

Service Manual

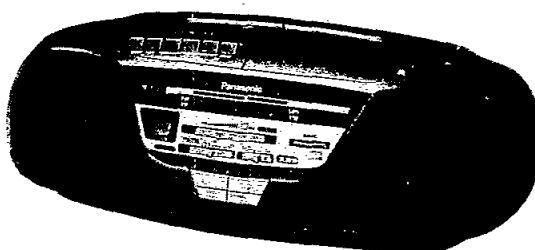
COMPACT
disc
DIGITAL AUDIO

Portable Stereo CD System

Radio Cassette
RX-DS11

MASH *
multi-stage noise shaping

* MASH is a trademark of NTT



Colour (K).....Black Type

Areas

(E) (EP) Europe, Poland and
Russia.
(EB) Great Britain.
(EG) Germany.
(EJ) Italy.
(GN) Oceania.

Tape Deck: SG-20 Mechanism Series
Traverse Deck: RAE0150Z Series

Specifications

General

Power Requirement:	
AC;	230 ~ 240 V, 50 Hz
	Power Consumption; 20 W
Battery;	9 V [Six R20/LR20 (D, UM-1) batteries]
Power Output:	
for (E)(EB)(EG)(GN) areas;	30 W (PMPO MAX) 4 W (RMS 10 % DIST.)
for (EP) area;	30 W (PMPO MAX)
for (EJ) area;	4 W (RMS 10% DIST.)
Speakers:	10 cm, 4 ohm
Output:	PHONES; 32 ohm, diameter 3.5
Dimensions:	470 (Wide) / 158 (High) / 254 (Depth) mm
Weight:	2.9 kg without batteries

CD player

Sampling frequency:	44.1 kHz
Decoding:	16 bit linear
Beam source:	Semiconductor laser (wavelength 780 nm)
No. of channels:	2 channel, stereo
Wow and flutter:	Below measurable limit
D/A converter:	MASH (1 bit DAC)

Notes:

1. Weight and dimensions shown are approximate.
2. Design and specifications are subject to change without notice.

Radio

Frequency Range:

for (E)(EB)(EG)(EJ)(GN) areas;	
FM;	87.5 – 108 MHz
AM;	520 – 1610 kHz
for (EP) area	
FM;	65 – 108 MHz
AM;	520 – 1610 kHz

Intermediate Frequency:

for (E)(EB)(EG)(EJ)(GN) areas;	
FM;	10.7 MHz
AM;	459 kHz
for (EP) area;	
FM;	10.64 MHz
AM;	459 kHz

Sensitivity:

for (E)(EB)(EG)(GN) areas;	
FM;	6.3 μ V/ 0.21 mW output (30 dB)
AM;	251 μ V/ m/ 0.21 mW output (Max.)
for (EP) areas;	
FM;	5.6 μ V/ 0.21 mW output (30 dB)
AM;	199 μ V/ m/ 0.21 mW output (Max.)
for (EJ) areas;	
FM;	7.9 μ V/ 0.21 mW output (30 dB)
AM;	282 μ V/ m/ 0.21 mW output (Max.)

Tape Recorder

Frequency Range:	30 – 12000 Hz (Normal)
Recording System:	AC bias, Magnet erase
Tape Speed:	4.8 cm/s
Monitor System:	Variable sound monitor
Track System:	4 - track, 2 - channel, stereo recording and playback

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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CAUTION:

THIS PRODUCT UTILIZES A LASER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

■ Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μ W/VDE

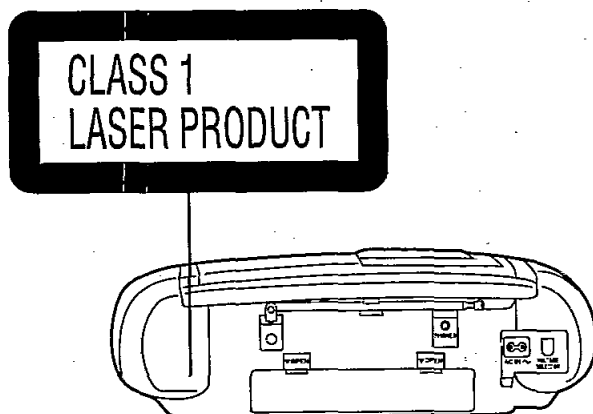
Laser radiation from the pick up unit is safety level, but be sure the followings:

1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdioden. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahlt.
Wellenlänge: 780 nm
Maximale strahlungsleistung der lasereinheit: 100 µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.



DANGER	AVOID LASER RADIATION WHEN OPEN AND INTERLOCK DEFECTED. AVOID DIRECT EXPOSURE TO BEAM.	(Inside of product)
ADVARSEL	UNNSÅ LASERSTRÅLING NÅR ÅPNET. NÅR SIKKERHEDSINSTRUMEN- TET ER FEIL, UNNSÅ DIREKTE EKSPONERING AV STRÅLEN.	(Indersiden at apparatet)
VARO!	VAUTAASTA LASERVALON OIKETI KUN, JOS KÄYTTÄMÄN NÄPÄYKÄN TURVALLISUUS ON KATKONNA.	(Tuotteen sisällä)
VARNING	ÖPPNAN LASERSTRÅLNING NÄR ÖPPNAN OCH/ELLER OM SÄKERSHETEN ÅR FÖRSLÅT. FÖRSLÅT ÅR STRÅLEN GÅR RÄTT IN I ÖGAT.	(Apparatens insida)
ADVARSEL	UNNSÅ LASERSTRÅLING NÅR DEKKET ÅPNET OG SIKKERHEDS- INSTRUMENTET ER FEIL. UNNSÅ DIREKTE EKSPONERING AV STRÅLEN.	(Produkteretts innside)
VORSICHT	VERMEIDEN LASERSTRAHLUNG, WENN GEÖFFNET UND/ODER WENN SICHERHEITSFUNKTIONEN AUSGEFALLEN. VERMEIDEN DIREKTE AUSSETZUNG.	(Im Inneren des Gerätes)

■ Caution for AC Main Lead

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local dealer.

CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral, Brown: Live.

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N coloured Black or Blue.

The wire which is coloured Brown must be connected to the terminal which is marked with letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH LETTER E, BY THE EARTH SYMBOL  OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF-KEEP DRY.

Before use

Removal the connector cover.

How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

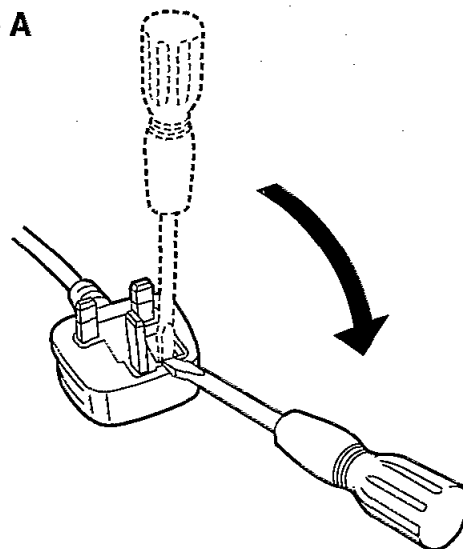
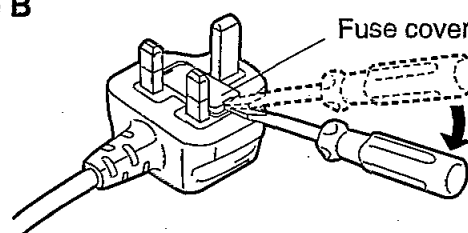


