CD Stereo Radio Recorder

Service
Service
Service

AZ1018
all versions

Service Manual

COMPACT disc DIGITAL AUDIO

TABLE OF CONTENTS

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

CLASS 1
LASER PRODUCT

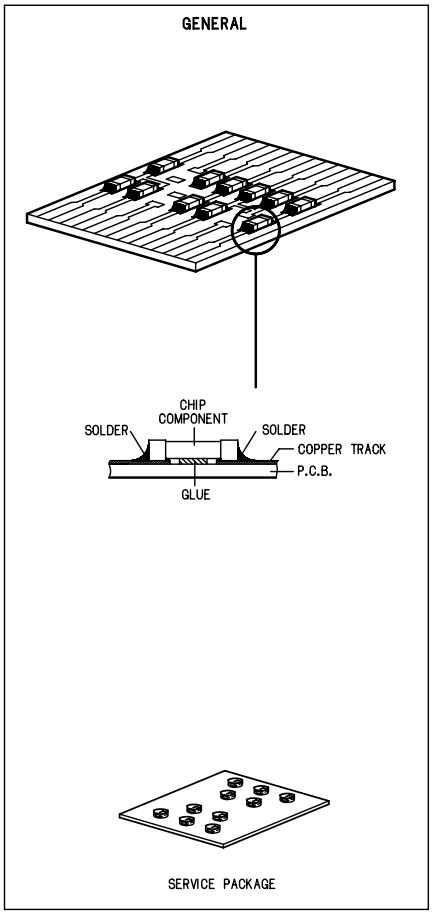
© Copyright 1995 Philips Consumer Electroncis B.V. Eindhoven, The Netherlands
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

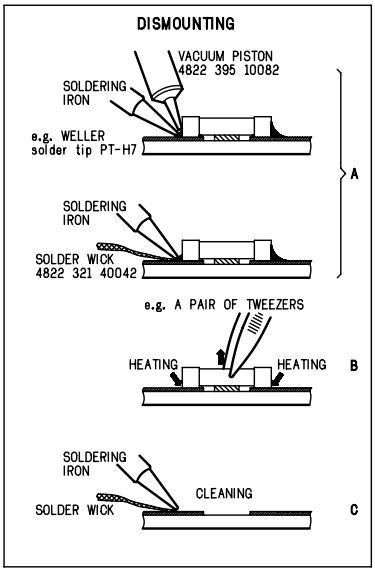
Published by SS 0050 Service Audio Printed in The Netherlands Copyright reserved Subject to modification GB 3140 785 22540

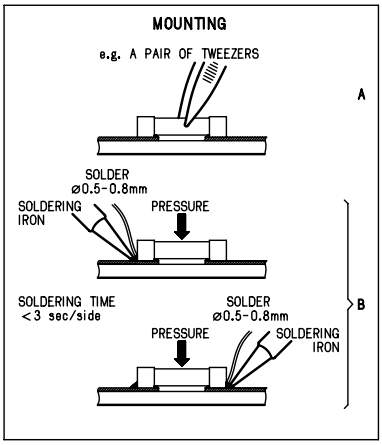
PCS 107 136

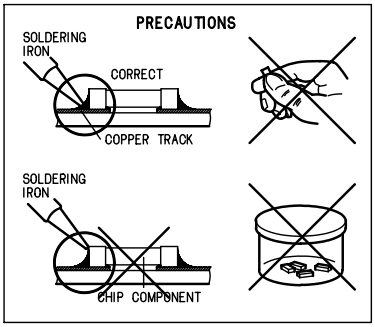
PHILIPS

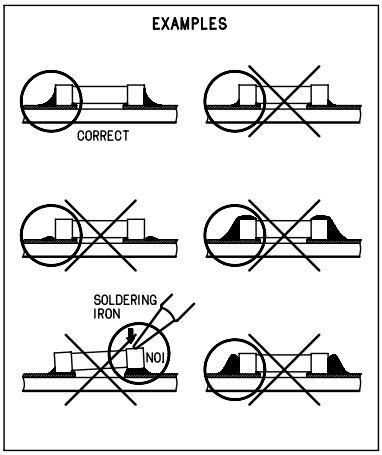
HANDLING CHIP COMPONENTS











(GB) WARNING
All ICs and many other semiconductors 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 wristband with resistance. Keep components and tools at this potential.

ESD

(F) ATTENTION
Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer 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 kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß Sie im Reparaturfall über ein Puls-armband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING
Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. 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 riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SAFETY

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ⚠

(F)
Les normes de sécurité exigent que l`appareil soit remis à l`état d`origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
Les composants de sécurité sont marqués ⚠

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvor-schriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Original-ersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkeliijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ⚠

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

CLASS 1 LASER PRODUCT

(GB) **DANGER**: 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.

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

(FIN) Varoitus !
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

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

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

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/00/05/14	:	230 V
	-/01/11/16	:	120 / 230 V
	-/17	:	120 V
Mains frequency	-/00/05/14	:	50 Hz
	-/01/11/16	:	50 / 60 Hz
	-/17	:	60 Hz
Battery	mains	:	9 V (R20 x 6)
Power consumption		:	5 W
Dimension (W x H x D)		:	400 x 237 x 162mm
Weight		:	3.4 Kg

AMPLIFIER

Output power	mains	:	2 x 1 W
	battery	:	2 x 1 W
Speaker impedance		:	2 x 8 ohm
Frequency response		:	100 Hz - 10 kHz (±3dB)

TUNER - FM SECTION

Tuning range	:	87.5 - 108 MHz
IF frequency	:	10.7 MHz ± 0.2 MHz
Sensitivity	:	18 dBf at 26dB S/N
Selectivity	:	24 dB at 300kHz
IF rejection	:	85 dB
Image rejection	:	24 dB

TUNER - AM SECTION

Tuning range		:	531 - 1602 kHz
	-/17	:	530 - 1700 kHz
IF frequency		:	468 kHz ± 3 kHz
Sensitivity		:	3200 µV/m at 26dB S/N
Selectivity		:	22 dB
IF rejection		:	64 dB
Image rejection		:	32 dB

AUDIO CASSETTE RECORDER

Number of tracks		:	1 stereo
Tape speed		:	4.76 cm/sec ± 3%
Wow & flutter		:	< 0.48 JIS UWTD
Fast wind/rewind C60		:	110 sec.
Frequency response	P/B	:	125 - 8000 Hz
S/N ratio		:	> 36 dB

COMPACT DISC

Frequency response		:	100 Hz - 10 kHz
S/N ratio		:	60 dB
Channel difference	1 kHz	:	2 dB
Channel crosstalk	1 kHz	:	40 dB
Laser wavelength		:	780 ± 20 nm
Laser light power		:	< 0.5 mW

SERVICE TOOLS

TORX T10 screwdriver with shaftlength 150mm.....4822 395 50423
TORX screwdriver set SBC 163.....4822 295 50145

Audio signal disc SBC 429.....4822 397 30184
Playability test disc SBC 444.....4822 397 30245
Test disc 5 (disc without errors) +
Test disc 5A (disc with dropout errors, black spots and fingerprints)
SBC 426/426A.....4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without “pause”).....4822 397 30155

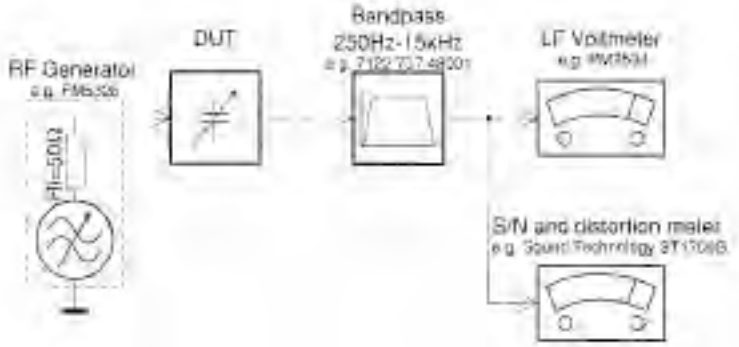
Universal test cassette Fe SBC 420.....4822 397 30071

AVAILABLE ESD PROTECTION EQUIPMENT

anti-static table mat	large	1200x650x1.25mm	4822 466 10953
	small	600x650x1.25mm	4822 466 10958
anti-static wristband			4822 395 10223
connection box (3 press stud connections, 1MΩ)			4822 320 11307
extendible cable (2m, 2MΩ, to connect wristband to connection box)			4822 320 11305
connecting cable (3m, 2MΩ, to connect table mat to connection box)			4822 320 11306
earth cable (1MΩ, to connect any product to mat or to connection box)			4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)			4822 310 10671
wristband tester			4822 344 13999

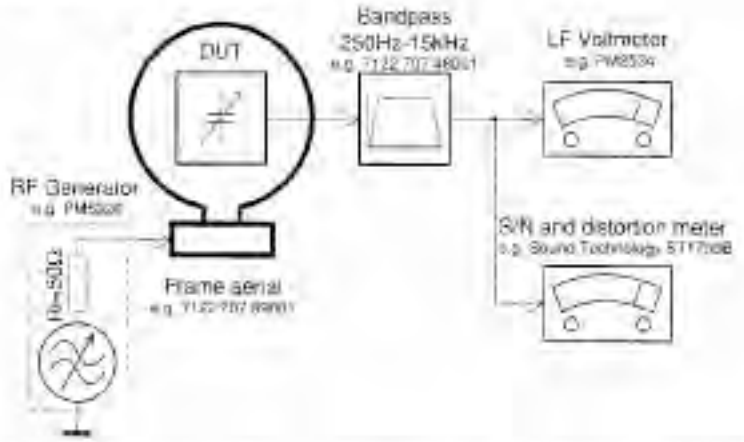
SERVICE MEASUREMENTS

Tuner FM



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

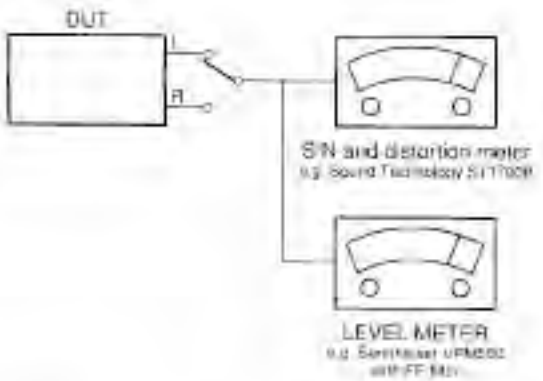
Tuner AM (MW,LW)



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).

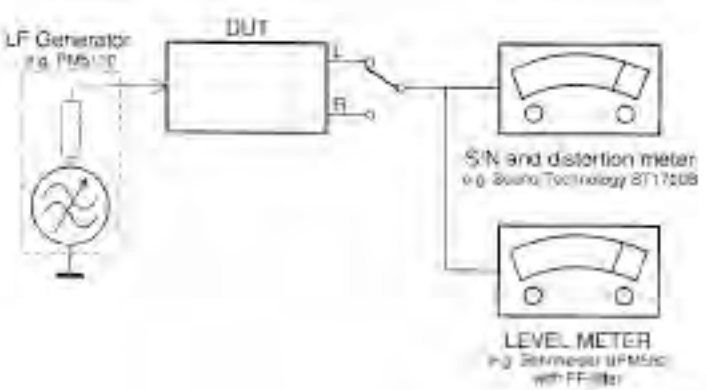
CD

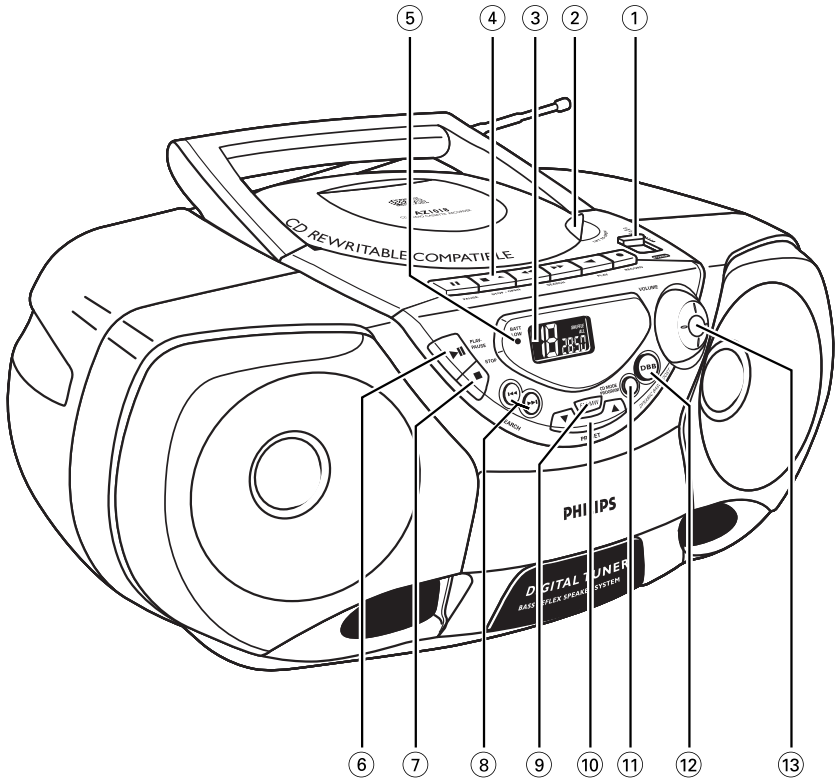
Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)

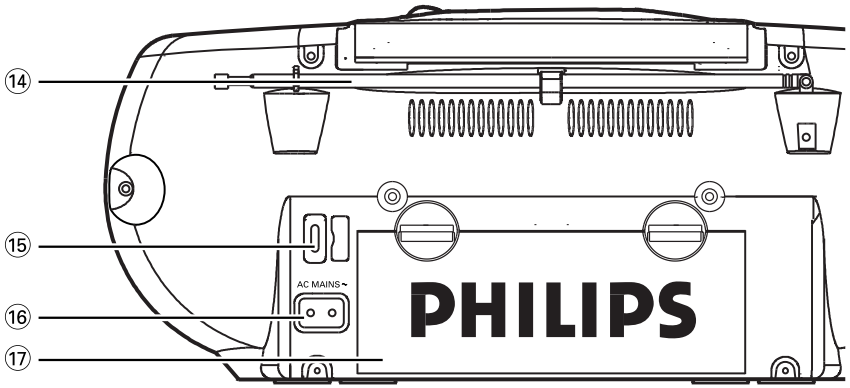


RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071







Controls

Top and front panels

1 **Power slider: CD**, **RADIO**, **TAPE/OFF** – selects source of sound CD, RADIO, TAPE/OFF, and the power on/ off switch

2 **LIFT TO OPEN** – opens/ closes the CD door

3 **Display** – shows the status of the set

4 **CASSETTE RECORDER:**
PAUSE II – pauses recording or playback

STOP•OPEN ■▲ – stops the tape; opens the cassette door

SEARCH ◀◀ or ▶▶ – fast rewinds / winds the tape

PLAY ◀ – starts playback

RECORD ● – starts recording

5 **BATT LOW** – indicator lights up if battery power is running low

6 **PLAY•PAUSE ▶II** – starts or pauses CD playback

7 **STOP ■** – stops CD playback; erases a CD programme

8 **SEARCH ⏮ , ⏭**
CD: skips or searches a passage/track backwards or forward
RADIO – tunes to a radio station (up, down)

9 **FM•MW** – selects FM/ MW (AM) waveband

10 **PRESET ▲, ▼** – selects a preset station (up, down)

11 **CD MODE/ PROGRAM**
CD – programmes and reviews programmed track numbers;
– plays tracks CD/ programme in random order;
– repeats a track/CD/ programme
RADIO – programmes radio preset stations

12 **DBB (Dynamic Bass Boost)** – enhances bass response

13 **VOLUME** – adjusts volume level

Back Panel

14 **Telescopic aerial** – to improve FM reception

15 **Voltage selector** – (not all versions) adjust the selector to match the local mains. Disconnect the mains lead if this selector has to be reset.

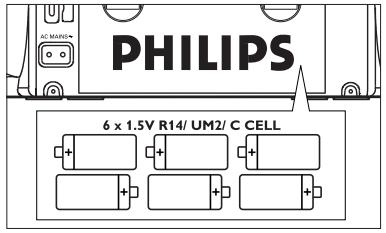
16 **AC MAINS** – inlet for mains lead

17 **Battery door** – open to insert 6 x 1.5V R14/UM2/ C-cell batteries

Power Supply

Power Supply

Whenever convenient, use the power supply if you want to conserve battery life.



Make sure you remove the plug from the set and wall socket before inserting batteries.

Batteries (not included)

1 Open the battery compartment and insert six batteries, type **R-14**, **UM-2** or **C-cells**, (preferably alkaline) with the correct polarity as indicated by the "**+**" and "**–**" symbols inside the compartment.

2 Close the compartment door, and make sure the batteries are firmly and correctly in place. The set is now ready to operate.

Power Supply

If **BATT LOW** lights up, battery power is running low. The **BATT LOW** indicator eventually goes out if the batteries are too weak.

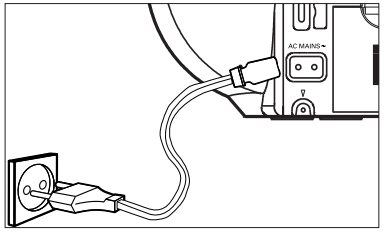
Batteries contain chemical substances, so they should be disposed of properly.

Incorrect use of batteries can cause electrolyte leakage and will corrode the compartment or cause the batteries to burst. Therefore:

- Do not mix battery types: e.g. alkaline with carbon zinc. Only use batteries of the same type for the set.
- When inserting new batteries, do not try to mix old batteries with the new ones.
- Remove the batteries if the set is not to be used for a long time.

Using AC Power

1 Check if the mains voltage, **as shown on the type plate located on the bottom of the set,** corresponds to your local mains supply. If it does not, consult your dealer or service centre.



2 Connect the mains lead to the AC MAINS inlet and the wall socket. The power supply is now connected and ready for use.

3 If your set is equipped with a voltage selector, adjust the selector to match the local mains. Disconnect the mains lead if this selector has to be reset.

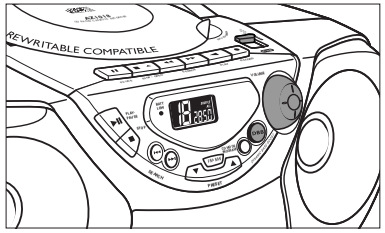
4 To switch off completely, unplug the mains lead from the wall socket.

- Unplug the mains lead from the wall socket to protect your set during heavy thunderstorms.

The type plate is located on the bottom of the set.

Switching power on/off: Save energy

Whether you are using mains or battery supply, to avoid unnecessary energy consumption always adjust the **POWER slider** to **TAPE/OFF** and check if the cassette keys are released.



General operation

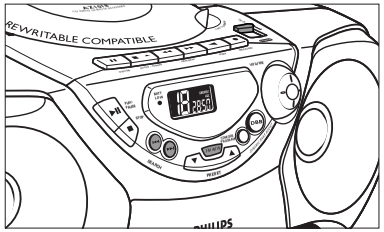
1 To select your sound source adjust the **POWER slider** to **CD**, **RADIO** or **TAPE/OFF**.

2 Adjust the sound with the **VOLUME** and **DBB** (Dynamic Bass Boost) controls.

3 To switch off the set, adjust the **POWER slider** to **TAPE/OFF** position and check the cassette keys are released.

Note: When the set is switched off the tuner presets will be retained in the set's memory.

Radio reception



1 Adjust the **POWER slider** to **RADIO**.
Display: shows briefly. The radio frequency is then shown.

2 Press **FM•MW** once or more to select the desired waveband.
Display: shows your waveband

3 Press and hold down **SEARCH** or ⏭ briefly to tune to a radio station. Release when the frequency in the display starts to change.
The radio automatically tunes to a radio station of sufficient reception. Display shows during automatic tuning.

- To tune to a weak station, press **SEARCH** or ⏭ briefly and repeatedly until you have found optimal reception.

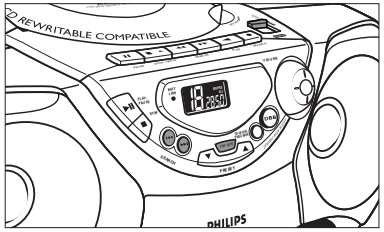
To improve reception

*– For **FM**, pull out the telescopic aerial. Incline and turn the aerial. Reduce its length if the signal is too strong (very close to a transmitter).*

*– For **MW (AM)** the set is provided with a built-in aerial so the telescopic aerial is not needed. Direct the aerial by turning the whole set.*

4 To switch off the radio, adjust the **POWER slider** to **TAPE/OFF** position and check the cassette keys are released.

Programming radio stations
You can store up to a total of 30 radio stations in the memory.



1 Tune to your desired station (see Radio Reception).

2 Press **CD MODE/ PROGRAM** to activate programming.
Display: **PROGRAM** flashes.

3 Press **PRESET** ▲ or ▼ once or more to allocate a number from 1 to 30 to this station.

4 Press **CD MODE/ PROGRAM** again to confirm the setting.
Display: **PROGRAM** disappears, the preset number and the frequency of the preset station are shown.

5 Repeat the above four steps to store other stations.

- You can erase a preset station by storing another frequency in its place.

Tuning to preset stations
Press **PRESET** ▲ or ▼ until the desired preset station is shown.

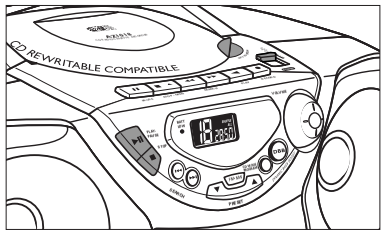
CD Player

Display indication

– Cd open: CD door open
– dISC: when reading CD contents
– **In stop mode:** total track number and total playback time
– **During CD playback:** elapsed playback time of current track and current track number
– **Pause:** elapsed playback time freezes and flashes
– **SHUFFLE/ REPEAT** modes: when the respective mode is activated
– **PROGRAM**: when CD programme active; prog also appears briefly when you store a track
– no SEL: programme activated but no tracks selected
– FULL: programme memory full
– no prog: programme cancelled
– Cd Err, no dISC or nF dISC: error in CD operation /no disc/ or a CD-R(W) is blank or the disc is not finalized (see Troubleshooting)

Playing a CD

This CD-player can play all kinds of Audio Discs such as CD-Recordables and CD-Rewritables. Do not try to play a CD-ROM, CDi, VCD, DVD or computer CD.



1 Adjust the **POWER slider** to CD.
Display: shows Cd briefly.

2 To open the CD door, lift the CD door at the edge marked **LIFT TO OPEN**.

3 Insert a CD or CD-R(W) with the printed side facing up and press the CD door gently close.

4 Press **PLAY•PAUSE ▶II** on the set to start playback.

5 To pause playback press **PLAY•PAUSE ▶II**. To resume, press **PLAY•PAUSE ▶II** again.
The elapsed playback time freezes and flashes.

