

CD Stereo Radio Recorder

Service
Service
Service

AZ1018
all versions



Service Manual



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

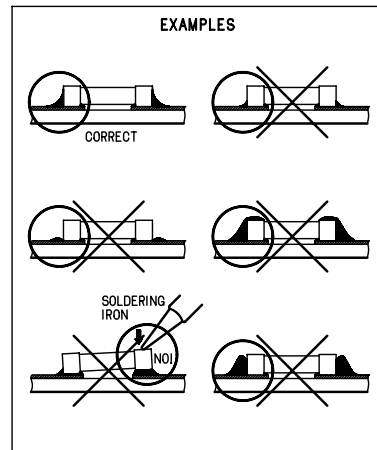
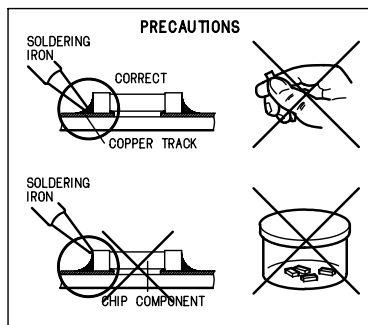
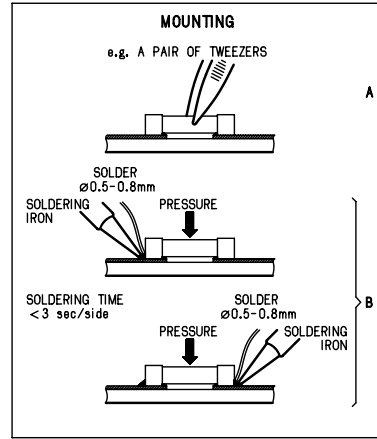
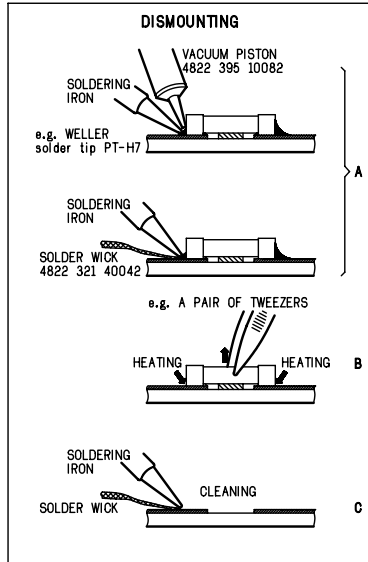
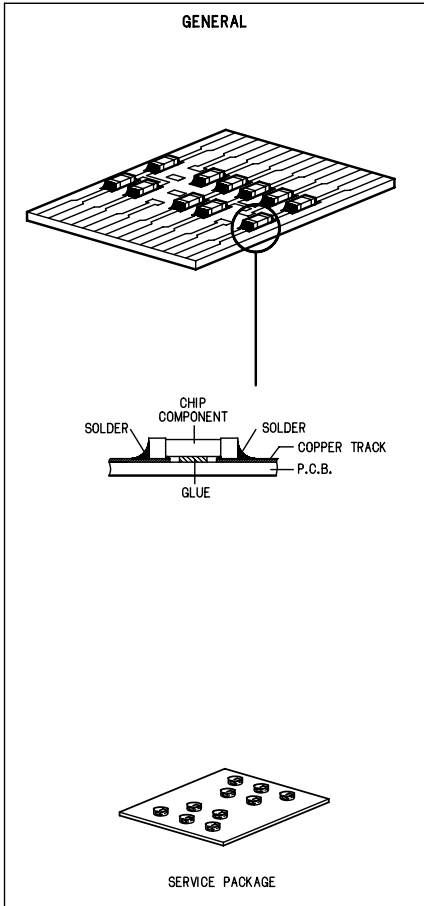
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**CLASS 1
LASER PRODUCT**



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



(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.

(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 enfilier 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). Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Sorgen Sie dafür, daß Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(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 ▲

SAFETY



(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden. Sicherheitsbauteile sind durch das Symbol ▲ markiert.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke 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 ricambio identici a quelli specificati. Componenti di sicurezza sono marcati con ▲

(GB) DANGER: Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

(S) Varning !
Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

Advarsel !
Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.



(FIN) Varoituis !
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 sécurité, 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 (± 3 dB)

TUNER - FM SECTION

Tuning range	: 87.5 - 108 MHz
IF frequency	: 10.7 MHz \pm 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 \pm 3 kHz
Sensitivity	: 3200 μ V/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 \pm 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 \pm 20 nm
Laser light power	: < 0.5 mW

SERVICE TOOLS

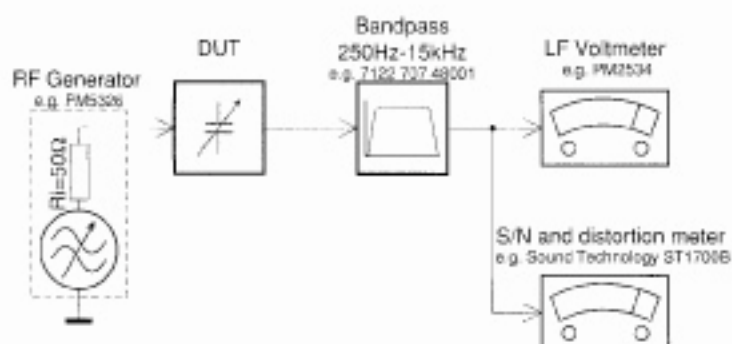
TORX T10 screwdriver with shaftlength 150mm.....	4822 395 50423
TORX screwdriver set SBC 163.....	4822 295 50145
Audio signal disc SBC 429.....	4822 397 30184
Playability test disc SBC 444.....	4822 397 30245
Test disc 5 (disc without errors) +	
Test disc 5A (disc with dropout errors, black spots and 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, 1M)	4822 320 11307
extendible cable (2m, 2M , to connect wristband to connection box)	4822 320 11305
connecting cable (3m, 2M , to connect table mat to connection box)	4822 320 11306
earth cable (1M , 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

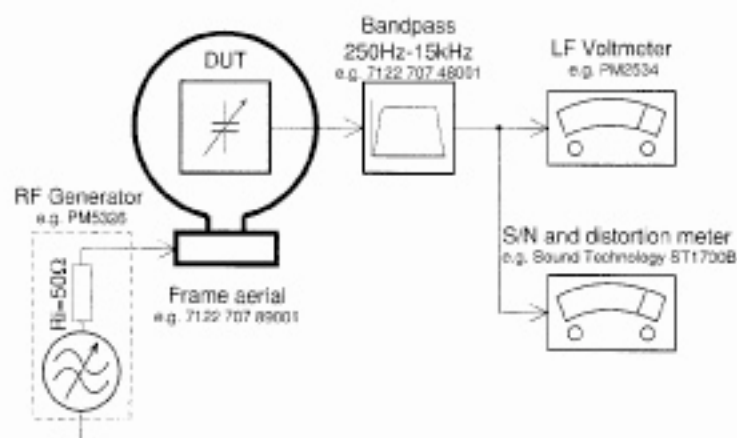
SERVICE MEASUREMENTS

Tuner FM



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

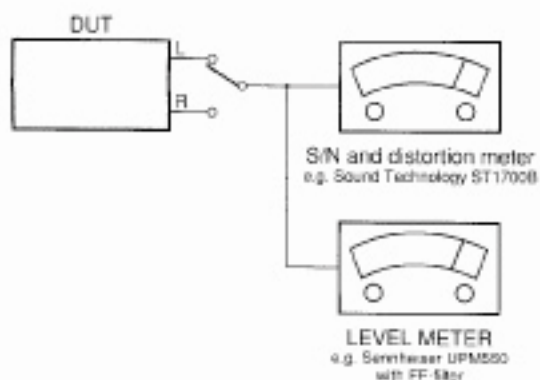
Tuner AM (MW,LW)



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

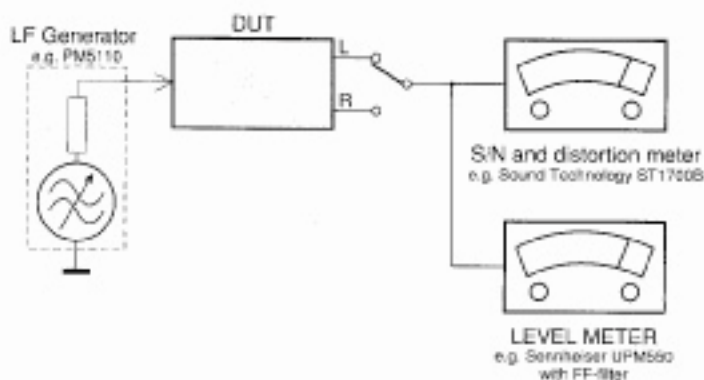
CD

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



RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



Controls

Top and front panels

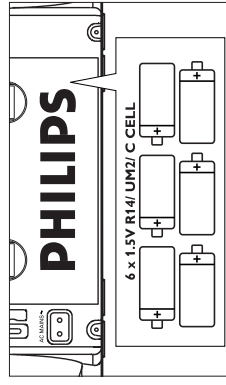
- 1 **Power slider: CD, RADIO, TAPE/OFF** – selects source of sound CD, RADIO, TAPE/OFF, and the power on/ off switch
- 2 **LIFT TO OPEN** – opens/ closes the CD door
- 3 **Display** – shows the status of the set
- 4 **CASSETTE RECORDER:**
PAUSE II – pauses recording or playback
STOP•OPEN – stops the 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** ◀◀, ▶▶ – 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

Power Supply

- 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

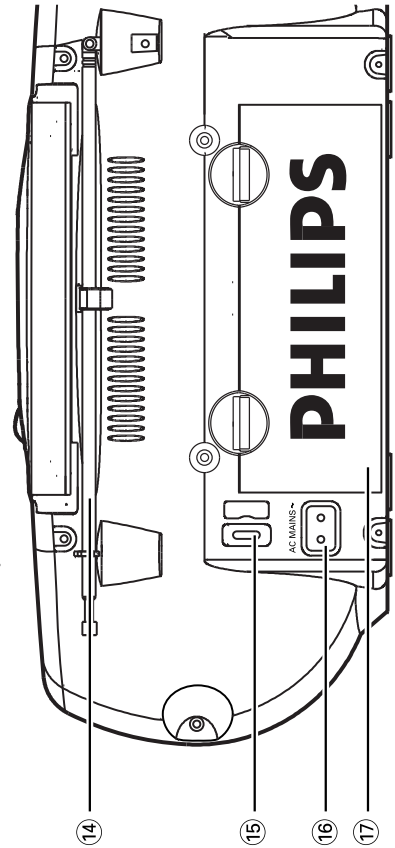
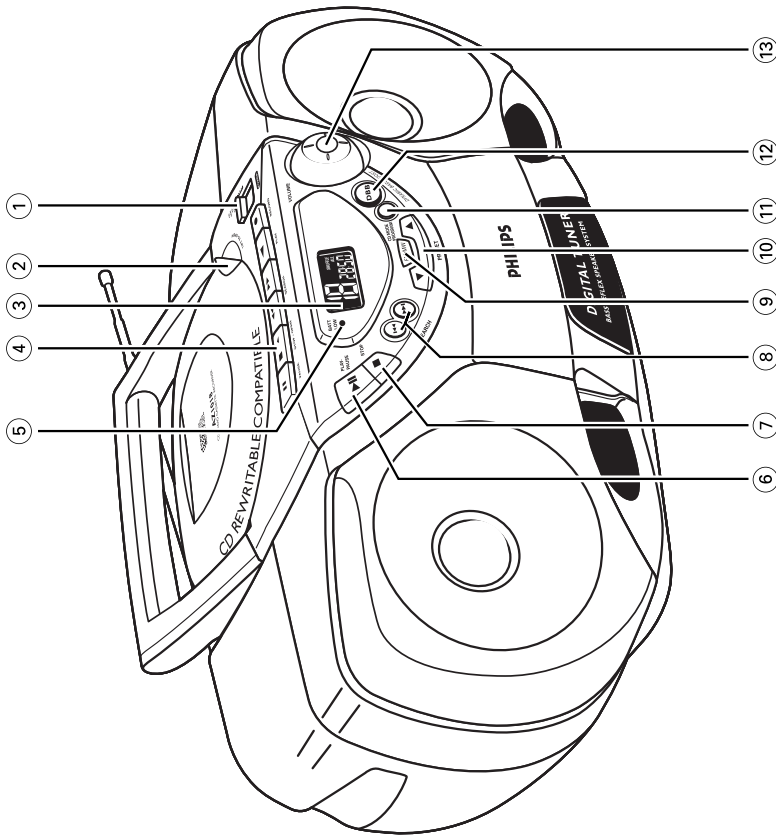
Whenever convenient, use the power supply if you want to conserve battery life.



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.

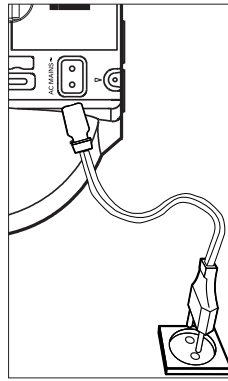
Batteries contain chemical substances, so they should be disposed of properly.

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.



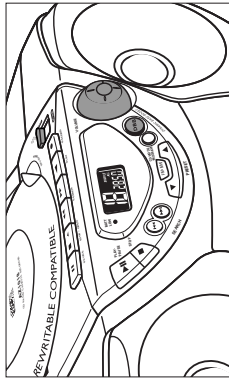
- 2 Connect the mains lead to the AC MAINS inlet and the wall socket. The power supply is now connected and ready for use.
- 3 If your set is equipped with a voltage selector, adjust the selector to match the local mains. Disconnect the mains lead if this selector has to be reset.

- 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.

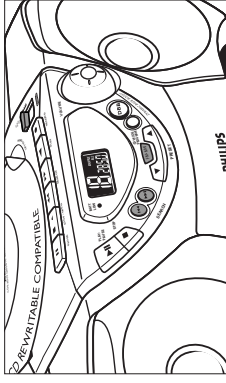
Note: When the set is switched off the tuner presets will be retained in the set's memory.

INSTRUCTIONS FOR USE

Radio

Programming radio stations

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

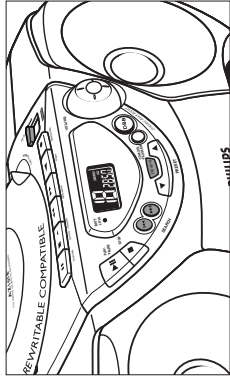


- 1 Tune to your desired station (see Radio Reception).
 - 2 Press **CD MODE/ PROGRAM** to activate programming.
Display: **PROGRAM** flashes.
 - 3 Press **PRESET ▲** or **▼** once or more to allocate a number from 1 to 30 to this station.
 - 4 Press **CD MODE/ PROGRAM** again to confirm the setting.
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.

Radio reception



- 1 Adjust the **POWER slider to RADIO**.
Display: shows **FM** 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 **5 r z h** 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.