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

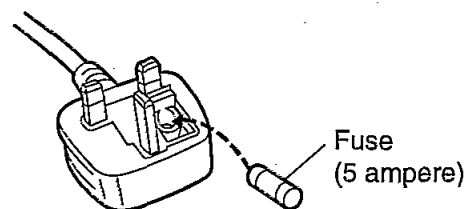
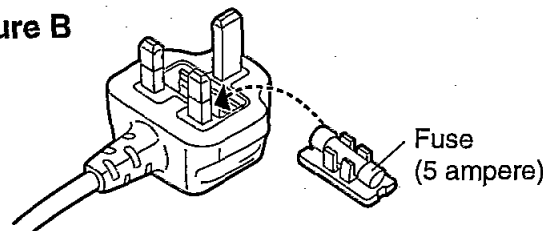


Figure B



■ Location of Controls

Basic Controls

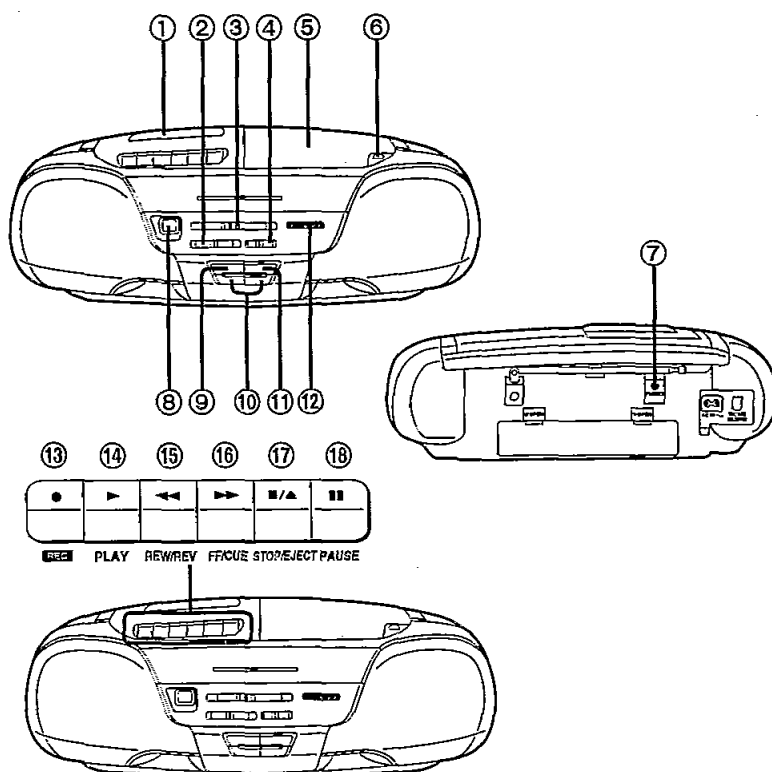
- ① Tape lid
- ② Function selector/operation switch (SELECTOR)
- ③ Volume control (VOLUME)
- ④ XBS switch (XBS)
- ⑤ Disc lid
- ⑥ Disc lid open button (▲ CD)
- ⑦ Headphones jack (PHONES)

CD/Tuner controls

- ⑧ Display panel
- ⑨ Stop button (■ CD)
- ⑩ Skip/search buttons (◀▶)
- ⑪ Play/pause button (CD ▶/||)
- ⑫ Tuning dial (TUNING)

Cassette deck controls

- ⑬ Recording button (● REC)
- ⑭ Playback button (▶ PLAY)
- ⑮ Rewind/review button (◀◀ REW/REV)
- ⑯ Fast forward/cue button (▶▶ FF/CUE)
- ⑰ Stop/eject button (■ STOP/EJECT)
- ⑱ Pause button (|| PAUSE)



■ Common Operations

Tuning the unit on and off

To listen to the radio **A**

Set **SELECTOR** to "FM" or "AM".

To listen to CDs **B**

Set **SELECTOR** to "CD".

To listen to tapes **C**

Set **SELECTOR** to "TAPE/OFF".

The power is supplied while the tape is traveling.

Turning the unit off:

Set **SELECTOR** to "TAPE/OFF".

Press ■/▲ STOP/EJECT if a tape is traveling.

Adjusting the volume **D**

Slide volume to adjust the volume to the desired level.

Slide it to "MAX" to turn up the volume.

Slide it to "MIN" to turn down the volume.

Adjusting the deep bass (XBS) **E**

To increase the deep bass, set XBS to "ON".

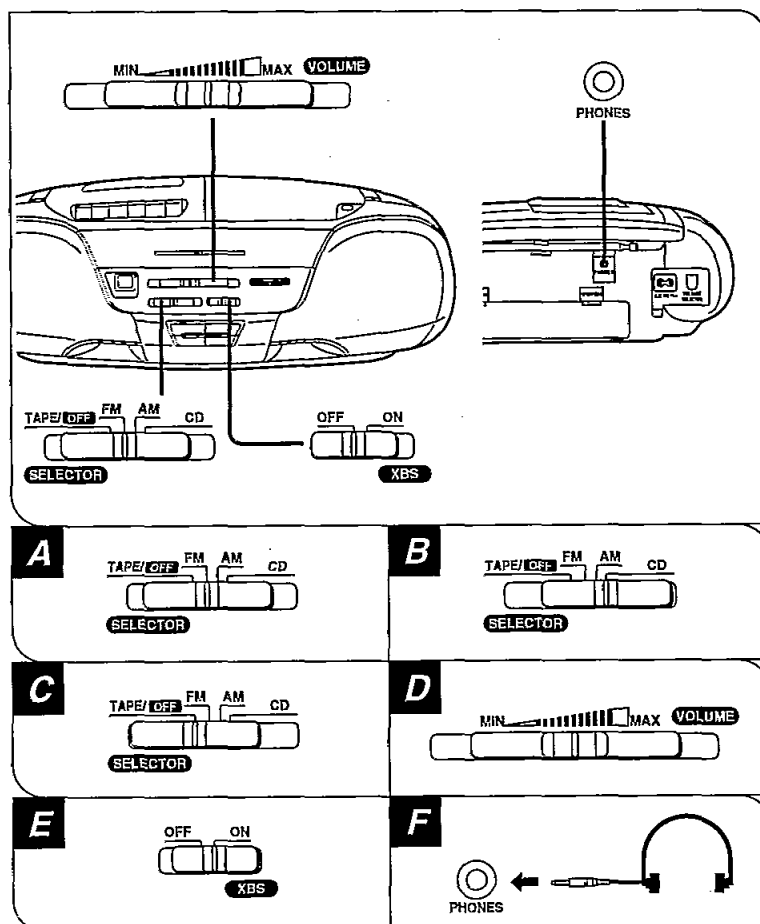
To listen through headphones (not included) **F**

Turn down the volume and connect the headphones to the **PHONES** jack.

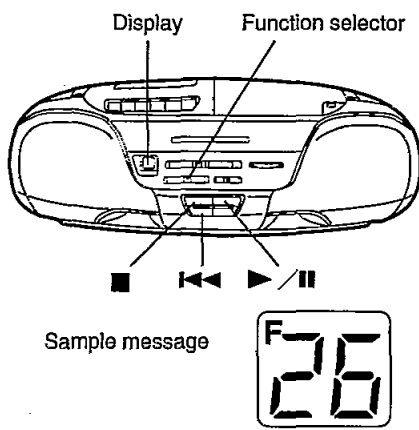
Adjust the volume to the desired level.

• Avoid listening for prolonged periods of time to prevent hearing damage.

