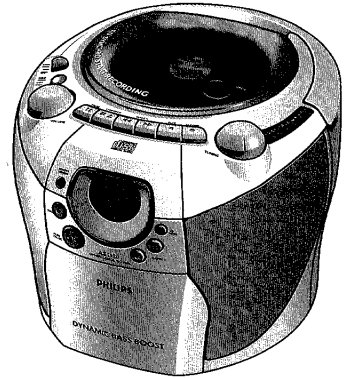


Service
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Service Manual 1918



Service Manual



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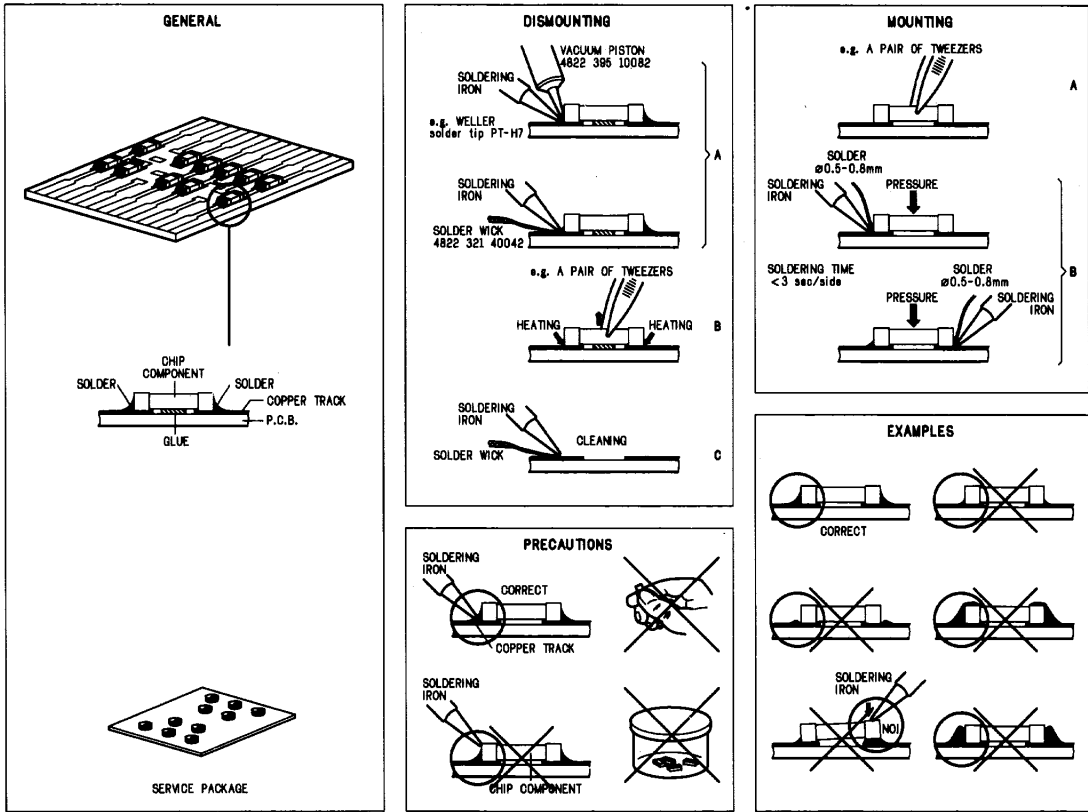
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Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

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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 wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilez 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.

ESD



(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.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

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

Anti-static table mat large 1200x650x1.25mm
small 600x650x1.25mm

Anti-static wrist band
Connection box (1MΩ)
Extendible cable (to connect wrist band to conn. box)
Connecting cable (to connect table mat to conn. box)
Earth cable (to connect any product to mat or box)
Complete kit ESD3 (combining all above products)
Wristband tester

4822 466 10953
4822 466 10958
4822 395 10223
4822 320 11307
4822 320 11305
4822 320 11306
4822 320 11308
4822 310 10671
4822 344 13999

(GB) WARNING

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

(F) ATTENTION

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

(D) WARNUNG

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Original-ersatzteile zu verwenden.

(NL) WAARSCHUWING

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

(I) AVVERTIMENTO

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.

(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".

(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 those symbol. ▲

(S) Varning !

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

(DK) Advarsel !

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

(SF) Varoituis !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/00 : 230 V
	-/01/11 : 120/230 V
	-/05/10/14 : 240 V
Mains frequency	-/17 : 120 V
	-/00/05/10/14 : 50 Hz
	-/01/11 : 50 / 60 Hz
Battery	-/17 : 60 Hz
	mains : 9 V (R14 x 6)
	Remote : 3V (R03 x 2)
Power consumption	: < 35 W
Dimension (W x H x D)	: 256 x 208 x 265 mm
Weight	: 3.2 Kg

AMPLIFIER

Output power	mains : 2 x 1.6 W
	battery : 2 x 2 W
Speaker impedance	: 2 x 4 ohm
Frequency response	: 100 Hz - 8 kHz (± 3 dB)

TUNER - FM SECTION

Tuning range	: 87.5 - 108 MHz
IF frequency	: 10.7 MHz
Sensitivity	: < 22 dB at 26dB S/N
Selectivity	: > 20 dB at ± 300 kHz
IF rejection	: > 50 dB
Image rejection	: > 20 dB

TUNER - AM SECTION

Tuning range	MW : 522 - 1607 kHz
	-/17 : 520 - 1730 kHz
IF frequency	: 468 kHz \pm 3 kHz
Sensitivity	MW : < 4000 μ V/m at 26dB S/N
Selectivity	MW : < 16 dB
IF rejection ratio	MW : < 24 dB
Image rejection ratio	MW : < 28 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 - 6300 Hz
S/N ratio	: > 40 dB

COMPACT DISC

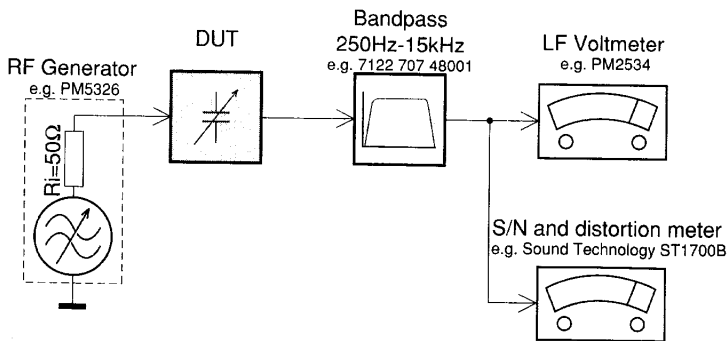
Frequency response	: 63 Hz - 16 kHz
S/N ratio	: > 50 dB
Channel difference	1 kHz : < 3 dB
Channel crosstalk	1 kHz : > 26 dB
Laser wavelength	: 780 \pm 20nm
Laser light power	: < 0.3 mW

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

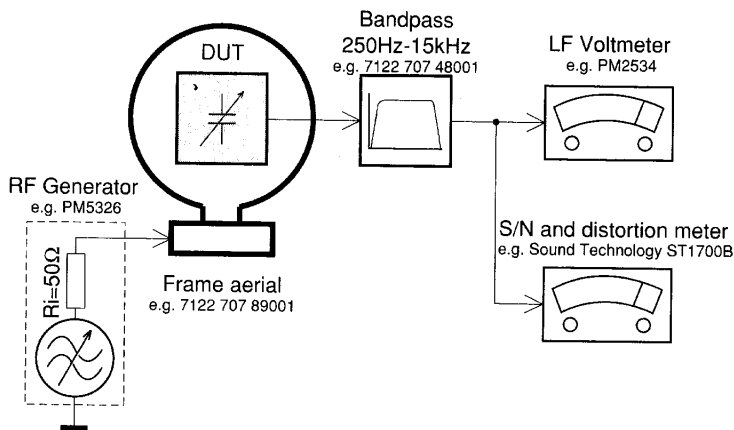
SERVICE MEASUREMENTS

Tuner FM



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

Tuner AM (MW,LW)



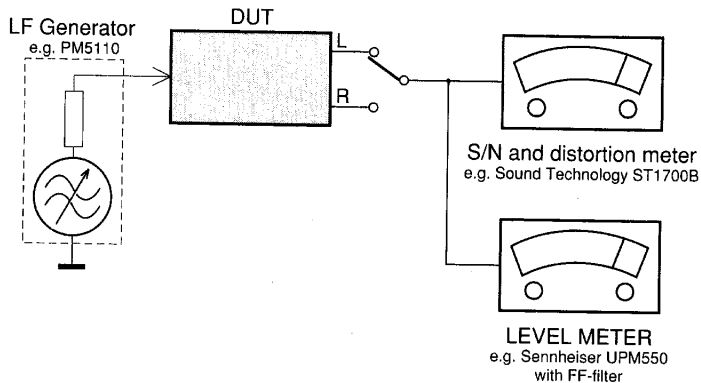
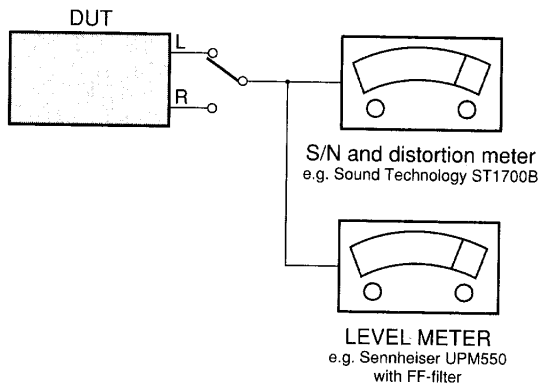
To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

CD

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

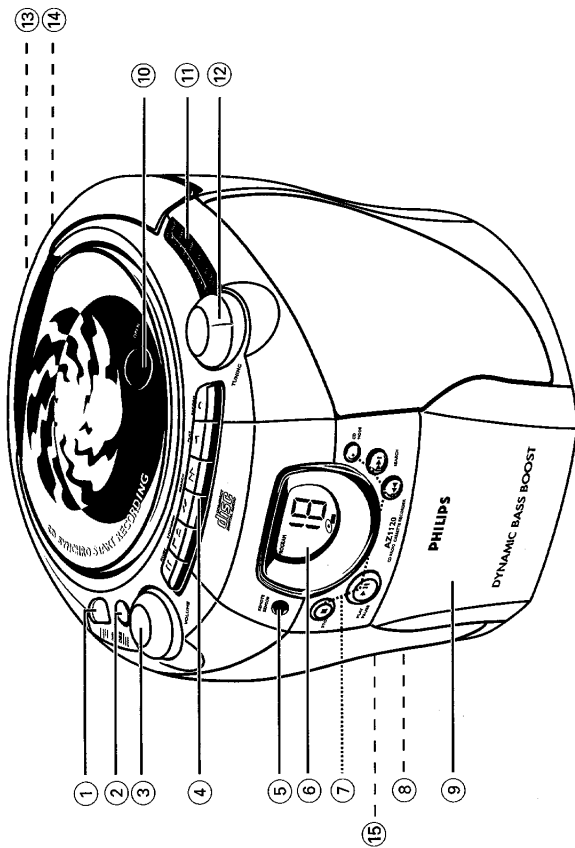
RECORDER

Use Universal Test Cassette Fe SBC420 4822 397 30071



CONNECTIONS AND CONTROLS

TOP AND FRONT PANELS



- ⑧ 3.5 mm headphone socket
- Note:** Connecting headphones will mute the speakers
- ⑨ **Cassette compartment**
- ⑩ **OPEN** – to open/ close the CD door
- RADIO**
- ⑪ **Tuning dial pointer**
- ⑫ **TUNING** – to tune to radio stations

BACK PANEL

- ⑬ **Telescopic antenna** – to improve FM reception
- ⑭ **Battery door** – to open the battery compartment
- ⑮ **AC MAINS** – inlet for power cord

REMOTE CONTROL

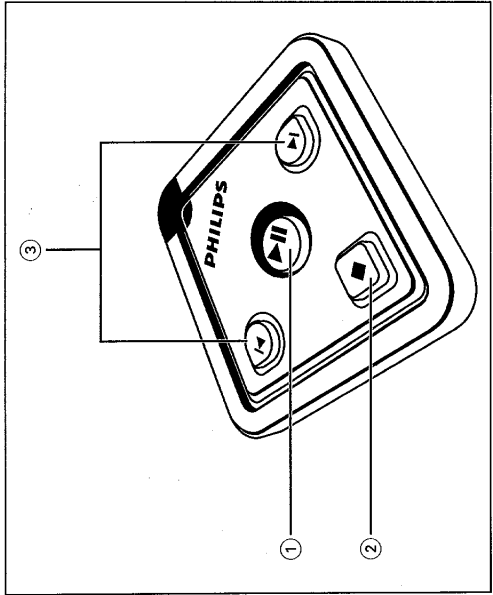
- ① **▶||** – to start or interrupt CD play
- ② **■** – to stop playback
- ③ **◀||▶** – to skip or search a passage/ track backwards or forward

- ① **Source selector:**
OFF/ TAPE, CD, BAND (FM/ AM) – to select source of sound, and also the power OFF switch
- ② **DBB (Dynamic Bass Boost)** – to enhance bass response
- ③ **VOLUME** – to adjust the volume level
- ④ **CASSETTE RECORDER**
- PAUSE II** – to interrupt recording or playback

- STOP • OPEN** **■ ▲** – to stop the tape and to open the cassette holder
- SEARCH** **◀◀** or **▶▶** – to fast wind / rewind the tape
- PLAY** **◀** – to start playback
- RECORD** **●** – to start recording

- ⑤ **Remote sensor**
- ⑥ **CD display** – to show the CD functions
- ⑦ **CD PLAYER**
- STOP** **■** – to stop playback
- PLAY • PAUSE** **▶||** – to start or interrupt CD play
- CD MODE** – to select a different play mode; to program and review programmed track numbers

- SEARCH** **◀◀/▶▶** – to skip or search a passage/ track backwards or forward



Environmental information

All unnecessary packaging material has been omitted. The packaging can be easily separated into three materials: cardboard, polystyrene and plastic.

Your set consists of materials which can be recycled if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packing materials, dead batteries and old equipment.

Radio reception

1. To select the desired waveband, set the source selector to **FM/AM**.
2. Tune to a radio station using the tuning knob.
- For **FM**, pull out the telescopic antenna. Incline and turn the antenna. Reduce its length if the signal is too strong (very close to a transmitter).
- For **AM**, the set is provided with a built-in antenna so the telescopic antenna is not needed. Direct the antenna by turning the whole set.
3. Adjust the sound using the **VOLUME** and **DBB** controls.
4. To switch off the radio, adjust the source selector to the **OFF/TAPE** position (with the cassette keys released).