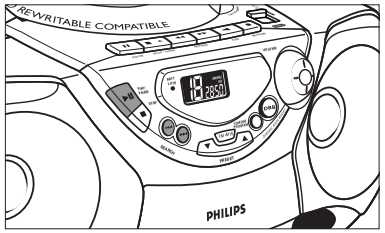
6 To stop CD playback, press **STOP ■**.

7 To switch off the set, adjust the **POWER slider** to **TAPE/OFF** position and check the cassette keys are released.

Note: CD play will also stop when:
– you open the CD compartment;
– you select **RADIO** *or* **TAPE** *sound source;*
– the CD has reached to the end.

Selecting a different track

During playback you can use the **SEARCH** buttons to select a particular track.



- If you have selected a track number in the stop or pause position, press **PLAY•PAUSE ▶II** to start playback.
- Press **SEARCH ▶▶I** once briefly for the next track, or press repeatedly until the desired track number appears in the display.
- Press **SEARCH** once briefly to return to the beginning of a current track.
- Press **SEARCH** more than once briefly for a previous track.

Finding a passage within a track

1 During playback, press and hold down **SEARCH** or **▶▶I**.
- The CD is played at high speed and low volume.

2 When you recognize the passage you want release the **SEARCH** button.
Normal playback resumes.

Note: During a CD programme or when SHUFFLE/REPEAT is active, searching is only possible within a track.

Different play modes

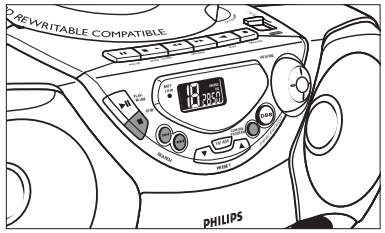
CD MODE/ PROGRAM allows you to select various play modes. The modes can be selected or changed during playback of an entire CD/ CD programme in the following sequence:

SHUFFLE – all tracks are played in random order

SHUFFLE REPEAT ALL – repeats the entire CD in random order

REPEAT – plays the current track continuously

REPEAT ALL – plays the entire CD continuously

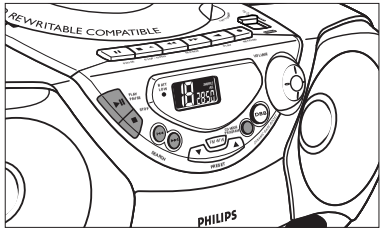


1 During playback, select your play mode by pressing **CD MODE/ PROGRAM** once or more until the desired play mode is shown.
- You can use **SEARCH** or **▶▶I** to skip tracks during the **SHUFFLE/ REPEAT** modes.
- The **SHUFFLE/ REPEAT** play options can be combined and used with a programme: e.g. **SHUFFLE/ REPEAT ALL** repeats the entire CD programme in random order.

2 To return to normal playback press **CD MODE/ PROGRAM** until the **SHUFFLE/ REPEAT** modes are no longer shown.
- You can also press **STOP ■** to quit the play mode.

CD-Player

Programming track numbers
You may store up to 20 tracks in the desired sequence. If you like, store any track more than once.



1 In the STOP mode, press **SEARCH** or ▶▶| for your desired track.

2 When your chosen track number appears, press **CD MODE/ PROGRAM** once to store the track.
The display shows **PROGRAM** and 'prog' briefly followed by your selected track number.
If you attempt to programme without first selecting a track number, no SEL is shown.

3 Repeat steps **1** to **2** to select and store all desired tracks in this way.
FULL is displayed if you attempt to programme more than 20 tracks.

4 To play your programme, press **PLAY•PAUSE ▶II**.

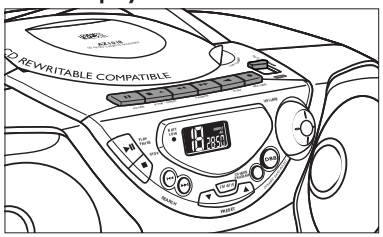
Reviewing your programme
- In the STOP mode, press and hold down **CD MODE/ PROGRAM** for more than one second.
The display shows all your stored track numbers in sequence.

Erasing a programme
You can erase the contents of the memory by:
– opening the CD door;
– selecting **RADIO** or **TAPE** source;
– pressing **STOP ■** (twice during playback or in the stop position.)
Display: shows 'no prog' briefly when the programme is cancelled.

Cassette Recorder

CASSETTE RECORDER

Cassette playback



1 Adjust the **POWER slider** to **TAPE/OFF**.

2 Press **STOP•OPEN ■▲** to open the cassette door and insert a recorded cassette.

3 Close the cassette door.

4 Press **PLAY ◀** to start playback.
Display: shows TAPE throughout tape operation.

5 To pause playback press **PAUSE II**. To resume, press the key again.

6 By pressing ◀◀ or ▶▶, fast winding of the tape is possible in both directions. To stop fast winding, press **STOP•OPEN ■▲**.

7 To stop the tape, press **STOP•OPEN ■▲**.

- The keys are automatically released at the end of the tape, the TAPE indication goes out and the set is switched off, except if **PAUSE II** has been activated.

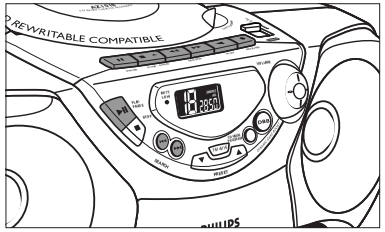
Recording

General information on recording

- Recording is permissible insofar as copyright or other rights of third parties are not infringed.
- This deck is not suited for recording on CHROME (IEC II) or METAL (IEC IV) type cassettes. For recording, use only NORMAL type cassettes (IEC type I) on which the tabs have not been broken.
- *The best recording level is set automatically.* Altering the **VOLUME** and **DBB** controls will not affect the recording in progress.
- At the very beginning and end of the tape, no recording will take place during the 7 seconds when the leader tape passes the recorder heads.
- To protect a tape from accidental erasure, have the tape in front of you and break out the left tab. Recording on this side is no longer possible. To record over this side again, cover the tabs with a piece of adhesive tape.

Recording

Synchro Start CD recording



1 Select CD source.

2 Insert a CD and if desired, programme track numbers.

3 Press **STOP•OPEN ■▲** to open the cassette door. Insert a blank tape.

4 Close the cassette door.

5 Press **RECORD ●** to start recording.

- Playing of the CD programme starts automatically from the beginning of the programme. *It is not necessary to start the CD player separately.*

6 For brief interruptions press **PAUSE II**. To resume recording, press **PAUSE II** again.

7 To stop recording, press **STOP•OPEN ■▲**.

Selecting and recording a particular passage

- During CD playback, press and hold down the **SEARCH** buttons or ▶▶| on the set to find your passage.
- Press **PLAY•PAUSE ▶II** to put the CD player on pause at the selected passage. Recording will begin from this exact point in the track when you press **RECORD ●**.

Maintenance

Recording from the Radio

1 Select **RADIO** source and your waveband.

2 Tune to the desired radio station (see **Radio reception**).

3 Press **STOP•OPEN ■▲** to open the cassette door. Insert a blank tape.

4 Close the cassette door.

5 Press **RECORD ●** to start recording.

6 For brief interruptions, press **PAUSE II**. To resume recording, press **PAUSE II** again.

7 To stop recording, press **STOP•OPEN ■▲**.

Precautions & General Maintenance

- Place the set on a hard and flat surface so that the system does not tilt.
- Do not expose the set, batteries, CDs or cassettes to humidity, rain, sand or excessive heat caused by heating equipment or direct sunlight.
- Do not cover the set. Adequate ventilation with a minimum gap of 6 inches between the ventilation holes and surrounding surfaces is necessary to prevent heat build-up.
- The mechanical parts of the set contain self-lubricating bearings and must not be oiled or lubricated.
- To clean the set, use a soft, slightly dampened chamois leather. Do not use any cleaning agents containing alcohol, ammonia, benzene or abrasives as these may harm the housing.

Troubleshooting

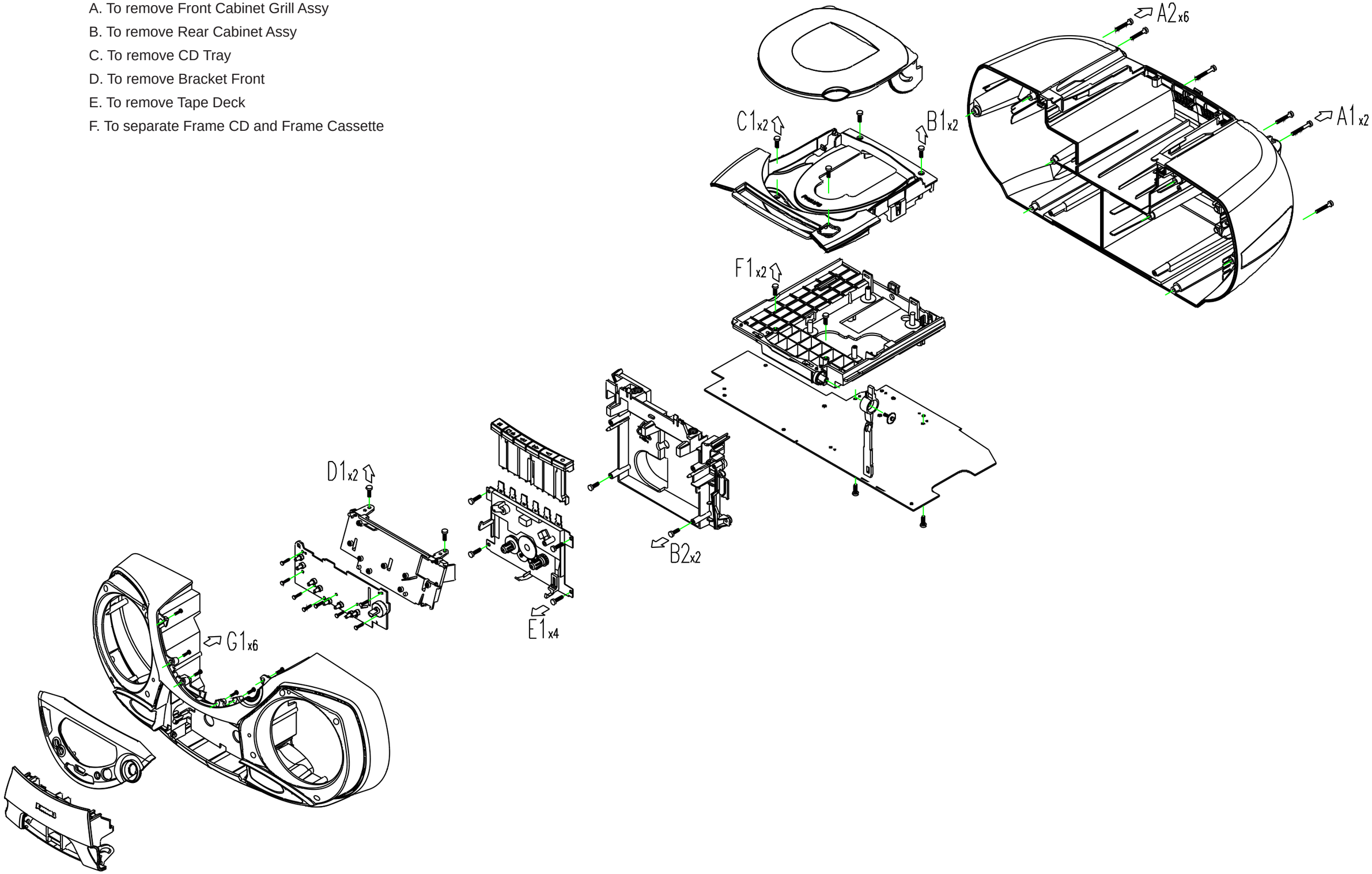
If a fault occurs, first check the points listed below before taking the set for repair. Do not open the set as there is a risk of electric shock. If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

WARNING: Under no circumstances should you try to repair the set yourself, as this will invalidate the guarantee.

Problem	Solution
No sound	– Adjust the VOLUME
No power	– Mains lead not securely connected. Connect AC mains lead properly – Batteries exhausted /incorrectly inserted. Insert (fresh) batteries correctly
Display does not function properly/ No reaction to operation of any of the controls	– Electrostatic discharge Switch off and unplug the set. Reconnect after a few seconds.
no dISC, Cd Err or nF dISC **indication**	– No CD inserted, insert a CD – CD badly scratched/ dirty. Replace/ clean CD (see maintenance) – CD-R(W) is blank or the disc is not finalized. Use a finalized CD-R(W) – Laser lens steamed up. Wait until lens has acclimatized
Laser lens steamed up	– Wait until lens has cleared – Wait until lens has acclimatized
CD playback does not work	– CD badly scratched/ dirty. Replace/ clean CD (see maintenance)
The CD skips tracks	– CD damaged or dirty. Replace or clean CD. – Programme is active. Quit programme mode
Poor cassette sound quality	– Dust and dirt on the heads, etc. Clean deck parts, see maintenance. – Use of incompatible cassette types (METAL or CHROME). Only use NORMAL (IEC I) for recording
Recording does not work	– Cassette tab(s) may be broken. Apply a piece of adhesive tape over the missing tab space.

DISASSEMBLY DIAGRAM

A. To remove Front Cabinet Grill Assy
B. To remove Rear Cabinet Assy
C. To remove CD Tray
D. To remove Bracket Front
E. To remove Tape Deck
F. To separate Frame CD and Frame Cassette

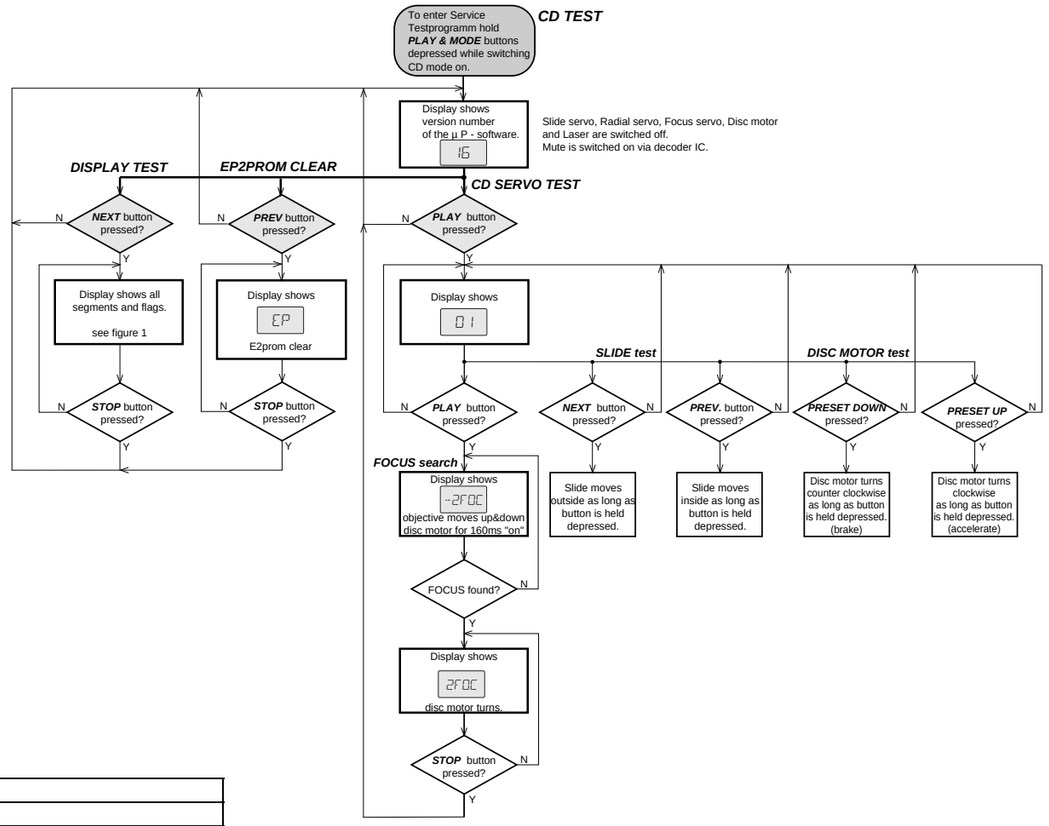


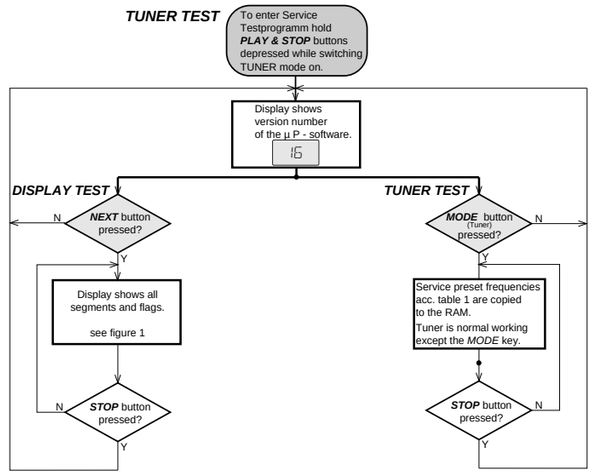
4-1

CD SERVICE TEST PROGRAM

- *STOP* button pressed in any step returns to begin of Service Testprogram.
- To leave Service Testprogram switch mode switch to off-position.
- Door switch is ignored CD door can be opened.
- *Volume up/down* buttons function independentely of the service testprogram.

fig. 1





ERROR	MEANING
Err 1	No focus found
Err 2	Time out error for disc motor reach the normal speed
Err 3	Focus error during tracking initialization
Err 4	Subcode error on play mode
Err 5	Focus error on play mode
Err 6	Radial error on search mode
Err 7	Focus error

table 2

STATUS	MEANING
Sta 0	Silde mode
Sta 1	Silde mode
Sta 2	Silde mode
Sta 3	Silde mode
Sta 8	Play mode
Sta > 8	Recover mode

table 3

SERVICE PRESET FREQUENCIES

REGION / PRESET	EUROPE FM/MW/LW /00/05/20/25	EUROPE2B FM/MW /00	OVERSEAS FM/MW [1] Grid switchable 10-100kHz/9-50kHz /01/21	EAST-EUROPE FM/MW /14	USA FM/MW /14/37
1	87.5 MHz	87.5 MHz	87.5 MHz	65.81 MHz	87.5 MHz
2	108 MHz	108 MHz	108 MHz	108 Mhz	108 MHz
3	531 kHz	531 kHz	531/530 KHz	74 MHz	530 kHz
4	1602 kHz	1602 kHz	1602/1700 kHz	87.5 MHz	1700 kHz
5	558 kHz	558 kHz	558/560 kHz	531 kHz	560 kHz
6	1494 kHz	1494 kHz	1494/1500 kHz	1602 kHz	1500 kHz
7	153 kHz	-	-	558 kHz	-
8	279 kHz	-	-	1494 kHz	-
9	198 kHz	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-

table 1

1) **How to set frequency grid:**

AM - 9 kHz / FM - 50 kHz : Hold ***PLAY KEY*** with the ***PRESET DOWN KEY*** simultaneously and then switch to ***TUNER***.

AM - 10 kHz / FM - 100 kHz : Hold ***PLAY KEY*** with the ***PRESET UP KEY*** simultaneously and then swutch to ***TUNER***.

Selected frequency grid is stored in the EEPROM.

2) In sets with 30kHz grid on FM band it may occur that the tuned frequency is indicated wrong on the display because of tolerances of the discriminator filter.
For that reason the testsoftware is prepared for an *automatic IF-offset correction*.

Note: This test functions only with the East European tuner version used in /14/34 set versions.
The test was executed on every set in the production line.
In case the discriminator filter or the EEPROM has to be exchanged the ***automatic IF-offset correction*** **should also be executed after repair.**

To execute the *automatic IF-offset correction proceed as follows:*
* feed a strong 87.5MHz signal to the antenna
* press the PLAY button

The µP starts now several times the *search* mode.
If the transmitter was found at 87.5MHz the stop-frequency sent by the radio IC is compared with the nominal frequency else the display shows "00E".
When the same difference is found twice the value will be stored as offset.
The actual used offset is shown on the display (-3, -2, -1, 0, 1, 2, 3).

