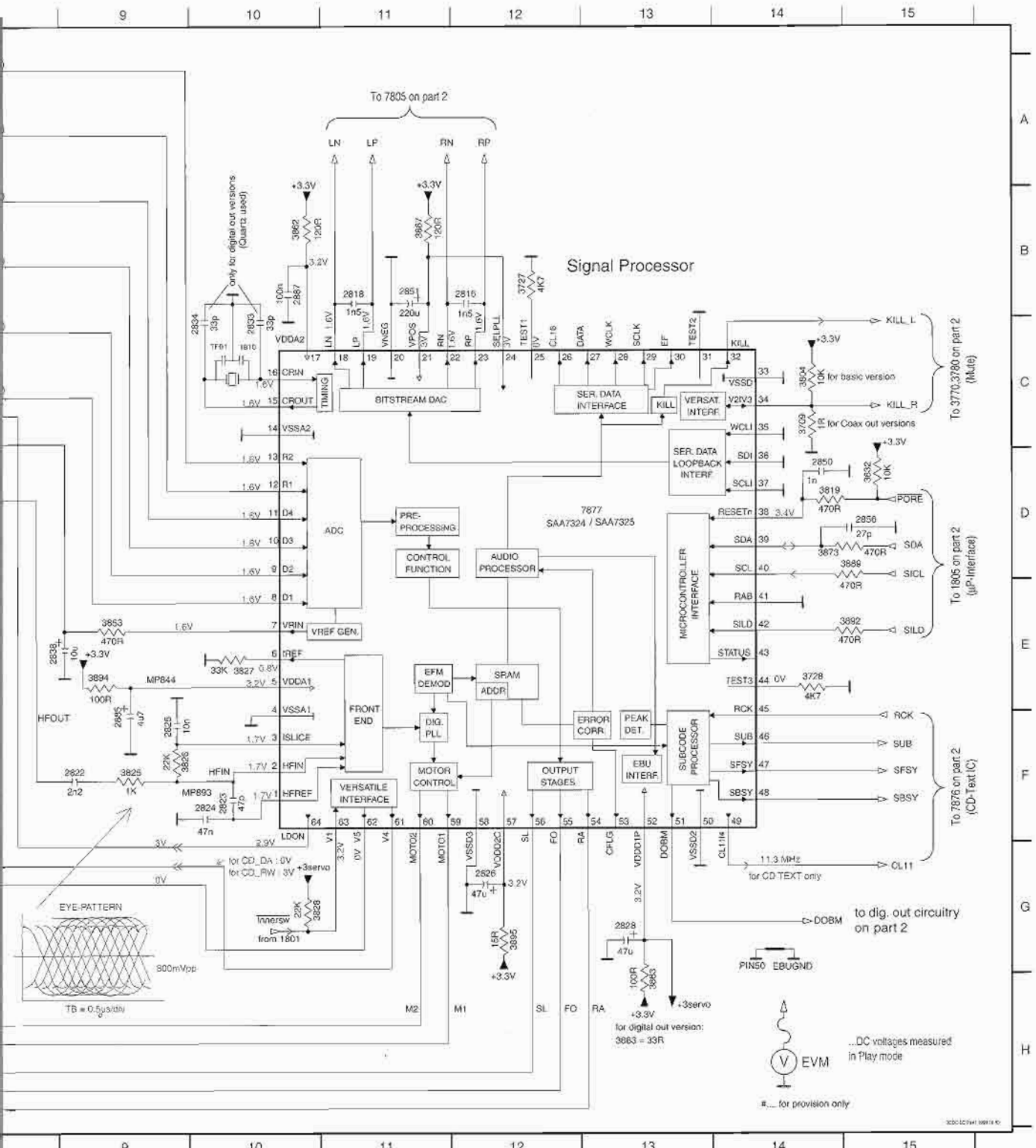


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

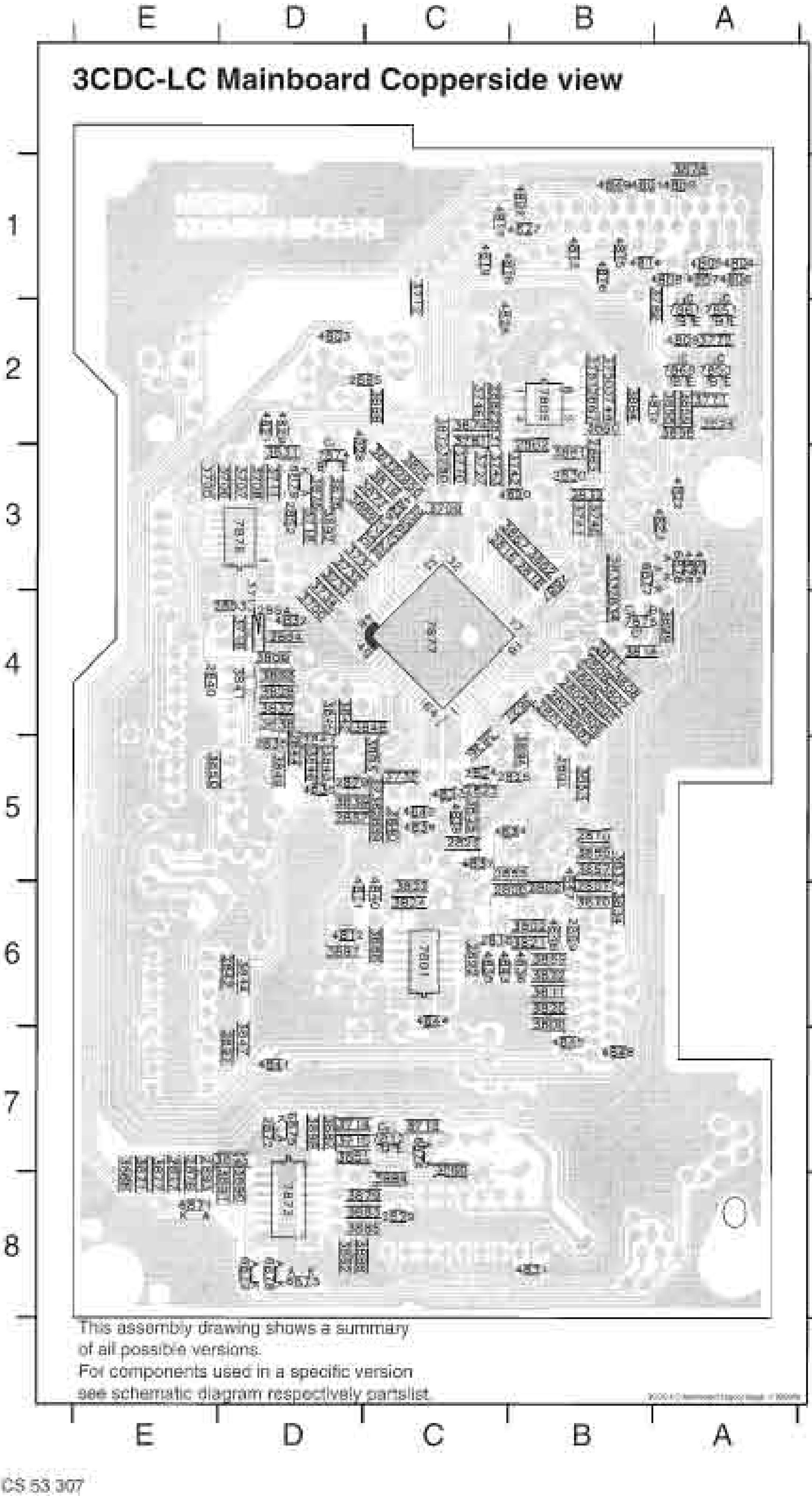
1800 D1	2802 C4	2806 A5	2816 B12	2825 F9	2835 F7	2841 F5	2851 B11	2869 D3	2888 E5	3728 E14	3802 C4	3807 A4	3819 D14	3824 D8	3832 D15	3838 F7	3843 E
1801 G1	2803 C5	2809 H4	2818 B11	2826 G12	2837 H4	2842 F5	2855 B4	2879 H5	2891 F4	3735 G6	3803 C4	3808 A4	3820 D3	3825 F9	3833 A4	3839 H8	3844 F
1810 C10	2805 B5	2810 A4	2822 F9	2828 G13	2838 E8	2844 F5	2856 D15	2884 E8	2892 D5	3736 H6	3804 C14	3811 B4	3821 D3	3826 F9	3834 A4	3840 G5	3845 F
2800 C4	2806 B5	2811 A5	2823 F10	2833 C10	2839 F4	2849 C1	2857 H5	2885 F9	3709 C14	3800 C4	3805 B4	3812 H4	3822 D3	3827 E10	3835 F5	3841 G5	3846 F
2801 C5	2807 A4	2815 D5	2824 F10	2834 C10	2840 G4	2850 D14	2859 G5	2887 B10	3727 B12	3801 C4	3806 B4	3815 E5	3823 D8	3828 G10	3837 F7	3842 E5	3847 F



3848 H6	3856 C1	3867 B11	3892 E15	4812 F8	MP713 C5	MP730 B5	MP800 E3	MP814 F2	MP819 G9	MP829 B3	MP841 F6	MP846 G1	MP851 E2	MP859 F10	MP873 H4	MP883 E5
3849 H5	3857 C2	3869 D3	3894 E9	7801 E7	MP715 C5	MP731 B13	MP802 B15	MP815 C3	MP820 F8	MP837 E3	MP842 H6	MP847 G2	MP852 F2	MP860 C2	MP875 G13	MP884 E5
3850 H5	3862 B10	3870 E3	3895 G12	7806 G4	MP716 A5	MP743 D2	MP809 E10	MP816 A3	MP821 D15	MP838 G6	MP843 F6	MP848 E2	MP853 F2	MP861 E6	MP877 E4	MP893 F10
3852 H5	3863 H13	3873 D14	3897 E7	7807 H4	MP717 A5	MP744 D2	MP812 F2	MP817 A3	MP827 B10	MP839 G6	MP844 E9	MP849 F2	MP855 E10	MP870 D8	MP878 B13	MP895 E14
3853 E9	3858 D8	3869 D15	4811 F8	7877 D12	MP729 B5	MP745 E2	MP813 C3	MP818 D3	MP828 G9	MP840 E6	MP845 F4	MP850 F2	MP858 F9	MP872 C15	MP879 B11	MP896 B12



3CDC-LC Mainboard Copperside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
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Ma

Copperside		3751	B2
2800	B6	3770	C3
2801	B4	3771	A2
2802	B6	3772	A2
2803	B4	3780	C3
2805	B4	3781	C2
2806	B4	3782	A2
2807	B6	3800	B6
2808	B4	3801	B5
2810	B5	3802	B6
2811	B4	3803	B4
2815	C6	3804	C3
2816	C3	3805	B4
2818	B3	3806	B4
2822	C5	3807	B4
2823	C5	3808	B4
2824	C5	3809	D4
2825	B5	3811	B6
2829	C8	3814	B4
2830	B3	3819	C3
2831	C2	3820	B6
2832	B3	3821	B6
2833	B3	3822	B6
2834	B4	3823	C6
2835	D6	3824	C6
2840	E4	3825	C5
2841	D5	3826	C5
2842	D6	3827	B4
2844	D6	3828	D4
2850	C3	3831	D3
2852	D3	3832	C3
2853	D4	3833	B5
2854	D4	3834	B6
2855	B5	3837	D4
2856	C3	3838	D4
2857	D5	3839	D5
2858	C5	3840	C5
2862	B3	3841	D4
2863	B3	3842	D4
2864	D4	3843	D5
2865	C2	3844	D6
2867	B2	3845	D4
2869	B6	3846	D5
2872	D7	3847	D7
2877	E8	3848	C4
2878	E8	3849	D5
2879	D5	3850	E8
2882	C2	3853	B5
2887	B3	3854	A2
2891	D7	3855	A2
2892	C6	3856	B5
2893	E8	3857	B5
3700	D4	3858	A2
3705	E3	3859	A2
3706	D3	3860	B2
3707	D3	3861	B3
3708	D3	3862	B3
3709	C3	3863	D4
3711	D3	3864	B2
3712	C1	3866	C8
3713	C7	3867	B3
3714	D7	3868	C2
3715	D7	3869	B6
3716	D4	3870	B6
3717	D4	3871	E8
3718	D3	3872	C2
3727	C3	3873	C3
3728	C3	3874	C2
3730	C3	3875	D3
3731	D3	3876	D3
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3735	C5	3880	C7
3736	C5	3881	D7
3740	B3	3882	D8
3741	B3	3883	C8
3742	B3	3884	C8
3743	C3	3885	C8
3744	B2	3886	D8
3746	C2	3887	D7
3750	B2	3888	E8

ping

		Componentside	
3889	D3	1800	A6
3890	D8	1801	E3
3891	D8	1805	B1
3892	D3	1810	B3
3893	D7	1875	A8
3894	B5	1878	C2
3895	C5	1880	E2
3897	D6	1881	A7
3898	D7	2809	D5
3899	A4	2826	C5
4800	A1	2828	D4
4801	B1	2837	D5
4802	B1	2838	C6
4803	D2	2839	D6
4804	A1	2849	B5
4805	A1	2851	B3
4806	A1	2858	B2
4807	A1	2860	A3
4808	A1	2861	A3
4809	A2	2873	B8
4810	B2	2875	B7
4811	D6	2876	B2
4812	D6	2881	C7
4813	B1	2884	C6
4814	B1	2885	B5
4815	B1	2888	C7
4816	B1	3812	D6
4817	C1	3815	C7
4818	C1	3835	E6
4819	C1	3851	B7
4820	B3	3852	E5
4821	D2	5802	D2
4822	A3	7806	E6
4823	A3	7807	E5
4824	A3	7871	C8
4825	C2		
4826	C3		
4827	B1		
4828	D3		
4829	D2		
4830	D5		
4831	B8		
4832	D4		
4833	C5		
4834	B5		
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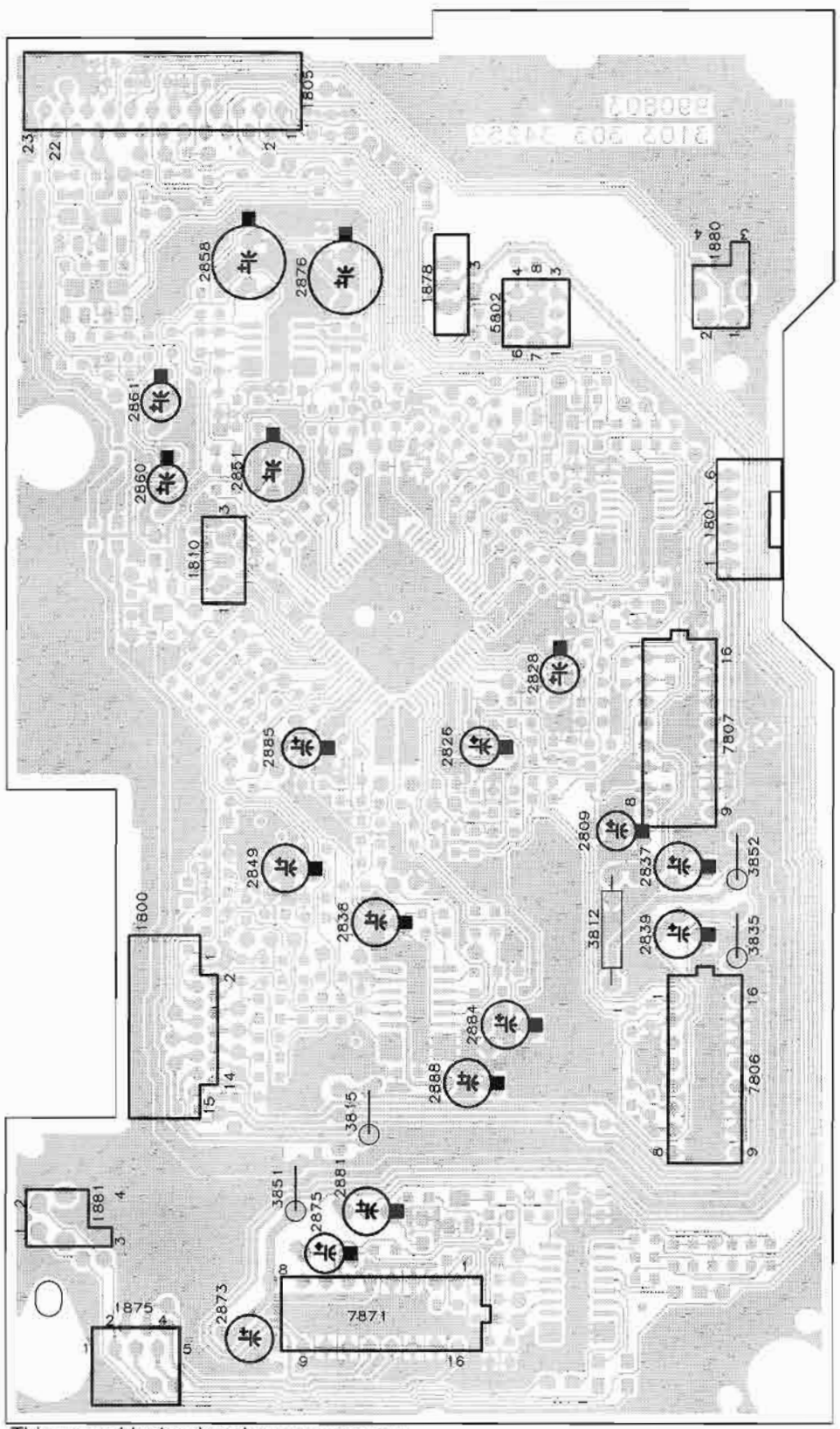
4838	C5		
4839	C5		
4840	C6		
4841	D7		
4842	C5		
4843	C6		
4844	C6		
4845	B7		
4846	B6		
4847	B6		
4848	B7		
4849	B1		
4876	A3		
6871	E8		
6872	D8		
6873	D8		
6874	C7		
6875	D7		
6876	A3		
6877	B3		
6878	D8		
6879	D3		
7801	C6		
7805	B2		
7812	C7		
7850	A2		
7851	A2		
7860	A2		
7861	A2		
7873	D8		
7874	D3		
7875	B4		
7876	D3		
7877	C4		

3CDC-LC Mainboard Componentside view



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

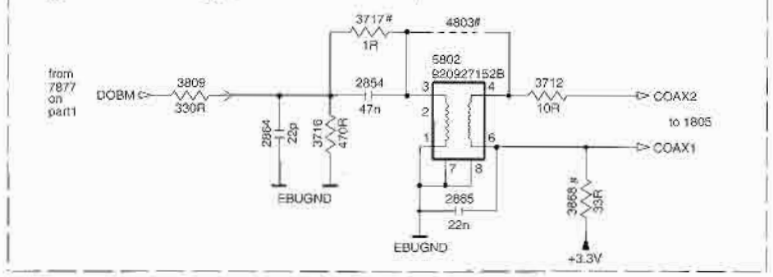
3CDC-LC Mainboard Layout stage .2 990920

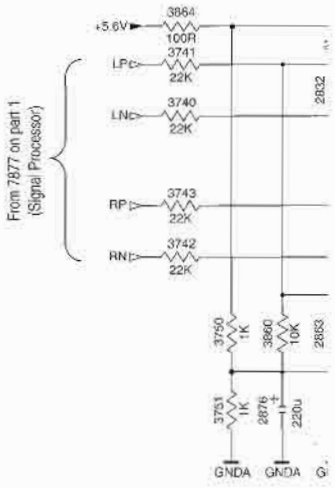
1805 D15	2830 B10	2858 A10	2865 C4	2877 F11	3705 G4	3713 F8	3730 G2	3741 A7	3751 C7	3782 B12	3855 B11	3868 C4	3877 F12	3883 D6	3890 F
1875 D2	2831 B9	2860 A10	2867 A9	2878 F11	3706 G4	3714 F8	3731 G2	3742 B7	3770 A11	3809 B2	3858 A11	3871 F12	3878 E12	3884 D6	3891 F
1876 D2	2832 A8	2861 B10	2872 G10	2881 F8	3707 G4	3715 G8	3732 G2	3743 A7	3771 A12	3814 C12	3859 B11	3872 B13	3879 D7	3885 C6	3893 F
1880 E8	2852 H2	2862 B9	2873 D6	2882 B10	3708 G4	3716 B3	3733 G2	3744 A9	3772 A12	3831 F4	3860 B8	3874 B13	3880 E6	3886 E7	3898 F
1881 E8	2853 F4	2863 B8	2875 E8	2893 F12	3711 G5	3717 B3	3734 G2	3746 B10	3780 B11	3851 D6	3861 B8	3875 C12	3881 E7	3887 D6	3899 G
2829 D6	2854 B3	2864 B3	2876 C8	3700 H2	3712 B4	3718 G3	3740 A7	3750 B7	3781 B12	3854 A11	3864 A7	3876 C11	3882 C7	3888 F12	4803 F

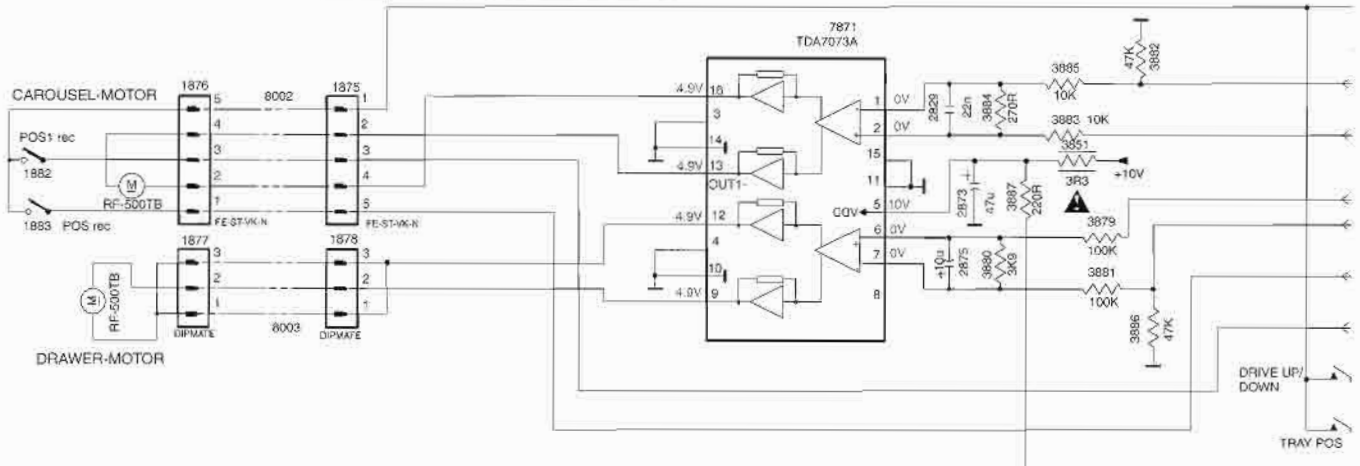
3CDC-LC-mainboard

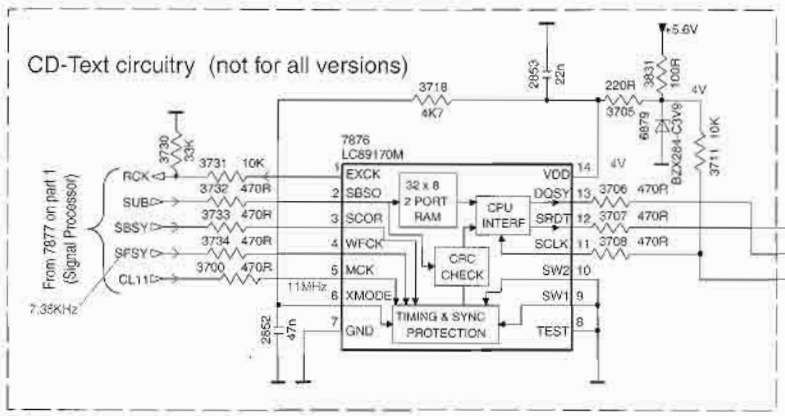
part 2

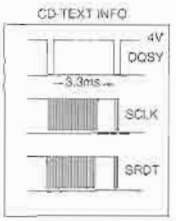
digital out circuitry (not for all versions)

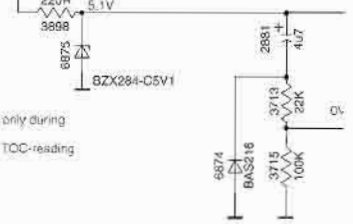




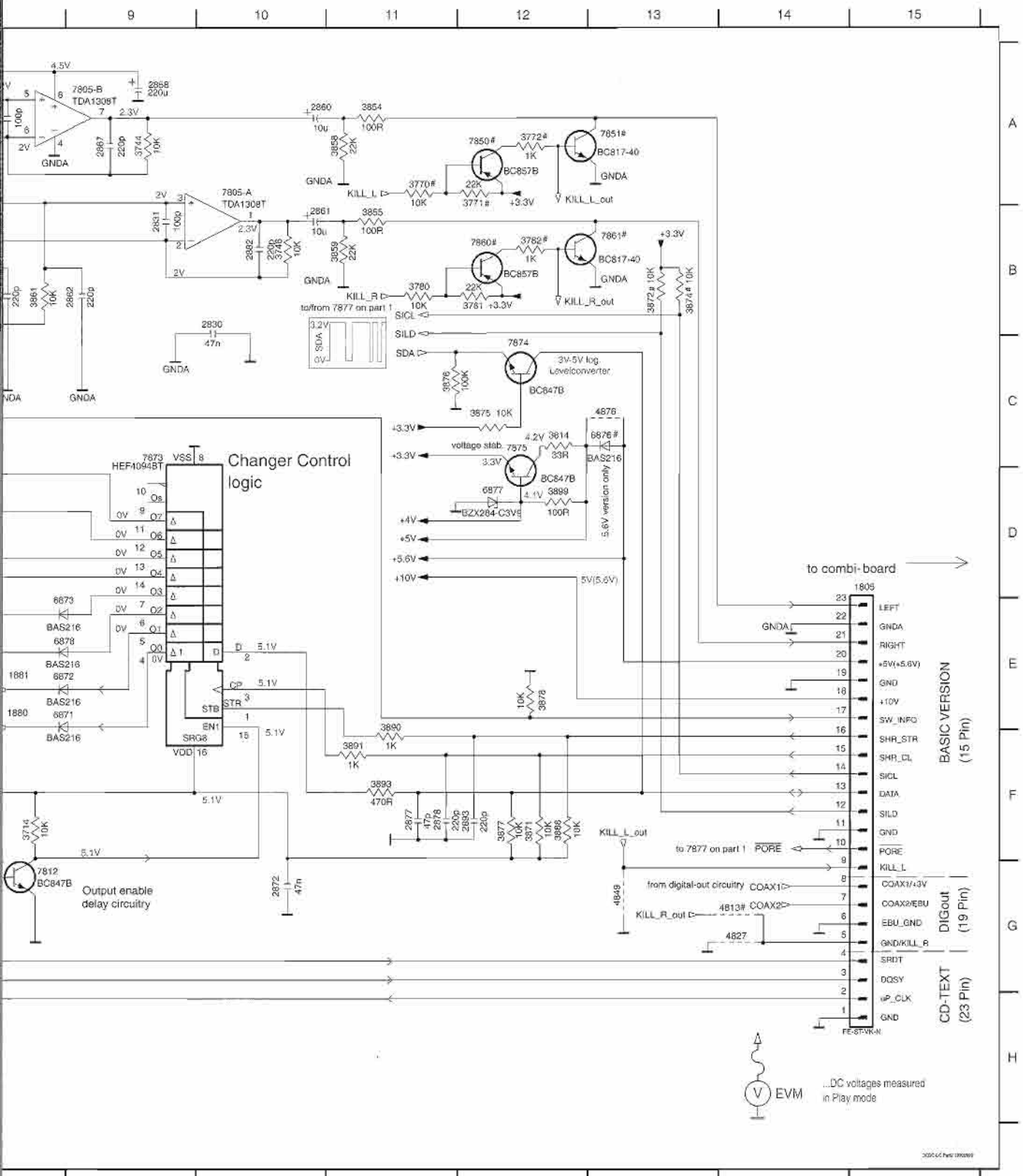






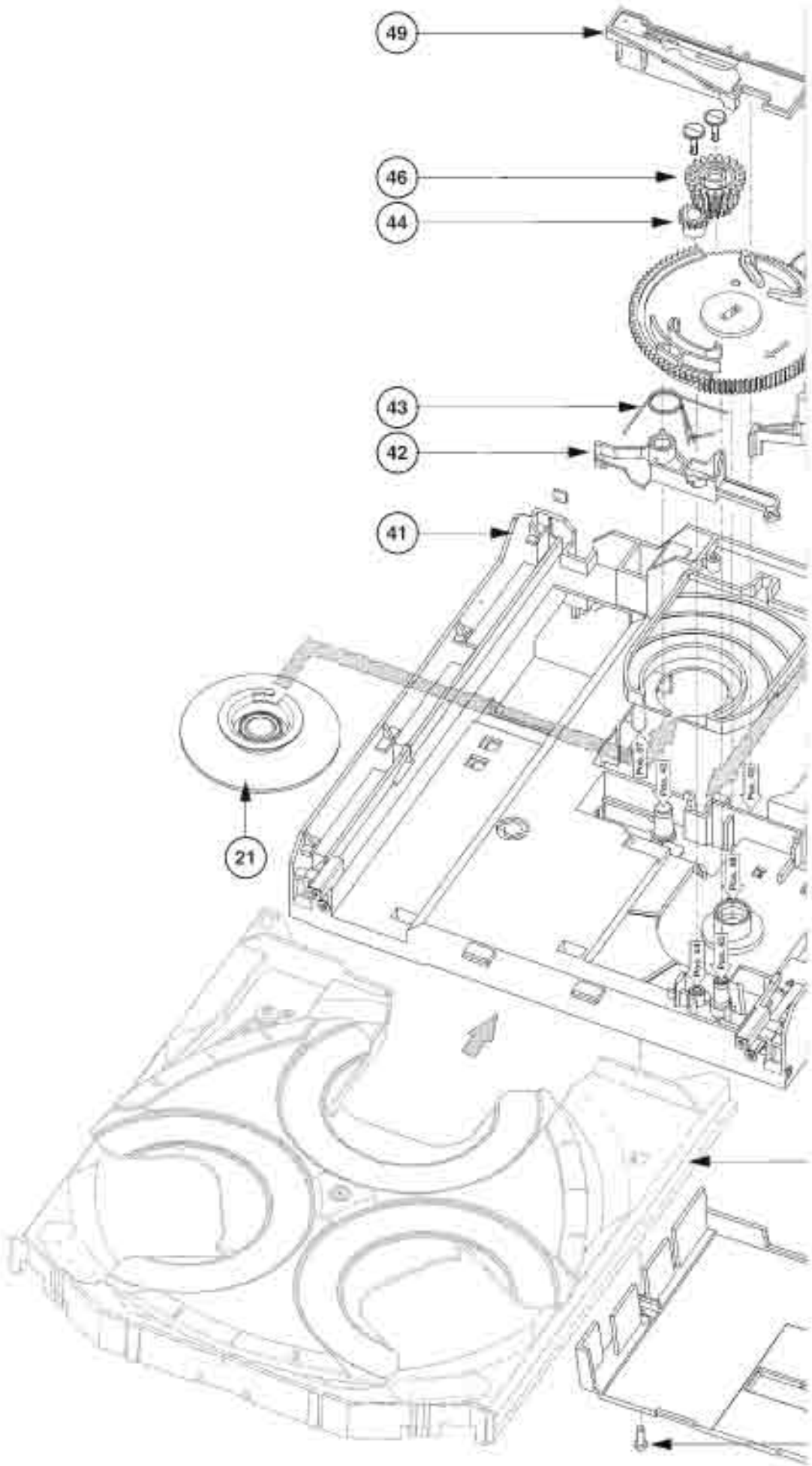


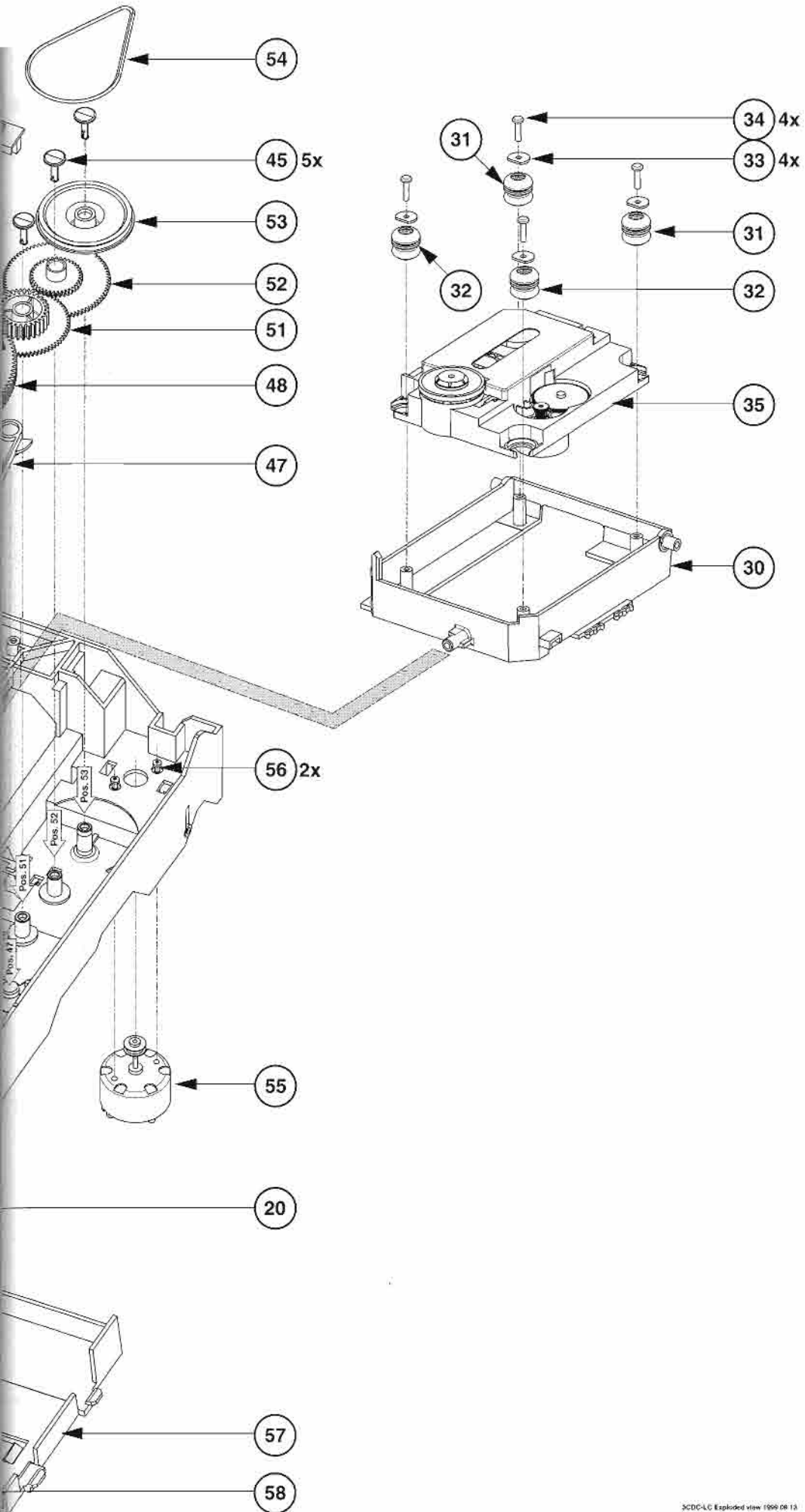
4813 G14	6872 E8	6878 E8	7851 A13	7875 C12	MP725 D8	MP803 F10	MP810 F13	MP830 A9	MP856 E14	MP867 E8	MP882 G2	MP891 B5
4827 G14	6873 E8	6879 G4	7860 B12	7876 G3	MP726 D8	MP804 G14	MP811 F13	MP832 G9	MP857 B13	MP868 F8	MP886 G3	MP892 B5
4849 G13	6874 G7	7805-A A10	7861 B13	MP721 C8	MP740 H14	MP805 E13	MP822 E3	MP833 F13	MP862 G13	MP869 C12	MP887 H5	MP897 D12
4876 C13	6875 F6	7805-B A9	7871 C5	MP722 E8	MP741 G14	MP806 F13	MP823 D3	MP834 G14	MP863 C11	MP871 D6	MP888 G5	MP898 D13
D12 5802 B4	6876 C13	7812 G8	7873 C9	MP723 C8	MP742 G14	MP807 F14	MP824 D4	MP835 F14	MP865 D11	MP874 D12	MP889 G5	MP899 E14
84 6871 E8	6877 D12	7850 A12	7874 C12	MP724 D8	MP801 D12	MP808 E13	MP825 D4	MP854 A13	MP866 E8	MP881 G2	MP890 B3	



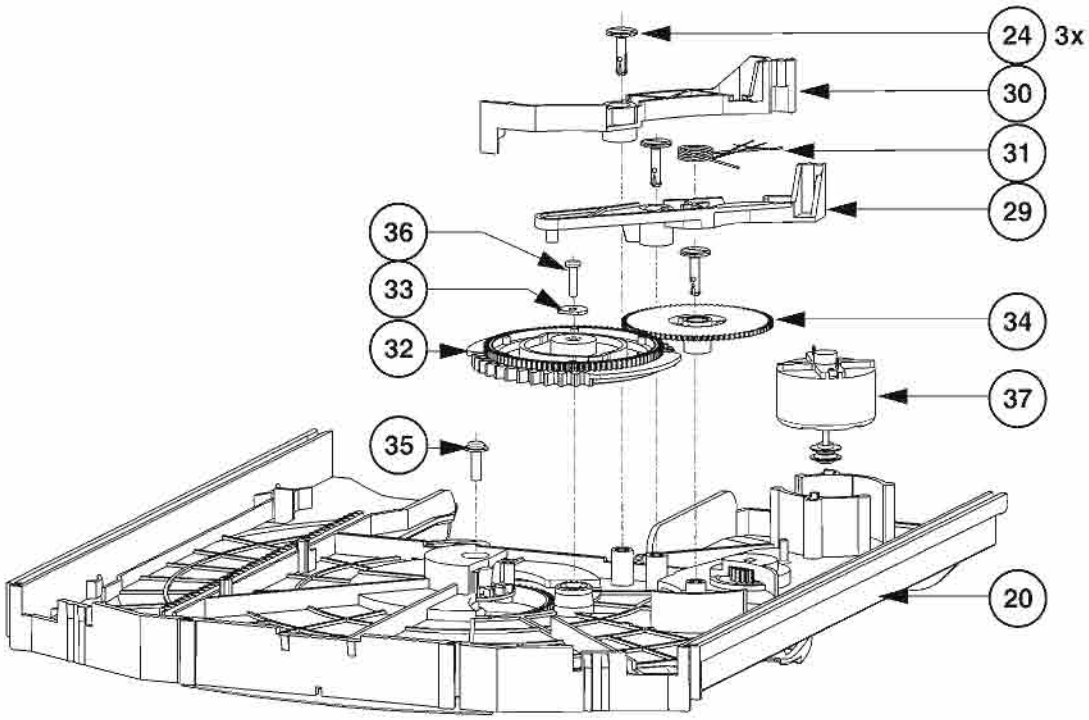
A

EXPLODED VIEW (3CDC-LC MODULE)

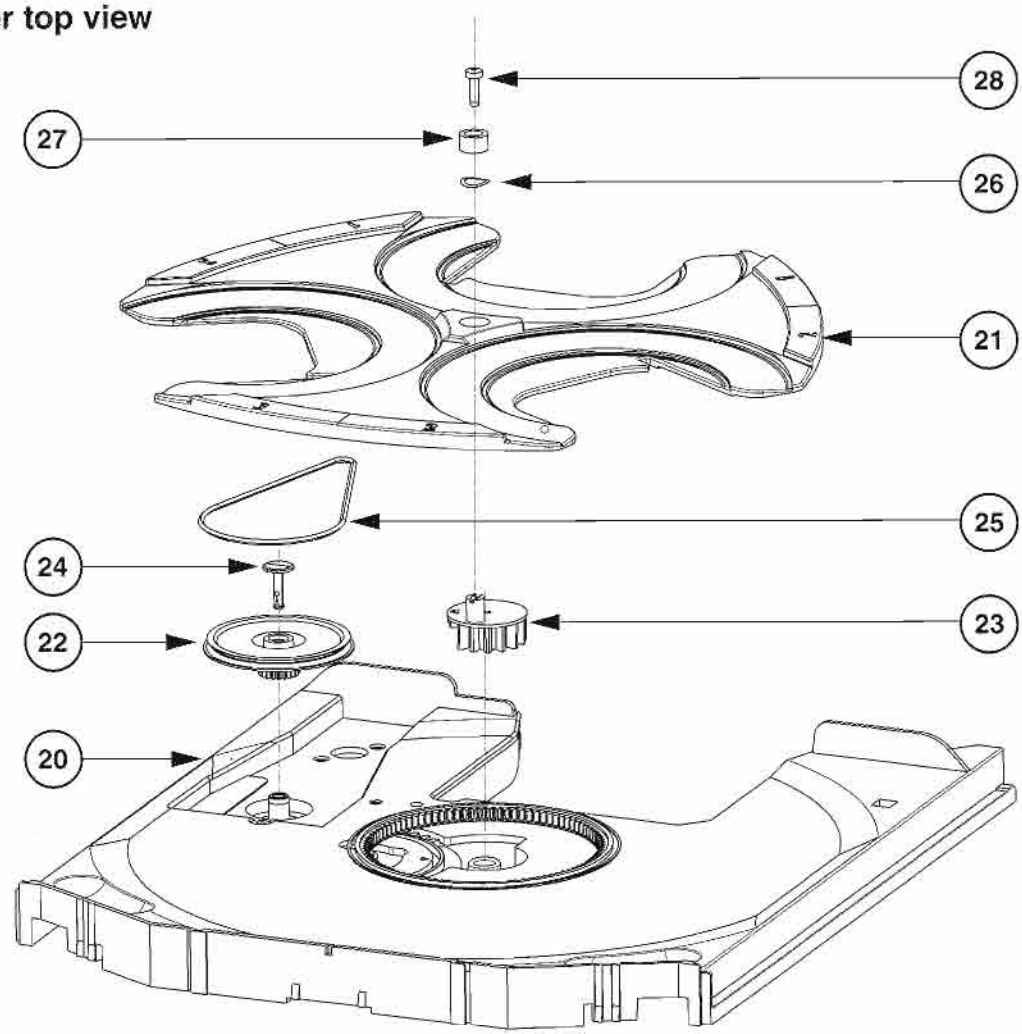



54
45 5x
53
52
51
48
47
34 4x
31
33 4x
31
32
32
35
30
56 2x
Pos. 53
Pos. 52
Pos. 51
Pos. 47
55
20
57
58

Drawer bottom view



Drawer top view



MECHANICAL PARTS LIST - 3CDC-LC DRAWER ASSEMBLY (Page 10-11)

0020	310330466500	DRAWER	0029	310330466550	BRACKET-DISC
0021	310330466490	CARROUSELL	0030	310330466520	TUMBLER
0022	310330406860	PULLEY-DRAWER	0031	310330106470	SPRING-DISC
0023	310330406850	ECCENTRIC	0032	310330406920	CONTROL-DISC
0024	310330406980	NAIL	0033	310330406970	WASHER
0025	310330466850	DRIVING-BELT-CARROUSEL	0034	310330406870	GEAR-1
0027	482253212365	BUSH DRAWER	0037	482236110753	MOTOR ASSY
0027	310330407100	BUSH DRAWER / BWC Version			

MECHANICAL PARTS LIST - 3CDC-LC MODULE (Page 10-10)

0021	314011758650	CLAMPER ASSY-VAM	0047	310330466530	BRACKET-LOAD
0030	310330466560	SUPPORT	0048	310330406910	CAM
0031	482252910431	DAMPER - RUBBER (25DEG)	0049	310330466510	GUIDING
0032	482252910431	DAMPER - RUBBER (25DEG)	0051	310330406900	GEAR-4
0033	310330406970	WASHER	0052	310330406870	GEAR-1
0035	482269110772	VAM2201/01	0053	310330406960	PULLEY-FRAME
0041	310330466480	FRAME	0054	310330466910	DRIVING-BELT-DRAWER
0042	310330466540	BRACKET-GUIDING	0055	482236110753	MOTOR ASSY
0043	310330106460	SPRING-GUIDING	0056	482250212548	SCREW M2,6X2,9
0044	310330406890	GEAR-3	0057	310330468890	COVER-VAM
0045	310330406980	NAIL	0059	482246612146	RUBBER
0046	310330406880	GEAR-2			

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

MISCELLANEOUS

1800	482226510925	Flex Foil Connector 15P	2808	482212233575	220pF 5% 63V
1805	482226510979	Flex Foil Connector 15P	2809	532212441948	470nF 20% 50V
1805	482226511545	Flex Foil Connector 19P	2810	482212610326	180pF 5% 63V
1805	482226511182	Flex Foil Connector 23P	2811	482212233575	220pF 5% 63V
1810	482224210849	RES XTL 8MHz4672	2815	482212614076	220nF +80/-20% 25V
1810	482224273557	RES CER 8MHz467	2816	482212613344	1,5nF 5% 63V
1875	482226710958	Flex Foil Connector 5P	2818	482212613344	1,5nF 5% 63V
1876	242202508332	Flex Foil Connector 5P	2822	222286115222	2,2nF 5% 50V
1880	482227613503	Switch	2823	482212613692	47pF 1% 63V
1881	482227613503	Switch	2824	482212613751	47nF 10% 63V
1882	482227613503	Switch	2825	482212233177	10nF 20% 50V
1883	482227613503	Switch	2826	482212412362	47µF 20% 4V
8002	310330891990	Flex Foil 5P 200mm	2828	482212412362	47µF 20% 4V
8005	310330891980	Flex Foil 15P 170mm	2829	532212232654	22nF 10% 63V
			2830	482212613751	47nF 10% 63V

CAPACITORS

2800	482212610326	180pF 5% 63V	2831	532212232531	100pF 5% 50V
2801	482212233575	220pF 5% 63V	2832	532212232531	100pF 5% 50V
2802	482212610326	180pF 5% 63V	2833	532212232659	33pF 5% 50V
2803	482212233575	220pF 5% 63V	2834	532212232659	33pF 5% 50V
2805	482212233575	220pF 5% 63V	2835	482212613751	47nF 10% 63V
2806	482212233575	220pF 5% 63V	2837	482212440433	47µF 20% 25V
2807	532212231863	330pF 5% 63V	2838	482212440248	10µF 20% 63V
			2839	482212440433	47µF 20% 25V