CD PLAYER

Display indication for CD functions:

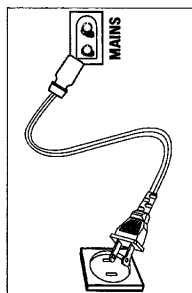
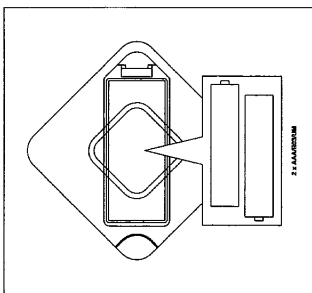
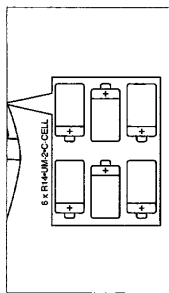
- Total track number: in stop mode
- Current track number: during CD play
- Current track number flashes when on **PAUSE**
- **SHUFFLE/ REPEAT** modes: when the respective mode is activated
- **PROGRAM**: when active; P also appears briefly when you store a track
- **no**: no disc/ error in CD operation or with the CD (see Troubleshooting)
- **F**: program memory full

Playing a CD

1. Set the source selector to **CD**.
2. To open the CD door, press **OPEN** on the CD door.
3. Insert a CD with the printed side facing up and press the CD door gently close.
- The CD player scans the contents of the CD and the total number of tracks is shown.
4. Press **PLAY•PAUSE ▶||** on the set/ remote control to start playback.
5. Adjust the sound using the **VOLUME** and **DBB** controls.
6. To interrupt playback press **PLAY•PAUSE ▶||**. To resume, press **PLAY•PAUSE ▶||** again.
7. To stop CD play, press **STOP ■** on the set/ remote control.
8. To switch off the set, adjust the source selector to the **OFF/TAPE** position (with the cassette keys released).

Note: CD playback will also stop when:

- you press the **CD door open**;
- the source selector is in **OFF/TAPE** or **FM/AM** position;
- the CD has reached the end.



Whenever convenient, use the power supply if you want to conserve battery life. Make sure you remove the plug from the set and wall outlet before inserting batteries.

BATTERIES (OPTIONAL)

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.

Remote control (supplied)

Open the battery compartment and insert two batteries, type **AAA, R03** or **UM4** (preferably alkaline).

2. Replace the compartment door, making sure the batteries are firmly and correctly in place. The set is now ready to operate.
- *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.

Note: The battery supply is switched off when the set is connected to the mains.

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

Using AC POWER

1. Check if the power voltage as shown on the type plate located on the base of the set, corresponds to your local power supply. If it does not, consult your dealer or service center.
2. Connect the power cord to the **MAINS** outlet and the wall outlet. The power supply is now connected and ready for use.
3. To switch off completely, withdraw the power cord from the wall outlet.
- Disconnect the power cord from the wall outlet to protect your set during heavy thunderstorms.

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

Selecting a different track

- During playback, you can use the **SEARCH** keys 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 for the next track, or press repeatedly until the desired track number appears in the display.
 - Press **SEARCH ◀◀** once to return to the beginning of a current track.
 - Press **SEARCH ◀◀** more than once for a previous track.

Finding a passage within a track

1. 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 **SEARCH**.

CD MODE: SHUFFLE and REPEAT

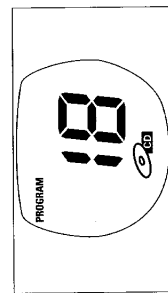
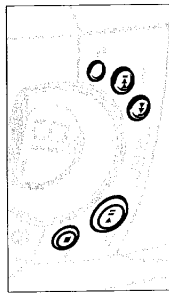
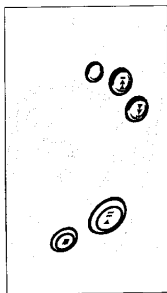
The **CD MODE** button allows you to select 4 different play modes. The modes can be selected or changed during playback.

- **SHUFFLE** - all tracks are played in random order.
 - **SHUFFLE REPEAT ALL**
 - repeats the entire CD in random order.
 - plays the current track continuously.
 - **REPEAT** - repeats the entire CD
 - **REPEAT ALL** - repeats the entire CD
1. During playback, select your play mode by pressing **CD MODE** once or more until the desired play mode is shown.
 - You can use **SEARCH ◀◀** or **▶▶** to skip tracks during **CD MODE** playback.
 2. To return to normal playback press the **CD MODE** until the **SHUFFLE/REPEAT** modes is no longer shown in the display.
 - You can also press **STOP ■** to quit the play mode.

CD MODE: 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 position, press **SEARCH ◀◀** or **▶▶** for your desired track.
2. When your chosen track number appears, press **CD MODE** once to store the track.
- The display shows 'P' briefly and 'PROGRAM' followed by your selected track number.
3. Repeat steps 1. and 2. to select and store all desired tracks in this way.



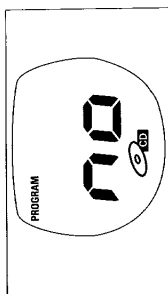
To review your set program

- In the stop position, press and hold down **CD MODE** for more than one second.
- The display shows all your stored track numbers in sequence.
- To play your program press **PLAY•PAUSE ▶II**.

Erasing a program

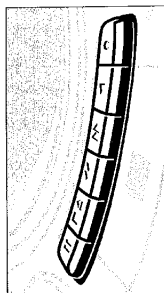
You can erase the contents of the memory by:

- pressing the CD door open;
- moving the source selector position;
- pressing **STOP ■** twice during playback/ in the stop position.
- The display shows 'no' briefly and 'PROGRAM' will disappear when the program is cancelled.



PLAYING A CASSETTE

1. Set the source selector to **TAPE**.
2. Press **STOP•OPEN ■ ▲** to open the cassette holder and insert a cassette.
3. Press the cassette holder shut.
4. Press **PLAY ◀** to start playback.
5. Adjust the sound using the **VOLUME** and **DBB** controls.
6. To interrupt playback press **PAUSE II**. To resume, press the key again.
7. By pressing **◀◀** or **▶▶**, fast winding of the tape is possible in both directions. To stop fast winding, press **STOP•OPEN ■ ▲**.
8. To stop the tape, press **STOP•OPEN ■ ▲**.
 - The keys are automatically released at the end of the tape, except if **PAUSE II** has been activated.
9. With the source selector in **OFF/ TAPE** position, the set is switched off when all the cassette keys are released.



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 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.

Synchro Start CD recording

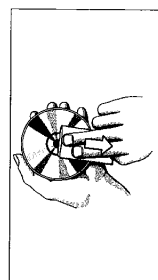
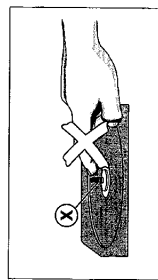
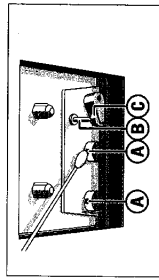
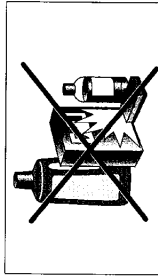
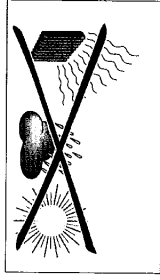
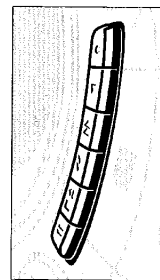
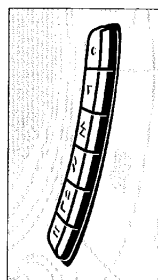
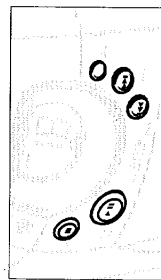
1. Set the source selector to **CD**.
2. Insert a CD and, if desired, program track numbers.
3. Press **STOP•OPEN** to open the cassette holder. Insert a blank tape.
4. Press the cassette holder shut.
5. Press **RECORD** to start recording.
 - Playing of the CD program starts automatically from the beginning of the program. *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 both **STOP•OPEN** .

To select and record a particular passage

- During CD playback, press and hold down the **SEARCH** buttons or 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** .

Recording from the radio

1. Set the source selector to **FM/AM**.
2. Tune to the desired radio station using (see **RADIO RECEPTION**).
3. Press **STOP•OPEN** to open the cassette holder. Insert a blank tape.
4. Press the cassette holder shut.



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 AND SYSTEM MAINTENANCE

- Place the set on a hard, 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 15 cm 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.

Tape deck maintenance

To ensure quality recording and playback of the tape deck, clean parts **A**, **B** and **C** shown in the diagram below, after approx. 50 hours of operation, or on average once a month. Use a cotton bud slightly moistened with alcohol or a special head cleaning fluid to clean both decks.

1. Open the cassette holder by pressing **STOP•OPEN** .
2. Press **PLAY** and clean the rubber pressure rollers **C**.
3. Press **PAUSE II** and clean the magnetic heads **A** and also the capstan **B**.
4. After cleaning, press **STOP•OPEN** .

CD player and CD handling

- The lens of the CD player should *never be touched!*
- Sudden changes in the surrounding temperature can cause condensation to form and the lens of your CD player to cloud over. Playing a CD is then not possible. Do not attempt to clean the lens but leave the set in a warm environment until the moisture evaporates.
- Use only Digital Audio CDs.
- To take a CD out of its box, press the center spindle while lifting the CD. Always pick up the CD by the edge and replace the CD back in its box after use to avoid scratching and dust.
- To clean the CD, wipe in a straight line from the center towards the edge using a soft, lint-free cloth. Do not use cleaning agents as they may damage the disc.
- Never write on a CD or attach any stickers to it.

If a fault occurs, first check the points listed below before taking the set for repair. If you are unable to remedy a problem by following these hints, consult your dealer or service center.

WARNING: Do not open the set as there is a risk of electric shock! Under no circumstances should you try to repair the set yourself, as this would invalidate the warranty.

PROBLEM

– POSSIBLE CAUSE

- REMEDY

No sound/power

– VOLUME is not adjusted

- Adjust the VOLUME
- Headphones connected
- Disconnect headphones
- Power cord not securely connected
- Connect AC power cord properly
- Batteries dead/ incorrectly inserted
- Insert (fresh) batteries correctly

Display does not function properly/ No reaction to operation of any of the controls

- Electrostatic discharge
- Switch off set, disconnect the power plug and reconnect after a few seconds

CD playback does not work

- CD is badly scratched/ dirty
- Replace/ clean CD (see MAINTENANCE)
- Laser lens steamed up
- Wait until lens has acclimatized

The CD skips tracks

- CD is damaged or dirty
- Replace or clean the CD
- SHUFFLE or a program is active
- Quit SHUFFLE/PROGRAM mode(s)

Poor cassette sound quality

- Dust and dirt on the heads, etc.
- Clean deck parts etc., see maintenance
- Use of incompatible cassette types (METAL or CHROME).
- Only use NORMAL (IEC I) for recording.

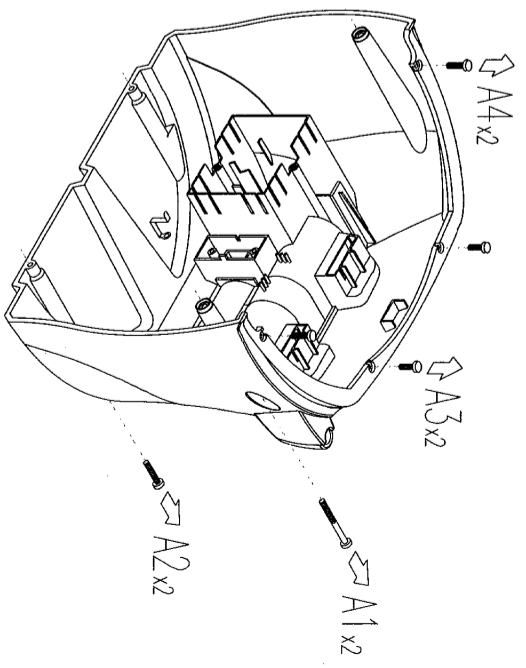
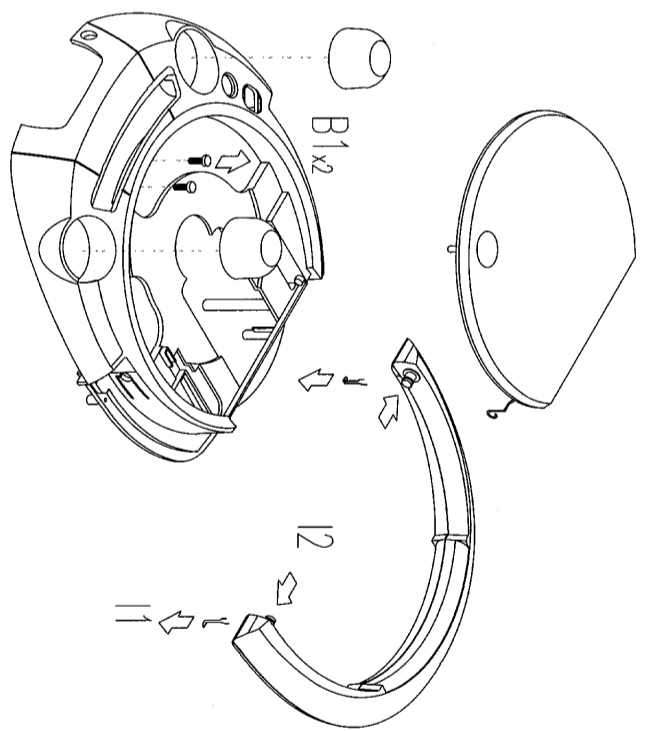
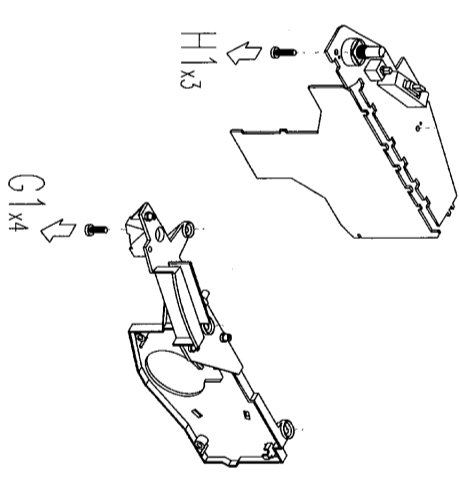
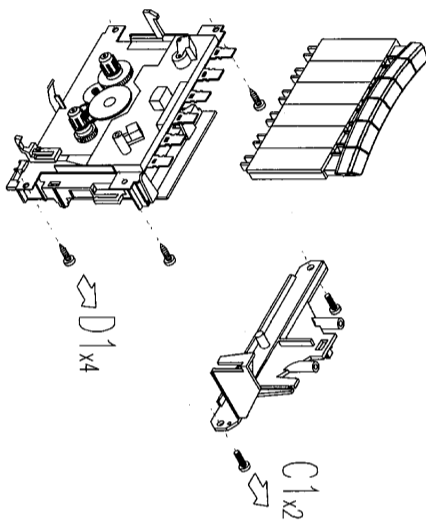
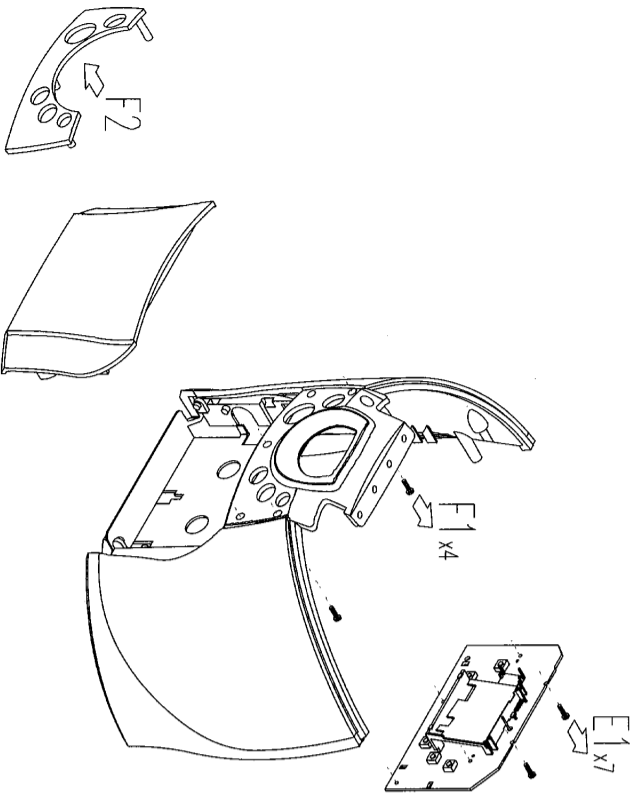
Recording does not work

- Cassette tab(s) may be broken
- Apply a piece of adhesive tape over the missing tab space.