INSTRUCTIONS FOR USE

CD-Player

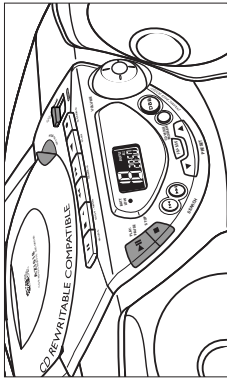
CD Player

Display indication

- **CD OPEN**: CD door open
- **d 15t**: 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 5tL**: programme activated but no tracks selected
- **Full t**: programme memory full
- **no prog**: programme cancelled
- **t d Err, no d 15t** or **nF d 15t**: 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.



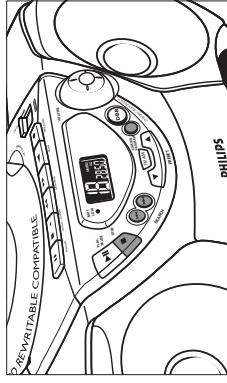
- 1 Adjust the **POWER slider** to CD.
Display: shows **t d** briefly.
- 2 To open the CD door: lift the CD door at the edge marked **LIFT TO OPEN**.
- 3 Insert a CD or CD-R(W) with the printed side facing up and press the CD door gently close.
- 4 Press **PLAY•PAUSE ▶II** on the set to start playback.
- 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.

CD-Player

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:

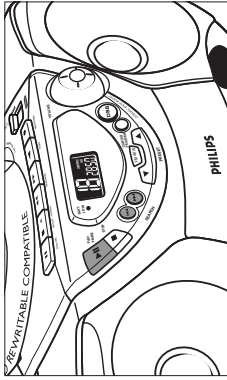
- SHUFFLE** – all tracks are played in random order
- SHUFFLE REPEAT ALL** – repeats the entire CD in random order
- REPEAT** – plays the current track continuously
- REPEAT ALL** – plays the entire CD continuously



- 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 **▶▶** 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.

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 ▶▶** 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.

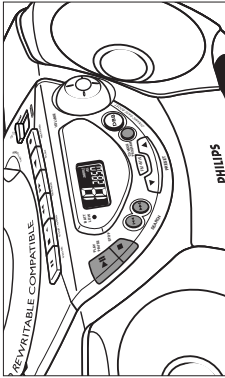
Finding a passage within a track

- 1 During playback, press and hold down **SEARCH** or **▶▶**.
 - 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.

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 'P' followed by your selected track number. If you attempt to programme without first selecting a track number, 'P' is shown.

3 Repeat steps 1 to 2 to select and store all desired tracks in this way.

'P' is displayed if you attempt to programme more than 20 tracks.

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

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:

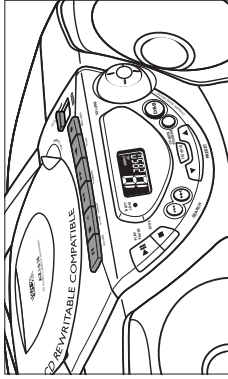
- opening the CD door;
- selecting **RADIO** or **TAPE** source;
- pressing **STOP** (twice during playback or in the stop position).

Display: shows 'P' 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 **TRP E** 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 **TRP E** 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.

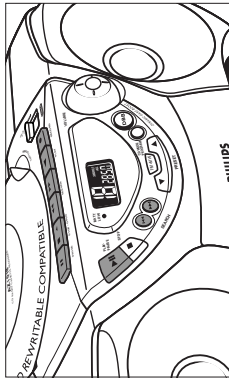
The best recording level is set automatically. Altering the **VOLUME** and **DBB** controls will not affect the recording in progress.

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** 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**).

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.

INSTRUCTIONS FOR USE

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.

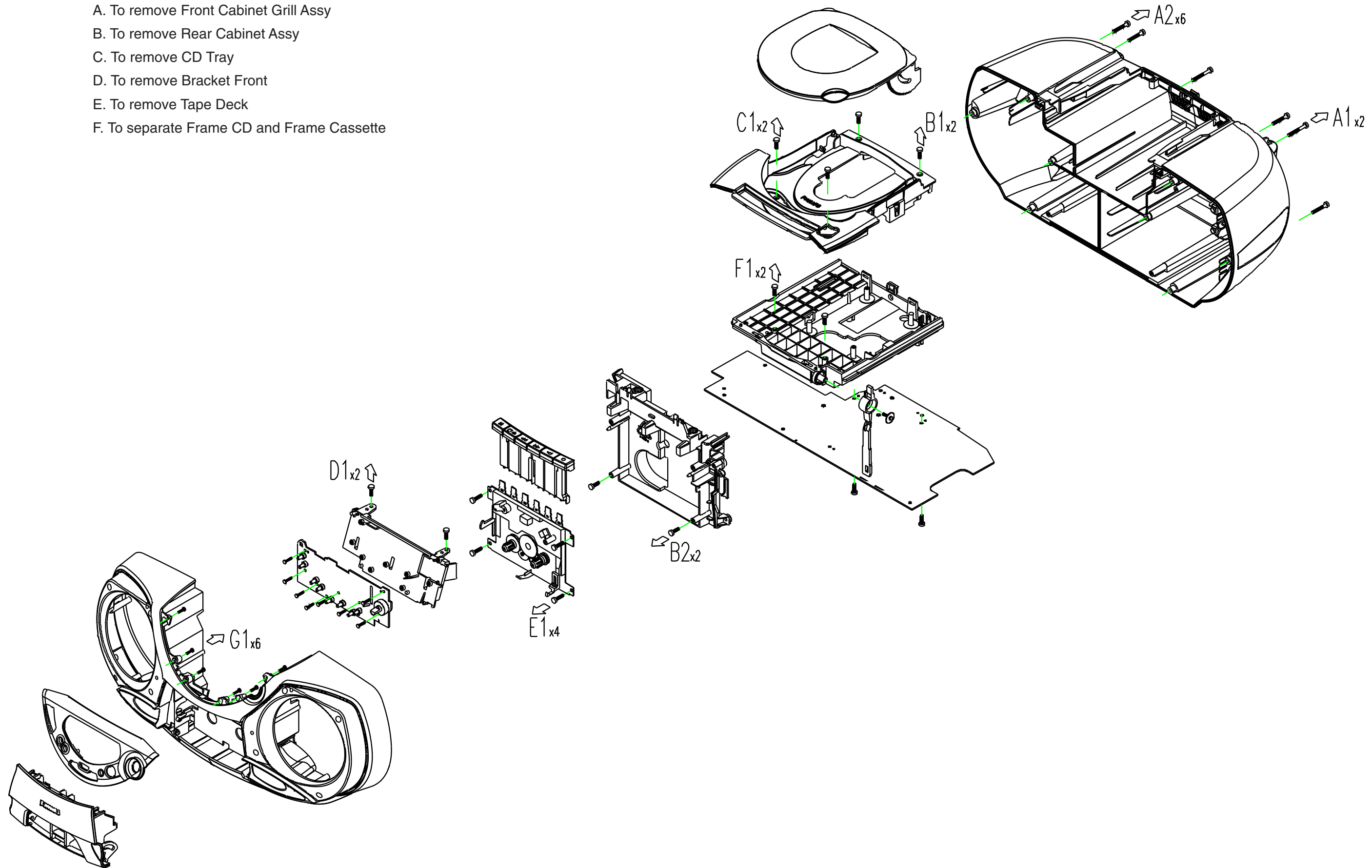
Problem	Solution
No sound	– Adjust the VOLUME
No power	– Mains lead not securely connected. Connect AC mains lead properly – Batteries exhausted /incorrectly inserted. Insert (fresh) batteries correctly
Display does not function properly/ No reaction to operation of any of the controls	– Electrostatic discharge Switch off and unplug the set. Reconnect after a few seconds. – No 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

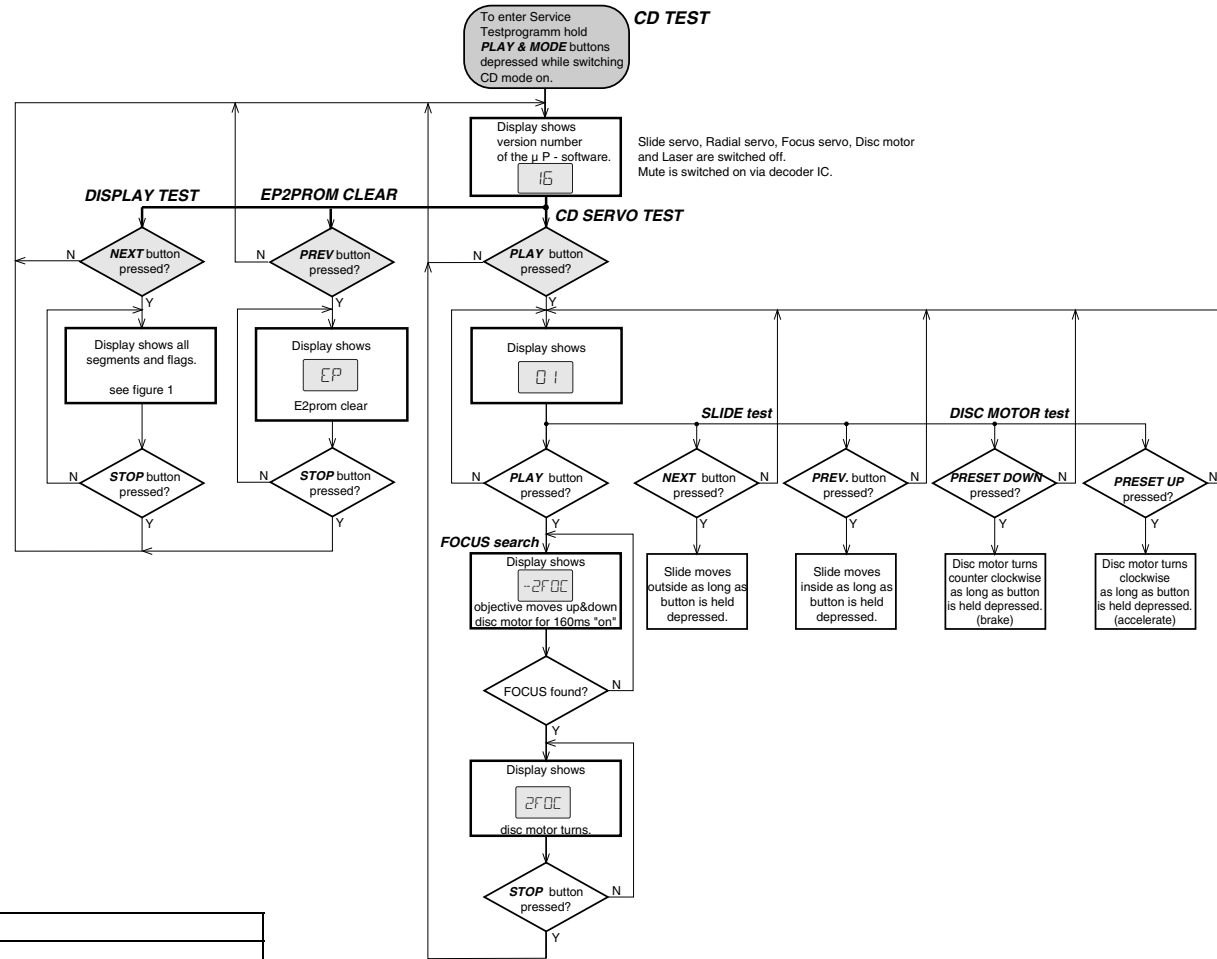
4-1

4-1

- 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



- 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 independently of the service testprogram.



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

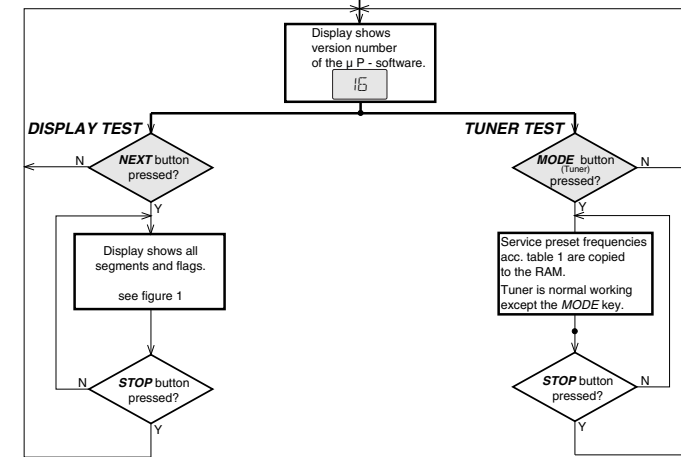
table 3

SERVICE PRESET FREQUENCIES

REGION	EUROPE FM/MW/LW	EUROPE2B FM/MW	OVERSEAS FM/MW ¹⁾ Grid switchable 10-100kHz/9-50kHz	EAST-EUROPE FM/MW	USA FM/MW
PRESET	/00/05/20/25	/00	/01/21	/14	/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

TUNER TEST



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 switch 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)
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