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

CAPACITORS

2840	482212614585	100nF 10% 50V
2841	482212233216	270pF 5% 50V
2842	482212233127	2,2nF 10% 63V
2844	482212233216	270pF 5% 50V
2849	482212440769	4,7µF 20% 100V
2850	532212231647	1nF 10% 63V
2851	482212442383	220µF 20% 4V
2852	482212613751	47nF 10% 63V
2853	532212232654	22nF 10% 63V
2854	482212613751	47nF 10% 63V
2855	532212234099	470pF 10% 63V
2856	482212613691	27pF 1% 63V
2857	482212233177	10nF 20% 50V
2858	482212412245	220µF 20%
2859	482212233177	10nF 20% 50V
2860	482212411947	10µF 20% 16V
2861	482212411947	10µF 20% 16V
2862	482212233575	220pF 5% 63V
2863	482212233575	220pF 5% 63V
2864	532212232658	22pF 5% 50V
2865	532212232654	22nF 10% 63V
2867	482212233575	220pF 5% 63V
2869	482212613751	47nF 10% 63V
2872	482212613751	47nF 10% 63V
2873	482212480231	47µF 20% 16V
2875	482212411947	10µF 20% 16V
2876	482212412245	220µF 20%
2877	482212613692	47pF 1% 63V
2878	482212233575	220pF 5% 63V
2879	482212613751	47nF 10% 63V
2881	482212440769	4,7µF 20% 100V
2882	482212233575	220pF 5% 63V
2884	482212440769	4,7µF 20% 100V
2885	482212440769	4,7µF 20% 100V
2887	482212614585	100nF 10% 50V
2888	482212440769	4,7µF 20% 100V
2891	532212231865	1,5nF 10% 63V
2892	532212610223	4,7nF 10% 63V
2893	482212233575	220pF 5% 63V

RESISTORS

3700	482205120471	470R 5% 0,1W
3705	482211711503	220R 1% 0,1W
3706	482205120471	470R 5% 0,1W
3707	482205120471	470R 5% 0,1W
3708	482205120471	470R 5% 0,1W
3709	482205120108	1R 5% 0,1W
3711	482211710833	10k 1% 0,1W
3712	482205120109	10R 5% 0,1W
3713	482205120223	22k 5% 0,1W
3714	482211710833	10k 1% 0,1W
3715	482211710837	100k 1% 0,1W
3716	482205120471	470R 5% 0,1W
3718	482205120472	4k7 5% 0,1W
3727	482205120472	4k7 5% 0,1W
3728	482205120472	4k7 5% 0,1W
3730	482205120333	33k 5% 0,1W
3731	482211710833	10k 1% 0,1W
3732	482205120471	470R 5% 0,1W
3733	482205120471	470R 5% 0,1W
3734	482205120471	470R 5% 0,1W
3740	482205120223	22k 5% 0,1W
3741	482205120223	22k 5% 0,1W
3742	482205120223	22k 5% 0,1W
3743	482205120223	22k 5% 0,1W
3744	482211710833	10k 1% 0,1W
3746	482211710833	10k 1% 0,1W
3750	482205110102	1k 2% 0,25W
3751	482205110102	1k 2% 0,25W
3800	482211711148	56k 1% 0,1W
3801	482211710833	10k 1% 0,1W
3802	482211711148	56k 1% 0,1W
3803	482211710833	10k 1% 0,1W
3804	482211710833	10k 1% 0,1W
3805	482211710833	10k 1% 0,1W
3806	482211710833	10k 1% 0,1W
3807	482211710833	10k 1% 0,1W
3808	482211710833	10k 1% 0,1W
3809	482211713577	330R 1% 1,25W
3811	482211710965	18k 1% 0,1W
3812	482205310228	2R2 5% 1W
3814	482205120339	33R 5% 0,1W
3815	482205210478	⚠ 4R7 5% 0,33W
3819	482205120471	470R 5% 0,1W
3820	482205120472	4k7 5% 0,1W
3821	482205120472	4k7 5% 0,1W
3822	482211712955	2k7 1% 0,1W
3823	482205110102	1k 2% 0,25W
3824	482205110102	1k 2% 0,25W
3825	482205110102	1k 2% 0,25W
3826	482205120223	22k 5% 0,1W
3827	482205120333	33k 5% 0,1W
3828	482205120223	22k 5% 0,1W
3831	482205120101	100R 5% 0,1W
3832	482211710833	10k 1% 0,1W
3833	482205120223	22k 5% 0,1W
3834	482205120223	22k 5% 0,1W
3835	482205210338	⚠ 3R3 5% 0,33W
3837	482205110102	1k 2% 0,25W
3838	482205110102	1k 2% 0,25W
3839	482211710837	100k 1% 0,1W
3840	482211710837	100k 1% 0,1W
3841	482205120472	4k7 5% 0,1W
3842	482211710834	47k 1% 0,1W
3843	482205120333	33k 5% 0,1W
3844	482205120472	4k7 5% 0,1W

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

RESISTORS

3845	482211710834	47k 1% 0,1W
3846	482205120333	33k 5% 0,1W
3847	482211711507	6k8 1% 0,1W
3848	482211710837	100k 1% 0,1W
3849	482211710837	100k 1% 0,1W
3850	482205120392	3k9 5% 0,1W
3851	482205210338	△ 3R3 5% 0,33W
3852	482205210228	△ 2R2 5% 0,33W
3853	482205120471	470R 5% 0,1W
3854	482205120101	100R 5% 0,1W
3855	482205120101	100R 5% 0,1W
3856	482211712521	68R 1% 0,1W
3857	482211712521	68R 1% 0,1W
3858	482205120223	22k 5% 0,1W
3859	482205120223	22k 5% 0,1W
3860	482211710833	10k 1% 0,1W
3861	482211710833	10k 1% 0,1W
3862	482205120121	120R 5% 0,1W
3863	482205120101	100R 5% 0,1W
3863	482205120339	33R 5% 0,1W
3864	482205120101	100R 5% 0,1W
3866	482211710833	10k 1% 0,1W
3867	482205120121	120R 5% 0,1W
3869	482205120478	4R7 5% 0,1W
3870	482205120101	100R 5% 0,1W
3871	482211710833	10k 1% 0,1W
3873	482205120471	470R 5% 0,1W
3875	482211710833	10k 1% 0,1W
3876	482211710837	100k 1% 0,1W
3877	482211710833	10k 1% 0,1W
3878	482211710833	10k 1% 0,1W
3879	482211710837	100k 1% 0,1W
3880	482205120392	3k9 5% 0,1W
3881	482211710837	100k 1% 0,1W
3882	482211710834	47k 1% 0,1W
3883	482211710833	10k 1% 0,1W
3884	482211711504	270R 1% 0,1W
3885	482211710833	10k 1% 0,1W
3886	482211710834	47k 1% 0,1W
3887	482211711503	220R 1% 0,1W
3888	482211710833	10k 1% 0,1W
3889	482205120471	470R 5% 0,1W
3890	482205110102	1k 2% 0,25W
3891	482205110102	1k 2% 0,25W
3892	482205120471	470R 5% 0,1W
3893	482205120471	470R 5% 0,1W
3894	482205120101	100R 5% 0,1W
3895	482205120159	15R 5% 0,1W
3897	482205120101	100R 5% 0,1W
3898	482211711503	220R 1% 0,1W
3899	482205120101	100R 5% 0,1W
4800	482205120008	0R Jumper 0805
4801	482205120008	0R Jumper 0805
4802	482205120008	0R Jumper 0805
4804	482205120008	0R Jumper 0805
4805	482205120008	0R Jumper 0805
4806	482205120008	0R Jumper 0805
4807	482205120008	0R Jumper 0805
4808	482205120008	0R Jumper 0805
4810	482205120008	0R Jumper 0805
4812	482205120008	0R Jumper 0805
4817	482205120008	0R Jumper 0805
4818	482205120008	0R Jumper 0805
4819	482205120008	0R Jumper 0805
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4821	482205120008	0R Jumper 0805
4822	482205120008	0R Jumper 0805
4823	482205120008	0R Jumper 0805
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4831	482205120008	0R Jumper 0805
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4841	482205120008	0R Jumper 0805
4842	482205120008	0R Jumper 0805
4843	482205120008	0R Jumper 0805
4844	482205120008	0R Jumper 0805
4845	482205120008	0R Jumper 0805
4846	482205120008	0R Jumper 0805
4847	482205120008	0R Jumper 0805
4848	482205120008	0R Jumper 0805
4849	482205120008	0R Jumper 0805
4876	482205120008	0R Jumper 0805

COILS & FILTERS

5802	482215631058	100µH

DIODES

6871	482213083757	BAS216
6872	482213083757	BAS216
6873	482213083757	BAS216
6874	482213083757	BAS216
6875	482213011383	BZX284-C5V1
6877	482213011366	BZX284-C3V9
6878	482213083757	BAS216

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

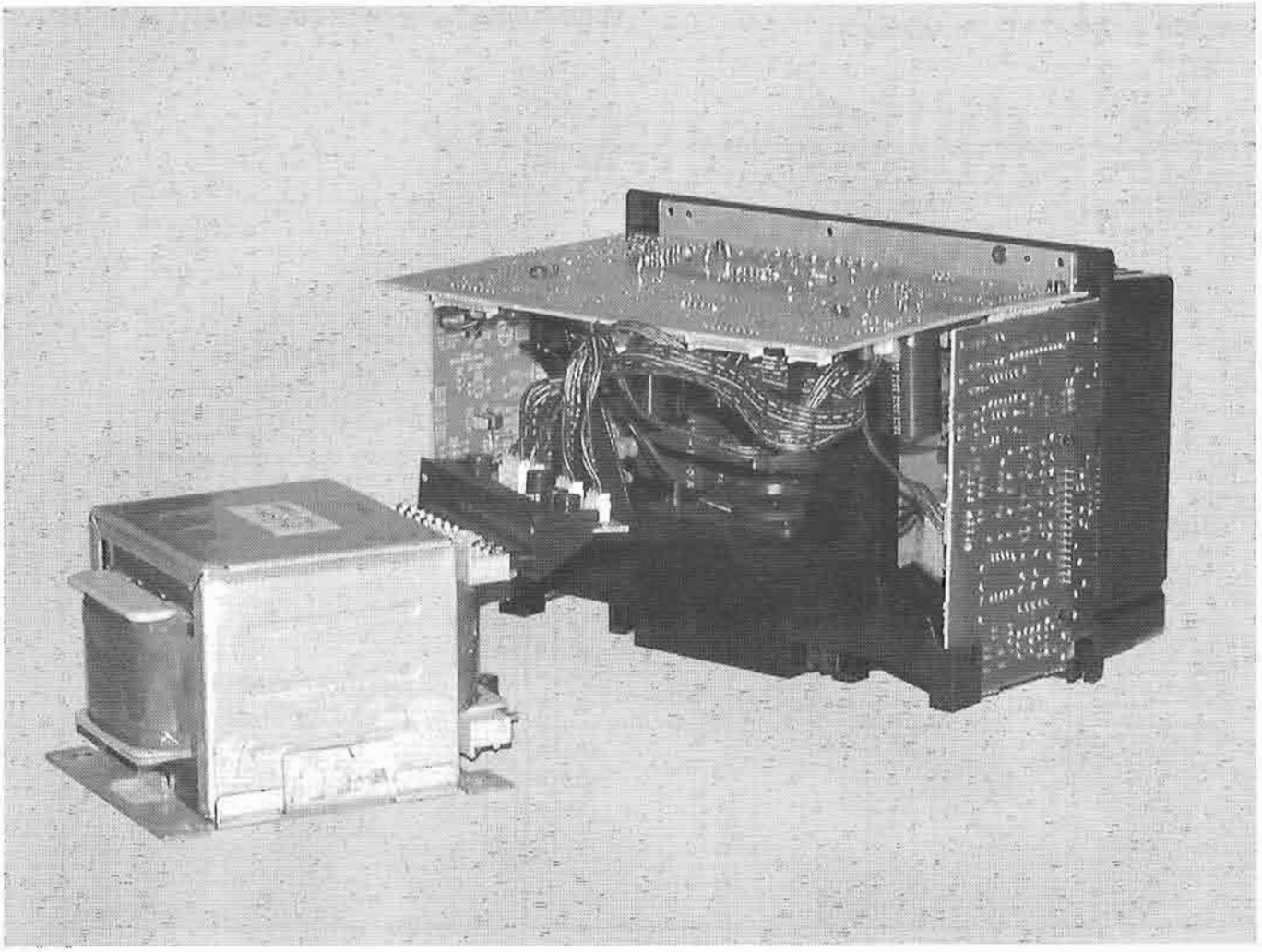
DIODES

6879	482213011366	BZX284-C3V9

TRANSISTORS & INTEGRATED CIRCUITS

7801	935262236118	IC SM TZA1025T/V2
7805	482220933165	TDA1308T/N1
7806	482220932852	TDA7073A/N2
7807	482220932852	TDA7073A/N2
7812	482213060511	BC847B
7871	482220932852	TDA7073A/N2
7873	532220911306	HEF4094BT
7874	482213060511	BC847B
7875	482213060511	BC847B
7876	482220916143	LC89170M
7877	482220917324	SAA7325H

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



POWER 5-VA Module

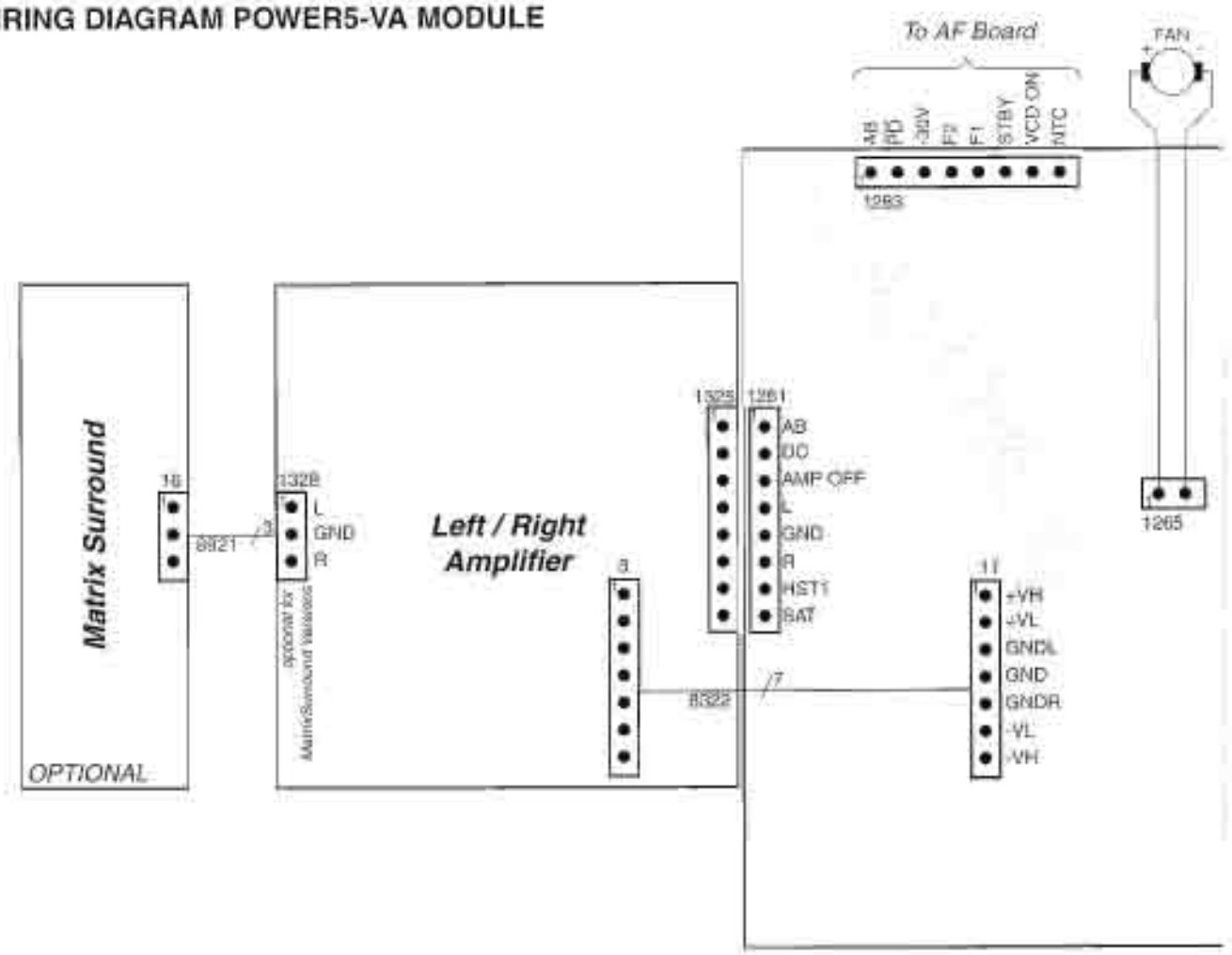
(70 / 100W Version)

Stage .6

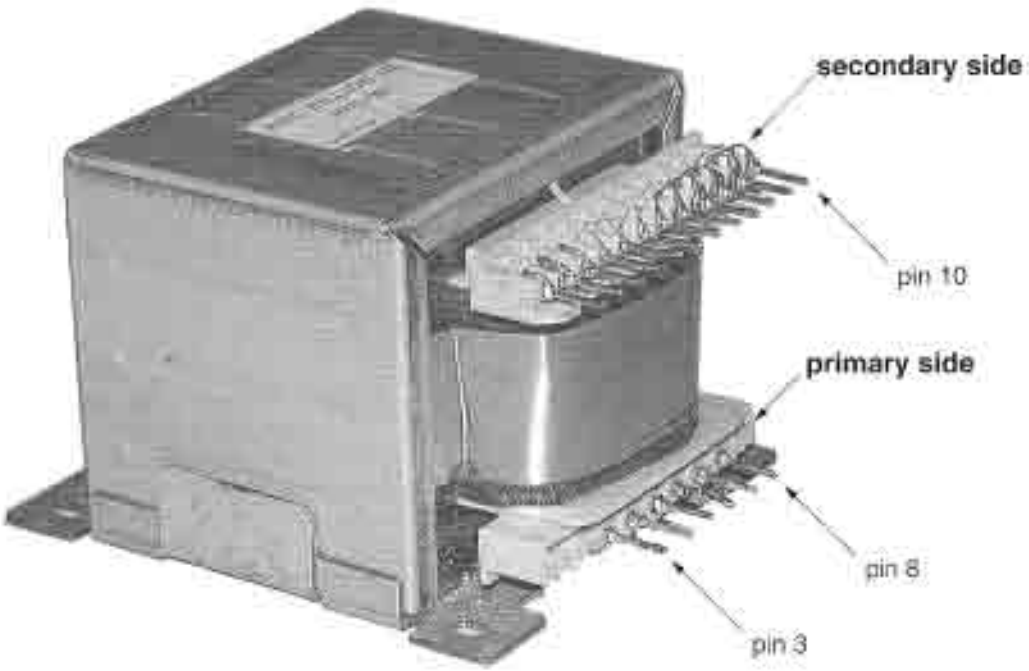
TABLE OF CONTENTS

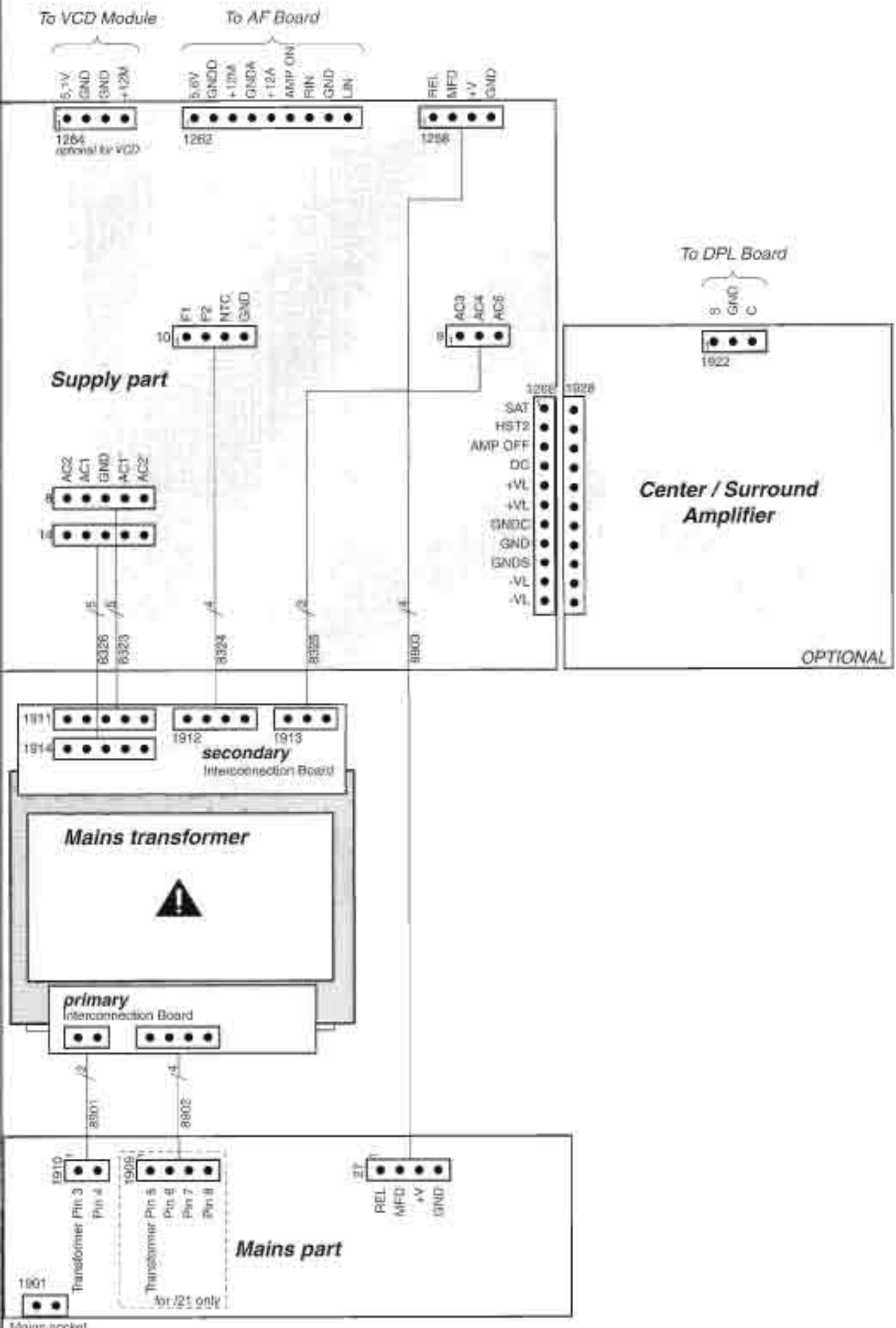
Wiring Diagram 11-2
Block Diagram 11-3
Component layout Supply part and L/R Amplifier part 11-4
Circuit Diagram Mains part and Supply part 11-5
Component layout Mains part 11-6
Component layout Supply part and L/R Amplifier part 11-6
Circuit diagram L/R Amplifier part 11-7
Circuit diagram C/S Amplifier part 11-8
Component layout C/S Amplifier part 11-9
Exploded view 11-10
Partslist 11-11ff

WIRING DIAGRAM POWER5-VA MODULE

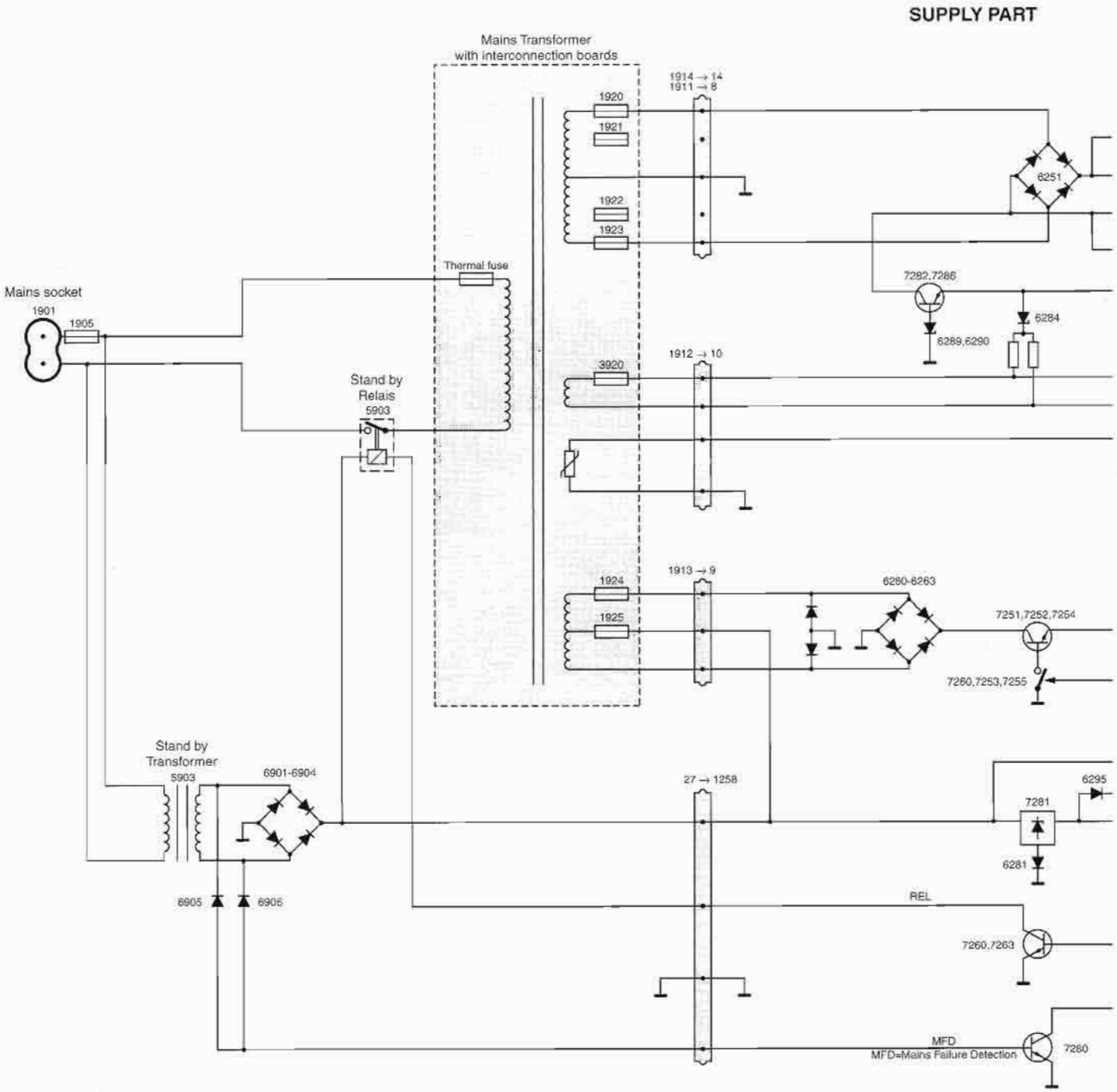


Mains Transformer /21

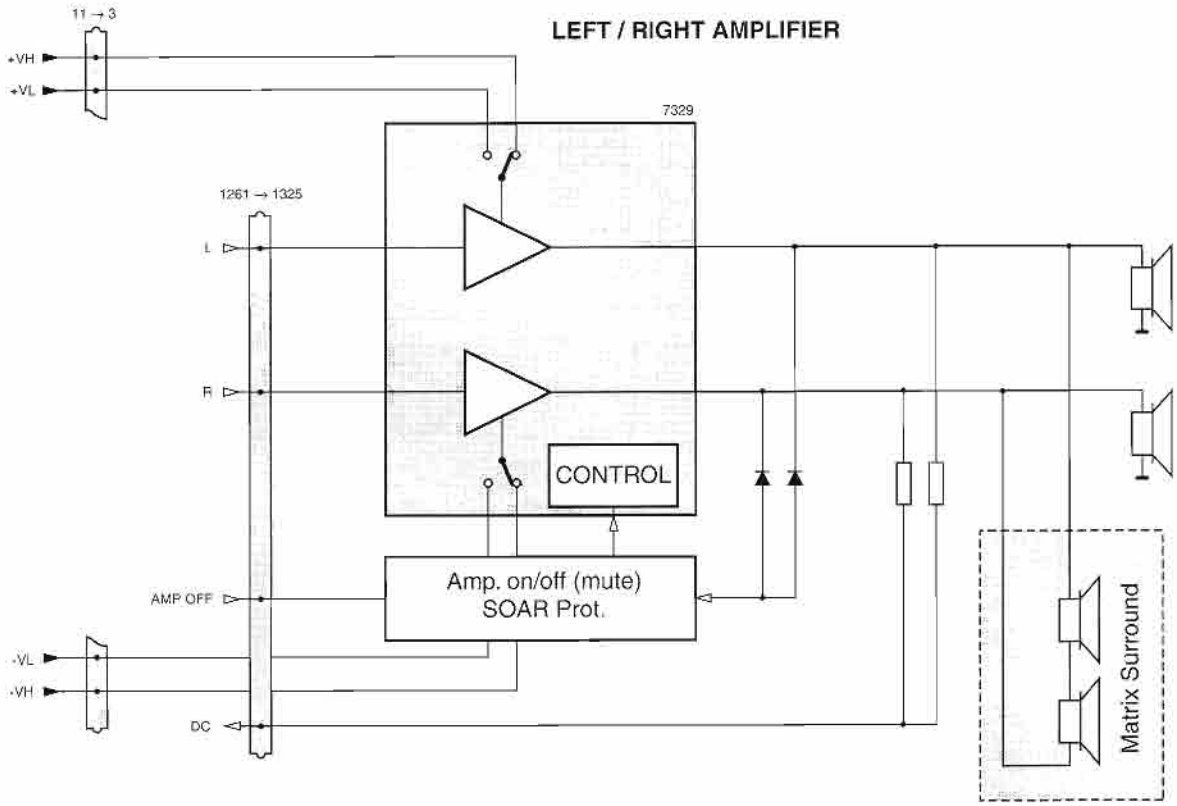



To VCD Module
To AF Board
5,1V GND GND +12M
5,6V GNDD +12MA GNDA +12A AMP ON RIN GND LIN
REL MFD +V GND
1264
optional for VCD
1262
1258
To DPL Board
S GND C
1922
F1 F2 NTC GND
10
AC3 AC4 AC6
9
Supply part
1228
SAT
HST2
AMP OFF
DC
+VL
+VL
GNDC
GND
GNDS
-VL
-VL
AC2 AC1 GND AC1' AC2'
8
14
Center / Surround Amplifier
OPTIONAL
8326
8323
8324
8325
8903
1911
1914
1912
1913
secondary
Interconnection Board
Mains transformer
primary
Interconnection Board
8901
8902
1910
1909
Transformer Pin 3
Pin 4
Transformer Pin 5
Pin 6
Pin 7
Pin 8
for /21 only
Mains part
1901
Mains socket
27
REL MFD +V GND

BLOCK DIAGRAM 70/100W VERSION

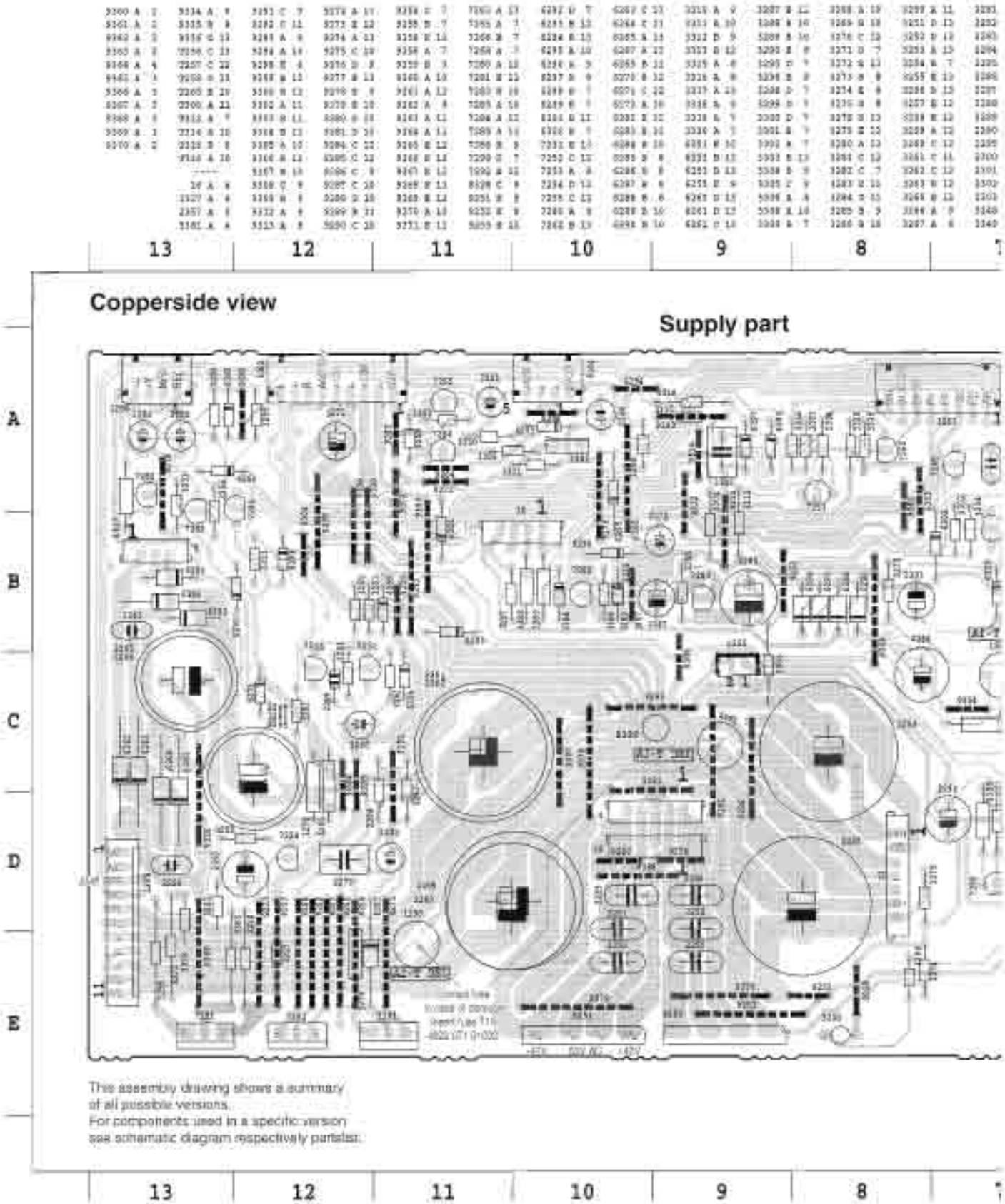


LEFT / RIGHT AMPLIFIER

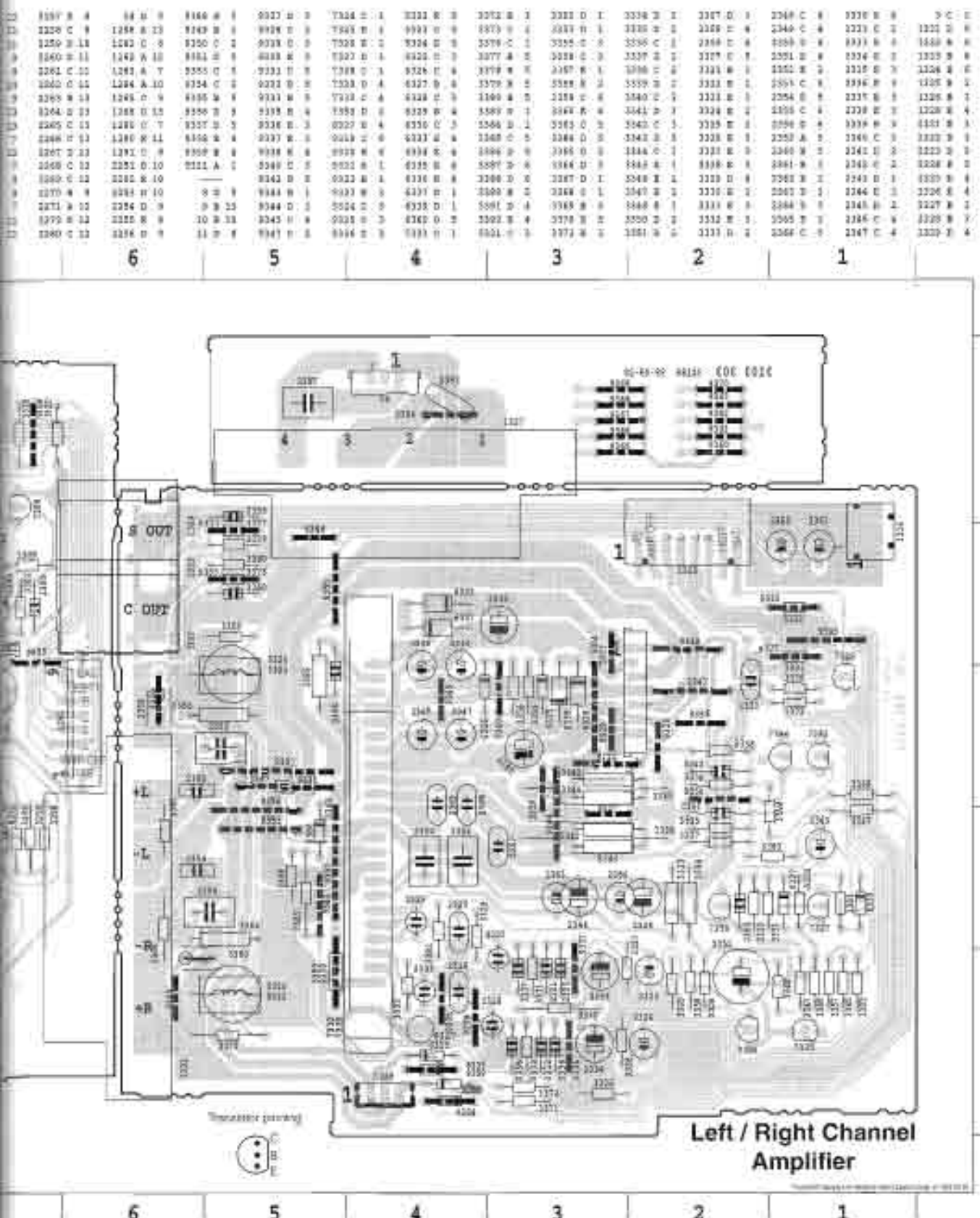


+VH
+VL
-VL
-VH
-30V
F1
F2
NTC
+12A,+12M
STANDBY
+V
+5V
+5,6V
STANDBY
$\overline{PD}$

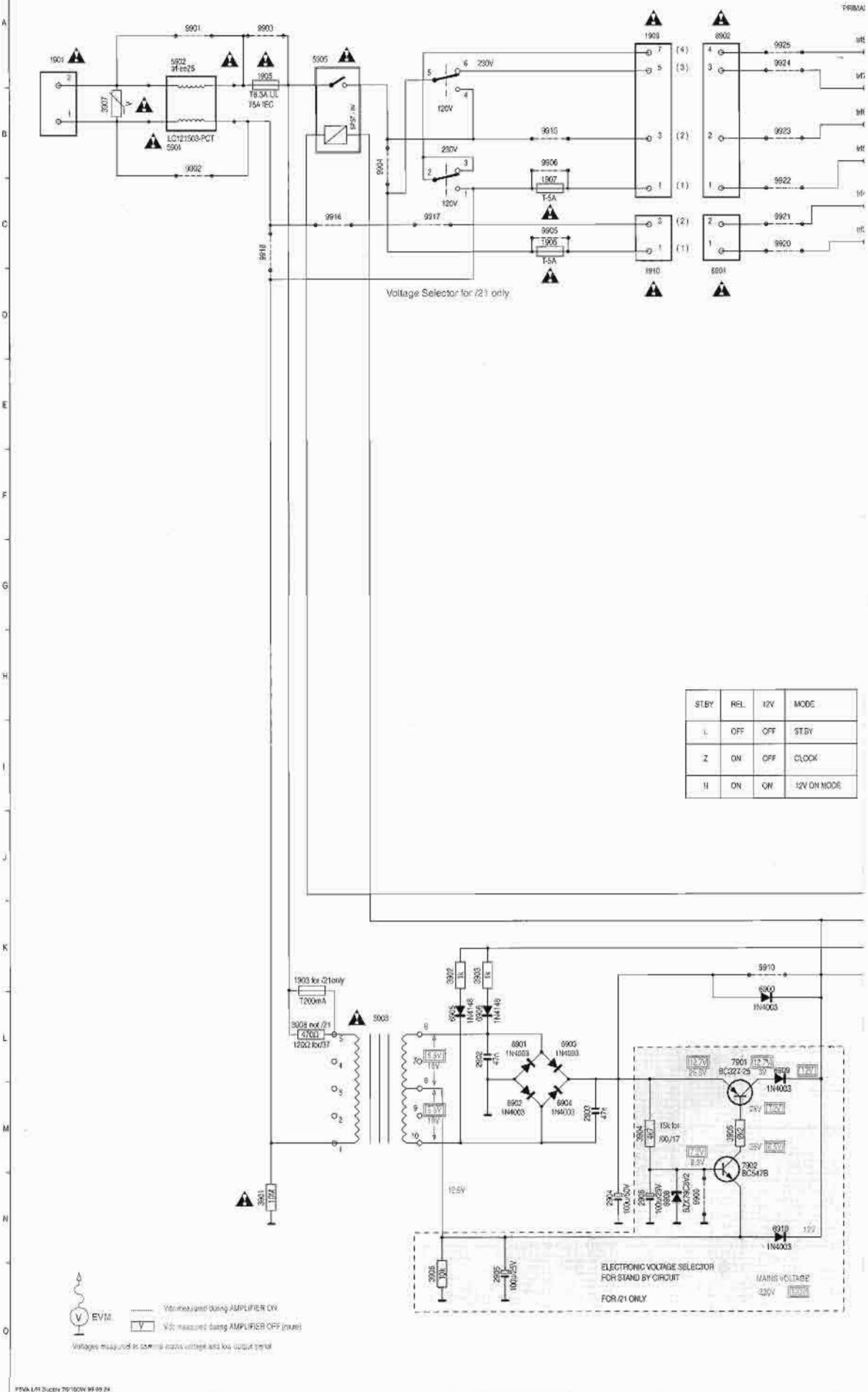
COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART



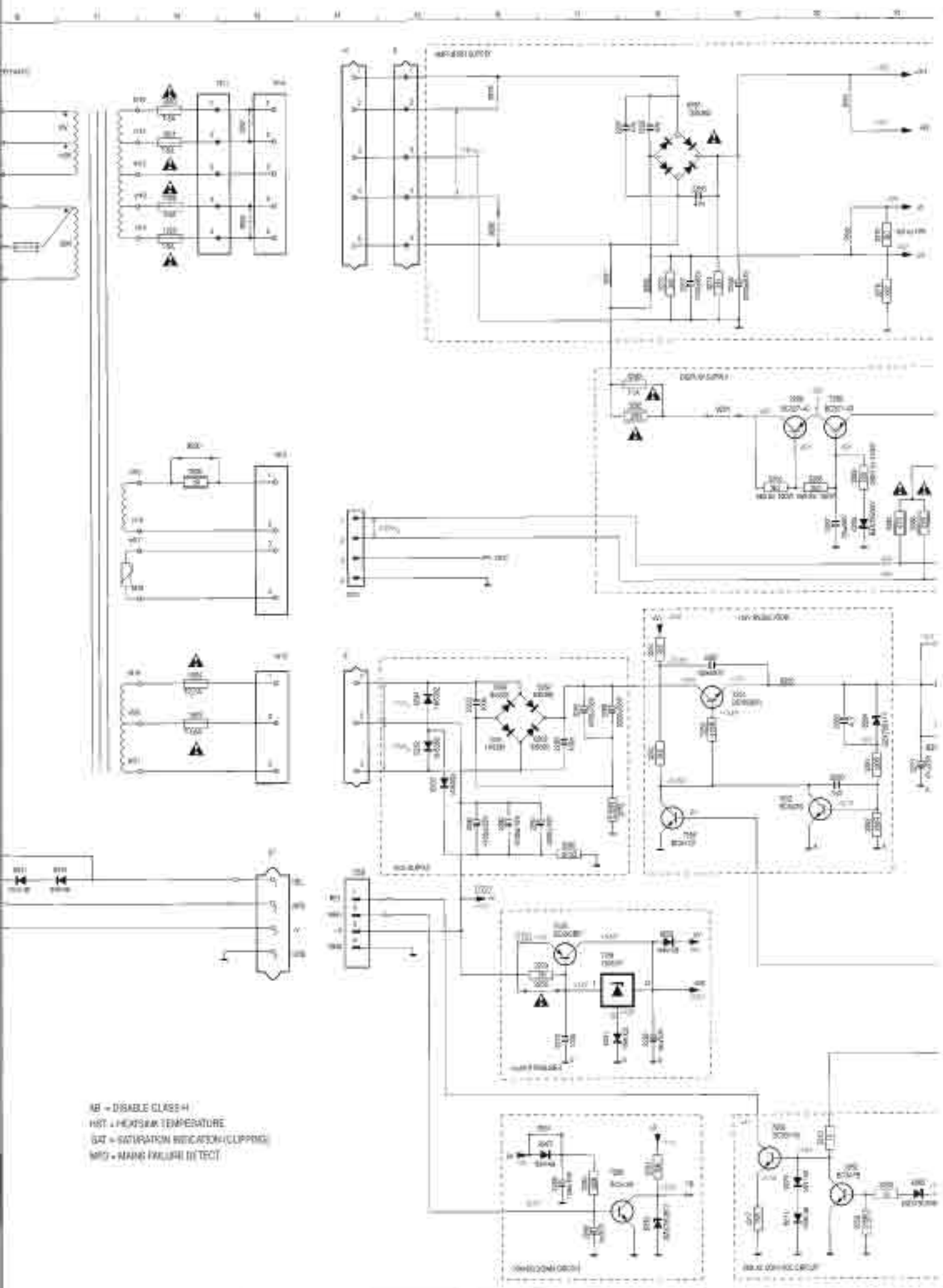
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.