Remote control does not function properly

- Batteries dead/ incorrectly inserted
- Insert (fresh) batteries correctly
- Distance/ angle between the set too large
- Reduce the distance/ angle

- A. To remove Front Cabinet Assembly
- B. To remove Top Cabinet
- C. To remove Bracket PCB
- D. To remove Tape Deck
- E. To remove Front Board
- F. To remove LCD Panel
- G. To remove Tuner Bracket
- H. To remove Main Board
- I. To remove Handle



CD SERVICE TESTPROGRAM

- 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.

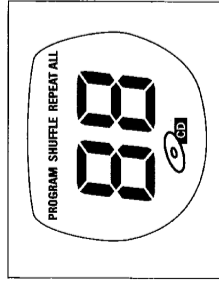
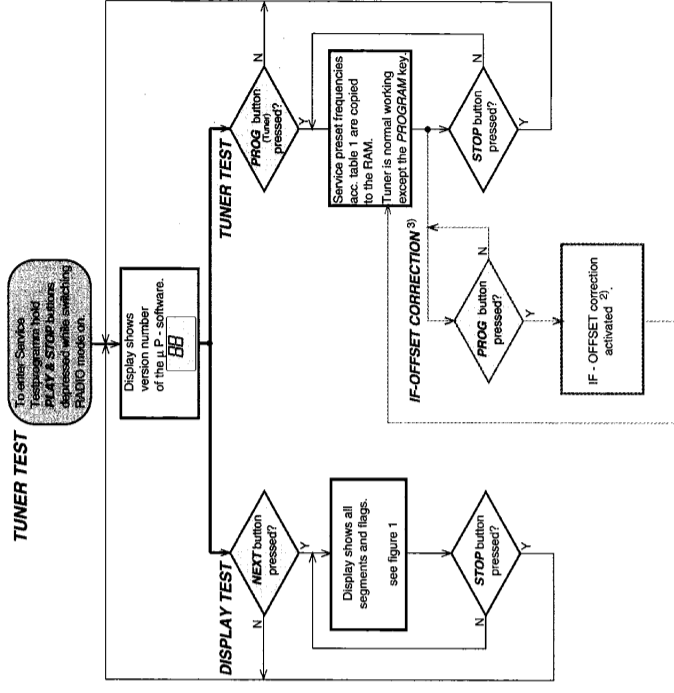
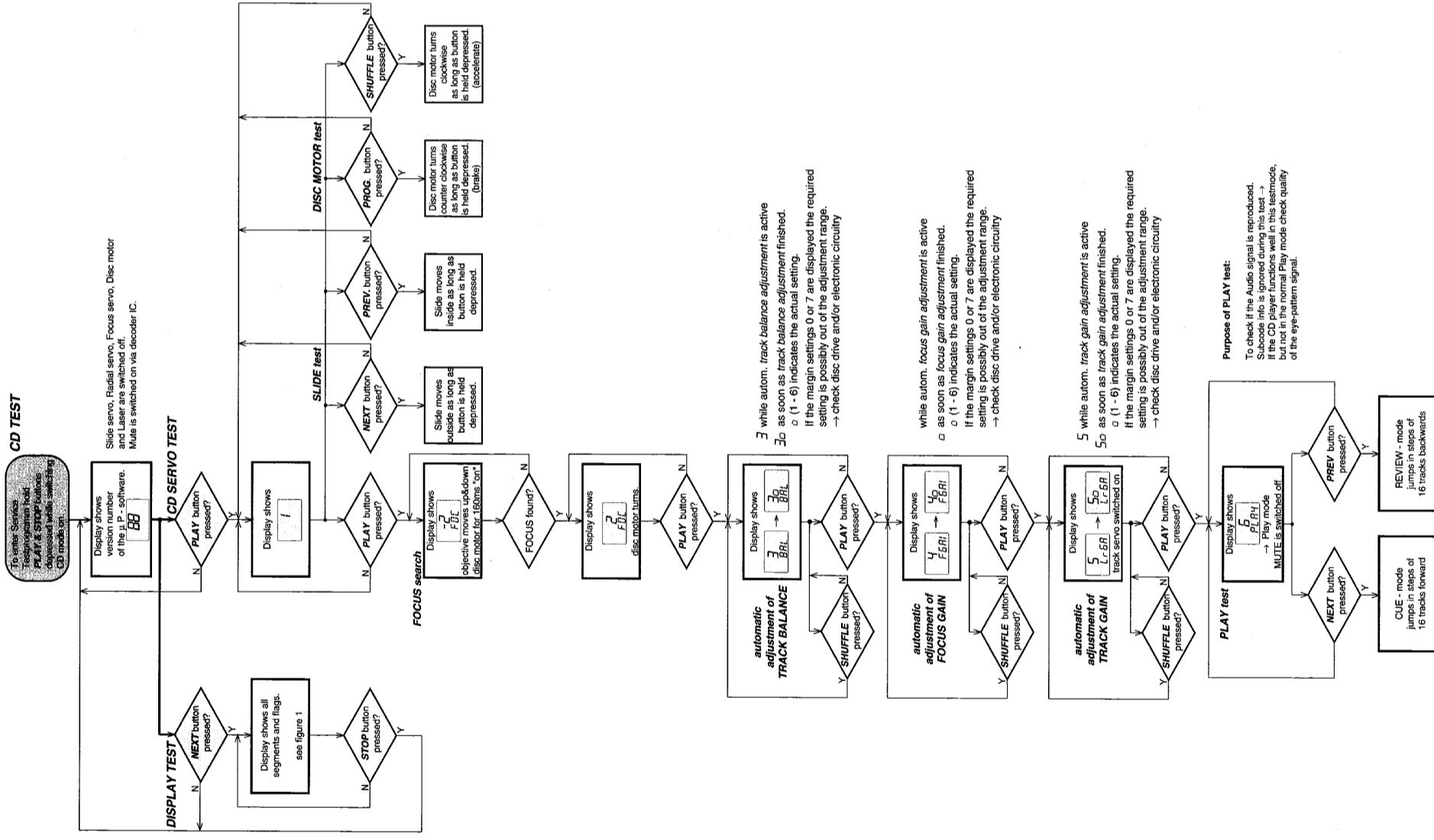


fig. 1



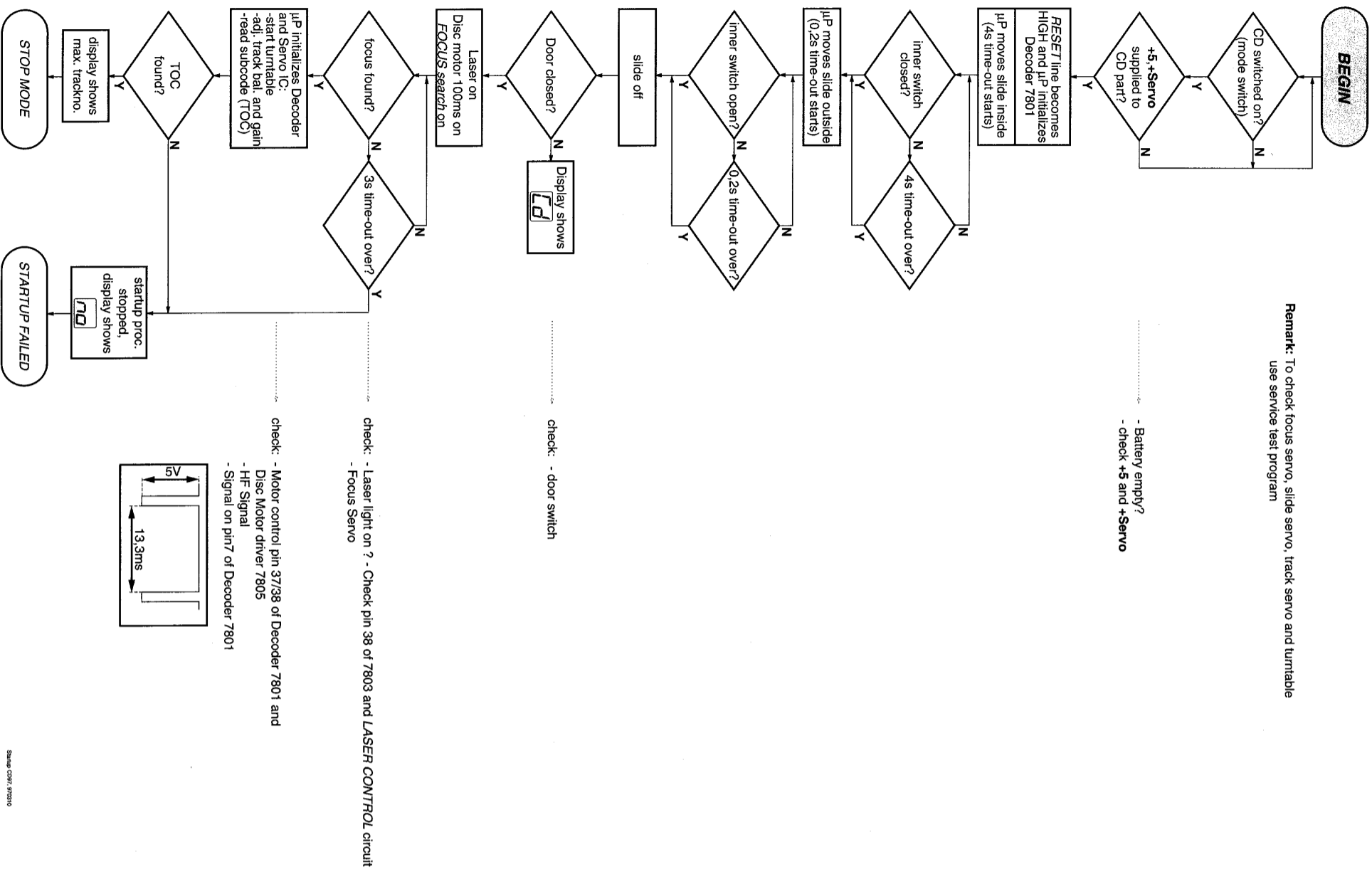
SERVICE PRESET FREQUENCIES

REGION	EUROPE FM/MW/LW	EUROPE FM/MW/LSW	East EUROPE FM/MW/LW	USA FM/MW	OVERSEAS FM/MW	OVERSEAS FM/MW/LSW	OVERSEAS FM/MW/stereo	KOREA FM/MW/LSW	CHINA FM/MW/LSW
PRESET	/000520/25	/000520/25	/1434	/1737	/0121	/0121	/1323	/1535	
1	87.5 MHz	87.5 MHz	65.81 MHz	87.5 MHz	87.5 MHz	87.5 MHz	87.5 MHz	87.5 MHz	
2	108 MHz	108 MHz	108 MHz	108 MHz	108 MHz	108 MHz	108 MHz	108 MHz	
3	531 kHz	531 kHz	74 MHz	530 kHz	530/531 kHz	530/531 kHz	531 kHz	531 kHz	
4	558 kHz	558 kHz	1602 kHz	531 kHz	1700/1602 kHz	1700/1602 kHz	1602 kHz	1602 kHz	
5	1494 kHz	1494 kHz	1602 kHz	560 kHz	560/558 kHz	560/558 kHz	558 kHz	558 kHz	
6	153 kHz	1494 kHz	1602 kHz	1500 kHz	1500/1494 kHz	1500/1494 kHz	1494 kHz	1494 kHz	
7	153 kHz	153 kHz	558 kHz	558 kHz	3.9 MHz	3.9 MHz		5.9 MHz	
8	279 kHz	279 kHz	1494 kHz	279 kHz	12.1 MHz	12.1 MHz		17.9 MHz	
9	198 kHz	198 kHz	153 kHz	153 kHz	4.2 MHz	4.2 MHz		6.2 MHz	
10			17.9 MHz	198 kHz	5.9 MHz	5.9 MHz		17 MHz	
11			17.9 MHz	198 kHz	6.2 MHz	6.2 MHz			
12			17 MHz						
13									

table 1

- 1) How to set frequency grid:
AM - 9 kHz / FM - 50 kHz : Hold **BAND & TUNING DOWN** buttons depressed while switching **MODE-switch** to **RADIO**.
AM - 10 kHz / FM - 100 kHz : Hold **BAND & TUNING UP** buttons depressed while switching **MODE-switch** to **RADIO**.
 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 /14/24 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 PROGRAM 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).



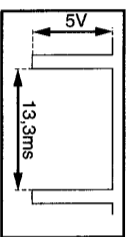
Remark: To check focus servo, slide servo, track servo and turntable use service test program

- Battery empty?
- check +5 and +Servo

check: - door switch

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

check: - Motor control pin 37/38 of Decoder 7801 and Disc Motor driver 7805
- HF Signal
- Signal on pin7 of Decoder 7801