Abbreviations and Pin-description of CD Ics

SERVO PROCESSOR SAA7325H

SYMBOL	PIN	DESCRIPTION
HFREF	1	comparator common mode input
HFIN	2	comparator signal input
ISLICE	3	current feedback output from data slicer
V_{SSA1}	4(1)	analog ground 1
V_{DDA1}	5(1)	analog supply voltage 1
I_{ref}	6	reference current output pin
V_{RIN}	7	reference voltage for servo ADC's
D1	8	unipolar current input (central diode signal input)
D2	9	unipolar current input (central diode signal input)
D3	10	unipolar current input (central diode signal input)
D4	11	unipolar current input (central diode signal input)
R1	12	unipolar current input (satellite diode signal input)
R2	13	unipolar current input (satellite diode signal input)
V_{SSA2}	14(1)	analog ground 2
CROUT	15	crystal/resonator output
CRIN	16	crystal/resonator input
V_{DDA2}	17(1)	analog supply voltage 2
LN	18	DAC left channel differential output - negative
LP	19	DAC left channel differential output - positive
V_{neg}	20	DAC negative reference input
V_{pos}	21	DAC positive reference input
RN	22	DAC right channel differential output - negative
RP	23	DAC right channel differential output - positive
SELPLL	24	selects whether internal clock multiplier PLL is used
TEST1	25	test control input 1; this pin should be tied LOW
CL16	26	16.9344 MHz system clock output
DATA	27	serial d4(1)ata output (3-state)
WCLK	28	word clock output (3-state)
SCLK	29	serial bit clock output (3-state)
EF	30	C2 error flag output (3-state)
TEST2	31	test control input 2; this pin should be tied LOW
KILL	32	kill output (programmable; open-drain)
V_{SSD1}	33(1)	digital ground 2
V2/V3	34	versatile I/O: input versatile pin 2 or output versatile pin 3 (open-drain)
WCLI	35	word clock iutput (for data loopback to DAC)
SDI	36	serial data input (for data loopback to DAC)
SCLI	37	serial bit clock input (for data loopback to DAC)
$\overline{\text{RESET}}$	38	power-on reset input (active LOW)
SDA	39	microcontroller interface data I/O line (open-drain output)
SCL	40	microcontroller interface clock line input

4-3

Abbreviations and Pin-description of CD Ics

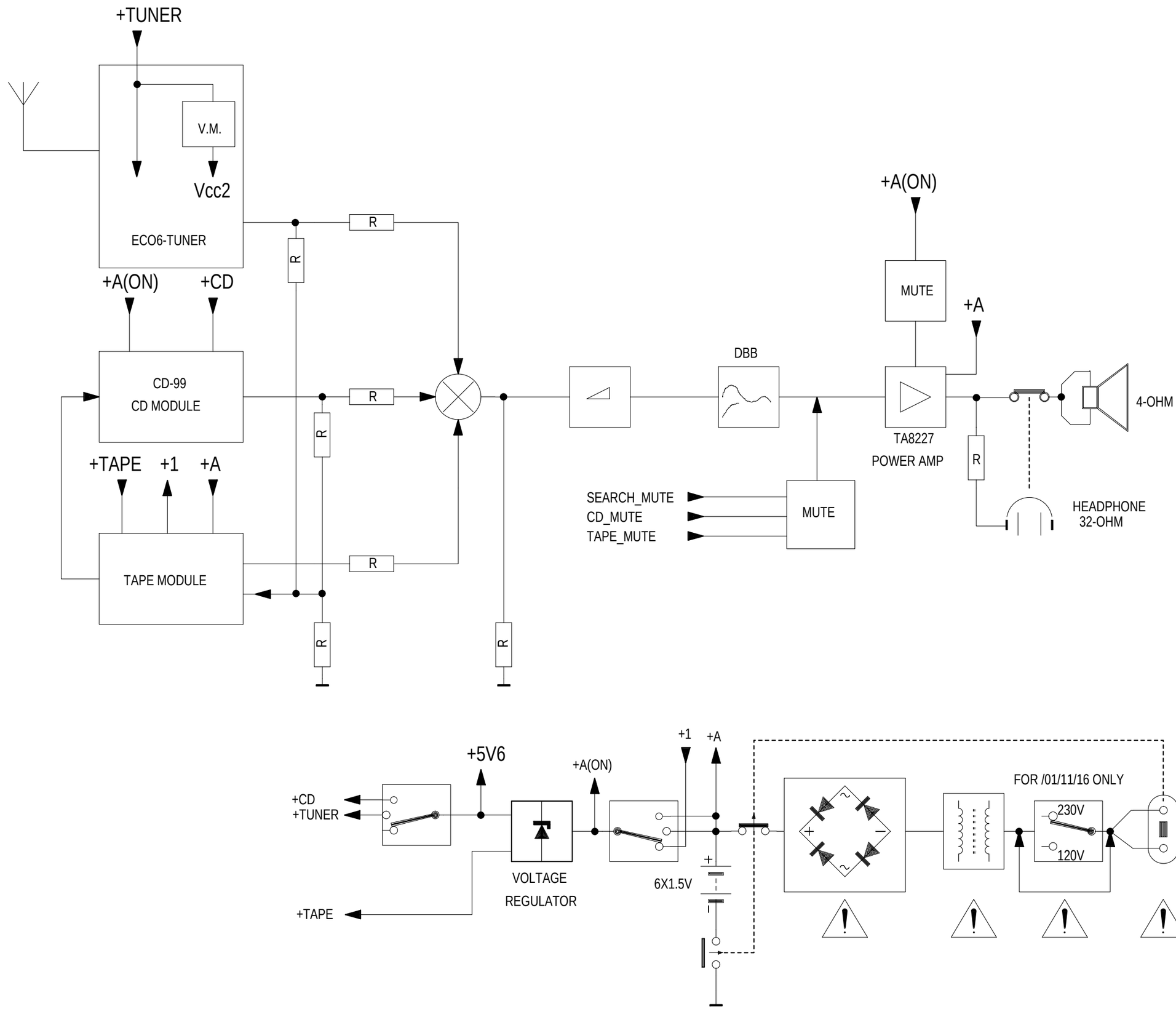
SERVO PROCESSOR SAA7325H

SYMBOL	PIN	DESCRIPTION
RAB	41	microcontroller interface R/$\overline{W}$ and load control line input (4-wire bus mode)
SILD	42	microcontroller interface $\overline{R}$/W and load control line input (4-wire bus mode)
STATUS	43	servo interrupt request line/decoder status register output (open-drain)
TEST3	44	test control input 3; this pin should be tied LOW
RCK	45	subcode clock input
SUB	46	P-to-W subcode bits output (3-state)
SFSY	47	subcode frame sync output (3-state)
SBSY	48	subcode block sync output (3-state)
CL11/4	49	11.2896 MHz or 4.2336 MHz (for microcontroller) clock output
V_{SSD2}	50(1)	digital ground 3
DOBM	51	bi-phase mark output (externally buffered; 3-state)
$V_{DDD1(P)}$	52(1)	digital supply voltage 2 for periphery
CFLG	53	correction flag output (open-drain)
RA	54	radial actuator output
FO	55	focus actuator output
SL	56	sledge control output
$V_{DDD2(C)}$	57(1)	digital supply voltage 3 for core
V_{SSD3}	58(1)	digital ground 4
MOTO1	59	motor output 1; versatile (3-state)
MOTO2	60	motor output 2; versatile (3-state)
V4	61	versatile output pin 4
V5	62	versatile output pin 5
V1	63	versatile intput pin 1
LDON	64	laser drive on output (open-drain)

Note : All supply pins must be connected to the same external power supply voltage.

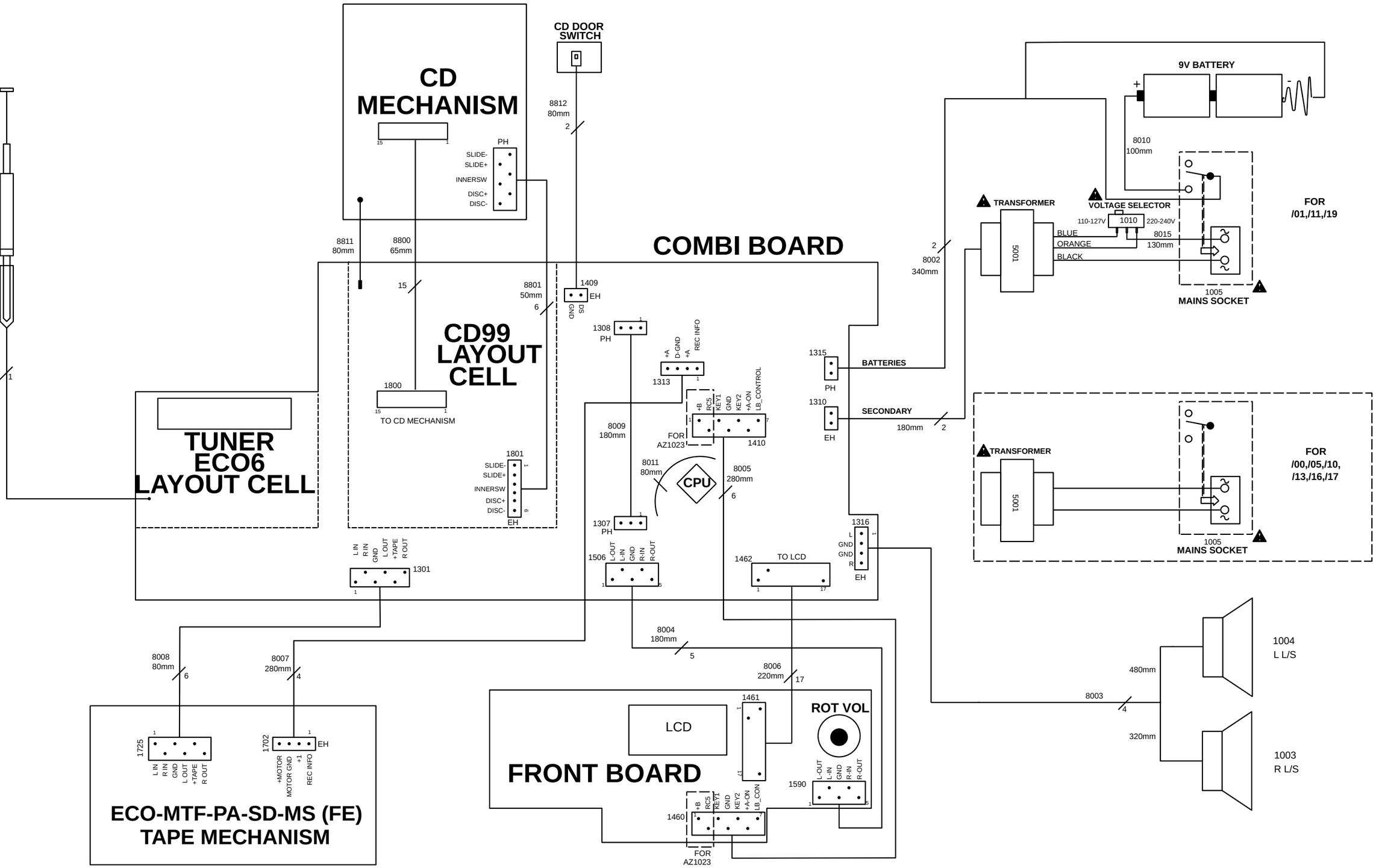
5-1

BLOCK DIAGRAM



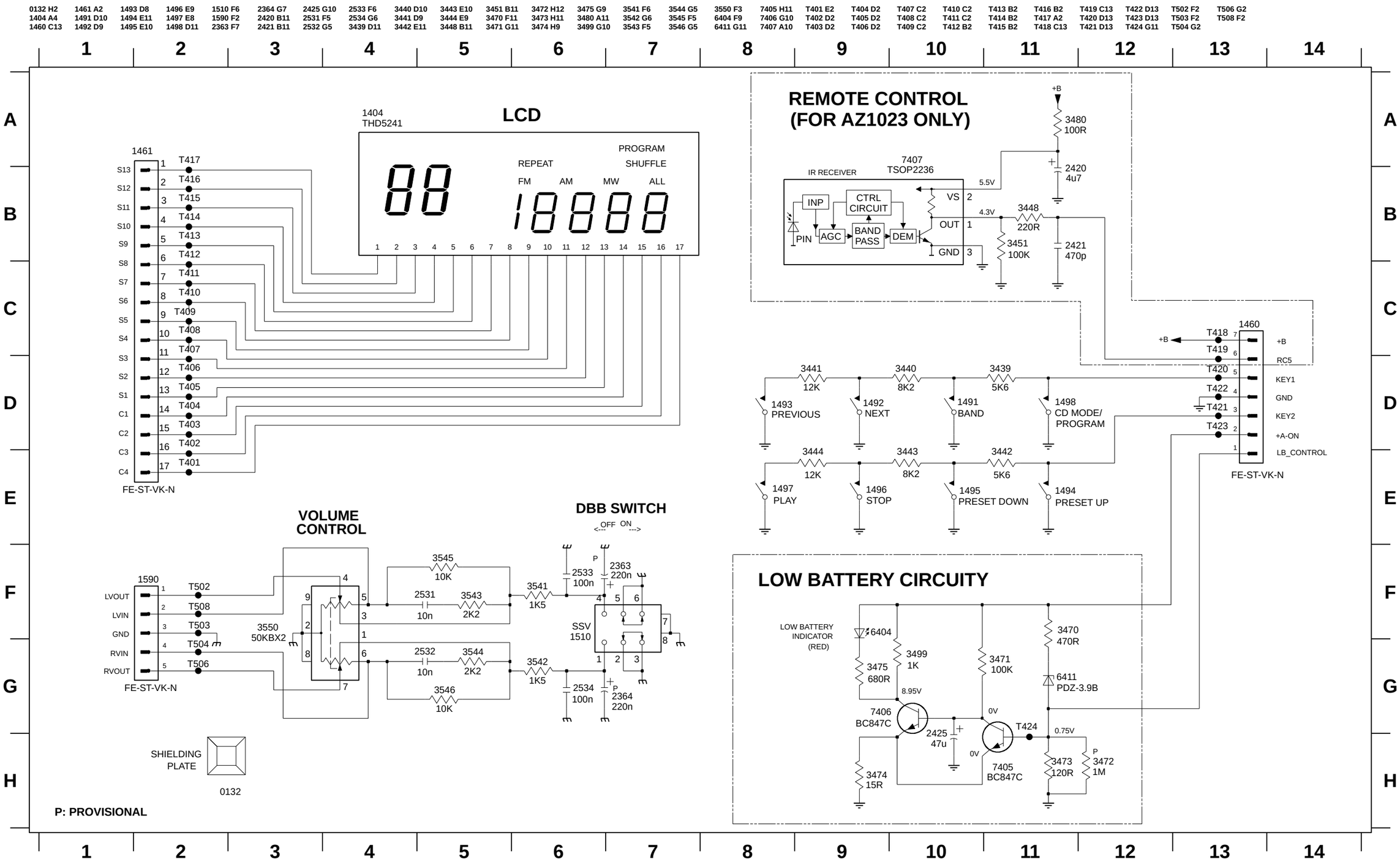
6-1

WIRING DIAGRAM



7-1

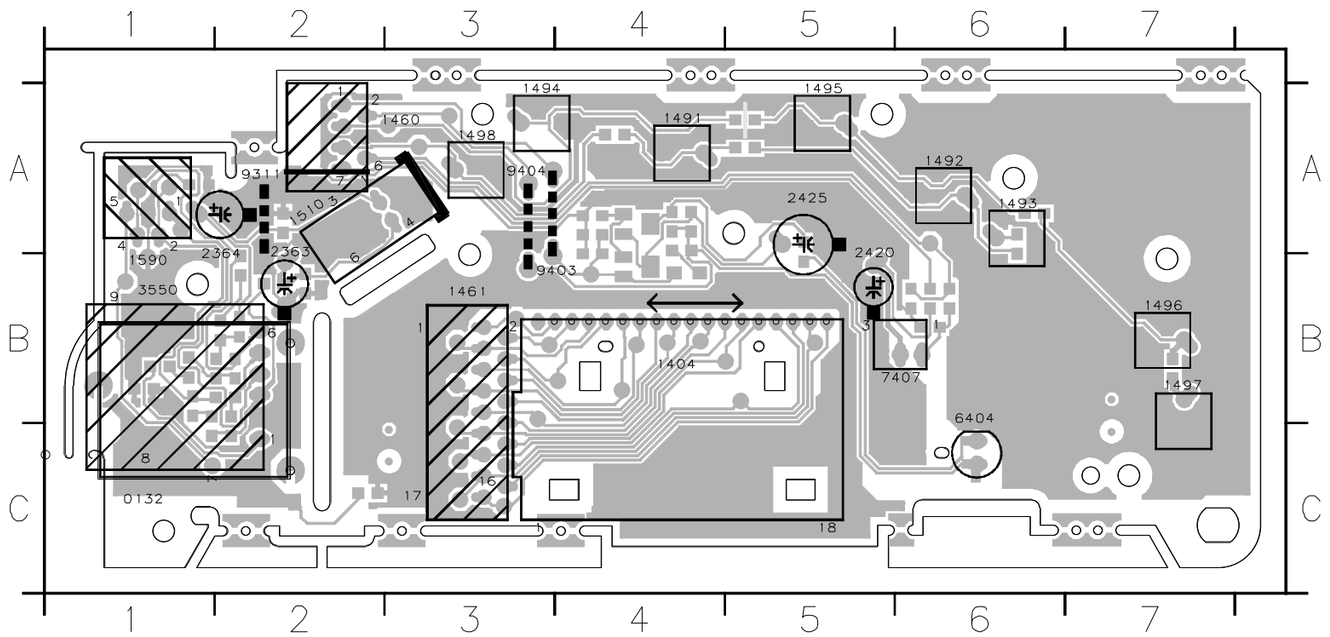
FRONT BOARD - CIRCUIT DIAGRAM



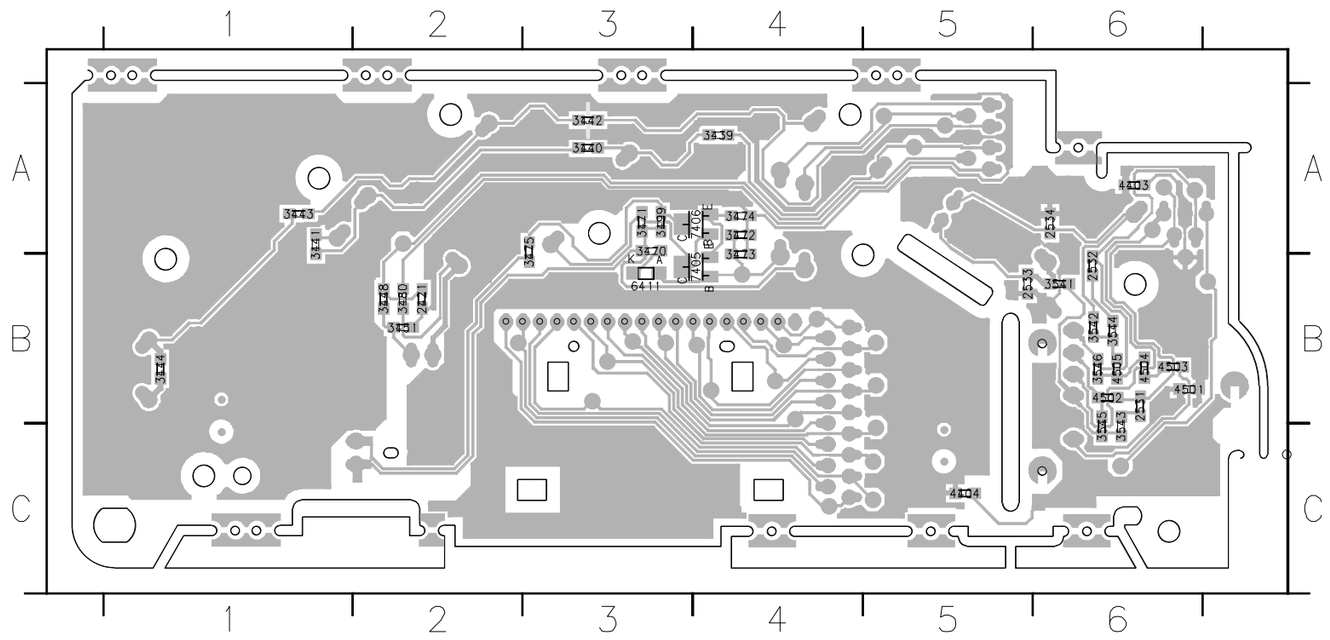
7-2

FRONT BOARD - LAYOUT DIAGRAM

0132 C1 1404 B4 1460 A3 1461 B3 1491 A4 1492 A6 1493 A6 1494 A3 1495 A5 1496 B7 1497 B7 1498 A3 1510 A2 1590 B1 2363 A2 2364 A2 2420 A5 2425 A5 3550 B1 6404 B6 7407 B6 9311 A2 9403 B4 9404 A3



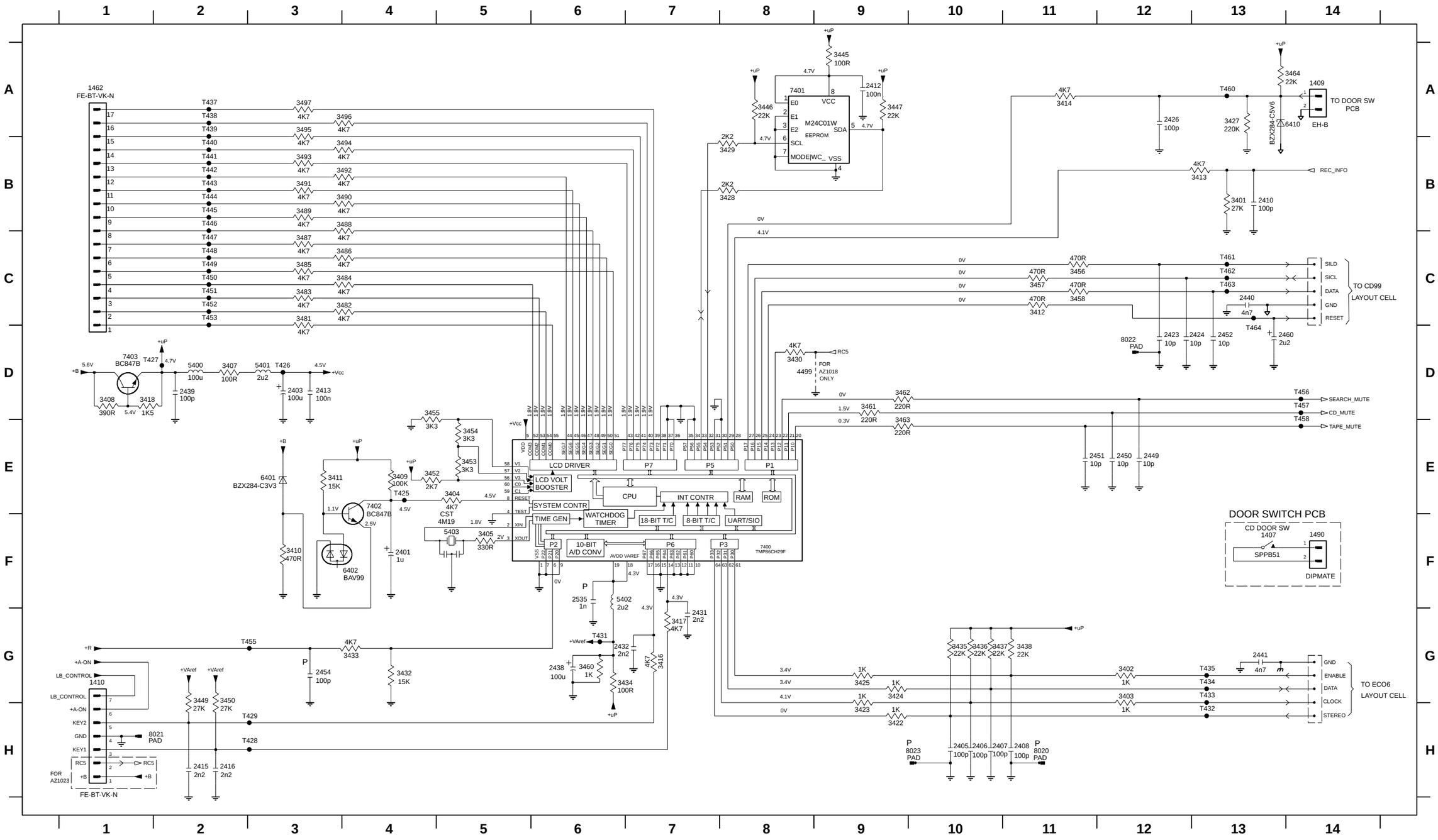
2421 B2 2531 B6 2532 B6 2533 B5 2534 A6 3439 A4 3440 A3 3441 A1 3442 A3 3443 A1 3444 B1 3448 B2 3451 B2 3470 A3 3471 A3 3472 A4 3473 B4 3474 A4 3475 A3 3480 B2 3499 A3 3541 B6 3542 B6 3543 C6 3544 B6 3545 C6 3546 B6 4403 A6 4404 C5 4501 B6 4502 B6 4503 B6 4504 B6 4505 B6 6411 B3 7405 B4 7406 A4