Left / Right Channel
Amplifier

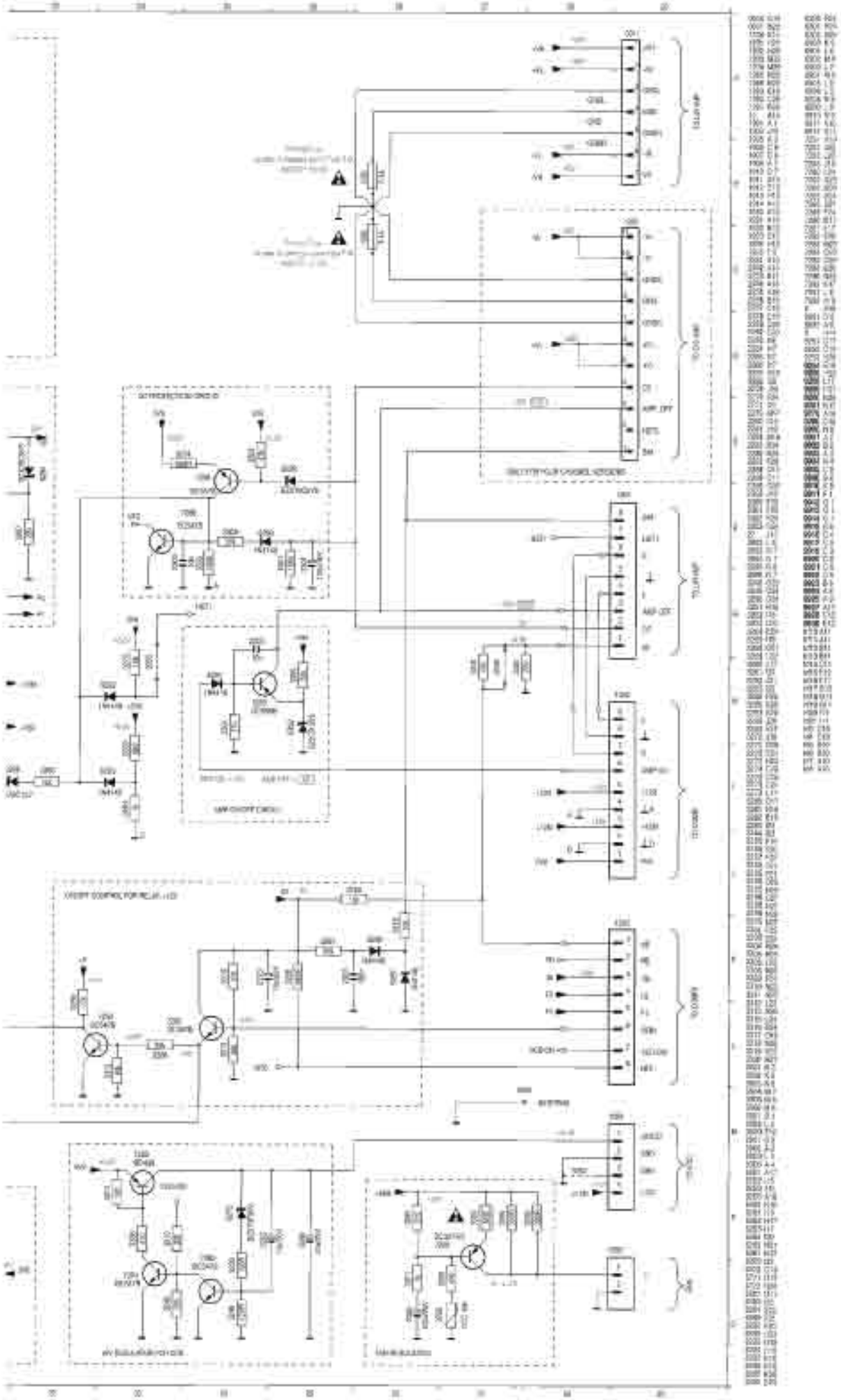
POWER 5-VA SUPPLY PART 70/100W Version



ST.BY	REL.	12V	MODE
L	OFF	OFF	ST.BY
Z	ON	OFF	CLOCK
H	ON	ON	12V ON MODE



NB = DISABLE CLASS H
HST = HEATSINK TEMPERATURE
SAT = SATURATION INDICATION (CLIPPING)
MFD = MAINS FAILURE DETECT



COMPONENT LAYOUT MAINS BOARD

Interconnection Board

primary side

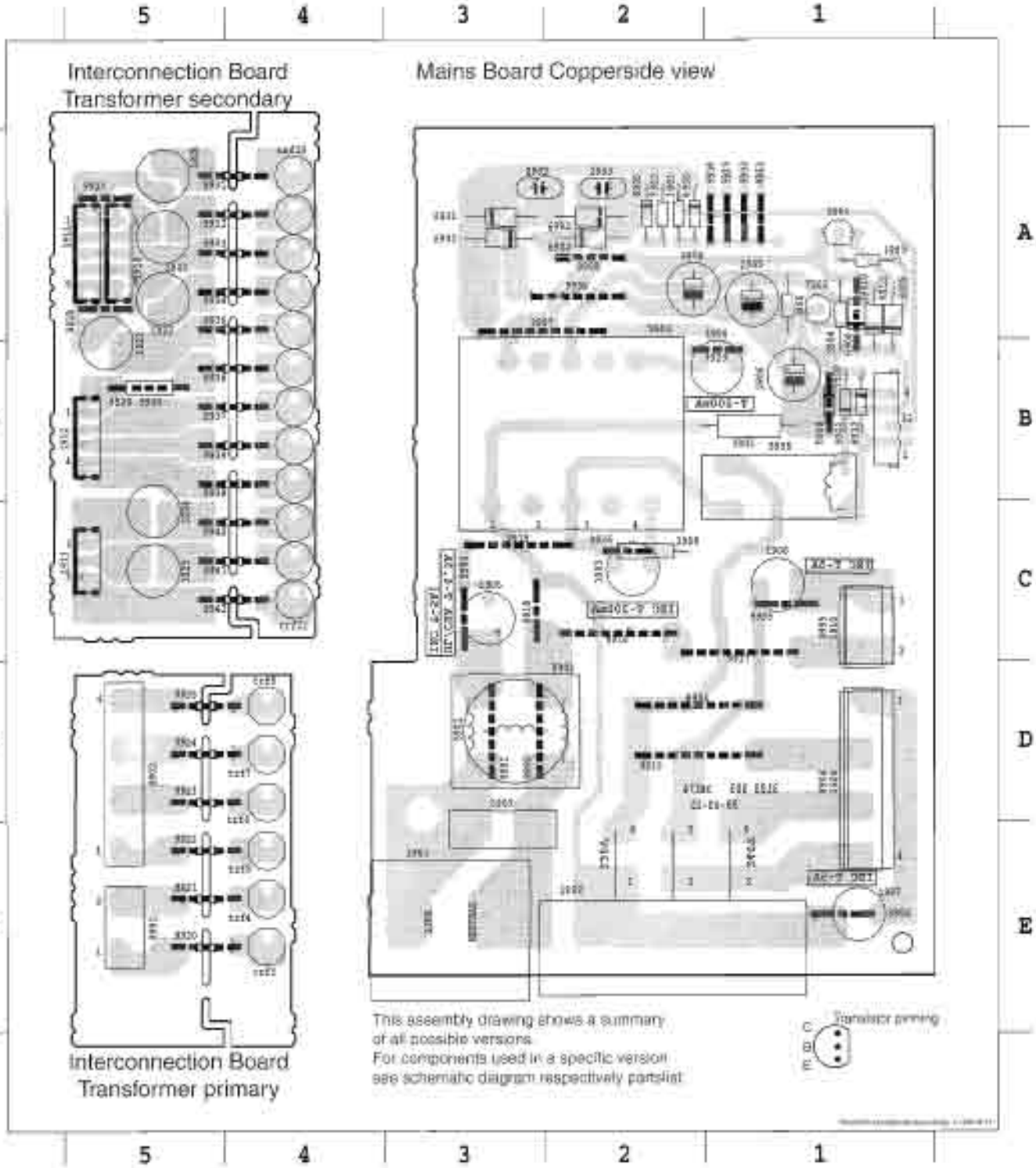
9901 E 5
9902 D 5
9920 E 4
9921 E 4
9922 E 4
9923 D 4
9924 D 4
9925 D 4
trf3 E 4
trf4 E 4
trf5 E 4
trf6 D 4
trf7 D 4
trf8 D 4

secondary side

1911 A 5
1912 B 5
1913 C 5
1915 A 5
1920 A 4
1921 A 4
1922 A 4
1923 B 5
1924 C 4
1925 C 4
3920 B 4
9927 A 5
9928 A 5
9930 B 4
9931 A 4
9932 A 4
9933 A 4
9934 A 4
9935 B 4
9936 B 4
9937 B 4
9938 B 4
9939 C 4
9940 C 4
9941 C 4
9942 C 4
trf10 A 3
trf11 A 3
trf12 A 3
trf13 A 3
trf14 D 3
trf15 B 3
trf16 B 3
trf17 B 3
trf18 C 3
trf19 C 3
trf20 C 3
trf21 C 3

Mains Board

27 B 1
1901 E 5
1902 E 5
1903 C 5
1904 E 5
1905 C 3
1906 C 1
1907 E 1
1909 D 1
1910 C 1
2902 A 2
2903 A 2
2904 A 2
2905 A 1
2906 B 1
3901 B 1
3902 A 2
3903 A 3
3904 B 1
3905 A 1
3906 A 1
3907 E 3
3908 C 2
5901 D 3
5902 D 3
5903 B 3
6900 B 1
6901 A 3
6902 A 2
6903 A 3
6904 A 2
6905 A 2
6906 A 2
6908 B 1
6909 B 1
6910 B 1
6911 B 1
6912 B 1
7901 A 1
7902 B 1
8904 B 1
8905 C 1
9900 B 1
9901 D 3
9902 D 3
9903 C 3
9904 D 2
9905 C 1
9906 E 1
9907 B 3
9908 A 2
9909 A 2
9910 B 1
9911 A 1
9912 A 1
9913 A 2
9914 A 2
9915 D 3
9916 D 3
9917 D 1
9918 C 3
9919 C 3
9926 C 2
9929 B 2



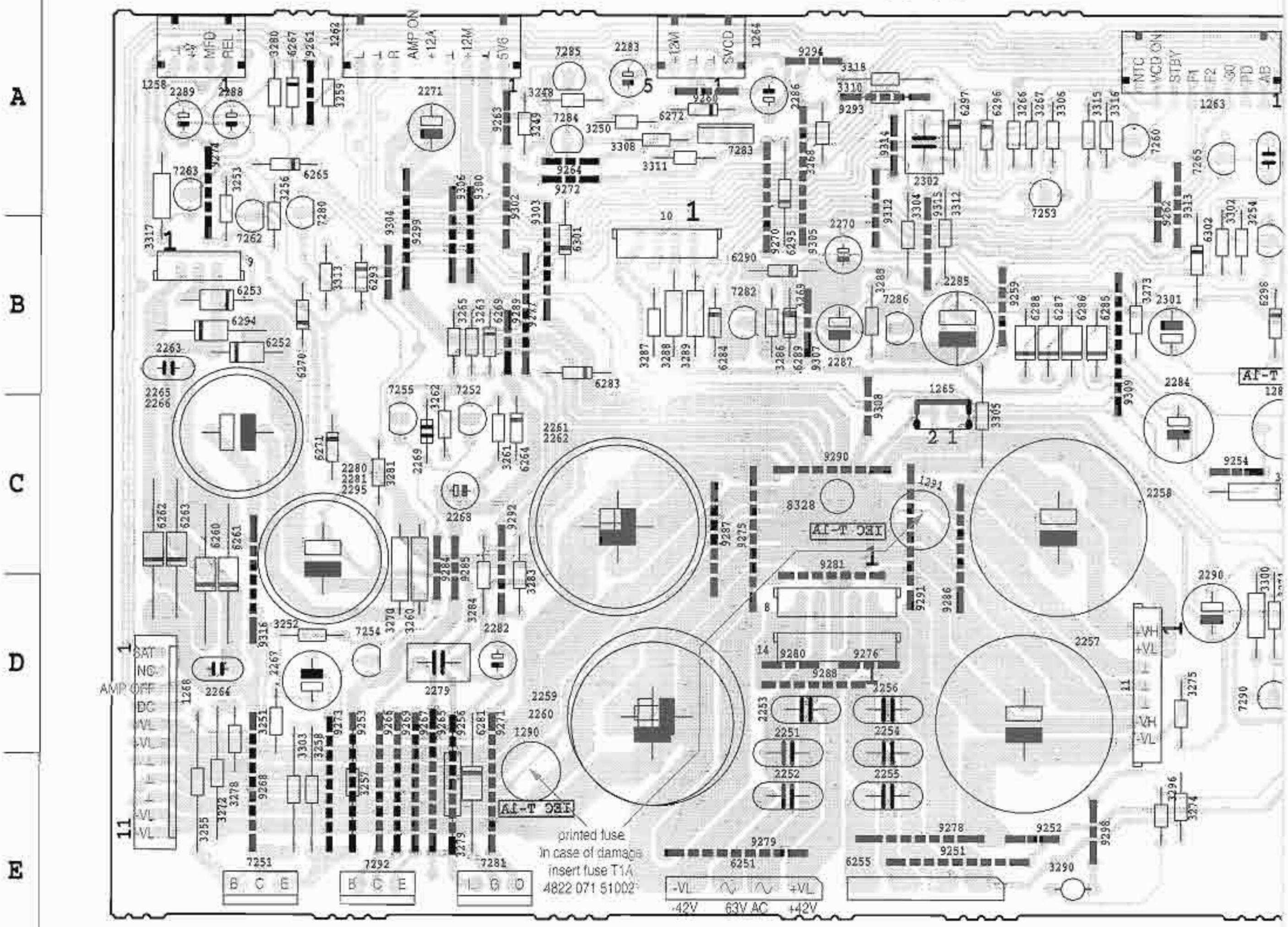
COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

9360 A 2	9314 A 9	9291 C 9	9272 A 11	9254 C 7	7263 A 13	6292 D 7	6263 C 13	3310 A 9	3287 B 11	3268 A 10	3250 A 11	2281
9361 A 2	9315 B 9	9292 C 11	9273 E 12	9255 B 7	7265 A 7	6293 B 12	6264 C 11	3311 A 10	3288 B 10	3269 B 10	3251 D 13	2282
9362 A 2	9316 D 13	9293 A 9	9274 A 13	9256 E 12	7266 B 7	6294 B 13	6265 A 13	3312 B 9	3289 B 10	3270 C 12	3252 D 12	2283
9363 A 2	T256 C 13	9294 A 10	9275 C 10	9258 A 7	7268 A 7	6295 A 10	6267 A 13	3313 B 12	3290 E 8	3271 D 7	3253 A 13	2284
9364 A 4	T257 C 12	9298 E 8	9276 D 9	9259 B 9	7280 A 12	6296 A 9	6269 B 11	3315 A 8	3295 D 7	3272 E 13	3254 B 7	2285
9365 A 3	T258 D 13	9299 B 12	9277 B 11	9260 A 10	7281 E 11	6297 A 9	6270 B 12	3316 A 8	3296 E 8	3273 B 8	3255 E 13	2286
9366 A 3	T265 B 10	9300 B 12	9278 E 9	9261 A 12	7282 B 10	6298 B 7	6271 C 12	3317 A 13	3298 D 7	3274 E 8	3256 B 13	2287
9367 A 3	T305 A 11	9302 A 11	9279 E 10	9262 A 8	7283 A 10	6299 B 7	6272 A 10	3318 A 9	3299 D 7	3275 D 8	3257 E 12	2288
9368 A 3	T312 A 7	9303 B 11	9280 D 10	9263 A 11	7284 A 11	6301 B 11	6281 E 12	3319 A 7	3300 D 7	3278 D 13	3258 E 12	2289
9369 A 3	T314 A 10	9304 B 12	9281 D 10	9264 A 11	7285 A 11	6302 B 7	6283 B 11	3320 A 7	3301 B 7	3279 E 12	3259 A 12	2290
9370 A 2	T315 B 9	9305 A 10	9284 C 12	9265 E 12	7286 B 9	7251 E 13	6284 B 10	6251 E 10	3302 B 7	3280 A 13	3260 C 12	2295
	T316 A 10	9306 B 12	9285 C 12	9266 E 12	7290 D 7	7252 C 12	6285 B 8	6252 B 13	3303 E 13	3281 C 12	3261 C 11	2300
	----	9307 B 10	9286 C 9	9267 E 12	7292 E 12	7253 A 8	6286 B 8	6253 B 13	3304 B 9	3282 C 7	3262 C 12	2301
	16 A 4	9308 C 9	9287 C 10	9268 E 13	8328 C 9	7254 D 12	6287 B 8	6255 E 9	3305 C 9	3283 D 11	3263 B 12	2302
	1327 A 4	9309 B 8	9288 D 10	9269 E 12	9251 E 9	7255 C 12	6288 B 8	6260 D 13	3306 A 8	3284 D 11	3265 B 12	2303
	2357 A 5	9312 A 9	9289 B 11	9270 A 10	9252 E 8	7260 A 8	6289 B 10	6261 D 13	3308 A 10	3285 B 9	3266 A 8	3248
	3381 A 4	9313 A 8	9290 C 10	9271 E 11	9253 E 12	7262 B 13	6290 B 10	6262 C 13	3309 B 7	3286 B 10	3267 A 8	3249

13 12 11 10 9 8 7

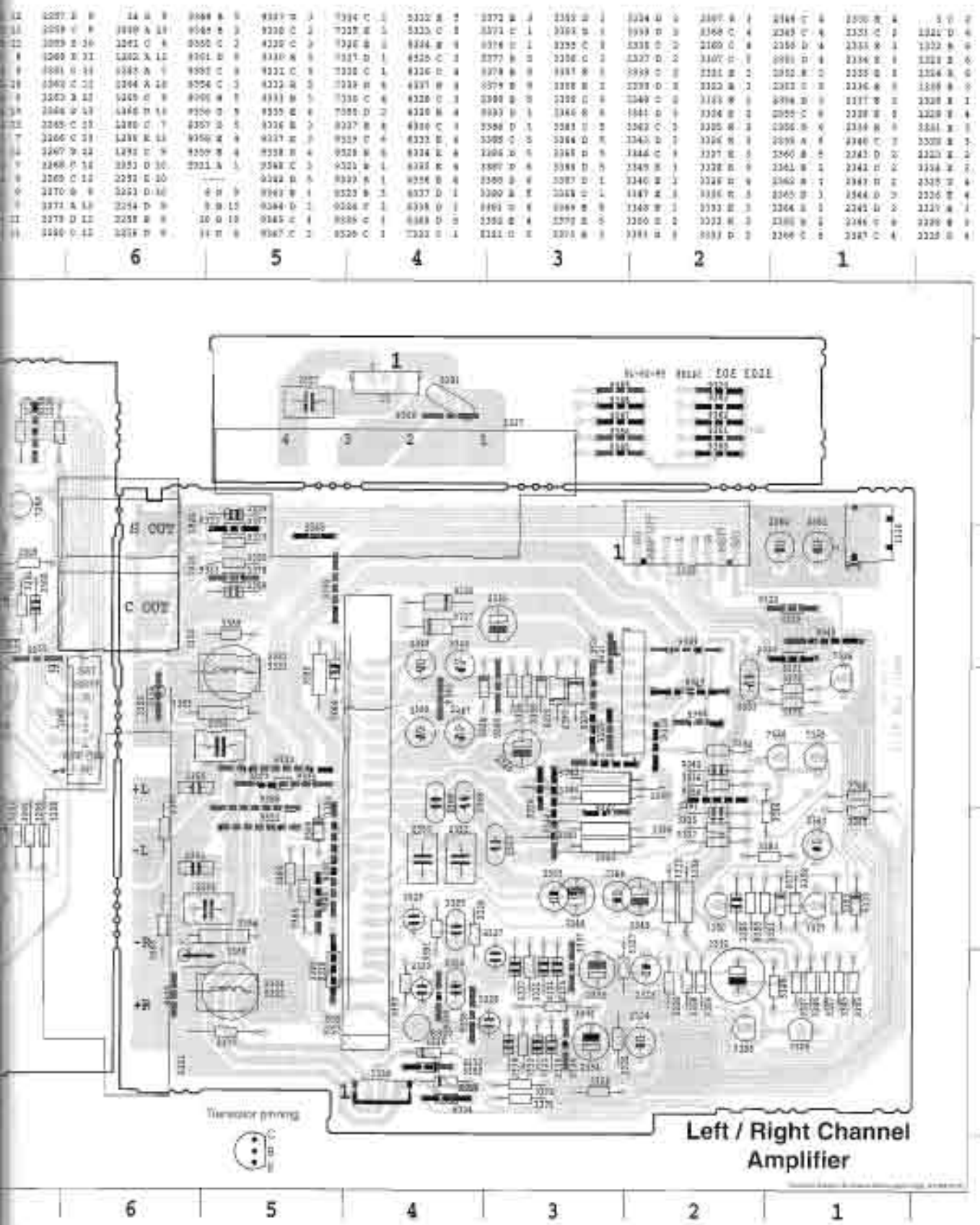
Copperside view

Supply part



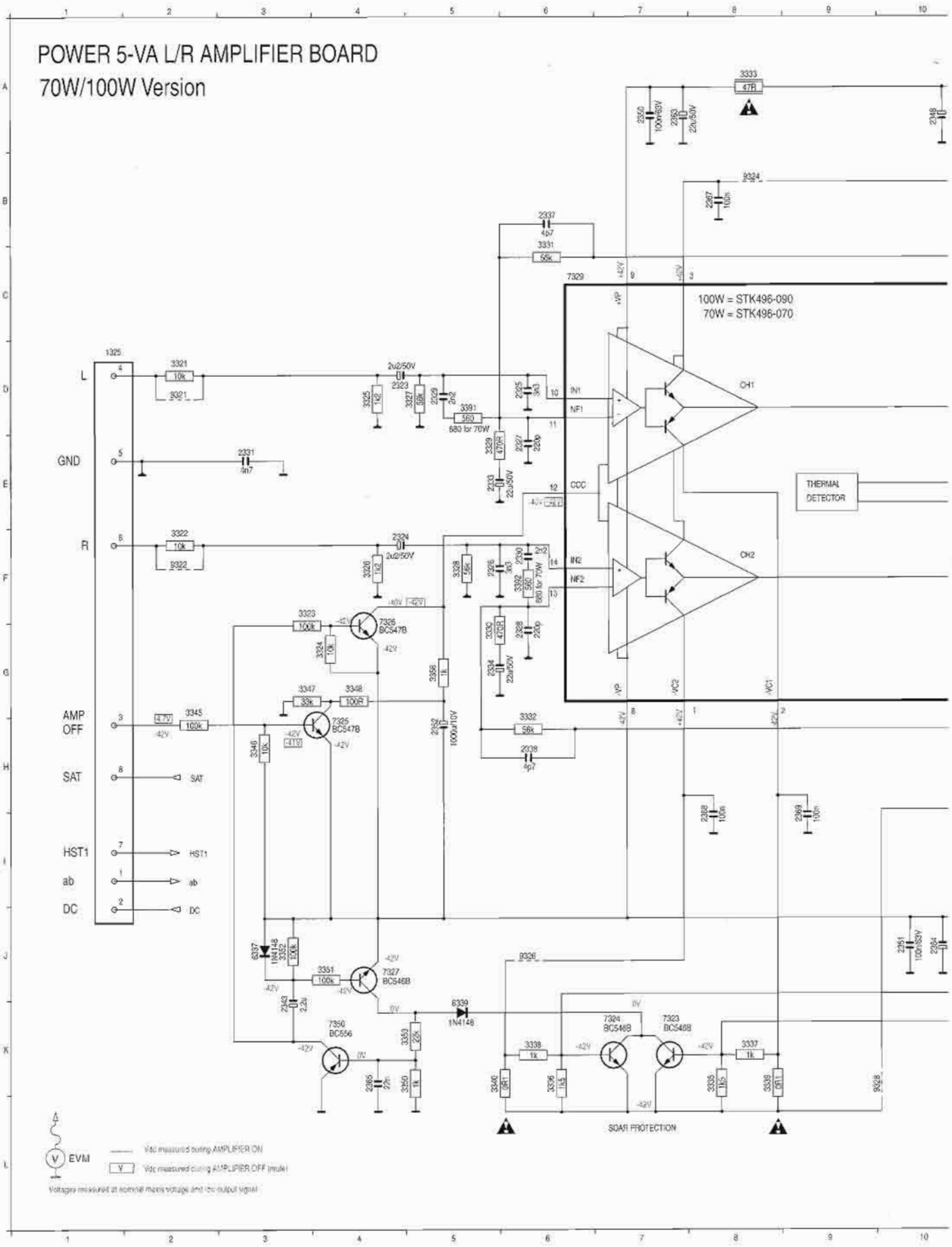
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

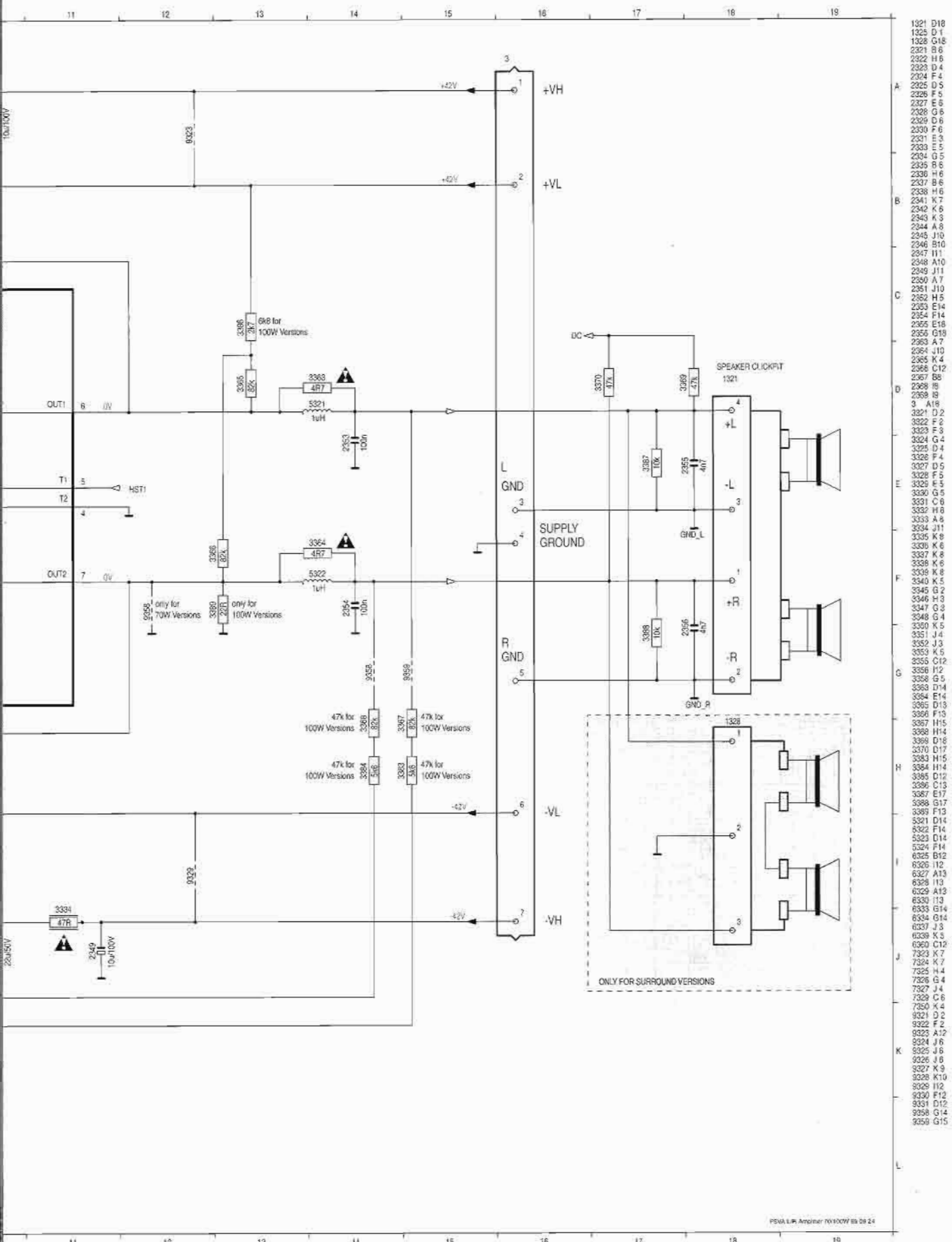
13 12 11 10 9 8 7


Transistor pinning
Left / Right Channel
Amplifier

POWER 5-VA L/R AMPLIFIER BOARD

70W/100W Version

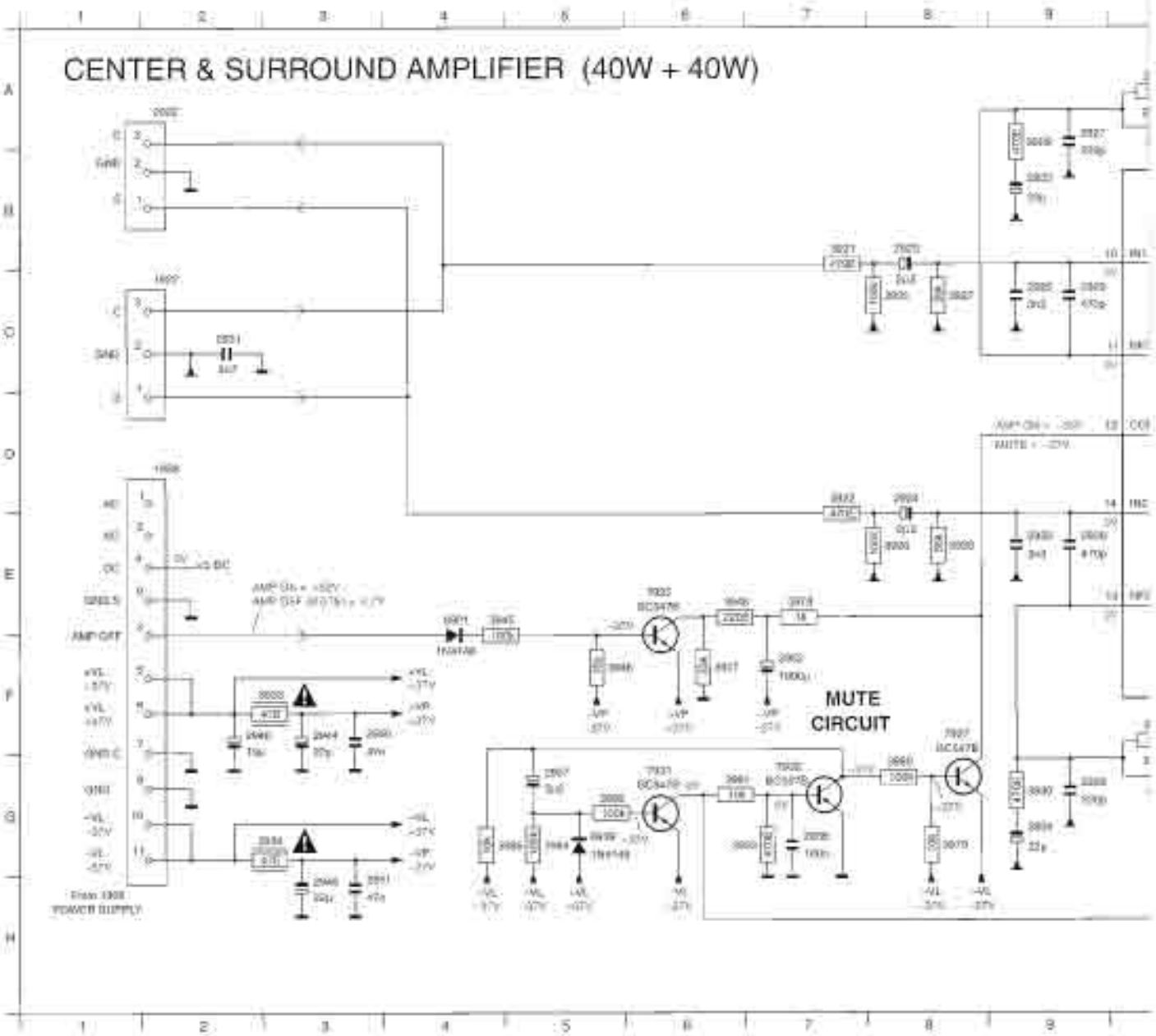




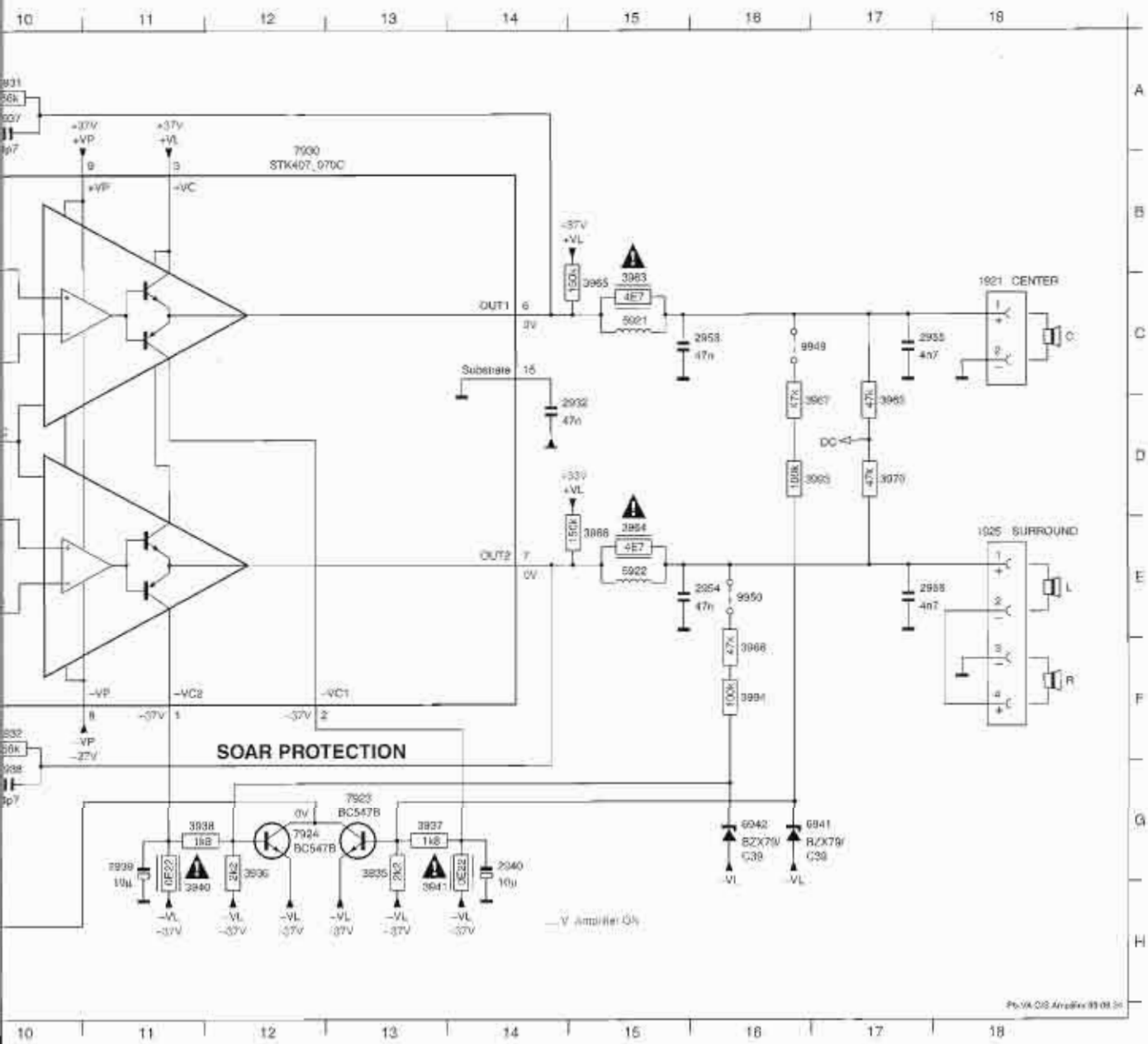
1321 D18
1325 D 1
1328 G18
2321 B 6
2322 H 6
2323 D 4
2324 F 4
2325 D 5
2326 F 5
2327 E 6
2328 G 6
2329 D 6
2330 F 6
2331 E 3
2333 E 5
2334 G 5
2335 B 6
2336 H 6
2337 B 6
2338 H 6
2341 K 7
2342 K 6
2343 K 3
2344 A 8
2345 J10
2346 B10
2347 I11
2348 A10
2349 J11
2350 A 7
2351 J10
2352 H 5
2353 E14
2354 F14
2355 E18
2356 G19
2363 A 7
2364 J10
2365 K 4
2366 C12
2367 B8
2368 I9
2369 I9
3 A18
3321 D 2
3322 F 2
3323 F 3
3324 G 4
3325 D 4
3326 F 4
3327 D 5
3328 F 5
3329 E 5
3330 G 5
3331 C 6
3332 H 6
3333 A 8
3334 J11
3335 K 9
3336 K 6
3337 K 8
3338 K 6
3339 K 8
3340 K 5
3345 G 2
3346 H 3
3347 G 3
3348 G 4
3350 K 5
3351 J 4
3352 J 3
3353 K 5
3355 C12
3356 I12
3358 G 5
3363 D14
3364 E14
3365 D13
3366 F13
3367 H15
3368 H14
3369 D18
3370 D17
3383 H15
3384 H14
3385 D12
3386 C13
3387 E17
3388 G17
3389 F13
5321 D14
5322 F14
5323 D14
5324 F14
6325 B12
6326 I12
6327 A13
6328 I13
6329 A13
6330 I13
6333 G14
6334 G14
6337 J 3
6339 K 5
6360 C12
7323 K 7
7324 K 7
7325 H 4
7326 G 4
7327 J 4
7329 C 6
7350 K 4
9321 D 2
9322 F 2
9323 A12
9324 J 6
9325 J 6
9326 J 6
9327 K 9
9328 K10
9329 I12
9330 F12
9331 D12
9358 G14
9359 G15

0002	A2	2924	D8	2936	E9	2937	A10	2946	F2	2955	C17	3926	E8	3932	
1921	D16	2925	C9	2937	C2	2938	G10	2950	F3	2956	E17	3927	C8	3933	
1952	C2	2926	E9	2932	D14	2939	G11	2951	H3	2957	G5	3928	F8	3934	
1925	E16	2927	A9	2933	B9	2940	H14	2952	F6	3921	B7	3929	A9	3935	
1998	D3	2928	G9	2934	G6	2944	F9	2953	C15	3922	G7	3930	G8	3936	
2923	B6	2929	C9	2939	G7	2945	H3	2954	E15	3955	C8	3931	A10	3937	

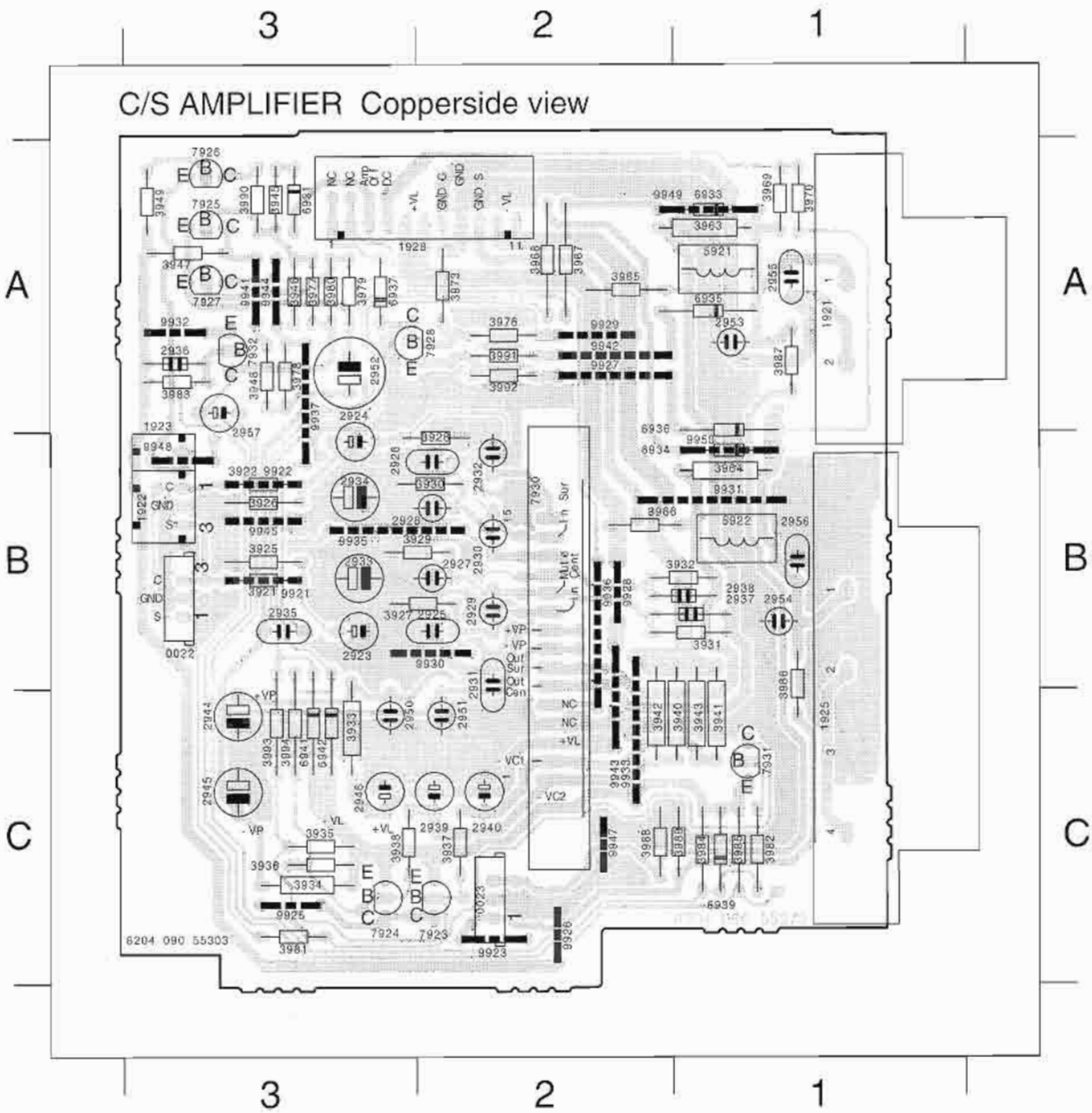
CENTER & SURROUND AMPLIFIER (40W + 40W)



F10	3938	G11	3948	E6	3968	F16	3981	G5	3994	F16	6942	G16	7931	G5
F2	3940	H11	3963	C15	3969	D17	3982	G5	5921	C15	7923	G13	7932	G7
G2	3941	H14	3964	E15	3970	D17	3983	G6	5922	E15	7924	G12	9949	C16
H13	3945	E4	3965	C15	3978	E7	3984	G5	6921	E4	7925	E6	9950	E16
H12	3946	F5	3966	E15	3979	G8	3985	G4	6939	G5	7927	G8		
G13	3947	F6	3967	D16	3980	G8	3993	D16	6941	G16	7930	B12		