Abbreviations and Pin-description of CD ICs

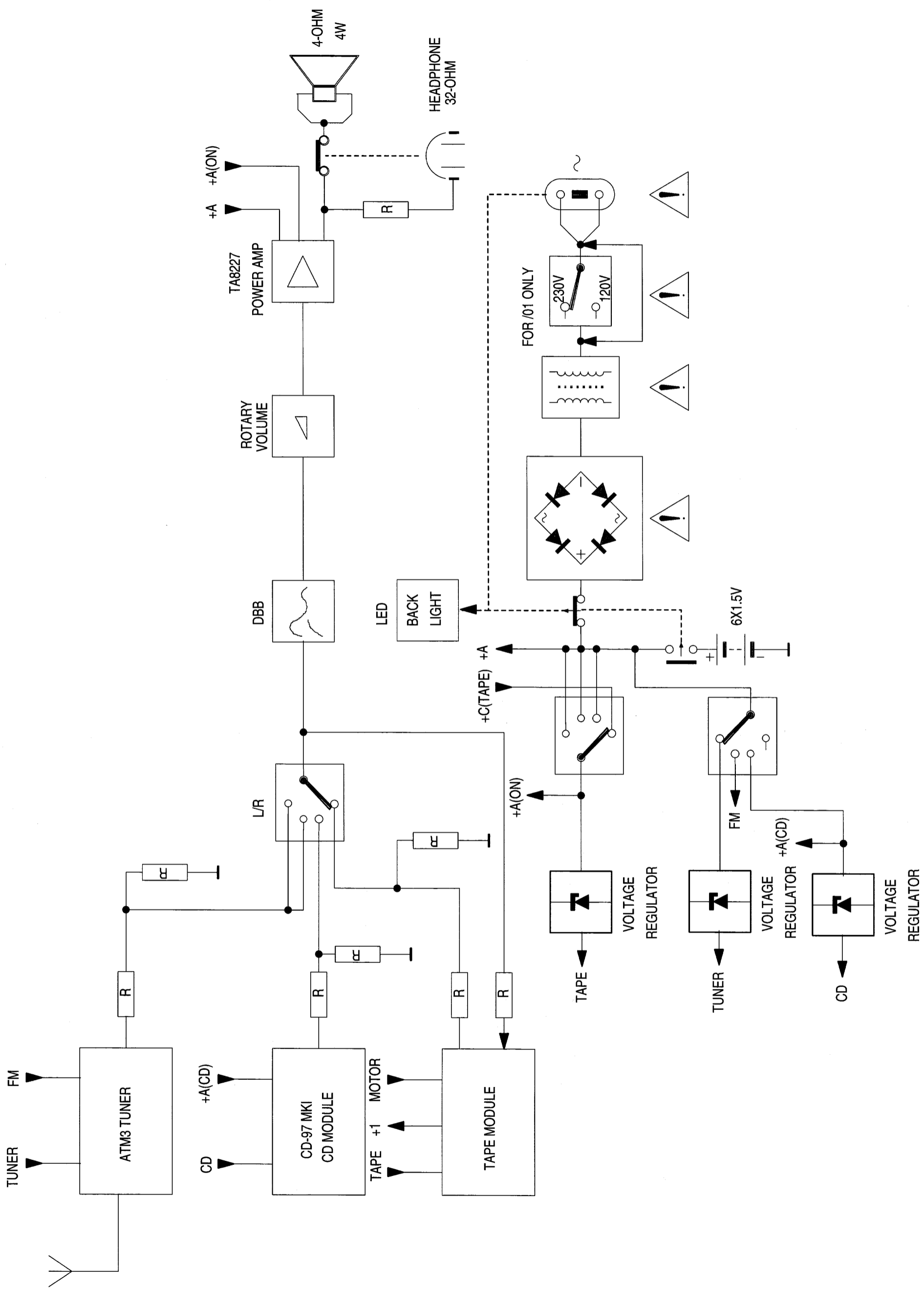
SERVO PROCESSOR M62475FP		SIGNAL PROCESSOR M65821FP	
Pin	Name	Pin	Name
1-3	A, B, C	1	VDD1
4-5	E, F	2	EMP
6	Sgt	3	SYCLK
7	TE -	4	LOCK
8	TEGain	5	SCAND
9	TG1	6	CRCF
10	TE out	7	SBOs
11	TC/Shock	8	MSD
12	TS +	9	RESET
13	TG2	10	MCK
14	TS -	11	MLA
15	TS out	12-14	MODx
16	SS +	15	VDD2
17	SS -	16	IREF
18	Slide out	17	HFD
19	DET. FILTER	18	LPF
20	BIAS	19	HF
21	GND	20	TLC
22	MLA/DIS	21	VSS2
23	JP1/SG	22	C846
24	MCK	23	C423
25	MSD	24	EST12
26	Dout	25	EST1
27	CupF	26	XI
28	Iaer	27	XO
29	Voc	28	DOTX
30	FS _{out}	29	DO1
31	FS -	30	DO2
32	FEGain	31	CKSEL
33	FE -	32	DSCK
34	SGF	33	WDCK
35	C _{FSR}	34	LROCK1
36	ALPC +	35-36	not used
37	ALPC -	37	PWM1
38	ALPC _{out}	38	PWM2
39	MRC	39-41	not used
40	HF	42	VSS1
41	HFI		
42	ABC		

Pin	Name	Direction	Description
1	VDD1	-	+supply for signal processor
2	EMP	not connected	Emphasis flag output
3	SYCLK	not connected	Frame synchronize output
4	LOCK	not connected	Low disc rotation detect output
5	SCAND	not connected	Subcode sync signal detection
6	CRCF	not connected	Subcode Q CRC check flag output
7	SBOs	Signal processor → uP	Interrupt signal to read out subcode Q data
8	MSD	uP ↔ Signal processor	Data line
9	RESET	Reset circuit → Signal processor	System reset
10	MCK	uP → Signal processor	Clock input
11	MLA	uP → Signal processor	Latch clock input
12-14	MODx	uP → Signal processor	Mode setting inputs (0, 1, 2)
15	VDD2	uP → Signal processor	+supply for data slicer and VCO
16	IREF	-	Current reference
17	HFD	Signal processor → uP	HF signal detect
18	LPF	-	HF signal filter
19	HF	Servo processor → Signal processor	HF signal input
20	TLC	-	Output from slice level control
21	VSS2	-	Ground
22	C846	not connected	8.4672MHz clock output
23	C423	Signal processor → uP	4.2336MHz clock output
24	EST12	not connected	Error monitor output 2
25	EST1	not connected	Error monitor output 1
26	XI	X-Tal → Signal processor	Crystal oscillator input
27	XO	Signal processor → X-Tal	Output of digital interface
28	DOTX	not connected	Serial data output to DAC
29	DO1	Signal processor → DAC	Serial data output to DAC
30	DO2	not connected	Serial data output to Dual DAC
31	CKSEL	not connected	Crystal selector input, H=8MHz, L=16MHz
32	DSCK	Signal processor → DAC	Data shift clock
33	WDCK	Signal processor → DAC	Word clock
34	LROCK1	Signal processor → DAC	Left/Right clock
35-36	not used	-	Left/Right clock
37	PWM1	Signal processor → Motor driver	Disc motor driving (Pulse Width Modulation) output 1
38	PWM2	Signal processor → Motor driver	Disc motor driving (Pulse Width Modulation) output 2
39-41	not used	-	-
42	VSS1	GND	Digital system ground

BLOCK DIAGRAM

5-1

5-1

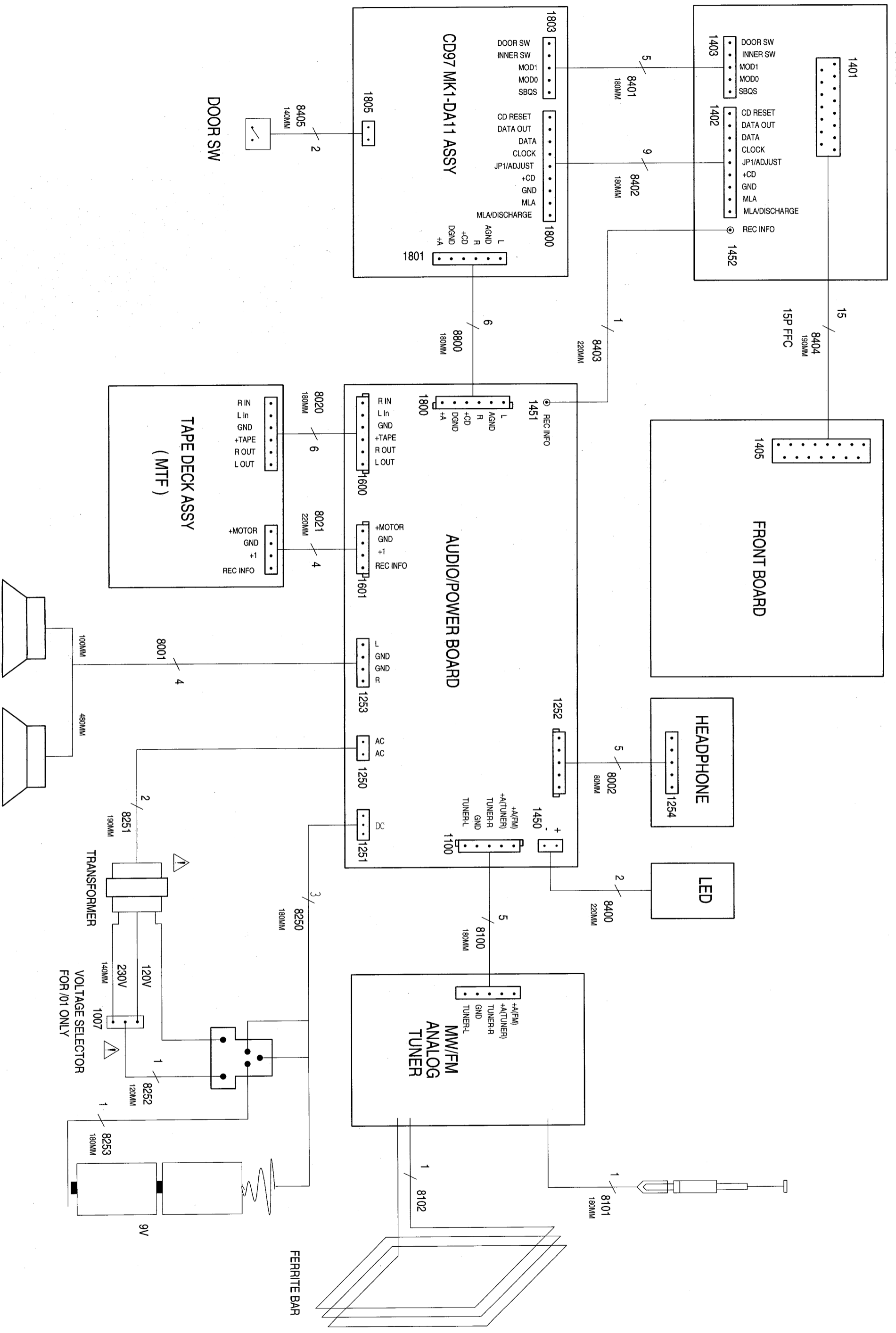


WIRING DIAGRAM

6-1

6-1

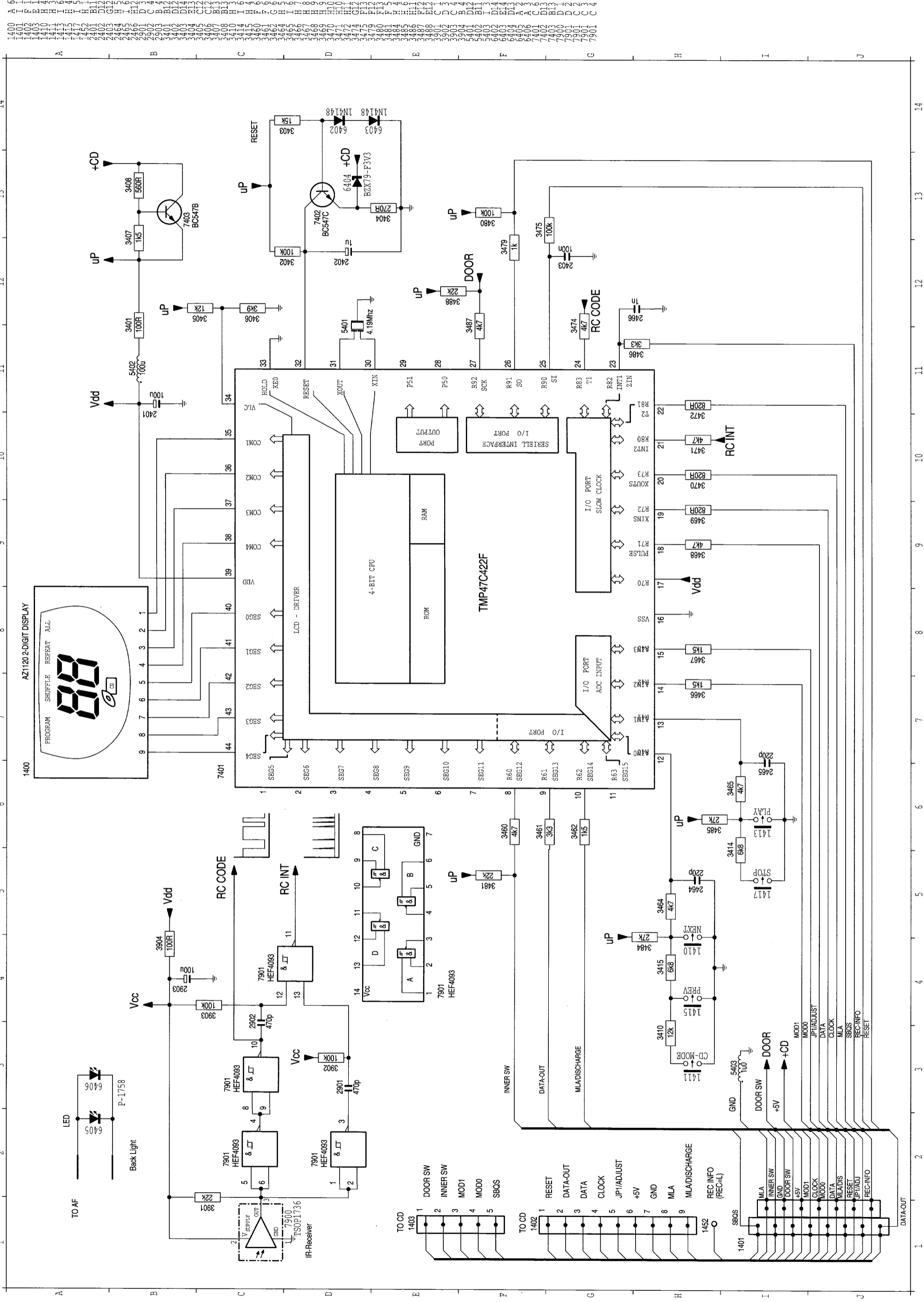
FOR CD97 MK1-DA11 ONLY



FRONT BOARD - CIRCUIT DIAGRAM

7-1

7-1



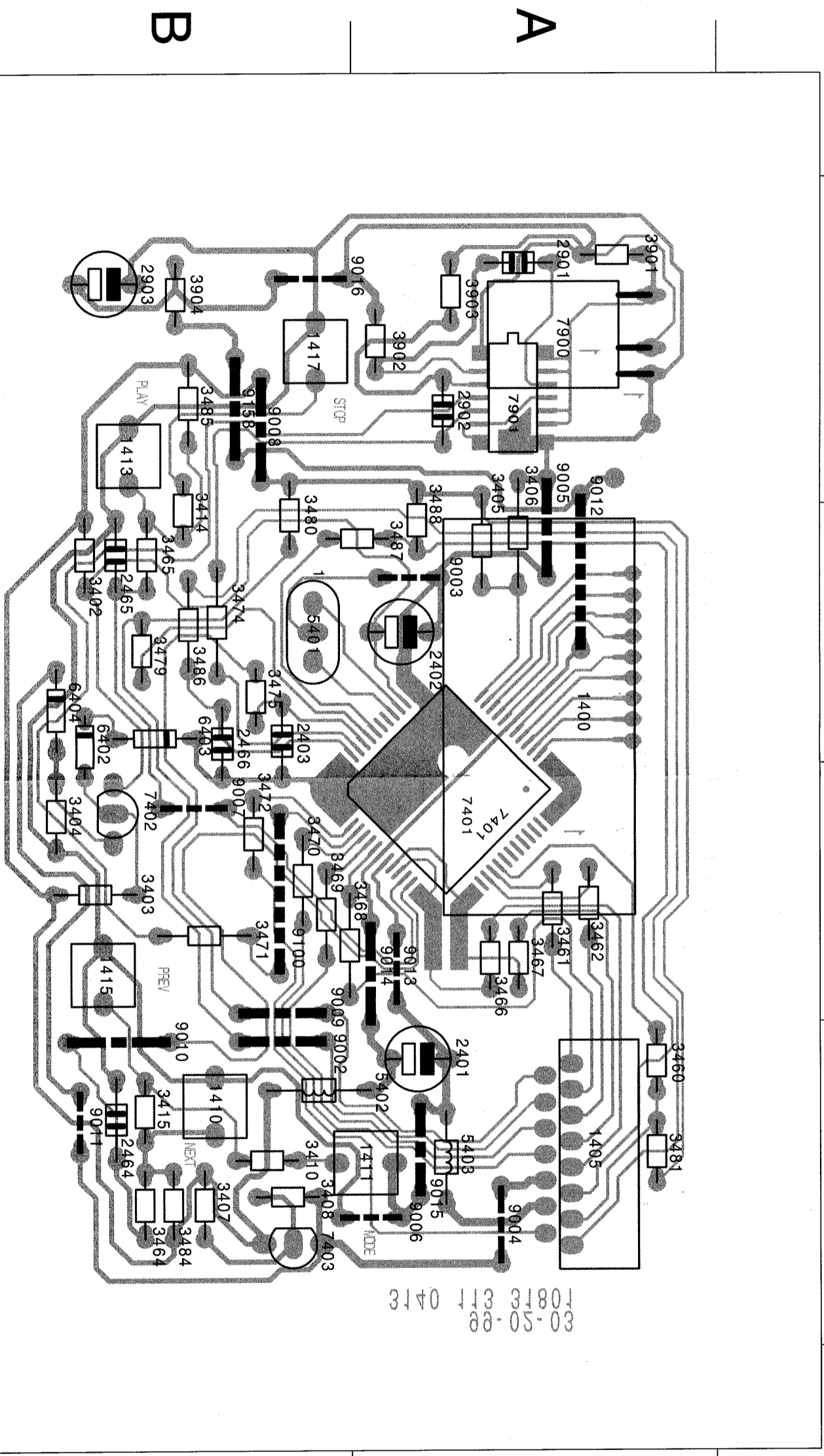
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FRONT BOARD - LAYOUT DIAGRAM