• Plug type: 3.5 mm stereo



■ Self-Check Display

Displaying results of self-check	Location
Entering self-check mode and displaying the results 1. Connect the power cord. 2. Close the CD compartment lid without putting a CD in. 3. Set the function selector to "CD". ("CD" will appear on the display, followed by "--"). 4. Switch the function selector to "TAPE/OFF" while pressing the "Play/pause" (▶/) and "Skip/search" (◀◀) buttons at the same time. Then switch back to "CD". 5. If the self-check function detects a malfunction, it will be shown on the display. Otherwise, the display will read "--". (When a malfunction is detected, it may take up to 15 seconds for a message to appear on the display.) 6. When there is more than one malfunction, press the "Stop" (■) button to see the next message. Returning to the normal display Set the function selector to "TAPE/OFF". Note: Once a malfunction is displayed, it is stored in the memory. To clear the memory, disconnect the power and set the function selector to "CD".	 Display Function selector Sample message

Display content

Note: Items marked with (*) are automatically displayed, and do not require the procedure described in the section "Viewing the display."

Display code	Symptom or condition	Cause and method of correction
F15	When the CD Play button is pressed when either the power is off, or from some function other than CD, it takes excessive time (5 seconds or more) for the CD to play.	Faulty traverse inner circumference position detection switch (S701). (Check and replace)
* F26	When the CD operation mode is selected by pressing the CD Stop button (□/CLEAR), "F26" is shown on the LCD display, and a CD does not play even when it has been loaded.	Communication error between servo-processor IC and microprocessor IC.
F75	When a CD is loaded, "--" is displayed and the CD does not play.	Faulty CD circuit power supply. (Faulty power supply IC or CD circuit power supply system.) (Check and replace) Flexible circuit board has become disconnected or broken wiring. (Check and replace) Faulty servo-processor IC. (Check and replace)

■ Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.

So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

● Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, short the flexible board (FFC board) with a clip or similar object.
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

● Grounding for electrostatic breakdown prevention

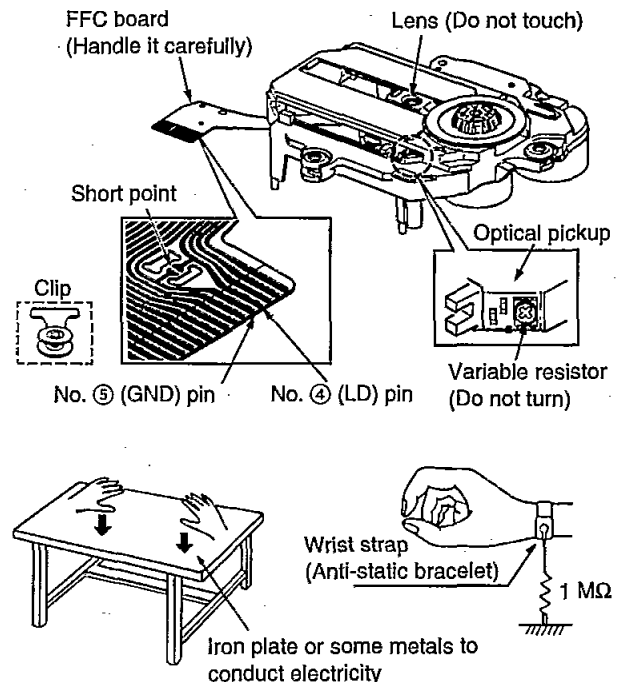
1. Human body grounding
Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Caution when Replacing the Traverse Deck:

The traverse deck has a short point shorted with solder to protect the laser diode against electrostatic breakdown. Be sure to remove the solder from the short point before making connections.



■ Operation Checks and Main Component Replacement Procedures

NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

● Contents

Page.

• Checking Procedure for each P.C.B.

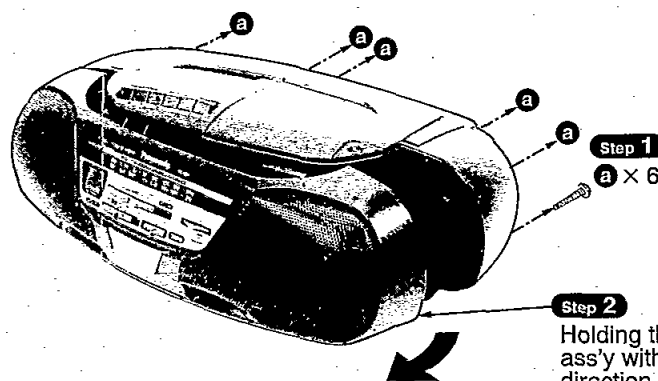
1. Checking for the main P.C.B. and CD P.C.B. 6,7.

• Main Component Replacement Procedures

1. Replacement for the handle. 7.
2. Replacement for the pinch roller ass'y, erase head and rec/play head. 8,9.
3. Replacement for the motor ass'y, main belt and fast forward belt. 10.
4. Replacement for the cassette lid ass'y. 11.
5. Replacement for the traverse deck ass'y. 11~13.
6. Replacement for the CD cover ass'y. 13.
- Installation of front panel ass'y (Point "0" Adjustmunt) 14.

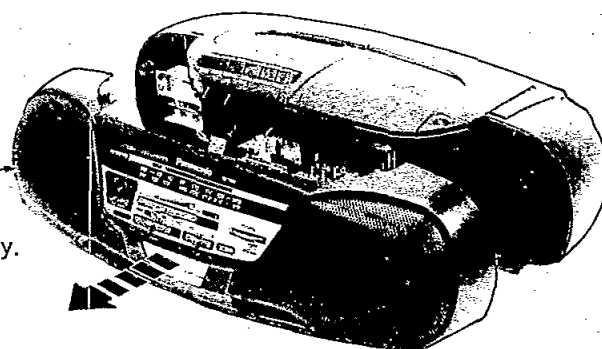
■ Checking procedure for each P.C.B.

1. Checking for the main P.C.B. and CD P.C.B.



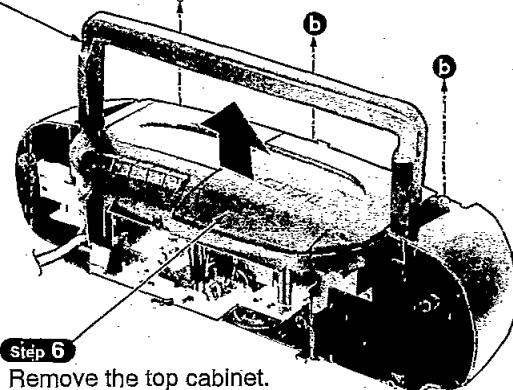
Step 3

Pull out the front panel ass'y.



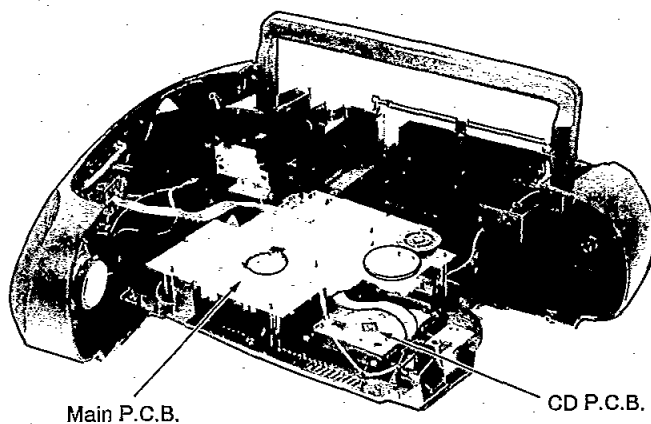
Step 4
Raise the handle.

Step 5
b × 3



Step 6
Remove the top cabinet.