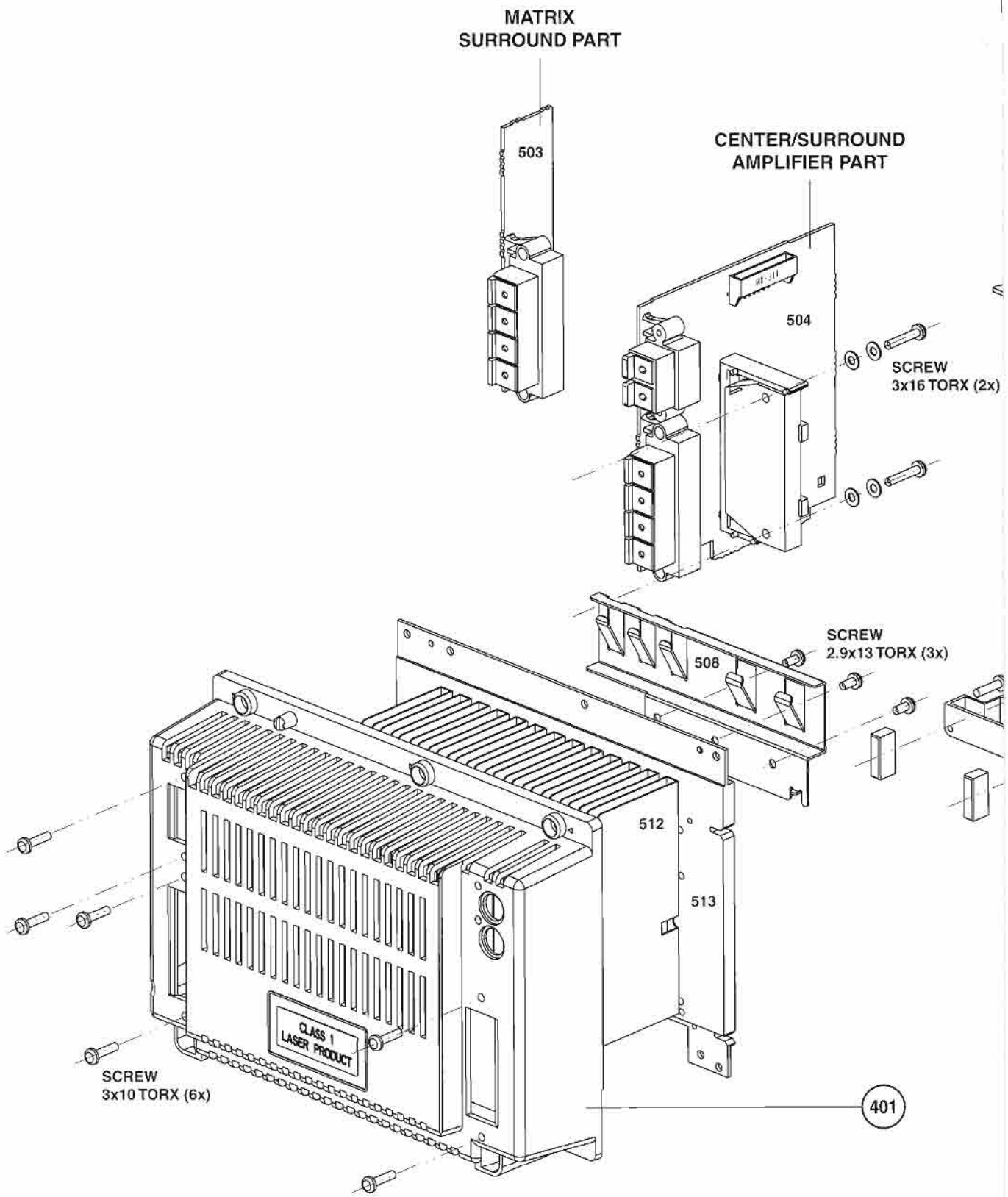
C/S AMPLIFIER Copperside view

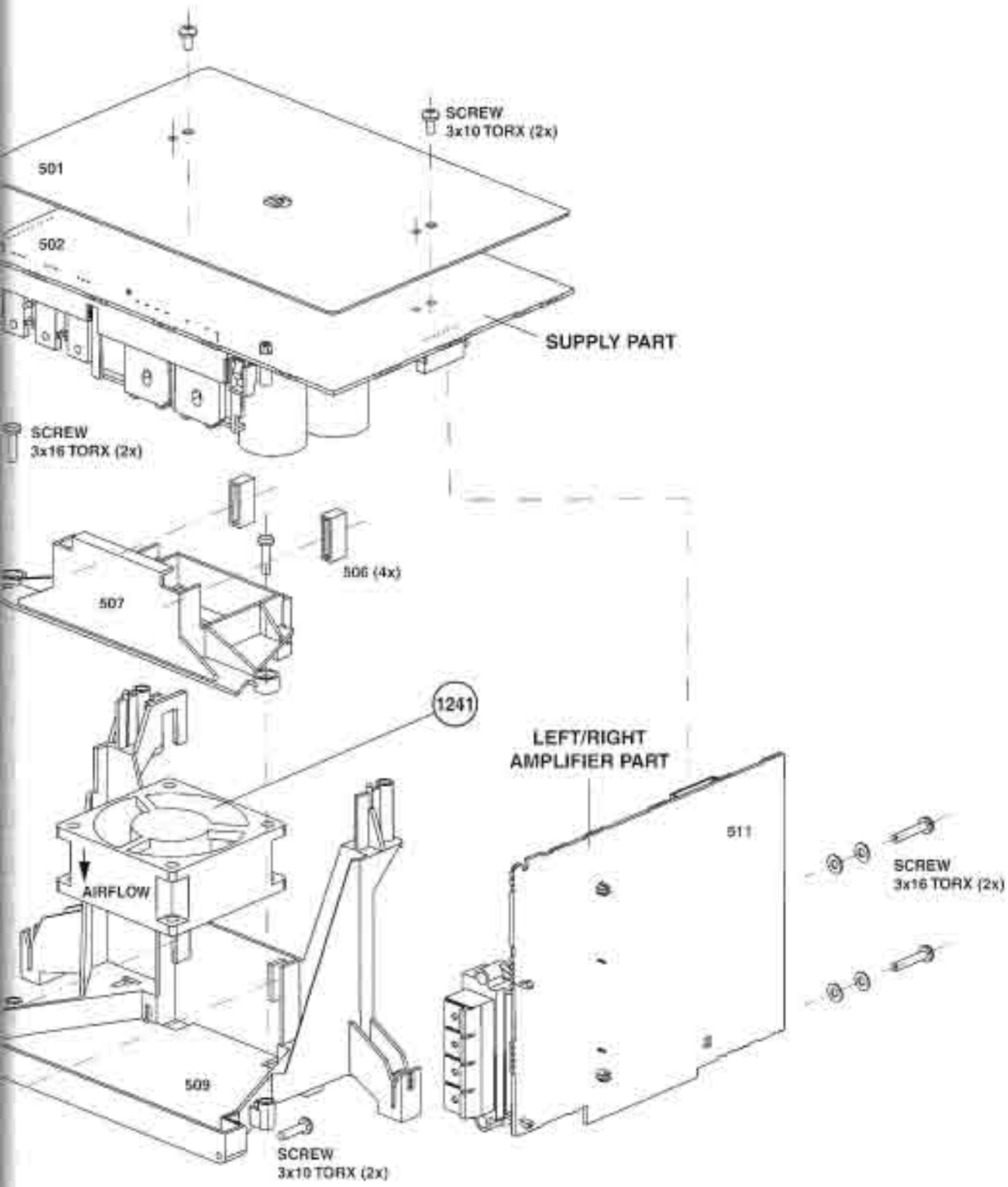


0022	B	3	3945				
0023	C	2	3946				
1921	A	1	3947				
1922	B	3	3948				
1923	B	3	3949				
1925	C	1	3963				
1928	A	2	3964				
2923	B	3	3965				
2924	B	3	3966				
2925	B	2	3967				
2926	B	2	3968				
2927	B	2	3969				
2928	B	2	3970				
2929	B	2	3973				
2930	B	2	3976				
2931	B	2	3977				
2932	B	2	3978				
2933	B	3	3979				
2934	B	3	3980				
2935	B	3	3981				
2936	A	3	3982				
2937	B	1	3983				
2938	B	1	3984				
2939	C	2	3985				
2940	C	2	3986				
2944	C	3	3987				
2945	C	3	3988				
2946	C	3	3989				
2950	C	3	3990				
2951	C	2	3991				
2952	A	3	3992				
2953	A	1	3993				
2954	B	1	3994				
2955	A	1	5921				
2956	B	1	5922				
2957	A	3	6921				
3921	B	3	6933				
3922	B	3	6934				
3925	B	3	6935				
3926	B	3	6936				
3927	B	2	6937				
3928	B	2	6938				
3929	B	2	6941				
3930	B	2	6942				
3931	B	1	7923				
3932	B	1	7924				
3933	C	3	7925				
3934	C	3	7926				
3935	C	3	7927				
3936	C	3	7928				
3937	C	2	7930				
3938	C	3	7931				
3940	C	1	7932				
3941	C	1	9921				
3942	C	2	9922				
3943	C	1	9923				

9925 C 3
9926 C 2
9927 A 2
9928 B 2
9929 A 2
9930 B 2
9931 B 1
9932 A 3
9933 C 2
9935 B 3
9936 B 2
9937 A 3
9941 A 3
9942 A 2
9943 C 2
9944 A 3
9945 B 3
9947 C 2
9948 B 3
9949 A 1
9950 B 1

EXPLODED VIEW




SCREW
3x10 TORX (2x)
501
502
SUPPLY PART
SCREW
3x16 TORX (2x)
506 (4x)
507
1241
LEFT/RIGHT
AMPLIFIER PART
511
SCREW
3x16 TORX (2x)
AIRFLOW
509
SCREW
3x10 TORX (2x)

MECHANICAL PARTS LIST

0047	482225610555	Rucksack - L/R and Matrix Surr.	1241	482236111161	DC Bruchless Fan
0047	482225610557	Rucksack - L/R and C/S	0002	482225610556	Holder STK47/P5-VA
0047	482225610558	Rucksack - L/R	0029	482246693148	Spacer 5mm

ELECTRICAL PARTS LIST - MAINS BOARD

MISCELLANEOUS

1901	482226531015	⚠	Mains Socket
1901#	482226531016	⚠	Mains Socket
1902*	482227210269	⚠	Voltage Selector
1903*	482207152001	⚠	Fuse T200mA 250V
1905^	482207155002	⚠	Fuse T5A 250V
1905#	482225251123	⚠	Fuse T6,3A 250V
1906*	482207155002	⚠	Fuse T5A 250V
1907*	482207155002	⚠	Fuse T5A 250V
1909*	482226710728	⚠	Primary Connector
1910	482226520723	⚠	Primary Connector
1920	482207155002	⚠	Fuse T5A 250V
1923	482207155002	⚠	Fuse T5A 250V
1924	482207152502	⚠	Fuse T2,5A 250V
1925	482207151602	⚠	Fuse T1,6A 250V

CAPACITORS

2902	482212143526	47nF 5% 250V
2903	482212143526	47nF 5% 250V
2904*	482212440255	100µF 20% 63V
2905*	482212481029	100µF 20% 25V

RESISTORS

3901#	482205321106	⚠	10M 5% 0,5W
3902	482205011002		1k 1% 0,4W
3903	482205011002		1k 1% 0,4W
3904^	482211652244		15k 5% 0,5W
3904*	482211652283		4k7 5% 0,5W
3905*	482211652256		2k2 5% 0,5W
3906*	482211683864		10k 5% 0,5W
3908^	482205310471		470R 5% 1W
3920*	482205210108	⚠	1R 5% 0,33W

COILS & FILTERS

5901^	482215711832	⚠	400µH 3A
5902*	482215711628	⚠	Mains Choke
5903*	482214611144	⚠	Standby Transformer
5903^	482214611143	⚠	Standby Transformer
5903#	482214611142	⚠	Standby Transformer
5905	482228010382	⚠	Relay

DIODES

6900^	482213031878	1N4003G
6901	482213031878	1N4003G
6902	482213031878	1N4003G
6903	482213031878	1N4003G
6904	482213031878	1N4003G
6905	482213030621	1N4148
6906	482213030621	1N4148
6908*	482213034382	BZX79-C8V2
6909*	482213032245	BYV10-40
6910*	482213031878	1N4003G
6911	482213030621	1N4148
6912	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7901*	482213041246	BC327-25
7902*	482213040959	BC547B

* For /21/21M only
^ Except for /21/21M
# For /37 only

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

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

MISCELLANEOUS

1321	482226731176	L/R Loudspeaker Terminal
1327	482226510912	Matrix Surround Terminal

CAPACITORS

2254	482212143526	47nF 5% 250V
2255	482212143526	47nF 5% 250V
2256	482212143526	47nF 5% 250V
2257	482212480415	4700µF 20% 50V
2258	482212480415	4700µF 20% 50V
2263	532212142386	100nF 5% 63V
2264	532212142386	100nF 5% 63V
2265	482212480563	4700µF 20% 35V
2267	482212440255	100µF 20% 63V
2268	482212440769	4,7µF 20% 100V

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

CAPACITORS

2269	482212210577	3,3nF 10% 16V
2270	482212440248	10µF 20% 63V
2271	482212440433	47µF 20% 25V
2279	532212142386	100nF 5% 63V
2280	482212412328	6800µF 16V
2282	482212440248	10µF 20% 63V
2289	482212421913	1µF 20% 63V
2290	482212440207	100µF 20% 25V
2300	482212151387	10nF 20% 16V
2301	482212441584	100µF 20% 10V
2303	482212141857	10nF 5% 250V
2323	482212422652	2,2µF 20% 50V
2324	482212422652	2,2µF 20% 50V
2325	482212233532	3,3nF 5% 50V
2326	482212233532	3,3nF 5% 50V
2329	532212232818	2,2nF 10% 100V
2330	532212232818	2,2nF 10% 100V
2331	532212232261	4,7nF 10% 100V
2333	482212481151	22µF 50V
2334	482212481151	22µF 50V
2337	482212210465	4,7pF 10% 50V
2338	482212210465	4,7pF 10% 50V
2341	482212611585	22nF +80/-20% 25V
2342	482212611585	22nF +80/-20% 25V
2343	482212422652	2,2µF 20% 50V
2344	482212440764	22µF 100V
2345	482212440764	22µF 100V
2348	482212481043	10µF 20% 100V
2349	482212481043	10µF 20% 100V
2350	532212142386	100nF 5% 63V
2351	532212142386	100nF 5% 63V
2352	482212440181	220µF 20% 10V
2353	532212142386	100nF 5% 63V
2354	532212142386	100nF 5% 63V
2355	532212232261	4,7nF 10% 100V
2356	532212232261	4,7nF 10% 100V
2365	482212612785	47nF 50V
2367	532212142386	100nF 5% 63V
2368	532212142386	100nF 5% 63V
2369	532212142386	100nF 5% 63V

RESISTORS

3251	482211652256	2k2 5% 0,5W
3252	482211652256	2k2 5% 0,5W
3254	482211652228	680R 5% 0,5W
3255	482211683883	470R 5% 0,5W
3259	482205021003	10k 1% 0,6W
3260	482211711342	0R33 5% 2W
3261	482211652206	120R 5% 0,5W
3262	482211652206	120R 5% 0,5W
3263	482205021003	10k 1% 0,6W
3265	482211652234	100k 5% 0,5W
3266	482211652228	680R 5% 0,5W
3267	482211652276	3k9 5% 0,5W
3268	482205021003	10k 1% 0,6W
3269	482211683872	220R 5% 0,5W
3269	482211683881	390R 5% 0,5W
3270	482211711342	0R33 5% 2W
3271	482205011002	1k 1% 0,4W
3272	482211652263	2k7 5% 0,5W
3273	482211652244	15k 5% 0,5W
3274	482205023303	33k 1% 0,6W
3275	482205023303	33k 1% 0,6W
3278	482211652256	2k2 5% 0,5W
3280	482211652239	120k 5% 0,5W
3281	482205021003	10k 1% 0,6W
3282	482205210479 ⚠	47R 5% 0,33W
3285	482211652269	3k3 5% 0,5W
3285	482211683961	6k8 5%
3286	482211652269	3k3 5% 0,5W
3286	482211683961	6k8 5%
3287	482211652257	22k 5% 0,5W
3288	482205210479 ⚠	47R 5% 0,33W
3289	482205210479 ⚠	47R 5% 0,33W
3290	482211712063	NTC DC 5W 10k 5%
3295	482211683876	270R 5% 0,5W
3296	482211683883	470R 5% 0,5W
3298	482211652219	330R 5% 0,5W
3299	482211652219	330R 5% 0,5W
3300	482205210568 ⚠	5R6 5% 0,33W
3302	482211683884	47k 5% 0,5W
3304	482211683884	47k 5% 0,5W
3305	482211652257	22k 5% 0,5W
3306	482211683882	39k 5% 0,5W
3309	482205023303	33k 1% 0,6W
3312	482205021003	10k 1% 0,6W
3313	482205011002	1k 1% 0,4W
3315	482211652291	56k 5% 0,5W
3316	482211683884	47k 5% 0,5W
3317	482205210109 ⚠	10R 5% 0,33W
3321	482205021003	10k 1% 0,6W
3322	482205021003	10k 1% 0,6W
3323	482211652234	100k 5% 0,5W
3324	482205021003	10k 1% 0,6W
3325	482211652207	1k2 5% 0,5W
3326	482211652207	1k2 5% 0,5W
3327	482211652291	56k 5% 0,5W
3328	482211652291	56k 5% 0,5W
3329	482211652226	560R 5% 0,5W
3329	482211652228	680R 5% 0,5W
3330	482211652226	560R 5% 0,5W
3330	482211652228	680R 5% 0,5W
3331	482211652291	56k 5% 0,5W
3332	482211652291	56k 5% 0,5W
3333	482205210479 ⚠	47R 5% 0,33W
3334	482205210479 ⚠	47R 5% 0,33W

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

RESISTORS

3335	482211652243		1k5 5% 0,5W
3336	482211652243		1k5 5% 0,5W
3337	482205011002		1k 1% 0,4W
3338	482205011002		1k 1% 0,4W
3339	482211380633	⚠	0R1 5% 3W
3340	482211380633	⚠	0R1 5% 3W
3345	482211652234		100k 5% 0,5W
3346	482205021003		10k 1% 0,6W
3347	482205023303		33k 1% 0,6W
3348	482211683872		220R 5% 0,5W
3350	482205011002		1k 1% 0,4W
3351	482211652234		100k 5% 0,5W
3352	482211652234		100k 5% 0,5W
3353	482211652257		22k 5% 0,5W
3358	482205011002	⚠	1k 1% 0,4W
3363	482205310478	⚠	4R7 5% 1W
3364	482205310478	⚠	4R7 5% 1W
3365	482211652304		82k 5% 0,5W
3366	482211652304		82k 5% 0,5W
3367	482211652304		82k 5% 0,5W
3367	482211683884		47k 5% 0,5W
3368	482211652304		82k 5% 0,5W
3368	482211683884		47k 5% 0,5W
3369	482211683884		47k 5% 0,5W
3370	482211683884		47k 5% 0,5W
3383	482211652289		5k6 5% 0,5W
3383	482211683884		47k 5% 0,5W
3384	482211652289		5k6 5% 0,5W
3384	482211683884		47k 5% 0,5W
3386	482211652263		2k7 5% 0,5W
3386	482211683961		6k8 5%
3387	482205021003		10k 1% 0,6W
3388	482205021003		10k 1% 0,6W
3389	482205210229		22R 5% 0,33W
3391	482211683872		220R 5% 0,5W
3392	482211683872		220R 5% 0,5W

COILS & FILTERS

5321	482215770599	IND FXD BEAD EMI
5322	482215770599	IND FXD BEAD EMI

DIODES

6252	532213080686		1N5392
6253	482213031878		1N4003G
6255	482213011139	⚠	GBU8D
6260	532213080686		1N5392
6261	532213080686		1N5392
6262	532213080686		1N5392
6263	532213080686		1N5392
6264	933166880133		BZX79-B11
6269	482213034281		BZX79-C15
6270	482213030621		1N4148
6271	482213030621		1N4148
6281	482213031878		1N4003G
6284	482213034173		BZX79-C5V6
6290	933166980133		BZX79-B30
6292	482213030621		1N4148
6293	482213034382		BZX79-C8V2
6294	532213080686		1N5392
6295	482213030621		1N4148
6298	482213034278		BZX79-C6V8
6299	482213030621		1N4148
6301	482213030621		1N4148
6302	532213031504		BZX79-C3V3
6337	482213030621		1N4148
6339	482213030621		1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7251	932213923667	BDX53BFP
7252	482213040959	BC547B
7253	482213040959	BC547B
7255	482213040959	BC547B
7260	482213040959	BC547B
7263	482213040961	BC337-25
7265	482213041691	BC556B
7266	482213044568	BC557B
7268	482213040959	BC547B
7280	482213040959	BC547B
7281	482220931841	L7805CP
7282	482213041327	BC327-40
7286	482213041327	BC327-40
7290	482213041246	BC327-25
7323	482213044461	BC546B
7324	482213044461	BC546B
7325	482213040959	BC547B
7326	482213040959	BC547B
7327	482213044461	BC546B
7329	482220917383	STk496-090
7329	482220917385	STK496-070
7329	932214856682	STK496-070C
7350	482213041691	BC556B

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

ELECTRICAL PARTS LIST - CENTER/SURROUND AMPLIFIER BOARD

MISCELLANEOUS

1921	482226510464	Center Speaker Terminal
1925	482226510912	Surround Speaker Terminal

CAPACITORS

2923	482212422652	2,2µF 20% 50V
2924	482212422652	2,2µF 20% 50V
2925	482212233532	3,3nF 5% 50V
2926	482212233532	3,3nF 5% 50V
2927	532212232334	220pF 10% 100V
2928	532212232334	220pF 10% 100V
2929	532212232311	470pF 10% 100V
2930	532212232311	470pF 10% 100V
2931	532212232261	4,7nF 10% 100V
2932	482212233449	47nF 30% 50V
2933	482212481151	22µF 50V
2934	482212481151	22µF 50V
2936	482212612882	100nF +80/-20% 50V
2937	482212210465	4,7pF 10% 50V
2938	482212210465	4,7pF 10% 50V
2939	482212440248	10µF 20% 63V
2940	482212440248	10µF 20% 63V
2944	482212481151	22µF 50V
2945	482212481151	22µF 50V
2946	482212440248	10µF 20% 63V
2950	482212233449	47nF 30% 50V
2951	482212233449	47nF 30% 50V
2952	482212440181	220µF 20% 10V
2953	482212233449	47nF 30% 50V
2954	482212233449	47nF 30% 50V
2955	532212232261	4,7nF 10% 100V
2956	532212232261	4,7nF 10% 100V
2957	482212422652	2,2µF 20% 50V

RESISTORS

3921	482211683883		470R 5% 0,5W
3922	482211683883		470R 5% 0,5W
3925	482211652234		100k 5% 0,5W
3926	482211652234		100k 5% 0,5W
3927	482211652291		56k 5% 0,5W
3928	482211652291		56k 5% 0,5W
3929	482211683883		470R 5% 0,5W
3930	482211683883		470R 5% 0,5W
3931	482211652291		56k 5% 0,5W
3932	482211652291		56k 5% 0,5W
3933	482205210479	⚠	47R 5% 0,33W
3934	482205210479	⚠	47R 5% 0,33W
3935	482211652256		2k2 5% 0,5W
3936	482211652256		2k2 5% 0,5W
3937	482211652249		1k8 5% 0,5W
3938	482211652249		1k8 5% 0,5W
3940	482211711744	⚠	0R22 5% 1W
3941	482211711744	⚠	0R22 5% 1W
3945	482211652234		100k 5% 0,5W
3946	482205021003		10k 1% 0,6W
3947	482205023303		33k 1% 0,6W
3948	482211683872		220R 5% 0,5W
3963	482205310478	⚠	4R7 5% 1W
3964	482205310478	⚠	4R7 5% 1W
3965	482211652245		150k 5% 0,5W
3966	482211652245		150k 5% 0,5W
3967	482211683884		47k 5% 0,5W
3968	482211683884		47k 5% 0,5W
3969	482211683884		47k 5% 0,5W
3970	482211683884		47k 5% 0,5W
3978	482205011002		1k 1% 0,4W
3979	482205021003		10k 1% 0,6W
3980	482211652234		100k 5% 0,5W
3981	482205021003		10k 1% 0,6W
3982	482211652234		100k 5% 0,5W
3983	482211683883		470R 5% 0,5W
3984	482211652234		100k 5% 0,5W
3985	482205021003		10k 1% 0,6W
3993	482211652234		100k 5% 0,5W
3994	482211652234		100k 5% 0,5W

COILS & FILTERS

5921	482215762255	Coil 18,5 Turns
5922	482215762255	Coil 18,5 Turns

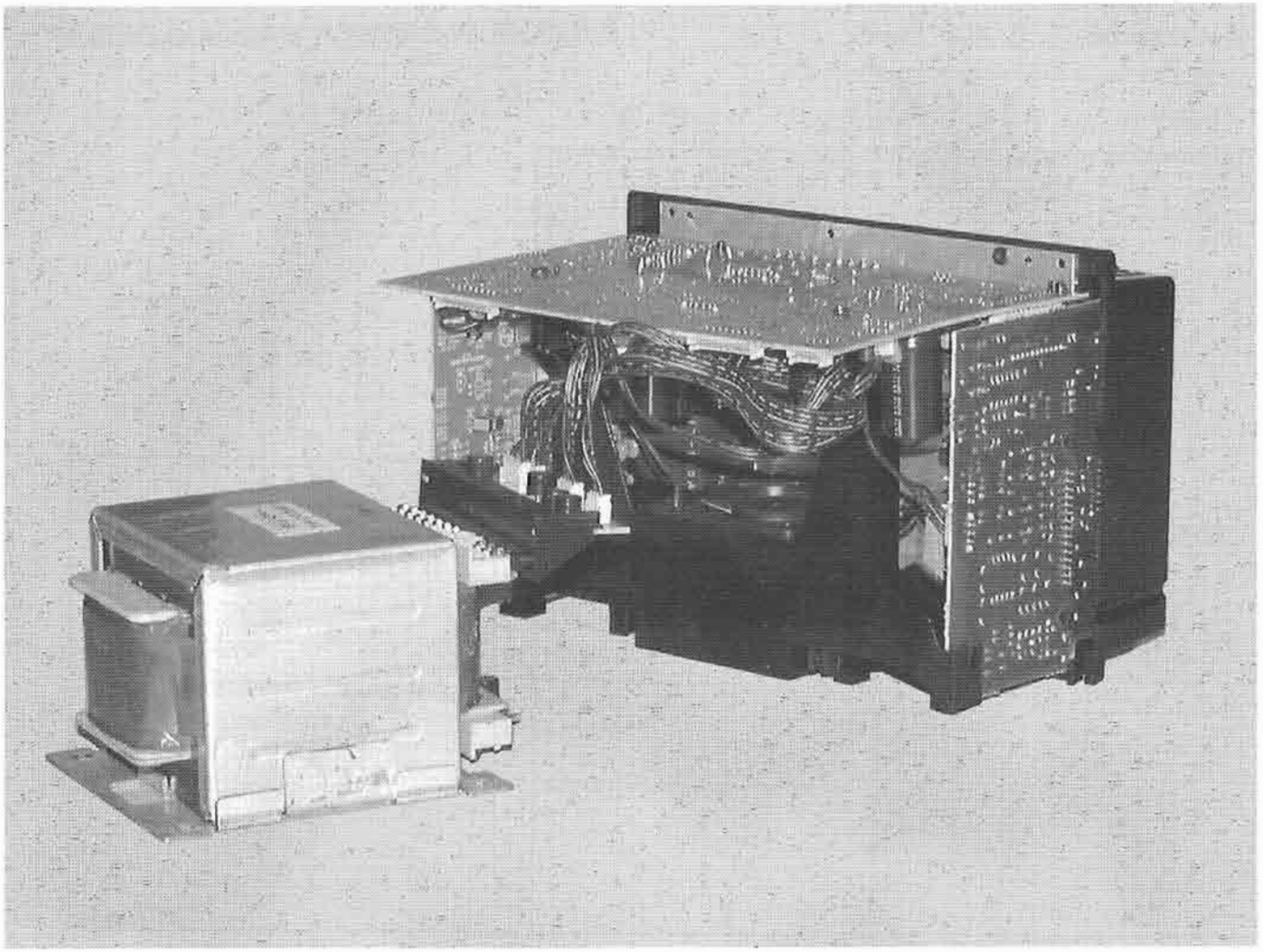
DIODES

6921	482213030621	1N4148
6939	482213030621	1N4148
6941	482213034145	BZX79-C39
6942	482213034145	BZX79-C39

TRANSISTORS & INTEGRATED CIRCUITS

7923	482213040959	BC547B
7924	482213040959	BC547B
7925	482213040959	BC547B
7927	482213040959	BC547B
7930	932214856682	STK496-070C
7931	482213040959	BC547B
7932	482213044568	BC557B

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



POWER 5-VA Module

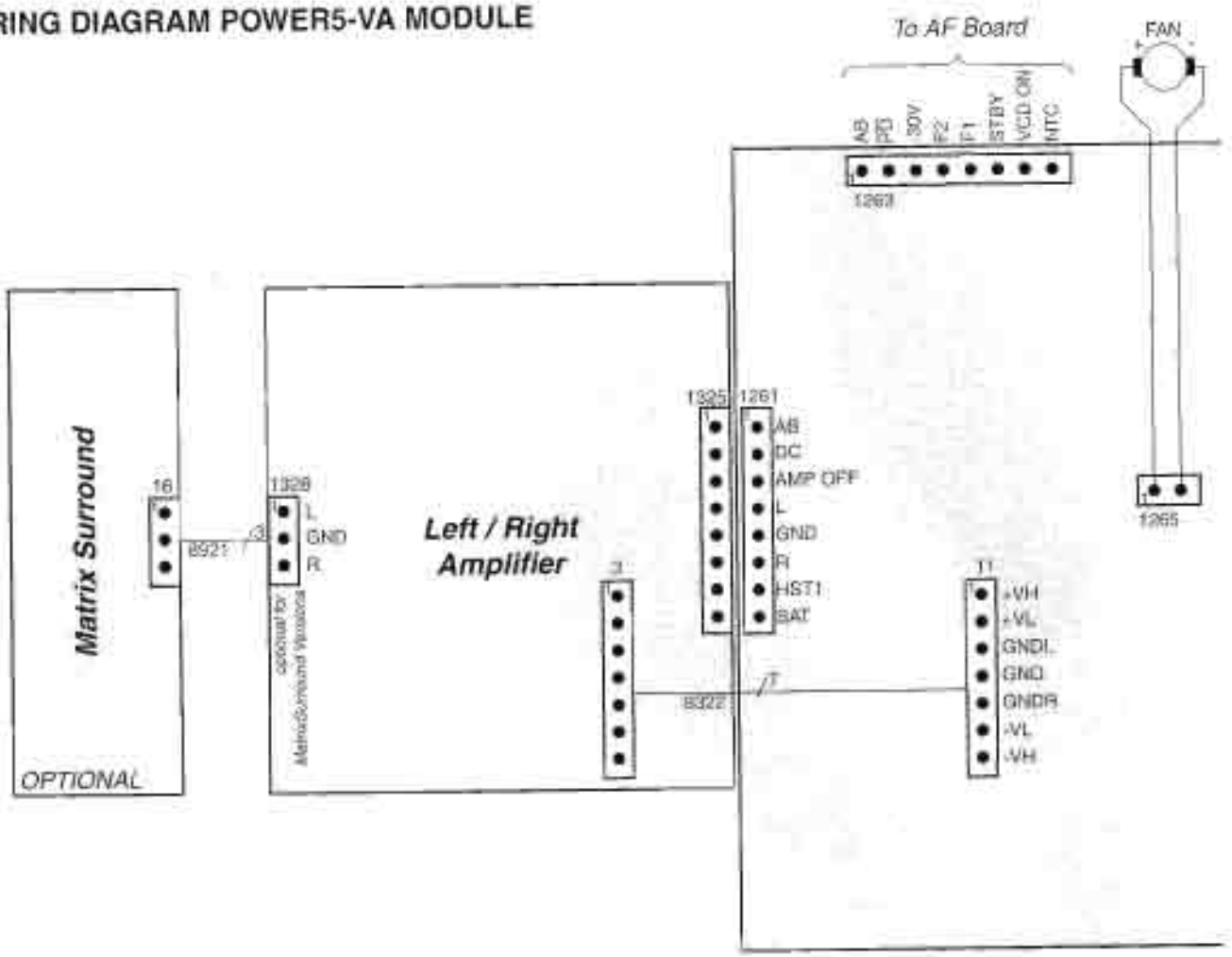
(120 / 130W Version)

Stage .6

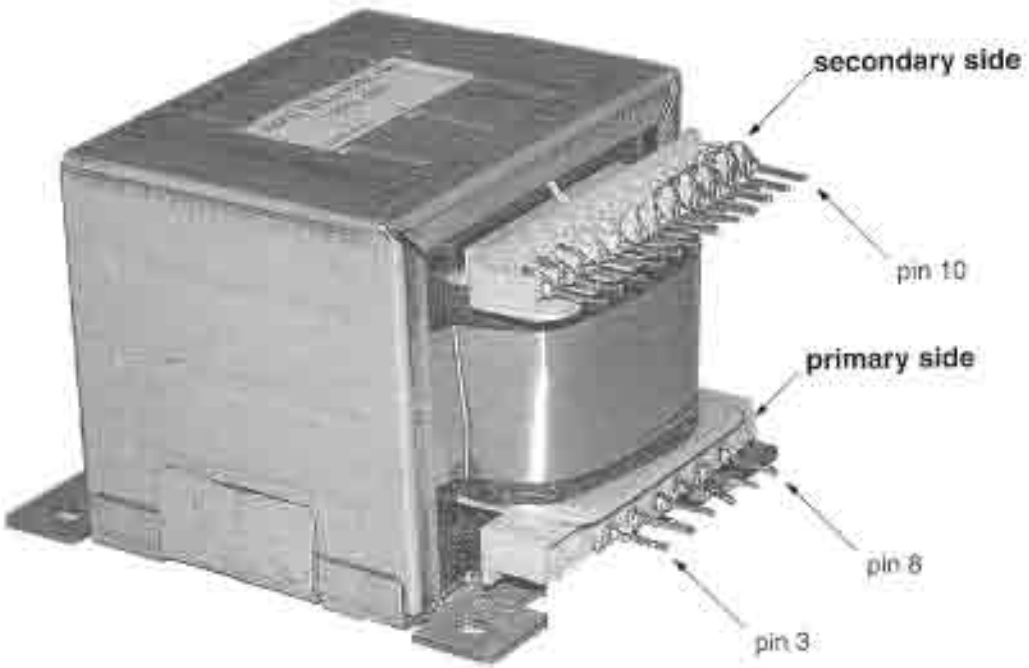
TABLE OF CONTENTS

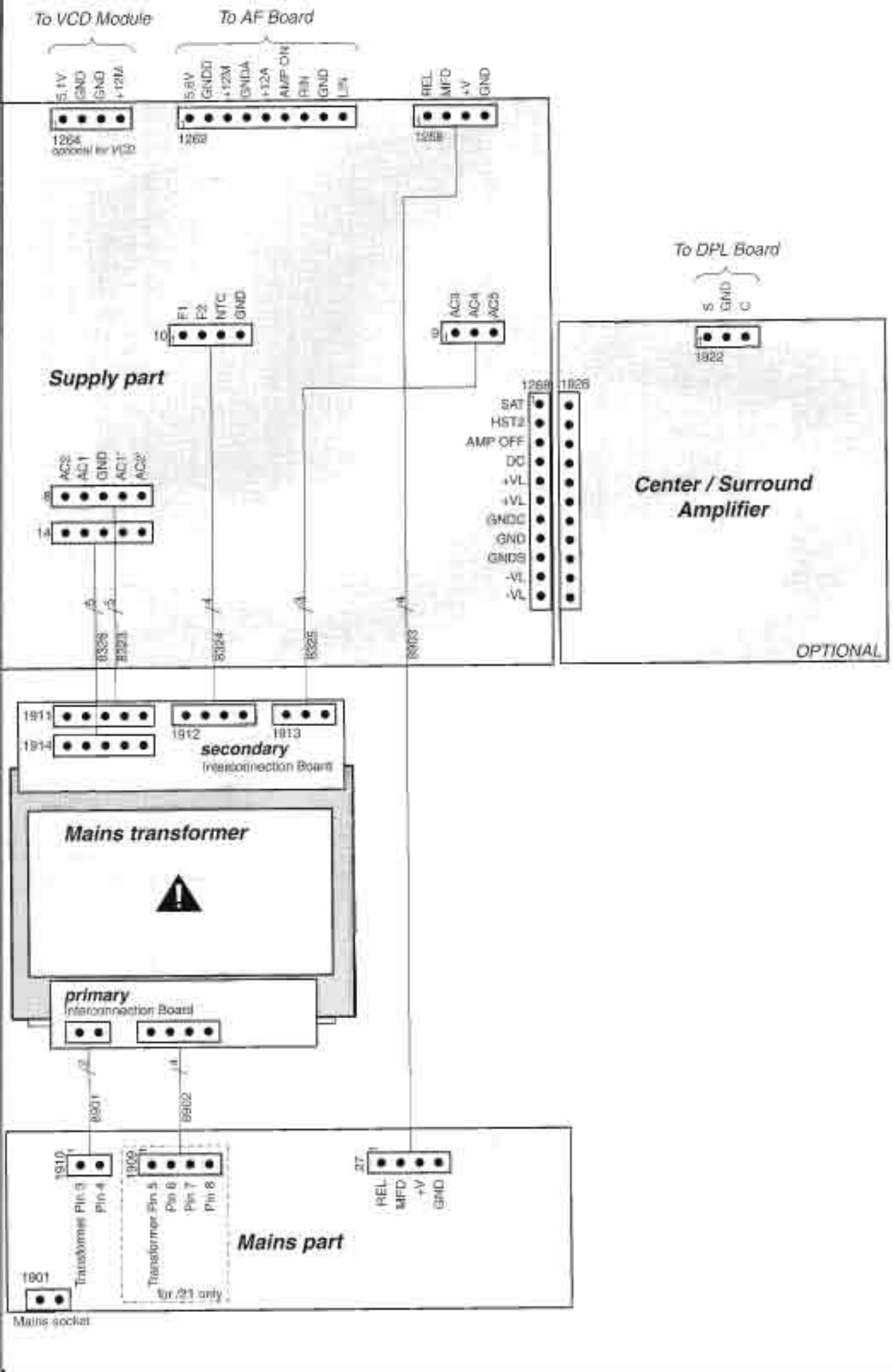
Wiring Diagram 11-2
Block Diagram 11-3
Component layout Supply part and L/R Amplifier part 11-4
Circuit Diagram Mains part and Supply part 11-5
Component layout Mains part 11-6
Component layout Supply part and L/R Amplifier part 11-6
Circuit diagram L/R Amplifier part 11-7
Circuit diagram C/S Amplifier part 11-8
Component layout C/S Amplifier part 11-9
Exploded view 11-10
Partslist 11-11ff

WIRING DIAGRAM POWER5-VA MODULE

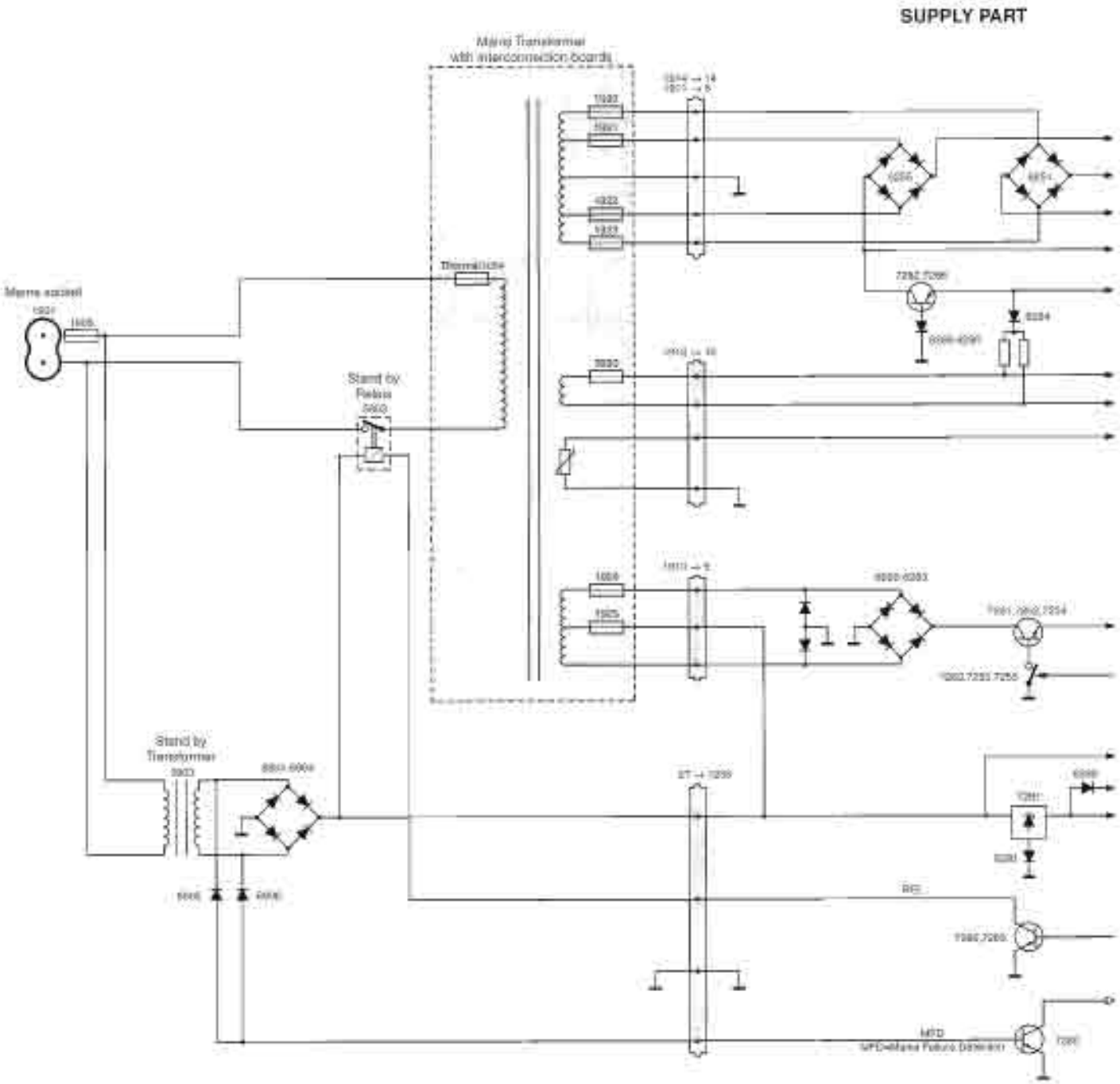


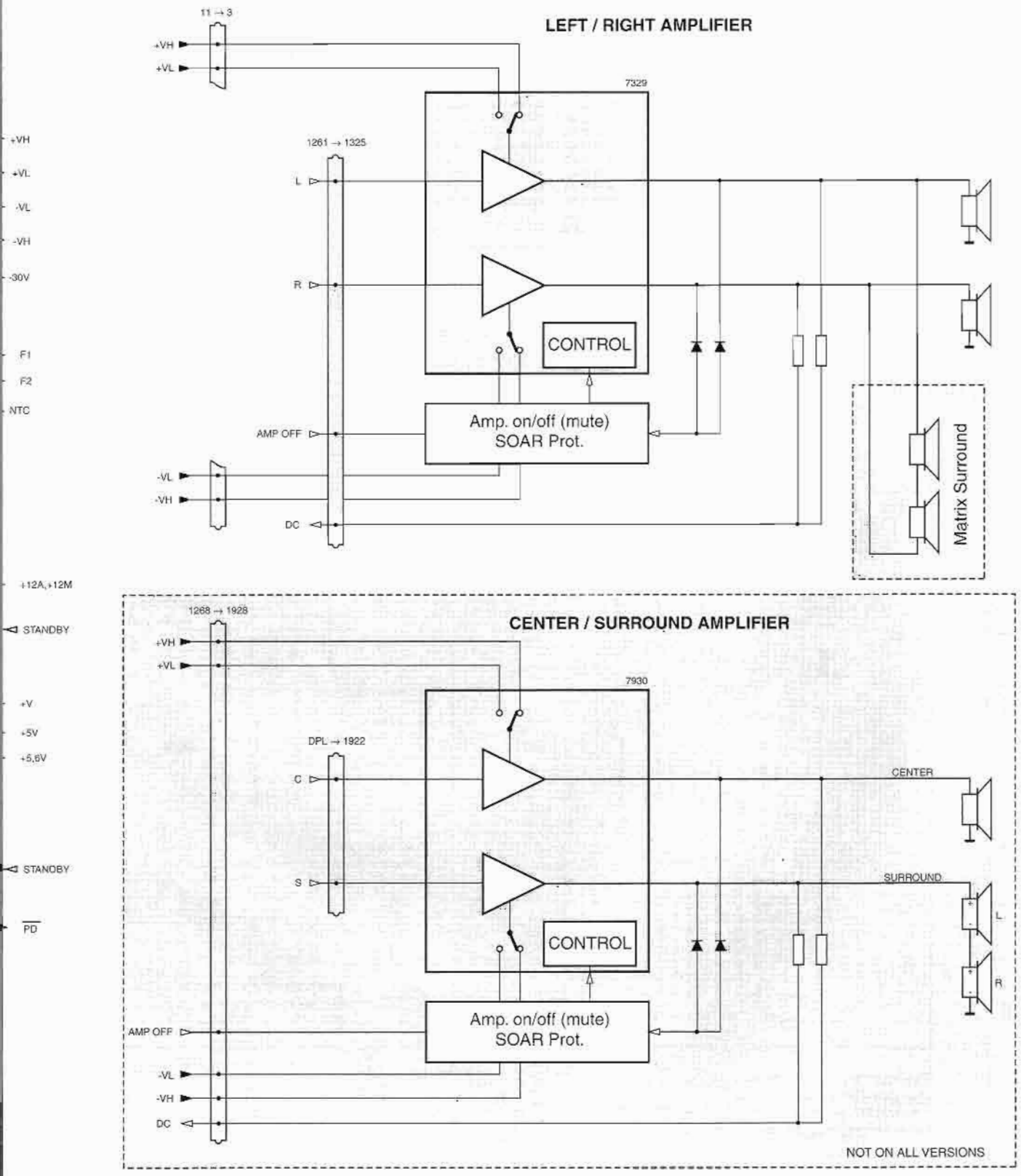
Mains Transformer /21



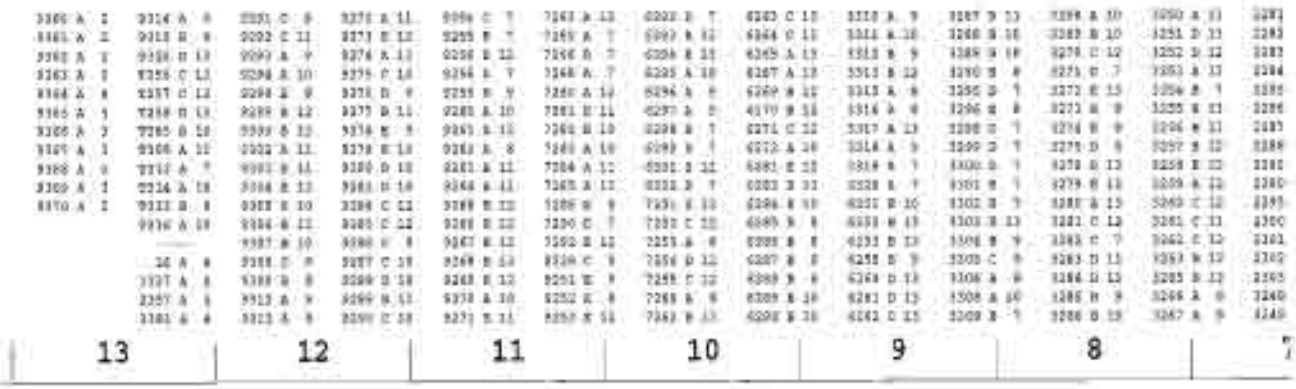

To VCD Module
To AF Board
5.1V
GND
GND
+12M
1264
optional for VCD
5.6V
GNDD
+12M
GNDA
+12A
AMP ON
RIN
GND
LIN
1262
REL
MFD
+V
GND
1268
To DPL Board
S
GND
C
1922
F1
F2
NTC
GND
10
AC3
AC4
AC5
9
Supply part
1268
1926
SAT
HST2
AMP OFF
DC
+VL
+VL
GNDC
GND
GNDS
-VL
-VL
Center / Surround Amplifier
AC2
AC1
GND
AC1'
AC2'
8
14
8326
8323
8324
8325
8903
OPTIONAL
1911
1914
1912
1913
secondary
Interconnection Board
Mains transformer
primary
Interconnection Board
8901
8902
1910
1909
Transformer Pin 3
Pin 4
Transformer Pin 5
Pin 6
Pin 7
Pin 8
for 21 only
Mains part
27
REL
MFD
+V
GND
1901
Mains socket

BLOCK DIAGRAM 120/130W VERSION




LEFT / RIGHT AMPLIFIER
11 → 3
+VH
+VL
7329
1261 → 1325
L
R
CONTROL
Amp. on/off (mute)
SOAR Prot.
AMP OFF
-VL
-VH
DC
Matrix Surround
+VH
+VL
-VL
-VH
-30V
F1
F2
NTC
+12A, +12M
STANDBY
+V
+5V
+5,6V
STANDBY
PD
CENTER / SURROUND AMPLIFIER
1268 → 1928
7930
DPL → 1922
C
S
CENTER
SURROUND
L
R
CONTROL
Amp. on/off (mute)
SOAR Prot.
AMP OFF
-VL
-VH
DC
NOT ON ALL VERSIONS