7-2

1400	A 2	2402	A 2	3402	B 2	3414	B 2	3467	A 3	3479	B 2	3901	A 1	6403	B 2	9003	A 2	9011	B 4
1405	A 4	2403	B 2	3403	B 3	3415	B 4	3468	B 3	3480	B 2	3902	A 1	6404	B 2	9004	A 4	9012	A 2
1410	B 4	2464	B 4	3404	B 3	3460	A 4	3469	B 3	3481	A 4	3903	A 1	7401	A 3	9005	A 2	9013	A 3
1411	A 4	2465	B 2	3405	A 2	3461	A 3	3470	B 3	3484	B 4	3904	B 1	7402	B 3	9006	A 4	9014	A 3
1413	B 1	2466	B 2	3406	A 2	3462	A 3	3471	B 3	3485	B 1	5401	B 2	7403	B 4	9007	B 3	9015	A 4
1415	B 3	2901	A 1	3407	B 4	3464	B 4	3472	B 3	3486	B 2	5402	B 4	7900	A 1	9008	B 1	9016	B 1
1417	B 1	2902	A 1	3408	B 4	3465	B 2	3474	B 2	3487	A 2	5403	A 4	7901	A 1	9009	B 3	9100	B 3
2401	A 4	2903	B 1	3410	B 4	3466	A 3	3475	B 2	3488	A 2	6402	B 2	9002	B 4	9010	B 4	9158	B 1

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80-50-03
88-05-11

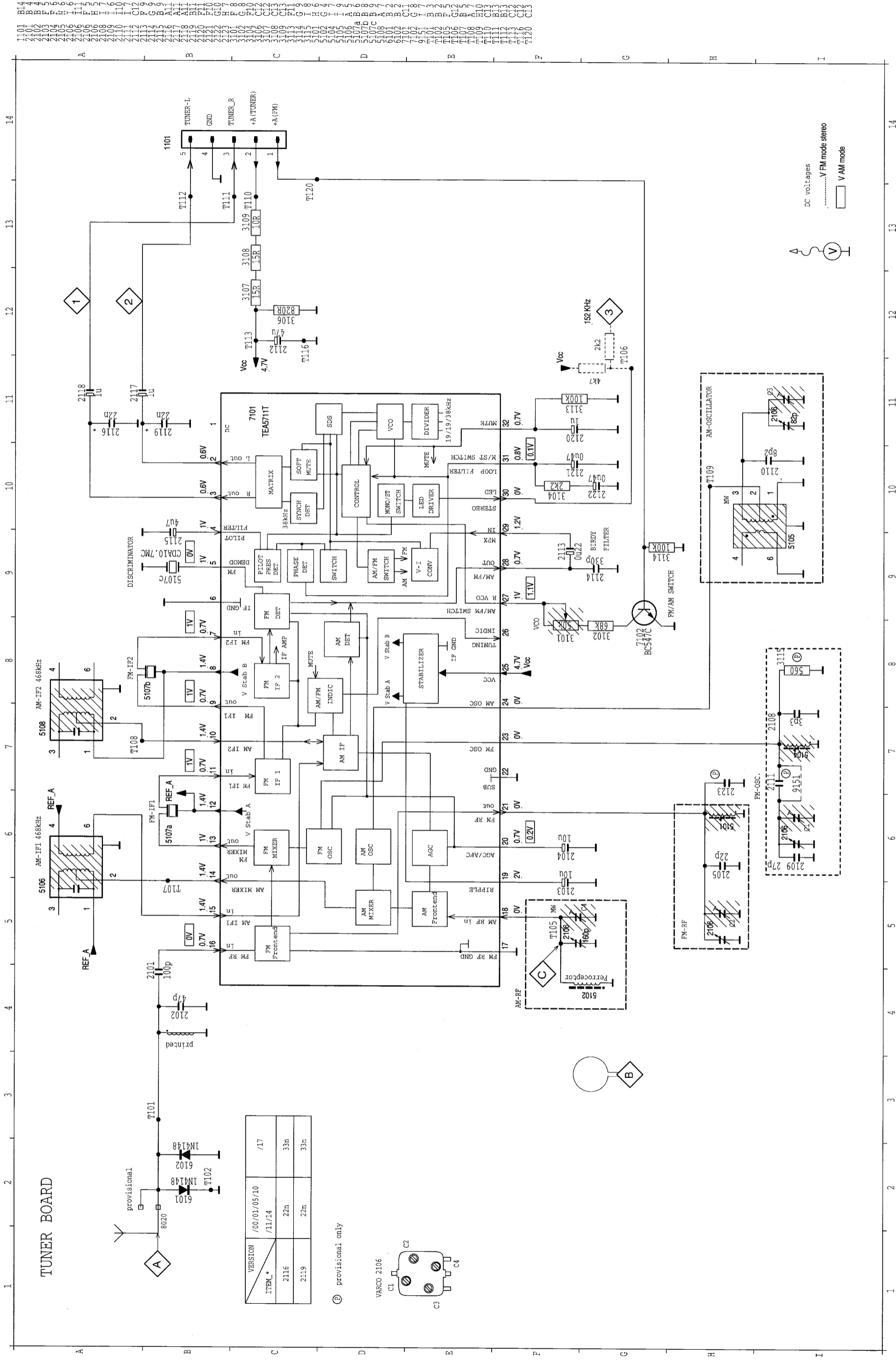
A B A B

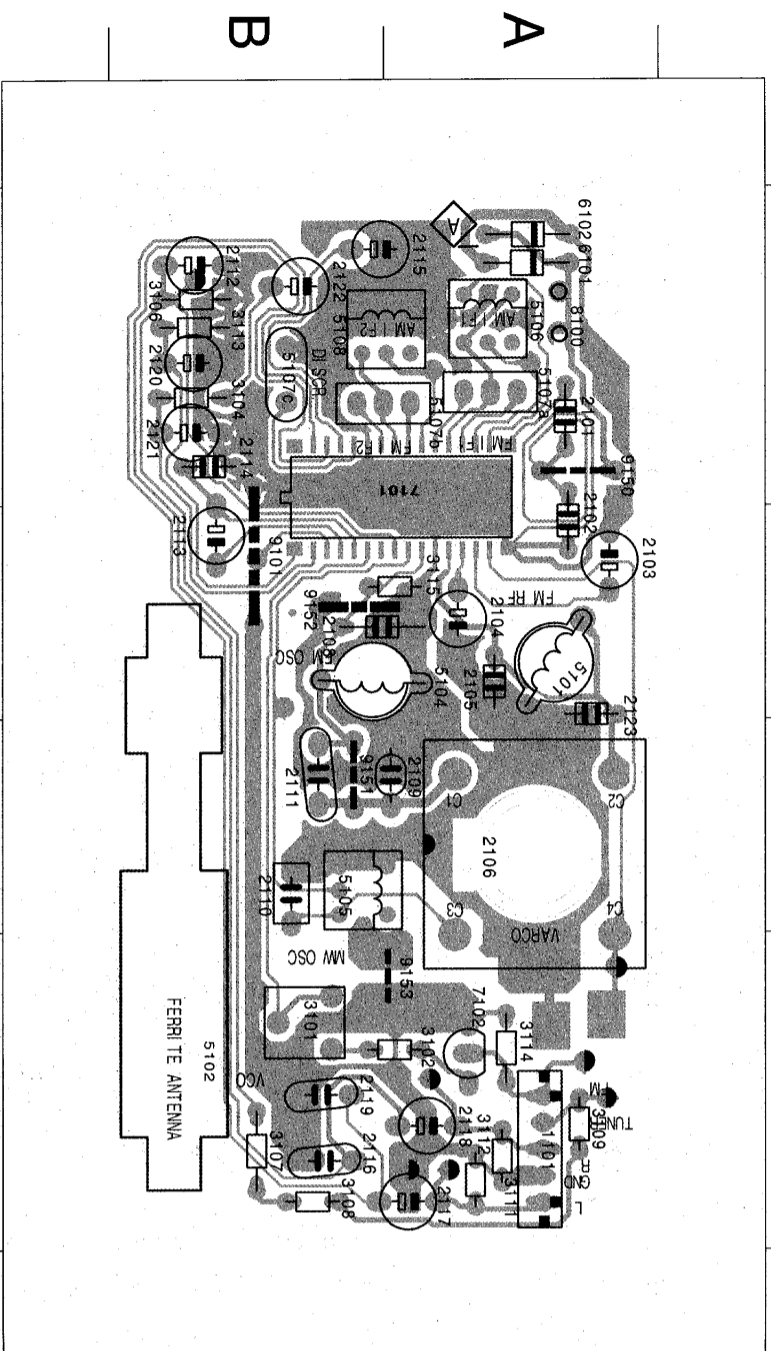
1 2 3 4

TUNER BOARD - CIRCUIT DIAGRAM

8-1

8-1





1101 A 4	2105 A 2	2112 B 1	2118 A 4	3101 B 4	3109 A 4	5101 A 2	5107c B 1	8100 A 1
1101 A 1	2108 B 2	2114 B 1	2120 B 1	3104 B 1	3112 A 4	5105 B 3	5108 A 1	9101 B 2
2102 A 2	2109 A 3	2115 B 1	2121 B 1	3106 B 1	3113 B 1	5106 A 1	6102 A 1	9151 B 3
2103 A 2	2110 B 3	2116 B 4	2122 B 1	3107 B 4	3114 A 4	5107a A 1	7101 A 1	9152 B 2
2104 A 2	2111 B 3	2117 A 4	2123 A 2	3108 B 4	3115 A 2	5107b B 1	7102 A 4	9153 A 4

TUNER ADJUSTMENT TABLE (ATM3 FM/MMW- versions with AM-ferrite antenna)

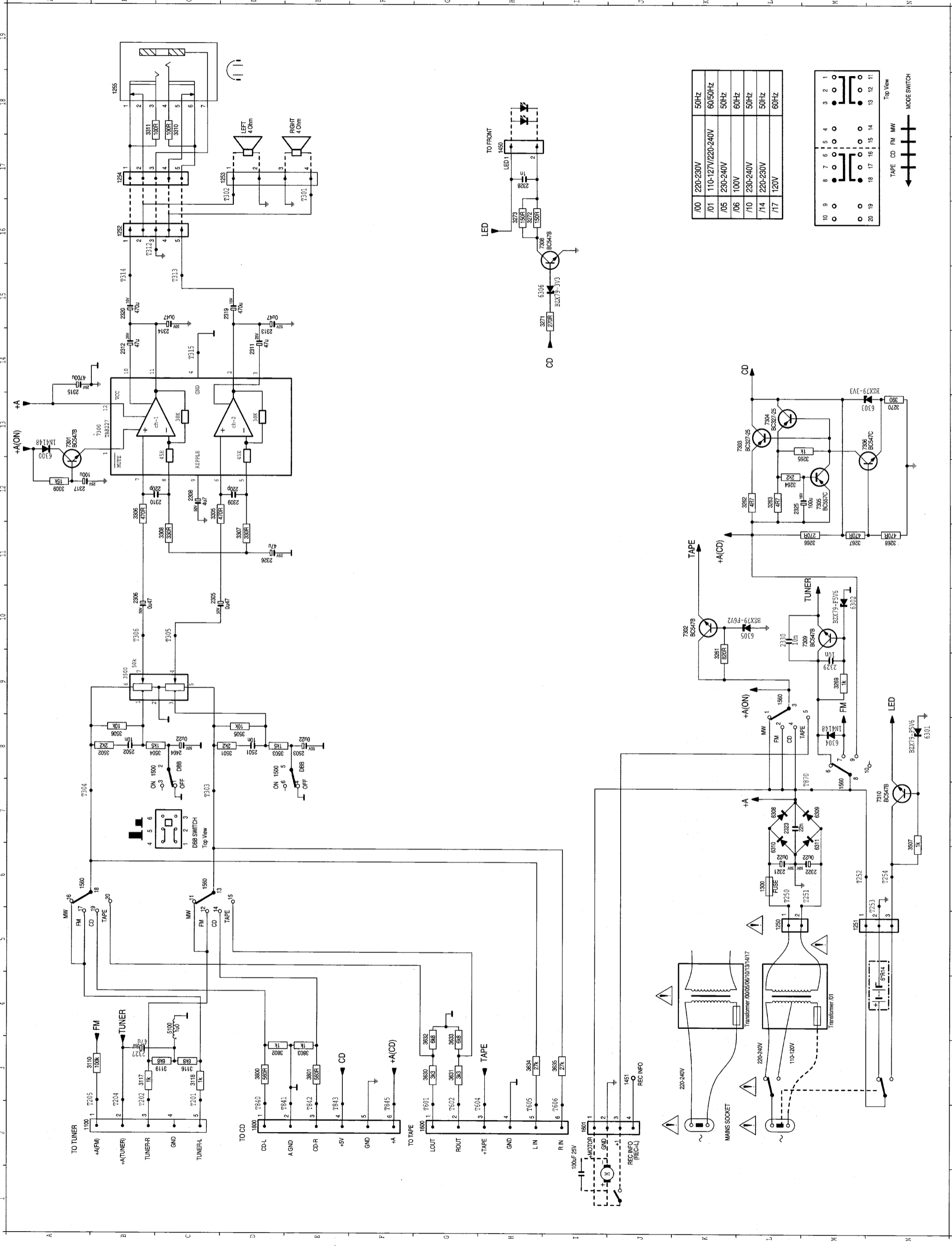
Waverange	Input Frequency	Input	Set tuned to	Adjust	Measure on	Scope / Counter
OSCILLATOR						
FM	step 1 87.5 - 108 MHz	A	lower band end	5104 1) (pre-adjust)	1 OR 2	
			upper band end	2106 C-1		
			lower band end	5104		
step 2 65.2 - 75.1 MHz	Δf = ±500KHz V _{RF} = 100μV	upper band end	check if 75 ±0.8 MHz	1 OR 2		
lower band end	5121					
upper band end	check if 108.5±0.3 MHz					
step 3 87.5 - 108 MHz	108.50		lower band end			
MW	525 - 1607 KHz	C	lower band end	5105	1 OR 2	
			upper band end	2106 C3		
FM - RF						
step 1 87.5 - 108 MHz	87.00 MHz	A	87.00 MHz	5101 2) (pre-adjust)	1 OR 2	
			108.50 MHz	2106 C2		
			70.00 MHz	5101		
step 2 64.7 - 75 MHz	70.00 MHz	Δf = ±500KHz V _{RF} = 10μV	87.00 MHz	5120		
step 3 87.5 - 108 MHz	108.50 MHz		108.50 MHz	check if max.		
VCO						
FM	98 MHz	A	98 MHz	3101	3	152 ±1 KHz 3)
			continuous wave V _{RF} = 1 mV			
AM - IF						
MW	468 KHz	C	connect pin 24 of IC 7101 (AM Osc) with short wire to ground	5106	1 OR 2	
			Δf = ±15KHz V _{RF} = 10mV	5108		
AM - RF						
MW	550 KHz	B	550 KHz	5102 (retroceptor coil)	1 OR 2	
			Δf = ±30KHz V _{RF} as low as possible	2106 C4		

1) If necessary, pre-adjust 5121 first.
 2) If necessary, pre-adjust 5120 first.
 3) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)
 4) RC-network serves for damping the IF-filter while adjusting the other one.