Abbreviations and Pin-description of CD Ics

SERVO PROCESSOR SAA7325H

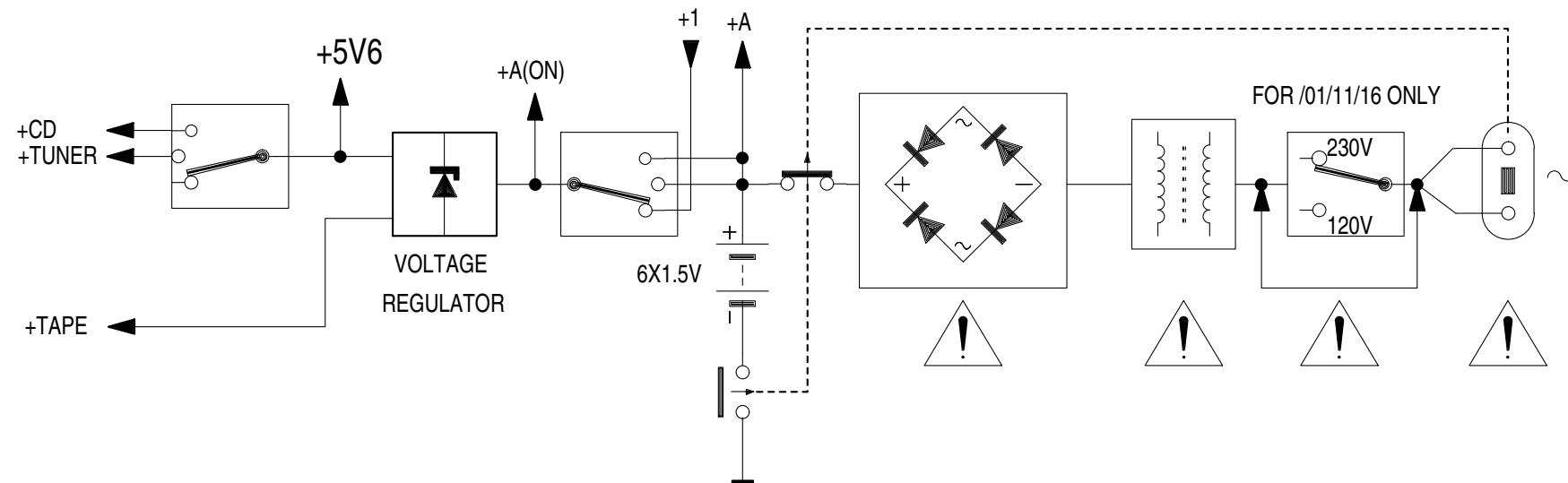
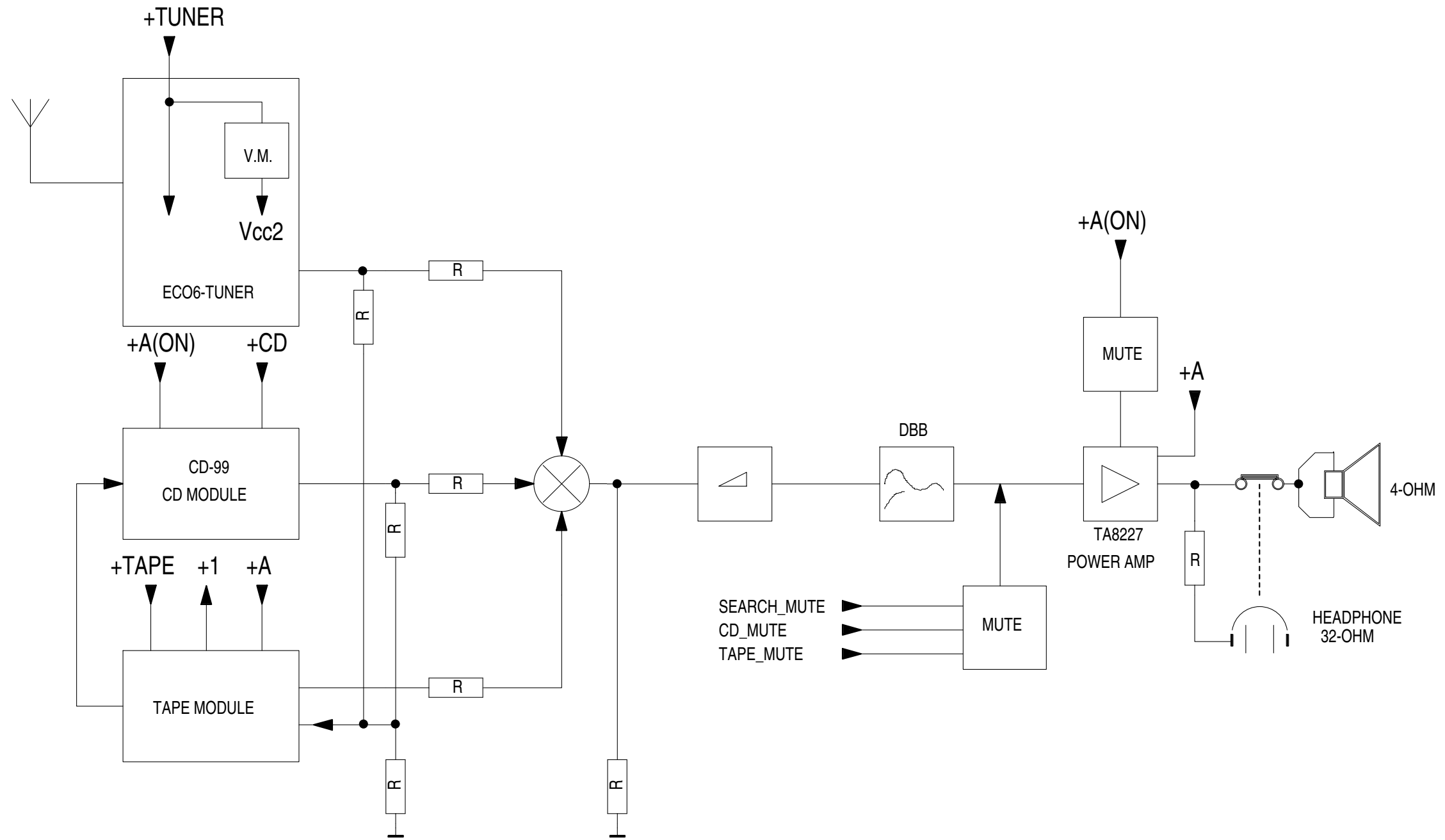
SYMBOL	PIN	DESCRIPTION
RAB	41	microcontroller interface R/W and load control line input (4-wire bus mode)
SILD	42	microcontroller interface R/W and load control line input (4-wire bus mode)
STATUS	43	servo interrupt request line/decoder status register output (open-drain)
TEST3	44	test control input 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 _{DD1(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 _{DD2(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.

BLOCK DIAGRAM

5-1

5-1



FRONT BOARD - CIRCUIT DIAGRAM

7-1

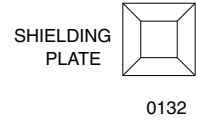
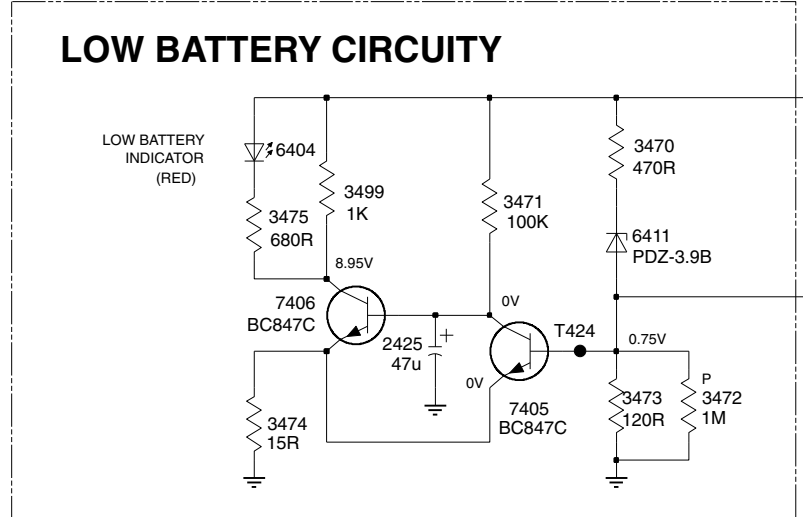
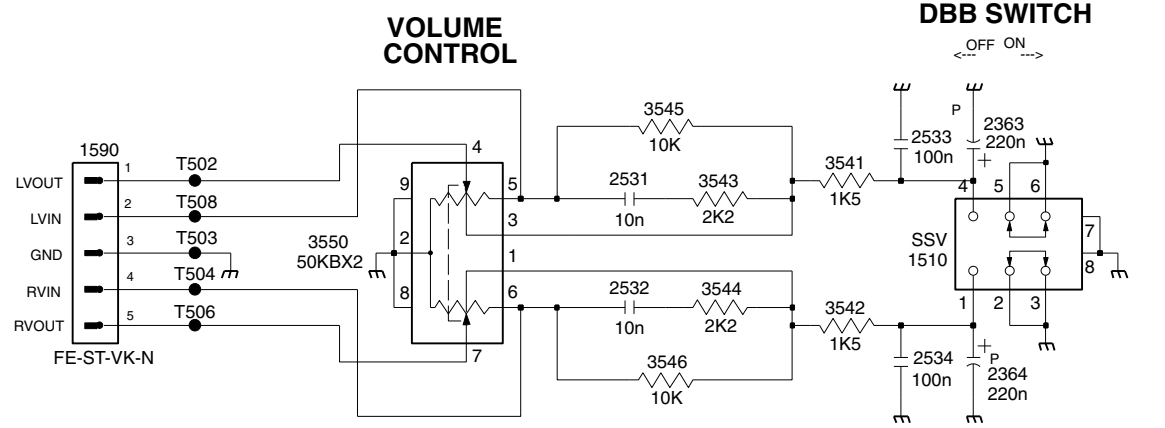
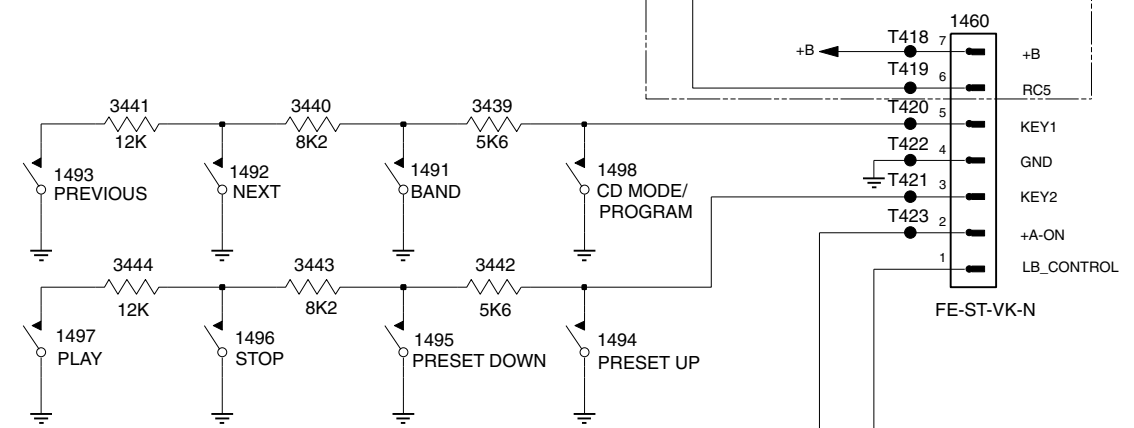
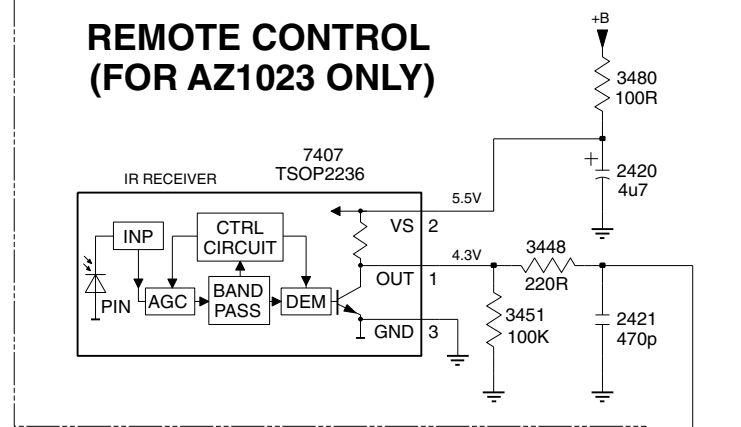
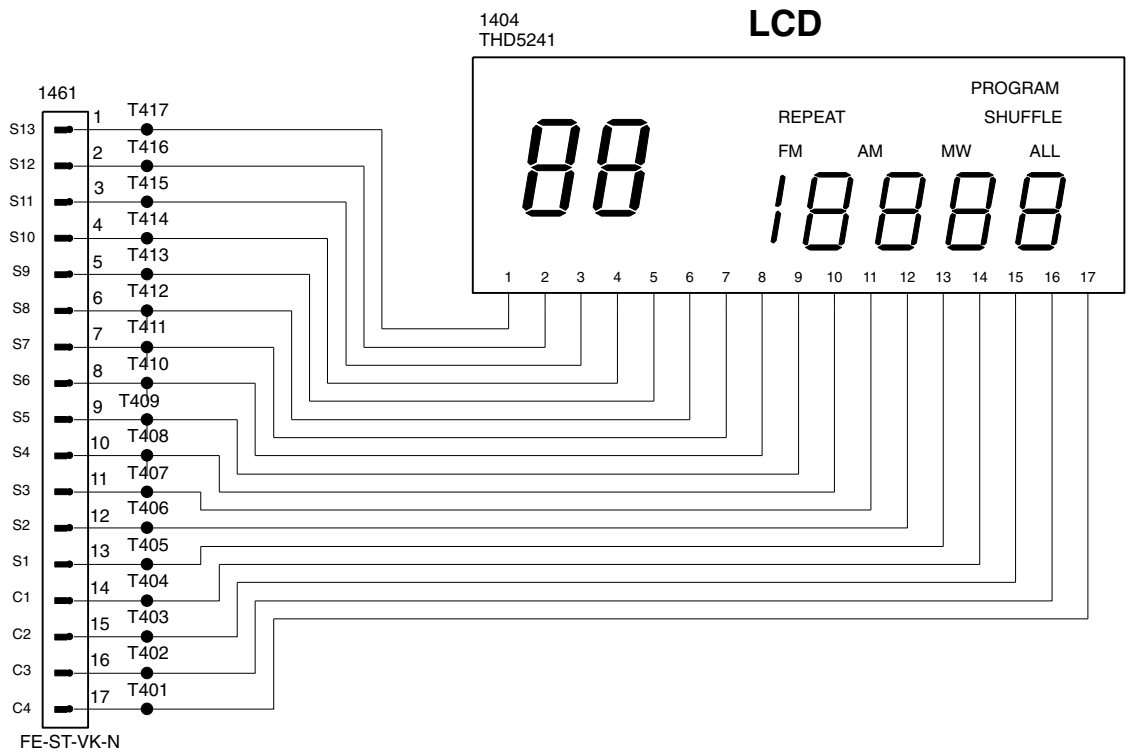
7-1

0132 H2 1461 A2 1493 D8 1496 E9 1510 F6 2364 G7 2425 G10 2533 F6 3440 D10 3443 E10 3451 B11 3472 H12 3475 G9 3541 F6 3544 G5 3550 F3 7405 H11 T401 E2 T404 D2 T407 C2 T410 C2 T413 B2 T416 B2 T419 C13 T422 D13 T502 F2 T506 G2
 1404 A4 1491 D10 1494 E11 1497 E8 1590 F2 2420 B11 2531 F5 2534 G6 3441 D9 3444 E9 3470 F11 3473 H11 3480 A11 3542 G6 3545 F5 6404 F9 7406 G10 T402 D2 T405 D2 T408 C2 T411 C2 T414 B2 T417 A2 T420 D13 T423 D13 T503 F2 T508 F2
 1460 C13 1492 D9 1495 E10 1498 D11 2363 F7 2421 B11 2532 G5 3439 D11 3442 E11 3448 B11 3471 G11 3474 H9 3499 G10 3543 F5 3546 G5 6411 G11 7407 A10 T403 D2 T406 D2 T409 C2 T412 B2 T415 B2 T418 C13 T421 D13 T424 G11 T504 G2