COMBI BOARD (Control Part) - CIRCUIT DIAGRAM

8-1

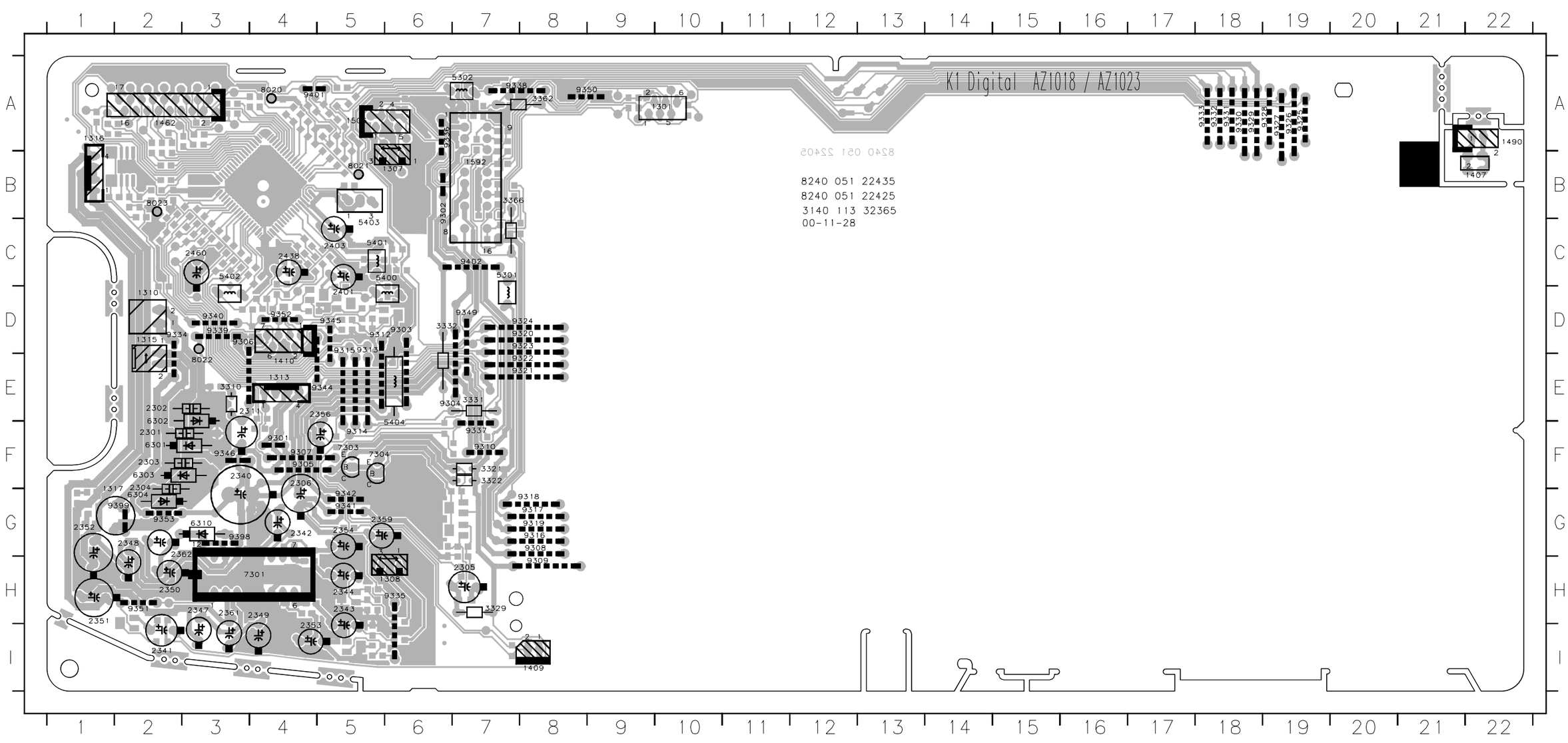
1407 F13 2401 F4 2408 H11 2416 H2 2432 G7 2449 E12 2460 D13 3404 E5 3410 F3 3416 G7 3424 G9 3430 D8 3436 G10 3447 A9 3454 E5 3460 G6 3481 C3 3486 C4 3491 B3 3496 A4 5402 F6 7400 F8 8021 H2 T427 D1 T433 G13 T439 A2 T444 B2 T449 C2 T455 G3 T461 C13
1409 A14 2403 D3 2410 B13 2423 D12 2438 G6 2450 E12 2535 F6 3405 F5 3411 E3 3417 G7 3425 G9 3432 G4 3437 G10 3449 G2 3455 D4 3461 D9 3482 C4 3487 C3 3492 B4 3497 A3 5403 F5 7401 A8 8022 D12 T428 H3 T434 G13 T440 B2 T445 B2 T450 C2 T456 D14 T462 C13
1410 G1 2405 H10 2412 A9 2424 D12 2439 D2 2451 E11 3401 B13 3407 D2 3412 C11 3418 D1 3427 A13 3433 G4 3438 G11 3450 G2 3456 C11 3462 D9 3483 C3 3488 B4 3493 B3 4499 D8 6401 E3 7402 E4 8023 H9 T429 H3 T435 G13 T441 B2 T446 B2 T451 C2 T457 D14 T463 C13
1462 A1 2406 H10 2413 D3 2426 A12 2440 C13 2452 D13 3402 G12 3408 D1 3413 B13 3422 H9 3428 B8 3434 G6 3445 A9 3452 E4 3457 C11 3463 E9 3484 C4 3489 B3 3494 B4 5400 D2 6402 F4 7403 D1 T425 E4 T431 G6 T437 A2 T442 B2 T447 C2 T452 C2 T458 E14 T464 D13
1490 F14 2407 H10 2415 H2 2431 G7 2441 G13 2454 G3 3403 G12 3409 E4 3414 A11 3423 H9 3429 B8 3435 G10 3446 A8 3453 E5 3458 C11 3464 A13 3485 C3 3490 B4 3495 A3 5401 D3 6410 A14 8020 H11 T426 D3 T432 H13 T438 A2 T443 B2 T448 C2 T453 C2 T460 A13



8-2

COMBI BOARD (Component Side) - LAYOUT DIAGRAM

0132 I14	1316 A1	1461 G16	1495 H19	1592 B7	2311 E4	2348 G2	2356 E5	2403 C5	3322 H7	5301 C7	6301 H2	7303 H5	9301 H4	9308 G8	9315 D5	9322 E8	9329 A18	9336 A6	9344 E5	9353 G2
1301 A10	1317 F1	1462 A2	1496 G22	2301 F2	2340 F3	2349 H4	2359 G5	2420 G19	3329 H7	5302 A7	6302 E2	7304 F5	9302 B6	9309 H8	9316 G8	9323 D8	9330 A18	9337 F7	9345 D5	9398 G3
1307 B6	1404 H18	1490 A22	1497 H22	2302 E2	2341 I2	2350 H2	2361 H3	2425 G19	3331 E7	5400 C6	6303 F2	7407 H20	9303 D6	9310 F7	9317 G8	9324 D8	9331 A18	9338 A7	9346 F3	9399 G2
1308 H6	1407 B22	1491 F18	1498 F16	2303 F2	2342 G4	2351 H1	2362 G2	2438 C4	3332 D6	5401 C5	6304 G2	8020 A4	9304 E6	9311 F15	9318 G8	9325 A19	9332 A18	9339 D3	9349 D7	9401 A4
1310 D2	1409 I8	1492 F20	1506 A5	2304 F2	2343 H5	2352 G1	2363 G15	2460 C3	3362 A8	5402 C3	6310 G3	8021 B5	9305 F4	9312 D5	9319 G8	9326 A19	9333 A18	9340 D3	9350 A8	9402 C7
1313 E4	1410 E4	1493 G20	1510 G15	2305 H7	2344 H5	2353 I4	2364 G14	3310 E3	3366 B7	5403 C5	6404 H20	8022 E3	9306 D3	9313 D5	9320 D8	9327 A19	9334 D2	9341 G5	9351 H2	9403 G17
1315 D2	1460 F16	1494 F17	1590 G14	2306 F4	2347 H3	2354 G5	2401 D5	3321 F7	3550 G14	5404 F6	7301 H4	8023 B2	9307 F4	9314 F5	9321 E8	9328 A19	9335 H6	9342 G5	9352 D4	9404 F17

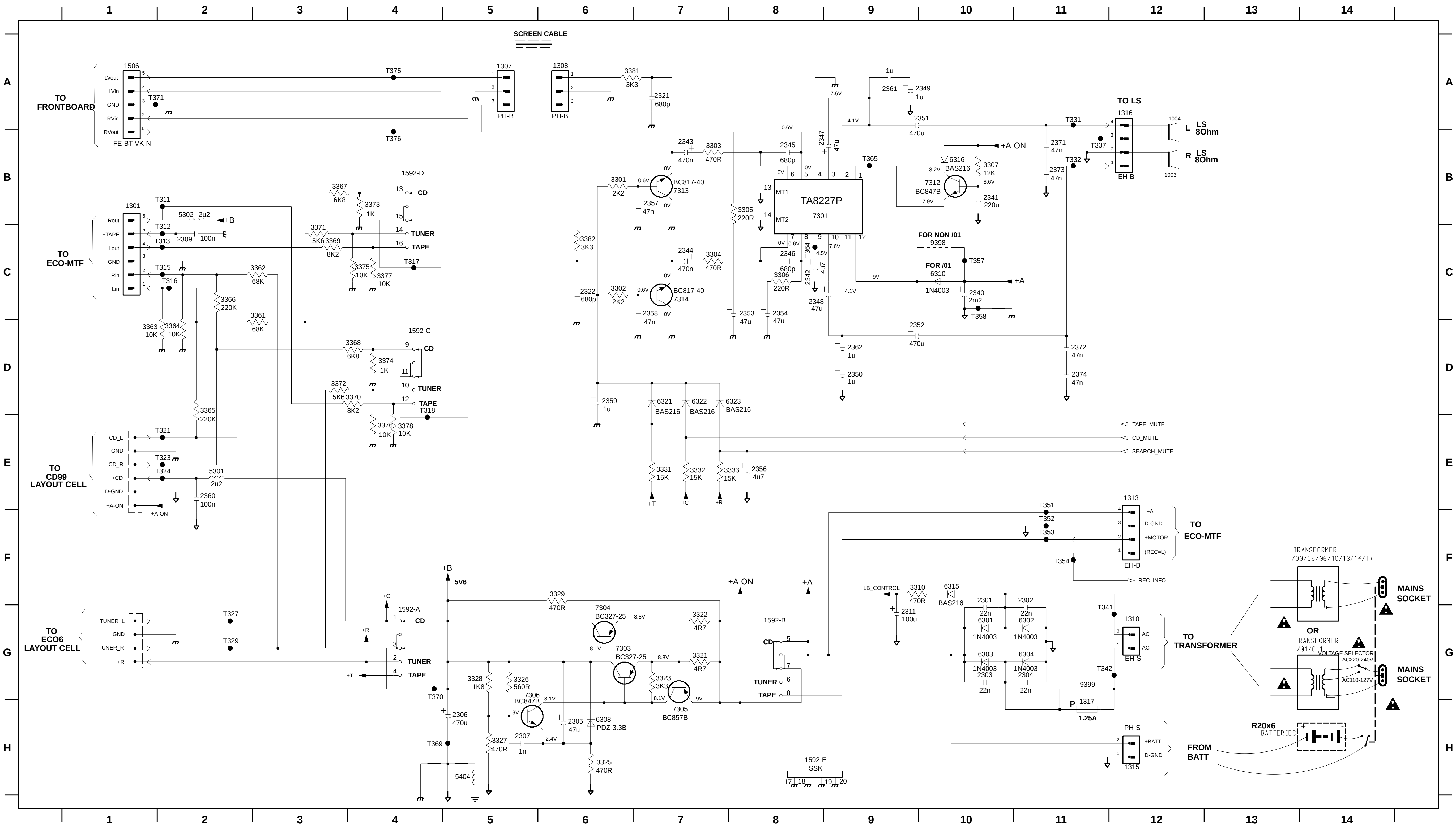


COMBI BOARD (AF Part) - CIRCUIT DIAGRAM

1003 B12	1310 G12	1506 A1	1592-E H8	2305 H6	2321 A7	2343 B7	2348 C9	2353 C7	2359 D6
1004 A12	1313 E12	1592-A G4	2301 F10	2306 H4	2322 C6	2344 C7	2349 A9	2354 C8	2360 E2
1301 B1	1315 H12	1592-B G8	2302 F11	2307 H5	2340 C10	2345 B8	2350 D9	2356 E8	2361 A9
1307 A5	1316 A12	1592-C D4	2303 G10	2309 C2	2341 B10	2346 C8	2351 A10	2357 B6	2362 D9
1308 A6	1317 H11	1592-D B4	2304 G11	2311 G9	2342 C8	2347 B9	2352 D9	2358 C6	2371 B11

2372 D11	3303 B7	3310 F9	3326 G5	3332 E7	3364 D2	3369 C3	3374 D4	3381 A6	6301 G10
2373 B11	3304 C7	3321 G7	3327 H5	3333 E7	3365 D2	3370 D4	3375 C4	3382 C6	6302 G11
2374 D11	3305 B8	3322 G7	3328 G5	3361 C3	3366 C2	3371 C3	3376 E4	5301 E2	6303 G10
3301 B6	3306 C8	3323 G7	3329 F6	3362 C3	3367 B3	3372 D3	3377 C4	5302 B2	6304 G11
3302 C6	3307 B10	3325 H6	3331 E7	3363 D2	3368 D4	3373 B4	3378 E4	5404 H5	6308 H6

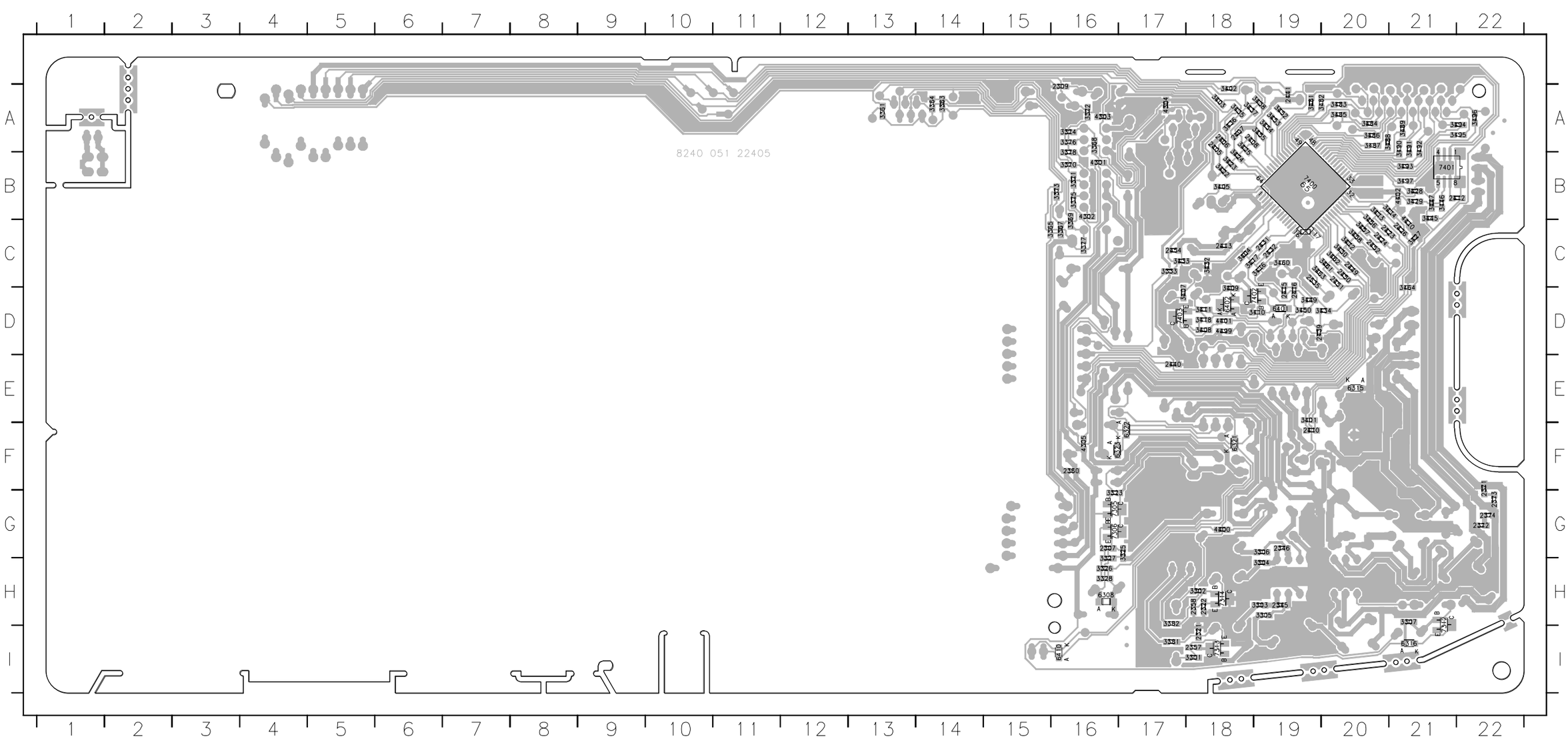
6310 C10	6323 D7	7306 G5	9399 G11	T316 C2	T324 E2	T337 B11	T353 F11	T365 B9	T376 B4
6315 F10	7301 B8	7312 B10	T311 B2	T317 C4	T327 G2	T341 G11	T354 F11	T369 H4	
6316 B10	7303 G6	7313 B7	T312 C2	T318 D4	T329 G2	T342 G11	T357 C10	T370 G4	
6321 D7	7304 G6	7314 C7	T313 C2	T321 E2	T331 A11	T351 E11	T358 C10	T371 A1	
6322 D7	7305 H7	9398 C10	T315 C2	T323 E2	T332 B11	T352 F11	T364 C8	T375 A4	



8-4

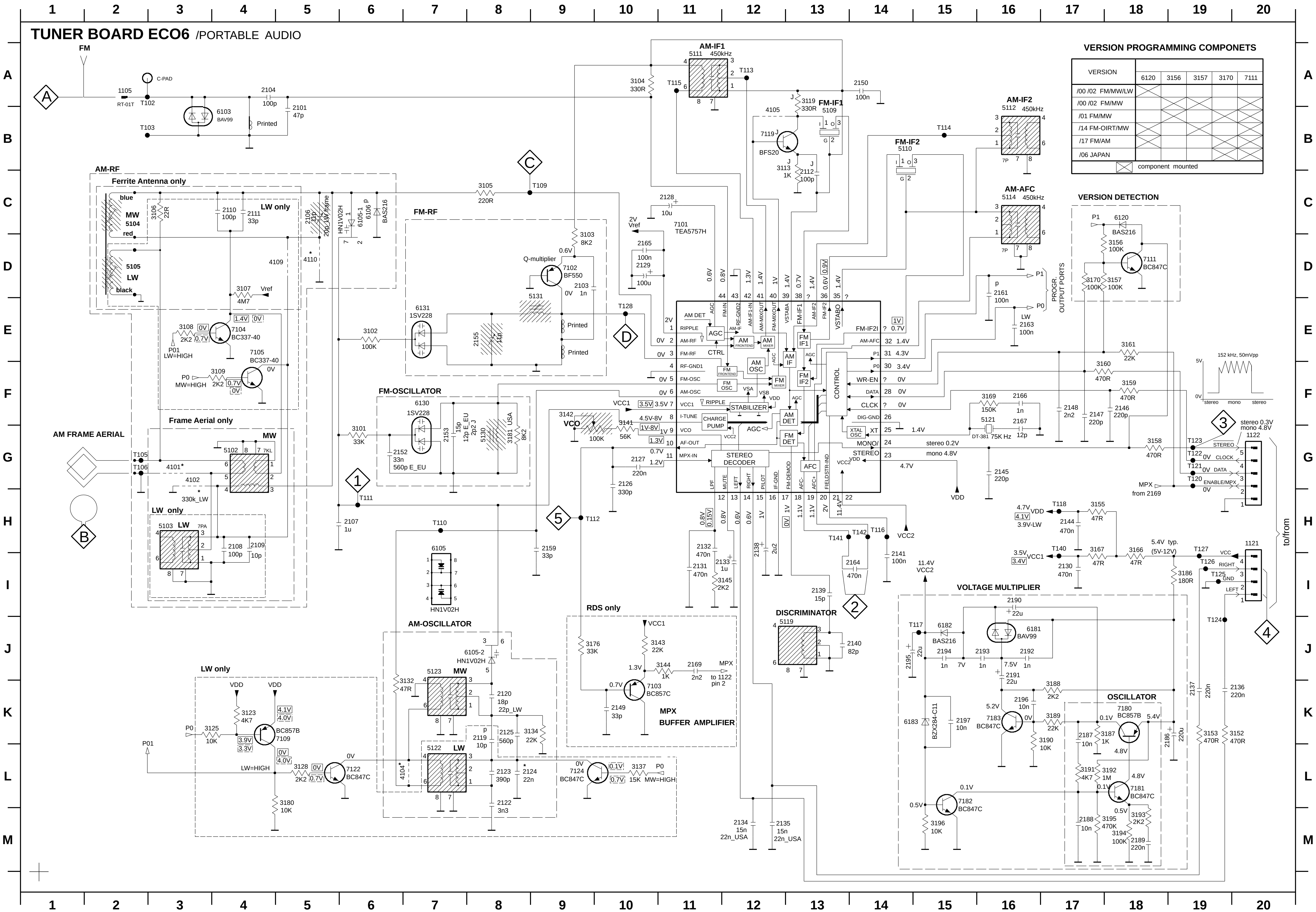
COMBI BOARD (Solder Side) - LAYOUT DIAGRAM

2307 G16 2309 A16 2321 I18 2322 H18 2345 H19 2346 G19 2357 I18 2358 H18 2360 F16 2371 F22 2372 G22 2373 G22 2374 G22 2405 A18 2406 A18 2407 A18 2408 A18 2410 F19 2412 B22 2413 C18 2415 D19 2416 D19 2421 G3 2423 C20 2424 C20 2426 C21 2431 C19 2432 C19 2439 D19 2440 E17 2441 A19 2449 C20 2450 C20 2451 C20 2452 C20 2454 C17 2531 H9 2532 G9 2533 G8 2534 G8 2535 C19 3301 I18 3302 H18 3303 H19 3304 H19 3305 H19 3306 G19 3307 H21 3323 G16 3325 G17 3326 H16 3327 H16 3328 H16 3333 C17 3361 A13 3363 A14 3364 A14 3365 C15 3367 C16 3368 A16 3369 C16 3370 B16 3371 B16 3372 A16 3373 B16 3374 A16 3375 B16 3376 A16 3377 C16 3378 B16 3381 I17 3382 H17 3401 E19 3402 A18 3403 A18 3404 C18 3405 B18 3407 D17 3408 D18 3409 D18 3410 D19 3411 D18 3412 C20 3413 B20 3414 B21 3416 C19 3417 C18 3418 D18 3422 B18 3423 B18 3424 B18 3425 A18 3427 C21 3428 B21 3429 B21 3430 C20 3432 C18 3433 C17 3434 D20 3435 A18 3436 A18 3437 A18 3438 A19 3439 F6 3440 F5 3441 G3 3442 F5 3443 G2 3444 H1 3445 B21 3446 B21 3447 B21 3448 G3 3449 D19 3450 D19 3451 H3 3452 A19 3453 A19 3454 A19 3455 A19 3456 C20 3457 C20 3458 C20 3460 C19 3461 C20 3462 C20 3463 C19 3464 D21 3470 G5 3471 G5 3472 G6 3473 G6 3474 G6 3475 G4 3480 G3 3481 A19 3482 A19 3483 A20 3484 A20 3485 A20 3486 A20 3487 A20 3488 A20 3489 A21 3490 A21 3491 A21 3492 A21 3493 B21 3494 A22 3495 A22 3496 A22 3499 G5 3541 G8 3542 H9 3543 H9 3544 H9 3545 H9 3546 H9 4301 B16 4302 B16 4303 A16 4304 A17 4305 F16 4400 G18 4401 D18 4402 B21 4403 F9 4404 I8 4410 C21 4499 D18 4501 H9 4502 H9 4503 H9 4504 H9 4505 H9 6308 H16 6315 E20 6316 I21 6321 F18 6322 F17 6323 F16 6401 D19 6402 D18 6411 G5 6410 I16 7305 G16 7306 G16 7312 H21 7313 I18 7314 H18 7400 B19 7401 B21 7402 D19 7403 D17 7405 G6 7406 G6