MAIN BOARD - CIRCUIT DIAGRAM

9-1

9-1

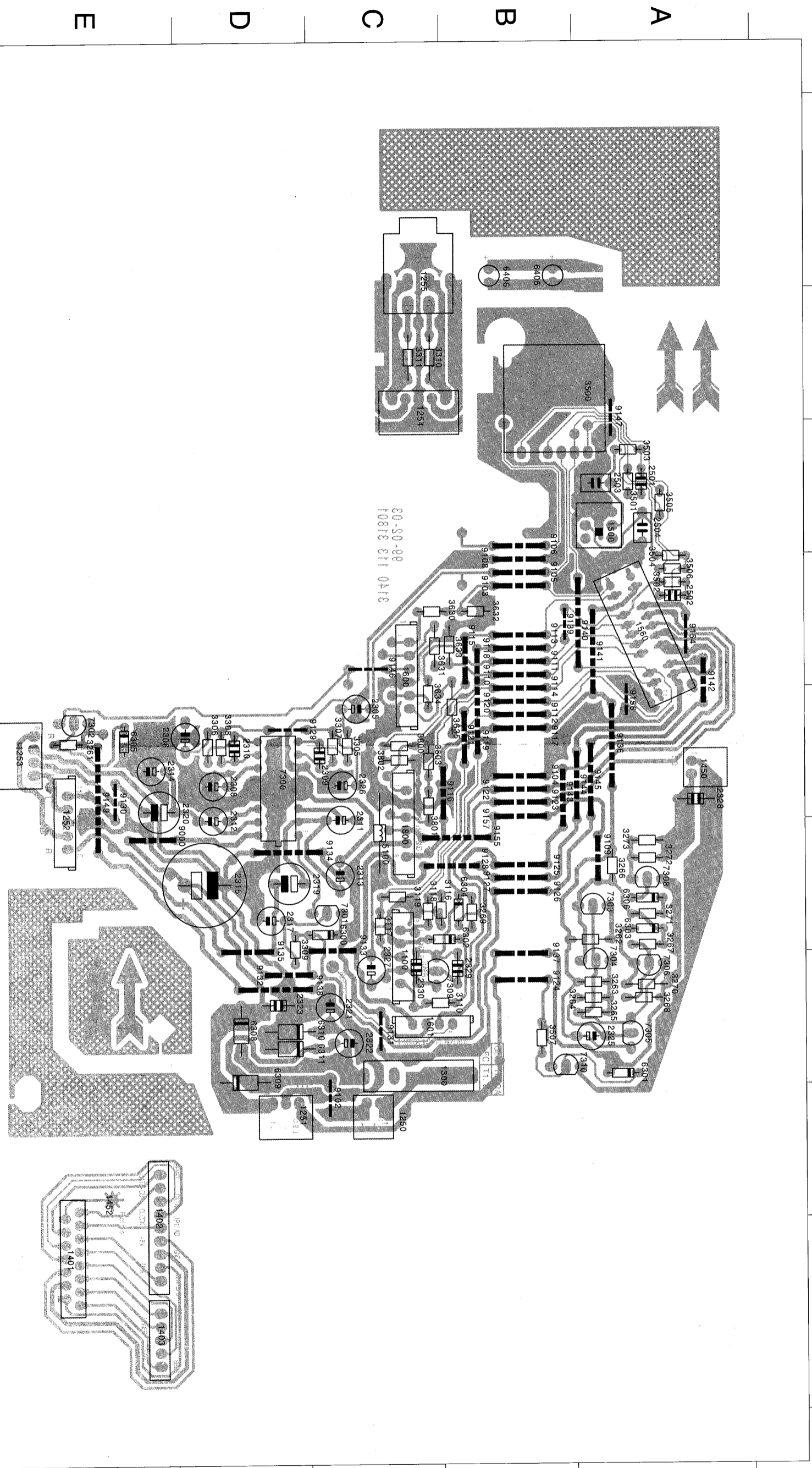


MAIN BOARD - LAYOUT DIAGRAM

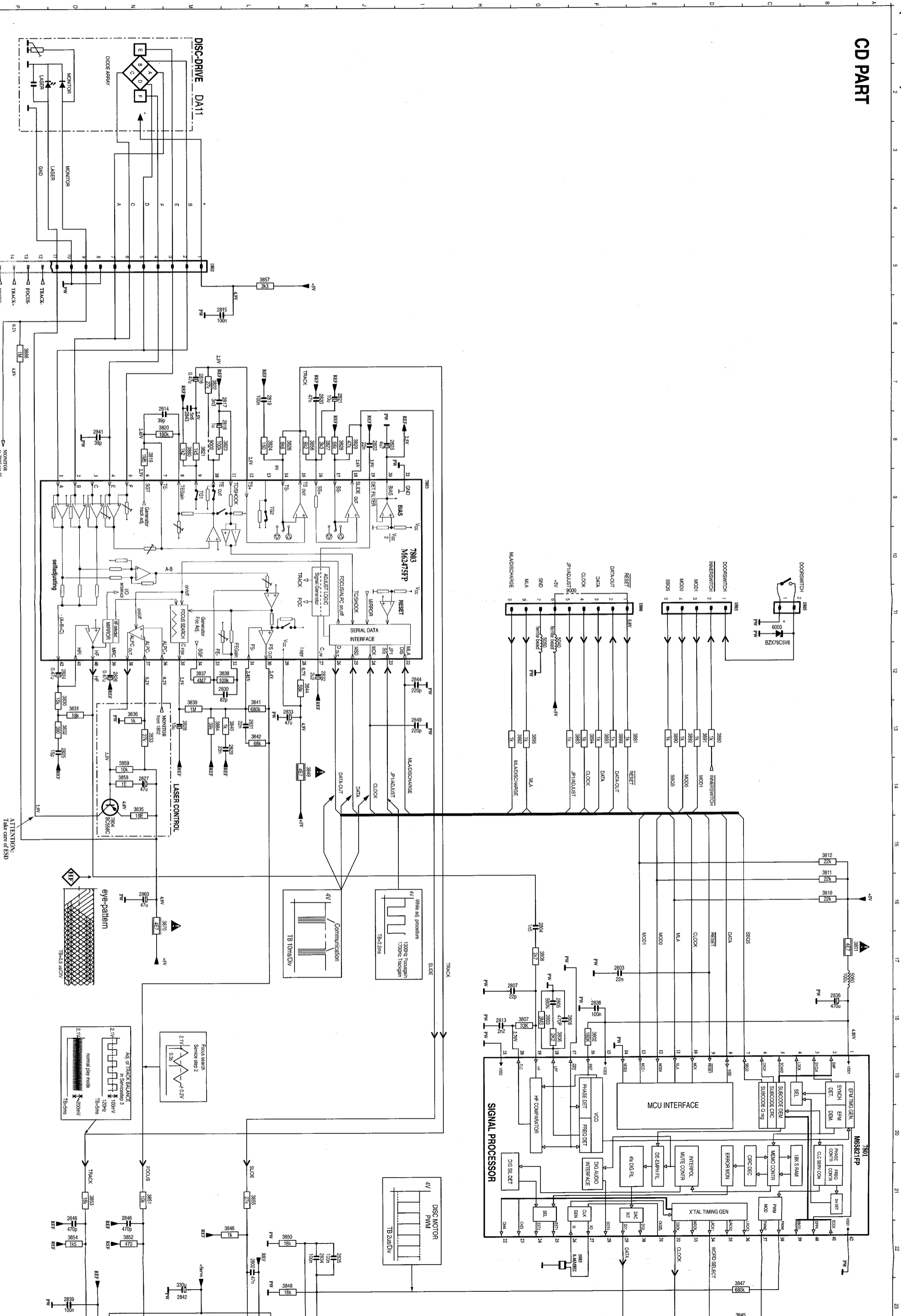
9-2

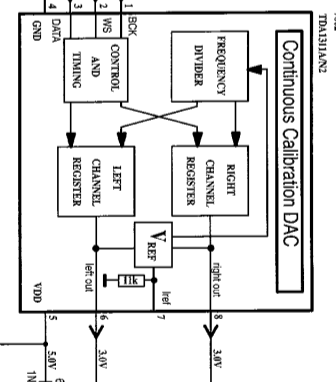
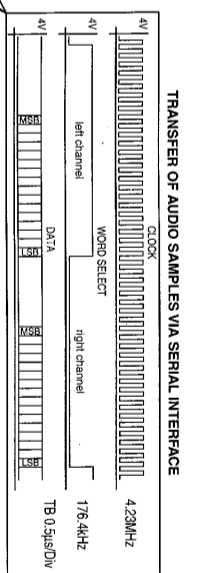
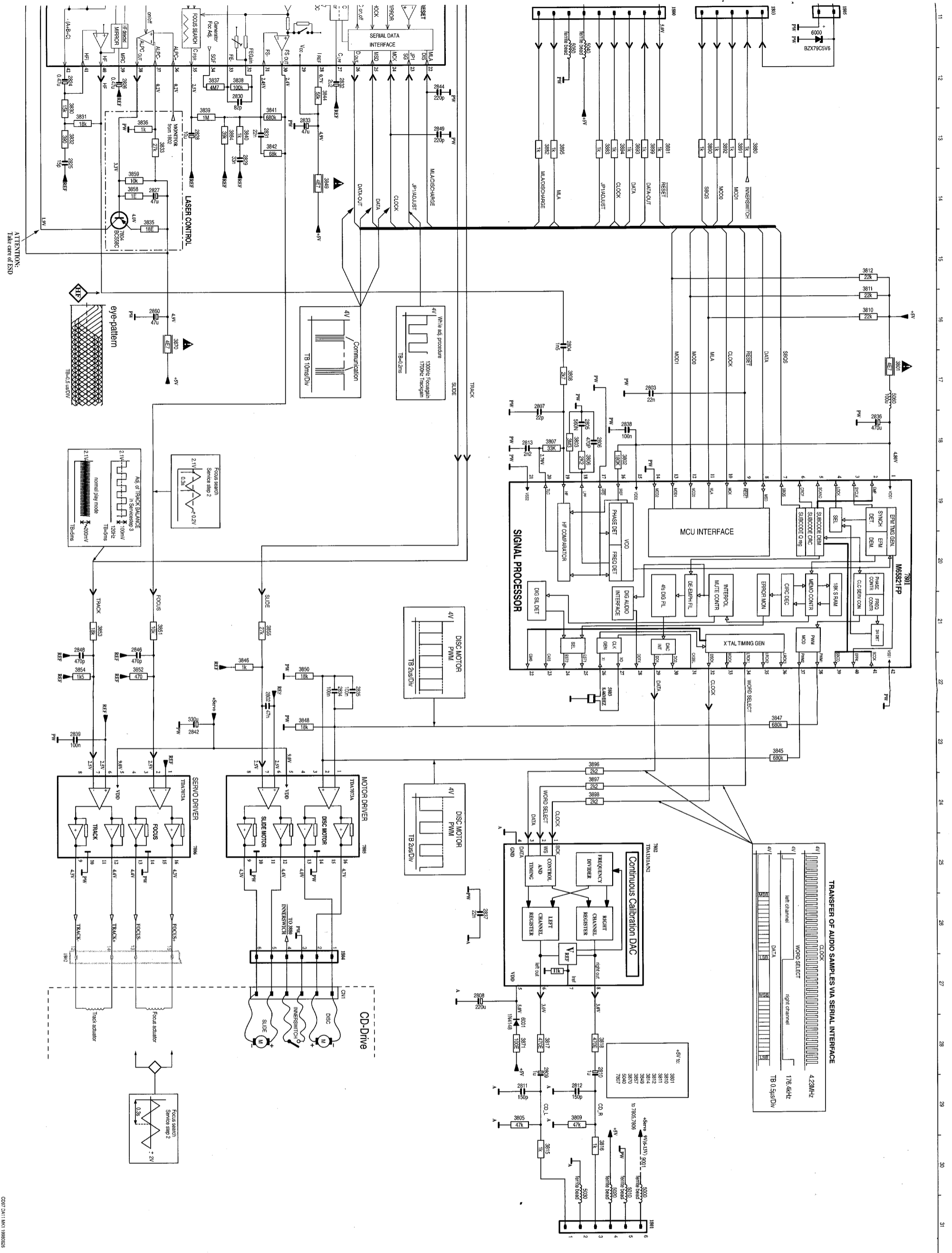
9-2

1100	C 7	1401	E 9	1800	C 6	2313	C 6	2323	D 7	2502	A 4	3261	E 5	3269	B 6	3308	D 5	3504	A 4	3634	C 5	6301	A 7	6310	D 7	7304	A 7	9103	B 4	9112	B 5	9120	B 5	9128	B 6	9136	A 5	9144	A 5	9157	B 5
1250	C 8	1402	E 9	2305	C 5	2314	E 5	2325	A 7	2503	A 3	3262	A 6	3270	A 7	3309	D 6	3505	A 3	3635	B 5	6302	B 6	6311	D 7	7305	A 7	9104	B 5	9113	B 4	9121	B 5	9129	D 5	9137	B 7	9145	A 5		
1251	D 8	1403	E 9	2306	D 5	2315	D 6	2326	C 5	2504	A 3	3263	A 7	3271	A 6	3310	C 2	3506	A 4	3800	C 5	6303	A 6	6405	B 1	7306	A 7	9105	B 4	9114	B 5	9122	B 5	9130	D 7	9138	D 7	9146	C 4		
1252	E 5	1450	A 5	2308	D 5	2317	D 6	2327	C 7	3110	C 7	3264	A 7	3272	A 6	3311	C 2	3507	B 7	3801	C 5	6304	B 6	6406	B 1	7308	A 6	9106	B 3	9115	B 4	9123	B 5	9131	C 7	9139	B 4	9147	A 2		
1253	E 5	1500	A 3	2309	C 5	2319	D 6	2328	A 5	3116	C 6	3265	A 7	3273	A 6	3500	B 2	3630	C 4	3802	C 5	6305	E 5	7300	C 6	7309	C 7	9108	B 4	9116	B 5	9124	B 5	9132	D 7	9140	A 4	9149	E 5		
1254	C 2	1560	A 5	2310	D 5	2320	E 5	2329	B 7	3117	C 6	3266	A 6	3305	C 5	3501	A 3	3631	C 4	3803	C 5	6306	A 6	7301	C 6	7310	B 7	9109	A 6	9117	B 5	9125	B 6	9133	C 6	9141	A 4	9154	A 4		
1255	C 1	1600	C 4	2311	C 5	2321	C 7	2330	C 7	3118	C 6	3267	A 6	3306	D 5	3502	A 4	3632	B 4	5100	C 6	6308	D 7	7302	E 5	9000	E 6	9110	B 4	9118	B 4	9126	B 6	9134	D 6	9142	A 4	9155	B 6		
1300	C 7	1601	C 7	2312	D 5	2322	C 7	2501	A 3	3119	C 6	3268	A 7	3307	C 5	3503	A 3	3633	B 4	6300	C 6	6309	D 7	7303	A 6	9102	C 8	9111	B 4	9119	B 5	9127	B 6	9135	D 6	9143	B 5	9156	A 5		