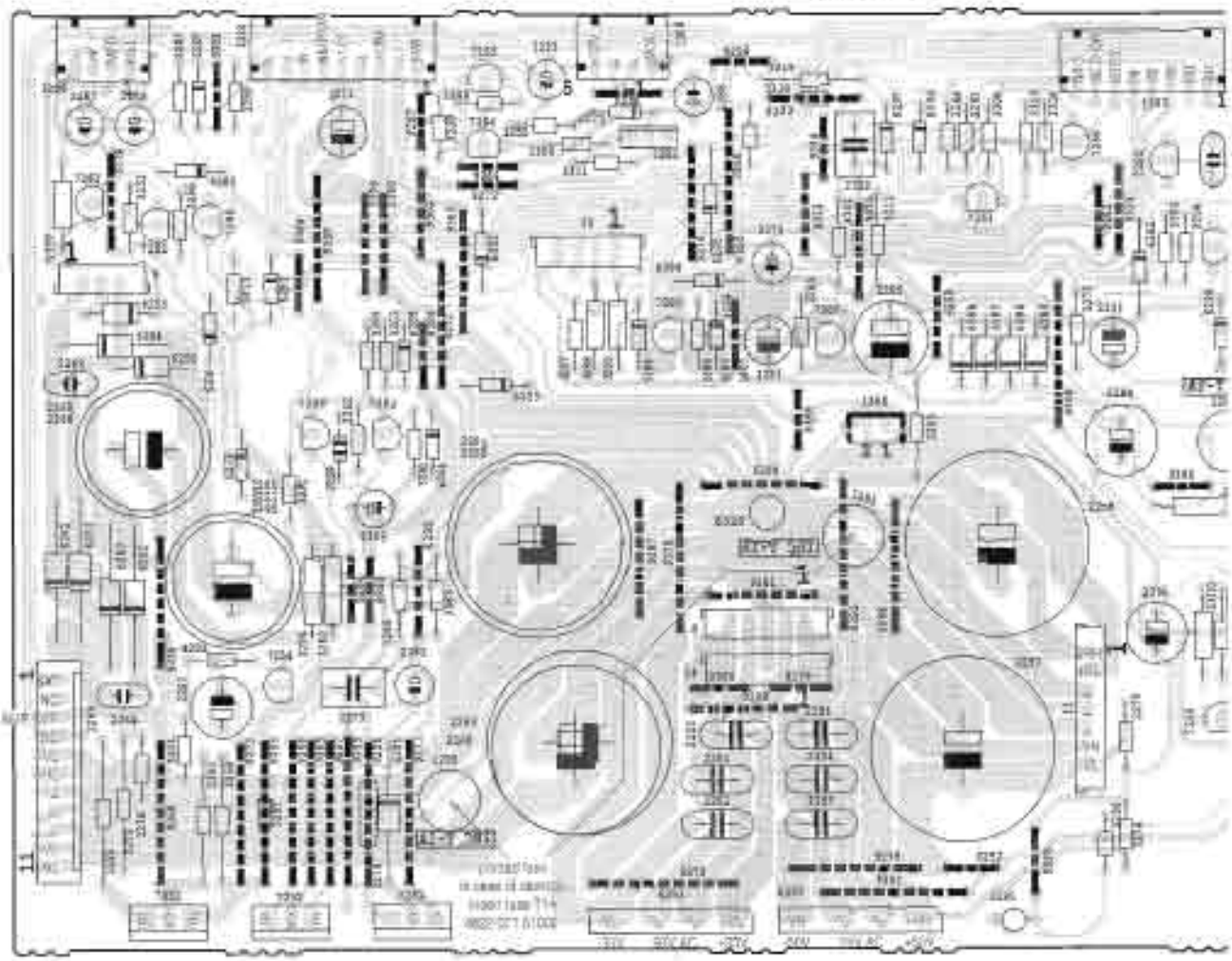
COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART



13 12 11 10 9 8

Copperside view

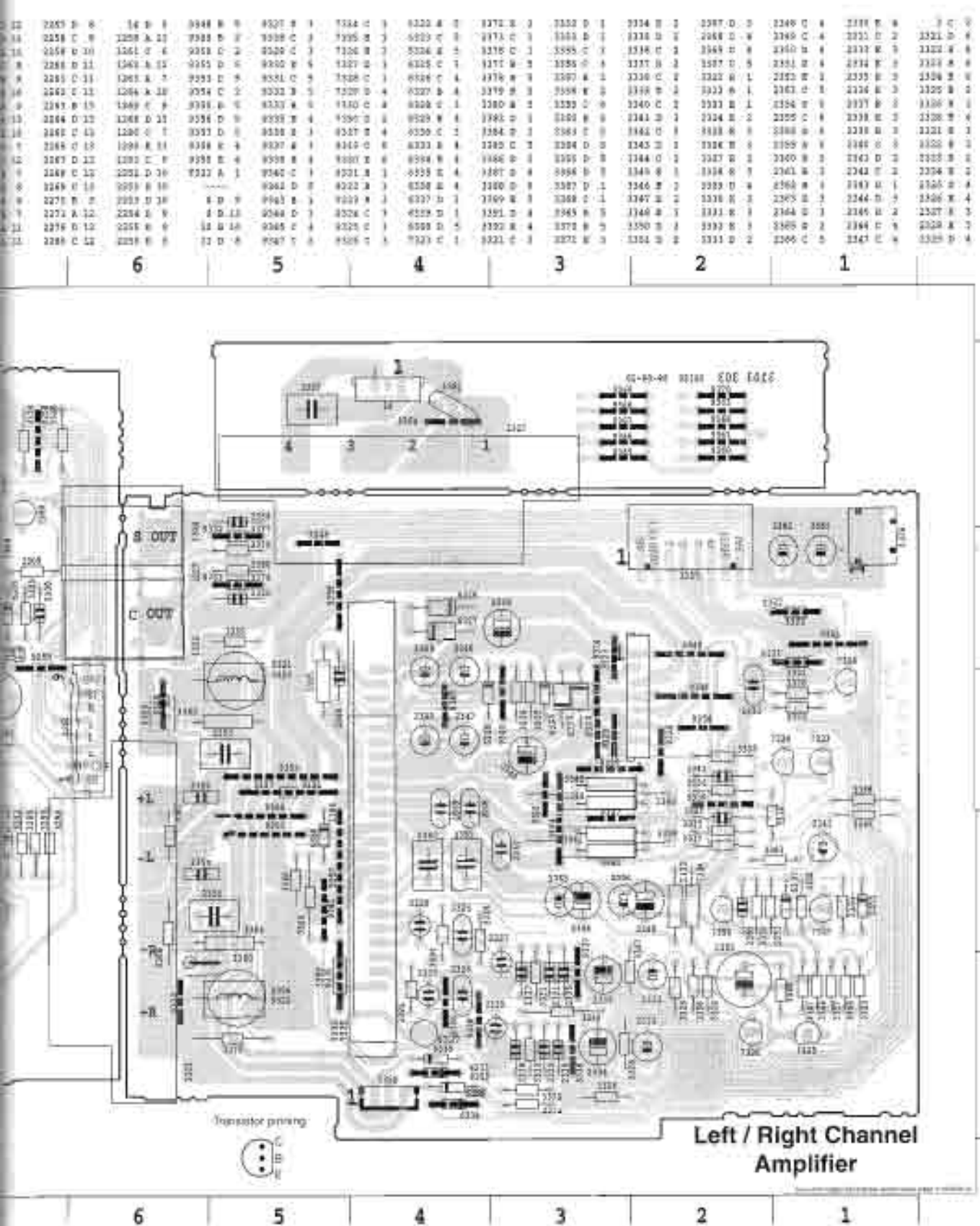
Supply part



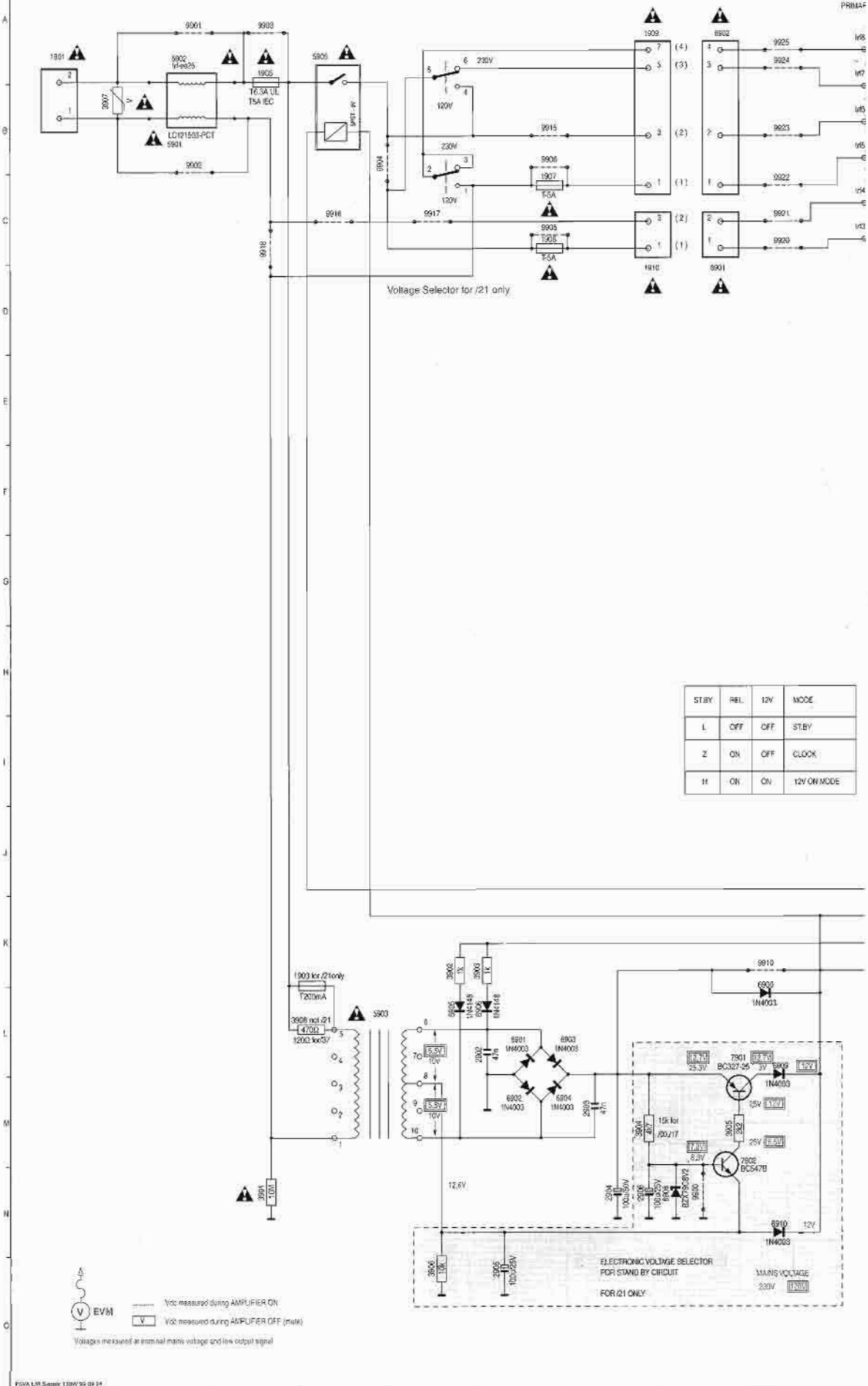
A B C D E

13 12 11 10 9 8

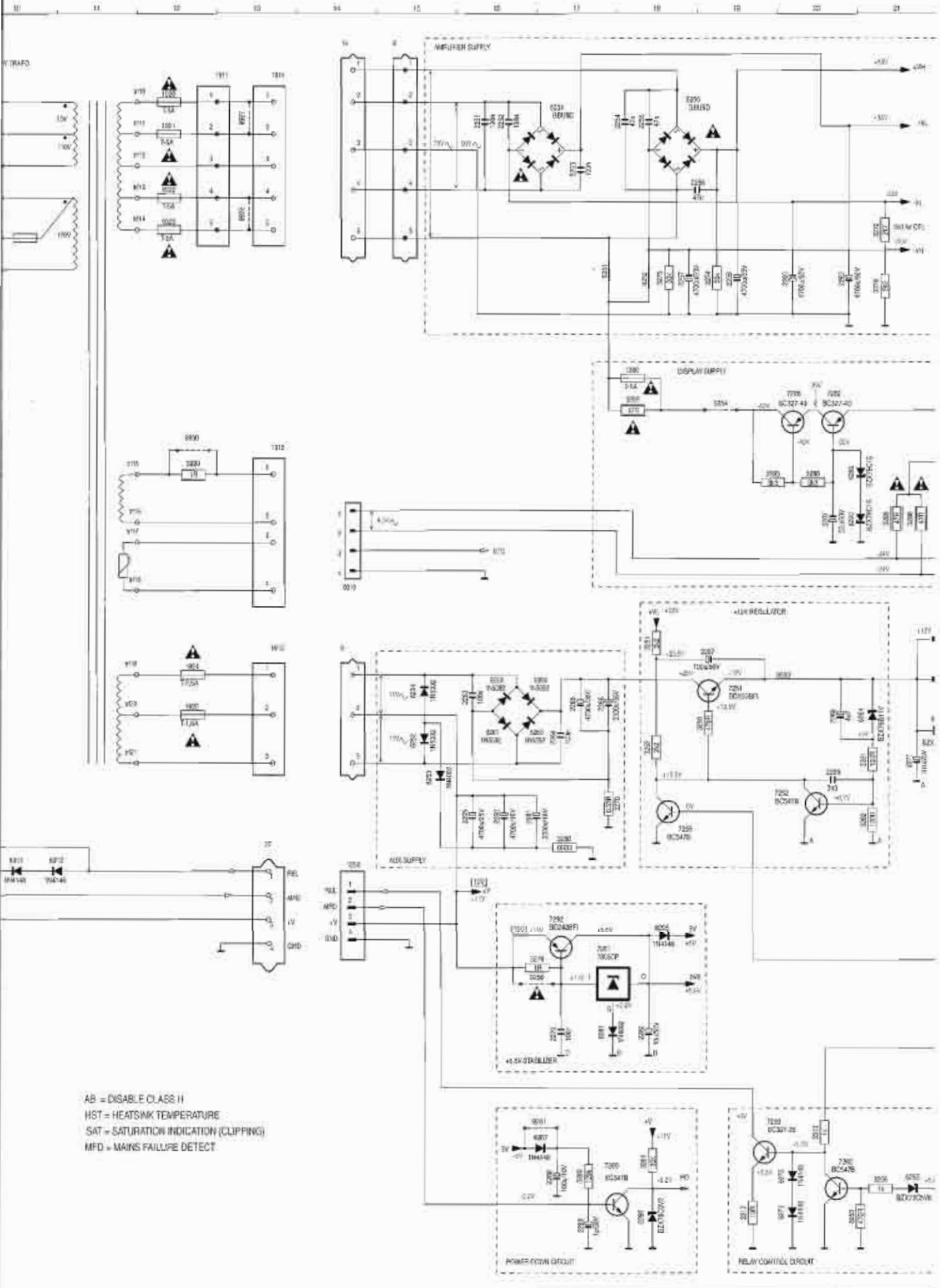
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

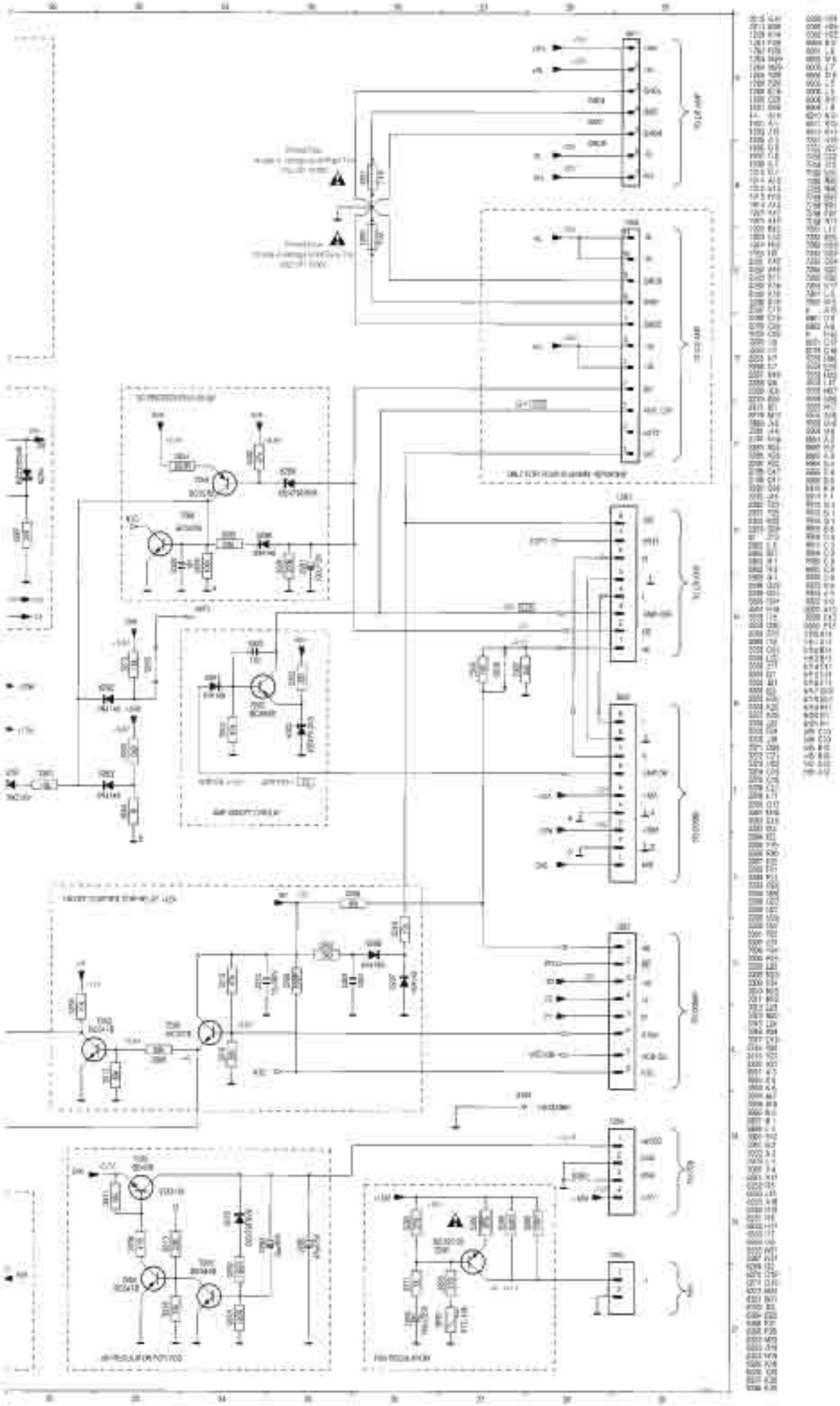

S OUT
C OUT
+L
-L
-R
-B
Transistor pinning
Left / Right Channel
Amplifier

POWER 5-VA SUPPLY PART 130W Version



ST.BY	REL.	12V	MODE
L	OFF	OFF	ST.BY
Z	ON	OFF	CLOCK
H	ON	ON	12V ON MODE


AMPLIFIER SUPPLY
DISPLAY SUPPLY
+12V REGULATOR
AUX SUPPLY
+5.5V STABILIZER
POWER DOWN CIRCUIT
RELAY CONTROL CIRCUIT
AB = DISABLE CLASS H
HST = HEATSINK TEMPERATURE
SAT = SATURATION INDICATION (CLIPPING)
MFD = MAINS FAILURE DETECT



COMPONENT LAYOUT MAINS BOARD

Interconnection Board

primary side

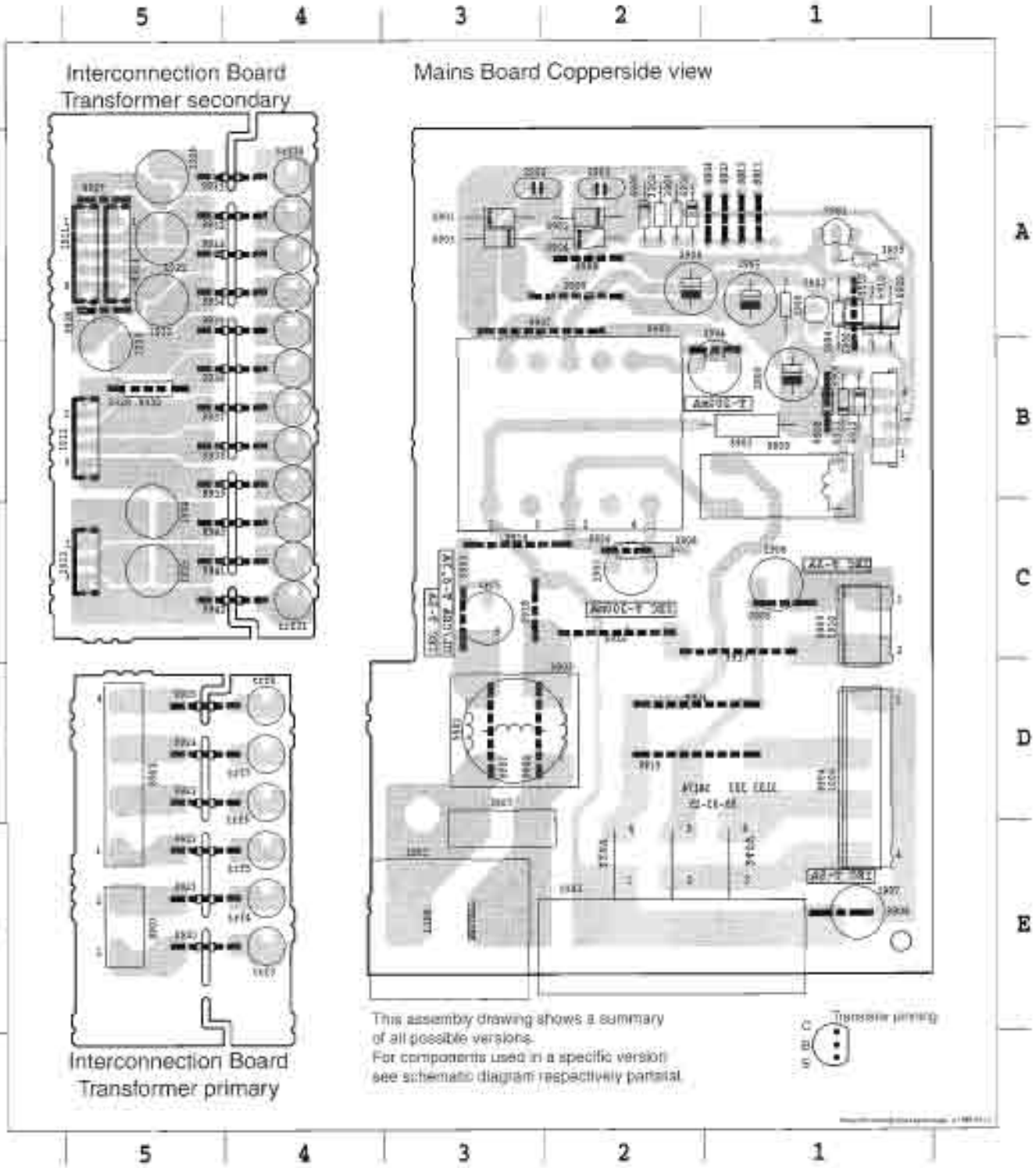
9901 E 5
9902 D 5
9920 E 4
9921 E 4
9922 E 4
9923 D 4
9924 D 4
9925 D 4
tr3 E 4
tr4 E 4
tr5 E 4
tr6 D 4
tr7 D 4
tr8 D 4

secondary side

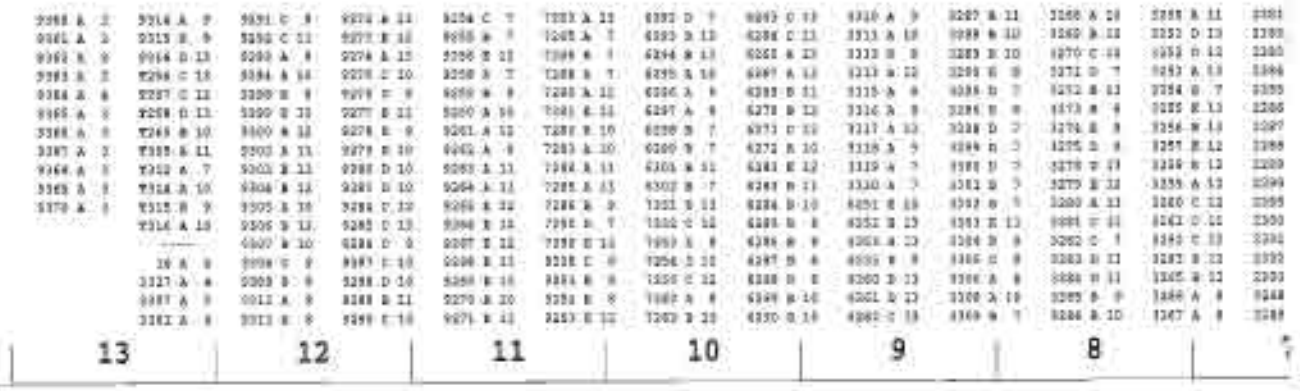
1911 A 5
1912 B 5
1913 C 5
1914 A 5
1920 A 4
1921 A 4
1922 A 4
1923 B 5
1924 C 4
1925 C 4
9920 B 4
9927 A 5
9928 A 5
9930 B 4
9931 A 4
9932 A 4
9933 A 4
9934 A 4
9935 B 4
9936 B 4
9937 B 4
9938 B 4
9939 C 4
9940 C 4
9941 C 4
9942 C 4
tr10 A 3
tr11 A 3
tr12 A 3
tr13 A 3
tr14 B 3
tr15 B 3
tr16 B 3
tr17 B 3
tr18 C 3
tr19 C 3
tr20 C 3
tr21 C 3

Mains Board

2? B 1
1901 E 3
1902 E 2
1903 C 2
1904 B 2
1905 C 3
1906 C 1
1907 E 1
1909 D 1
1910 C 1
2902 A 5
2903 A 2
2904 A 2
2905 A 1
2906 B 1
2907 E 3
2908 C 2
5901 D 3
5902 D 3
5903 B 2
5905 C 1
6900 B 1
6901 A 3
6902 A 2
6903 A 3
6904 A 2
6905 A 3
6906 A 2
6908 B 1
6909 B 1
6910 B 1
6911 B 1
6912 B 1
7901 A 1
7902 B 1
8904 D 1
8905 C 1
9000 B 1
9001 D 3
9002 D 3
9003 C 3
9004 D 2
9005 C 1
9006 E 1
9007 B 3
9008 A 2
9009 A 2
9010 B 3
9011 A 1
9012 A 1
9013 A 2
9014 A 2
9015 D 2
9016 D 2
9017 D 1
9018 C 3
9019 C 3
9020 B 2
9025 C 2
9029 B 2

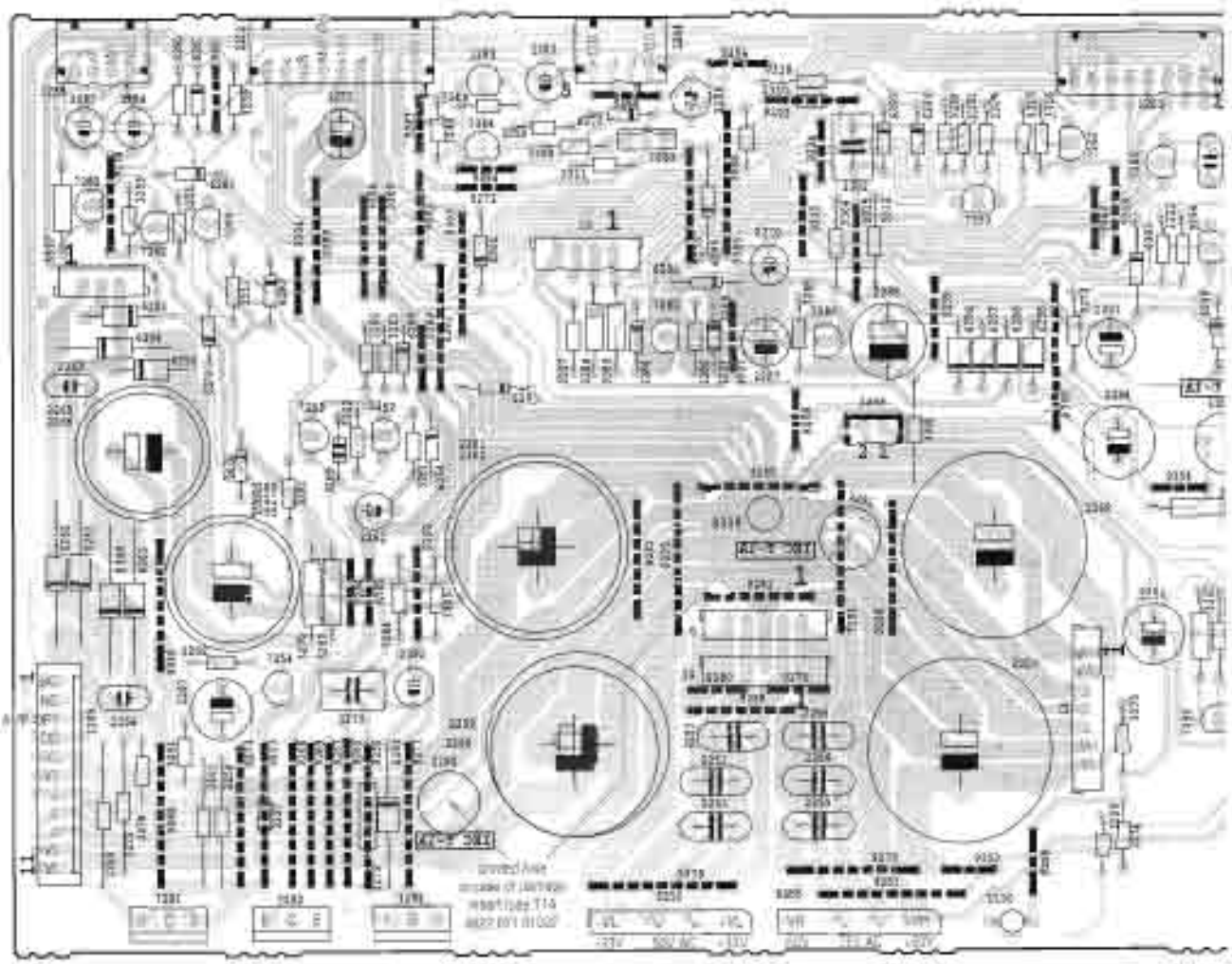


COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

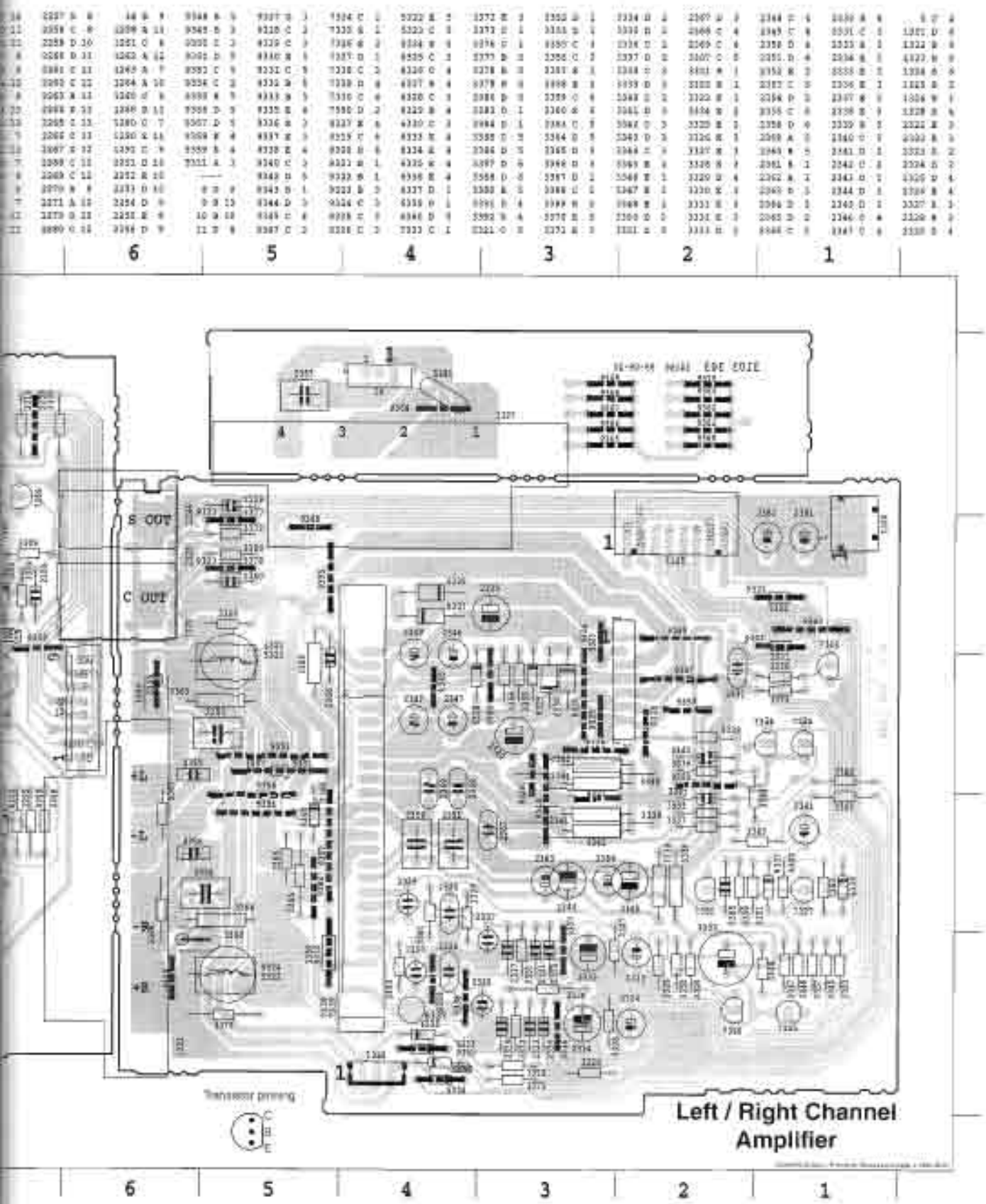


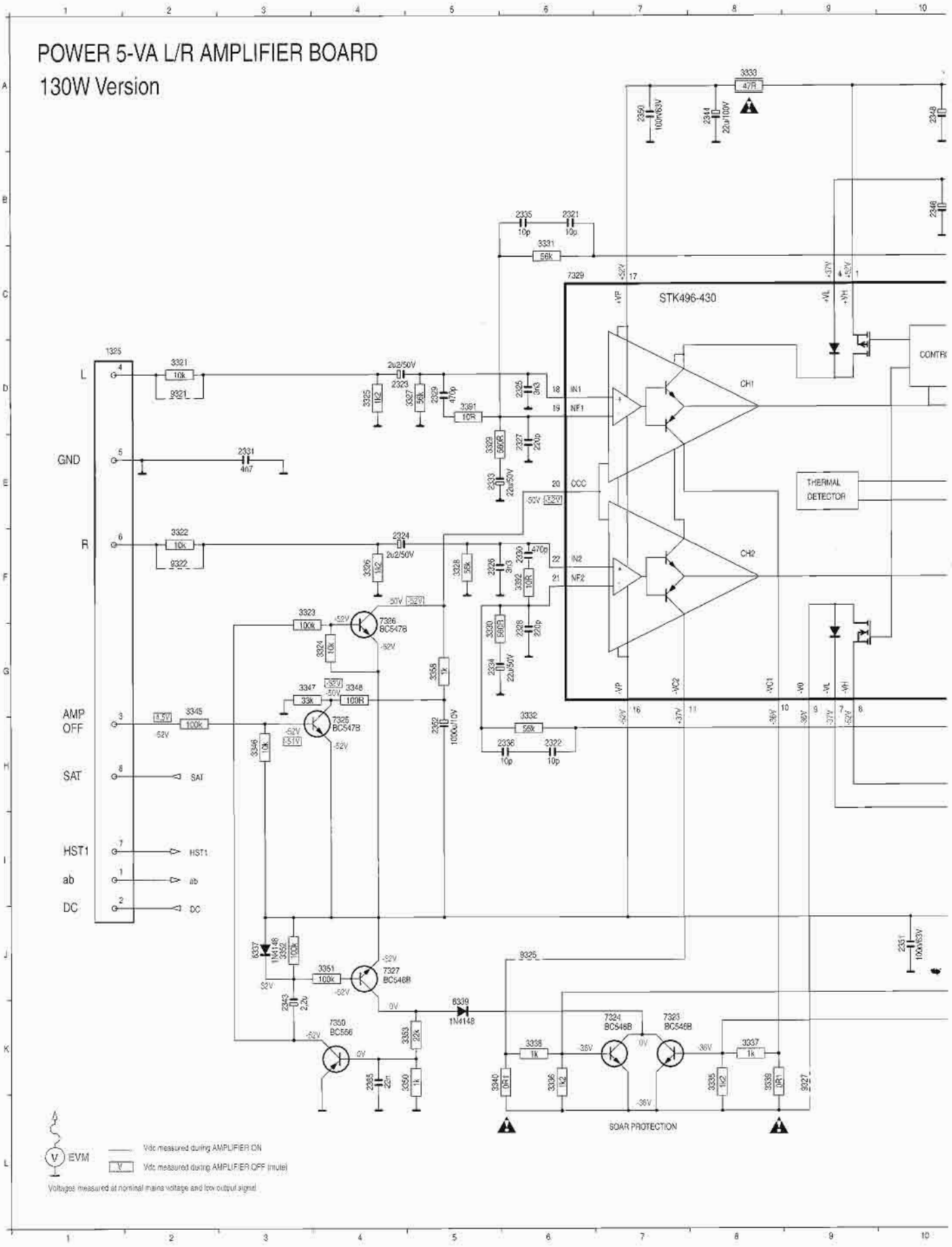
Copperside view

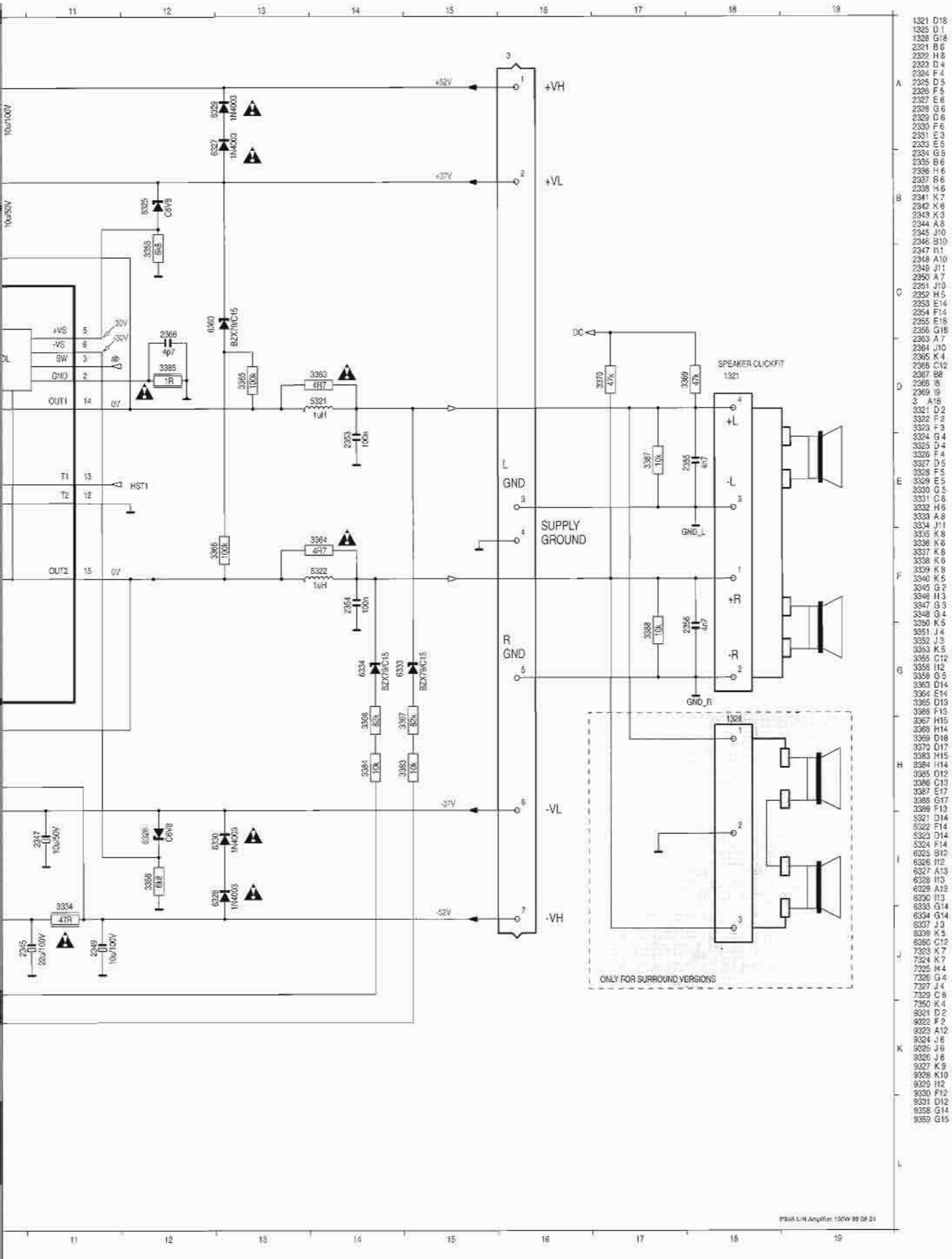
Supply part



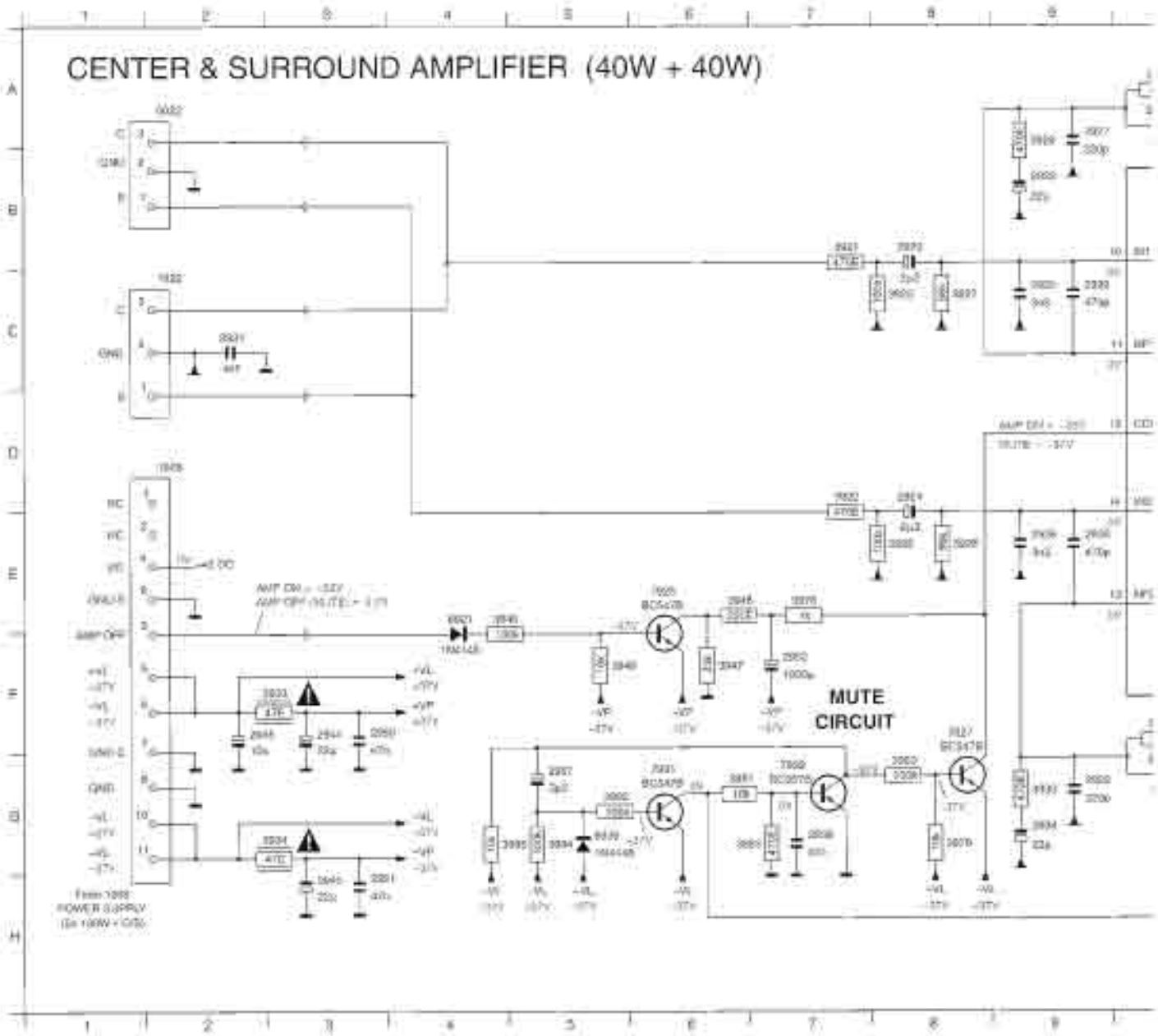
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.