1 2 3 4 5 6 7 8 9 10 11 12 13 14

A
B
C
D
E
F
G
H

A
B
C
D
E
F
G
H



P: PROVISIONAL

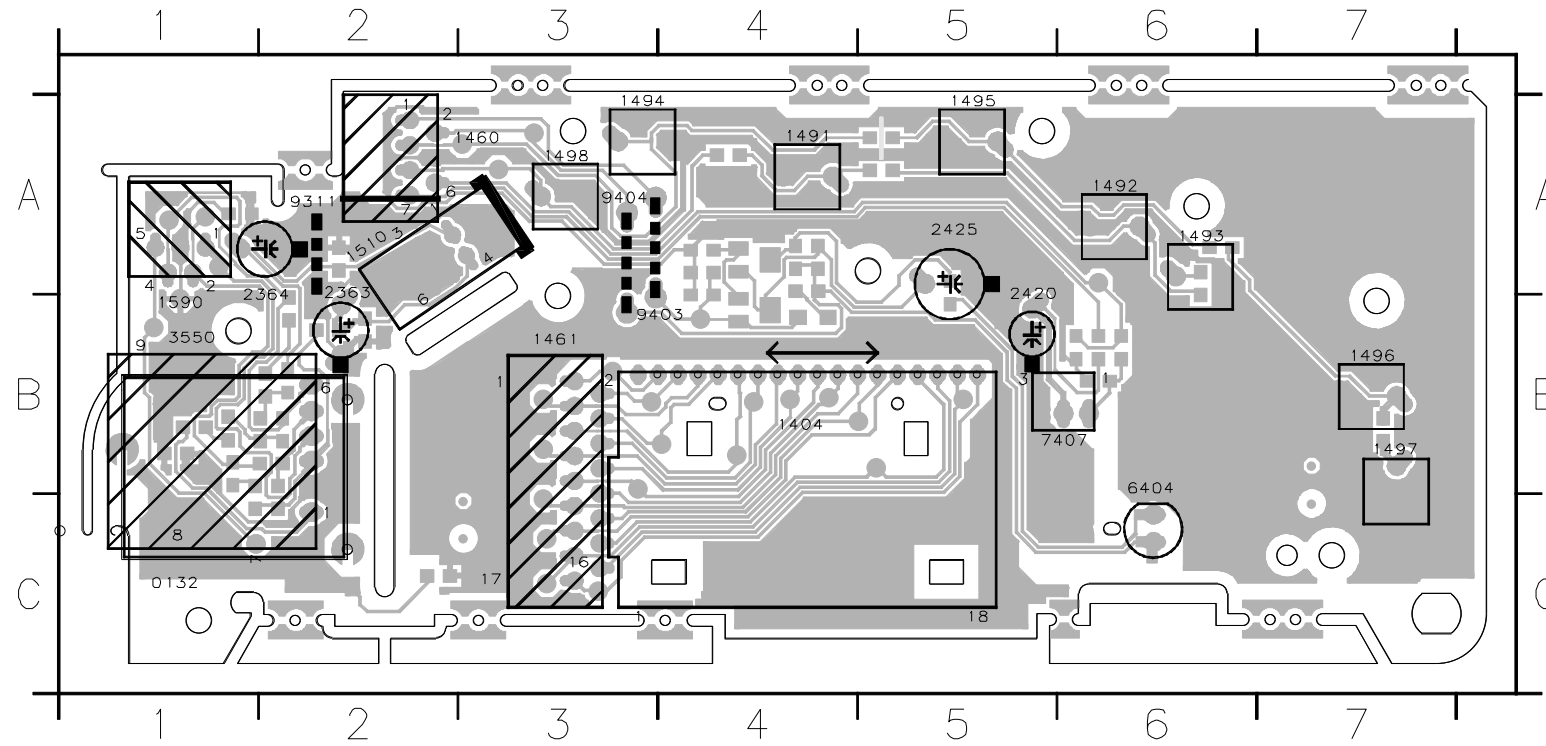
1 2 3 4 5 6 7 8 9 10 11 12 13 14

FRONT BOARD - LAYOUT DIAGRAM

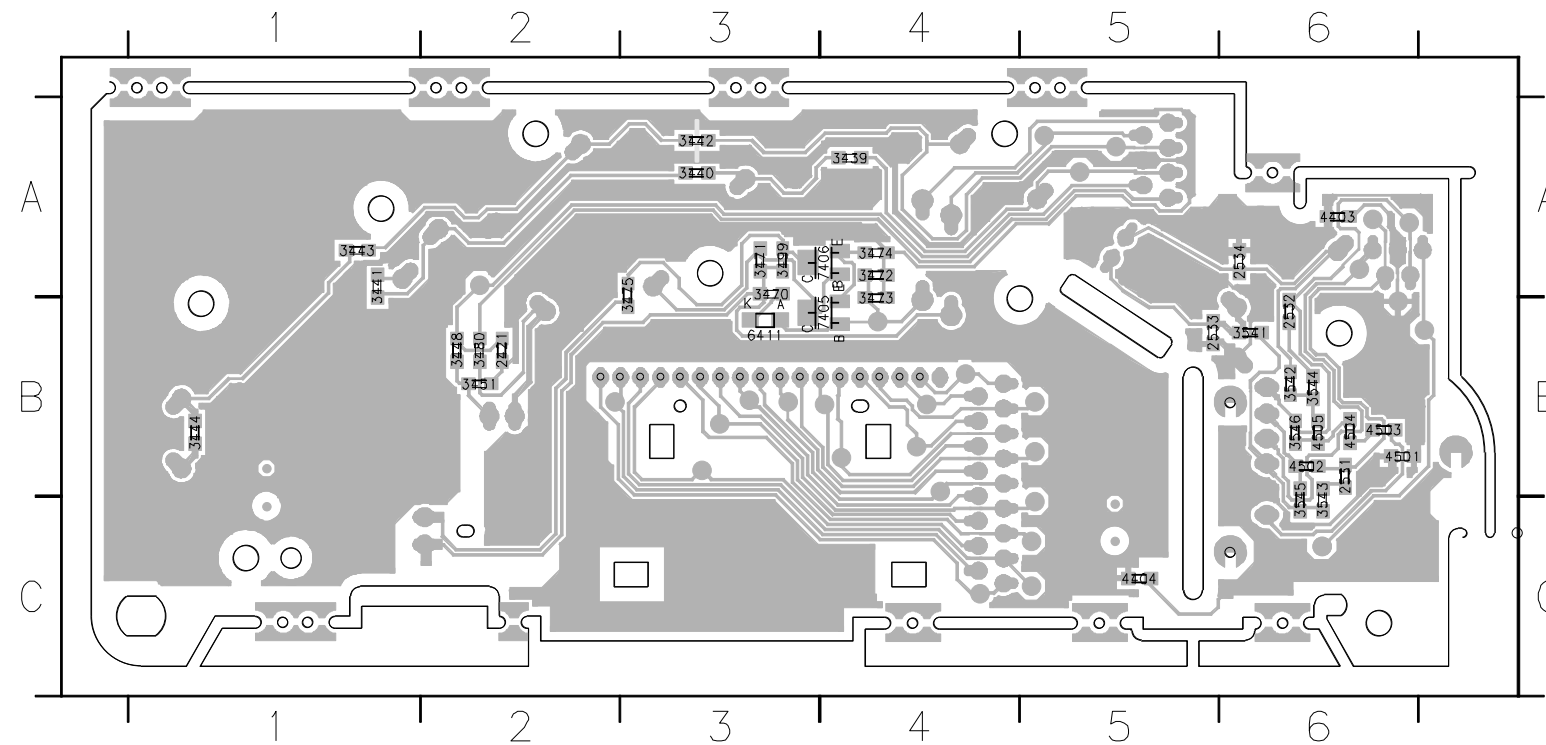
7-2

7-2

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



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

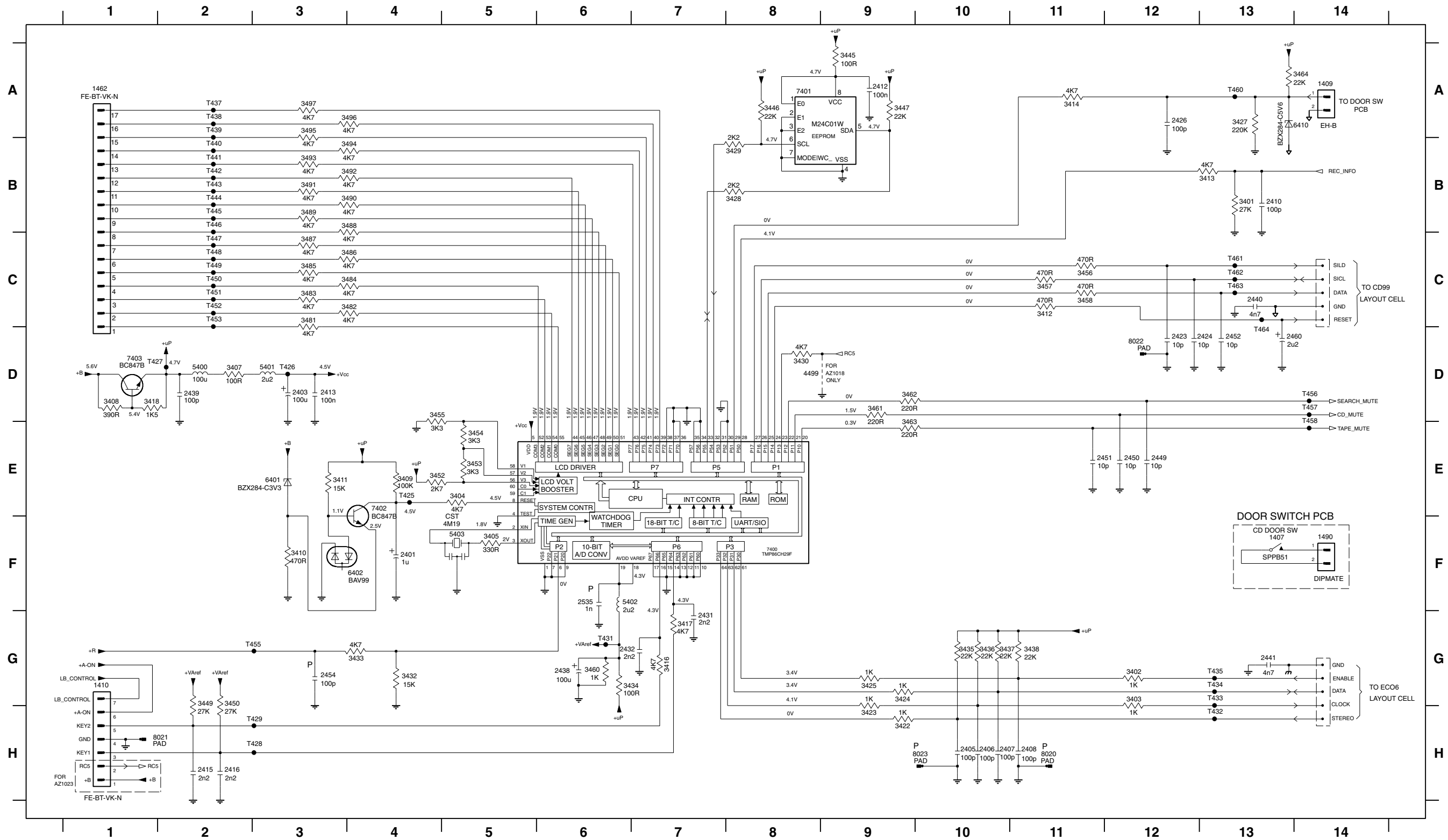


COMBI BOARD (Control Part) - CIRCUIT DIAGRAM

8-1

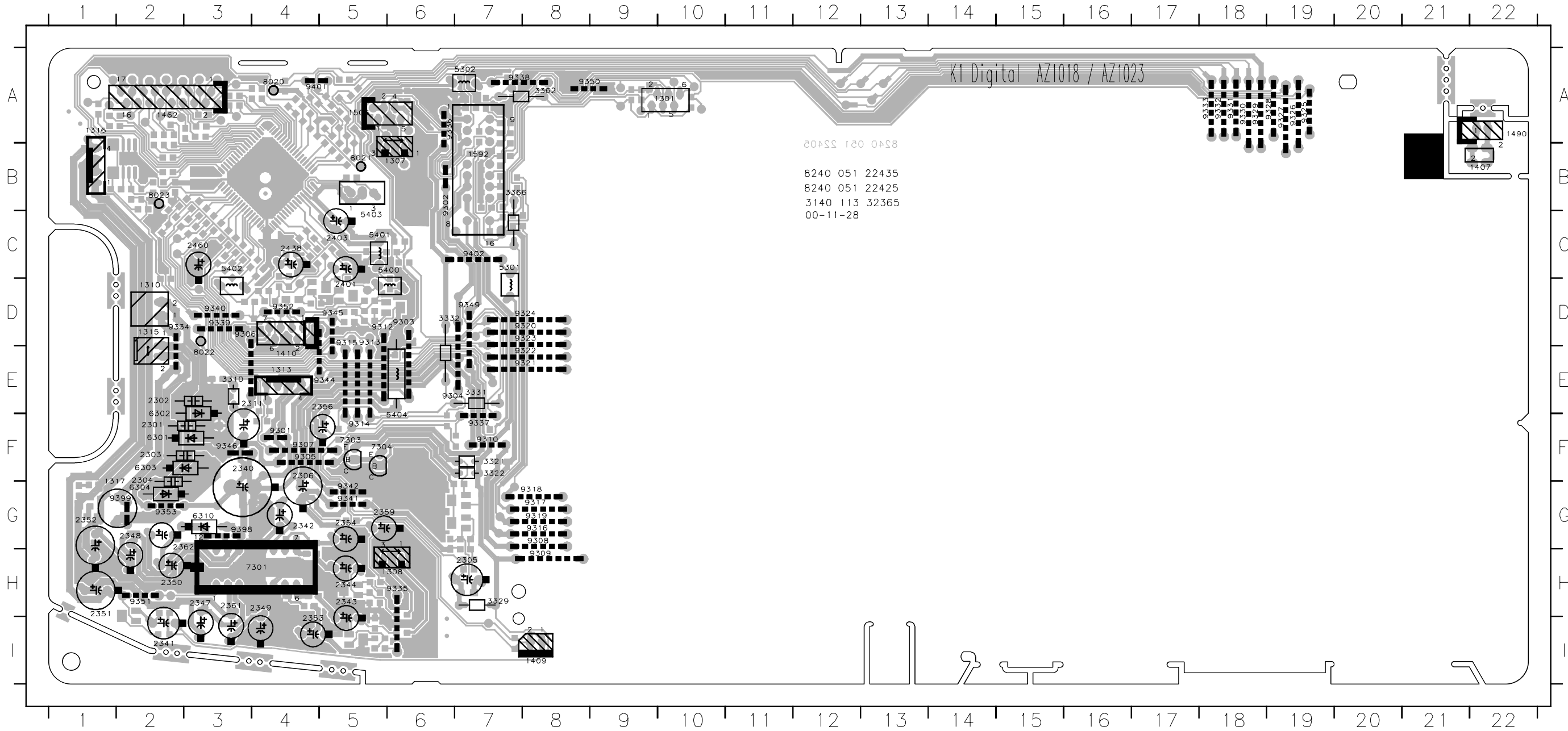
8-1

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 C3	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	T459 A13	