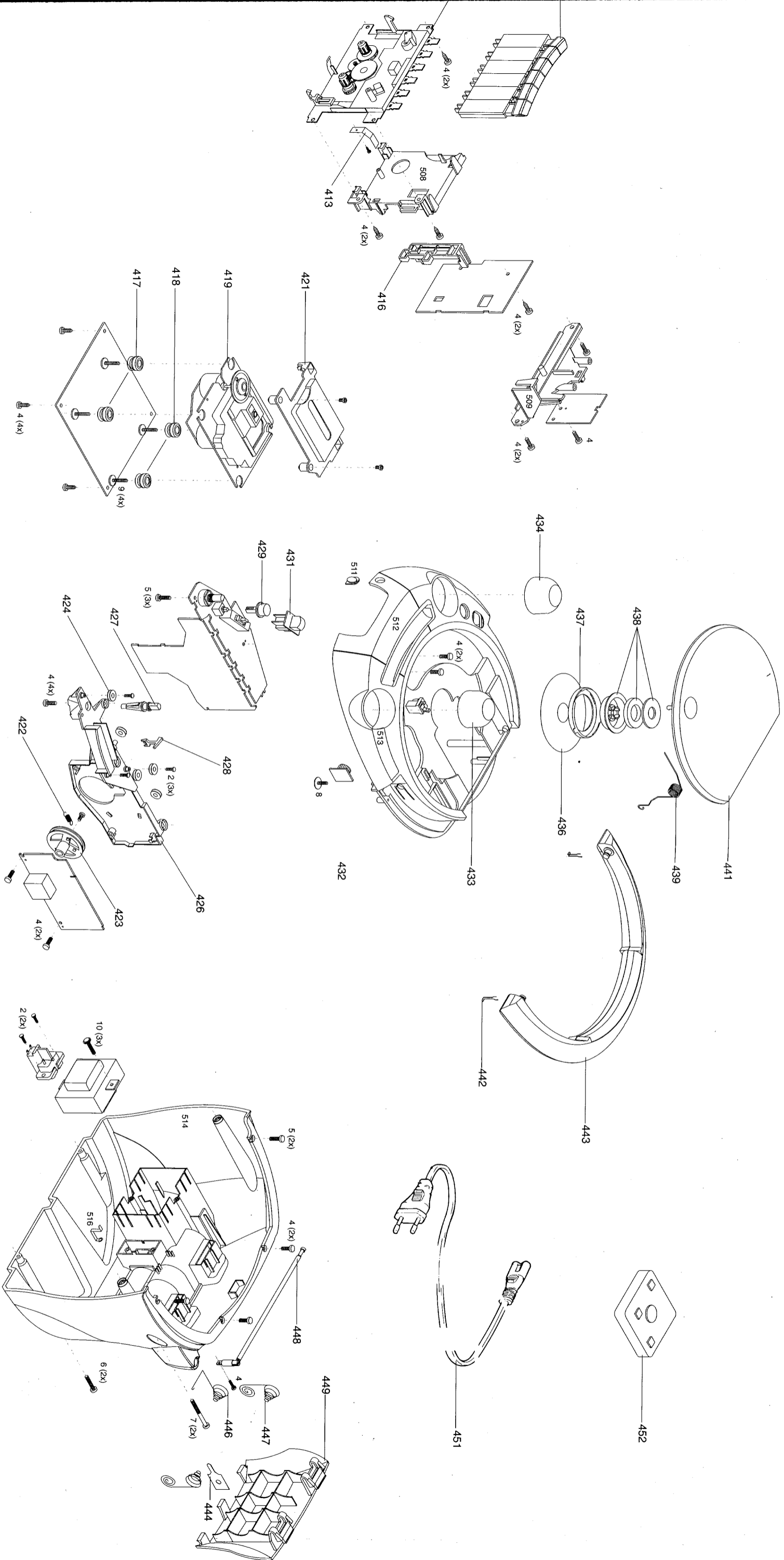


CD PART





1300	F29
1301	F28
1302	F27
1303	F26
1304	F25
1305	F24
1306	F23
1307	F22
1308	F21
1309	F20
1310	F19
1311	F18
1312	F17
1313	F16
1314	F15
1315	F14
1316	F13
1317	F12
1318	F11
1319	F10
1320	F9
1321	F8
1322	F7
1323	F6
1324	F5
1325	F4
1326	F3
1327	F2
1328	F1
1329	F0
1330	F0
1331	F0
1332	F0
1333	F0
1334	F0
1335	F0
1336	F0
1337	F0
1338	F0
1339	F0
1340	F0
1341	F0
1342	F0
1343	F0
1344	F0
1345	F0
1346	F0
1347	F0
1348	F0
1349	F0
1350	F0
1351	F0
1352	F0
1353	F0
1354	F0
1355	F0
1356	F0
1357	F0
1358	F0
1359	F0
1360	F0
1361	F0
1362	F0
1363	F0
1364	F0
1365	F0
1366	F0
1367	F0
1368	F0
1369	F0
1370	F0
1371	F0
1372	F0
1373	F0
1374	F0
1375	F0
1376	F0
1377	F0
1378	F0
1379	F0
1380	F0
1381	F0
1382	F0
1383	F0
1384	F0
1385	F0
1386	F0
1387	F0
1388	F0
1389	F0
1390	F0
1391	F0
1392	F0
1393	F0
1394	F0
1395	F0
1396	F0
1397	F0
1398	F0
1399	F0
1400	F0



MECHANICAL PARTSLIST - CABINET

12-2

401	4822 443 11258	Door Cassette	438	4822 532 12798	Ring Pressure
402	4822 492 11776	Spring Cass Door	439	4822 492 11777	Spring CD
403	4822 458 10689	Speaker Cloth Assy (L)	441	4822 443 11259	Door CD
404	4822 458 10688	Speaker Cloth Assy (R)	442	4822 492 11778	Spring Handle
406	4822 529 10322	Damper Assy	443	4822 498 10738	Handle Assy
407	4822 380 10278	Light Guide	444	4822 290 80313	Contact Plate
408	4822 410 12502	Button Play	446	4822 492 11779	Spring Compression
409	4822 410 12501	Button Mode	447	4822 492 11781	Spring Compression
411	4822 402 11356	Bracket LCD	448	4822 303 14065	Telescopic Aerial
412	4822 691 10612	Tape Deck CDS-83-VBF-77	449	4822 442 01889	Door Battery
413	4822 492 11061	Spring Recording	451	4822 321 10249	Mains Cord (For -/00/01/11/14)
414	4822 410 12507	Knob Cassette	451	4822 321 10886	Mains Cord (For -/05)
416	4822 402 10126	Lever Recording	451	4822 321 10954	Mains Cord (For -/10)
417	4822 529 10387	Damper Rubber (40 DEG)	451	4822 321 11466	Mains Cord (For -/17)
418	4822 529 10386	Damper Rubber (30 DEG)	452	4822 219 10749	Remote Control
419	4822 691 10747	CD Drive Assy CD97 DA11			
421	4822 442 01096	CD Lens Cover		4822 256 90463	Ferrite Bar Holder
422	4822 492 33422	Spring Tension		4822 736 17084	Instructions Manual (For -/00/05)
423	4822 528 11345	Dial Drum		4822 736 17077	Instructions Manual (For -/01/10/11)
424	4822 528 80907	Pulley Pom		4822 736 17078	Instructions Manual (For -/14)
				4822 736 17079	Instructions Manual (For -/17)
426	4822 402 11358	Bracket Tuning			
427	4822 535 10648	Shaft Tuning			
428	4822 450 10685	Pointer			
429	4822 410 12505	Knob DBB			
431	4822 410 12506	Knob Mode			
432	4822 529 10322	Damper Assy			
433	4822 410 12503	Knob Tuning			
434	4822 410 12504	Knob Volume			
436	4822 535 60096	Disc			
437	4822 532 13153	Ring (CD Lid)			

Note : Only those parts mentioned in the are normal service parts.

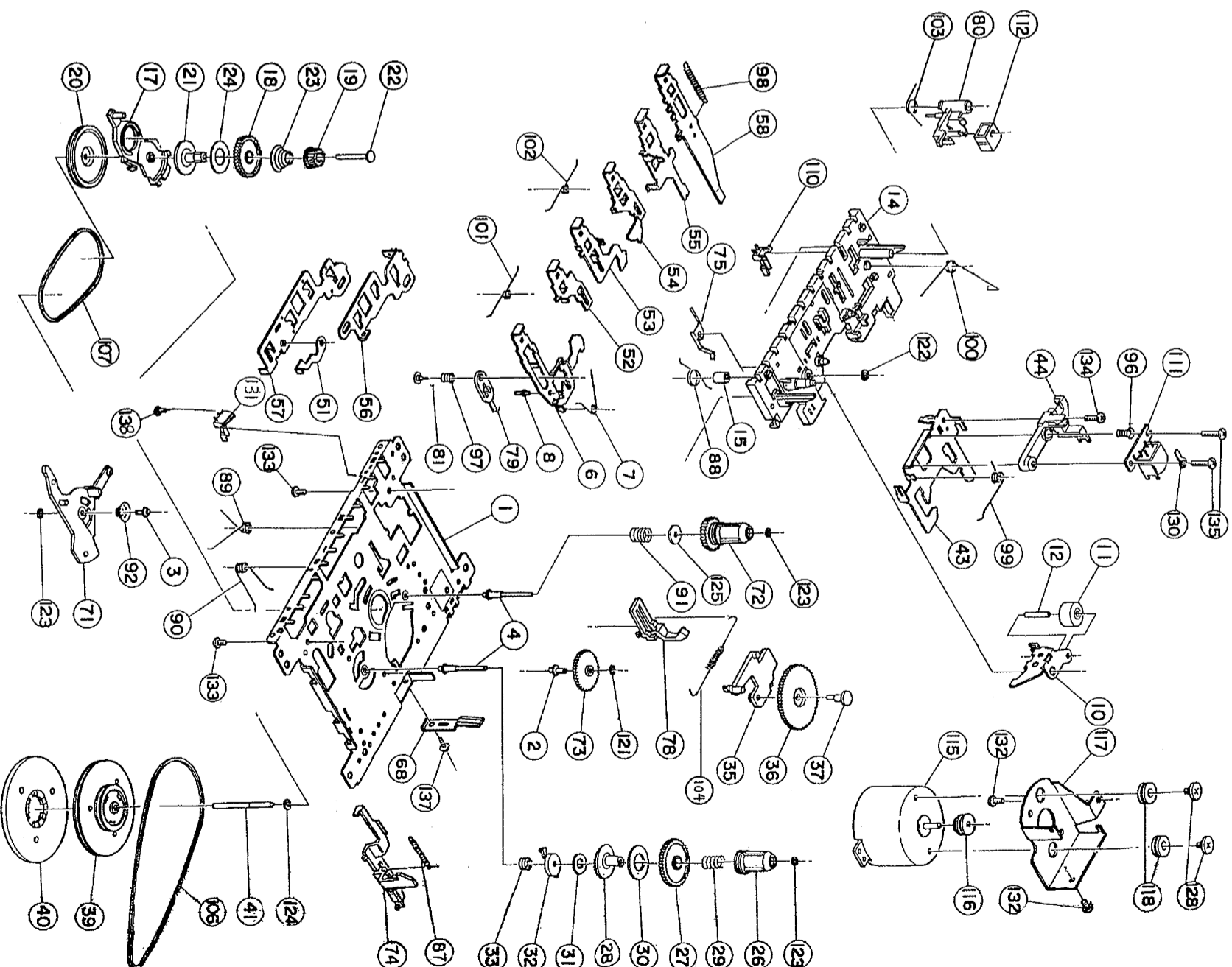
MECHANICAL PARTSLIST - TAPE DECK

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

Note : Only those parts mentioned in the are normal service parts.

EXPLODED VIEW DIAGRAM - TAPE DECK (CDS-83-VBF-77)

12-2



CD 97 (DA11 MK I)

2802	4822 126 12785	47nF Y5V TUB 50V
2803	4822 126 11585	22nF +80-20% Y5V 25V
2804	4822 126 12878	1,5nF 10% 16V
2805	4822 121 51412	560nF 5% 63V
2806	4822 122 33519	470pF 10% 50V
2807	4822 122 33191	22pF 5% 50V
2808	4822 124 22263	220µF 20% 25V
2809	4822 124 40242	1µF 20% 63V
2810	4822 124 40242	1µF 20% 63V
2811	4822 122 33849	150pF 10%Y5P 50V
2812	4822 122 33849	150pF 10%Y5P 50V
2813	4822 126 12339	2,2nF 10% Y5R
2814	4822 126 13677	39pF 5% 50V
2815	4822 126 12882	100nF +80-20% 50V
2816	4822 124 41407	0,47µF 20% 63V
2817	4822 121 42687	3,3nF 10% 63V
2818	4822 124 40242	1µF 20% 63V
2819	5322 121 42386	100nF 5% 63V
2820	4822 121 43526	47nF 5% 250V
2821	4822 124 41579	10µF 20% 50V
2822	4822 122 10167	22nF 30% 25V
2823	4822 124 40769	4,7µF 20% 100V
2824	4822 124 41407	0,47µF 20% 63V
2825	4822 122 10462	15pF 5% NPO
2826	4822 124 41407	0,47µF 20% 63V
2827	4822 124 23178	47µF 20% 16V
2828	4822 124 41579	10µF 20% 50V
2829	5322 121 42489	33nF 5% 250V
2830	4822 122 10319	82pF 5% 50V
2831	4822 121 41856	22nF 5% 250V
2832	4822 124 41576	2,2µF 20% 50V
2833	4822 124 40433	47µF 20% 25V
2834	4822 126 12882	100nF +80-20% 50V
2835	4822 126 12882	100nF +80-20% 50V
2836	4822 124 80791	470µF 20% 16V
2837	4822 126 11585	22nF +80-20% Y5V 25V
2838	4822 126 12882	100nF +80-20% 50V
2839	4822 126 12882	100nF +80-20% 50V
2841	4822 126 13677	39pF 5% 50V
2842	4822 124 40849	330µF 20% 16V
2843	4822 126 13098	5,6nF 20% 16V
2844	4822 122 10466	220pF 10% 50V
2846	4822 122 33519	470pF 10% 50V
2848	4822 122 33519	470pF 10% 50V
2849	4822 122 10466	220pF 10% 50V

CD 97 (DA11 MK I)