S OUT
C OUT
+B
Transistor pinning
Left / Right Channel
Amplifier

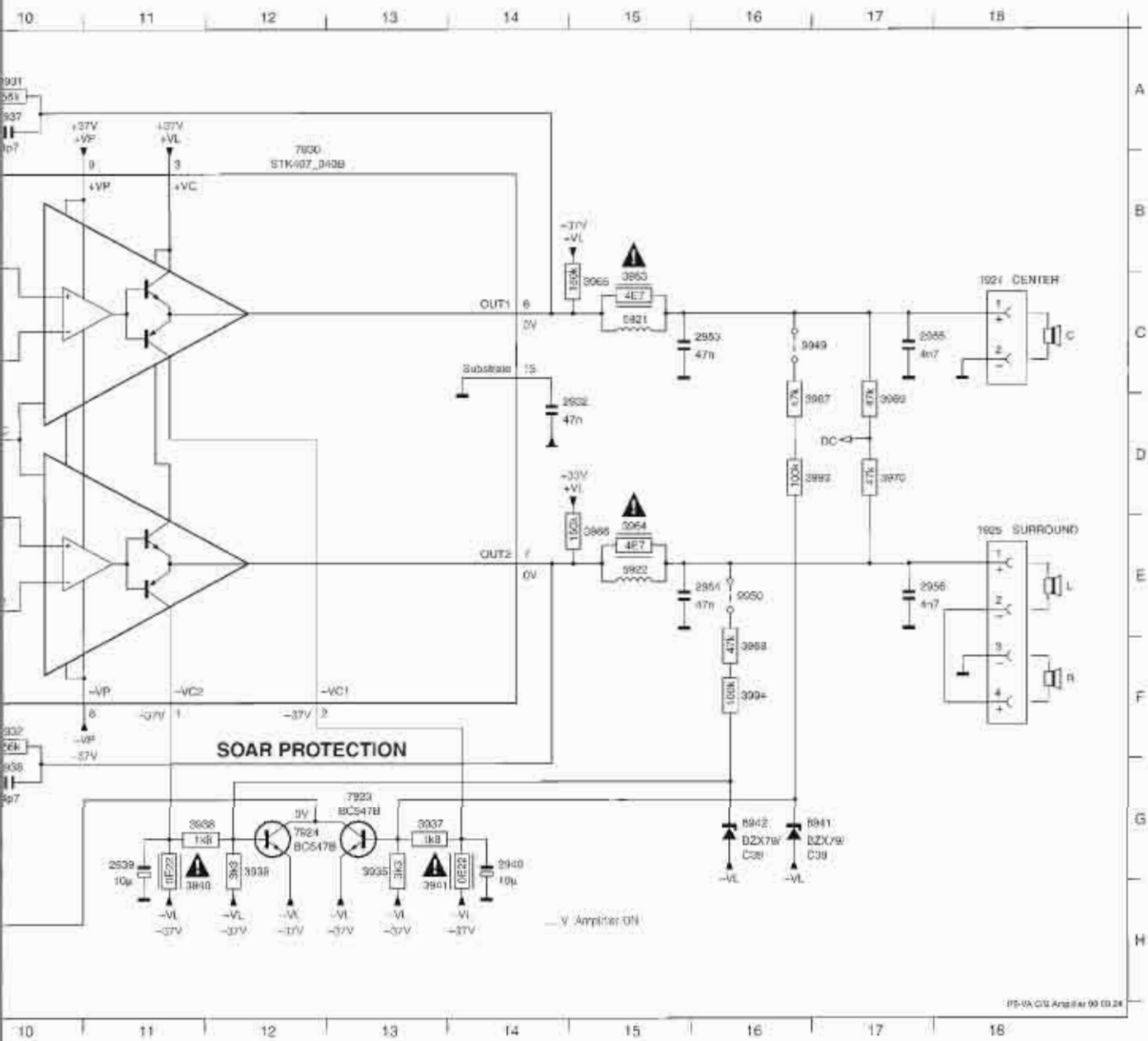

POWER 5-VA L/R AMPLIFIER BOARD
130W Version
STK496-430
CH1
CH2
THERMAL DETECTOR
SOAR PROTECTION
L
GND
R
AMP OFF
SAT
HST1
ab
DC
IN1
NF1
IN2
NF2
CCC
-VP
-VC2
-VC1
-V0
-VL
+VH
+VL
+VP
7329
7326 BC547B
7325 BC547B
7327 BC548B
7350 BC556
7324 BC548B
7323 BC548B
1N4148
EVM
Vdc measured during AMPLIFIER ON
Vdc measured during AMPLIFIER OFF (mute)
Voltages measured at nominal mains voltage and low output signal


+VH
+VL
-VL
-VH
SUPPLY GROUND
L GND
R GND
+52V
+37V
-37V
-52V
SPEAKER CLICKFIT 1321
+L
-L
+R
-R
GND_L
GND_R
DC
HST1
ONLY FOR SURROUND VERSIONS
PSWA L/R Amplifier 150W 99 09 24

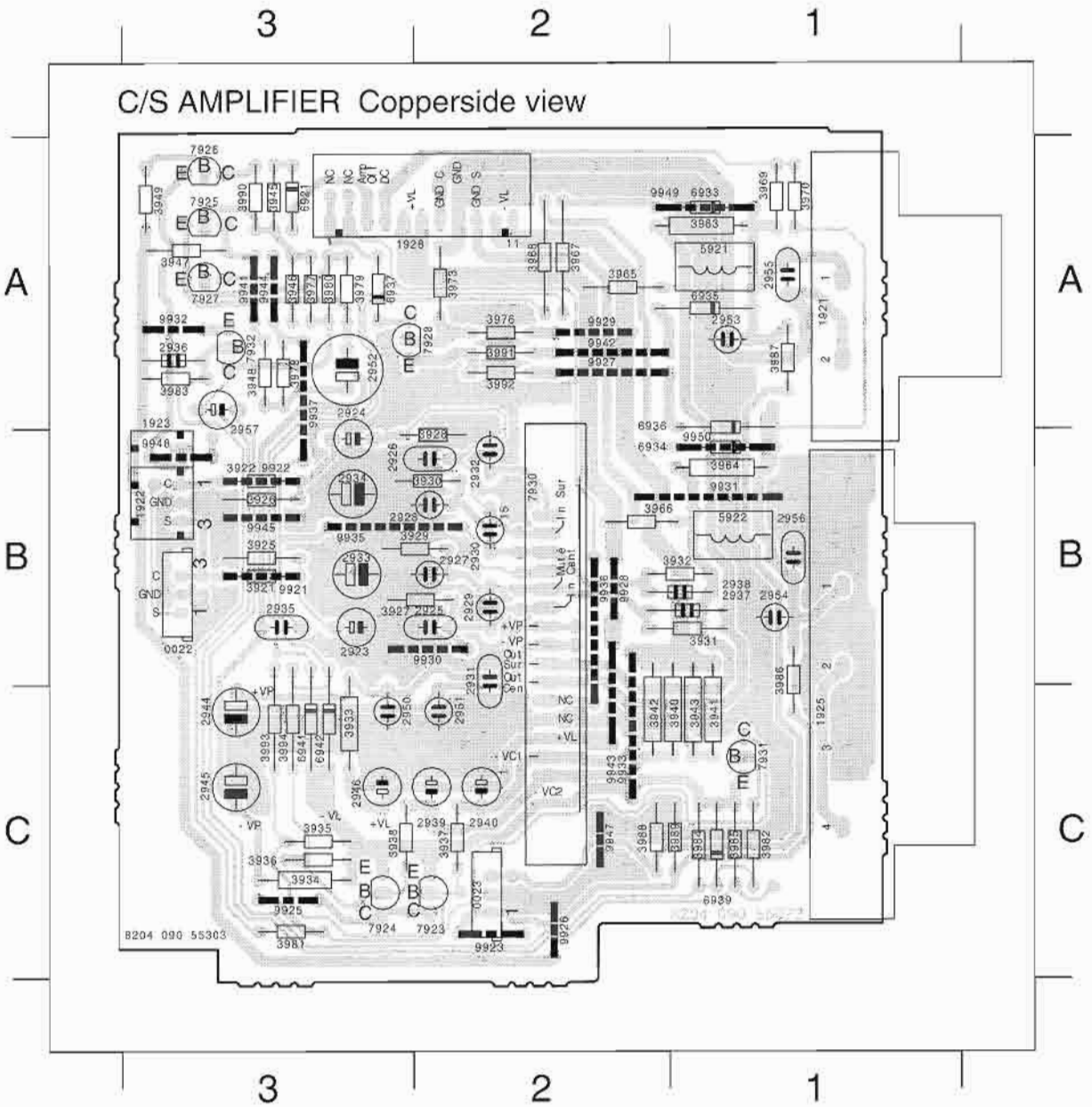
0002	A2	2924	D8	2930	E9	2937	A10	2948	F5	2955	C17	3926	E8	3932					
1901	C16	2925	C8	2931	C2	2938	G10	2950	F8	2956	E17	3927	D8	3933					
1902	C9	2926	E8	2932	D14	2939	G11	2951	H3	2957	D8	3928	D8	3934					
1925	E18	2927	A8	2933	B6	2940	H14	2952	F6	3921	E7	3929	A8	3935					
1938	D2	2928	C9	2934	G9	2944	F3	2953	C15	3922	D7	3930	G8	3936					
2923	B8	2929	C9	2936	G7	2945	H5	2954	E15	3925	C8	3931	A10	3937					



F10	3938	G11	3948	E6	3968	F16	3981	G6	3994	F16	6942	G16	7931	G5
F2	3940	H11	3963	C15	3969	D17	3982	G5	5921	C15	7923	G13	7932	G7
G2	3941	H14	3964	E15	3970	D17	3983	G6	5922	E15	7924	G12	9949	C15
H13	3945	E4	3965	C15	3978	E7	3984	G5	6921	E4	7925	E6	9950	E16
H12	3946	F5	3966	E15	3979	G8	3985	G4	6939	G5	7927	G8		
G13	3947	F6	3967	D16	3980	G8	3993	D16	6941	G16	7930	B12		



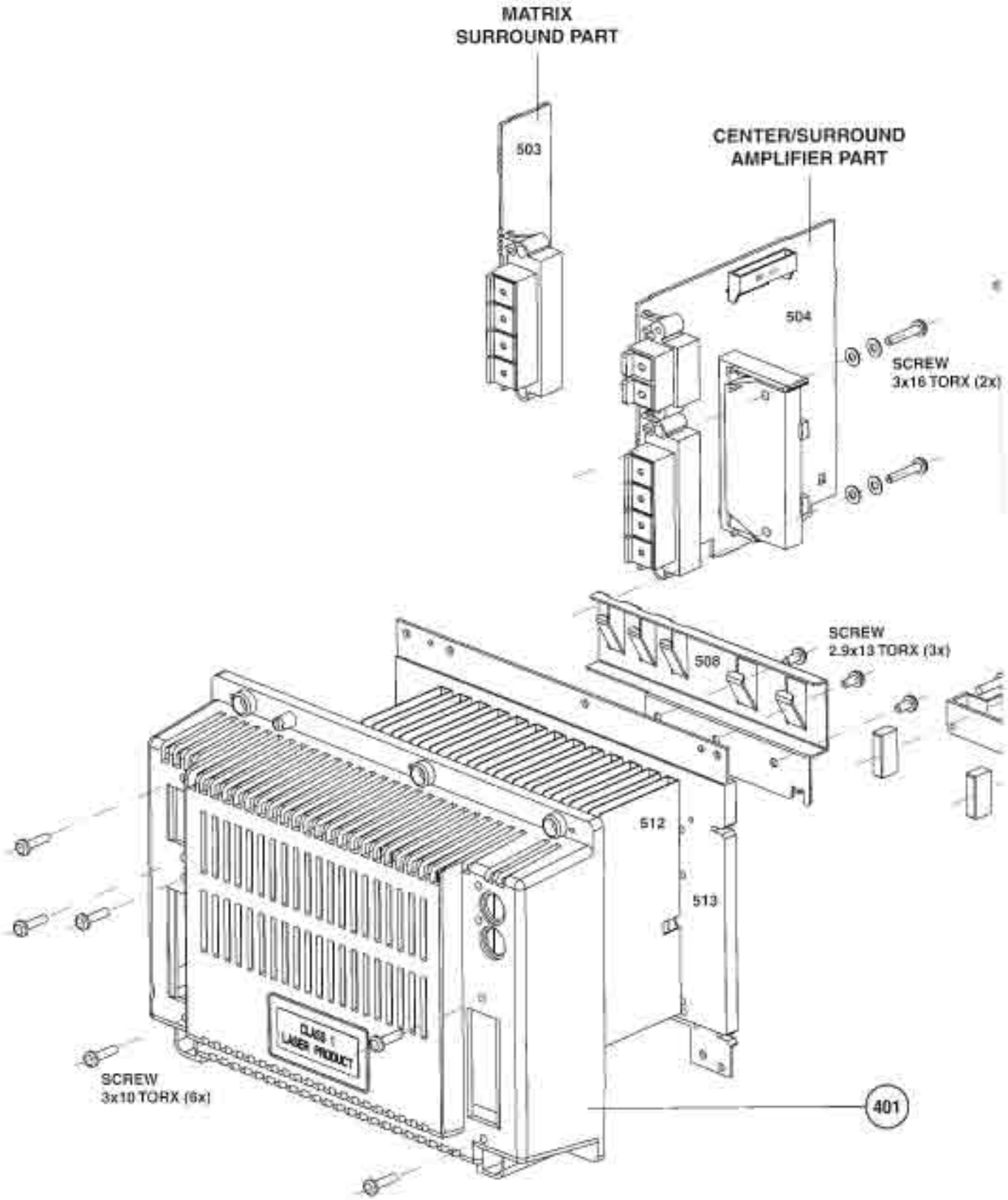
COMPONENT LAYOUT C/S AMPLIFIER PART

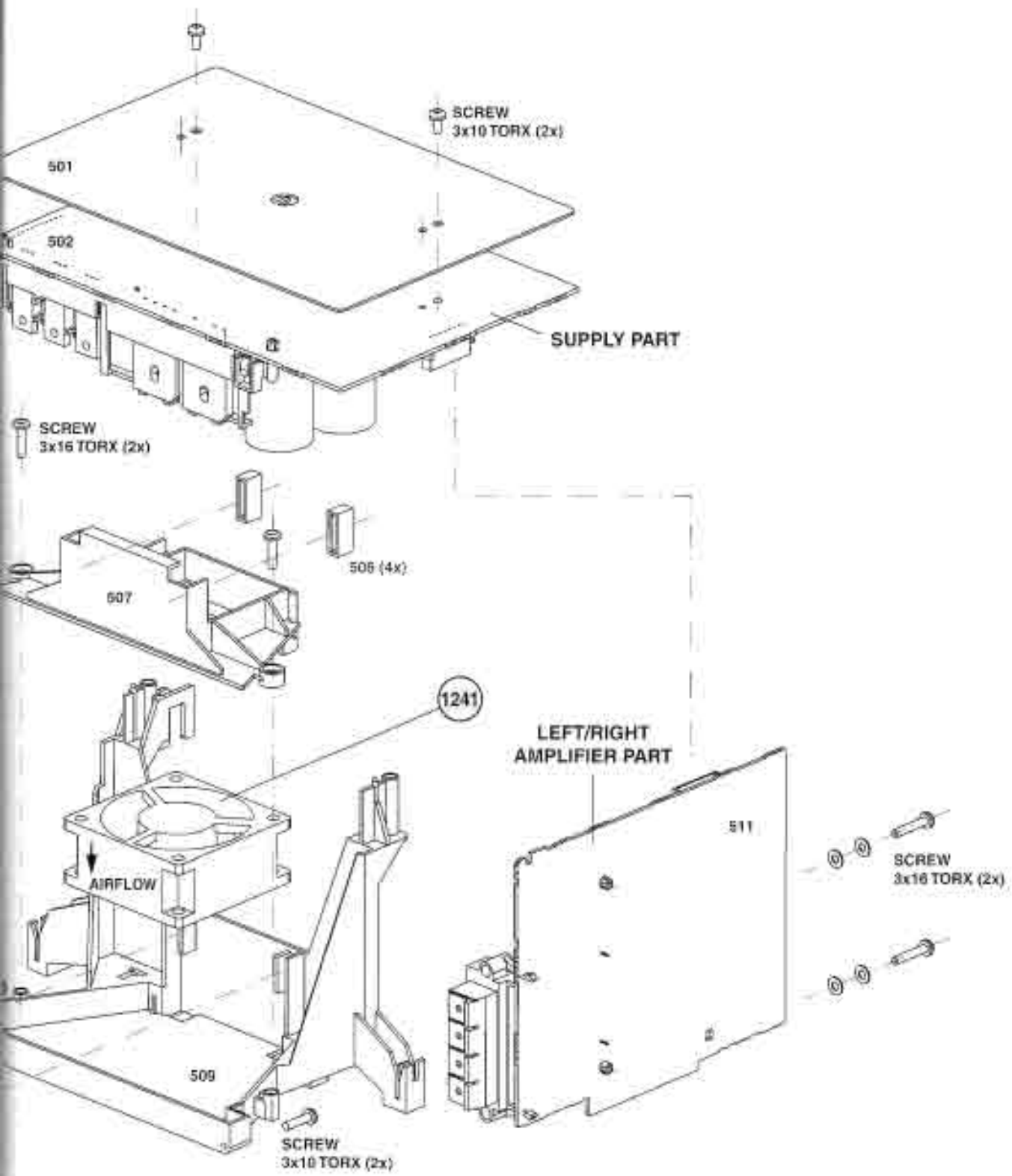


0022	B 3	3945
0023	C 2	3946
1921	A 1	3947
1922	B 3	3948
1923	B 3	3949
1925	C 1	3963
1928	A 2	3964
2923	B 3	3965
2924	B 3	3966
2925	B 2	3967
2926	B 2	3968
2927	B 2	3969
2928	B 2	3970
2929	B 2	3973
2930	B 2	3976
2931	B 2	3977
2932	B 2	3978
2933	B 3	3979
2934	B 3	3980
2935	B 3	3981
2936	A 3	3982
2937	B 1	3983
2938	B 1	3984
2939	C 2	3985
2940	C 2	3986
2944	C 3	3987
2945	C 3	3988
2946	C 3	3989
2950	C 3	3990
2951	C 2	3991
2952	A 3	3992
2953	A 1	3993
2954	B 1	3994
2955	A 1	5921
2956	B 1	5922
2957	A 3	6921
3921	B 3	6933
3922	B 3	6934
3925	B 3	6935
3926	B 3	6936
3927	B 2	6937
3928	B 2	6939
3929	B 2	6941
3930	B 2	6942
3931	B 1	7923
3932	B 1	7924
3933	C 3	7925
3934	C 3	7926
3935	C 3	7927
3936	C 3	7928
3937	C 2	7930
3938	C 3	7931
3940	C 1	7932
3941	C 1	9921
3942	C 2	9922
3943	C 1	9923

9925 C 3
9926 C 2
9927 A 2
9928 B 2
9929 A 2
9930 B 2
9931 B 1
9932 A 3
9933 C 2
9935 B 3
9936 B 2
9937 A 3
9941 A 3
9942 A 2
9943 C 2
9944 A 3
9945 B 3
9947 C 2
9948 B 3
9949 A 1
9950 B 1

EXPLODED VIEW




SCREW
3x10 TORX (2x)
501
502
SUPPLY PART
SCREW
3x16 TORX (2x)
505 (4x)
507
1241
LEFT/RIGHT
AMPLIFIER PART
511
SCREW
3x16 TORX (2x)
AIRFLOW
509
SCREW
3x10 TORX (2x)

MECHANICAL PARTS LIST

0047	482225610557	Rucksack - L/R and C/S
0047	482225610558	Rucksack - L/R
1241	482236111161	DC Bruchless Fan
0029	482246693148	Spacer 5mm

ELECTRICAL PARTS LIST - MAINS BOARD

MISCELLANEOUS

1901	482226531015	⚠	Mains Socket
1901#	482226531016	⚠	Mains Socket
1902*	482227210269	⚠	Voltage Selector
1903*	482207152001	⚠	Fuse T200mA 250V
1905^	482207155002	⚠	Fuse T5A 250V
1905#	482225251123	⚠	Fuse T6,3A 250V
1906*	482207155002	⚠	Fuse T5A 250V
1907*	482207155002	⚠	Fuse T5A 250V
1909*	482226710728	⚠	Primary Connector
1910	482226520723	⚠	Primary Connector
1920	482207155002	⚠	Fuse T5A 250V
1921	482207155002	⚠	Fuse T5A 250V
1922	482207155002	⚠	Fuse T5A 250V
1923	482207155002	⚠	Fuse T5A 250V
1924	482207152502	⚠	Fuse T2,5A 250V
1925	482207151602	⚠	Fuse T1,6A 250V

CAPACITORS

2902	482212143526	47nF 5% 250V
2903	482212143526	47nF 5% 250V
2904*	482212440255	100µF 20% 63V
2905*	482212481029	100µF 20% 25V

RESISTORS

3901#	482205321106	⚠	10M 5% 0,5W
3902	482205011002		1k 1% 0,4W
3903	482205011002		1k 1% 0,4W
3904^	482211652244		15k 5% 0,5W
3904*	482211652283		4k7 5% 0,5W
3905*	482211652256		2k2 5% 0,5W
3906*	482211683864		10k 5% 0,5W
3908^	482205310471		470R 5% 1W
3920*	482205210108	⚠	1R 5% 0,33W

COILS & FILTERS

5901^	482215711832	⚠	400µH 3A
5902*	482215711628	⚠	Mains Choke
5903*	482214611144	⚠	Standby Transformer
5903^	482214611143	⚠	Standby Transformer
5903#	482214611142	⚠	Standby Transformer
5905	482228010382	⚠	Relay

DIODES

6900^	482213031878	1N4003G
6901	482213031878	1N4003G
6902	482213031878	1N4003G
6903	482213031878	1N4003G
6904	482213031878	1N4003G
6905	482213030621	1N4148
6906	482213030621	1N4148
6908*	482213034382	BZX79-C8V2
6909*	482213032245	BYV10-40
6910*	482213031878	1N4003G
6911	482213030621	1N4148
6912	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7901*	482213041246	BC327-25
7902*	482213040959	BC547B

* For /21/21M only

^ Except for /21/21M

For /37 only

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

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

MISCELLANEOUS

1321	482226731176	L/R Loudspeaker Terminal

CAPACITORS

2251	532212142578	100nF 5% 250V
2252	532212142578	100nF 5% 250V
2253	532212142578	100nF 5% 250V
2254	482212143526	47nF 5% 250V
2255	482212143526	47nF 5% 250V
2256	482212143526	47nF 5% 250V
2257	482212412423	4700µF 20% 63V
2258	482212412423	4700µF 20% 63V
2260	482212480415	4700µF 20% 50V

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

CAPACITORS

2262	482212480415	4700µF 20% 50V
2263	532212142386	100nF 5% 63V
2264	532212142386	100nF 5% 63V
2265	482212480563	4700µF 20% 35V
2267	482212440255	100µF 20% 63V
2268	482212440769	4,7µF 20% 100V
2269	482212210577	3,3nF 10% 16V
2270	482212440248	10µF 20% 63V
2271	482212440433	47µF 20% 25V
2279	532212142386	100nF 5% 63V
2280	482212412328	6800µF 16V
2282	482212440248	10µF 20% 63V
2289	482212421913	1µF 20% 63V
2290	482212440207	100µF 20% 25V
2300	482212151387	10nF 20% 16V
2301	482212441584	100µF 20% 10V
2303	482212141857	10nF 5% 250V
2321	482212233847	10pF 5% 50V
2322	482212233847	10pF 5% 50V
2323	482212422652	2,2µF 20% 50V
2324	482212422652	2,2µF 20% 50V
2325	482212233532	3,3nF 5% 50V
2326	482212233532	3,3nF 5% 50V
2327	532212232334	220pF 10% 100V
2328	532212232334	220pF 10% 100V
2329	532212232311	470pF 10% 100V
2330	532212232311	470pF 10% 100V
2331	532212232261	4,7nF 10% 100V
2333	482212481151	22µF 50V
2334	482212481151	22µF 50V
2335	482212233847	10pF 5% 50V
2336	482212233847	10pF 5% 50V
2341	482212611585	22nF +80/-20% 25V
2342	482212611585	22nF +80/-20% 25V
2343	482212422652	2,2µF 20% 50V
2344	482212440764	22µF 100 V
2345	482212440764	22µF 100 V
2346	482212440248	10µF 20% 63V
2347	482212440248	10µF 20% 63V
2348	482212481043	10µF 20% 100V
2349	482212481043	10µF 20% 100V
2350	532212142386	100nF 5% 63V
2351	532212142386	100nF 5% 63V
2352	482212440181	220µF 20% 10V
2353	532212142386	100nF 5% 63V
2354	532212142386	100nF 5% 63V
2355	532212232261	4,7nF 10% 100V
2356	532212232261	4,7nF 10% 100V
2365	482212612785	47nF 50V

RESISTORS

3251	482211652256	2k2 5% 0,5W
3252	482211652256	2k2 5% 0,5W
3254	482211652228	680R 5% 0,5W
3255	482211683883	470R 5% 0,5W
3259	482205021003	10k 1% 0,6W
3260	482211711342	0R33 5% 2W
3261	482211652206	120R 5% 0,5W
3262	482211652206	120R 5% 0,5W
3263	482205021003	10k 1% 0,6W
3265	482211652234	100k 5% 0,5W
3266	482211652228	680R 5% 0,5W
3267	482211652276	3k9 5% 0,5W
3268	482205021003	10k 1% 0,6W
3270	482211711342	0R33 5% 2W
3271	482205011002	1k 1% 0,4W
3272	482211652269	3k3 5% 0,5W
3272	482211652263	2k7 5% 0,5W
3273	482211652244	15k 5% 0,5W
3274	482205023303	33k 1% 0,6W
3275	482205023303	33k 1% 0,6W
3278	482211652256	2k2 5% 0,5W
3280	482211652239	120k 5% 0,5W
3281	482205021003	10k 1% 0,6W
3282	482205210479	⚠ 47R 5% 0,33W
3285	482211652269	3k3 5% 0,5W
3286	482211652269	3k3 5% 0,5W
3287	482211652257	22k 5% 0,5W
3288	482205210479	⚠ 47R 5% 0,33W
3289	482205210479	⚠ 47R 5% 0,33W
3290	482211712063	NTC DC 5W 10k 5%
3295	482211683876	270R 5% 0,5W
3296	482211683883	470R 5% 0,5W
3298	482211652219	330R 5% 0,5W
3299	482211652219	330R 5% 0,5W
3300	482205210568	⚠ 5R6 5% 0,33W
3302	482211683884	47k 5% 0,5W
3304	482211683884	47k 5% 0,5W
3305	482211652257	22k 5% 0,5W
3306	482211683882	39k 5% 0,5W
3309	482205023303	33k 1% 0,6W
3312	482205021003	10k 1% 0,6W
3313	482205011002	1k 1% 0,4W
3315	482211652291	56k 5% 0,5W
3316	482211683884	47k 5% 0,5W
3317	482205210109	10R 5% 0,33W
3321	482205021003	10k 1% 0,6W
3322	482205021003	10k 1% 0,6W
3323	482211652234	100k 5% 0,5W
3324	482205021003	10k 1% 0,6W
3325	482211652207	1k2 5% 0,5W
3326	482211652207	1k2 5% 0,5W
3327	482211652291	56k 5% 0,5W
3328	482211652291	56k 5% 0,5W

ELECTRICAL PARTS LIST - SUPPLY & LEFT/RIGHT AMPLIFIER BOARD

RESISTORS

3329	482211683883		470R 5% 0,5W
3330	482211683883		470R 5% 0,5W
3331	482211652291		56k 5% 0,5W
3332	482211652291		56k 5% 0,5W
3333	482205210478	⚠	47R 5% 0,33W
3334	482205210479	⚠	47R 5% 0,33W
3335	482211652207		1k2 5% 0,5W
3336	482211652207		1k2 5% 0,5W
3337	482205011002		1k 1% 0,4W
3338	482205011002		1k 1% 0,4W
3339	482211380633	⚠	0R1 5% 3W
3340	482211380633	⚠	0R1 5% 3W
3345	482211652234		100k 5% 0,5W
3346	482205021003		10k 1% 0,6W
3347	482205023303		33k 1% 0,6W
3348	482211683872		220R 5% 0,5W
3350	482205011002		1k 1% 0,4W
3351	482211652234		100k 5% 0,5W
3352	482211652234		100k 5% 0,5W
3353	482211652257		22k 5% 0,5W
3355	482211683961		6k8 5%
3356	482211683961		6k8 5%
3358	482205011002		1k 1% 0,4W
3363	482205310478	⚠	4R7 5% 1W
3364	482205310478	⚠	4R7 5% 1W
3365	482211652234		100k 5% 0,5W
3366	482211652234		100k 5% 0,5W
3367	482211652304		82k 5% 0,5W
3368	482211652304		82k 5% 0,5W
3369	482211683884		47k 5% 0,5W
3370	482211683884		47k 5% 0,5W
3383	482205021003		10k 1% 0,6W
3384	482205021003		10k 1% 0,6W
3385	482205210108	⚠	1R 5% 0,33W
3387	482205021003		10k 1% 0,6W
3388	482205021003		10k 1% 0,6W
3391	482211652176		10R 5% 0,5W
3392	482211652176		10R 5% 0,5W

COILS & FILTERS

5321	482215770599	IND FXD BEAD EMI
5322	482215770599	IND FXD BEAD EMI

DIODES

6251	482213011139	⚠	GBU8D
6251	482213083302	⚠	GBU4D
6252	532213080686		1N5392
6253	482213031878		1N4003G
6255	482213011139	⚠	GBU8D
6260	532213080686		1N5392
6261	532213080686		1N5392
6262	532213080686		1N5392
6263	532213080686		1N5392
6264	933166880133		BZX79-B11
6269	482213034281		BZX79-C15
6270	482213030621		1N4148
6271	482213030621		1N4148
6281	482213031878		1N4003G
6284	482213034173		BZX79-C5V6
6289	482213034281		BZX79-C15
6290	482213034281		BZX79-C15
6292	482213030621		1N4148
6293	482213034382		BZX79-C8V2
6294	532213080686		1N5392
6295	482213030621		1N4148
6298	482213034278		BZX79-C6V8
6299	482213030621		1N4148
6301	482213030621		1N4148
6302	532213031504		BZX79-C3V3
6325	482213034278		BZX79-C6V8
6326	482213034278		BZX79-C6V8
6333	482213034281		BZX79-C15
6334	482213034281		BZX79-C15
6337	482213030621		1N4148
6339	482213030621		1N4148
6360	482213034281		BZX79-C15

TRANSISTORS & INTEGRATED CIRCUITS

7251	932213923687	BDX53BFP
7252	482213040959	BC547B
7253	482213040959	BC547B
7255	482213040959	BC547B
7260	482213040959	BC547B
7263	482213040981	BC337-25
7265	482213041691	BC556B
7266	482213044568	BC557B
7268	482213040959	BC547B
7280	482213040959	BC547B
7281	482220931841	L7805CP
7282	482213041327	BC327-40
7286	482213041327	BC327-40
7290	482213041246	BC327-25
7323	482213044461	BC546B
7324	482213044461	BC546B
7325	482213040959	BC547B
7326	482213040959	BC547B
7327	482213044461	BC546B
7329	482220917384	STK496-430
7350	482213041691	BC556B

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

ELECTRICAL PARTS LIST - CENTER/SURROUND AMPLIFIER BOARD

MISCELLANEOUS

1921	482226510464	Center Speaker Terminal
1925	482226510912	Surround Speaker Terminal

CAPACITORS

2923	482212422652	2,2µF 20% 50V
2924	482212422652	2,2µF 20% 50V
2925	482212233532	3,3nF 5% 50V
2926	482212233532	3,3nF 5% 50V
2927	532212232334	220pF 10% 100V
2928	532212232334	220pF 10% 100V
2929	532212232311	470pF 10% 100V
2930	532212232311	470pF 10% 100V
2931	532212232261	4,7nF 10% 100V
2932	482212233449	47nF 30% 50V
2933	482212481151	22µF 50V
2934	482212481151	22µF 50V
2936	482212612785	47nF 50V
2937	482212210465	4,7pF 10% 50V
2938	482212210465	4,7pF 10% 50V
2939	482212440248	10µF 20% 63V
2940	482212440248	10µF 20% 63V
2944	482212481151	22µF 50V
2945	482212481151	22µF 50V
2946	482212440248	10µF 20% 63V
2950	482212233449	47nF 30% 50V
2951	482212233449	47nF 30% 50V
2952	482212440181	220µF 20% 10V
2953	482212233449	47nF 30% 50V
2954	482212233449	47nF 30% 50V
2955	532212232261	4,7nF 10% 100V
2956	532212232261	4,7nF 10% 100V
2957	482212422652	2,2µF 20% 50V

RESISTORS

3921	482211683883		470R 5% 0,5W
3922	482211683883		470R 5% 0,5W
3925	482211652234		100k 5% 0,5W
3926	482211652234		100k 5% 0,5W
3927	482211652291		56k 5% 0,5W
3928	482211652291		56k 5% 0,5W
3929	482211683883		470R 5% 0,5W
3930	482211683883		470R 5% 0,5W
3931	482211652291		56k 5% 0,5W
3932	482211652291		56k 5% 0,5W
3933	482205210479	⚠	47R 5% 0,33W
3934	482205210479	⚠	47R 5% 0,33W
3935	482211652269		3k3 5% 0,5W
3936	482211652269		3k3 5% 0,5W
3937	482211652249		1k8 5% 0,5W
3938	482211652249		1k8 5% 0,5W
3940	482211711744	⚠	0R22 5% 1W
3941	482211711744	⚠	0R22 5% 1W
3945	482211652234		100k 5% 0,5W
3946	482205021003		10k 1% 0,6W
3947	482205023303		33k 1% 0,6W
3948	482211683872		220R 5% 0,5W
3963	482205310478	⚠	4R7 5% 1W
3964	482205310478	⚠	4R7 5% 1W
3965	482211652245		150k 5% 0,5W
3966	482211652245		150k 5% 0,5W
3967	482211683884		47k 5% 0,5W
3968	482211683884		47k 5% 0,5W
3969	482211683884		47k 5% 0,5W
3970	482211683884		47k 5% 0,5W
3978	482205011002		1k 1% 0,4W
3979	482205021003		10k 1% 0,6W
3980	482211652234		100k 5% 0,5W
3981	482205021003		10k 1% 0,6W
3982	482211652234		100k 5% 0,5W
3983	482211683883		470R 5% 0,5W
3984	482211652234		100k 5% 0,5W
3985	482205021003		10k 1% 0,6W
3993	482211652234		100k 5% 0,5W
3994	482211652234		100k 5% 0,5W

COILS & FILTERS

5921	482215762255	Coil 18,5 Turns
5922	482215762255	Coil 18,5 Turns

DIODES

6921	482213030621	1N4148
6939	482213030621	1N4148
6941	482213034145	BZX79-C39
6942	482213034145	BZX79-C39

TRANSISTORS & INTEGRATED CIRCUITS

7923	482213040959	BC547B
7924	482213040959	BC547B
7925	482213040959	BC547B
7927	482213040959	BC547B
7930	482220917448	STK496-040B
7931	482213040959	BC547B
7932	482213044568	BC557B

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

AF8 BOARD

TABLE OF CONTENTS

Brief Introduction of the AF8 Board 12-1
AF8 Board - Component layout 12-2
AF8 Board - Chip layout 12-3
AF8 Board - Circuit Diagram (Part 1) 12-4
AF8 Board - Circuit Diagram (Part 2) 12-5
Electrical parts list 12-6

BRIEF INTRODUCTION OF THE AF8 BOARD

The AF8 Board consists of the following features :

a. TDA7437 IC
TDA7437 (7511) audio processor IC includes functions such as source selection, loudness, dynamic bass control, treble control, front/rear volume control and muting function. Sound features such as DBB, DSC and IS are controllable via I^2C bus. All input sources are used namely CD, TUNER, TAPE, AUX and Differential input. Mono input is unused and terminated to ground via a capacitor.

b. MIC. MIXING
The AF8 Board can provide simple karaoke (without echo) which caters for mic. mixing with additional mic. amplifier board.

c. LINE OUT
Line out cinch is included for connection to external devices such as amplifier, recorders etc.

d. SUB-WOOFER OUT
Sub-woofer out cinch is included for connection to active sub-woofer speaker.

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

f. HEADPHONE AMPLIFIER
A headphone can be driven by Op-amp NJM4556AM.

g. CD STANDBY CONTROL
Control circuit that switches on the supply to CD servo control IC, HF circuit and the laser light pen in CD mode only.

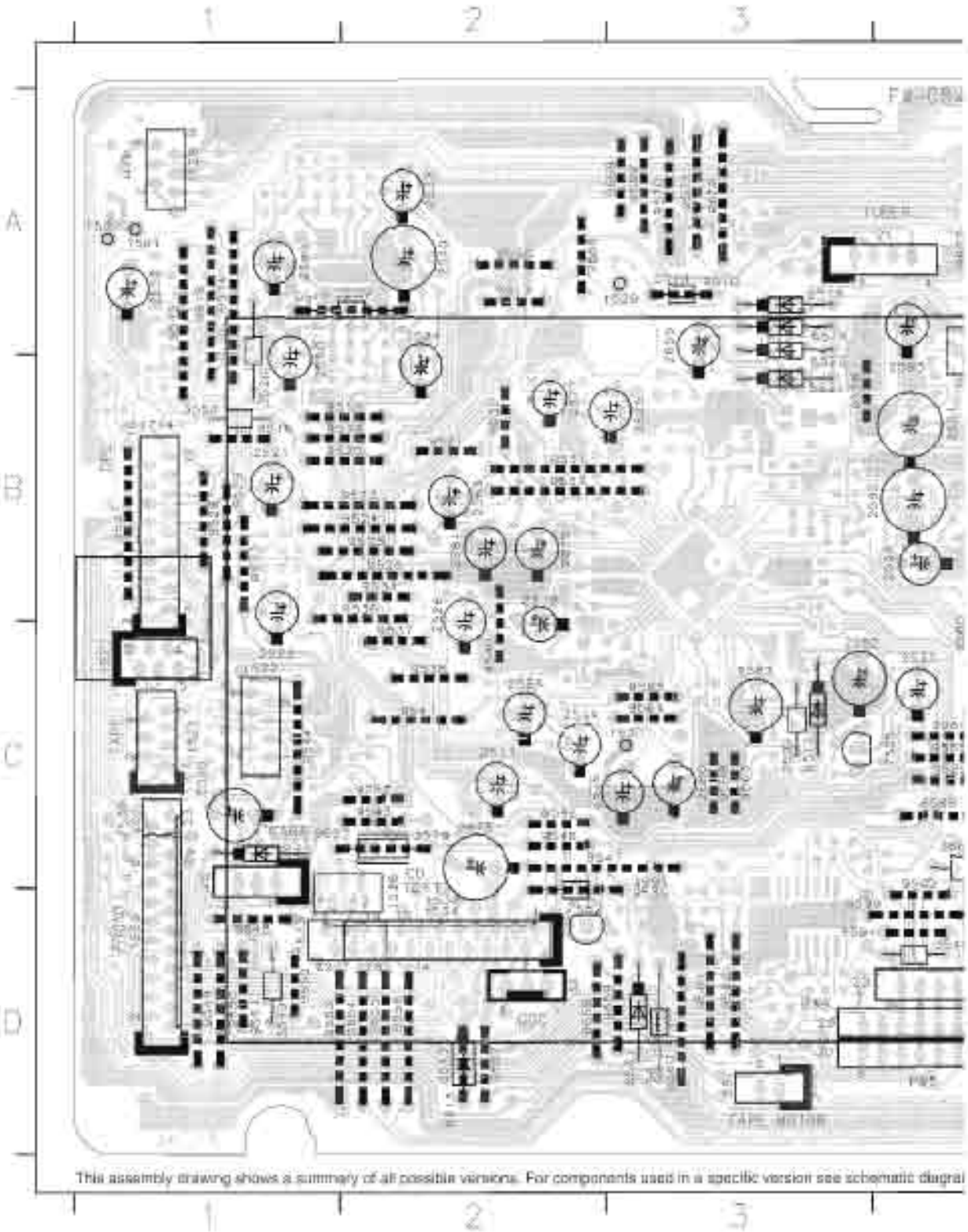
h. HEADPHONE SENSING
Headphone sense circuit is for switching off DPL modes when headphone is plugged in.

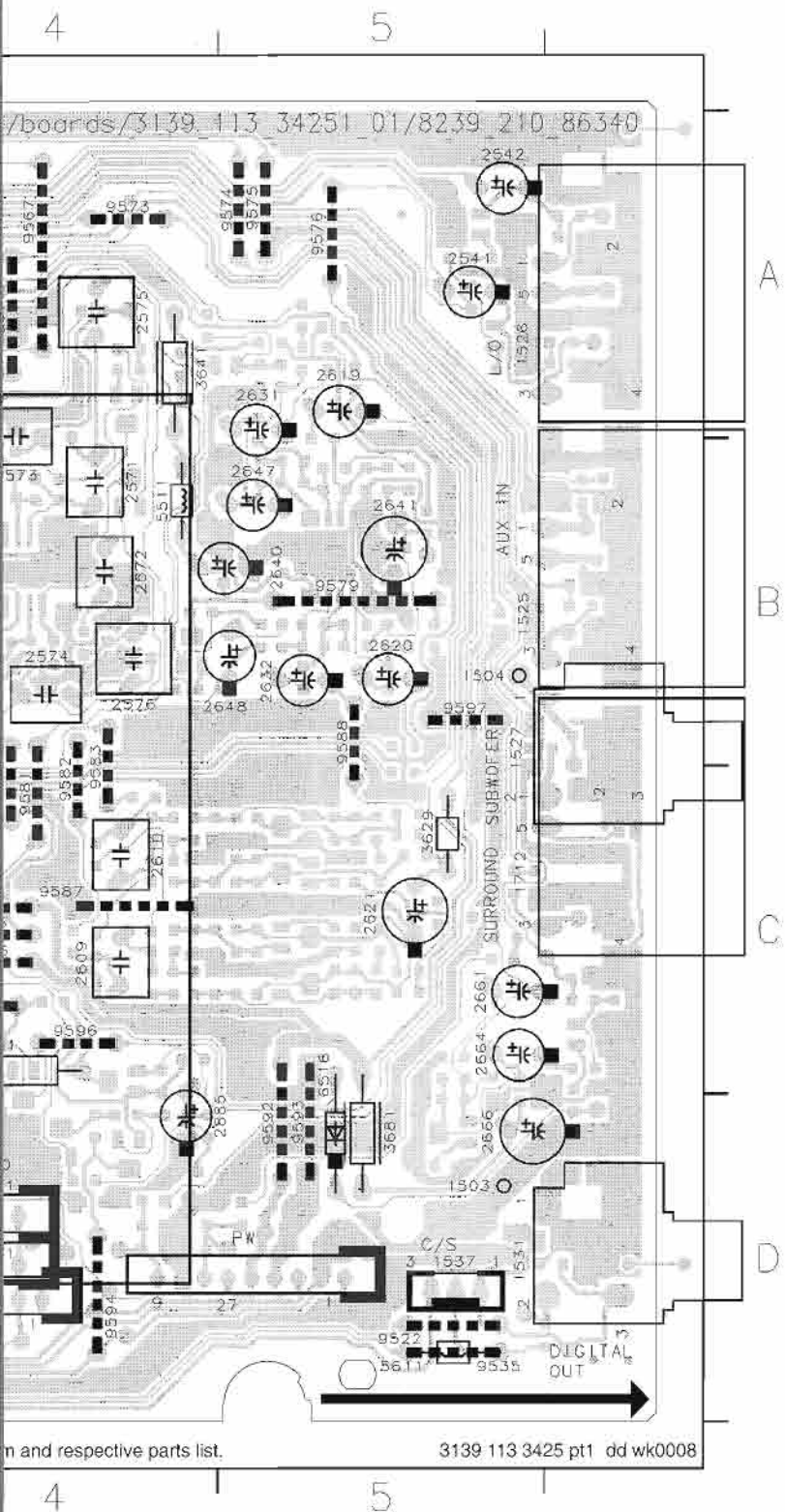
i. ATTENUATION NETWORK
This is provided at the output of the AF8 Board for interfacing with power modules.

j. BASS AUTOMATIC LEVEL CONTROL (ALC)
This circuit will defeat the bass effect if it sense that there is excessive amount of bass frequencies present in the left and right audio channel. This will prevent the excessive speaker excursions under high volume condition.

k. SURROUND OUT
Surround out cinch is included for Dolby Prologic versions when AF8 Board is used together with DPL PCB MINI 2000.