9-1

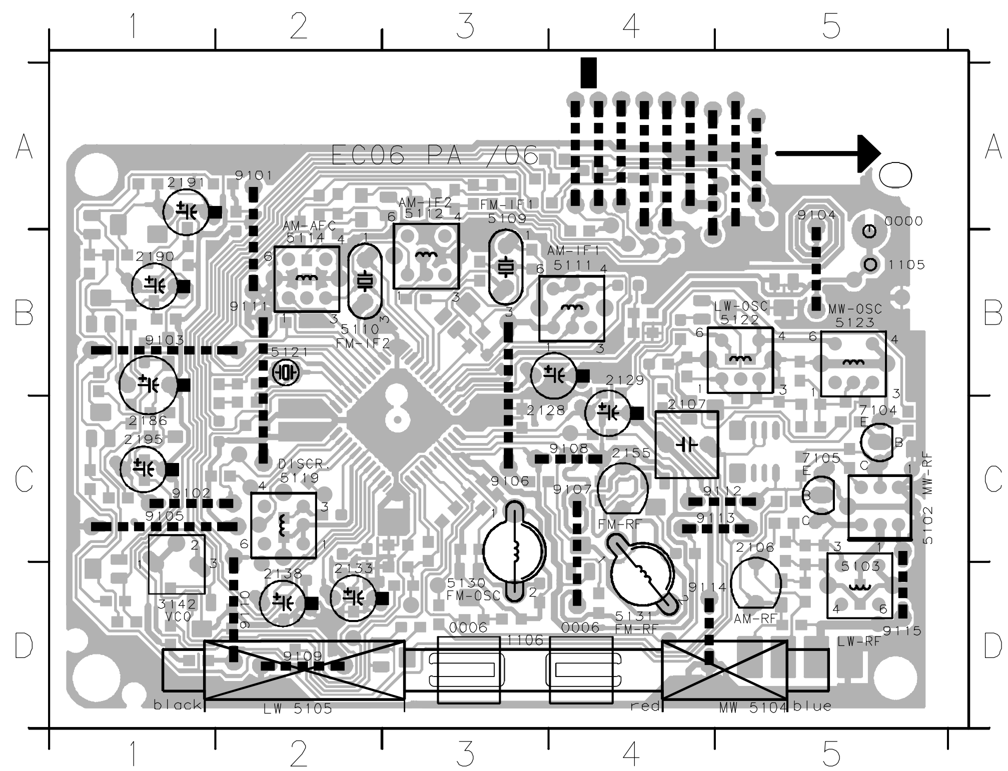
TUNER BOARD ECO6 - CIRCUIT DIAGRAM



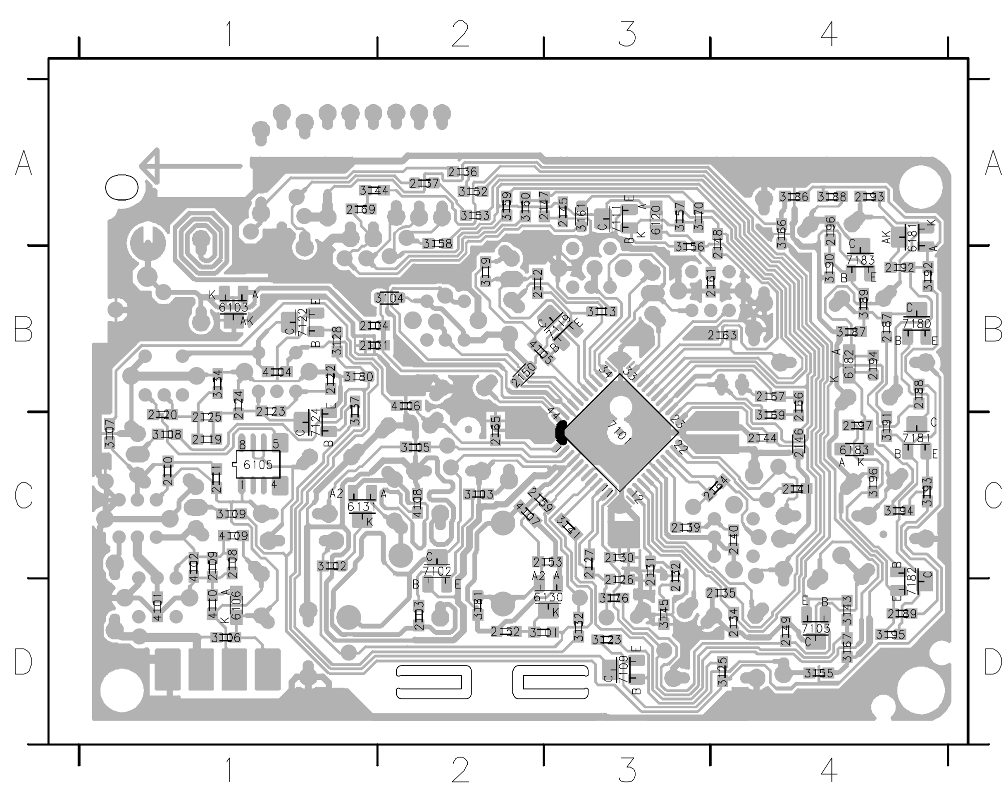
1105 A2	4104 L7
1121 H20	4105 B12
1122 G20	4109 D5
2101 B5	4110 D5
2103 D9	5102 G4
2104 A4	5103 H3
2106 C5	5109 B13
2107 H6	5110 B14
2108 H4	5111 A11
2109 H4	5112 B16
2110 C4	5114 C16
2111 C4	5119 J13
2112 C13	5121 F16
2119 K8	5122 L7
2120 K8	5123 J7
2122 L8	5130 G8
2123 L8	5131 E9
2124 L8	6103 B4
2125 K8	6105-1 C6
2126 G10	6105-2 J8
2127 G10	6106 C6
2128 C11	6120 C18
2129 D10	6130 F7
2130 I17	6131 E7
2131 I11	6181 J16
2132 H11	6182 J15
2133 I12	6183 K14
2134 M12	7101 C11
2135 M12	7102 D9
2136 K20	7103 K10
2137 K19	7104 E4
2138 H12	7105 E4
2139 I13	7109 K5
2140 J14	7111 D18
2141 I14	7119 B12
2144 H17	7122 L6
2145 G16	7124 L9
2146 F18	7180 K18
2147 F17	7181 L18
2148 F17	7182 L15
2149 K10	7183 K16
2150 A14	T102 A2
2152 G6	T103 B2
2153 G7	T105 G2
2155 E8	T106 G2
2159 H9	T109 C9
2161 D16	T110 H7
2163 E16	T111 H6
2164 I14	T112 H9
2165 D10	T113 A12
2166 F16	T114 B15
2167 F16	T115 A11
2169 J11	T116 H14
2186 K19	T117 J15
2187 K17	T118 H17
2188 M17	T120 G19
2189 M18	T121 G19
2190 I16	T122 G19
2191 J16	T123 G19
2192 J16	T124 J19
2193 J16	T125 I19
2194 J15	T126 I19
2195 J14	T127 H19
2196 K16	T128 E10
2197 K15	T140 H17
3101 G6	T141 H13
3102 E6	T142 H14
3103 D9	
3104 A10	
3105 C8	
3106 C3	
3107 D4	
3108 E3	
3109 F4	
3113 B12	
3119 A13	
3123 K4	
3125 K3	
3128 L5	
3132 K7	
3134 K9	
3137 L10	
3141 F10	
3142 F9	
3143 J10	
3144 J11	
3145 I12	
3152 K20	
3153 K19	
3155 H17	
3156 D18	
3157 D18	
3158 G18	
3159 F18	
3160 F17	
3161 E18	
3166 H18	
3167 H17	
3169 F16	
3170 D17	
3176 J9	
3180 L5	
3181 G8	
3186 I19	
3187 K18	
3188 K17	
3189 K17	
3190 K17	
3191 L17	
3192 L18	
3193 M18	
3194 M18	
3195 M18	
3196 M15	
4101 G3	
4102 G3	

TUNER BOARD ECO6 - LAYOUT DIAGRM

J1 A4	J7 A4	1105 B5	2133 D2	2191 A1	5109 A3	5119 C2	5131 D4	9103 B1	9108 C4	9113 C5
J2 A4	J8 A4	2106 C5	2138 D2	2195 C1	5110 B2	5121 B2	7104 C5	9104 A5	9109 D2	9114 D4
J3 A4	J9 A4	2107 C4	2155 C4	3142 D1	5111 B4	5122 B5	7105 C5	9105 C1	9110 D2	9115 D5
J4 A4	J10 A4	2128 C3	2186 C1	5102 C5	5112 A3	5123 B5	9101 A2	9106 C3	9111 B2	
J6 A4	0000 A5	2129 B4	2190 B1	5103 D5	5114 B2	5130 D3	9102 C1	9107 C4	9112 C5	



2101 B1	2123 B1	2137 A2	2152 D2	2188 B4	3105 C2	3134 B1	3158 A2	3186 A4	4101 D1	6106 D1	7111 A3
2103 D2	2124 B1	2139 C3	2153 C3	2189 D4	3106 D1	3137 B1	3159 A2	3187 B4	4102 C1	6120 A3	7119 B3
2104 B1	2125 C1	2140 C4	2159 C2	2192 B4	3107 C1	3141 C3	3160 A2	3188 A4	4104 B1	6130 D3	7122 B1
2108 C1	2126 D3	2141 C4	2161 B4	2193 A4	3108 C1	3143 D4	3161 A3	3189 B4	4105 B2	6131 C1	7124 C1
2109 C1	2127 C3	2144 C4	2163 B4	2194 B4	3109 C1	3144 A1	3166 A4	3190 B4	4106 B2	6181 A4	7180 B4
2110 C1	2130 C3	2145 A3	2164 C4	2196 A4	3113 B3	3145 D3	3167 D4	3191 C4	4107 C2	6182 B4	7181 C4
2111 C1	2131 C3	2146 C4	2165 C2	2197 C4	3119 B2	3152 A2	3169 C4	3192 B4	4108 C2	6183 C4	7182 D4
2112 B2	2132 C3	2147 A3	2166 B4	3101 D3	3123 D3	3153 A2	3170 A3	3193 C4	4109 C1	7101 C3	7183 B4
2119 C1	2134 D4	2148 A4	2167 B4	3102 C1	3125 D4	3155 D4	3176 D3	3194 C4	4110 D1	7102 C2	
2120 C1	2135 D4	2149 D4	2169 A1	3103 C2	3128 B1	3156 B3	3180 B1	3195 D4	6103 B1	7103 D4	
2122 B1	2136 A2	2150 B2	2187 B4	3104 B2	3132 D3	3157 A3	3181 D2	3196 C4	6105 C1	7109 D3	



9-2

TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with ferrite antenna)

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, 45mV continuous wave	D	IC 7101 21, shortcircuit to block AFC, 2141	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod=1kHz f=±22.5kHz	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)		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 2.2kΩ to Vcc	C f=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36, 100nF, 220R	5111	5	max., f_o symmetric
			IC 7101 40, 100nF, 220R, see remark [2]	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0 ± 2 mV DC
AM RF [3]						
LW	198kHz	B f = ±30kHz V_{RF} as low as possible	198kHz	5105 LW ferrite coil	5	max., f_o symmetric
MW FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz		1494kHz	2106		
	558kHz		558kHz	5104 MW ferrite coil		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5104 MW ferrite coil		

ECO6, general with ferrite antenna, 070799

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

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

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

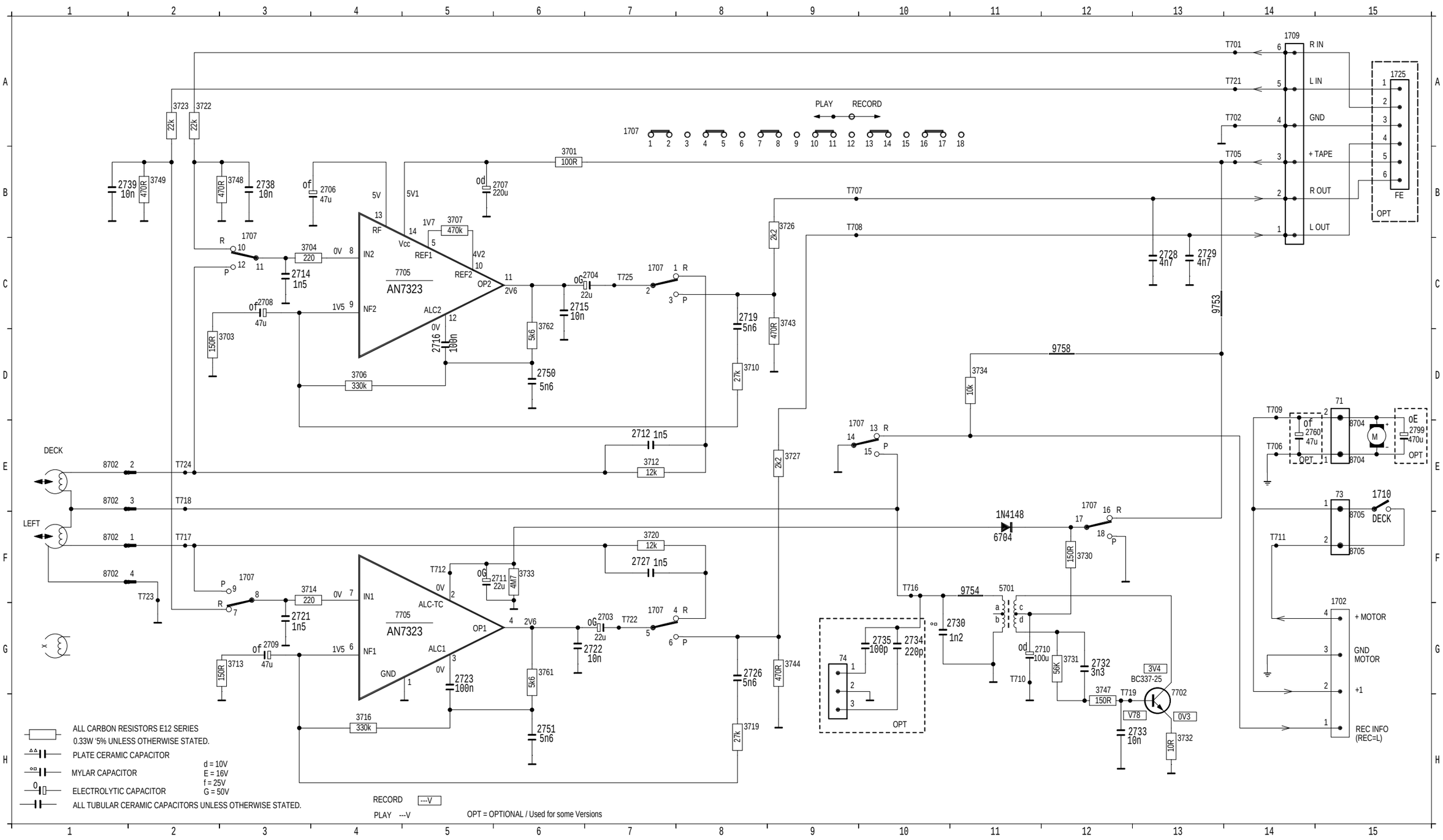
[3] LW has to be aligned before MW.

↕ Repeat

10-1

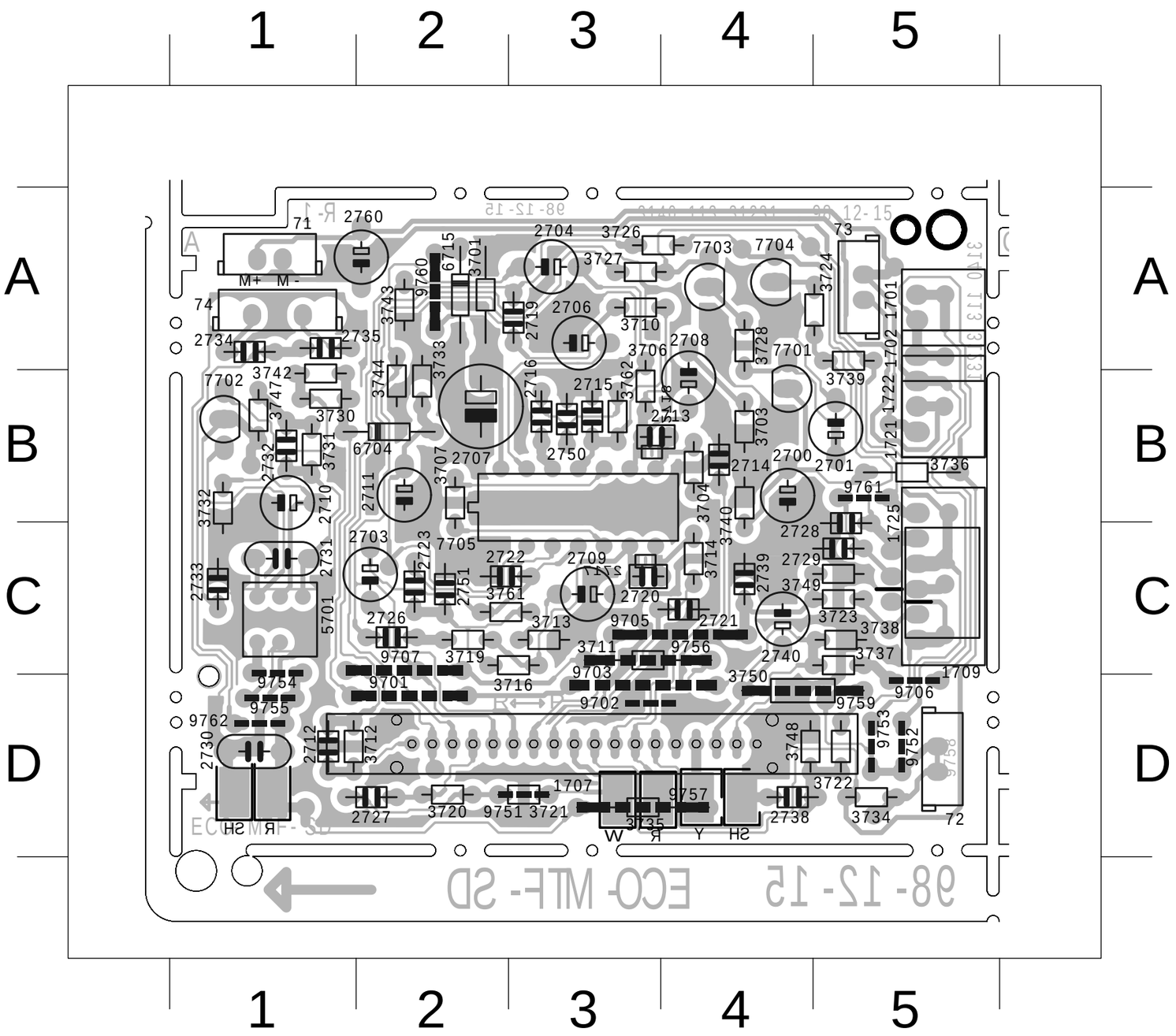
RECORDER BOARD - CIRCUIT DIAGRAM

71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	E15	1707	G 7	1710	E15	2707	B 6	2712	E 7	2721	G 3	2728	C13	2734	G10	2751	H 6	3704	C 3	3713	G 3	3722	A 2	3731	G12	3744	G 9	3762	D 6	7705	C 4	8704	E15	9754	F11	T706	E14	T711	F14	T719	H13	T725	C 7
74	G 9	1707	C 7	1725	A15	2708	C 3	2714	C 3	2722	G 7	2729	C13	2735	G10	2760	E14	3706	D 4	3714	F 3	3723	A 2	3732	H13	3747	G12	5701	F11	8702	F 1	8704	E15	9758	D12	T707	B10	T712	F 5	T721	A14		
1702	G15	1707	E 9	2703	G 7	2709	G 3	2715	C 6	2723	G 5	2730	G11	2738	B 3	2799	E15	3707	B 5	3716	H 4	3726	B 9	3733	F 6	3748	B 3	6704	F11	8702	F 1	8705	F15	T701	A14	T708	B10	T716	F10	T722	G 7		
1707	F 3	1707	E12	2704	C 7	2710	G12	2716	D 5	2726	G 8	2732	G12	2739	B 1	3701	B 6	3710	D 8	3719	H 8	3727	E 9	3734	D11	3749	B 2	7702	H13	8702	E 1	8705	F15	T702	A14	T709	D14	T717	F 2	T723	F 2		



10-2

RECORDER BOARD - LAYOUT DIAGRAM



71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 B 1	T705 B 5
1722 B 5	2740 C 4	3743 A 2	T706 B 5
1725 C 5	2750 B 3	3744 B 2	T709 A 5
2700 B 4	2751 C 2	3747 B 1	T710 C 1
2701 B 5	2760 A 2	3748 D 4	T711 B 5
2703 C 2	3701 A 2	3749 C 5	T712 C 2
2704 A 3	3703 B 4	3750 D 4	T713 A 5
2706 A 3	3704 B 4	3761 C 2	T714 D 5
2707 B 2	3706 B 3	3762 B 3	T715 D 5
2708 B 4	3707 B 2	5701 C 1	T716 D 1
2709 C 3	3710 A 3	6704 B 2	T719 B 1
2710 B 1	3711 C 3	6715 A 2	T720 A 5
2711 B 2	3712 D 1	7701 B 4	T721 C 5
2712 D 1	3713 C 3	7702 B 1	T722 C 2
2713 B 3	3714 C 4	7703 A 4	T725 D 2
2714 B 4	3716 C 3	7704 A 4	T7707 A 4
2715 B 3	3719 C 2	7705 B 3	T7708 A 4
2716 B 3	3720 D 2	9701 D 2	
2717 C 3	3721 D 3	9702 D 3	
2718 B 3	3722 D 5	9703 D 3	
2719 A 3	3723 C 5	9705 C 4	
2720 C 3	3724 A 5	9706 D 5	
2721 C 4	3726 A 3	9707 C 2	
2722 C 2	3727 A 3	9751 D 3	
2723 C 2	3728 A 4	9752 D 5	
2726 C 2	3730 B 1	9753 D 5	
2727 D 2	3731 B 1	9754 C 1	
2728 C 5	3732 B 1	9755 D 1	