COMBI BOARD (Component Side) - LAYOUT DIAGRAM

0132	I14	1316	A1	1461	G16	1495	F19	1592	B7	2311	E4	2348	G2	2356	E5	2403	C5	3322	F7	5301	C7	6301	F2	7303	F5	9301	F4	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
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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

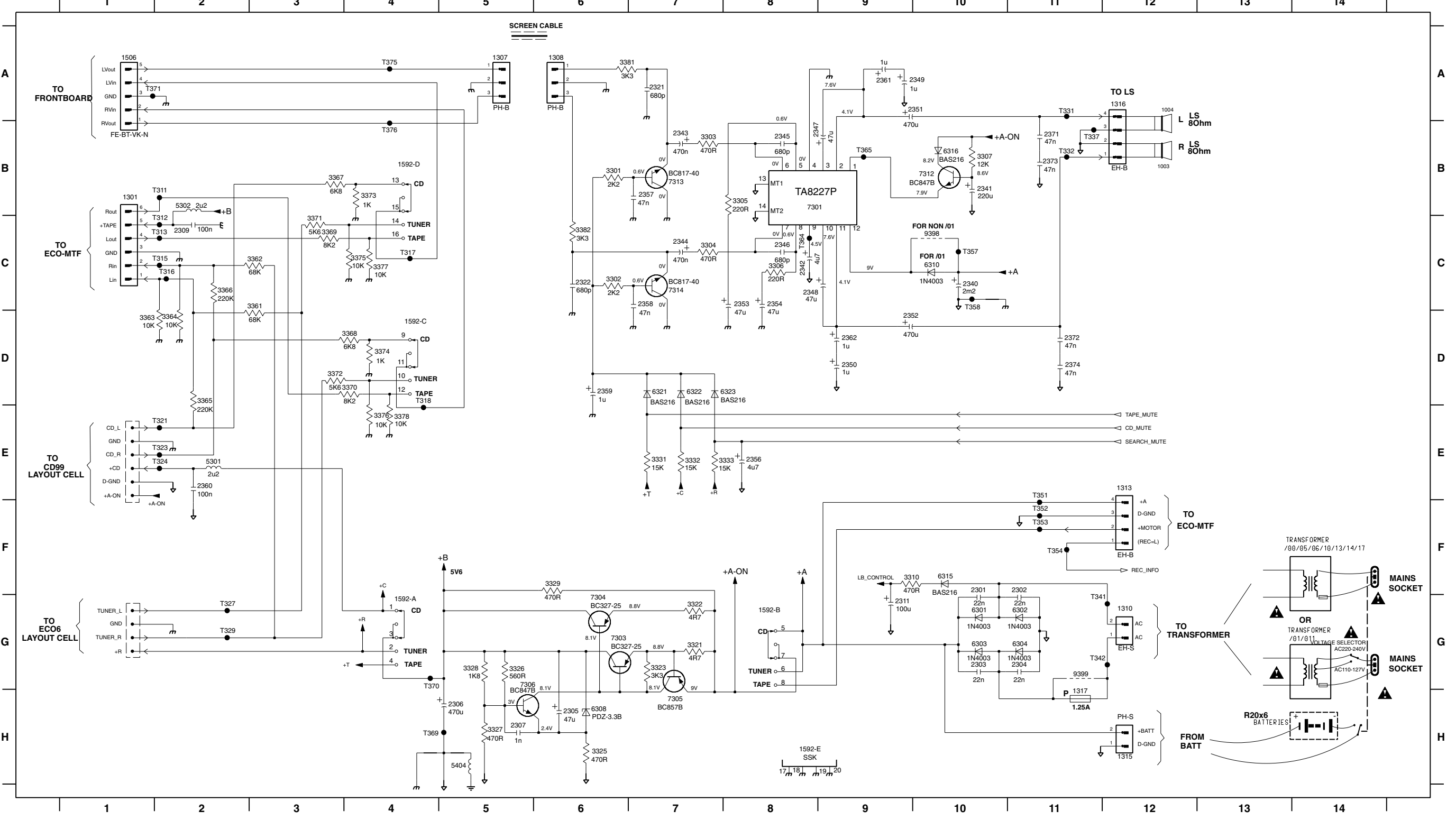


COMBI BOARD (AF Part) - CIRCUIT DIAGRAM

8-3

8-3

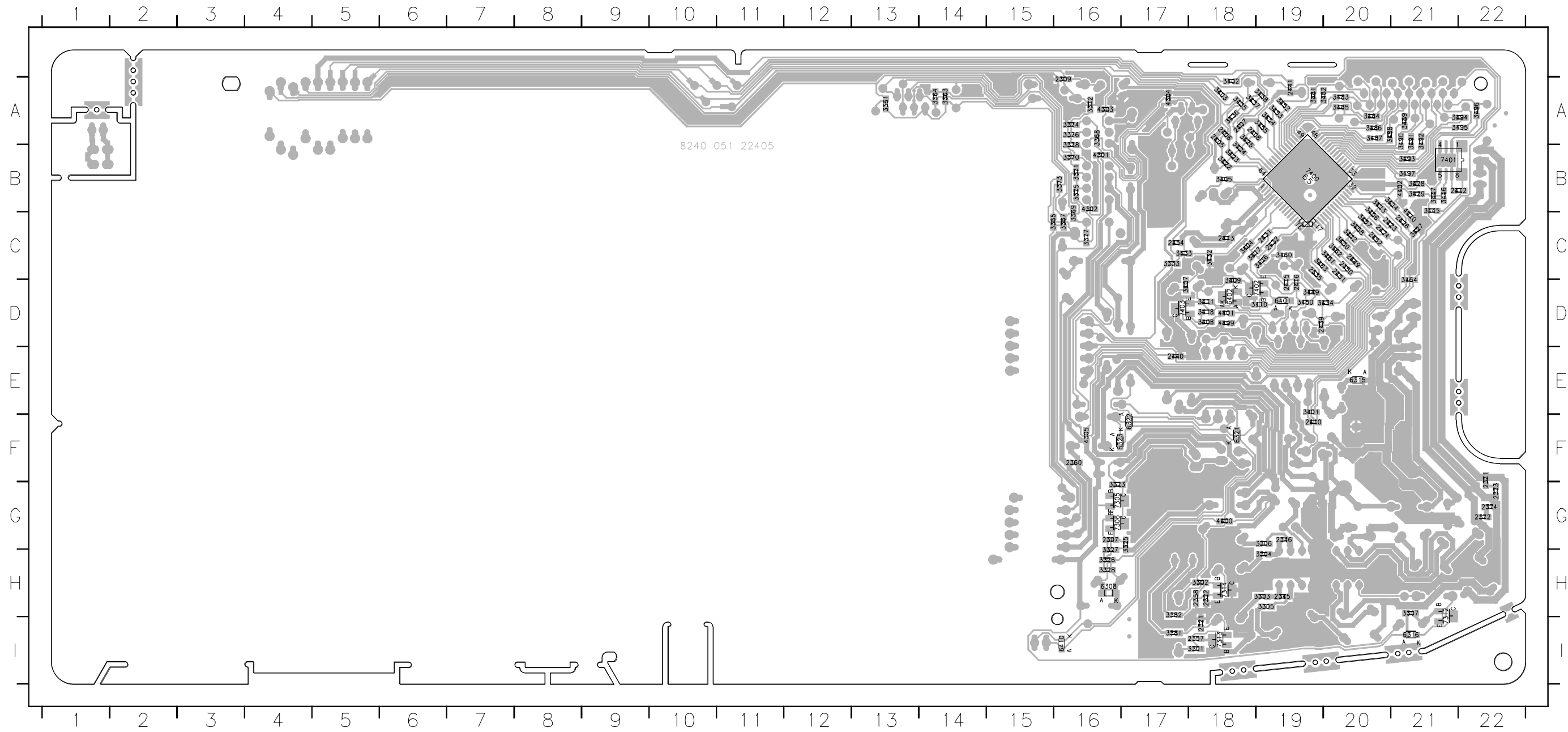
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1004 A12	1313 E12	1592-A G4	2301 F10	2306 H4	2322 C6	2344 C7	2349 A9	2354 C8	2360 E2	2373 B11	3304 C7	3321 G7	3327 H5	3333 E7	3365 D2	3370 D4	3375 C4	3382 C6	6302 G11	6315 F10	6301 B8	7312 B10	T311 B2	T317 C4	T327 G2	T341 G11	T354 F11	T369 H4		
1301 B1	1315 H12	1592-B G8	2302 F11	2307 H5	2340 C10	2345 B8	2350 D9	2356 E8	2361 A9	2374 D11	3305 B8	3322 G7	3328 G5	3361 C3	3366 C2	3371 C3	3376 E4	5301 E2	6303 G10	6316 B10	7303 G6	7313 B7	T312 C2	T318 D4	T329 G2	T342 G11	T357 C10	T370 G4		
1307 A5	1316 A12	1592-C D4	2303 G10	2309 C2	2341 B10	2346 C8	2351 A10	2357 B6	2362 D9	2301 B6	3306 C8	3323 G7	3329 F6	3362 C3	3367 B3	3372 D3	3377 C4	5302 B2	6304 G11	6321 D7	7304 G6	7314 C7	T313 C2	T321 E2	T331 A11	T351 E11	T358 C10	T371 A1		
1308 A6	1317 H11	1592-D B4	2304 G11	2311 G9	2342 C8	2347 B9	2352 D9	2358 C6	2371 B11	3302 C6	3307 B10	3325 H6	3331 E7	3363 D2	3368 D4	3373 B4	3378 E4	5404 H5	6308 H6	6322 D7	7305 H7	9398 C10	T315 C2	T323 E2	T332 B11	T352 F11	T364 C8	T375 A4		



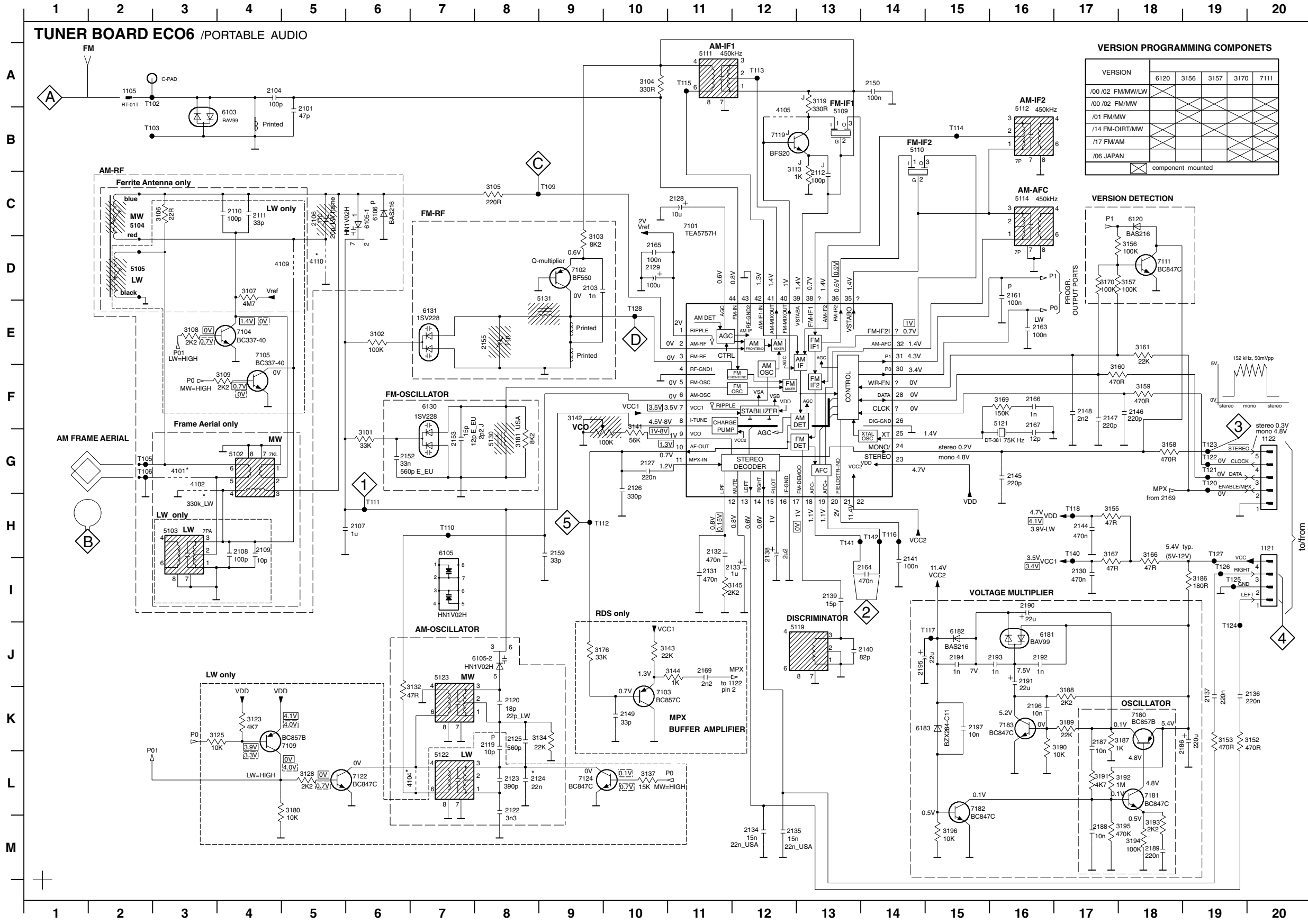
8-4
COMBI BOARD (Solder Side) - LAYOUT DIAGRAM

8-4

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2309 A16	2372 G22	2413 C18	2439 D19	2532 G9	3306 G19	3363 A14	3373 B16	3402 A18	3412 C20	3425 A18	3436 A18	3445 B21	3454 A19	3464 D21	3482 A19	3491 A21	3542 H9	4305 F16	4502 H9	6323 F16	7314 H18
2321 I18	2373 G22	2415 D19	2440 E17	2533 G8	3307 H21	3364 A14	3374 A16	3403 A18	3413 B20	3427 C21	3437 A18	3446 B21	3455 A19	3470 G5	3483 A20	3492 A21	3543 H9	4400 G18	4503 H9	6401 D19	7400 B19
2322 H18	2374 G22	2416 D19	2441 A19	2534 G8	3323 G16	3365 C15	3375 B16	3404 C18	3414 B21	3428 B21	3438 A19	3447 B21	3456 C20	3471 G5	3484 A20	3493 B21	3544 H9	4401 D18	4504 H9	6402 D18	7401 B21
2345 H19	2405 A18	2421 G3	2449 C20	2535 C19	3325 G17	3367 C16	3376 A16	3405 B18	3416 C19	3429 B21	3439 F6	3448 G3	3457 C20	3472 G6	3485 A20	3494 A22	3545 H9	4402 B21	4505 H9	6410 I16	7402 D19
2346 G19	2406 A18	2423 C20	2450 C20	3301 I18	3326 H16	3368 A16	3377 C16	3407 D17	3417 C18	3430 C20	3440 F5	3449 D19	3458 C20	3473 G6	3486 A20	3495 A22	3546 H9	4403 F9	4506 H9	6411 G5	7403 D17
2357 I18	2407 A18	2424 C20	2451 C20	3302 H18	3327 H16	3369 C16	3378 B16	3408 D18	3418 D18	3432 C18	3441 G3	3450 D19	3460 C19	3474 G6	3487 A20	3496 A22	4301 B16	4404 I8	4507 H9	6315 E20	7305 G16
2358 H18	2408 A18	2426 C21	2452 C20	3303 H19	3328 H16	3370 B16	3381 I17	3409 D18	3422 B18	3433 C17	3442 F5	3451 H3	3461 C20	3475 G4	3488 A20	3497 B21	4302 B16	4410 C21	4508 H9	6316 I21	7306 G16
2360 F16	2410 F19	2431 C19	2454 C17	3304 H19	3333 C17	3371 B16	3382 H17	3410 D19	3423 B18	3434 D20	3443 G2	3452 A19	3462 C20	3480 G3	3489 A21	3499 G5	4303 A16	4499 D18	6321 F18	7312 H21	7406 G6