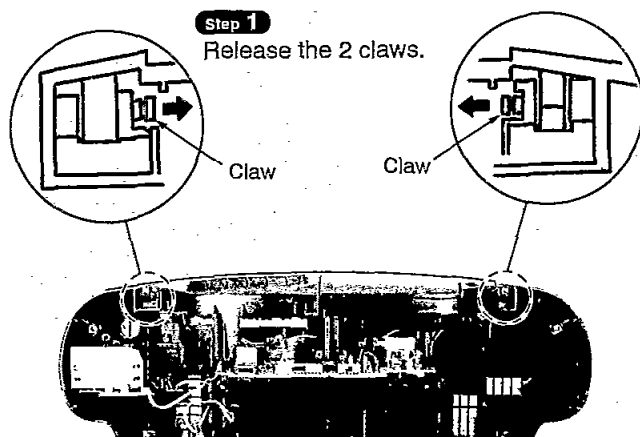
• Check the main P.C.B. and CD P.C.B. as shown below.



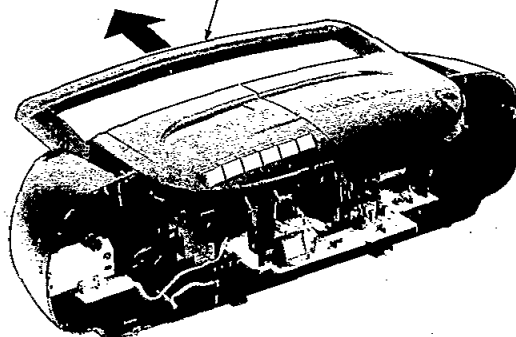
■ Main Component Replacement Procedures

1. Replacement for the handle

• Follow the **Step 1** ~ **Step 3** of the item 1 in checking procedure for each P.C.B. on page 6.

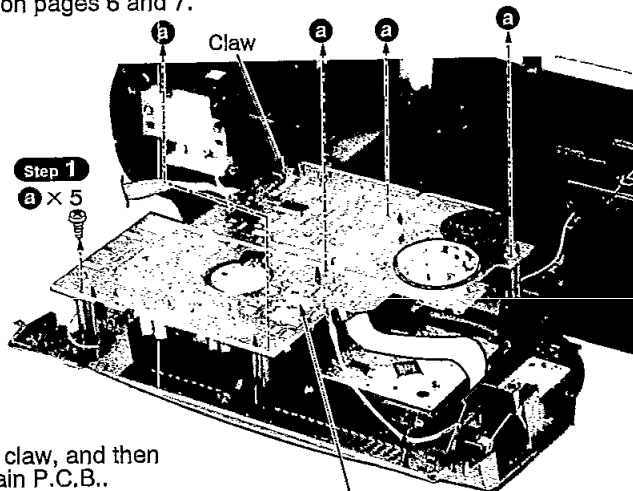


Step 2
Pull out the handle.



2. Replacement for the pinch roller ass'y, erase head and rec/play head

- Follow the **Step 1** ~ **Step 6** of the item 1 in checking procedure for each P.C.B. on pages 6 and 7.



- Step 2**
Release the claw, and then lift up the main P.C.B..

Main P.C.B.

- Step 3**
Remove the flat cable from connector (CS303).

Connector (CP502)

Connector (CP302)

- Step 5**
Remove the 4 connectors.

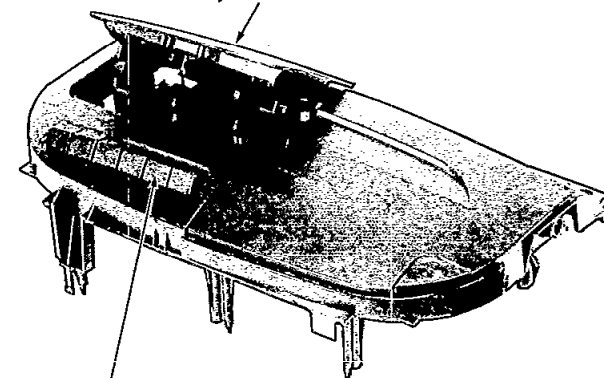
Connector (CP301)

- Step 6**
Remove the main P.C.B..

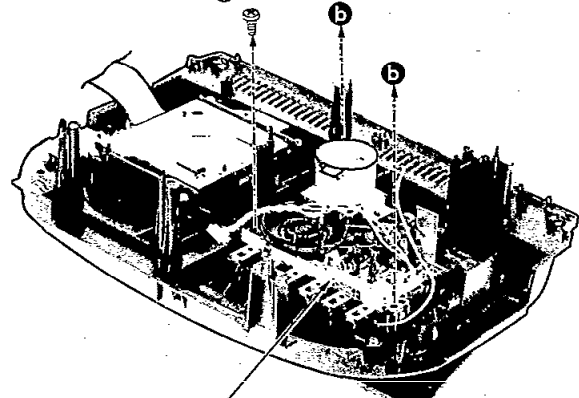
Connector (CP1)

- Step 4**
Remove the FFC from connector (CS702).

- Step 7**
Pressing the STOP/EJECT button, open the cassette lid ass'y.



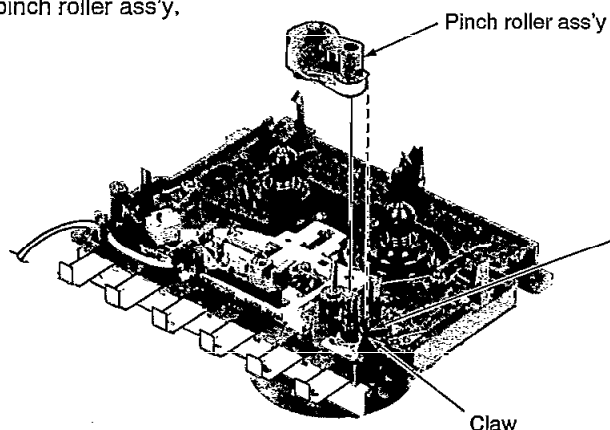
- Step 8**
b x 3



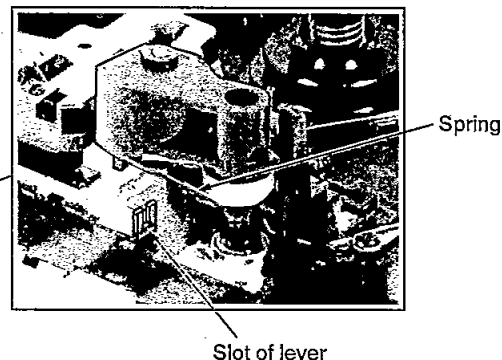
- Step 9**
Remove the mechanism unit.

■ Removal of the pinch roller ass'y

- Release the 1 claw, and then pull out the pinch roller ass'y.

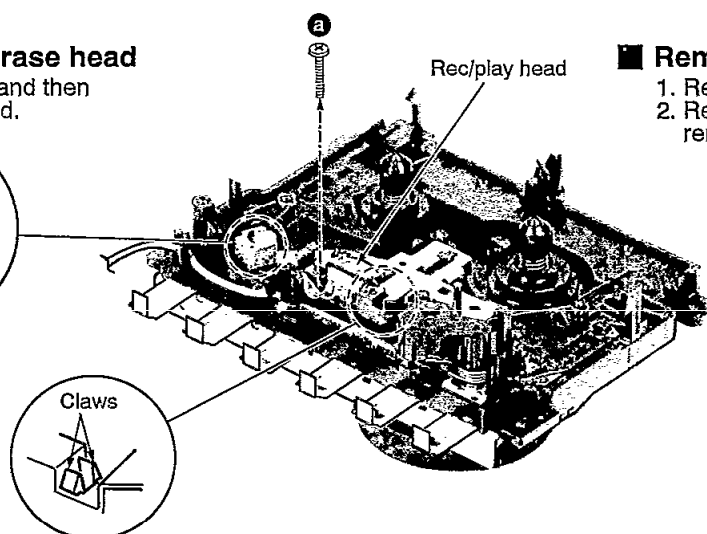
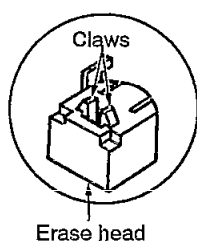


- **Notice for installation of pinch roller ass'y**
The pinch roller ass'y spring should be aligned with the slot of lever.