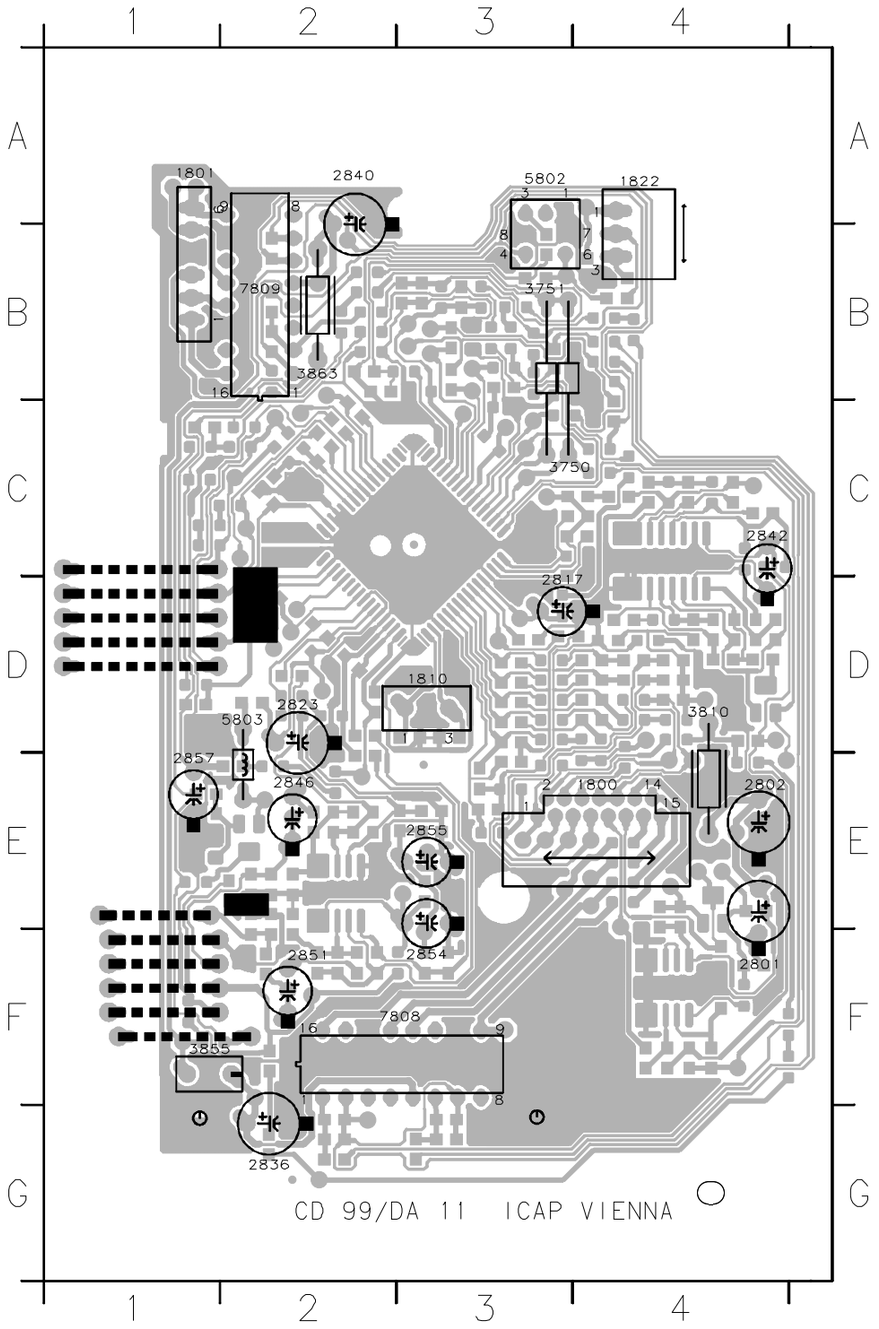
CASSETTE ADJUSTMENT

Adjustment	Cassette	SK	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

* SBC420 : 4822 397 30071

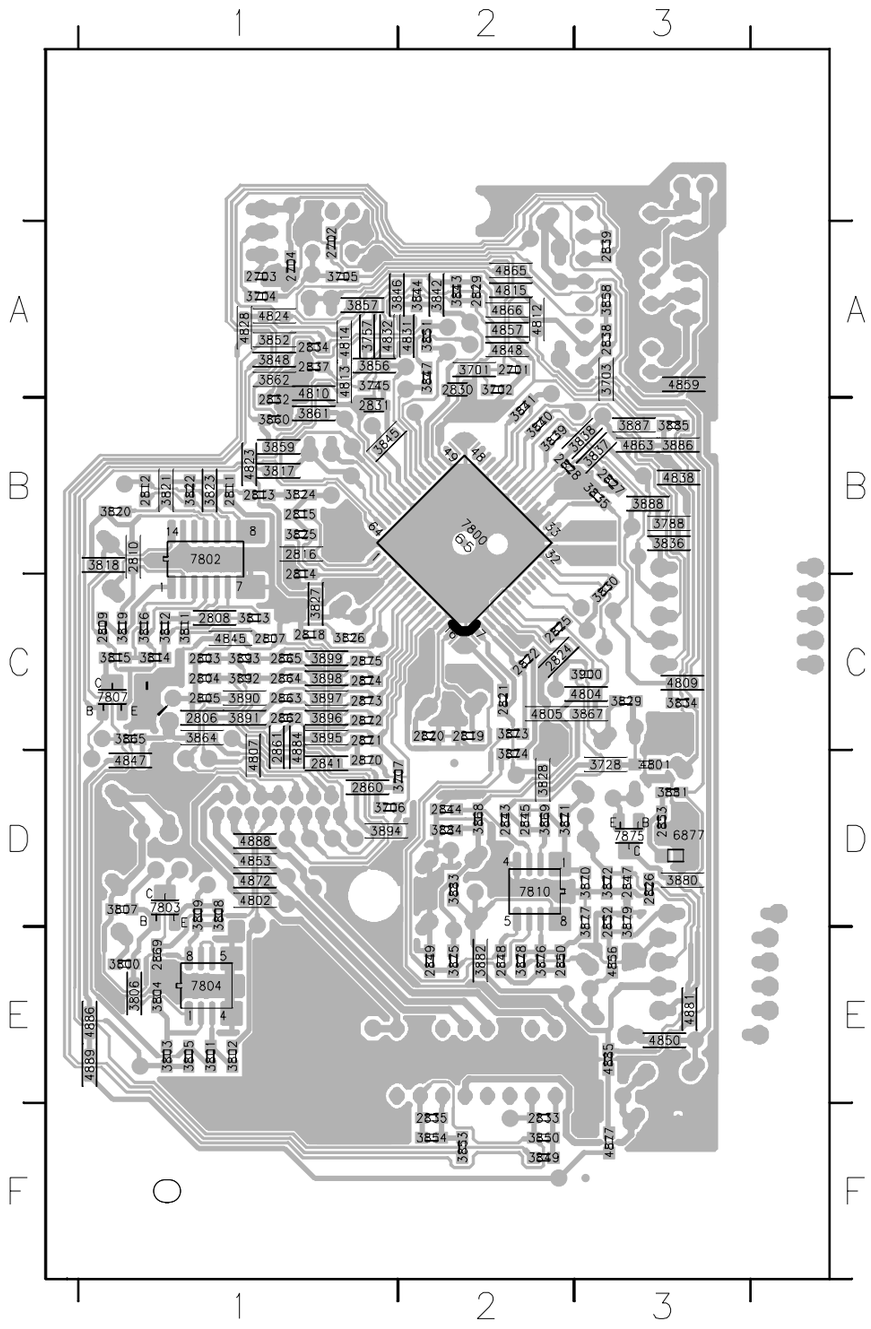
**a The maximum permissible speed deviation is ± 3%. Morever, the wow and flutter value can be read.

CD99 DA11 - LAYOUT DIAGRAM



1800 E4
1801 A1
1810 D3
1822 A4
2801 F4
2802 E4
2817 D3
2823 D2
2836 G2
2840 A2
2842 C4
2846 E2
2851 F2
2854 F3
2855 E3
2857 E1
3750 C3
3751 B3
3810 D4
3855 F1
3863 B2
5802 A3
5803 D2
7808 F3
7809 B2
8401 G3
8402 G1
9000 E2
9001 E2
9002 E2
9003 E2
9004 E2
9005 E2
9007 D2
9008 D2
9009 D2
9010 D2
9011 D2

11-1



2701 A2
2702 A1
2703 A1
2704 A1
2803 C1
2804 C1
2805 C1
2806 C1
2807 C1
2808 C1
2809 C1
2810 B1
2811 B1
2812 B1
2813 B1
2814 C1
2815 B1
2816 B1
2818 C1
2819 C2
2820 C2
2821 C2
2822 C2
2824 C2
2825 C2
2826 D3
2827 B3
2828 B2
2829 A2
2830 A2
2831 B1
2832 B1
2833 F2
2834 A1
2835 F2
2837 A1
2838 A3
2839 A3
2841 D1
2843 D2
2844 D2
2845 D2
2847 D3
2848 E2
2849 E2
2850 E2
2852 D3
2853 D3
2860 D1
2861 C1
2862 C1
2863 C1
2864 C1
2865 C1
2869 E1
2870 D1
2871 C1
2872 C1
2873 C1
2874 C1
2875 C1
3701 A2
3702 A1
3703 A1
3704 A1
3705 A1
3706 D1
3707 D2
3728 D3
3745 A1
3757 A1
3788 B3
3800 E1
3801 E1
3802 E1
3803 E1
3804 E1
3805 E1
3806 E1
3807 D1
3808 D1
3809 D1
3811 C1
3812 C1
3813 C1
3814 C1
3815 C1
3816 C1
3817 B1
3818 B1
3819 C1
3820 B1
3821 B1
3822 B1
3823 B1
3824 B1
3825 B1
3826 C1
3827 C1
3828 D2
3829 C3
3830 C3
3834 C3
3835 B3
3836 B3
3837 B3
3838 B3
3839 B2
3840 B2
3841 B2
3842 A2
3843 A2
3844 A2
3845 B1
3846 A1
3847 A2
3848 A1
3849 F2
3850 F2
3851 A2
3852 A1
3853 F2
3854 F2
3855 A1
3856 A1
3857 A1
3858 A3
3859 B1
3860 B1
3861 B1
3862 A1
3864 C1
3865 C1
3867 C3
3868 D2
3869 D2
3870 D3
3871 D2
3872 D3
3873 C2
3874 D2
3875 E2
3876 E2
3877 D3
3878 E2
3879 D3
3880 D3
3881 D3
3882 E2
3883 D2
3884 D2
3885 B3
3886 B3
3887 B3
3888 B3
3890 C1
3891 C1
3892 C1
3893 C1
3894 D1
3895 C1
3896 C1
3897 C1
3898 C1
3899 C1
3900 C3
4801 D3
4802 D1
4804 C3
4805 C2
4807 D1
4809 C3
4810 A1
4812 A2
4813 A1
4814 A1
4815 A2
4823 B1
4824 A1
4828 B3
4831 A2
4832 A1
4838 C1
4845 C1
4846 E3
4847 A2
4848 A2
4850 E3
4853 D1
4856 E1
4857 A2
4859 A3
4861 B3
4863 B3
4865 A2
4866 A2
4872 D3
4877 F3
4881 E3
4884 C1
4885 E3
4886 E1
4888 D1
4889 E1
6877 D3
7800 B2
7802 B1
7803 D1
7804 E1
7807 C1
7810 D2
7875 D3

CD99 DA11 - CIRCUIT DIAGRAM

1800 D1	2806 E4	2813 E9	2820 B10	2827 C14	2834 F5	2841 C1	2865 D5	2875 D5	3801 A1	3808 A2	3815 E5	3822 E7	3829 A11	3838 D14	3845 G12	3852 F5	3859 H5	3890 B4	3897 C5	7802-D E8	7808 E4
1801 G1	2807 E4	2814 E9	2821 B11	2828 C14	2835 F4	2842 F7	2869 E2	3728 A10	3802 B1	3809 A2	3816 E5	3823 E8	3830 B12	3839 D14	3846 F10	3853 F5	3860 H5	3891 C4	3898 C5	7802-E E7	7809 G4
2801 A2	2808 E4	2815 E10	2822 B11	2829 G14	2836 F4	2860 B5	2870 B5	3745 G12	3803 B1	3810 A3	3817 E7	3824 E9	3831 B14	3840 D15	3847 F6	3854 F5	3861 H5	3892 C4	3899 D5	7802-F F8	8401 H3
2802 A3	2809 E6	2816 F10	2823 B11	2830 F13	2837 G5	2861 B5	2871 B5	3750 G11	3804 B1	3811 E4	3818 E6	3825 E9	3832 B14	3841 E14	3848 F5	3855 F4	3862 H5	3893 D4	7800 D12	7803 B2	
2803 E4	2810 E6	2817 D9	2824 B11	2831 G12	2838 G4	2862 C5	2872 C5	3751 G11	3805 A1	3812 D5	3819 E6	3826 D10	3834 B14	3842 G14	3849 E5	3856 G6	3863 H4	3894 A5	7802-A E6	7804-A A1	
2804 E4	2811 F7	2818 D9	2825 B12	2832 F5	2839 H4	2863 C5	2873 C5	3757 G5	3806 B2	3813 E5	3820 E7	3827 D9	3835 C14	3843 G14	3850 F5	3857 G5	3864 C1	3895 B5	7802-B E5	7804-B C3	
2805 E4	2812 E8	2819 B10	2826 A13	2833 F4	2840 H4	2864 D5	2874 D5	3800 B2	3807 A2	3814 E5	3821 E7	3828 A10	3837 C14	3844 G13	3851 F6	3858 G5	3865 F7	3896 B5	7802-C E5	7807 E6	

1821 D10	2702 E2	2845 A6	2850 B6	2855 D6	3703 D3	3867 A5	3872 A8	3877 C6	3882 D7	3887 E9	4805 C4	7810-A A5
1822 E4	2703 E4	2846 A7	2851 C7	2856 E10	3704 E4	3868 A5	3873 C5	3878 C7	3883 D6	3888 E9	4806 E9	7810-B C5
1823 B10	2704 E3	2847 A8	2852 C8	2857 E6	3705 D3	3869 A6	3874 C5	3879 C8	3884 D6	3889 E10	5802 D3	7875 E7
1824 D10	2843 A5	2848 C5	2853 E6	3701 E1	3788 E9	3870 A6	3875 C5	3880 E7	3885 E8	3900 A5	5803 E6	8402 C9
2701 E2	2844 A5	2849 C5	2854 D6	3702 E2	3836 D10	3871 A7	3876 B6	3881 E7	3886 E8	4804 A4	6877 E7	

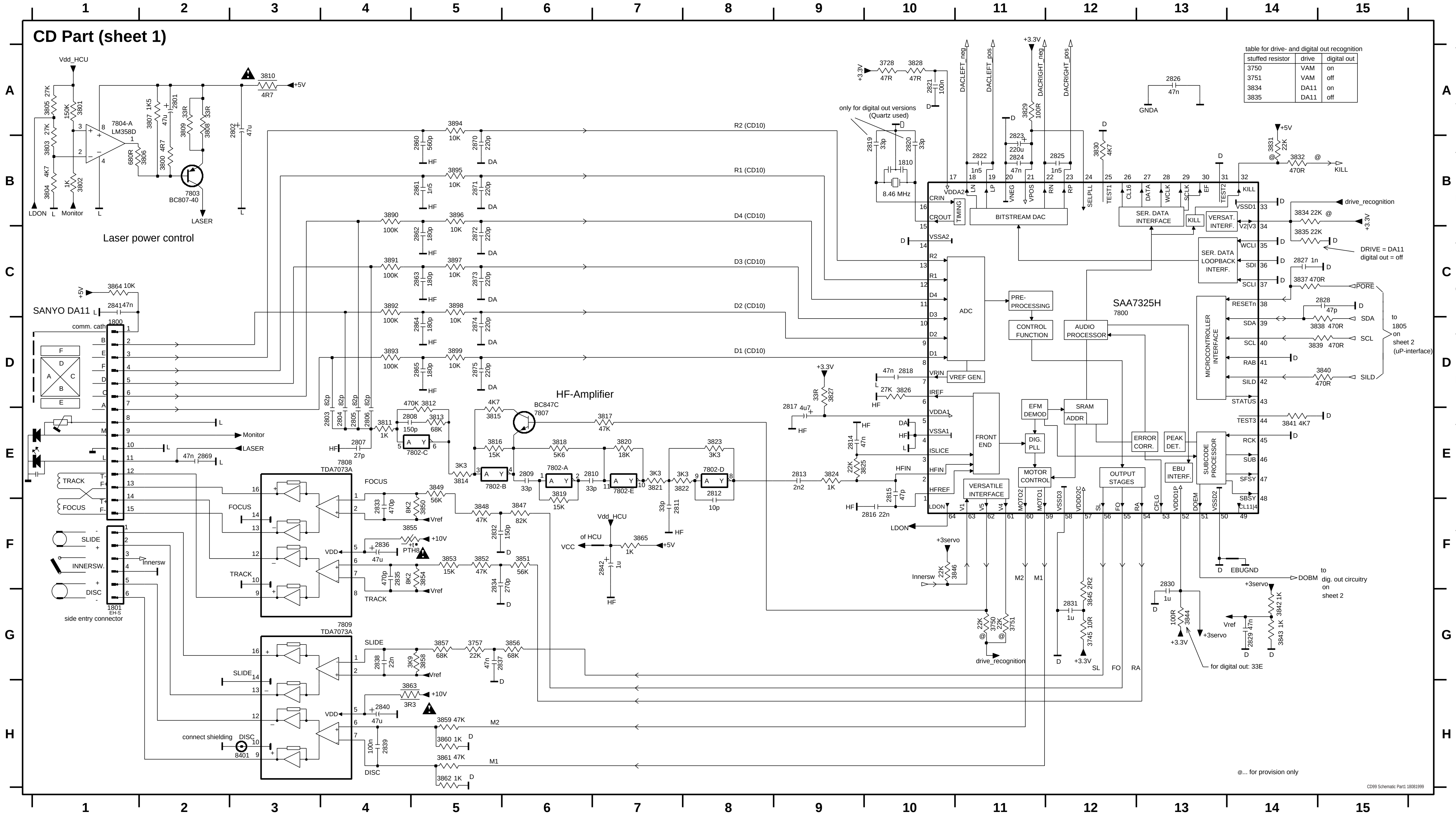
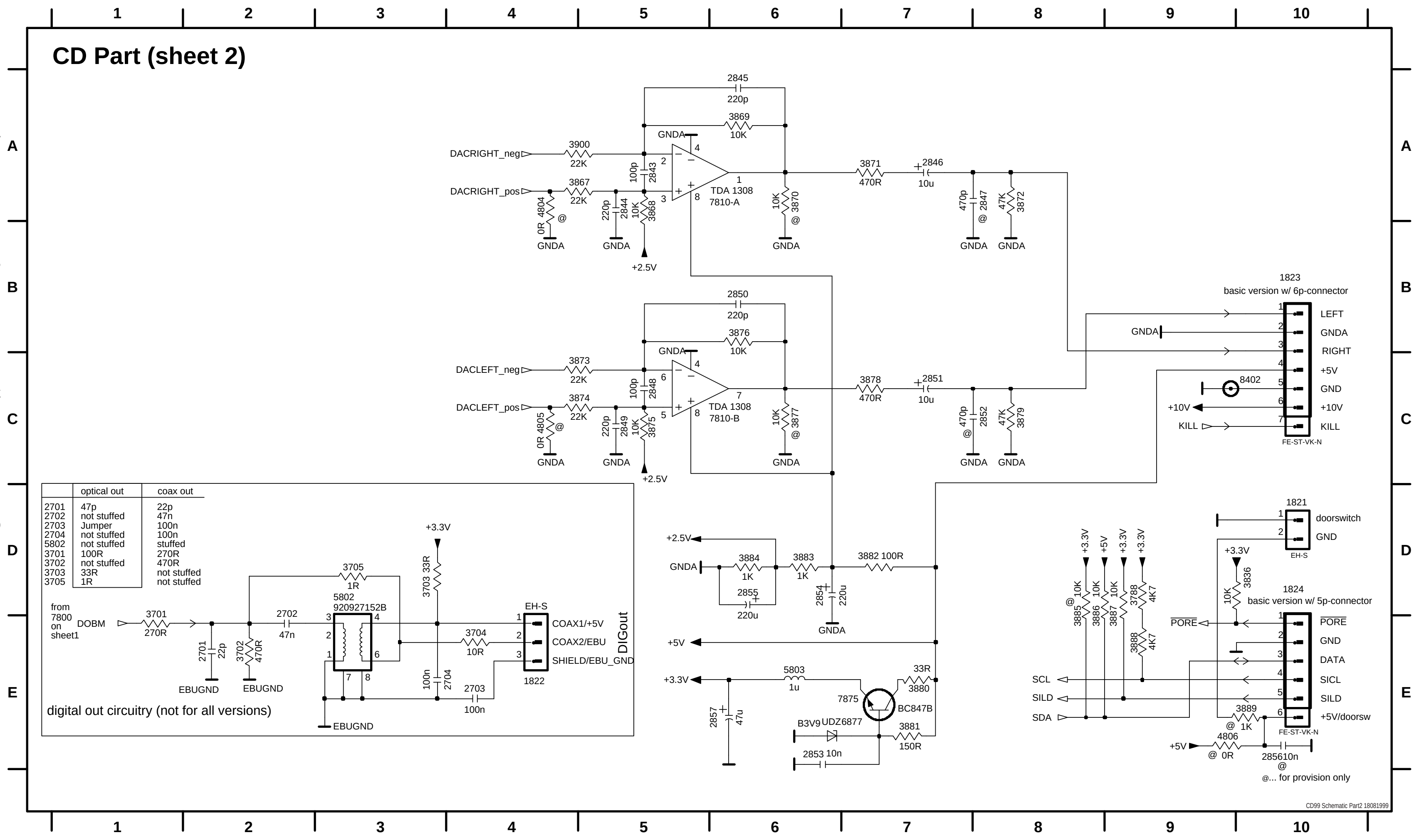


table for drive- and digital out recognition

stuffed resistor	drive	digital out
3750	VAM	on
3751	VAM	off
3834	DA11	on
3835	DA11	off



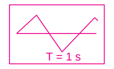
	optical out	coax out
2701	47p	22p
2702	not stuffed	47n
2703	Jumper	100n
2704	not stuffed	100n
5802	not stuffed	stuffed
3701	100R	270R
3702	not stuffed	470R
3703	33R	not stuffed
3705	1R	not stuffed