TUNER BOARD ECO6 - CIRCUIT DIAGRAM

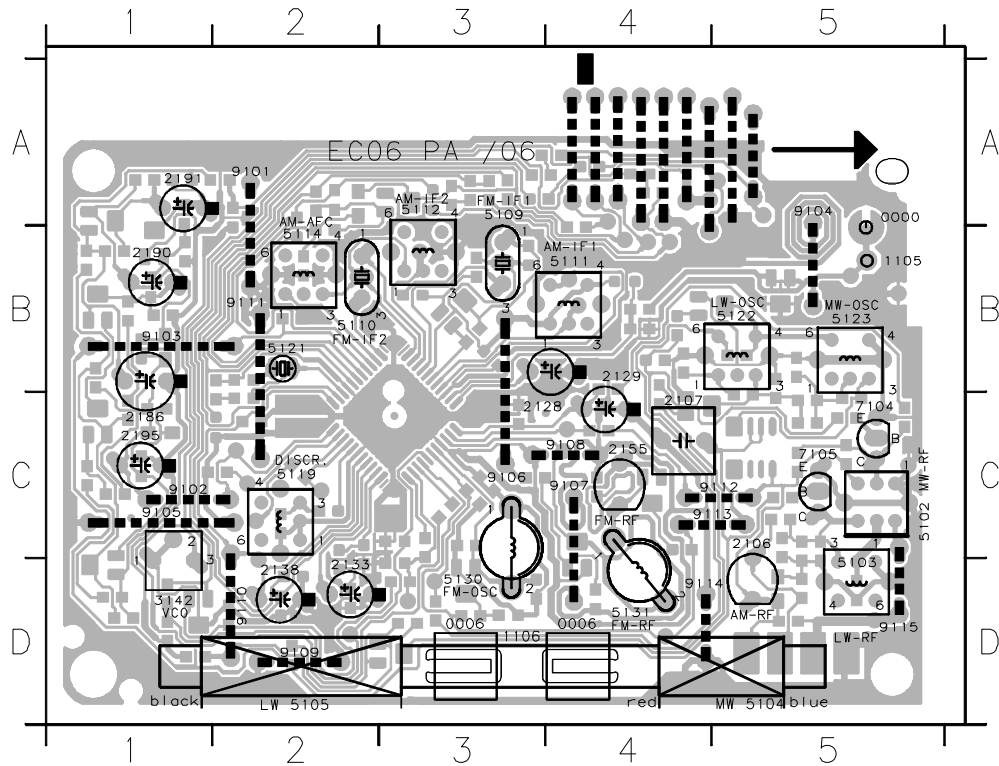


VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW					
/00 /02 FM/MW					
/01 FM/MW					
/14 FM-OIRT/MW					
/17 FM/AM					
/06 JAPAN					

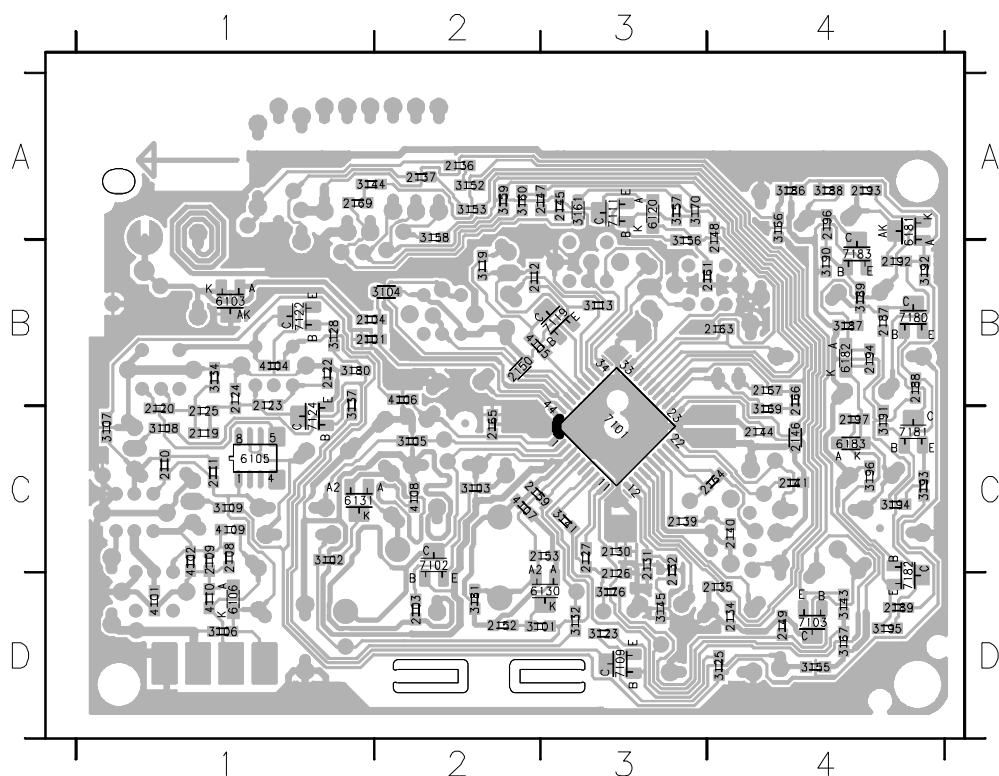
component mounted

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



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		8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123	1	6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D		5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A 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 2.2k to Vcc	C f=±10kHz V _{RF} = 0.5mV (as low as possible) see remark 2)		5111	5	
				5112		
AM AFC		C		5114	2	0 ± 2 mV DC
AM RF³⁾						
LW	198kHz	B 	198kHz	5105 LW ferrite coil	5	
MW FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz		2106			
	558kHz		5104 MW ferrite coil			
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	f = ±30kHz V _{RF} as low as possible	1500kHz	2106		
	560kHz		5104 MW ferrite coil			

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

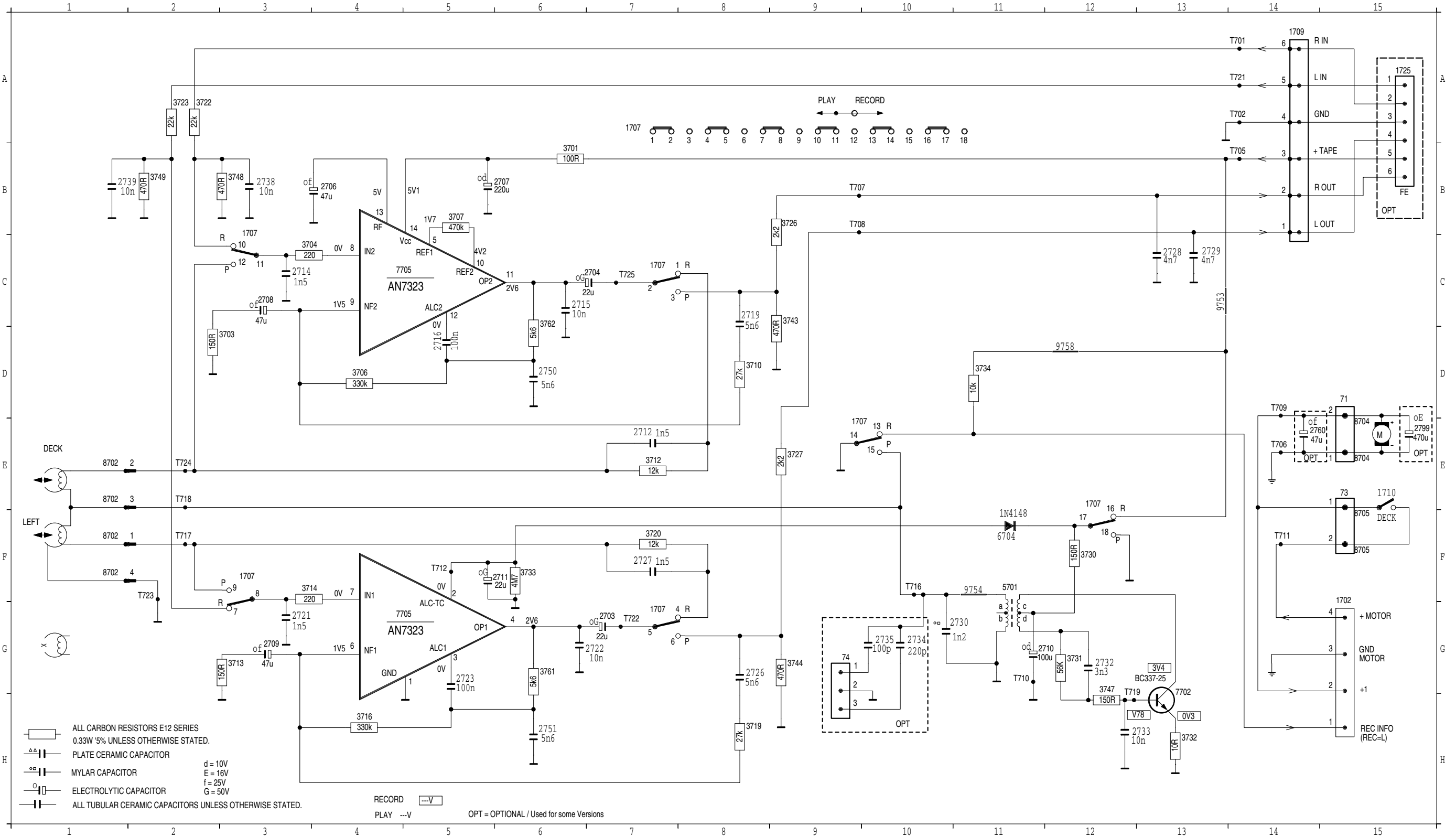
ECO6, general with ferrite antenna, 070799

RECORDER BOARD - CIRCUIT DIAGRAM

10-1

10-1

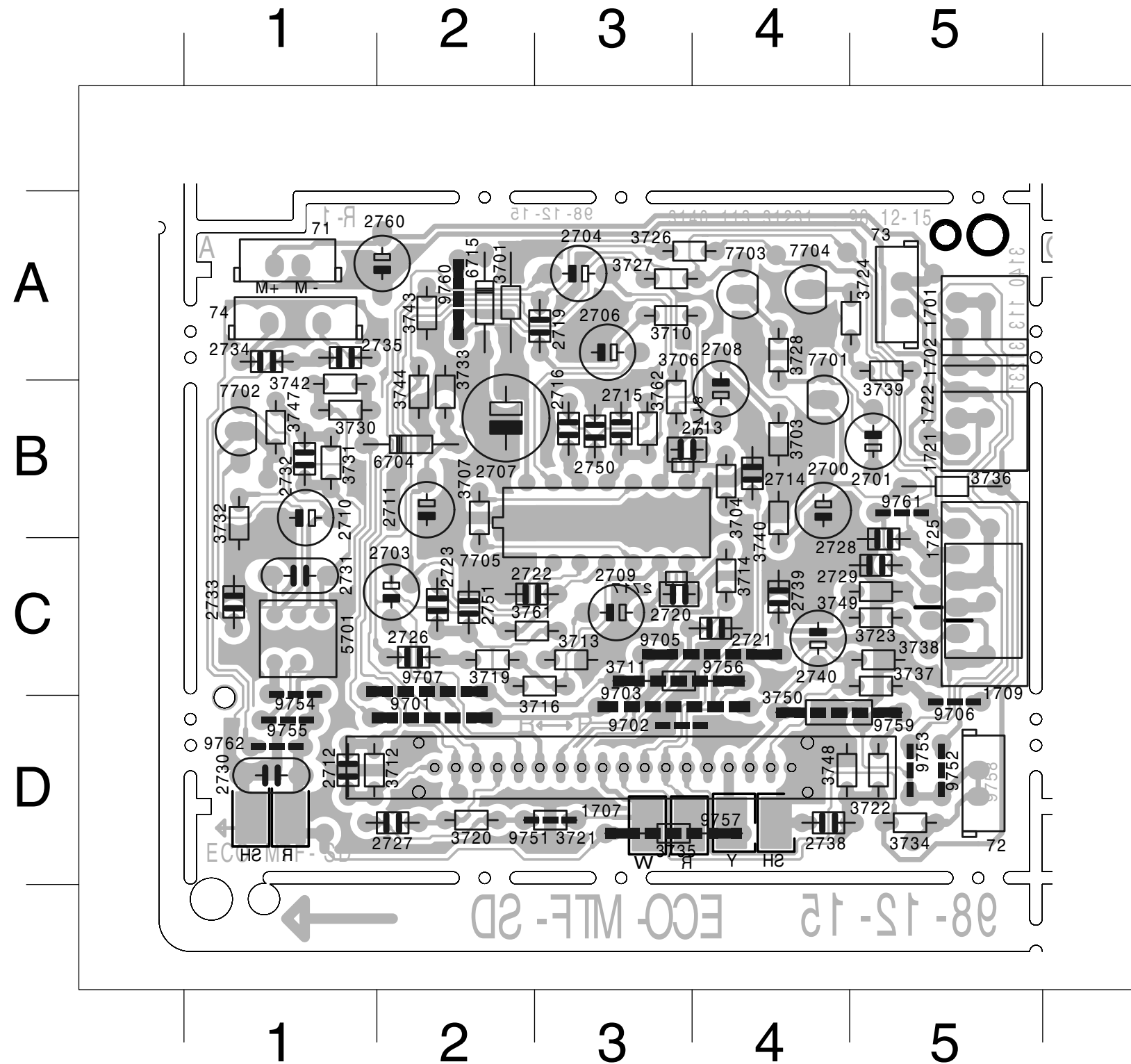
71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	E15	1707	C 7	1710	E15	2707	B 4	2712	F 6	2721	C 8	2728	F 7	2734	G10	2751	H 6	3704	C 3	3713	F 7	3722	F 7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