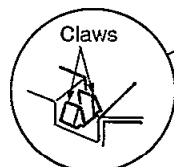
■ Removal of the erase head

- Release the 2 claws, and then remove the erase head.



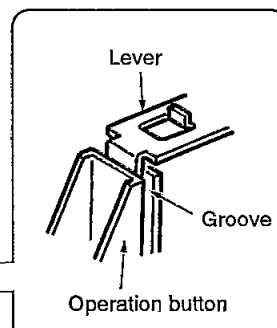
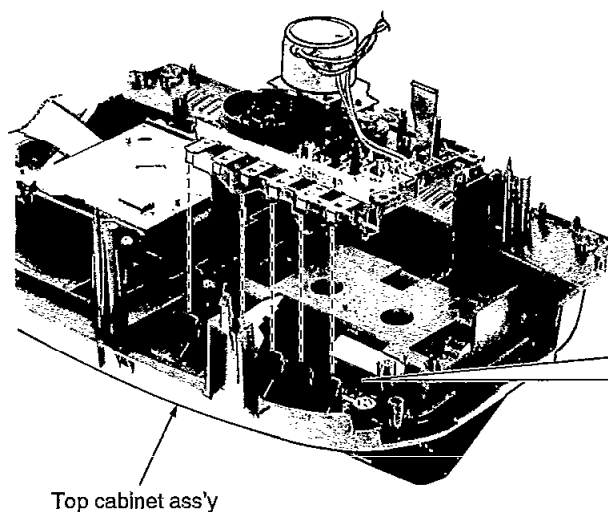
■ Removal of the rec/play head

1. Remove the 1 screw (a).
2. Release the 2 claws, and then remove the rec/play head.



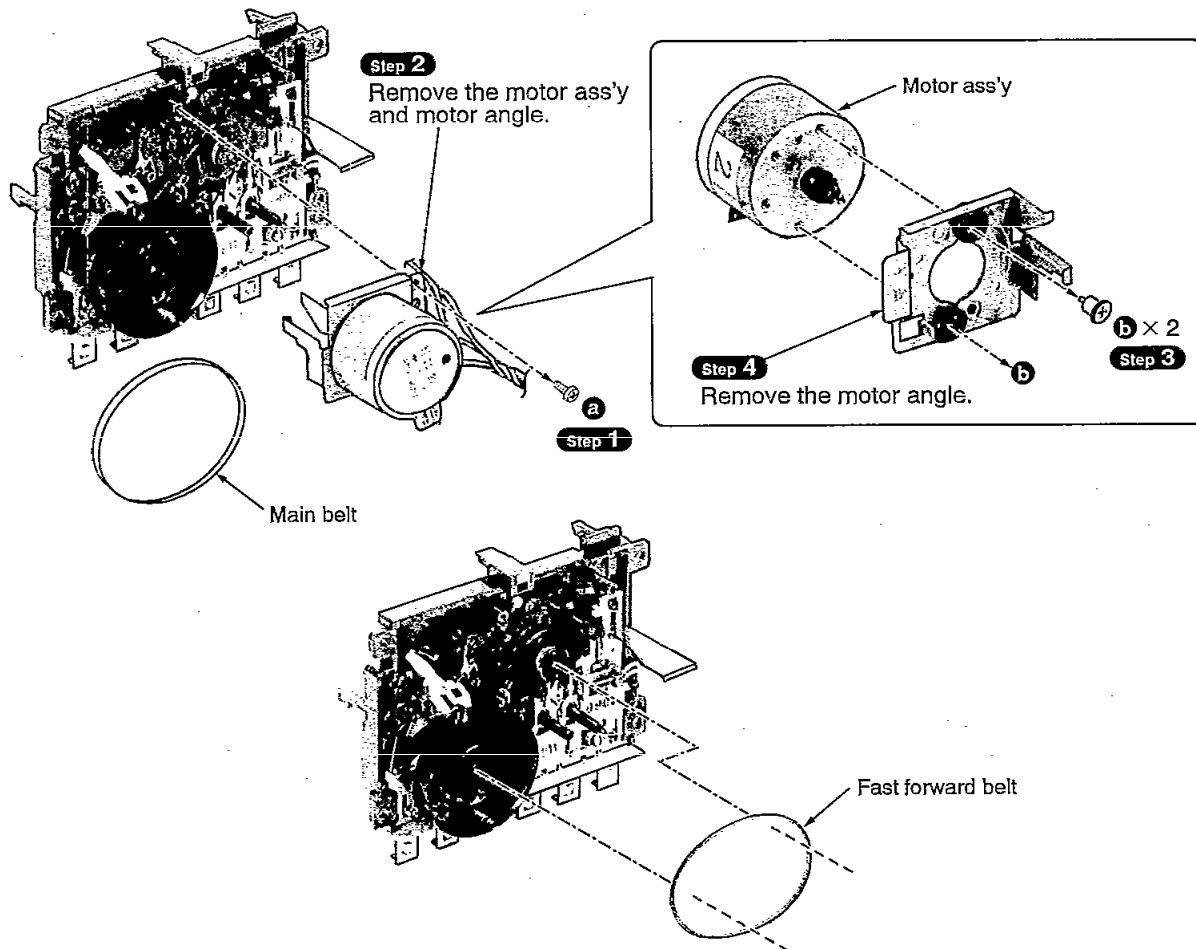
Notice for installation of mechanism unit

- When installing the mechanism unit to the top cabinet ass'y, align the lever with the groove of operation button.