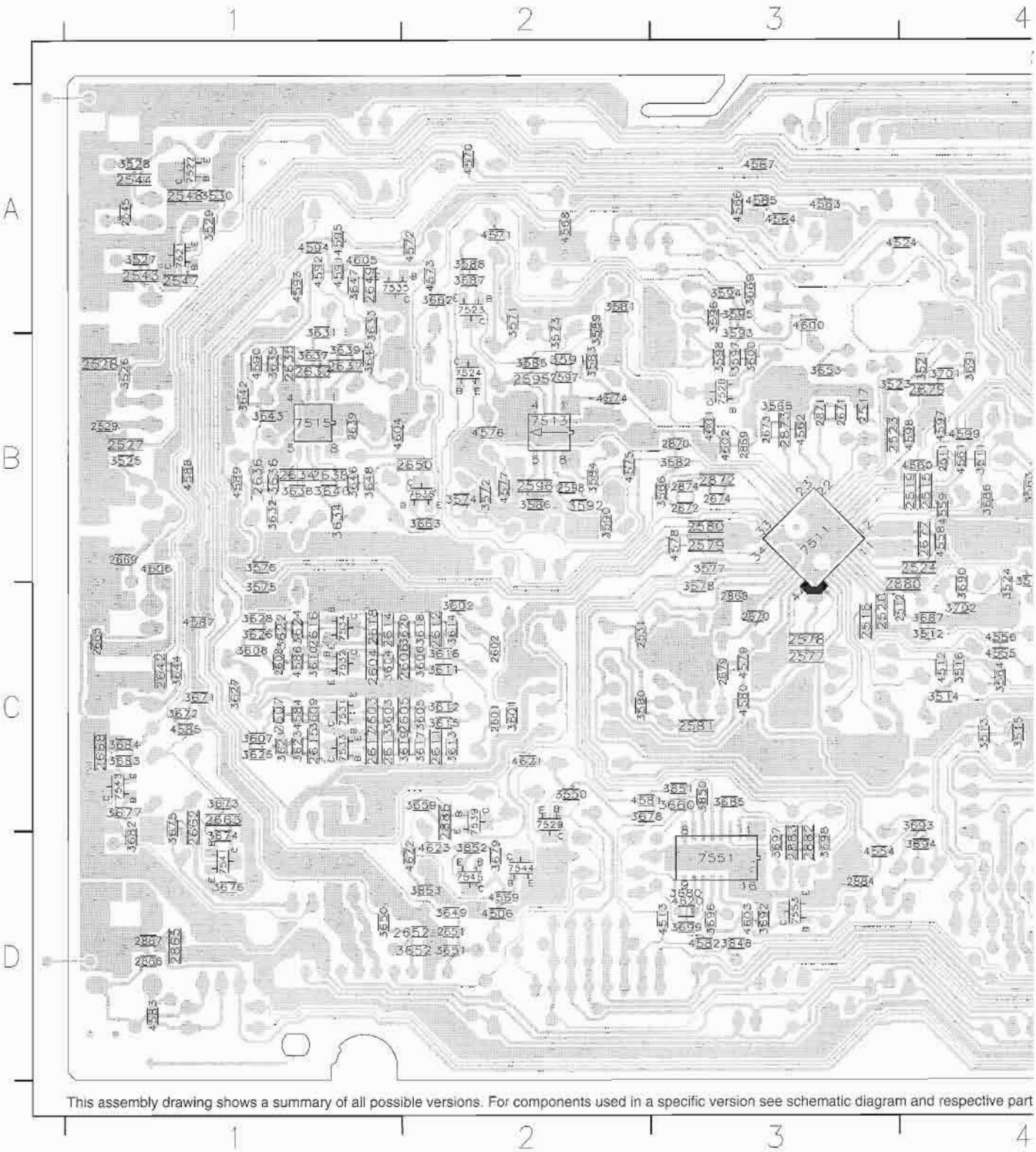
AF8 BOARD - COMPONENT LAYOUT



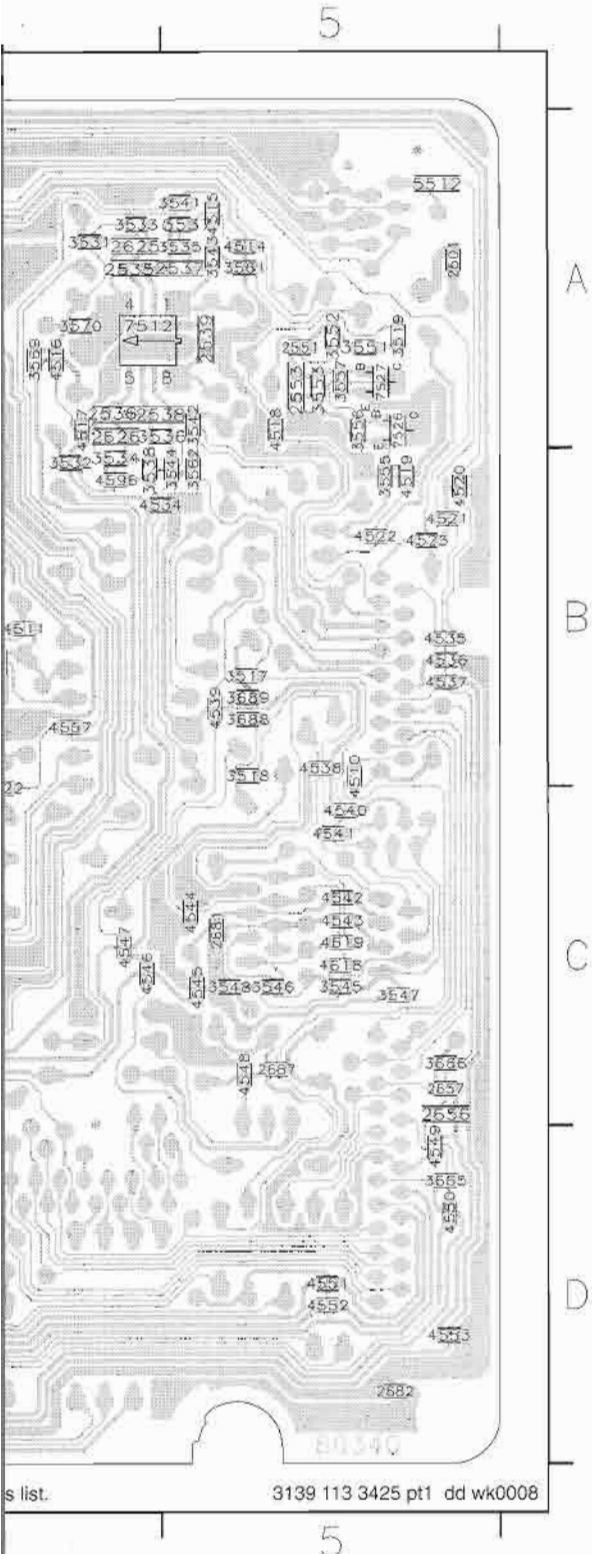


21	A4	2641	B5	9537	C2
25	D3	2647	B5	9538	C2
26	C1	2648	B5	9539	D3
27	D5	2659	A3	9540	C2
28	D3	2661	C5	9541	C2
29	D3	2664	C5	9542	C2
30	D3	2666	D5	9543	C2
32	D2	2675	B2	9544	C1
1501	A1	2676	C2	9545	C2
1502	A1	2678	C2	9546	C2
1503	D5	2680	C3	9547	C2
1504	B5	2877	B2	9548	D1
1521	C1	2878	B2	9549	D1
1522	C1	2881	B2	9550	D1
1523	C1	2885	D5	9551	D1
1525	B5	3520	B1	9552	D1
1526	A5	3539	A2	9553	D1
1527	B5	3540	D4	9554	D2
1528	A1	3549	D1	9555	D2
1529	A3	3554	B1	9556	D2
1530	C3	3579	C2	9557	D2
1531	D5	3599	C3	9558	D2
1532	D2	3629	C5	9559	D3
1533	D1	3641	A4	9560	D3
1534	D2	3661	C4	9561	D3
1535	D1	3681	D5	9562	D3
1536	C1	3695	C3	9563	C3
1537	D5	5511	B4	9564	C3
1538	D2	5513	A3	9565	C3
1712	C5	5611	D5	9566	A2
1714	B1	5613	D3	9567	A4
2513	C2	6511	C1	9568	A3
2514	C2	6512	C3	9569	A3
2521	B1	6513	D2	9570	A3
2522	C1	6516	C5	9571	A3
2525	B3	6518	A3	9572	A3
2526	B2	6519	A3	9573	A4
2532	C4	6520	B3	9574	A5
2533	A2	6521	B3	9575	A5
2534	A2	6531	D3	9576	A5
2540	A2	7525	C4	9578	B3
2541	A5	7552	D2	9579	B5
2542	A5	9510	A3	9580	C4
2546	C1	9511	A1	9581	C4
2549	A1	9512	A1	9582	C4
2550	B1	9513	D2	9583	C4
2552	A1	9514	A1	9584	C4
2563	B2	9515	A1	9585	C4
2564	C2	9516	B1	9586	C4
2571	B4	9517	A2	9587	C4
2572	B4	9518	B2	9588	B5
2573	B4	9519	B2	9589	C4
2574	B4	9520	B2	9590	C4
2575	A4	9521	B2	9591	D3
2576	B4	9522	D5	9592	D5
2582	C3	9523	B2	9593	D5
2583	C3	9524	B2	9594	D4
2591	B4	9525	B2	9595	A2
2592	B3	9526	B2	9596	C4
2593	B4	9527	B1	9597	B5
2594	B4	9528	B1	9598	C3
2609	C4	9529	B1	9599	D3
2610	C4	9530	B2	9622	C1
2619	A5	9531	B2	9677	A4
2620	B5	9532	B2		
2621	C5	9533	B1		
2631	A5	9534	B2		
2632	B5	9535	D5		
2640	B5	9536	B2		

AF8 BOARD - CHIP LAYOUT

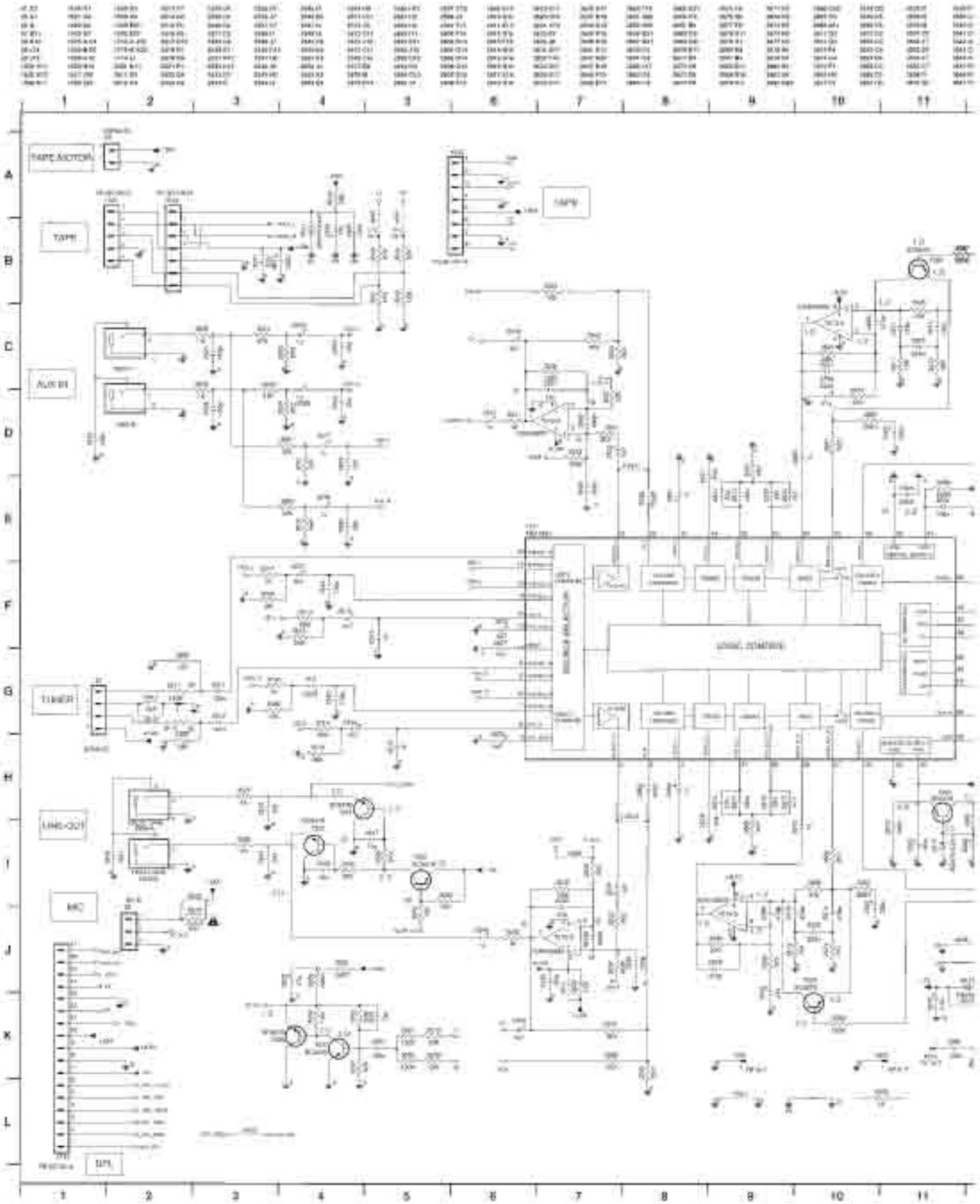


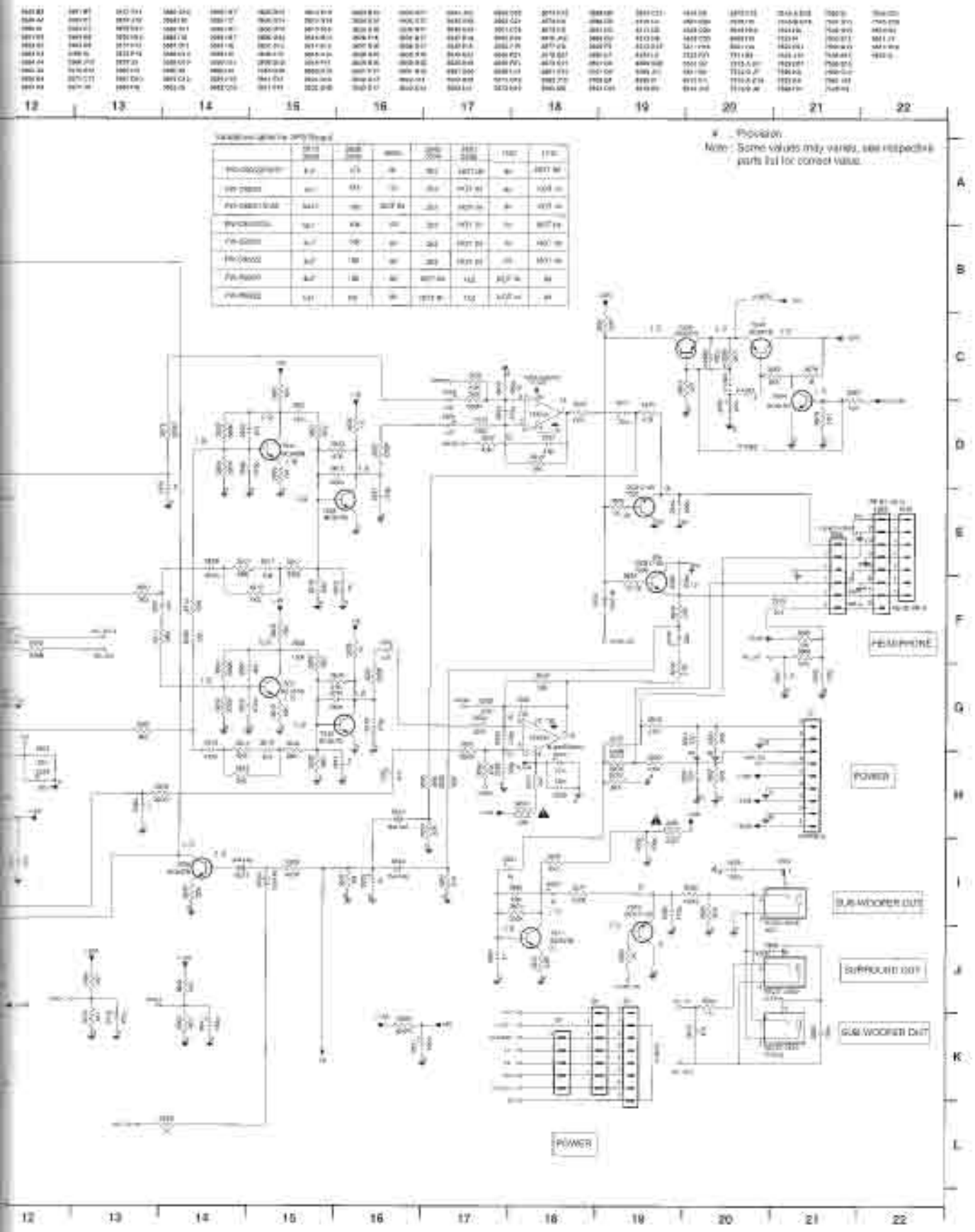
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective part



2501	A5	2665	C1	3556	A5	3634	B1	4518	A5	4596	B4
2511	B4	2667	C5	3557	A5	3635	B1	4519	B5	4597	B4
2512	C3	2668	C1	3561	A5	3636	B1	4520	B5	4598	B4
2515	B4	2669	B1	3562	B5	3637	B1	4521	B5	4599	B4
2516	C3	2670	C3	3563	B4	3638	B1	4522	B5	4600	A3
2517	B3	2671	B3	3564	C4	3639	B1	4523	B5	4601	B3
2519	B4	2672	B3	3565	B3	3640	B1	4524	A4	4602	B3
2520	C3	2673	B3	3566	B3	3642	B1	4534	B4	4603	D3
2523	B3	2674	B3	3569	A4	3643	B1	4535	B5	4604	B1
2524	B4	2677	B4	3570	A4	3644	C1	4536	B5	4605	A1
2527	B1	2679	C3	3571	A2	3645	B1	4537	B5	4606	B1
2528	B1	2681	C5	3572	B2	3646	B1	4538	B5	4618	C5
2529	B1	2682	D5	3573	B2	3647	A1	4539	B5	4619	C5
2531	C2	2865	D1	3574	B2	3648	B1	4540	C5	4620	D3
2535	A4	2866	D1	3575	C1	3649	D2	4541	C5	4621	C2
2536	A4	2867	D1	3576	B1	3650	D1	4542	C5	4622	D2
2537	A5	2868	C3	3577	B3	3651	D2	4543	C5	4623	D2
2538	A4	2869	B3	3578	C3	3652	D2	4544	C5	5512	A5
2539	A5	2870	B3	3580	C2	3653	B3	4545	C5	7511	B3
2543	A1	2871	B3	3581	A2	3659	C2	4546	C4	7512	A4
2544	A1	2872	B3	3582	B3	3660	C3	4547	C4	7513	B2
2545	A1	2873	B3	3583	B2	3662	A2	4548	C5	7515	B1
2547	A1	2874	B3	3584	B2	3663	B2	4549	D5	7521	A1
2548	A1	2879	B4	3585	B2	3665	D5	4550	D5	7522	A1
2551	A5	2880	C4	3586	B2	3666	C5	4551	D5	7523	A2
2553	A5	2882	D3	3587	A2	3669	A3	4552	D5	7524	B2
2577	C3	2883	D3	3588	A2	3671	C1	4553	D5	7526	A5
2578	C3	2884	D3	3589	A2	3672	C1	4554	D3	7527	A5
2579	B3	2886	C2	3590	B2	3673	C1	4555	C4	7528	B3
2580	B3	3511	B4	3591	B2	3674	D1	4556	C4	7529	C2
2581	C3	3512	C4	3592	B2	3675	C1	4557	B4	7531	C1
2595	B2	3513	C4	3593	B3	3676	D1	4558	B4	7532	C1
2596	B2	3514	C4	3594	A3	3677	C1	4559	B4	7533	C1
2597	B2	3515	C4	3595	A3	3678	C2	4560	B4	7534	C1
2598	B2	3516	C4	3596	A3	3679	D2	4561	B4	7535	A1
2601	C2	3517	B5	3597	B3	3680	D3	4562	B3	7536	B2
2602	C2	3518	B5	3598	B3	3682	D1	4563	A3	7539	C2
2603	C1	3519	A5	3600	B3	3683	C1	4564	A3	7541	D1
2604	C1	3521	B4	3601	C2	3684	C1	4565	A3	7543	C1
2605	C2	3522	C4	3602	C2	3685	C3	4566	A3	7544	D2
2606	C2	3523	B3	3603	C1	3686	B4	4567	A3	7545	D2
2607	C1	3524	C4	3604	C1	3687	C4	4568	A2	7551	D3
2608	C1	3525	B1	3605	C2	3688	B5	4569	D2	7553	D3
2611	C2	3526	B1	3606	C2	3689	B5	4570	A2		
2612	C2	3527	A1	3607	C1	3690	C4	4571	A2		
2613	C1	3528	A1	3608	C1	3691	B4	4572	A2		
2614	C1	3529	A1	3609	C1	3692	D3	4573	A2		
2615	C1	3530	A1	3610	C1	3693	C4	4574	B2		
2616	C1	3531	A4	3611	C2	3694	D4	4575	B2		
2617	C1	3532	B4	3612	C2	3696	D3	4576	B2		
2618	C1	3533	A4	3613	C2	3697	D3	4577	B2		
2625	A4	3534	B4	3614	C2	3698	D3	4578	B3		
2626	A4	3535	A5	3615	C2	3699	D3	4579	C3		
2633	B1	3536	A5	3616	C2	3701	B4	4580	C3		
2634	B1	3537	A5	3617	C2	3702	C4	4581	C2		
2635	B1	3538	B4	3618	C2	3848	D3	4582	D3		
2636	B1	3541	A5	3619	C2	3850	C3	4583	D1		
2637	B1	3542	A5	3620	C2	3851	C3	4584	C1		
2638	B1	3543	A5	3621	C1	3852	D2	4585	C1		
2639	B1	3544	B5	3622	C1	3853	D2	4586	C1		
2642	C1	3545	C5	3623	C1	4506	D2	4587	C1		
2649	A1	3546	C5	3624	C1	4510	B5	4588	B1		
2650	B2	3547	C5	3625	C1	4511	B4	4589	B1		
2651	D2	3548	C5	3626	C1	4512	C4	4590	B1		
2652	D2	3550	C2	3627	C1	4513	D3	4591	A1		
2656	C5	3551	A5	3628	C1	4514	A5	4592	A1		
2657	C5	3552	A5	3631	A1	4515	A5	4593	A1		
2662	C1	3553	A5	3632	B1	4516	A4	4594	A1		
2663	C1	3555	B5	3633	A1	4517	A4	4595	A1		

AF8 BOARD - CIRCUIT DIAGRAM (PART 1)

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A
B
C
D
E
F
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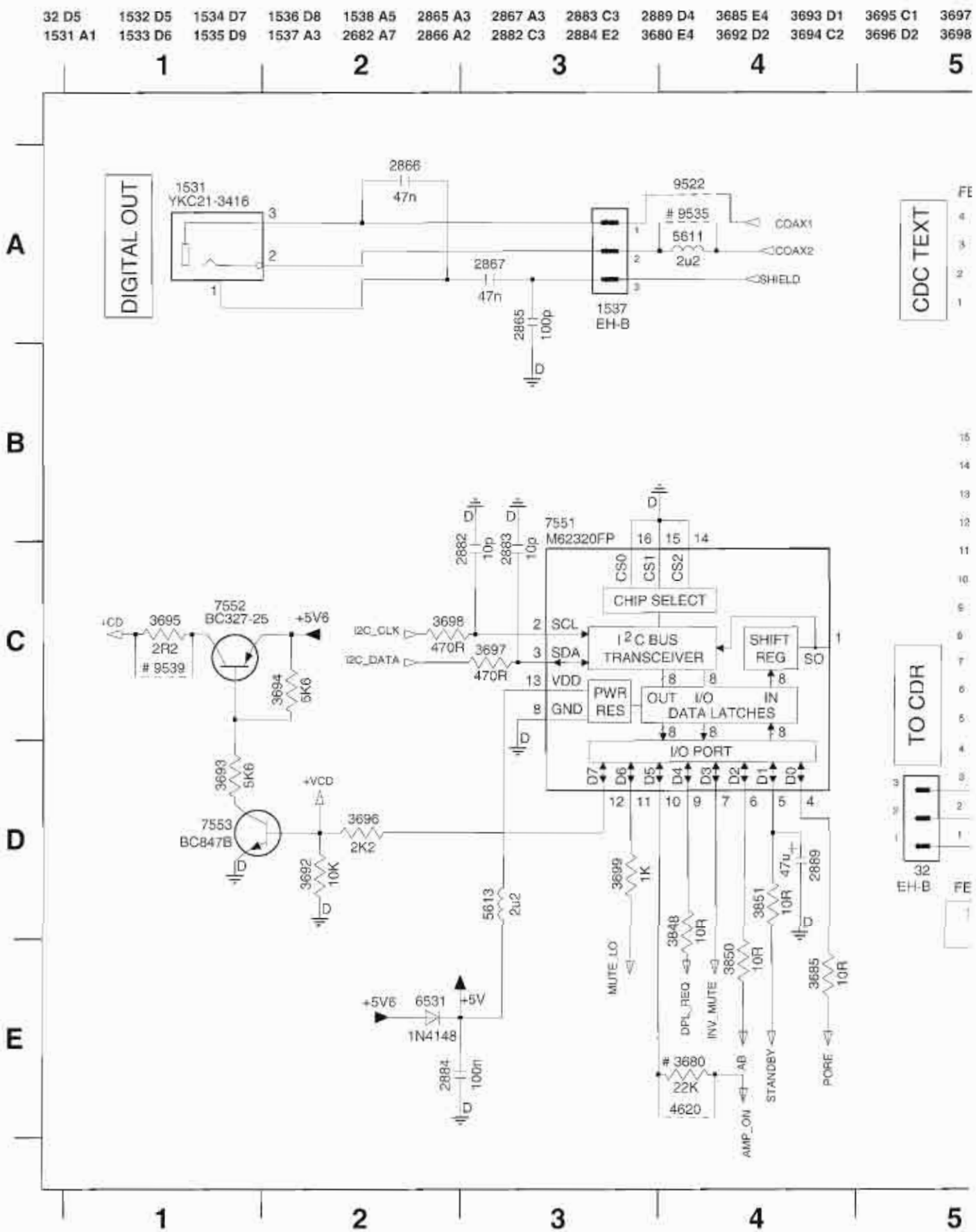
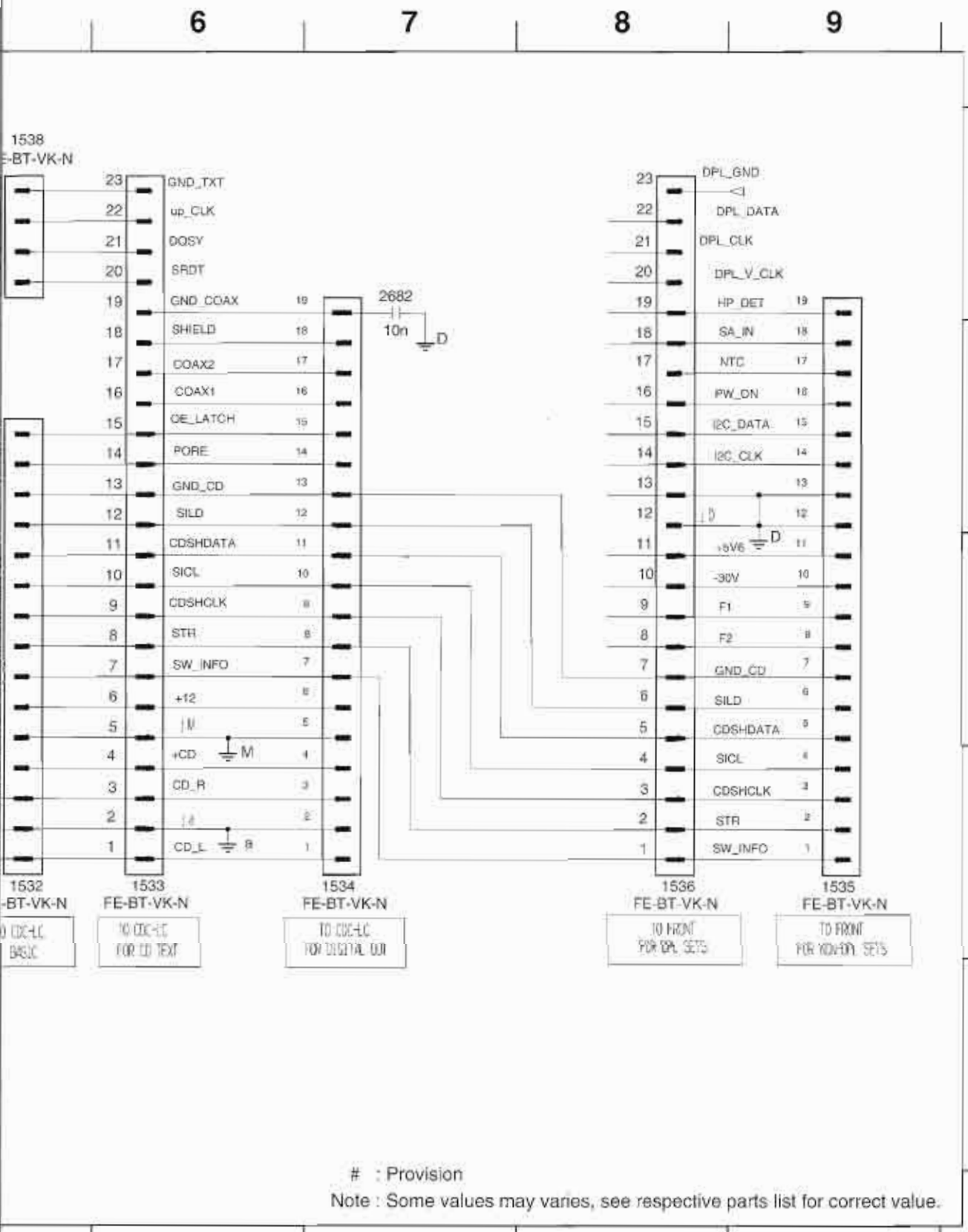
H
I
J
K
L
: Provision
Note : Some values may variety, see respective parts list for correct value.
HEADPHONE
POWER
SUB WOOFER OUT
SURROUND OUT
SUB WOOFER OUT
POWER

AF8 BOARD - CIRCUIT DIAGRAM (PART 2)



C3 3699 D3 3850 E4 4620 E4 5613 D3 7551 B3 7553 D1 9535 A4
C2 3848 D4 3851 D4 5611 A4 6531 E2 7552 C1 9522 A4 9539 C1



: Provision

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

ELECTRICAL PARTS LIST - AF8 BOARD

MISCELLANEOUS

1523	482226710953	Flex Connector 7P
1525	482226720452	Cinch Socket - Aux in
1526	482226720452	Cinch Socket - Line-out
1527	482226731729	Cinch Socket - Sub-Woofer out
1528	482226710731	Flex Connector 6P
1531	482226731729	Cinch Socket - Digital out
1533	482226710757	Flex Connector 23P
1534	482226511553	Flex Connector 19P
1535	482226511553	Flex Connector 19P
1536	482226710757	Flex Connector 23P
1538	482226710733	Flex Connector 4P
1712	482226731448	Cinch Socket - Surround out & Sub-Woofer out
1714	482226710871	Flex Connector 17P

CAPACITORS

2501	482212613838	100nF +80/-20% 50V
2511	482212613838	100nF +80/-20% 50V
2512	482212613838	100nF +80/-20% 50V
2513	482212440769	4,7µF 20% 100V
2514	482212440769	4,7µF 20% 100V
2515	532212231647	1nF 10% 63V
2516	532212231647	1nF 10% 63V
2517	482212614585	100nF 10% 50V
2519	532212232531	100pF 5% 50V
2520	532212232531	100pF 5% 50V
2521	482212440769	4,7µF 20% 100V
2522	482212440769	4,7µF 20% 100V
2523	532212232668	22pF 5% 50V
2524	532212232668	22pF 5% 50V
2525	482212421913	1µF 20% 63V
2526	482212421913	1µF 20% 63V
2527	532212234099	470pF 10% 63V
2528	532212234099	470pF 10% 63V
2529	482212614585	100nF 10% 50V
2531	532212232654	22nF 10% 63V
2532	482212481151	22µF 50V
2533	482212440769	4,7µF 20% 100V
2534	482212440769	4,7µF 20% 100V
2535	482212232535	680pF 10% 63V
2536	482212232535	680pF 10% 63V
2537	482212613692	47pF 1% 63V
2538	482212613692	47pF 1% 63V
2539	532212232531	100pF 5% 50V
2540	482212480195	470µF 20% 10V
2541	482212421913	1µF 20% 63V
2542	482212421913	1µF 20% 63V
2543	482212233127	2,2nF 10% 63V
2544	482212233127	2,2nF 10% 63V
2545	482212614585	100nF 10% 50V
2546	482212441751	47µF 20% 50V
2547	532212232448	10pF 5% 63V
2548	532212232448	10pF 5% 63V
2549	482212440769	4,7µF 20% 100V
2550	482212440769	4,7µF 20% 100V
2551	482212614585	100nF 10% 50V
2552	482212440433	47µF 20% 25V
2553	482212613486	15pF 2% 63V
2563	482212440746	0,22µF 20% 63V
2564	482212440746	0,22µF 20% 63V
2571	482212151252	470nF 5% 63V
2572	482212151252	470nF 5% 63V
2573	482212151252	470nF 5% 63V
2574	482212151252	470nF 5% 63V
2575	482212142408	220nF 5% 63V
2576	482212142408	220nF 5% 63V
2577	532212231866	6,8nF 10% 63V
2578	532212231866	6,8nF 10% 63V
2579	532212231647	1nF 10% 63V
2580	532212231647	1nF 10% 63V
2581	482212233127	2,2nF 10% 63V
2582	482212440207	100µF 20% 25V
2583	482212440207	100µF 20% 25V
2591	482212480144	220µF 20% 25V
2592	482212480144	220µF 20% 25V
2593	482212440433	47µF 20% 25V
2594	482212440433	47µF 20% 25V
2595	532212234099	470pF 10% 63V
2596	532212234099	470pF 10% 63V
2597	532212232268	470pF 10% 50V
2598	532212232268	470pF 10% 50V
2601	482212612105	33nF 5% 50V
2602	482212612105	33nF 5% 50V
2603	482212233891	3,3nF 10% 63V
2604	482212233891	3,3nF 10% 63V
2605	532212234099	470pF 10% 63V
2606	532212234099	470pF 10% 63V
2607	482212614585	100nF 10% 50V
2608	482212614585	100nF 10% 50V
2609	482212151252	470nF 5% 63V
2610	482212151252	470nF 5% 63V
2611	482212610847	1,8nF 10% 63V
2612	482212610847	1,8nF 10% 63V
2613	532212231647	1nF 10% 63V
2614	532212231647	1nF 10% 63V
2615	482212233575	220pF 5% 63V
2616	482212233575	220pF 5% 63V
2617	532212234099	470pF 10% 63V
2618	532212234099	470pF 10% 63V
2619	482212440769	4,7µF 20% 100V
2620	482212440769	4,7µF 20% 100V
2621	482212440207	100µF 20% 25V
2625	482212233575	220pF 5% 63V
2626	482212233575	220pF 5% 63V

ELECTRICAL PARTS LIST - AF8 BOARD

2631	482212440769	4,7µF 20% 100V
2632	482212440769	4,7µF 20% 100V
2633	532212234099	470pF 10% 63V
2634	532212234099	470pF 10% 63V
2635	532212232531	100pF 5% 50V
2636	532212232531	100pF 5% 50V
2637	482212613692	47pF 1% 63V
2638	482212613692	47pF 1% 63V
2639	532212232654	22nF 10% 63V
2640	482212440433	47µF 20% 25V
2641	482212440207	100µF 20% 25V
2642	482212613692	47pF 1% 63V
2647	482212481151	22µF 50V
2648	482212481151	22µF 50V
2649	532212232531	100pF 5% 50V
2650	532212232531	100pF 5% 50V
2651	532212232654	22nF 10% 63V
2652	532212232654	22nF 10% 63V
2656	532212232531	100pF 5% 50V
2657	482212614043	1µF +80/-20% 16V
2659	482212440756	1µF 20% 100V
2661	482212421913	1µF 20% 63V
2662	532212231647	1nF 10% 63V
2663	532212232448	10pF 5% 63V
2664	482212421913	1µF 20% 63V
2665	482212614585	100nF 10% 50V
2666	482212440207	100µF 20% 25V
2667	482212614585	100nF 10% 50V
2668	532212234099	470pF 10% 63V
2669	482212614585	100nF 10% 50V
2670	482212613838	100nF +80/-20% 50V
2671	482212613838	100nF +80/-20% 50V
2672	482212613838	100nF +80/-20% 50V
2673	532212232654	22nF 10% 63V
2674	532212232654	22nF 10% 63V
2675	482212412032	4,7µF 20% 50V
2676	482212412032	4,7µF 20% 50V
2677	482212233177	10nF 20% 50V
2678	482212480791	470µF 16V 20%
2679	482212614585	100nF 10% 50V
2680	482212440756	1µF 20% 100V
2681	482212614585	100nF 10% 50V
2682	532212234098	10nF 10% 63V
2865	532212232531	100pF 5% 50V
2866	482212613751	47nF 10% 63V
2867	482212613751	47nF 10% 63V
2868	482212614585	100nF 10% 50V
2869	482212614043	1µF +80/-20% 16V
2870	482212614043	1µF +80/-20% 16V
2871	532212232654	22nF 10% 63V
2872	532212610223	4,7nF 10% 63V
2873	532212610223	4,7nF 10% 63V
2874	532212232654	22nF 10% 63V
2877	482212422651	1µF 20% 50V
2878	482212422651	1µF 20% 50V
2879	532212232658	22pF 5% 50V
2880	532212232658	22pF 5% 50V
2881	482212440756	1µF 20% 100V
2882	532212232448	10pF 5% 63V
2883	532212232448	10pF 5% 63V
2884	482212614585	100nF 10% 50V
2885	482212481151	22µF 50V

RESISTORS

3511	482205110102	1k 2% 0,25W
3512	482205110102	1k 2% 0,25W
3513	482211711507	6k8 1% 0,1W
3514	482211711507	6k8 1% 0,1W
3515	482205120562	5k6 5% 0,1W
3516	482205120562	5k6 5% 0,1W
3517	482205110102	1k 2% 0,25W
3518	482205110102	1k 2% 0,25W
3519	482205120333	33k 5% 0,1W
3520	482205023303	33k 1% 0,6W
3521	482211710834	47k 1% 0,1W
3522	482211710834	47k 1% 0,1W
3523	482205120822	8k2 5% 0,1W
3524	482205120822	8k2 5% 0,1W
3525	482205110102	1k 2% 0,25W
3526	482205110102	1k 2% 0,25W
3527	482205110102	1k 2% 0,25W
3528	482205110102	1k 2% 0,25W
3529	482211711449	2k2 1% 0,1W
3530	482211711449	2k2 1% 0,1W
3531	482211711449	2k2 1% 0,1W
3532	482211711449	2k2 1% 0,1W
3533	482211710837	100k 1% 0,1W
3534	482211710837	100k 1% 0,1W
3535	482205120124	120k 5% 0,1W
3536	482205120124	120k 5% 0,1W
3537	482205120333	33k 5% 0,1W
3538	482205120333	33k 5% 0,1W
3539	482211652195	47R 5% 0,5W
3540	482205021003	10k 1% 0,6W
3541	482205110102	1k 2% 0,25W
3542	482205110102	1k 2% 0,25W
3543	482205120332	3k3 5% 0,1W
3544	482205120332	3k3 5% 0,1W
3545	482205120273	27k 5% 0,1W
3546	482205120273	27k 5% 0,1W
3547	482205120182	1k8 5% 0,1W
3548	482205120182	1k8 5% 0,1W
3549	482211652289	5k6 5% 0,5W
3550	482205120472	4k7 5% 0,1W

ELECTRICAL PARTS LIST - AF8 BOARD

3666	482205120562		5k6 5% 0,1W
3669	482205110102		1k 2% 0,25W
3671	482211713579		220k 1% 0,1W
3672	482211713579		220k 1% 0,1W
3673	482211712955		2k7 1% 0,1W
3674	482205120334		330k 5% 0,1W
3675	482205120332		3k3 5% 0,1W
3676	482205120339		33R 5% 0,1W
3677	482211710353		150R 1% 0,1W
3678	482211710833		10k 1% 0,1W
3679	482205110102		1k 2% 0,25W
3681	482205210229	⚠	22R 5% 0,33W
3682	482205110102		1k 2% 0,25W
3683	482205120471		470R 5% 0,1W
3684	482205120392		3k9 5% 0,1W
3685	482205120109		10R 5% 0,1W
3686	482211711383		12k 1% 0,1W
3687	482211711383		12k 1% 0,1W
3688	482211711383		12k 1% 0,1W
3689	482211711383		12k 1% 0,1W
3690	482205120393		39k 5% 0,1W
3691	482205120393		39k 5% 0,1W
3692	482211710833		10k 1% 0,1W
3693	482205120562		5k6 5% 0,1W
3694	482205120562		5k6 5% 0,1W
3695	482211681154		2R2 5% 0,5W
3696	482211711449		2k2 1% 0,1W
3697	482205120471		470R 5% 0,1W
3698	482205120471		470R 5% 0,1W
3699	482205110102		1k 2% 0,25W
3701	482211711383		12k 1% 0,1W
3702	482211711383		12k 1% 0,1W
3848	482205120109		10R 5% 0,1W
3850	482205120109		10R 5% 0,1W
3851	482205120109		10R 5% 0,1W
3852	482205120562		5k6 5% 0,1W
3853	482205120472		4k7 5% 0,1W
4506	482205120008		0R Jumper 0805
4510	482205120008		0R Jumper 0805
4514	482205120008		0R Jumper 0805
4515	482205120008		0R Jumper 0805
4516	482205120008		0R Jumper 0805
4517	482205120008		0R Jumper 0805
4518	482205120008		0R Jumper 0805
4519	482205120008		0R Jumper 0805
4520	482205120008		0R Jumper 0805
4521	482205120008		0R Jumper 0805
4522	482205120008		0R Jumper 0805
4523	482205120008		0R Jumper 0805
4524	482205120008		0R Jumper 0805
4534	482205120008		0R Jumper 0805
4535	482205120008		0R Jumper 0805
4536	482205120008		0R Jumper 0805
4537	482205120008		0R Jumper 0805
4538	482205120008		0R Jumper 0805
4539	482205120008		0R Jumper 0805
4540	482205120008		0R Jumper 0805
4541	482205120008		0R Jumper 0805
4542	482205120008		0R Jumper 0805
4543	482205120008		0R Jumper 0805
4544	482205120008		0R Jumper 0805
4545	482205120008		0R Jumper 0805
4546	482205120008		0R Jumper 0805
4547	482205120008		0R Jumper 0805
4548	482205120008		0R Jumper 0805
4549	482205120008		0R Jumper 0805
4550	482205120008		0R Jumper 0805
4551	482205120008		0R Jumper 0805
4552	482205120008		0R Jumper 0805
4553	482205120008		0R Jumper 0805
4554	482205120008		0R Jumper 0805
4555	482205120008		0R Jumper 0805
4556	482205120008		0R Jumper 0805
4557	482205120008		0R Jumper 0805
4558	482205120008		0R Jumper 0805
4559	482205120008		0R Jumper 0805
4560	482205120008		0R Jumper 0805
4561	482205120008		0R Jumper 0805
4562	482205120008		0R Jumper 0805
4563	482205120008		0R Jumper 0805
4564	482205120008		0R Jumper 0805
4565	482205120008		0R Jumper 0805
4566	482205120008		0R Jumper 0805
4567	482205120008		0R Jumper 0805
4568	482205120008		0R Jumper 0805
4570	482205120008		0R Jumper 0805
4571	482205120008		0R Jumper 0805
4572	482205120008		0R Jumper 0805
4573	482205120008		0R Jumper 0805
4574	482205120008		0R Jumper 0805
4575	482205120008		0R Jumper 0805
4576	482205120008		0R Jumper 0805
4577	482205120008		0R Jumper 0805
4578	482205120008		0R Jumper 0805
4579	482205120008		0R Jumper 0805
4580	482205120008		0R Jumper 0805
4581	482205120008		0R Jumper 0805
4582	482205120008		0R Jumper 0805
4583	482205120008		0R Jumper 0805
4584	482205120008		0R Jumper 0805
4585	482205120008		0R Jumper 0805
4586	482205120008		0R Jumper 0805
4587	482205120008		0R Jumper 0805
4588	482205120008		0R Jumper 0805

ELECTRICAL PARTS LIST - AF8 BOARD

RESISTORS

3551	482205120154	150k 5% 0,1W	
3552	482205120154	150k 5% 0,1W	
3553	482205120334	330k 5% 0,1W	
3554	482211683868	150R 5% 0,5W	
3555	482205120391	390R 5% 0,1W	
3556	482205120122	1k2 5% 0,1W	
3557	482211711149	82k 1% 0,1W	
3561	482205120122	1k2 5% 0,1W	
3562	482205120122	1k2 5% 0,1W	
3563	482211711449	2k2 1% 0,1W	
3564	482211711449	2k2 1% 0,1W	
3565	482205120472	4k7 5% 0,1W	
3566	482205120472	4k7 5% 0,1W	
3569	482205120472	4k7 5% 0,1W	
3570	482205120472	4k7 5% 0,1W	
3571	482211710833	10k 1% 0,1W	
3572	482211710833	10k 1% 0,1W	
3573	482205120472	4k7 5% 0,1W	
3574	482205120472	4k7 5% 0,1W	
3575	482211711503	220R 1% 0,1W	
3576	482211711503	220R 1% 0,1W	
3577	482205120471	470R 5% 0,1W	
3578	482205120471	470R 5% 0,1W	
3579	482205210478	⚠ 4R7 5% 0,33W	
3580	482211712955	2k7 1% 0,1W	
3581	482211711449	2k2 1% 0,1W	
3582	482211711449	2k2 1% 0,1W	
3583	482211711503	220R 1% 0,1W	
3584	482211711503	220R 1% 0,1W	
3585	482211710834	47k 1% 0,1W	
3586	482211710834	47k 1% 0,1W	
3587	482205120154	150k 5% 0,1W	
3588	482205120154	150k 5% 0,1W	
3589	482211711449	2k2 1% 0,1W	
3590	482211711449	2k2 1% 0,1W	
3591	482205120223	22k 5% 0,1W	
3592	482205120223	22k 5% 0,1W	
3593	482205120273	27k 5% 0,1W	
3594	482205120273	27k 5% 0,1W	
3595	482205120683	68k 5% 0,1W	
3596	482205120683	68k 5% 0,1W	
3597	482205120105	1M 5% 0,1W	
3598	482205120474	470k 5% 0,1W	
3599	482211652175	100R 5% 0,5W	
3600	482205120223	22k 5% 0,1W	
3601	482205120332	3k3 5% 0,1W	
3602	482205120332	3k3 5% 0,1W	
3603	482205120684	680k 5% 0,1W	
3604	482205120684	680k 5% 0,1W	
3605	482211713579	220k 1% 0,1W	
3606	482211713579	220k 1% 0,1W	
3607	482211710833	10k 1% 0,1W	
3608	482211710833	10k 1% 0,1W	
3609	482211710833	10k 1% 0,1W	
3610	482211710833	10k 1% 0,1W	
3611	482205120562	5k6 5% 0,1W	
3612	482205120562	5k6 5% 0,1W	
3613	482205120562	5k6 5% 0,1W	
3614	482205120562	5k6 5% 0,1W	
3615	482205120562	5k6 5% 0,1W	
3616	482205120562	5k6 5% 0,1W	
3617	482205120822	8k2 5% 0,1W	
3618	482205120822	8k2 5% 0,1W	
3619	482205120822	8k2 5% 0,1W	
3620	482205120822	8k2 5% 0,1W	
3621	482205120822	8k2 5% 0,1W	
3622	482205120822	8k2 5% 0,1W	
3623	482211710834	47k 1% 0,1W	
3624	482211710834	47k 1% 0,1W	
3625	482205110102	1k 2% 0,25W	
3626	482205110102	1k 2% 0,25W	
3627	482211711503	220R 1% 0,1W	
3628	482211711503	220R 1% 0,1W	
3629	482211652231	820R 5% 0,5W	
3631	482211711454	820R 1% 0,1W	
3632	482211711454	820R 1% 0,1W	
3633	482205120562	5k6 5% 0,1W	
3634	482205120562	5k6 5% 0,1W	
3635	482211710833	10k 1% 0,1W	
3636	482211710833	10k 1% 0,1W	
3637	482211710834	47k 1% 0,1W	
3638	482211710834	47k 1% 0,1W	
3639	482211710833	10k 1% 0,1W	
3639	482211711383	12k 1% 0,1W /FW-C85/37	
3640	482211710833	10k 1% 0,1W	
3640	482211711383	12k 1% 0,1W /FW-C85/37	
3641	482205210109	⚠ 10R 5% 0,33W	
3642	482205120472	4k7 5% 0,1W	
3643	482205120472	4k7 5% 0,1W	
3644	482205110102	1k 2% 0,25W	
3645	482205120479	47R 5% 0,1W	
3646	482205120479	47R 5% 0,1W	
3647	482205120479	47R 5% 0,1W	
3648	482205120479	47R 5% 0,1W	
3649	482205120479	47R 5% 0,1W	
3650	482205120479	47R 5% 0,1W	
3651	482205120392	3k9 5% 0,1W	
3652	482205120392	3k9 5% 0,1W	
3653	482205110102	1k 2% 0,25W	
3660	482211710833	10k 1% 0,1W	
3661	482205320475	4M7 5% 0,25W	
3662	482205110102	1k 2% 0,25W	
3663	482205110102	1k 2% 0,25W	
3665	482211683933	15k 1% 0,1W	

ELECTRICAL PARTS LIST - AF8 BOARD

RESISTORS

4589	482205120008	0R Jumper 0805
4590	482205120008	0R Jumper 0805
4591	482205120008	0R Jumper 0805
4592	482205120008	0R Jumper 0805
4593	482205120008	0R Jumper 0805
4594	482205120008	0R Jumper 0805
4595	482205120008	0R Jumper 0805
4596	482205120008	0R Jumper 0805
4597	482205120008	0R Jumper 0805
4598	482205120008	0R Jumper 0805
4599	482205120008	0R Jumper 0805
4600	482205120008	0R Jumper 0805
4601	482205120008	0R Jumper 0805
4602	482205120008	0R Jumper 0805
4603	482205120008	0R Jumper 0805
4604	482205120008	0R Jumper 0805
4605	482205120008	0R Jumper 0805
4606	482205120008	0R Jumper 0805
4618	482205120008	0R Jumper 0805
4619	482205120008	0R Jumper 0805
4620	482205120008	0R Jumper 0805
4623	482205120008	0R Jumper 0805

COILS & FILTERS

5511	482215762552	Coil 2,2µH 5%
5512	482215710586	Coil 2,2µH 10%
5513	482215762552	Coil 2,2µH 5%
5611	482215762552	Coil 2,2µH 5%
5613	482215762552	Coil 2,2µH 5%

DIODES

6511	482213030862	BZX79-C9V1
6512	482213030862	BZX79-C9V1
6513	482213031878	1N4003G
6516	482213030621	1N4148
6518	482213030621	1N4148
6519	482213030621	1N4148
6520	482213030621	1N4148
6521	482213030621	1N4148
6531	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7511	482220917366	TDA7437T
7512	482220983357	NJM4560M
7513	482220983357	NJM4560M
7515	482220931378	NJM4556AM
7521	482213060511	BC847B
7522	482213060511	BC847B
7523	482213060373	BC857B
7524	482213060373	BC857B
7525	482213040959	BC547B
7526	482213060373	BC857B
7527	482213060511	BC847B
7528	482213060511	BC847B
7529	482213060373	BC857B
7531	482213060511	BC847B
7532	482213060511	BC847B
7533	482213060511	BC847B
7534	482213060511	BC847B
7535	482213042804	BC817-25
7536	482213042804	BC817-25
7539	482213060373	BC857B
7541	482213060511	BC847B
7543	482213042804	BC817-25
7544	482213060511	BC847B
7545	482213060511	BC847B
7551	482220917345	M62320FP
7552	482213041246	BC327-25
7553	482213060511	BC847B

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

DPL BOARD

(Dolby Pro Logic)

TABLE OF CONTENTS

Brief Introduction of the DPL Board 13-1
Component & Chip layout 13-2
Circuit Diagram 13-3
Electrical parts list 13-4

BRIEF INTRODUCTION OF THE DOLBY PRO LOGIC (DPL) BOARD

The DPL Board consists of the following features :

a. Dolby Pro Logic (DPL)
Dolby Pro Logic function is provided by IC M62460FP (7711). Delay circuit is also integrated into the same IC.