3847	4822 116 52298	680K 5% 0,5W
3848	4822 116 52251	18K 5% 0,5W
3849	4822 052 10478	4R7 5% 0,33W
3850	4822 116 52251	18K 5% 0,5W
3851	4822 116 52244	15K 5% 0,5W
3852	4822 116 83883	470R 5% 0,5W
3853	4822 116 52251	18K 5% 0,5W
3854	4822 116 52243	1K5 5% 0,5W
3855	4822 116 52264	27K 5% 0,5W
3856	4822 116 52303	8K2 5% 0,5W
3857	4822 116 52269	3K3 5% 0,5W
3858	4822 116 80176	1R 5% 0,5W
3859	4822 116 83864	10K 5% 0,5W
3860	4822 116 52207	1K2 5% 0,5W
3870	4822 052 10478	4R7 5% 0,33W
3871	4822 116 52175	100R 5% 0,5W
3880	4822 050 11002	1K 1% 0,4W
3881	4822 050 11002	1K 1% 0,4W
3882	4822 050 11002	1K 1% 0,4W
3883	4822 050 11002	1K 1% 0,4W
3884	4822 116 83882	39K 5% 0,5W
3886	4822 116 52235	1M 5% 0,5W
3890	4822 050 11002	1K 1% 0,4W
3891	4822 050 11002	1K 1% 0,4W
3892	4822 050 11002	1K 1% 0,4W
3893	4822 050 11002	1K 1% 0,4W
3894	4822 050 11002	1K 1% 0,4W
3895	4822 050 11002	1K 1% 0,4W
3896	4822 116 52256	2K2 5% 0,5W
3897	4822 116 52256	2K2 5% 0,5W
3898	4822 116 52256	2K2 5% 0,5W
3899	4822 050 11002	1K00 1% 0,4W
5000	4822 526 10494	Ferrite Bead
5010	4822 526 10494	Ferrite Bead
5020	4822 526 10494	Ferrite Bead
5030	4822 526 10494	Ferrite Bead
5040	4822 526 10494	Ferrite Bead
5050	4822 526 10494	Ferrite Bead
5060	4822 157 50964	Coil 100µH
5803	4822 242 73557	Filter CST8,46MTW-TF01

6001	4822 130 30621	Diode 1N4148
7801	4822 209 13703	IC M65821FP
7802	4822 209 32421	IC TDA1311A/N2
7803	4822 209 90496	IC M62475FP
7804	4822 130 42231	Trans BC557C
7805	4822 209 32852	IC TDA7073A/N2
7806	4822 209 32852	IC TDA7073A/N2
- MISCELLANEOUS -		
1802	4822 265 10925	Connector 15P
8000	4822 320 12178	Flexible Foil 15P 65mm

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

MAIN BOARD

13-2

2305	4822 124 41407	0.47μF 20%	63V
2306	4822 124 41407	0.47μF 20%	63V
2308	4822 124 40769	4.7μF 20%	100V
2309	4822 122 10466	220pF 10%	50V
2310	4822 122 10466	220pF 10%	50V
2311	4822 124 40433	47μF 20%	25V
2312	4822 124 40433	47μF 20%	25V
2313	4822 124 41407	0.47μF 20%	63V
2314	4822 124 41407	0.47μF 20%	63V
2315	4822 124 11878	4700μF 16V	
2317	4822 124 81029	100μF 20%	25V
2319	4822 124 80195	470μF 20%	10V
2320	4822 124 80195	470μF 20%	10V
2321	4822 124 40746	0.22μF 20%	63V
2322	4822 124 40746	0.22μF 20%	63V
2323	4822 126 11585	22nF +80-20% Y5V	25V
2325	4822 124 23052	100μF 20%	16V
2326	4822 124 40433	47μF 20%	25V
2327	4822 124 40433	47μF 20%	25V
2328	4822 122 33197	1nF 10%	50V
2329	4822 121 51387	10nF 20%	16V
2330	4822 121 51387	10nF 20%	16V
2501	4822 121 51387	10nF 20%	16V
2502	4822 121 51387	10nF 20%	16V
2503	4822 121 42408	220nF 5%	63V
2504	4822 121 42408	220nF 5%	63V

3271	4822 116 83876	270R 5%	0.5W
3272	4822 116 83868	150R 5%	0.5W
3273	4822 116 83868	150R 5%	0.5W
3305	4822 116 83883	470R 5%	0.5W
3306	4822 116 83883	470R 5%	0.5W
3307	4822 116 52219	330R 5%	0.5W
3308	4822 116 52219	330R 5%	0.5W
3309	4822 116 52244	15K 5%	0.5W
3310	4822 116 52175	100R 5%	0.5W
3311	4822 116 52175	100R 5%	0.5W
3500	4822 102 10447	VR 50K	
3501	4822 116 52256	2K2 5%	0.5W
3502	4822 116 52256	2K2 5%	0.5W
3503	4822 116 52256	2K2 5%	0.5W
3504	4822 116 52256	2K2 5%	0.5W
3505	4822 116 83864	10K 5%	0.5W
3506	4822 116 83864	10K 5%	0.5W
3507	4822 050 11002	1K 1%	0.4W
3630	4822 116 52269	3K3 5%	0.5W
3631	4822 116 52269	3K3 5%	0.5W
3632	4822 116 83961	6K8 5%	
3633	4822 116 83961	6K8 5%	
3634	4822 116 52264	27K 5%	0.5W
3635	4822 116 52264	27K 5%	0.5W
3800	4822 116 52256	2K2 5%	0.5W
3801	4822 116 52256	2K2 5%	0.5W
3802	4822 050 11002	1K 1%	0.4W
3803	4822 050 11002	1K 1%	0.4W

6311	4822 130 31878	Diode 1N4003G
7300	4822 209 31544	IC TA8227P
7301	4822 130 40959	Trans BC547B
7302	4822 130 40959	Trans BC547B
7303	4822 130 41246	Trans BC327-25
7304	4822 130 41246	Trans BC327-25
7305	4822 130 42231	Trans BC557C
7306	4822 130 44503	Trans BC547C
7308	4822 130 40959	Trans BC547B
7309	4822 130 40959	Trans BC547B
7310	4822 130 40959	Trans BC547B

- MISCELLANEOUS -



1007	4822 240 10391	Loudspeaker 4 Ohm
1008	4822 265 20318	Socket Main (Not for -/17)
1008	4822 265 20706	Socket Main 9For -/17)
1009	4822 146 11179	Transf (For -/00/05/10/14)
1009	4822 146 11175	Transf (For -/01/11)
1009	4822 146 11176	Transf (For -/17)
1010	4822 276 13963	CD Door Switch
1011	4822 277 21794	Volt Sel (For -/01/11)
1255	4822 265 11317	Connector 1p
1300	4822 070 31602	Fuse 1.6A (Not for -/17)
1300	4822 253 30116	Fuse 2A (For -/17)
1500	4822 276 12648	Push Switch 2P2T
1560	4822 277 11739	Slide Switch

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




MAIN BOARD

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FRONT BOARD

	2401	4822 124 41584	100µF 20% 10V
	2402	4822 124 22651	1µF 20% 50V
	2403	4822 126 12882	100nF +80-20% 50V
	2464	4822 122 10466	220pF 10% 50V
	2465	4822 122 10466	220pF 10% 50V
	2466	4822 122 33197	1nF 10% 50V
	2901	4822 122 33519	470pF 10% 50V
	2902	4822 122 33519	470pF 10% 50V
	2903	4822 124 23432	100µF 20% 10V
	3402	4822 116 52234	100K 5% 0.5W
	3403	4822 116 52244	15K 5% 0.5W
	3404	4822 116 83876	270R 5% 0.5W
	3405	4822 116 52238	12K 5% 0.5W
	3406	4822 116 52276	3K9 5% 0.5W
	3407	4822 116 52243	1K5 5% 0.5W
	3408	4822 116 52226	560R 5% 0.5W
	3410	4822 116 52238	12K 5% 0.5W
	3414	4822 116 83961	6K8 5%
	3415	4822 116 83961	6K8 5%
	3460	4822 116 52283	4K7 5% 0.5W
	3461	4822 116 52269	3K3 5% 0.5W
	3462	4822 116 52243	1K5 5% 0.5W
	3464	4822 116 52283	4K7 5% 0.5W
	3465	4822 116 52283	4K7 5% 0.5W
	3466	4822 116 52243	1K5 5% 0.5W
	3467	4822 116 52243	1K5 5% 0.5W
	3468	4822 116 52283	4K7 5% 0.5W
	3469	4822 116 52231	820R 5% 0.5W
	3470	4822 116 52231	820R 5% 0.5W
	3471	4822 116 52283	4K7 5% 0.5W
	3472	4822 116 52231	820R 5% 0.5W
	3474	4822 116 52283	4K7 5% 0.5W
	3475	4822 116 52234	100K 5% 0.5W
	3479	4822 050 11002	1K 1% 0.4W
	3480	4822 116 52234	100K 5% 0.5W
	3481	4822 116 52257	22K 5% 0.5W
	3484	4822 116 52264	27K 5% 0.5W
	3485	4822 116 52264	27K 5% 0.5W
	3486	4822 116 52269	3K3 5% 0.5W

TUNER BOARD

	2101	4822 122 33195	100pF 10% 50V
	2102	4822 122 33848	47pF 5%SL 50V
	2103	4822 124 41579	10µF 20% 50V
	2104	4822 124 41579	10µF 20% 50V
	2105	4822 122 33191	22pF 5% 50V
	2106	4822 125 50681	Variable Capacitor
	2108	4822 126 13508	3.3pF 10% NP0 50V
	2109	4822 126 14482	27pF 5% 50V N470
	2110	4822 126 12229	8.2pF N750 50V
	2112	4822 124 40433	47µF 20% 25V
	2113	4822 124 40746	0.22µF 20% 63V
	2114	4822 126 12787	330pF 10% Y5V 50V
	2115	4822 124 40769	4.7µF 20% 100V
	2116	4822 121 70619	22nF 10% 50V
	2116	4822 121 43145	33nF 10% 50V
	2117	4822 124 40242	1µF 20% 63V
	2118	4822 124 40242	1µF 20% 63V
	2119	4822 121 70619	22nF 10% 50V
	2119	4822 121 43145	33nF 10% 50V
	2120	4822 124 40242	1µF 20% 63V
	2121	4822 124 41407	0.47µF 20% 63V
	2122	4822 124 41407	0.47µF 20% 63V
	3101	4822 100 20167	50K 30% LIN 0.1W
	3102	4822 116 52297	68K 5% 0.5W
	3104	4822 116 52256	2K2 5% 0.5W
	3106	4822 116 52231	820R 5% 0.5W
	3107	4822 116 52182	15R 5% 0.5W
	3108	4822 116 52182	15R 5% 0.5W
	3109	4822 116 52176	10R 5% 0.5W
	3113	4822 116 52234	100K 5% 0.5W
	3114	4822 116 52234	100K 5% 0.5W
	3115	4822 116 52226	560R 5% 0.5W
	5101	4822 157 70513	Coil FM
	5102	4822 157 70731	Coil MW/ANT
	5104	4822 157 11843	Coil MD7B-01F
	5105	4822 157 71145	Coil 270µH
	5106	4822 157 70499	Coil IFT AM

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

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- MISCELLANEOUS -

5107	4822 242 81154	Filter KMFC5058-Z
5108	4822 156 11146	Coil IFT AM
6101	4822 130 30621	Diode 1N4148
6102	4822 130 30621	Diode 1N4148
7101	4822 209 32746	IC TEA5711T/N2
7102	4822 130 44503	Trans BC547C
1003	4822 256 90463	Ferrite Bar Holder
1003	4822 526 10176	Ferrite Bar 5x13x55mm

RECORDER BOARD

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2703	4822 124 81151	22 μ F 50V
2704	4822 124 81151	22 μ F 50V
2706	4822 124 40433	47 μ F 20% 25V
2707	4822 124 80144	220 μ F 20% 25V
2708	4822 124 42446	100 μ F 20% 10V
2709	4822 124 42446	100 μ F 20% 10V
2710	4822 124 22726	4.7 μ F 35V
2711	4822 124 81151	22 μ F 50V
2712	4822 126 12339	2.2nF 10% Y5R
2713	5322 122 32311	470pF 10% 100V
2714	4822 126 12339	2.2nF 10% Y5R
2715	4822 126 13174	33nF +80-20% 16V
2716	4822 126 11585	22nF +80-20% Y5V 25V
2717	4822 121 10686	4.7nF 10% 50V
2718	4822 122 10466	220pF 10% 50V
2719	4822 121 51305	15nF 10% 50V
2720	5322 122 32311	470pF 10% 100V
2721	4822 126 12339	2.2nF 10% Y5R
2722	4822 126 13174	33nF +80-20% 16V
2723	4822 126 11585	22nF +80-20% Y5V 25V
2724	4822 121 10686	4.7nF 10% 50V
2725	4822 122 10466	220pF 10% 50V
2726	4822 121 51305	15nF 10% 50V
2727	4822 126 12339	2.2nF 10% Y5R
2728	4822 126 11714	4.7nF 20%
2729	4822 126 11714	4.7nF 20%
2730	4822 126 14316	680pF 10% 50V Y5P
2731	4822 121 41857	10nF 5% 250V
2732	4822 126 11714	4.7nF 20%
2733	4822 121 70619	22nF 10% 50V
2736	4822 126 14316	680pF 10% 50V Y5P
2737	4822 126 14316	680pF 10% 50V Y5P
2738	4822 122 33519	470pF 10% 50V
2739	4822 122 33519	470pF 10% 50V
2740	4822 124 42446	100 μ F 20% 10V
3700	4822 116 83883	470R 5% 0.5W
3701	4822 116 83883	470R 5% 0.5W
3702	4822 116 52175	100R 5% 0.5W
3703	4822 116 52195	47R 5% 0.5W
3704	4822 116 83883	470R 5% 0.5W

3705	4822 116 83872	220R 5% 0.5W
3706	4822 116 52245	150K 5% 0.5W
3707	4822 116 52245	150K 5% 0.5W
3708	4822 116 83961	6K8 5%
3709	4822 116 83961	6K8 5%
3710	4822 116 83864	10K 5% 0.5W
3711	4822 116 52207	1K2 5% 0.5W
3712	4822 116 52303	8K2 5% 0.5W
3713	4822 116 52195	47R 5% 0.5W
3714	4822 116 83883	470R 5% 0.5W
3715	4822 116 83872	220R 5% 0.5W
3716	4822 116 52245	150K 5% 0.5W
3717	4822 116 83961	6K8 5%
3718	4822 116 83961	6K8 5%
3719	4822 116 83864	10K 5% 0.5W
3720	4822 116 52303	8K2 5% 0.5W
3721	4822 116 52207	1K2 5% 0.5W
3722	4822 116 52257	22K 5% 0.5W
3723	4822 116 52257	22K 5% 0.5W
3725	4822 116 52256	2K2 5% 0.5W
3726	4822 116 52256	2K2 5% 0.5W
3727	4822 116 52256	2K2 5% 0.5W
3729	4822 116 52256	2K2 5% 0.5W
3730	4822 116 52186	22R 5% 0.5W
3731	4822 116 52297	68K 5% 0.5W
3732	4822 116 52176	10R 5% 0.5W
3733	4822 111 30893	4M7 5% 0.2W
3734	4822 116 83864	10K 5% 0.5W
3735	4822 050 21002	1K 1% 0.6W
3743	4822 116 52269	3K3 5% 0.5W
3744	4822 116 52269	3K3 5% 0.5W
3745	4822 116 83864	10K 5% 0.5W
3746	4822 116 83864	10K 5% 0.5W
3747	4822 116 52191	33R 5% 0.5W
3748	4822 116 52283	4K7 5% 0.5W
3749	4822 116 52283	4K7 5% 0.5W
3750	4822 116 52176	10R 5% 0.5W
5701	4822 157 10371	Coil 100KHz

RECORDER BOARD

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6704	4822 130 30621	Diode 1N4148
7702	4822 130 40981	Trans BC337-25
7705	4822 209 32918	IC AN7318S
7706	4822 130 44503	Trans BC547C
7707	4822 130 44503	Trans BC547C
- MISCELLANEOUS -		
1707	4822 277 11504	Push Switch

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