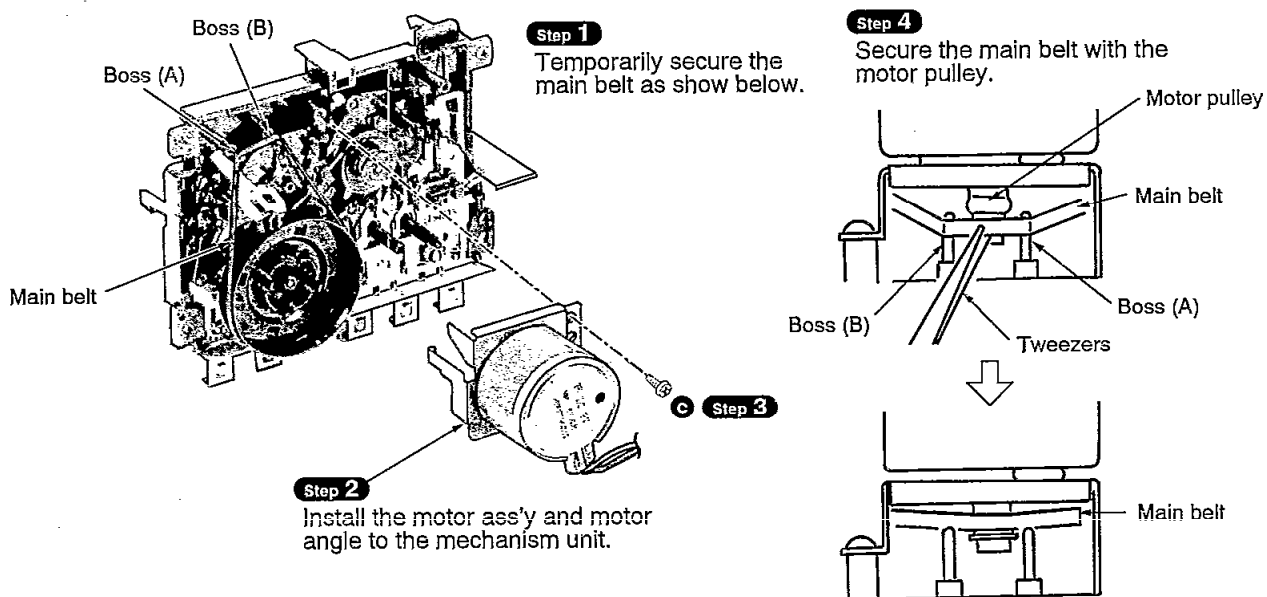


3. Replacement for the motor ass'y, main belt and fast forward belt

- Follow the **Step 1** ~ **Step 6** of the item 1 in checking procedure for each P.C.B. on pages 6 and 7.
- Follow the **Step 1** ~ **Step 9** of the item 2 in checking procedure for each P.C.B. on page 8.



Installation of the main belt

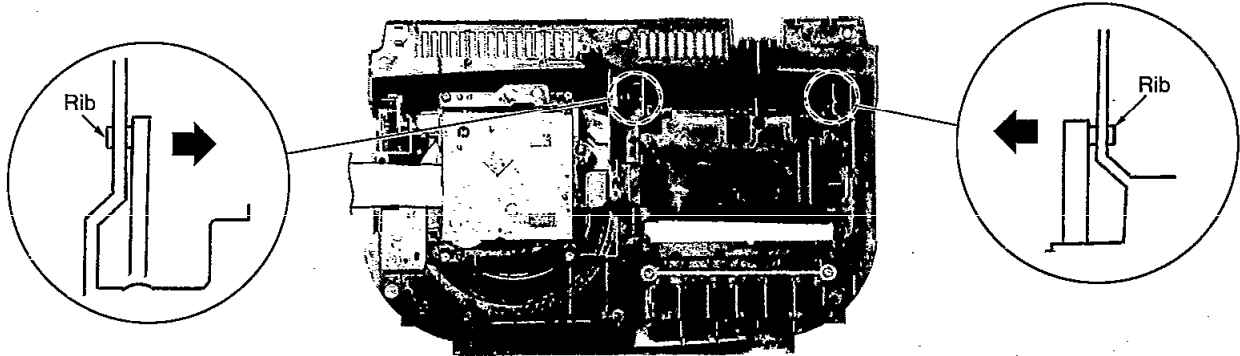


4. Replacement for the cassette lid ass'y

- Follow the **Step 1** ~ **Step 6** of the item 1 in checking procedure for each P.C.B. on pages 6 and 7.
- Follow the **Step 1** ~ **Step 9** of the item 2 in main component replacement procedures on page 8.

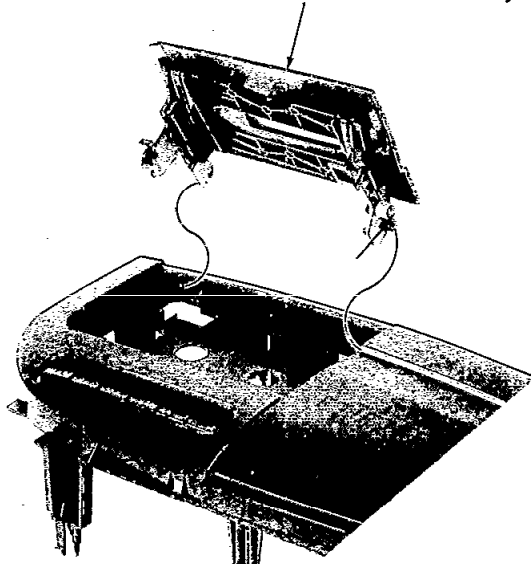
Step 1

Release the ribs of both sides in the direction of arrow, and then remove the cassette lid ass'y.



Step 2

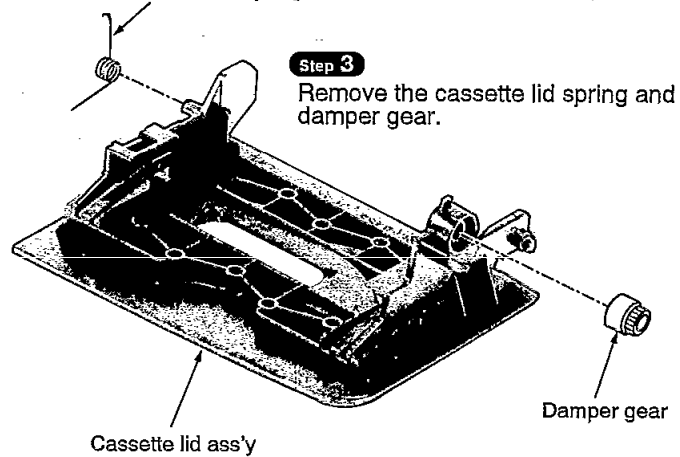
Remove the cassette lid ass'y.



Cassette lid spring

Step 3

Remove the cassette lid spring and damper gear.



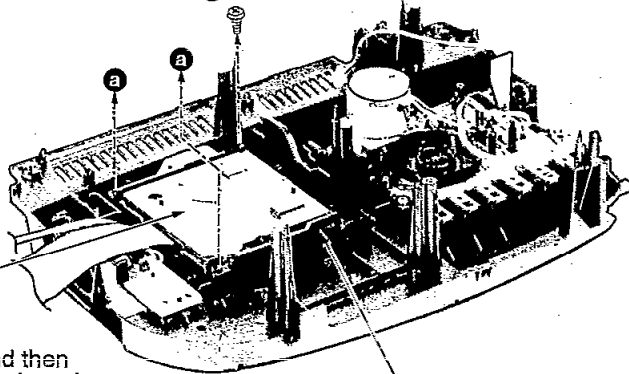
Damper gear

5. Replacement for the traverse deck ass'y

- Follow the **Step 1** ~ **Step 6** of the item 1 in checking procedure for each P.C.B. on pages 6 and 7.
- Follow the **Step 1** ~ **Step 4** of the item 2 in main component replacement procedures on page 8.