5V
0,2V
2,5V
0,2V
3,8V
3,3V
1,8V

2,5V
2,5V
2,5V
5V
2,5V
2,5V
2,5V
5V

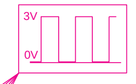
0,9V 0,9V
1,5V 0V
0,9V 0,9V

6,2V
6,1V
10V
6,2V
6,0V

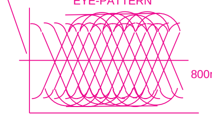


during Focus search

6,1V
6,2V
6,5V
5,9V



EYE-PATTERN



TB = 0.5 s/div

LOW = CD_RW (high gain)

3,3V
4,8V
3,9V

V EVM
Vdc measured during PLAY with normal CD or CD-R
V Vdc measured during PLAY with CD-RW

V EVM
Vdc measured during PLAY with normal CD or CD-R
V Vdc measured during PLAY with CD-RW

EXPLODED VIEW DIAGRAM - CABINET

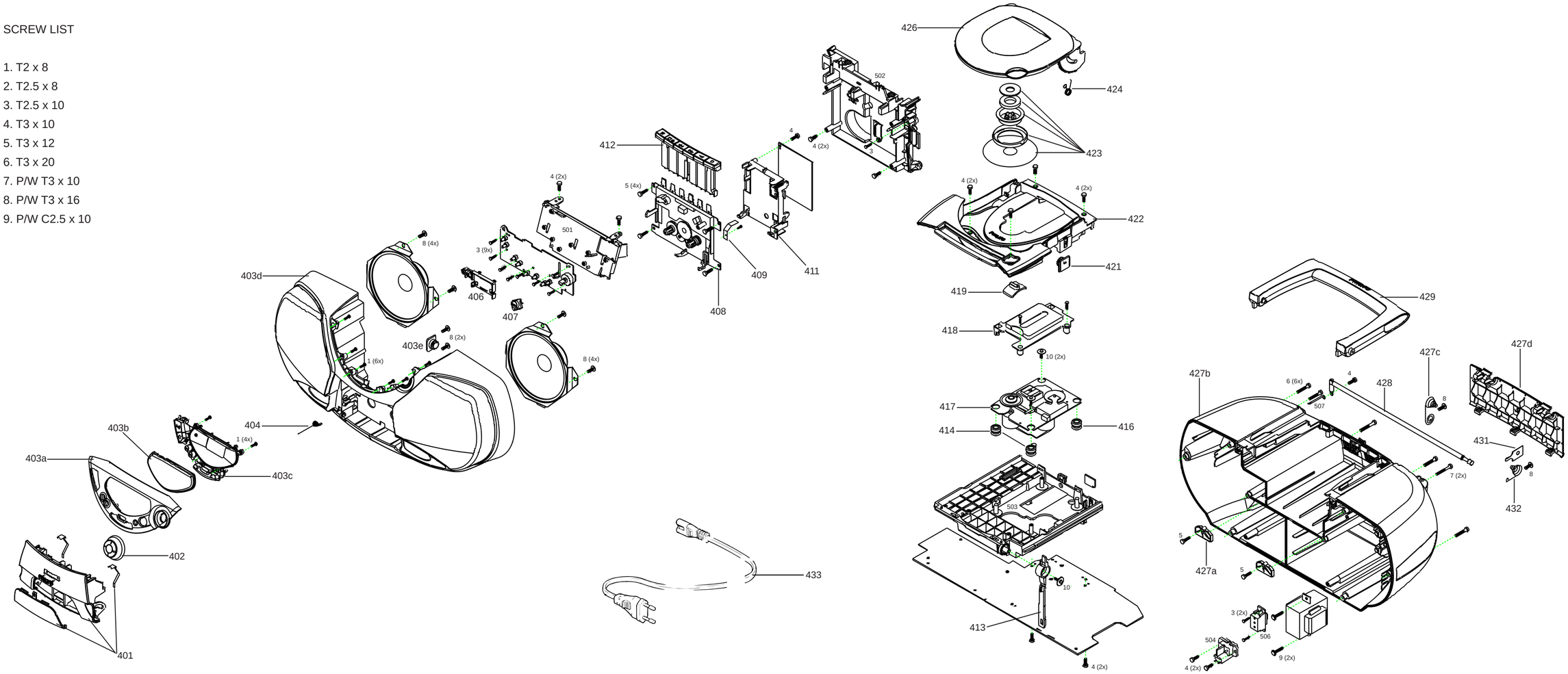
12-1

12-1

12-1

SCREW LIST

1. T2 x 8
2. T2.5 x 8
3. T2.5 x 10
4. T3 x 10
5. T3 x 12
6. T3 x 20
7. P/W T3 x 10
8. P/W T3 x 16
9. P/W C2.5 x 10



MECHANICAL PARTSLIST - CABINET

401	3140 117 60330	Cassette Door Assy
402	3140 114 35570	Knob Volume
403	3140 117 60300	Front Cabinet Assy (Not for -/17)
403	3140 117 60490	Front Cabinet Assy (For -/17)
404	4822 492 11776	Spring Cass Door
406	3140 114 35560	Bracket LCD
407	3140 114 35600	Knob DBB
408	4822 691 10612	Tape Deck
409	3140 111 20800	Spring Recording
411	3140 114 20430	Bracket Recording
412	3140 114 35510	Keyset Cass
413	3140 114 35590	Lever Mode
414	4822 529 10387	Damper Rubber (40 DEG)
416	4822 529 10386	Damper Rubber (30 DEG)
417	3103 309 05290	CD DA11N Drive
417	4822 691 10747	CD DA11 Drive Sanyo
418	4822 442 01096	CD Drive Cover
419	3140 114 35580	Knob Cap Mode
421	4822 529 10322	Damper Assy
422	3140 114 35450	Tray CD
423	3140 117 59800	Clamper Ring Assy CDM-DA11
424	3140 111 00800	Spring CD Door
426	3140 114 35470	Door CD
427	3140 117 60310	Rear Cabinet Assy
428	3140 118 71570	Telescopic Aerial
429	3140 114 35630	Handle
431	3140 111 21320	Contact Plate
432	3140 111 00780	Spring Compression
433	2422 070 98151	Mains Cord (For -/00/01/11/14/16)
433	2422 070 98147	Mains Cord (For -/05)
433	2422 070 98148	Mains Cord (For -/10)
433	2422 070 98152	Mains Cord (For -/17)
	4822 256 90463	Holder Ferrite Bar
	3140 115 27850	Instr Manual (For -/00/05)
	3140 115 27940	Instr Manual (For -/01/10/11/16)
	3140 115 27960	Instr Manual (For -/14)
	3140 115 27970	Instr Manual (For -/17)

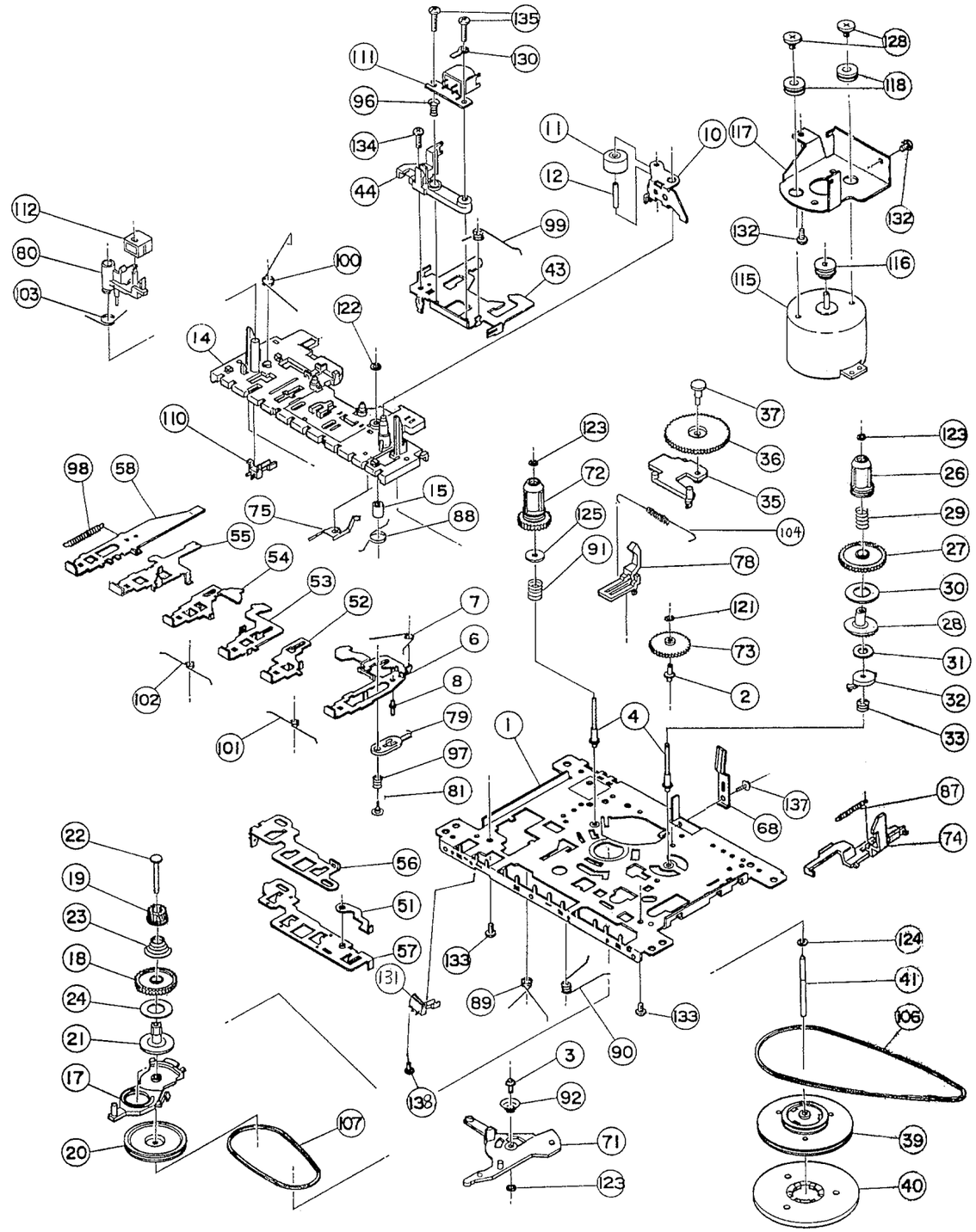
Note: Only these parts mentioned in the list are normal service parts.

MECHANICAL PARTSLIST - TAPE DECK

10	4822 528 70849	Pinch Roller Arm (B)
11	4822 528 70695	Pinch Roller Assy
74	4822 403 70968	Eject Hook (A)
106	4822 358 31325	Main Belt 45.2 x 1.2
107	4822 358 31124	Sub Belt 44.7 x 1.2
110	4822 278 90721	Leaf Switch
111	4822 249 30218	MS18R-AKONI
112	4822 249 40306	E. Head
115	4822 361 21565	Motor EG-530AD-9B
116	4822 528 81497	Motor Pulley

Note Only these parts mentioned in the list are normal service parts.

EXPLODED VIEW DIAGRAM - TAPE DECK



ELECTRICAL PARTSLIST

- CAPACITORS -

2101	4822 122 33777	47pF 5% NP0 63V
2103	5322 126 11578	1nF 10% X7R 50V
2104	4822 122 31765	100pF 2% NP0 63V
2106	2020 800 00191	Var Cap 3pF-11pF 100V
2107	4822 121 51319	1µF 10% 63V
2120	4822 126 14507	18pF 5% 50V
2124	4822 126 14494	22nF 10% X7R 25V
2125	2238 861 18561	560pF 1% NP0 50V
2126	4822 126 14241	330pF NPO 50V
2127	4822 126 13879	220nF +80-20% 16V
2128	4822 124 40248	10µF 20% 63V
2129	4822 124 41584	100µF 20% 10V
2130	3198 017 44740	470nF Y5V 10V
2131	3198 017 44740	470nF Y5V 10V
2132	3198 017 44740	470nF Y5V 10V
2133	4822 124 21913	1µF 20% 63V
2134	3198 017 31530	15nF X7R 50V
2135	3198 017 31530	15nF X7R 50V
2136	4822 126 13879	220nF +80-20% 16V
2137	4822 126 13879	220nF +80-20% 16V
2138	4822 124 22652	2,2µF 20% 50V
2139	4822 122 33752	15pF 5% NP0 50V
2140	4822 126 14226	82pF 5% NP0 50V
2141	4822 126 14305	100nF 10% X7R 16V
2144	3198 017 44740	470nF Y5V 10V
2145	4822 126 13883	220pF 5% 50V
2146	4822 122 33575	220pF 5% NP0 63V
2147	4822 126 13883	220pF 5% 50V
2148	4822 126 14238	2,2nF X7R 50V
2150	4822 126 13838	100nF Y5V +80-20% 50V
2152	4822 126 14549	33nF 16V X7R
2153	4822 122 33752	15pF 5% NP0 50V
2155	2020 800 00191	Var Cap 3pF-11pF 100V
2159	4822 126 11671	33pF
2164	3198 017 44740	470nF Y5V 10V
2165	4822 126 14305	100nF 10% X7R 16V
2166	5322 126 11578	1nF 10% X7R 50V
2167	4822 126 11663	1pF
2186	4822 124 40196	220µF 20% 16V
2187	5322 126 11583	10nF 10% X7R 50V
2188	5322 126 11583	10nF 10% X7R 50V
2189	4822 126 13879	220nF +80-20% 16V
2190	4822 124 81151	22µF 50V
2191	4822 124 81151	22µF 50V
2192	5322 126 11578	1nF 10% X7R 50V

- CAPACITORS -

2193	5322 126 11578	1nF 10% X7R 50V
2194	5322 126 11578	1nF 10% X7R 50V
2195	4822 124 81151	22µF 50V
2196	5322 126 11583	10nF 10% X7R 50V
2197	5322 126 11583	10nF 10% X7R 50V
2301	4822 126 11585	22nF+80-20% Y5V 25V
2302	4822 126 11585	22nF+80-20% Y5V 25V
2303	4822 126 11585	22nF+80-20% Y5V 25V
2304	4822 126 11585	22nF+80-20% Y5V 25V
2305	4822 124 81286	47µF 20% 16V
2306	4822 124 80195	47µF 20% 16V
2307	5322 126 11578	1nF 10% X7R 50V
2309	4822 126 14305	100nF 10% X7R 16V
2311	4822 124 40207	100µF 20% 25V
2321	3198 016 36810	680pF NP0 25V
2322	3198 016 36810	680pF NP0 25V
2340	4822 123 14025	2200µF 20% 16V
2341	4822 124 40196	220µF 20% 16V
2342	4822 124 40769	4,7µF 20% 100V
2343	4822 124 41407	0,47µF 20% 63V
2344	4822 124 41407	0,47µF 20% 63V
2345	3198 016 36810	680pF NP0 25V
2346	3198 016 36810	680pF NP0 25V
2347	4822 124 40433	47µF 20% 25V
2348	4822 124 40433	47µF 20% 25V
2349	4822 124 21913	1µF 20% 63V
2350	4822 124 21913	1µF 20% 63V
2351	4822 124 80195	470µF 20% 10V
2352	4822 124 80195	470µF 20% 10V
2353	4822 124 40433	47µF 20% 25V
2354	4822 124 40433	47µF 20% 25V
2356	4822 124 40769	4,7µF 20% 100V
2357	3198 017 34730	47nF X7R 16V
2358	3198 017 34730	47nF X7R 16V
2359	4822 124 21913	1µF 20% 63V
2360	4822 126 14305	100nF 10% X7R 16V
2361	4822 124 21913	1µF 20% 63V
2362	4822 124 21913	1µF 20% 63V
2371	3198 017 34730	47nF X7R 16V
2372	3198 017 34730	47nF X7R 16V
2373	3198 017 34730	47nF X7R 16V
2374	3198 017 34730	47nF X7R 16V
2401	4822 124 21913	1µF 20% 63V
2403	4822 124 23432	100µF 20% 10V
2405	4822 122 31765	100pF 2% NP0 63V

13-1

ELECTRICAL PARTSLIST

- CAPACITORS -

2406	4822 122 31765	100pF 2% NP0 63V
2407	4822 122 31765	100pF 2% NP0 63V
2408	4822 122 31765	100pF 2% NP0 63V
2410	4822 122 31765	100pF 2% NP0 63V
2412	4822 126 14305	100nF 10% X7R 16V
2413	4822 126 14305	100nF 10% X7R 16V
2415	4822 126 14238	2,2nF X7R 50V
2416	4822 126 14238	2,2nF X7R 50V
2423	4822 122 33741	10pF 10% NP0 50V
2424	4822 122 33741	10pF 10% NP0 50V
2425	4822 124 81286	47µF 20% 16V
2426	4822 122 31765	100pF 2% NP0 63V
2431	4822 126 14238	2,2nF X7R 50V
2432	4822 126 14238	2,2nF X7R 50V
2438	4822 124 41584	100µF 20% 10V
2439	4822 122 31765	100pF 2% NP0 63V
2440	4822 126 13193	4,7nF 10% X7R 63V
2441	4822 126 13193	4,7nF 10% X7R 63V
2449	4822 122 33741	10pF 10% NP0 50V
2450	4822 122 33741	10pF 10% NP0 50V
2451	4822 122 33741	10pF 10% NP0 50V
2452	4822 122 33741	10pF 10% NP0 50V
2460	4822 124 22652	2,2µF 20% 50V
2531	5322 126 11583	10nF 10% X7R 50V
2532	5322 126 11583	10nF 10% X7R 50V
2533	4822 126 14305	100nF 10% X7R 16V
2534	4822 126 14305	100nF 10% X7R 16V
2801	4822 124 41751	47µF 20% 50V
2802	4822 124 41751	47µF 20% 50V
2803	4822 126 14226	82pF 5% NP0 50V
2804	4822 126 14226	82pF 5% NP0 50V
2805	4822 126 14226	82pF 5% NP0 50V
2806	4822 126 13695	82pF 1% NP0 63V
2807	4822 126 11669	27pF
2808	5322 122 33538	150pF 2% NP0 63V
2809	4822 126 11669	27pF
2810	4822 126 13692	47pF 1% NP0 63V
2811	4822 126 11671	33pF
2812	4822 122 33741	10pF 10% NP0 50V
2813	4822 126 14238	2,2nF X7R 50V
2814	3198 024 44730	47nF Y5V 50V
2815	4822 122 33777	47pF 5% NP0 63V
2816	5322 122 32654	22nF X7R 10% 63V
2817	4822 124 40769	4,7µF 20% 100V
2818	3198 024 44730	47nF Y5V 50V

- CAPACITORS -

2821	4822 126 14305	100nF 10% X7R 16V
2822	4822 126 13344	1,5nF 5% 63V
2823	4822 124 42383	220µF 20% 4V
2824	4822 126 13751	47nF10% X7R 63V
2825	4822 126 13344	1,5nF 5% 63V
2826	3198 024 44730	47nF Y5V 50V
2827	5322 126 11578	1nF 10% X7R 50V
2828	4822 122 33777	47pF 5% NP0 63V
2829	3198 024 44730	47nF Y5V 50V
2830	3198 017 41050	1µF Y5V 10V
2831	4822 126 14043	1µF +80-20% Y5V 16V
2832	4822 122 33753	150pF 5% NP0 50V
2833	4822 126 13881	470pF 5% 50V
2834	4822 126 14506	270pF 5% 50V
2835	4822 126 13881	470pF 5% 50V
2836	4822 124 41751	47µF 20% 50V
2837	3198 024 44730	47nF Y5V 50V
2838	3198 017 42230	22nF Y5V 50V
2839	4822 126 14305	100nF 10% X7R 16V
2840	4822 124 41751	47µF 20% 50V
2841	4822 126 13751	47nF 10% X7R 63V
2842	4822 124 21913	1µF 20% 63V
2843	4822 122 31765	100pF 2% NP0 63V
2844	4822 126 13883	220pF 5% 50V
2845	4822 126 13883	220pF 5% 50V
2846	4822 124 40248	10µF 20% 63V
2848	4822 122 31765	100pF 2% NP0 63V
2849	4822 126 13883	220pF 5% 50V
2850	4822 126 13883	220pF 5% 50V
2851	4822 124 40248	10µF 20% 63V
2853	5322 126 11583	10nF 10% X7R 50V
2854	4822 124 11912	220µF 20% 6,3V
2855	4822 124 11912	220µF 20% 6,3V
2857	4822 124 12362	47µF 4V 20%
2860	5322 116 80853	560pF 5% NP0 63V
2861	5322 122 31865	1,5nF X7R 10% 63V
2862	4822 126 14508	180pF 5% 50V
2863	4822 126 14508	180pF 5% 50V
2864	4822 126 14508	180pF 5% 50V
2865	4822 126 14508	180pF 5% 50V
2869	3198 024 44730	47nF Y5V 50V
2870	4822 126 13883	220pF 5% 50V
2871	4822 126 13883	220pF 5% 50V
2872	4822 126 13883	220pF 5% 50V
2873	4822 126 13883	220pF 5% 50V

ELECTRICAL PARTSLIST

- CAPACITORS -

2874	4822 126 13883	220pF 5% 50V
2875	4822 126 13883	220pF 5% 50V

- RESISTORS -

3101	4822 051 30333	33K 5% 0,062W
3102	4822 117 13632	100K 1% 0.62W
3103	4822 117 12902	8K2 1% 0.063W
3104	4822 117 13577	330R 1% 1,25W
3105	4822 051 30221	220R 5% 0,062W
3132	4822 051 30479	47R 5% 0,062W
3134	4822 051 30223	22K 5% 0,062W
3141	4822 051 30563	56K 5% 0,062W
3142	4822 100 12159	Var Resistor 100K 30%
3145	4822 051 30222	2K2 5% 0,062W
3152	4822 051 30471	470R 5% 0,062W
3153	4822 051 30471	470R0 5% 0,062W
3155	4822 051 30479	47R 5% 0,062W
3156	4822 117 13632	100K 1% 0.62W
3157	4822 117 13632	100K 1% 0.62W
3158	4822 051 30471	470R 5% 0,062W
3159	4822 051 30471	470R 5% 0,062W
3160	4822 051 30471	470R 5% 0,062W
3161	4822 051 20223	22K 5% 0,1W
3166	4822 051 20479	47R 5% 0,1W
3167	4822 051 20479	47R 5% 0,1W
3169	4822 051 20154	150K 5% 0,1W
3186	4822 117 11448	180R 1% 0,1W
3187	4822 051 30102	1K 5% 0,062W
3188	4822 051 30222	2K2 5% 0,062W
3189	4822 051 30223	22K 5% 0,062W
3190	4822 051 30103	10K 5% 0,062W
3191	4822 051 30472	4K7 5% 0,062W
3192	4822 051 30105	1M 5% 0,062W
3193	4822 051 30222	2K2 5% 0,062W
3194	4822 117 13632	100K 1% 0.62W
3195	4822 051 30474	470K 5% 0,062W
3196	4822 051 30103	10K 5% 0,062W
3301	4822 051 30222	2K2 5% 0,062W
3302	4822 051 30222	2K2 5% 0,062W
3303	4822 051 30471	470R 5% 0,062W
3304	4822 051 30471	470R 5% 0,062W
3305	4822 051 30221	220R 5% 0,062W
3306	4822 051 30221	220R 5% 0,062W
3307	4822 051 30123	12K 5% 0,062W