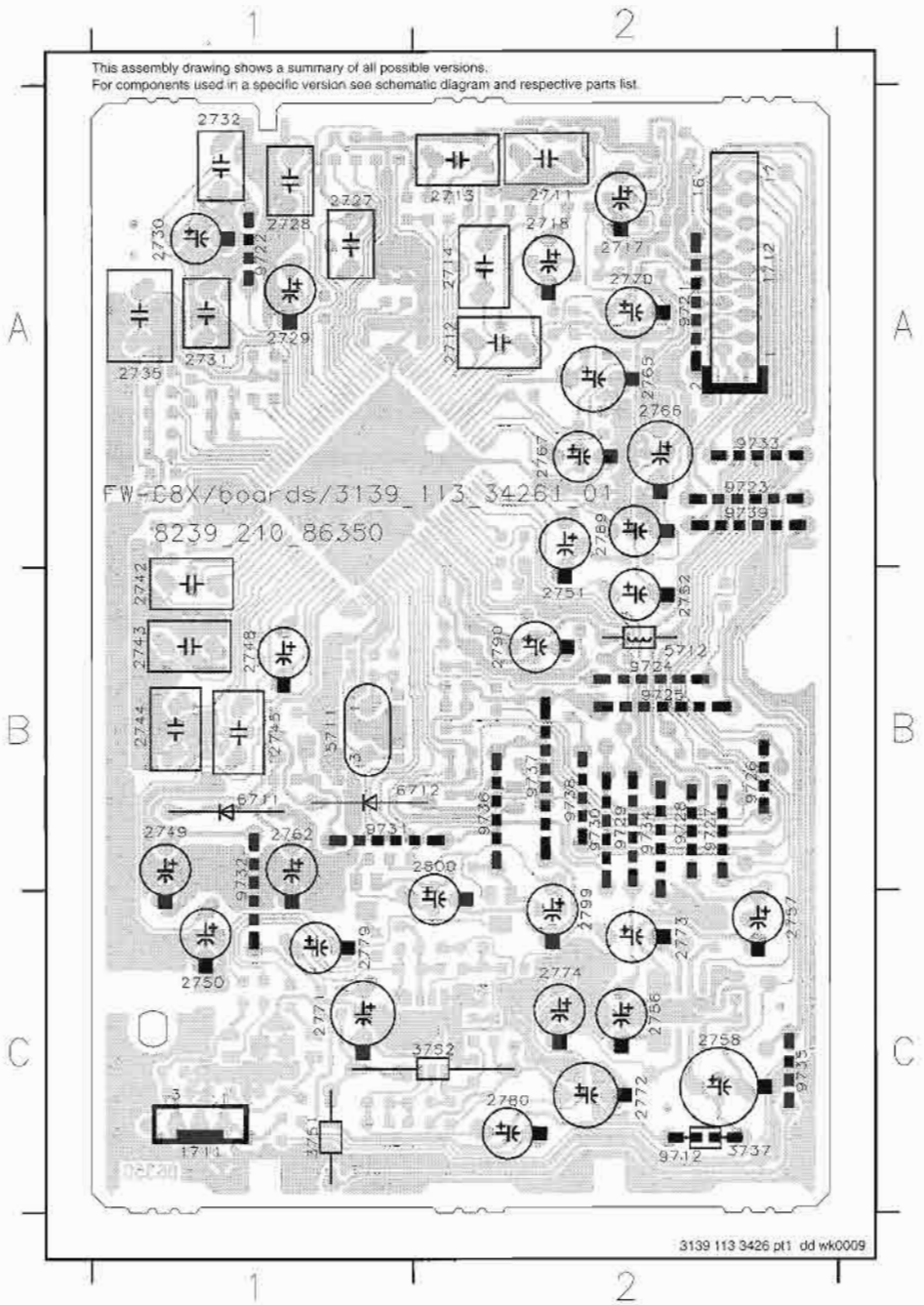
b. Volume Control for Centre and Surround Channel
Volume control and trim for both centre and surround channel is implemented using IC M62429FP (7712).

c. MCU Control
Separate muting control is available on both the centre and surround channel. MCU interface which is available on pins 19 and 20 of IC M62460FP (7711) are used to send mute control signals.

Bass ALC enable (ALC_EN) is controlled via pin 18 of MCU interface.

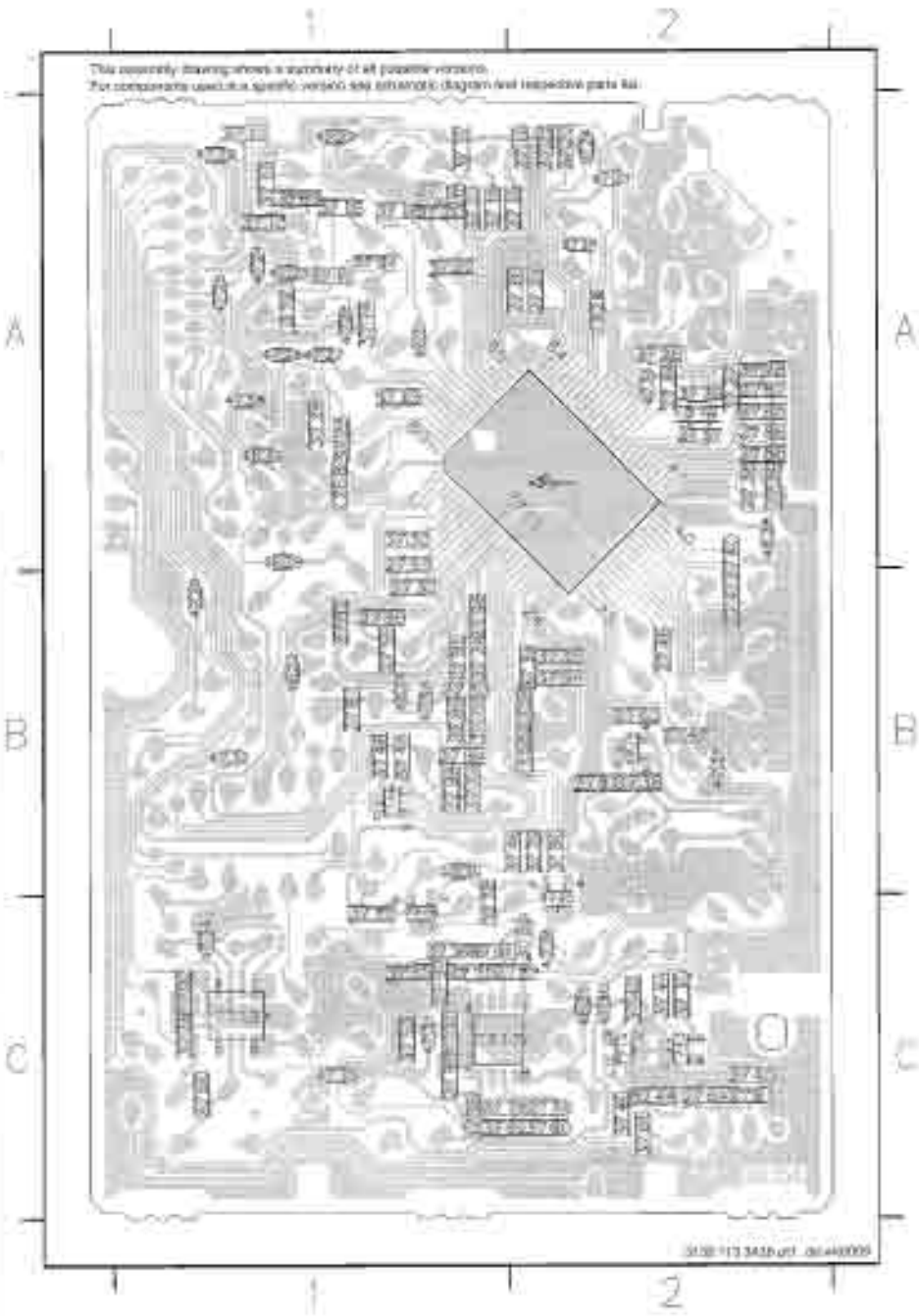
d. Software Control
Commands sent on DPL_CLK, DPL_DATA, DPL_V_CLK and DPL_REQ are used for switching in all DPL modes and leveling changes.

DPL BOARD - COMPONENT LAYOUT



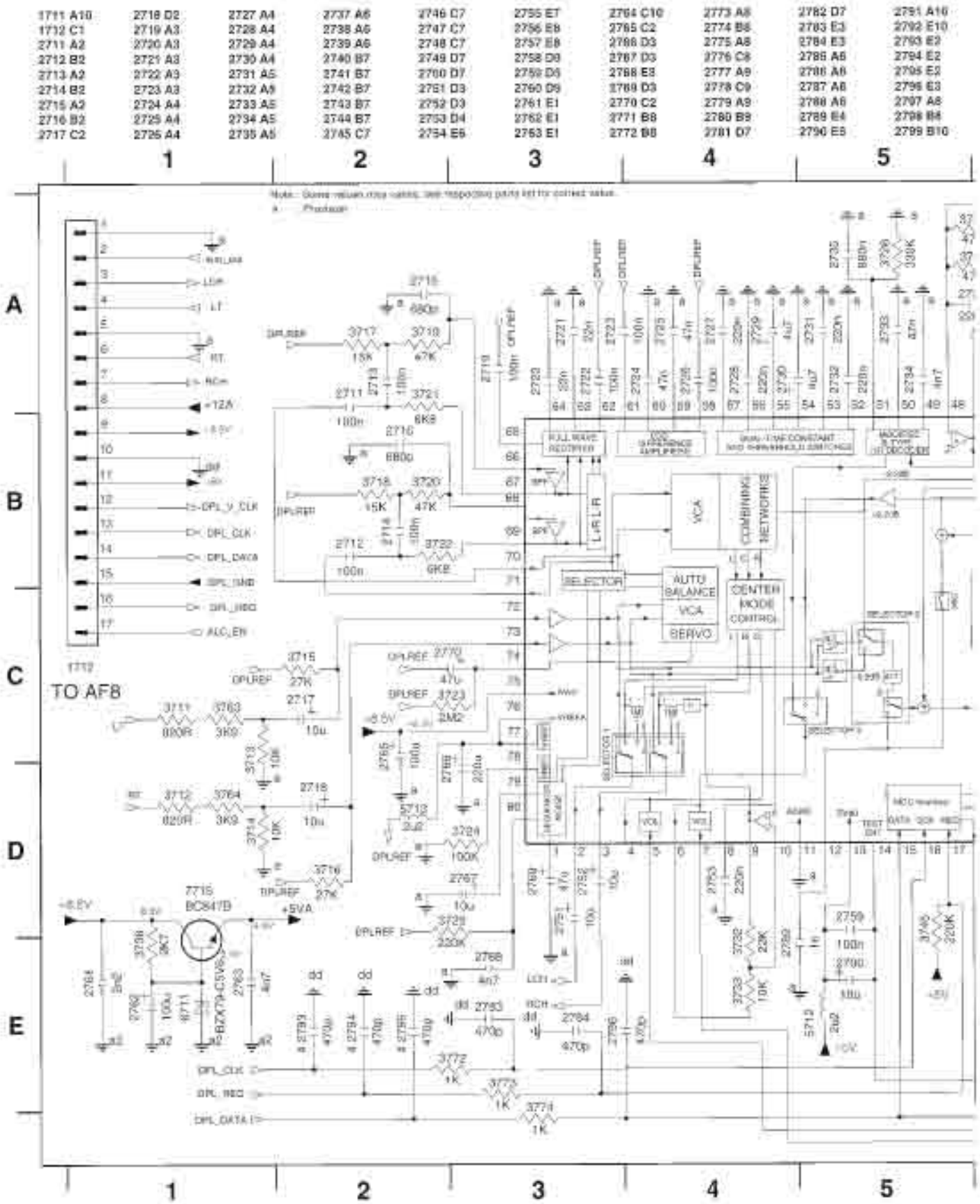
1711	C1	9731	B1
1712	A2	9732	B1
2711	A2	9733	A2
2712	A2	9734	B2
2713	A2	9735	C2
2714	A2	9736	B2
2717	A2	9737	B2
2718	A2	9738	B2
2727	A1	9739	A2
2728	A1		
2729	A1		
2730	A1		
2731	A1		
2732	A1		
2735	A1		
2742	B1		
2743	B1		
2744	B1		
2745	B1		
2748	B1		
2749	B1		
2750	C1		
2751	B2		
2752	B2		
2756	C2		
2757	C2		
2758	C2		
2762	B1		
2765	A2		
2766	A2		
2767	A2		
2769	A2		
2770	A2		
2771	C1		
2772	C2		
2773	C2		
2774	C2		
2779	C1		
2780	C2		
2790	B2		
2799	C2		
2800	B2		
3737	C2		
3751	C1		
3752	C2		
5711	B1		
5712	B2		
6711	B1		
6712	B2		
9712	C2		
9721	A2		
9722	A1		
9723	A2		
9724	B2		
9725	B2		
9726	B2		
9727	B2		
9728	B2		
9729	B2		
9730	B2		

DPL BOARD - CHIP LAYOUT

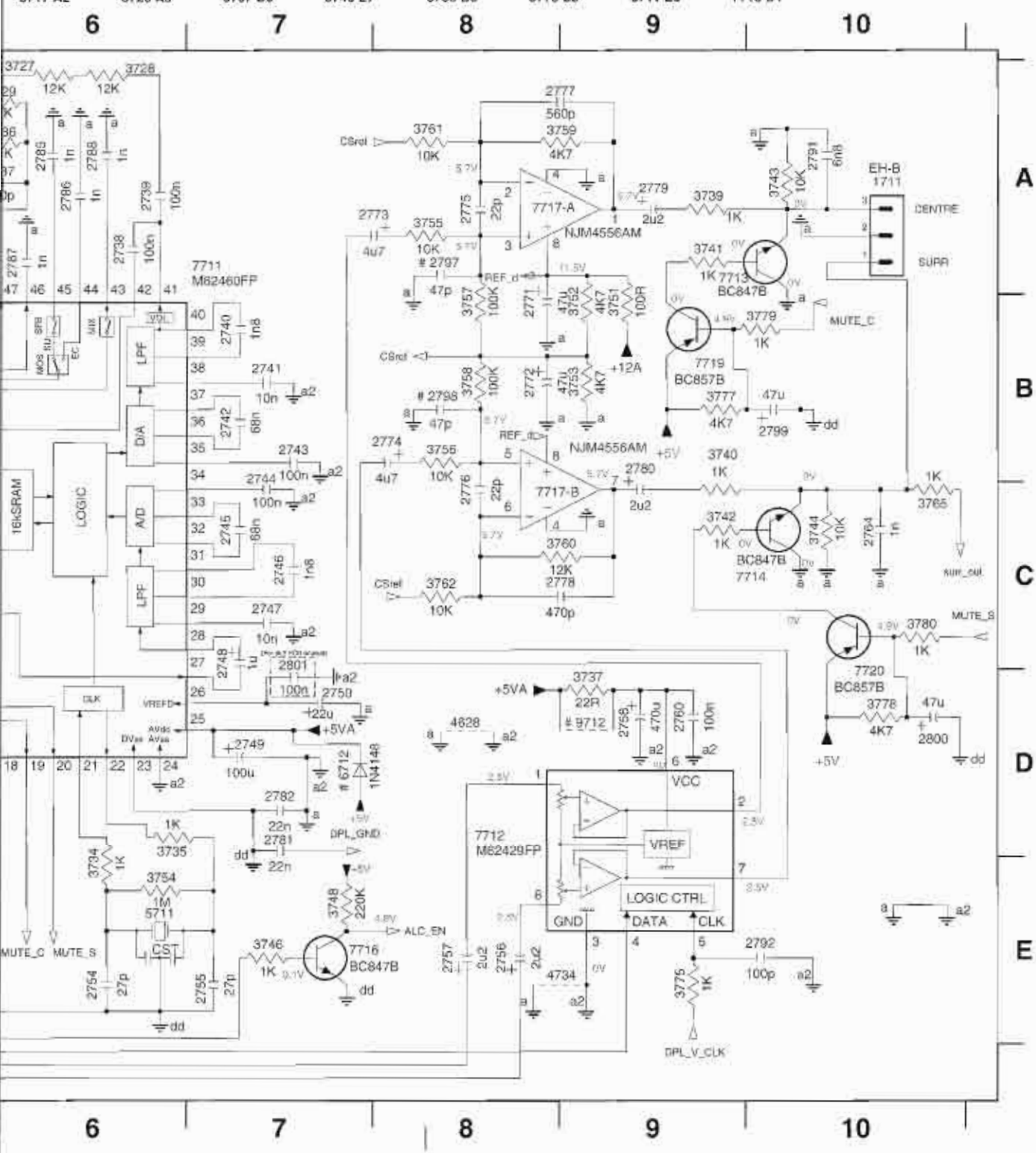


2715	A2	3722	A1	4729	B1
2716	A1	3723	A1	4730	C2
2719	A2	3724	A1	4731	C2
2720	A2	3725	A1	4732	B1
2721	A2	3726	A2	4733	B1
2722	A2	3727	A2	4734	C1
2723	A2	3728	A2	4735	C1
2724	A2	3729	A2	4736	C2
2725	A2	3732	B1	4737	B2
2726	A2	3733	A1	4738	A1
2733	A2	3734	B2	4739	A1
2734	A2	3735	B2	5713	A1
2737	A2	3736	A2	7711	A2
2738	A2	3738	B2	7712	C1
2739	A2	3739	C2	7713	C2
2740	A2	3740	C2	7714	C2
2741	B2	3741	C2	7715	B2
2746	B2	3742	C2	7716	B1
2747	B2	3743	C2	7717	C1
2753	A1	3744	C2	7719	C1
2754	B2	3745	B1	7720	C2
2755	B2	3746	B2		
2759	B1	3748	B1		
2760	C1	3753	C1		
2761	B2	3754	B2		
2763	B2	3755	C1		
2764	C2	3756	C1		
2768	A1	3757	C1		
2775	C1	3758	C1		
2776	C1	3759	C2		
2777	C2	3760	C2		
2778	C2	3761	C1		
2781	B1	3762	C1		
2782	B1	3763	A1		
2783	B1	3764	A1		
2784	B1	3765	C2		
2785	A2	3772	B1		
2786	A2	3773	B1		
2787	A2	3774	B1		
2788	A2	3775	C1		
2789	B1	3777	C1		
2791	C2	3778	C1		
2792	C1	3779	B2		
2793	B1	3780	B2		
2794	B1	4631	A1		
2795	B1	4632	A1		
2796	B1	4633	B1		
2797	C1	4634	B1		
2798	C1	4635	C2		
3711	A1	4638	A2		
3712	A1	4639	A1		
3713	A1	4640	B1		
3714	A1	4721	A2		
3715	A1	4722	A1		
3716	A1	4723	A1		
3717	A1	4724	A1		
3718	A1	4725	A1		
3719	A1	4726	A1		
3720	A1	4727	A1		
3721	A1	4728	A1		

DPL CIRCUIT DIAGRAM



2800 D10	3718 B2	3727 A6	3738 E1	3748 E7	3759 A9	3774 E3	5712 E5	7716 E7
2801 C7	3719 A2	3728 A6	3739 A9	3751 B9	3760 C9	3775 E9	5713 D2	7717-A A8
3711 C1	3720 B2	3729 A6	3740 B9	3752 B9	3761 A8	3777 B9	6711 E1	7717-B C8
3712 D1	3721 A2	3732 E4	3741 A9	3753 B9	3762 C8	3778 D10	6712 D7	7719 B9
3713 C1	3722 B2	3733 E4	3742 C9	3754 E6	3763 C1	3779 B10	7711 A7	7720 D10
3714 D1	3723 C3	3734 E6	3743 A10	3755 A8	3764 D1	3780 C10	7712 D8	9712 D9
3715 C2	3724 D3	3735 D6	3744 C10	3756 B8	3765 C10	4628 D8	7713 A9	
3716 D2	3725 D3	3736 A6	3745 D5	3757 B8	3772 E3	4734 E9	7714 C9	
3717 A2	3726 A5	3737 D9	3746 E7	3758 B8	3773 E3	5711 E6	7715 D1	



ELECTRICAL PARTS LIST - DPL BOARD

MISCELLANEOUS

1712	482226710871	Flex Connector 17P

CAPACITORS

2711	532212142386	100nF 5% 63V
2712	532212142386	100nF 5% 63V
2713	532212142386	100nF 5% 63V
2714	532212142386	100nF 5% 63V
2715	482212232535	680pF 10% 63V
2716	482212232535	680pF 10% 63V
2717	482212440248	10µF 20% 63V
2718	482212440248	10µF 20% 63V
2719	482212614585	100nF 10% 50V
2720	532212232654	22nF 10% 63V
2721	532212232654	22nF 10% 63V
2722	482212614585	100nF 10% 50V
2723	482212614585	100nF 10% 50V
2724	482212613751	47nF 10% 63V
2725	482212613751	47nF 10% 63V
2726	482212614585	100nF 10% 50V
2727	482212142408	220nF 5% 63V
2728	482212142408	220nF 5% 63V
2729	482212440769	4,7µF 20% 100V
2730	482212440769	4,7µF 20% 100V
2731	482212142408	220nF 5% 63V
2732	482212142408	220nF 5% 63V
2733	482212613751	47nF 10% 63V
2734	532212610223	4,7nF 10% 63V
2735	532212142498	680nF 5% 63V
2737	482212233575	220pF 5% 63V
2738	482212614585	100nF 10% 50V
2739	482212614585	100nF 10% 50V
2740	482212610847	1,8nF 10% 63V
2741	532212234098	10nF 10% 63V
2742	482212110684	68nF 10% 50V
2743	532212142386	100nF 5% 63V
2744	532212142386	100nF 5% 63V
2745	482212110684	68nF 10% 50V
2746	482212610847	1,8nF 10% 63V
2747	532212234098	10nF 10% 63V
2748	482212421913	1µF 20% 63V
2749	482212441584	100µF 20% 10V
2750	482212481151	22µF 50V
2751	482212440248	10µF 20% 63V
2752	482212440248	10µF 20% 63V
2753	482212613561	220nF 10% 16V
2754	482212613691	27pF 1% 63V
2755	482212613691	27pF 1% 63V
2756	482212422652	2,2µF 20% 50V
2757	482212422652	2,2µF 20% 50V
2758	482212480195	470µF 20% 10V
2759	482212614585	100nF 10% 50V
2760	482212614585	100nF 10% 50V
2761	482212233127	2,2nF 10% 63V
2762	482212441584	100µF 20% 10V
2763	532212610223	4,7nF 10% 63V
2764	532212610511	1nF 5% 50V
2765	482212440207	100µF 20% 25V
2766	482212440196	220µF 20% 16V
2767	482212440248	10µF 20% 63V
2768	532212610223	4,7nF 10% 63V
2769	482212440433	47µF 20% 25V
2770	482212440433	47µF 20% 25V
2771	482212441751	47µF 20% 50V
2772	482212441751	47µF 20% 50V
2773	482212440769	4,7µF 20% 100V
2774	482212440769	4,7µF 20% 100V
2775	532212232658	22pF 5% 50V
2776	532212232658	22pF 5% 50V
2777	482212233173	560pF 10% 50V
2778	532212234099	470pF 10% 63V
2779	482212422652	2,2µF 20% 50V
2780	482212422652	2,2µF 20% 50V
2781	532212232654	22nF 10% 63V
2782	532212232654	22nF 10% 63V
2783	532212234099	470pF 10% 63V
2784	532212234099	470pF 10% 63V
2785	532212610511	1nF 5% 50V
2786	532212610511	1nF 5% 50V
2787	532212610511	1nF 5% 50V
2788	532212610511	1nF 5% 50V
2789	532212610511	1nF 5% 50V
2790	482212440248	10µF 20% 63V
2791	532212231866	6,8nF 10% 63V
2792	532212232531	100pF 5% 50V
2796	532212234099	470pF 10% 63V
2799	482212440433	47µF 20% 25V
2800	482212440433	47µF 20% 25V

RESISTORS

3711	482211711454	820R 1% 0,1W
3712	482211711454	820R 1% 0,1W
3713	482211710833	10k 1% 0,1W
3714	482211710833	10k 1% 0,1W
3715	482205120273	27k 5% 0,1W
3716	482205120273	27k 5% 0,1W
3717	482211683933	15k 1% 0,1W
3718	482211683933	15k 1% 0,1W
3719	482211710834	47k 1% 0,1W
3720	482211710834	47k 1% 0,1W
3721	482211711507	6k8 1% 0,1W
3722	482211711507	6k8 1% 0,1W
3723	482205120225	2M2 5% 0,1W
3724	482211710837	100k 1% 0,1W
3725	482211713579	220k 1% 0,1W

ELECTRICAL PARTS LIST - DPL BOARD

3726	482205120334	330k 5% 0,1W
3727	482211711383	12k 1% 0,1W
3728	482211711383	12k 1% 0,1W
3729	482211710834	47k 1% 0,1W
3732	482205120223	22k 5% 0,1W
3733	482211710833	10k 1% 0,1W
3734	482205110102	1k 2% 0,25W
3735	482205110102	1k 2% 0,25W
3736	482211710834	47k 1% 0,1W
3737	482211652186	22R 5% 0,5W
3738	482211712955	2k7 1% 0,1W
3739	482205110102	1k 2% 0,25W
3740	482205110102	1k 2% 0,25W
3741	482205110102	1k 2% 0,25W
3742	482205110102	1k 2% 0,25W
3743	482211710833	10k 1% 0,1W
3744	482211710833	10k 1% 0,1W
3745	482211713579	220k 1% 0,1W
3746	482205110102	1k 2% 0,25W
3748	482211713579	220k 1% 0,1W
3751	482211652175	100R 5% 0,5W
3752	482211652283	4k7 5% 0,5W
3753	482205120472	4k7 5% 0,1W
3754	482205120105	1M 5% 0,1W
3755	482211710833	10k 1% 0,1W
3756	482211710833	10k 1% 0,1W
3757	482211710837	100k 1% 0,1W
3758	482211710837	100k 1% 0,1W
3759	482205120472	4k7 5% 0,1W
3760	482211711383	12k 1% 0,1W
3761	482211710833	10k 1% 0,1W
3762	482211710833	10k 1% 0,1W
3763	482205120392	3k9 5% 0,1W
3764	482205120392	3k9 5% 0,1W
3765	482205110102	1k 2% 0,25W
3772	482205110102	1k 2% 0,25W
3773	482205110102	1k 2% 0,25W
3774	482205110102	1k 2% 0,25W
3775	482205110102	1k 2% 0,25W
3777	482205120472	4k7 5% 0,1W
3778	482205120472	4k7 5% 0,1W
3779	482205110102	1k 2% 0,25W
3780	482205110102	1k 2% 0,25W
4621	482205120008	0R Jumper 0805
4622	482205120008	0R Jumper 0805
4623	482205120008	0R Jumper 0805
4624	482205120008	0R Jumper 0805
4625	482205120008	0R Jumper 0805
4628	482205120008	0R Jumper 0805
4629	482205120008	0R Jumper 0805
4630	482205120008	0R Jumper 0805
4721	482205120008	0R Jumper 0805
4722	482205120008	0R Jumper 0805
4723	482205120008	0R Jumper 0805
4724	482205120008	0R Jumper 0805
4725	482205120008	0R Jumper 0805
4726	482205120008	0R Jumper 0805
4727	482205120008	0R Jumper 0805
4728	482205120008	0R Jumper 0805
4729	482205120008	0R Jumper 0805
4730	482205120008	0R Jumper 0805
4731	482205120008	0R Jumper 0805
4732	482205120008	0R Jumper 0805
4733	482205120008	0R Jumper 0805
4734	482205120008	0R Jumper 0805
4735	482205120008	0R Jumper 0805
4736	482205120008	0R Jumper 0805
4737	482205120008	0R Jumper 0805
4738	482205120008	0R Jumper 0805
4739	482205120008	0R Jumper 0805

COILS & FILTERS

5711	482224272527	RES CER 4MHz
5712	482215762552	Coil 2,2µH 5%
5713	482215710586	Coil 2,2µH 10%

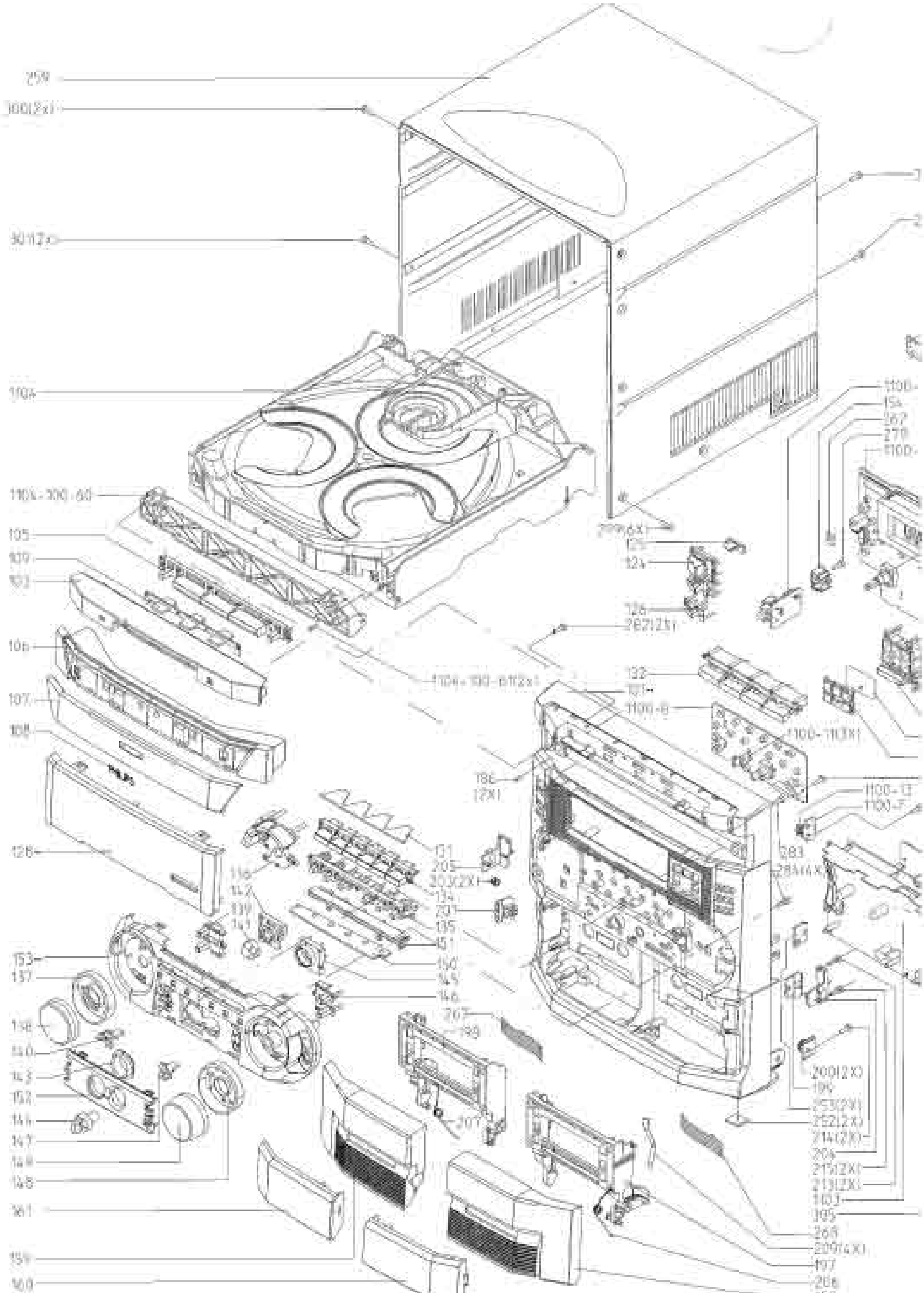
DIODES

6711	482213034173	BZX79-C5V6

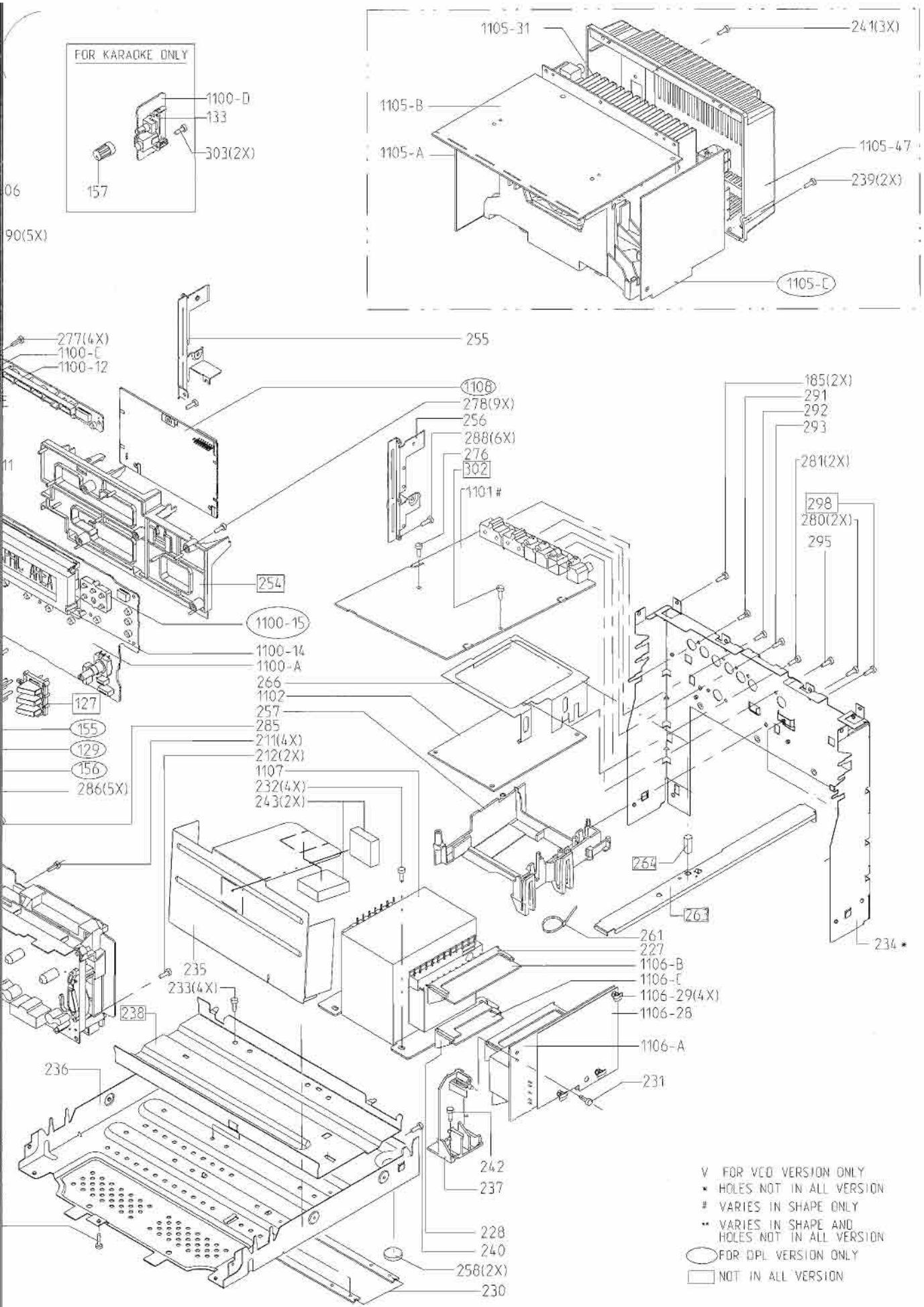
TRANSISTORS & INTEGRATED CIRCUITS

7711	482220917347	M62460FP
7712	482220917349	M62429FP
7713	482213060511	BC847B
7714	482213060511	BC847B
7715	482213060511	BC847B
7716	482213060511	BC847B
7717	482220931378	NJM4556AM
7719	482213060373	BC857B
7720	482213060373	BC857B

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



259
300(2x)
301(2x)
1104
1104-100-60
105
109
103
106
107
108
128
153
137
138
140
142
152
144
147
149
148
161
159
160
1104-100-61(2x)
116
142
139
141
131
205
203(2X)
134
201
135
151
150
145
146
267
198
207
299(6X)
125
124
126
282(2X)
132
101
1100-8
1100-11(3X)
182
(2X)
1100-13
1100-7
283
284(4X)
1100-
154
267
278
1100-
200(2X)
199
253(2X)
252(2X)
214(2X)
204
215(2X)
213(2X)
1103
305
269
209(4X)
197
208
158


FOR KARAOKE ONLY
1100-D
133
303(2X)
157
1105-31
241(3X)
1105-B
1105-A
1105-47
239(2X)
1105-C
277(4X)
1100-C
1100-12
255
1108
278(9X)
256
288(6X)
276
302
1101#
185(2X)
291
292
293
281(2X)
298
280(2X)
295
254
1100-15
1100-14
1100-A
266
1102
257
285
211(4X)
212(2X)
1107
232(4X)
243(2X)
127
155
129
156
286(5X)
264
263
261
227
1106-B
1106-C
1106-29(4X)
1106-28
1106-A
231
234*
235
233(4X)
238
236
242
237
228
240
258(2X)
230
V FOR VCO 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

0101	313911811530	Cabinet Front /P88/22
0101	313911811520	Cabinet Front /P88/37
0101	313911811350	Cabinet Front /C83/22,C85/22/34
0101	313911811040	Cabinet Front /C85/37
0103	313911811050	Cover Orn CDC
0105	313911811060	Button Set CDC
0106	313911811070	Cover Tray CDC
0107	313911811080	Cover Orn CDC Tray
0108	482245413408	Badge Philips
0124	313911811090	Button Power/Standby
0126	313911469060	Window IR
0127	313911811100	But RDS/NEWS/DOLBY
0128	313911812390	Window Display /P88/22
0128	313911811540	Window Display /P88/37
0128	313911811390	Window Display /C83/22
0128	313911812350	Window Display /C85/22/34
0128	313911811120	Window Display /C85/37
0132	313911811130	Button Set Source
0134	313911811140	Button Set Control
0135	313911811150	Button Tape/Mode
0136	313911811160	Button BT/VEC/DSC/Personal
0137	313911811170	Ring Orn Jog Rotary
0138	313911811110	Knob Jog Rotary
0139	313911811180	Button Set Bass
0141	313911811190	Button WOOX Plus Chrome
0142	313911468900	Frame Button Set WOOX
0144	313911811200	Knob Rotary WOOX Chrome
0145	313911469890	Guide Rotary WOOX
0146	313911811210	Button Set Treble
0148	313911811220	Ring Orn Volume Rotary
0149	313911811230	Knob Volume Rotary
0151	313911469070	Holder Lightguide Bar
0152	313911811250	Cover Orn WOOX
0152	313911811450	Cover Orn WOOX /C83/22
0153	313911811260	Cover Orn Control
0155	313911811550	Button Set DPL
0158	313911812180	Cover Cassette Right DOLBY
0158	313911811270	Cover Cassette Right /37
0159	313911812620	Cover Cassette Left Estar
0160	313911469120	Lens Cassette Right
0161	313911469130	Lens Cassette Left
0197	313911468630	Door Cassette Right
0198	313911468620	Door Cassette Left
0199	482240210621	Push-Catch
0200	482252910322	Damper Assembly
0201	313911468640	Push Catch Left
0203	482249211344	Spring Compression
0204	482240211246	Bracket Right
0205	482240211245	Bracket Left
0206	313911101380	Spring Torsion Right
0207	313911101390	Spring Torsion Left
0209	482249242787	Spring Cassette
0252	482246240683	Foot Rubber (SQ)
0254	313911469140	Plate Front
0258	482246240683	Plate (Foot)
0259	313911469230	Cabinet Rear
0350	313911877530	L/R Loudspeaker Box /P88/22
0350	313911877710	L/R Loudspeaker Box /P88/37
0350	313911877630	L/R Loudspeaker Box /C83/22
0350	313911877520	L/R Loudspeaker Box /C85/22
0350	313911877500	L/R Loudspeaker Box /C85/34/37
0351	482230350063	FM Aerial
0351	482232011094	FM Aerial /37
0352	313911877560	Center/Surr. Speaker /P88/22/37
0356	313922884360	Remote Control /P88/22/37
0356	313922884370	Remote Control
0384	482230350062	AM Frame Aerial
0385	482232110249	⚠ Mains Cord
0385	482232111466	⚠ Mains Cord /37
0387	313911619720	Instruction For Use /P88/22
0387	313911619710	Instruction For Use /P88/37
0387	313911619610	Instruction For Use /C83/22,C85/22
0387	313911619600	Instruction For Use /C85/34
0387	313911619590	Instruction For Use /C85/37
1107	482214611188	⚠ Mains Transformer /P88/22,C83/22
1107	482214611177	⚠ Mains Transformer /P88/37
1107	310330830450	⚠ Mains Transformer /C85/22/34
1107	310330830440	⚠ Mains transformer /C85/37
1200	313911034570	FFC Foil 23P/280/23P BD /P88/22/37
1200	313911034560	FFC Foil 19P/280/19P BD

1201	313911034570	FFC Foil 23P/280/23P BD
1201	313911034560	FFC FOIL 19P/280/19P BD /37
1202	313911034330	FFC Foil 06P/180/06P BD
1203	313911034580	FFC Foil 04P/280/04P AD
1204	313911034680	FFC Foil 06P/340/06P BD
1205	482232012752	FFC Foil 07P/180/07P AD
1206	313911034600	FFC Foil 07P/280/07P AD
1207	313911034550	FFC Foil 17P/140/17P BD
1208	313911034630	FFC Foil 10P/180/10P AD

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

185	D3 x 10
186	D3 x 25
211	D3 x 12
212	D3 x 12
213	D3 x 12
214	M3 x 12
215	M3 x 12
231	D3 x 10
232	M3 x 10
233	M3 x 6
239	M3 x 10
240	D3 x 12
241	M3 x 10
242	M3 x 10
276	D3 x 12
277	D3 x 12
278	D3 x 12
279	D3 x 12
280	D3 x 12
281	D3 x 12
282	D3 x 12
283	D3 x 20
284	D3 x 12
285	M3 x 12
286	D3 x 12
288	D3 x 12
290	M3 x 10
291	D3 x 12
292	D3 x 12
293	D3 x 12
295	D3 x 12
298	M3 x 10
299	M3 x 10
300	M3 x 10
301	M3 x 10
302	M3 x 16
305	M3 x 6
306	M3 x 10