Step 1

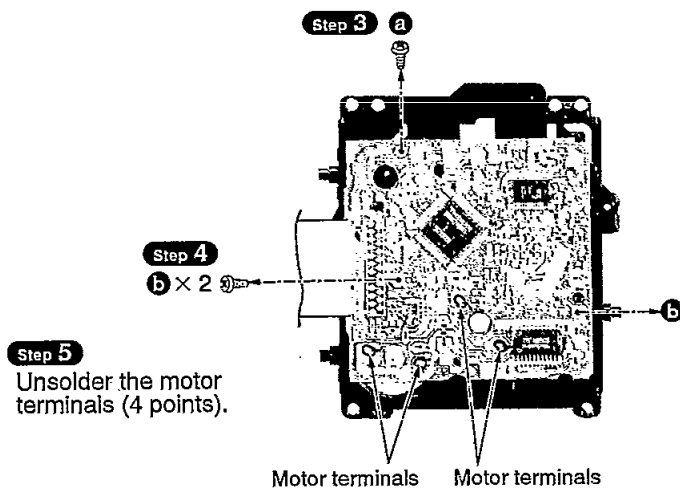
a × 3



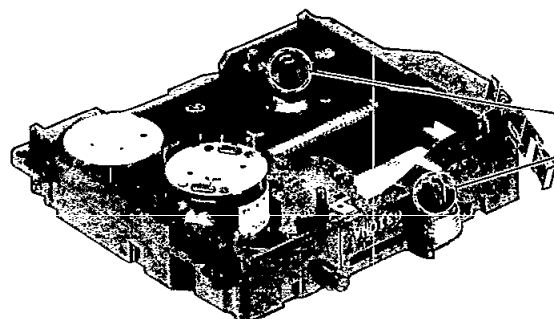
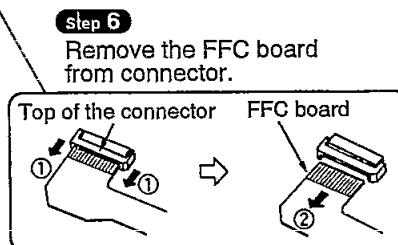
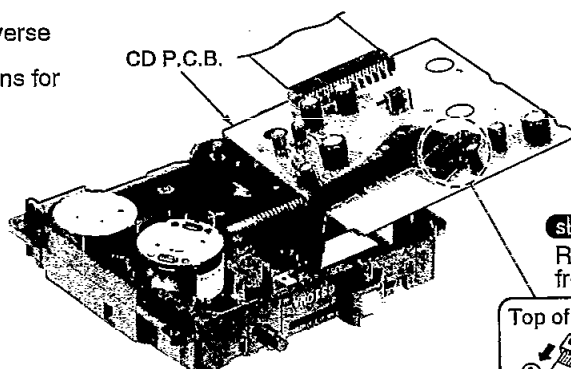
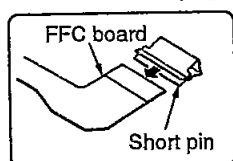
Step 2

Release the 1 claw, and then remove the traverse deck ass'y.

Claw

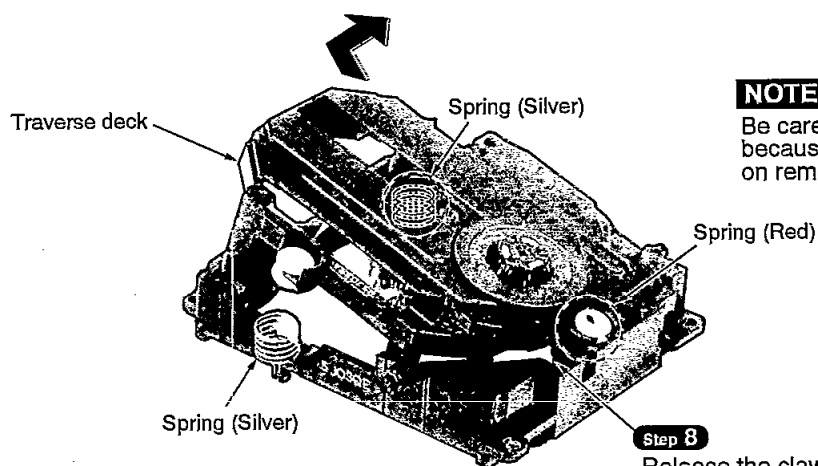
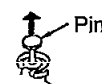
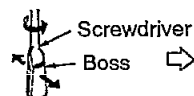


Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "Handling Precautions for Traverse Deck" on page 5.)



Step 7
Remove the pin.

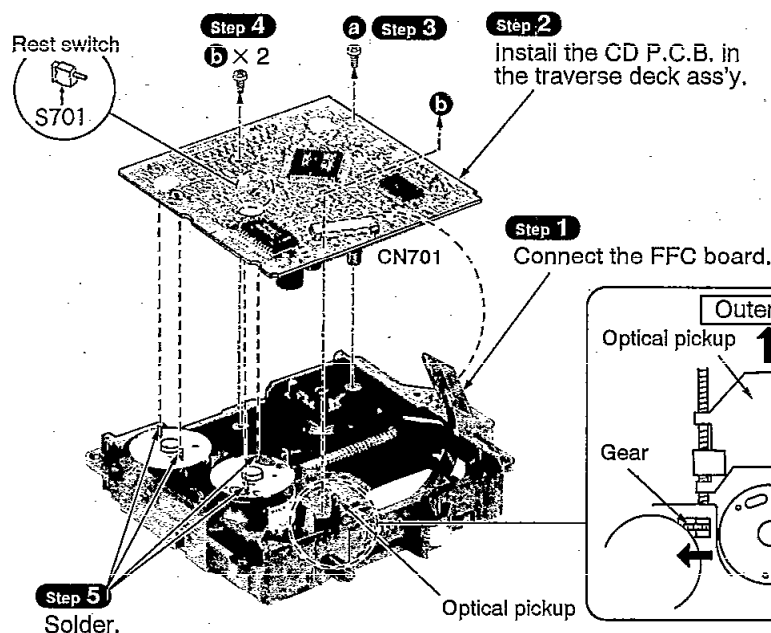
1. Widen the boss using a regular screwdriver.
2. Pull out the pin in the direction of the arrow.



NOTE

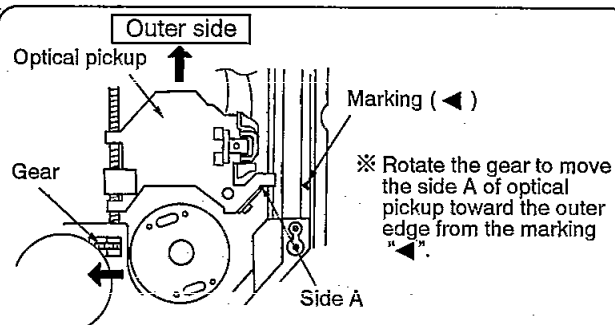
Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck.

Installation of the CD P.C.B. after replacement



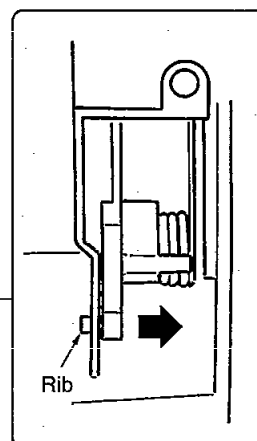
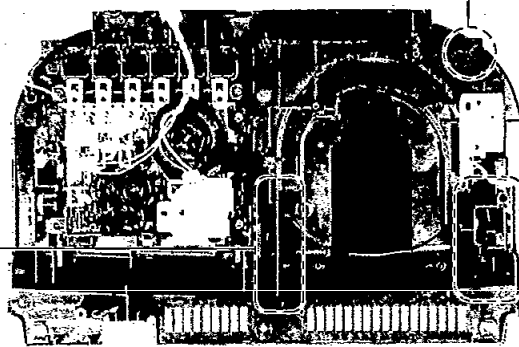
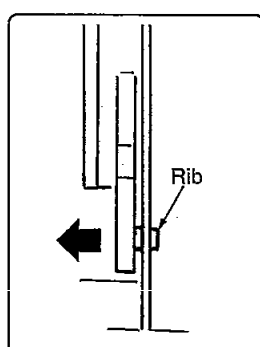
NOTE

Before installing the CD P.C.B., move the optical pickup toward the outer edge from the mark "▼". [Otherwise, the rest detect switch (S701) mounted on the CD P.C.B. may be damaged.]