- RESISTORS -

3310	4822 116 83883	470R 5% 0,5W
3321	4822 050 24708	4R7 1% 0,6W
3322	4822 050 24708	4R7 1% 0,6W
3323	4822 051 30332	3K3 5% 0,062W
3325	4822 051 30471	470R 5% 0,062W
3326	4822 051 30561	560R 5% 0,062W
3327	4822 051 30471	470R 5% 0,062W
3328	4822 117 12903	1K8 1% 0.063W
3329	4822 116 83883	470R 5% 0,5W
3331	4822 116 52244	15K 5% 0,5W
3332	4822 116 52244	15K 5% 0,5W
3333	4822 051 30153	15K 5% 0,062W
3361	4822 051 30683	68K 5% 0,062W
3362	4822 116 52297	68K 5% 0,5W
3363	4822 051 30103	10K 5% 0,062W
3364	4822 051 30103	10K 5% 0,062W
3365	4822 117 12891	220K 1%
3366	4822 116 83874	220K 5% 0,5W
3367	4822 051 30682	6K8 5% 0,062W
3368	4822 051 30682	6K8 5% 0,062W
3369	4822 117 12902	8K2 1% 0.063W
3370	4822 117 12902	8K2 1% 0.063W
3371	4822 051 30562	5K6 5% 0,063W
3372	4822 051 30562	5K6 5% 0,063W
3373	4822 051 30102	1K 5% 0,062W
3374	4822 051 30102	1K 5% 0,062W
3375	4822 051 30103	10K 5% 0,062W
3376	4822 051 30103	10K 5% 0,062W
3377	4822 051 30103	10K 5% 0,062W
3378	4822 051 30103	10K 5% 0,062W
3381	4822 051 30332	3K3 5% 0,062W
3382	4822 051 30332	3K3 5% 0,062W
3401	4822 051 30273	27K 5% 0,062W
3402	4822 051 30102	1K 5% 0,062W
3403	4822 051 30102	1K 5% 0,062W
3404	4822 051 30472	4K7 5% 0,062W
3405	4822 051 30331	330R 5% 0,062W
3407	4822 051 30101	100R 5% 0,062W
3408	4822 051 30391	390R 5% 0,062W
3409	4822 117 13632	100K 1% 0.62W
3410	4822 051 30471	470R 5% 0,062W
3411	4822 051 30153	15K 5% 0,062W
3412	4822 051 30471	470R 5% 0,062W
3413	4822 051 30472	4K7 5% 0,062W
3414	4822 051 30472	4K7 5% 0,062W

13-2

ELECTRICAL PARTSLIST

- RESISTORS -

3415	4822 117 12891	220K 1%
3416	4822 051 30472	4K7 5% 0,062W
3417	4822 051 30472	4K7 5% 0,062W
3418	4822 051 30152	1K5 5% 0,062W
3422	4822 051 30102	1K 5% 0,062W
3423	4822 051 30102	1K 5% 0,062W
3424	4822 051 30102	1K 5% 0,062W
3425	4822 051 30102	1K 5% 0,062W
3427	4822 117 12891	220K 1%
3428	4822 051 30222	2K2 5% 0,062W
3429	4822 051 30222	2K2 5% 0,062W
3430	4822 051 30472	4K7 5% 0,062W
3432	4822 051 30153	15K 5% 0,062W
3433	4822 051 30472	4K7 5% 0,062W
3434	4822 051 30101	100R 5% 0,062W
3435	4822 051 30223	22K 5% 0,062W
3436	4822 051 30223	22K 5% 0,062W
3437	4822 051 30223	22K 5% 0,062W
3438	4822 051 30223	22K 5% 0,062W
3439	4822 051 30562	5K6 5% 0,063W
3440	4822 117 12902	8K2 1% 0.063W
3441	4822 051 30123	12K 5% 0,062W
3442	4822 051 30562	5K6 5% 0,063W
3443	4822 117 12902	8K2 1% 0.063W
3444	4822 051 30123	12K 5% 0,062W
3445	4822 051 30101	100R 5% 0,062W
3446	4822 051 30223	22K 5% 0,062W
3447	4822 051 30223	22K 5% 0,062W
3449	4822 051 30273	27K 5% 0,062W
3450	4822 051 30273	27K 5% 0,062W
3452	4822 051 30272	2K7 5% 0,062W
3453	4822 051 30332	3K3 5% 0,062W
3454	4822 051 30332	3K3 5% 0,062W
3455	4822 051 30332	3K3 5% 0,062W
3456	4822 051 30471	470R 5% 0,062W
3457	4822 051 30471	470R 5% 0,062W
3458	4822 051 30471	470R 5% 0,062W
3460	4822 051 30102	1K 5% 0,062W
3461	4822 051 30221	220R 5% 0,062W
3462	4822 051 30221	220R 5% 0,062W
3463	4822 051 30221	220R 5% 0,062W
3464	4822 051 30223	22K 5% 0,062W
3470	4822 051 30471	470R 5% 0,062W
3471	4822 117 13632	100K 1% 0.62W
3473	4822 051 30121	120R 5% 0,062W

- RESISTORS -

3474	4822 117 12971	15R 5% 0,62W
3475	4822 051 30681	680R 5% 0,062W
3481	4822 051 30472	4K7 5% 0,062W
3482	4822 051 30472	4K7 5% 0,062W
3483	4822 051 30472	4K7 5% 0,062W
3484	4822 051 30472	4K7 5% 0,062W
3485	4822 051 30472	4K7 5% 0,062W
3486	4822 051 30472	4K7 5% 0,062W
3487	4822 051 30472	4K7 5% 0,062W
3488	4822 051 30472	4K7 5% 0,062W
3489	4822 051 30472	4K7 5% 0,062W
3490	4822 051 30472	4K7 5% 0,062W
3491	4822 051 30472	4K7 5% 0,062W
3492	4822 051 30472	4K7 5% 0,062W
3493	4822 051 30472	4K7 5% 0,062W
3494	4822 051 30472	4K7 5% 0,062W
3495	4822 051 30472	4K7 5% 0,062W
3496	4822 051 30472	4K7 5% 0,062W
3497	4822 051 30472	4K7 5% 0,062W
3499	4822 051 30102	1K 5% 0,062W
3541	4822 051 30152	1K5 5% 0,062W
3542	4822 051 30152	1K5 5% 0,062W
3543	4822 051 30222	2K2 5% 0,062W
3544	4822 051 30222	2K2 5% 0,062W
3545	4822 051 30103	10K 5% 0,062W
3546	4822 051 30103	10K 5% 0,062W
3550	2120 354 90029	Var Resistor 50KX2
3728	4822 051 20479	47R 5% 0,1W
3745	4822 051 30109	10R 5% 0,062W
3757	4822 051 20223	22K 5% 0,1W
3788	4822 051 20472	4K7 5% 0,1W
3800	4822 117 13608	4,7R 5% 0,0016W
3801	4822 051 30154	150K 5% 0,062W
3802	4822 051 30102	1K 5% 0,062W
3803	4822 051 30273	27K 5% 0,062W
3804	4822 051 30472	4K7 5% 0,062W
3805	4822 051 30273	27K 5% 0,062W
3806	4822 117 10361	680R 1% 0,1W
3807	4822 051 30152	1K5 5% 0,062W
3808	4822 051 30339	33R 5% 0,062W
3809	4822 051 30339	33R 5% 0,062W
3810	4822 052 10478	4R7 5% 0,33W
3811	4822 051 30102	1K 5% 0,062W
3812	4822 051 30474	470K 5% 0,062W
3813	4822 051 30683	68K 5% 0,062W

ELECTRICAL PARTSLIST

- RESISTORS -

3814	4822 051 30332	3K3	5%	0,062W		
3815	4822 051 30472	4K7	5%	0,062W		
3816	4822 051 30153	15K	5%	0,062W		
3817	4822 117 10834	47K	1%	0,1W		
3818	4822 051 20562	5K6	5%	0,1W		
3819	4822 051 30153	15K	5%	0,062W		
3820	4822 051 30183	18K	5%	0,062W		
3821	4822 051 20332	3K3	5%	0,1W		
3822	4822 051 30332	3K3	5%	0,062W		
3823	4822 051 20332	3K3	5%	0,1W		
3824	4822 051 30102	1K	5%	0,062W		
3825	4822 051 30223	22K	5%	0,062W		
3826	4822 051 30273	27K	5%	0,062W		
3827	4822 051 20339	33R	5%	0,1W		
3828	4822 051 20479	47R	5%	0,1W		
3829	4822 051 30101	100R	5%	0,062W		
3830	4822 051 30472	4K7	5%	0,062W		
3835	4822 051 30223	22K	5%	0,062W		
3836	4822 051 30103	10K	5%	0,062W		
3837	4822 051 20471	470R	5%	0,1W		
3838	4822 051 20471	470R	5%	0,1W		
3839	4822 051 30471	470R	5%	0,062W		
3840	4822 051 30471	470R	5%	0,062W		
3841	4822 051 30472	4K7	5%	0,062W		
3842	4822 051 10102	1K	2%	0,25W		
3843	4822 051 30102	1K	5%	0,062W		
3844	4822 051 30101	100R	5%	0,062W		
3845	4822 051 20109	10R	5%	0,1W		
3846	4822 051 20223	22K	5%	0,1W		
3847	4822 117 12864	82K	5%	0,6W		
3848	4822 117 10834	47K	1%	0,1W		
3849	4822 051 30563	56K	5%	0,062W		
3850	4822 117 12902	8K2	1%	0.063W		
3851	4822 051 30563	56K	5%	0,062W		
3852	4822 117 10834	47K	1%	0,1W		
3853	4822 051 30153	15K	5%	0,062W		
3854	4822 117 12902	8K2	1%	0.063W		
3855	4822 116 40227	4R6	25%	12V		
3856	4822 051 20683	68K	5%	0,1W		
3857	4822 051 20154	150K	5%	0,1W		
3858	4822 051 30392	3K9	5%	0.063W		
3859	4822 117 10834	47K	1%	0,1W		
3860	4822 051 30102	1K	5%	0,062W		
3861	4822 117 10834	47K	1%	0,1W		
3862	4822 051 10102	1K	2%	0,25W		

- RESISTORS -

3863	4822 052 10338	3R3	5%	0,33W		
3864	4822 117 10833	10K	1%	0,1W		
3865	4822 051 30102	1K	5%	0,062W		
3867	4822 051 20223	22K	5%	0,1W		
3868	4822 051 30103	10K	5%	0,062W		
3869	4822 051 30103	10K	5%	0,062W		
3871	4822 051 30471	470R	5%	0,062W		
3872	4822 117 12925	47K	1%	0.063W		
3873	4822 051 30223	22K	5%	0,062W		
3874	4822 051 30223	22K	5%	0,062W		
3875	4822 051 30103	10K	5%	0,062W		
3876	4822 051 30103	10K	5%	0,062W		
3878	4822 051 30471	470R	5%	0,062W		
3879	4822 117 12925	47K	1%	0.063W		
3880	4822 051 20339	33R	5%	0,1W		
3881	4822 051 30151	150R	5%	0,062W		
3882	4822 117 11373	100R	1%			
3883	4822 051 30102	1K	5%	0,062W		
3884	4822 051 30102	1K	5%	0,062W		
3886	4822 117 10833	10K	1%	0,1W		
3887	4822 117 10833	10K	1%	0,1W		
3888	4822 051 20472	4K7	5%	0,1W		
3890	4822 117 10837	100K	1%	0.1W		
3891	4822 117 10837	100K	1%	0.1W		
3892	4822 117 13632	100K	1%	0.62W		
3893	4822 117 13632	100K	1%	0.62W		
3894	4822 117 10833	10K	1%	0,1W		
3895	4822 117 10833	10K	1%	0,1W		
3896	4822 117 10833	10K	1%	0,1W		
3897	4822 117 10833	10K	1%	0,1W		
3898	4822 117 10833	10K	1%	0,1W		
3899	4822 117 10833	10K	1%	0,1W		
3900	4822 051 30223	22K	5%	0,062W		
4104	4822 051 30008	Jumper				
4105	4822 051 30008	Jumper				
4107	4822 051 30008	Jumper				
4108	4822 051 30008	Jumper				
4110	4822 051 30008	Jumper				
4301	4822 051 30008	Jumper				
4302	4822 051 30008	Jumper				
4303	4822 051 30008	Jumper				
4304	4822 051 30008	Jumper				
4305	4822 051 30008	Jumper				
4400	4822 051 30008	Jumper				
4401	4822 051 30008	Jumper				

13-3

ELECTRICAL PARTSLIST

- RESISTORS -

4402	4822 051 30008	Jumper	
4403	4822 051 30008	Jumper	
4499	4822 051 30008	Jumper	
4501	4822 051 30008	Jumper	
4502	4822 051 30008	Jumper	
4503	4822 051 30008	Jumper	
4504	4822 051 30008	Jumper	
4505	4822 051 30008	Jumper	
4801	4822 051 30008	Jumper	
4802	4822 051 20008	Jumper	
4807	4822 051 20008	Jumper	
4808	4822 051 30008	Jumper	
4809	4822 051 20008	Jumper	
4810	4822 051 20008	Jumper	
4812	4822 051 20008	Jumper	
4813	4822 051 20008	Jumper	
4814	4822 051 20008	Jumper	
4815	4822 051 20008	Jumper	
4823	4822 051 20008	Jumper	
4824	4822 051 20008	Jumper	
4828	4822 051 20008	Jumper	
4831	4822 051 20008	Jumper	
4832	4822 051 20008	Jumper	
4838	4822 051 20008	Jumper	
4845	4822 051 20008	Jumper	
4847	4822 051 20008	Jumper	
4848	4822 051 20008	Jumper	
4850	4822 051 20008	Jumper	
4853	4822 051 20008	Jumper	
4856	4822 051 30008	Jumper	
4857	4822 051 20008	Jumper	
4859	4822 051 20008	Jumper	
4863	4822 051 20008	Jumper	
4865	4822 051 20008	Jumper	
4866	4822 051 20008	Jumper	
4872	4822 051 20008	Jumper	
4877	4822 051 30008	Jumper	
4881	4822 051 20008	Jumper	
4884	4822 051 20008	Jumper	
4885	4822 051 30008	Jumper	
4886	4822 051 20008	Jumper	
4888	4822 051 20008	Jumper	
4889	4822 051 20008	Jumper	
6308	2322 734 63308	3,3R	1%

- COILS & FILTERS -

1810	4822 242 73557	Filter CST8,46MTW-TF01
5104	2422 535 91074	Ind Fxd 185µH 5%
5109	4822 242 70665	Filter SFE10,7MS3-A
5110	4822 242 70665	Filter SFE10,7MS3-A
5111	2422 549 44023	Ind Var 450kHz
5112	4822 157 70302	Coil F7MCS-12216N
5114	4822 157 70302	Coil F7MCS-12216N
5119	4822 157 11443	Coil 2,4µH
5121	4822 242 10261	Crystal 75kHz
5123	2422 549 44108	Ind Var 796kHz
5130	4822 157 11843	Coil MD7B-01F
5131	4822 157 11843	Coil MD7B-01F
5301	4822 157 11823	Coil 2,2µH 5%
5302	4822 157 11823	Coil 2,2µH 5%
5400	2422 535 94279	Ind Fxd 100µH 5%
5401	4822 157 11823	Coil 2,2µH 5%
5402	4822 157 11823	Coil 2,2µH 5%
5403	4822 242 73769	Filter CST4,19MGW
5404	4822 157 70826	Coil 2,4µH
5803	4822 157 11231	Coil LAN02TB1R0J

- DIODES -

6103	5322 130 34337	Diode BAV99
6105	4822 130 83075	Diode HN1V02H-B
6130	4822 130 82833	Diode 1SV228
6131	4822 130 82833	Diode 1SV228
6181	5322 130 34337	Diode BAV99
6182	4822 130 83757	Diode BAS216
6183	9340 386 90115	Diode BZX284-C11
6301	4822 130 31878	Diode 1N4003G
6302	4822 130 31878	Diode 1N4003G
6303	4822 130 31878	Diode 1N4003G
6304	4822 130 31878	Diode 1N4003G
6308	4822 130 10838	Diode UDZ3.3B
6315	4822 130 83757	Diode BAS216
6316	4822 130 83757	Diode BAS216
6321	4822 130 83757	Diode BAS216
6322	4822 130 83757	Diode BAS216
6323	4822 130 83757	Diode BAS216
6401	4822 130 10838	Diode UDZ3.3B
6402	5322 130 34337	Diode BAV99
6404	4822 130 83059	LED TLUR4400
6410	3198 020 55680	Diode BZX384-C5V6
6411	4822 130 11564	Diode UDZ3.9B
6877	4822 130 11564	Diode UDZ3.9B

ELECTRICAL PARTSLIST

- IC & TRANSISTORS -

7101	4822 209 90924	IC TEA5757H/V1
7102	4822 130 42131	Trans BF550
7111	5322 130 42755	Trans BC847C
7180	4822 130 60373	Trans BC856B
7181	5322 130 42755	Trans BC847C
7182	5322 130 42755	Trans BC847C
7183	5322 130 42755	Trans BC847C
7301	4822 209 31544	IC TA8227P
7303	4822 130 41246	Trans BC327-25
7304	4822 130 41246	Trans BC327-25
7305	4822 130 60373	Trans BC856B
7306	5322 130 60159	Trans BC846B
7312	5322 130 60159	Trans BC846B
7313	4822 130 42615	Trans BC817-40
7314	4822 130 42615	Trans BC817-40
7400	3140 110 50970	IC MCU TMP86CH29F
7401	9965 000 04931	IC M24C01-WMN6
7402	5322 130 60159	Trans BC846B
7403	5322 130 60159	Trans BC846B
7405	5322 130 42755	Trans BC847C
7406	5322 130 42755	Trans BC847C
7800	9352 642 17557	IC SAA7325H/M2B
7802	5322 209 11517	IC PC74HCU04T
7803	5322 130 60123	Trans BC807-40
7804	5322 209 82941	IC LM358D
7807	5322 130 42755	Trans BC847C
7808	4822 209 32852	IC TDA7073A/N2
7809	4822 209 32852	IC TDA7073A/N2
7810	4822 209 33165	IC TDA1308T/N1
7875	5322 130 60159	Trans BC846B

- MISCELLANEOUS -

1003	4822 240 10111	Loudspeaker 8 Ohm 4 W
1004	4822 240 10111	Loudspeaker 8 Ohm 4 W
1005	2422 030 00333	Mains Socket
1010 ⚠	4822 277 21794	Volt Selector (For -/01/11/16)
1106	2422 549 44211	Ferrite Bar 5X13X55
1301	4822 267 10731	Connector 6P
1404	3140 110 51100	LCD Panel
1404	3140 110 51090	LCD Panel
1407	4822 276 12889	Push Switch
1410	4822 267 10954	Connector 5P

- MISCELLANEOUS -

1460	4822 267 10958	Connector 5P
1462	4822 267 10871	Connector 17P
1491	2422 128 02922	Tact Switch
1492	2422 128 02922	Tact Switch
1493	2422 128 02922	Tact Switch
1494	2422 128 02922	Tact Switch
1495	2422 128 02922	Tact Switch
1496	2422 128 02922	Tact Switch
1497	2422 128 02922	Tact Switch
1498	2422 128 02922	Tact Switch
1506	4822 267 10954	Connector 5P
1510	2422 127 00537	Slide Switch
1590	4822 267 10958	Connector 5P
1592	4822 277 11846	Slide Switch
5001 ⚠	3140 118 32980	Transformer (For -/00/05/10/14)
5001 ⚠	3140 118 32990	Transformer (For -/01/11/16)
5001 ⚠	3140 118 33000	Transformer (For -/17)
8004	3139 110 35190	FFC Foil 5P
8005	3139 110 35200	FFC Foil 5P
8006	3140 110 21710	FFC Foil 17P
8006	3139 110 35550	FFC Foil 17P
8008	3139 110 35210	FFC Foil 6P
8800	4822 320 12637	FFC Foil 15P

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

ELECTRICAL PARTSLIST - RECORDER BOARD

- CAPACITORS -

2703	482212481151	22µF 50V
2704	482212481151	22µF 50V
2706	482212440433	47µF 20% 25V
2707	482212440196	220µF 20% 16V
2708	482212440433	47µF 20% 25V
2709	482212440433	47µF 20% 25V
2710	482212441584	100µF 20% 10V
2711	482212481151	22µF 50V
2712	482212612878	1,5nF 10% 16V
2714	482212612878	1,5nF 10% 16V
2715	482212151387	10nF 20% 16V
2716	482212612882	100nF +80-20% 50V
2719	482212613098	5,6nF 20% 16V
2721	482212612878	1,5nF 10% 16V
2722	482212151387	10nF 20% 16V
2723	482212612882	100nF +80-20% 50V
2726	482212613098	5,6nF 20% 16V
2727	482212612878	1,5nF 10% 16V
2728	482212611714	4,7nF 20%
2729	482212611714	4,7nF 20%
2730	202030090561	1,2nF 10%
2732	482212210577	3,3nF 10% 16V
2733	482212151387	10nF 20% 16V
2738	482212151387	10nF 20% 16V
2739	482212151387	10nF 20% 16V
2750	482212613098	5,6nF 20% 16V
2751	482212613098	5,6nF 20% 16V

- RESISTORS -

3701	482211652175	100R 5% 0,5W
3703	482211683868	150R 5% 0,5W
3704	482211683872	220R 5% 0,5W
3706	482211652272	330K 5% 0,5W
3707	482211652285	470K 5% 0,5W
3710	482211652264	27K 5% 0,5W
3712	482211652238	12K 5% 0,5W
3713	482211683868	150R 5% 0,5W
3714	482211683872	220R 5% 0,5W
3716	482211652272	330K 5% 0,5W
3719	482211652264	27K 5% 0,5W
3720	482211652238	12K 5% 0,5W
3722	482211652257	22K 5% 0,5W
3723	482211652257	22K 5% 0,5W
3726	482211652256	2K2 5% 0,5W

- RESISTORS -

3727	482211652256	2K2 5% 0,5W
3730	482211683868	150R 5% 0,5W
3731	482211652291	56K 5% 0,5W
3732	482211652176	10R 5% 0,5W
3733	482211130893	4M7 5% 0,2W
3734	482205021003	10K 1% 0,6W
3743	482211683883	470R 5% 0,5W
3744	482211683883	470R 5% 0,5W
3747	482211683868	150R 5% 0,5W
3748	482211683883	470R 5% 0,5W
3749	482211683883	470R 5% 0,5W
3761	482211652289	5K6 5% 0,5W
3762	482211652289	5K6 5% 0,5W

- COIL -

5701	482215710371	Coil 100kHz

- DIODE -

6704	482213030621	Diode 1N4148

- IC & TRANSISTORS -

7702	482213040981	Trans BC337-25
7705	482220917498	IC AN7323

- MISCELLANEOUS -

1707	482227711504	Push Switch
1725	482226511207	Connector 6P

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