RECORDER BOARD - LAYOUT DIAGRAM

10-2

10-2



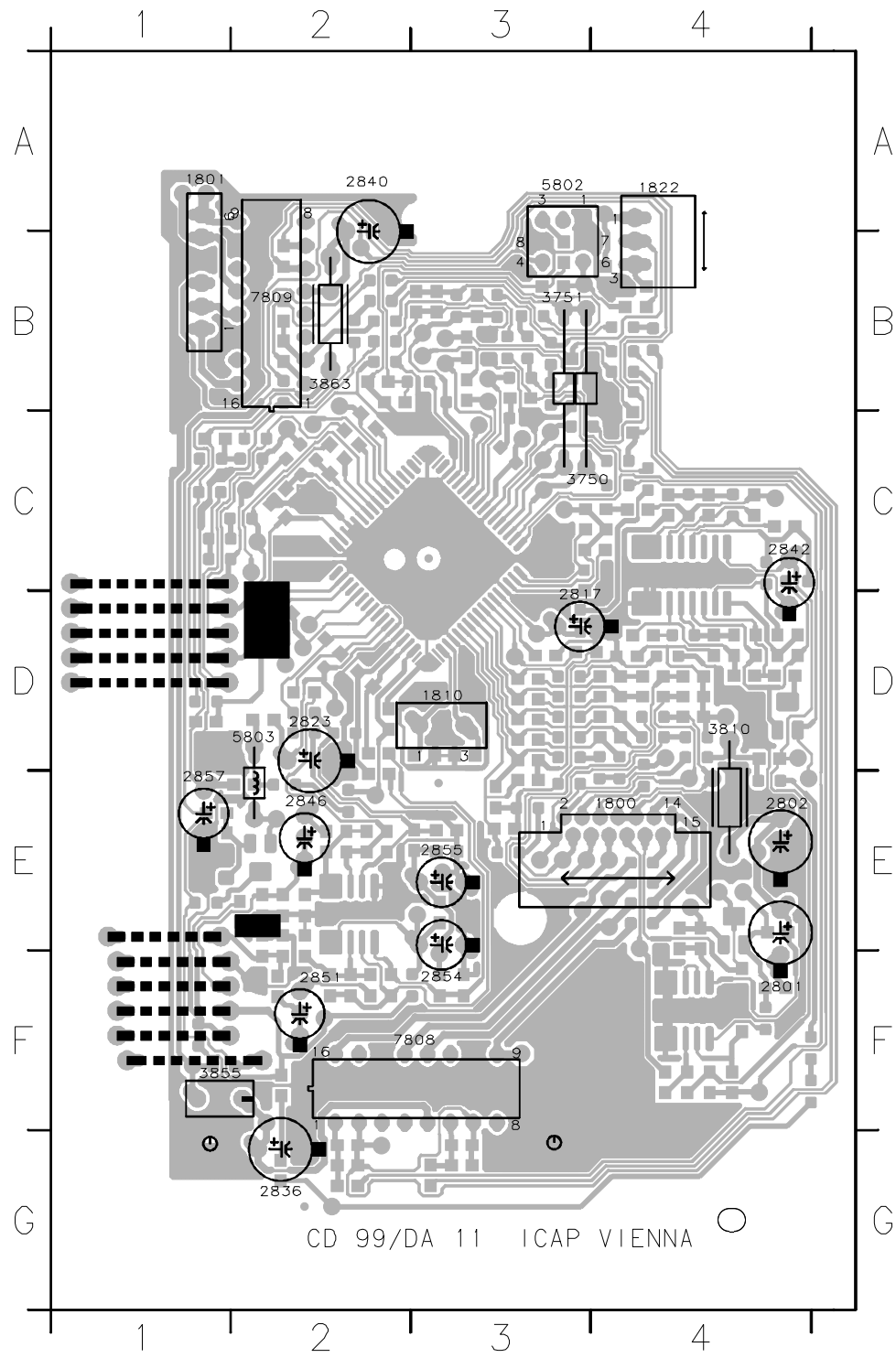
71 A 1	2729 C 5	3733 B 2	9756 C 3
72 D 5	2730 D 1	3734 D 5	9757 D 3
73 A 5	2731 C 1	3735 D 3	9759 D 4
74 A 1	2732 B 1	3736 B 5	9760 A 2
1701 A 5	2733 C 1	3737 C 5	9761 B 5
1702 B 5	2734 A 1	3738 C 5	9762 D 1
1707 D 3	2735 A 1	3739 A 5	T701 C 5
1709 C 5	2738 D 4	3740 B 4	T702 C 5
1721 B 5	2739 C 4	3742 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

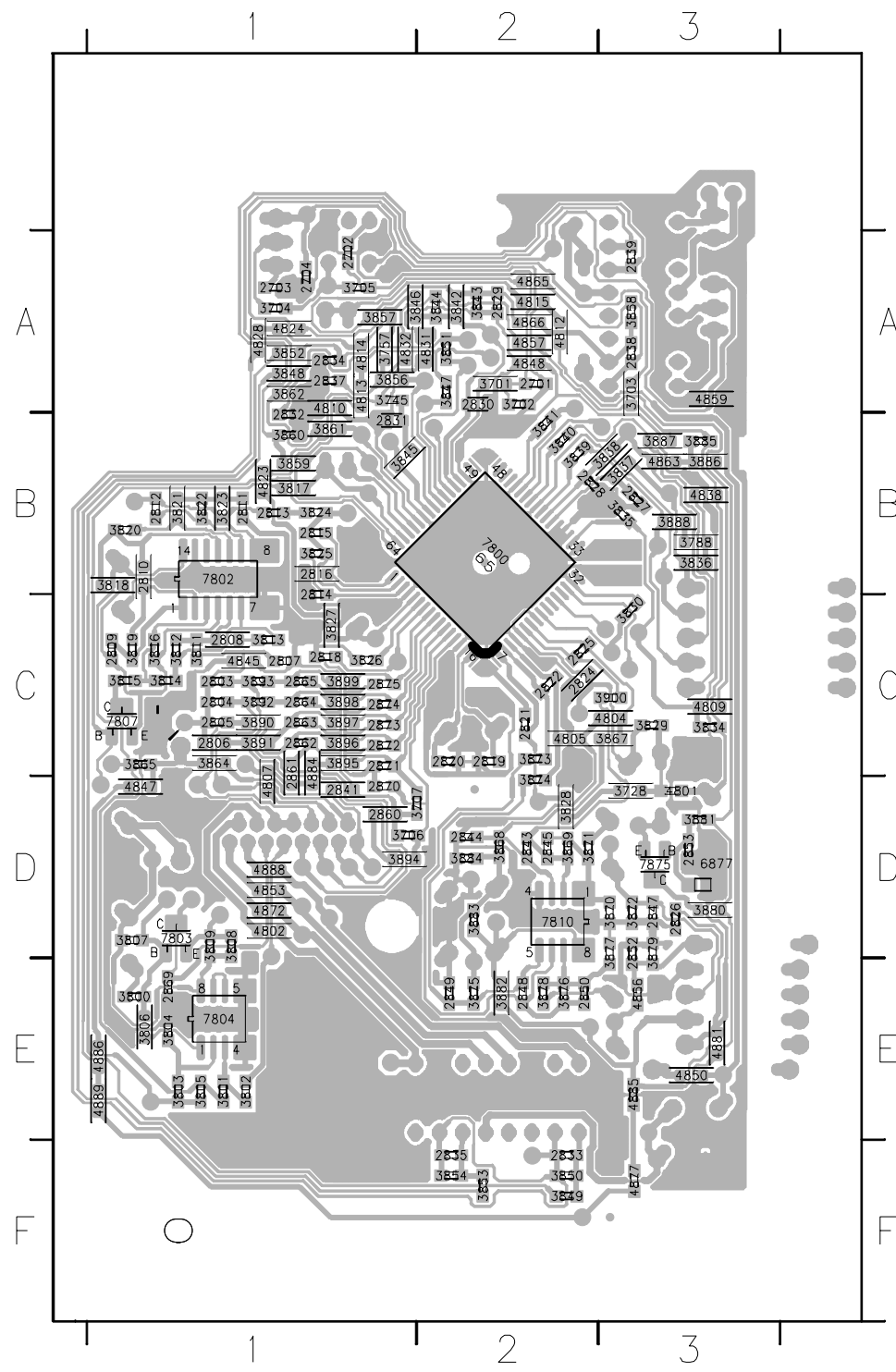
Adjustment	Cassette	SK	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

* SBC420 : 4822 397 30071

**a The maximum permissible speed deviation is $\pm 3\%$.
Moreover, the wow and flutter value can be read.



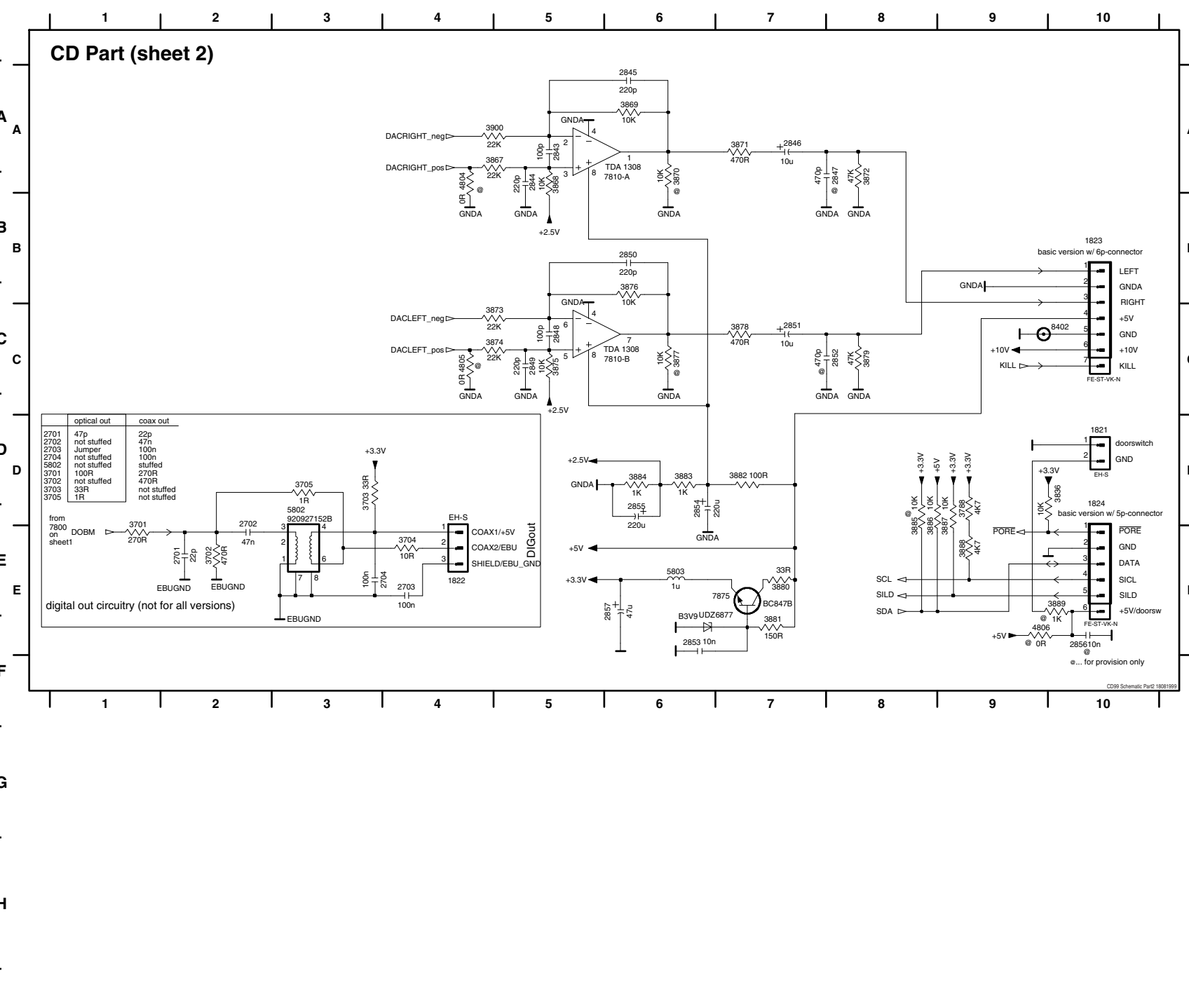
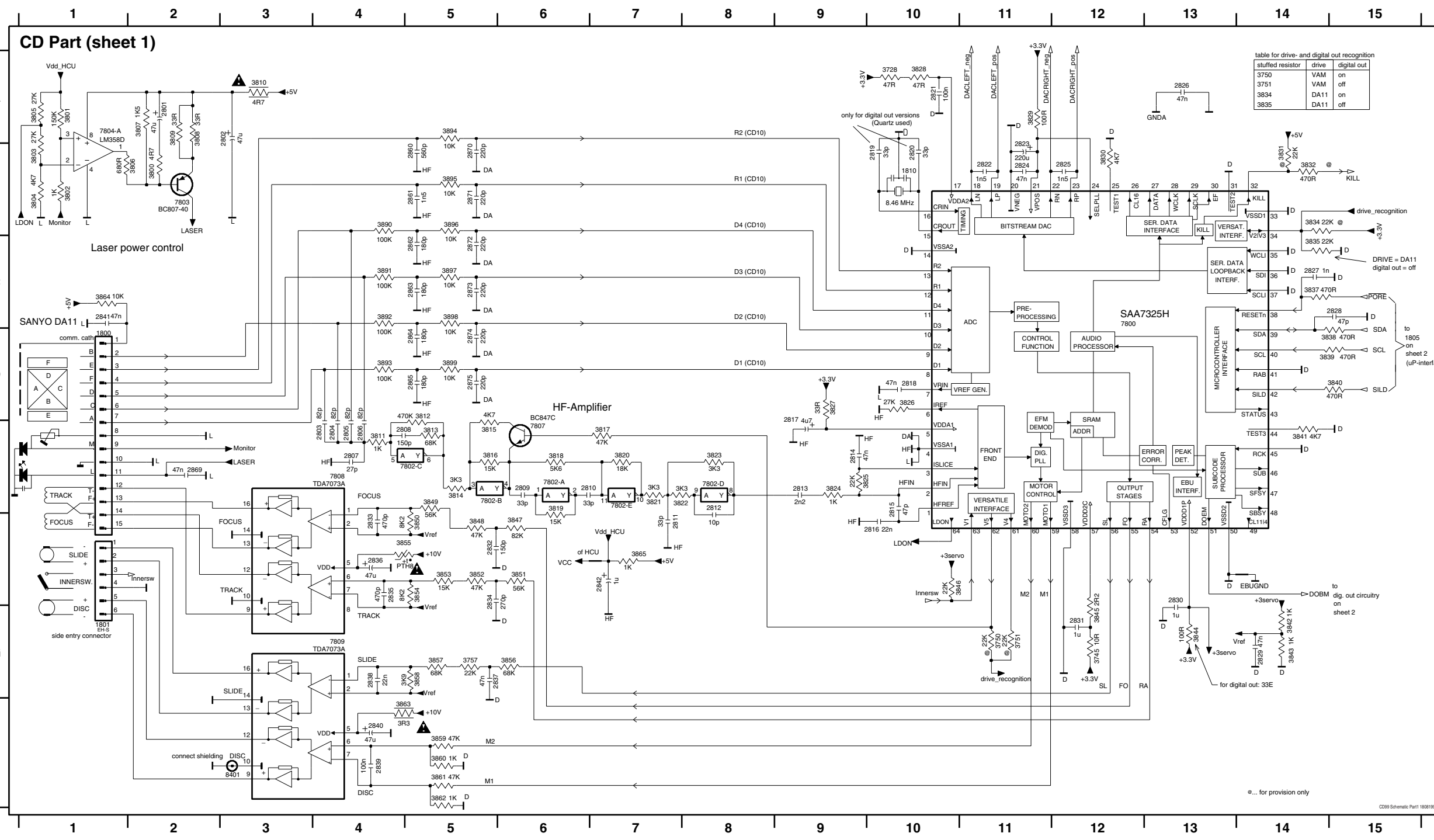
- 1800 E4
- 1801 A1
- 1810 D3
- 1822 A4
- 2801 F4
- 2802 E4
- 2817 D3
- 2823 D2
- 2836 G2
- 2840 A2
- 2842 C4
- 2846 E2
- 2851 F2
- 2854 F3
- 2855 E3
- 2857 E1
- 3750 C3
- 3751 B3
- 3810 D4
- 3855 F1
- 3863 B2
- 5802 A3
- 5803 D2
- 7808 F3
- 7809 B2
- 8401 G3
- 8402 G1
- 9000 E2
- 9001 E2
- 9002 E2
-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

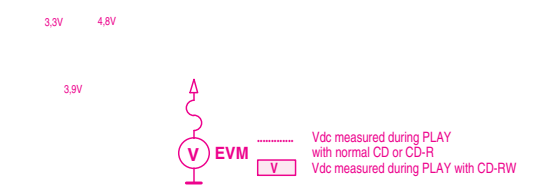
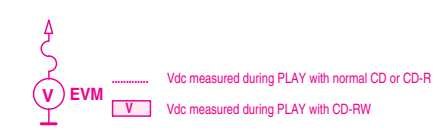
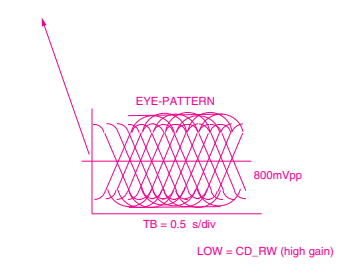
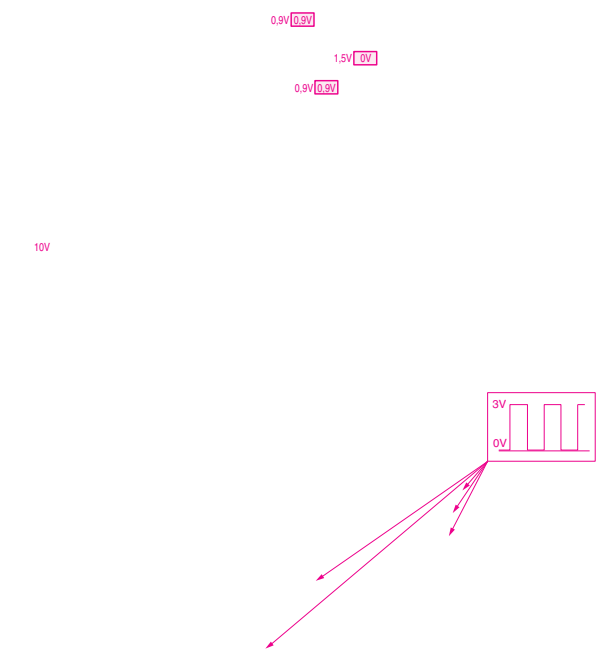
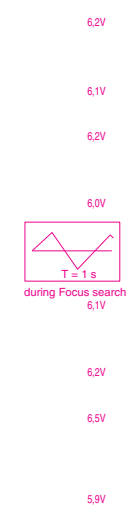
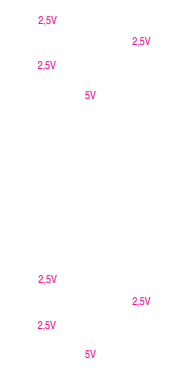


- 2701 A2
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- 2703 A1
- 2704 A1
- 2803 C1
- 2804 C1
- 2805 C1
- 2806 C1
- 2807 C1
- 2808 C1
- 2809 C1
- 2810 B1
- 2811 B1
- 2812 B1
- 2813 B1
- 2814 C1
- 2815 B1
- 2816 B1
- 2818 C1
- 2819 C2
- 2820 C2
- 2821 C2
- 2822 C2
- 2824 C2
- 2825 C2
- 2826 D3
- 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
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- 2852 D3
- 2853 D3
- 2860 D1
- 2861 C1
- 2862 C1
- 2863 C1
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- 2869 E1
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- 4872 D1
- 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

1800 D1	2806 E4	2813 E9	2820 B10	2827 C14	2834 F5	2841 C1	2848 D5	2855 D5	2875 D5	3801 A1	3808 A2	3815 E5	3822 E7	3829 A11	3836 D14	3843 G12	3852 F5	3859 H5	3866 B4	3873 C5	7802-D E8	7808 E4
1801 D2	2807 E4	2814 E9	2821 B11	2828 C14	2835 F4	2842 F7	2849 E2	2869 E2	3728 A10	3802 B1	3809 A2	3816 E5	3823 E8	3830 B12	3837 D14	3844 G11	3853 F5	3860 H5	3867 C4	3874 C5	7802-E E7	7809 G4
2801 A2	2808 E4	2815 E10	2822 B11	2829 G14	2836 F4	2843 B5	2850 B5	2860 B5	2870 B5	3803 B1	3810 A3	3817 E7	3824 E9	3831 B14	3838 D15	3847 F6	3854 F5	3861 H5	3868 C4	3875 C5	7802-F F8	8401 H3
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2803 E4	2810 E6	2817 D9	2824 B11	2831 G12	2838 G4	2845 C3	2852 C3	2862 C3	3751 G11	3805 A1	3812 D5	3819 E6	3826 D10	3834 B14	3843 G14	3850 F5	3856 G6	3863 H4	3870 A5	7802-A E6	7804-A A1	
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2805 E4	2812 E8	2819 B10	2826 A13	2833 F4	2840 H4	2847 D5	2854 D5	2864 D5	3800 B2	3807 A2	3814 E5	3821 E7	3828 A10	3837 C14	3844 G13	3851 F6	3858 G5	3865 F7	3872 C5	7802-C E5	7807 E6	

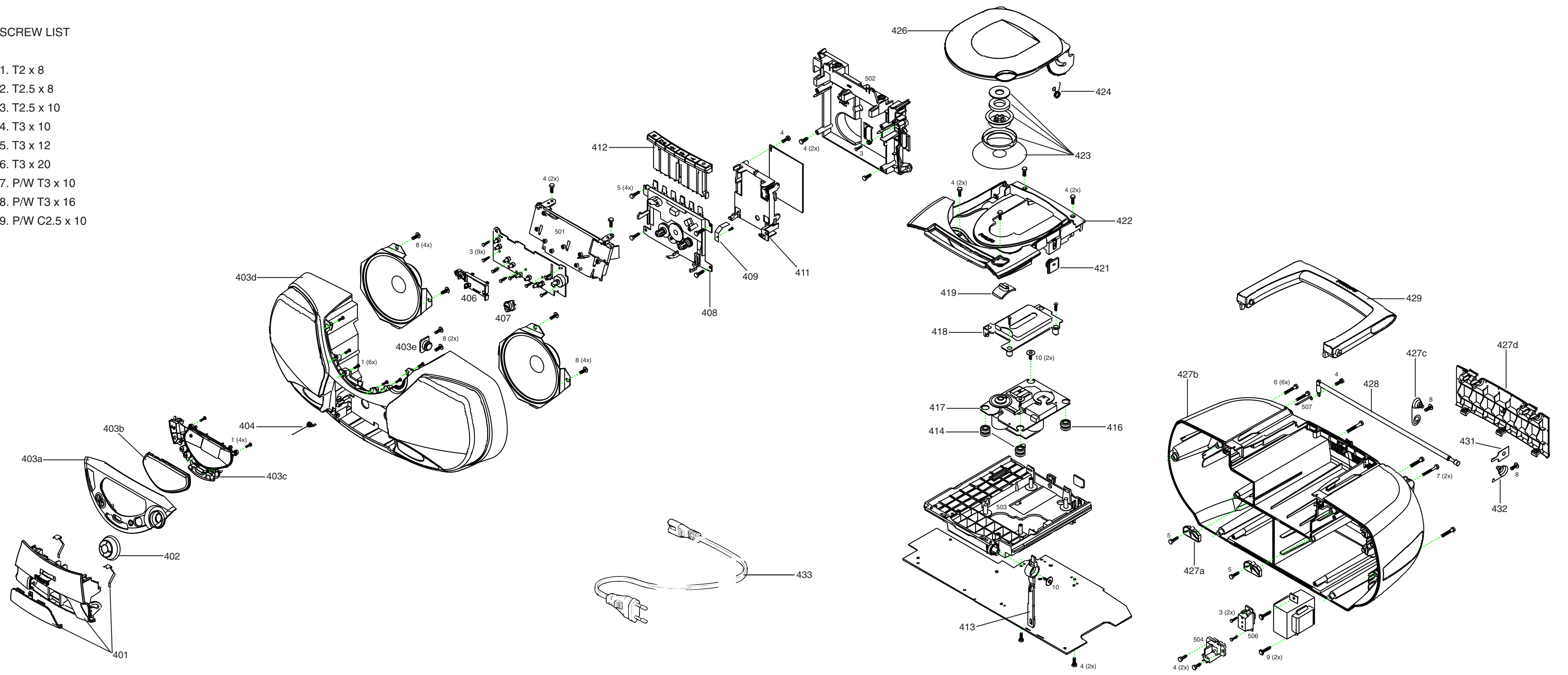
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1823 B10	2704 E3	2847 A8	2852 C8	2857 E6	3705 D3	3869 A6	3874 C5	3879 C8	3884 D6	3889 E10	5802 D3	7875 E7
1824 D10	2843 A5	2848 C5	2853 E8	3701 E1	3788 E9	3870 A5	3875 C5	3880 E7	3885 E8	3900 A5	5803 E6	8402 C9
2701 E2	2844 A5	2849 C5	2854 D6	3702 E2	3836 D10	3871 A7	3876 B6	3881 E7	3886 E8	4804 A4	6877 E7	





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)

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

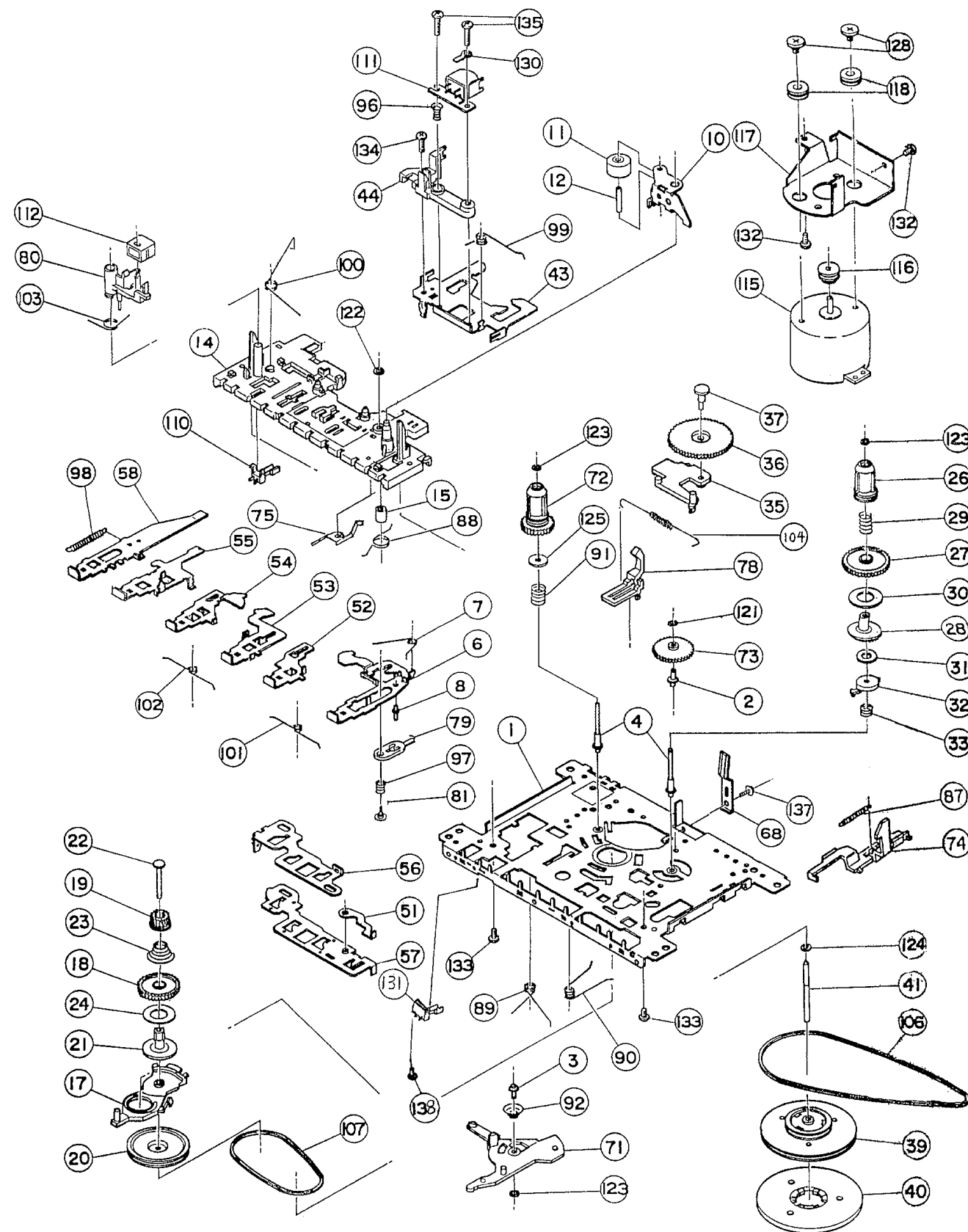
- 433 2422 070 98148 Mains Cord (For -/10)
- 433 2422 070 98152 Mains Cord (For -/17)
- 4822 256 90463 Holder Ferrite Bar
- 3140 115 27850 Instr Manual (For -/00/05)
- 3140 115 27940 Instr Manual (For -/01/10/11/16)

- 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.

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

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	47nF 10% 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

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		

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
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- DIODE -

6704	482213030621	Diode 1N4148
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- 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.