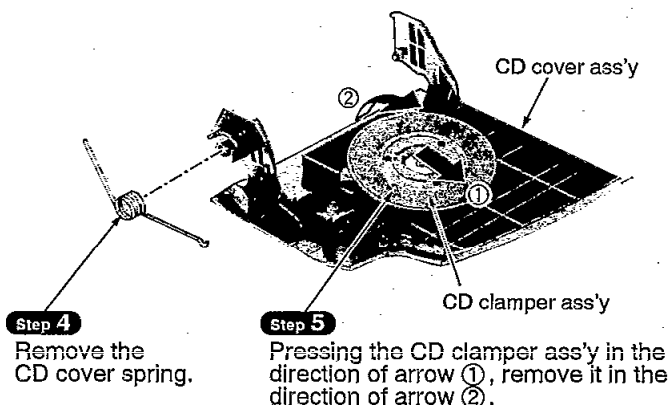
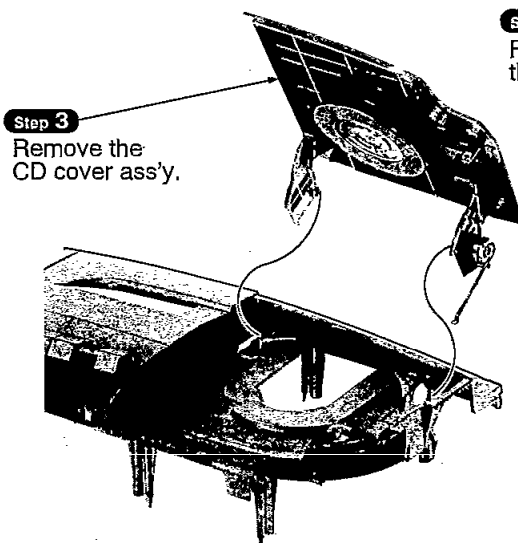


6. Replacement for the CD cover ass'y

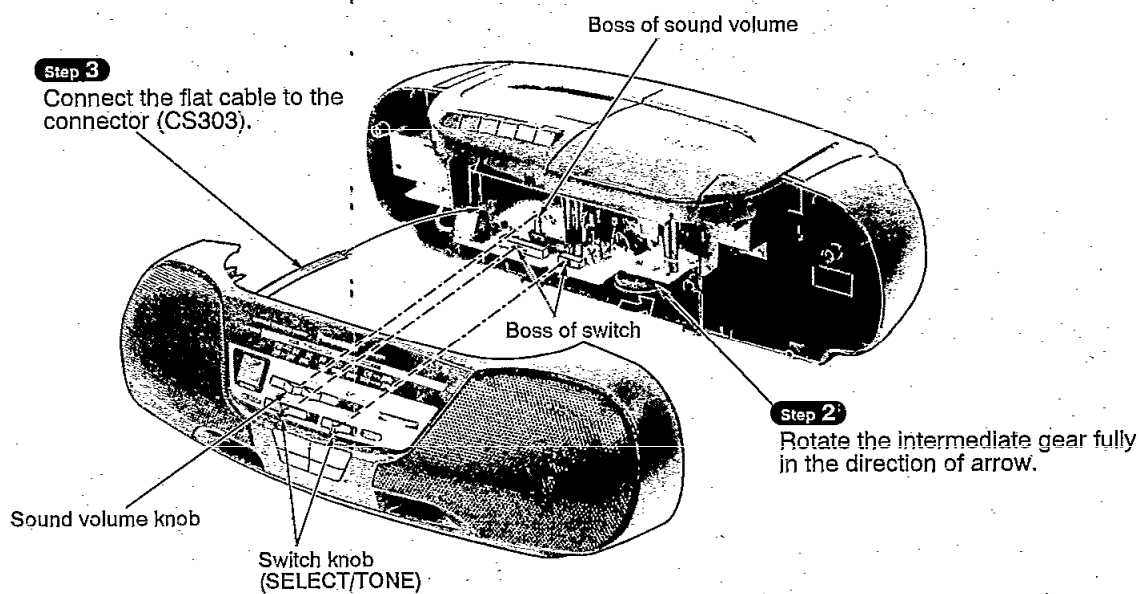
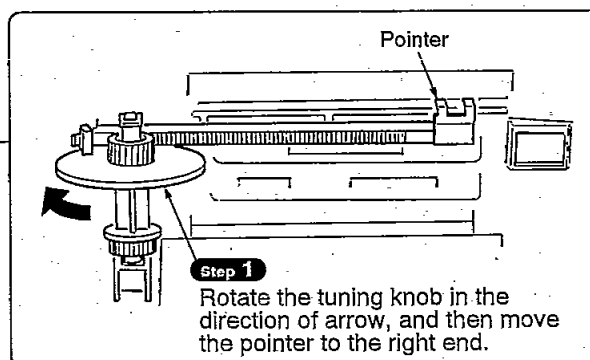
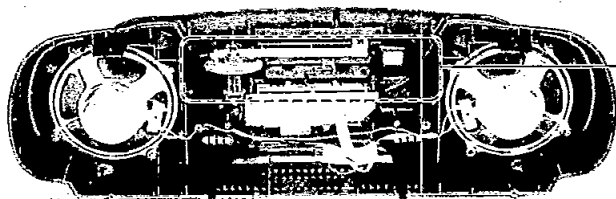
- Follow the **Step 1** ~ **Step 6** of the item 1 in checking procedure for each P.C.B. on pages 6 and 7.
- Follow the **Step 1** ~ **Step 4** of the item 2 in main component replacement procedures on page 8.
- Follow the **Step 1**, **Step 2** of the item 5 in main component replacement procedures on page 11.



- Step 2**
Release the ribs of both sides, and then remove the CD cover ass'y.



• Installation of front panel ass'y (Point "0" Adjustment)



Step 4
Align the sound volume knob and switch knob with those bosses, and then install them to the front cabinet ass'y.

■ Self-Check Function

Your product has a self-check function to help judge whether the LCD is working properly. This function is useful to check the state of the LCD before or after servicing.

1. Connect the power cord.
2. Change the function selector from "TAPE/OFF" to "CD" while pressing the "Play/pause" (▶/||) and "Skip/search" (▶▶) buttons at the same time.
3. The entire LCD will come on for approximately 2 seconds. (See the illustration at right.) If the display does not appear as shown at right, it means the LCD or LCD drive system may be defective.



■ Schematic Diagram

A CD circuit	16, 17	D Operation circuit	19
B Main (Tuner) circuit	18	E Battery terminal circuit	21
B Main (Deck) circuit	19	F Power supply circuit	21
C Switch circuit	19		

Notes :

<CD circuit>

S701 : Rest switch in "OFF" position.

<Main (Tuner) circuit>

VR1 : FM stereo adjustment VR.

<Main (Deck) circuit>

S301-1, S301-2 : XBS switch in "OFF" position.

S302-1~S302-4 : Function select switch in "TAPE/OFF" position.
(T...TAPE/OFF, FM...FM, AM...AM, CD...CD)

S303-1~S303-6 : Record/Playback select switch in "Playback" position. (P...Playback, R...Record)

S304 : Motor switch.

VR302-1, VR302-2 : Volume control VR.

<Operation circuit>

S801 : CD play/pause switch. (▶/||)

S802 : CD F.skip/search switch. (▶▶)

S803 : CD R.skip/search switch. (◀◀)

S804 : CD stop switch. (■)

<Switch circuit>

S805 : Disc lid open/close detect switch in "OPEN" position.

<Power supply circuit>

S501 : AC/DC select switch in "AC" position.

• Battery current:

Vol. min...68 mA (FM)

66 mA (AM)

140 mA (TAPE)

280 mA (CD)

Vol. max...350 mA (FM)

330 mA (AM)

770 mA (TAPE)

1100 mA (CD)

Measurement instruction

AM:	74 dB/m, 30% Mod.
FM:	60 dB, 30% Mod.
TAPE:	315 Hz, 0 dB
CD:	1 kHz, 0 dB

- DC voltage measurements are taken with electronics voltmeter. The negative terminal of the battery provides negative meter connection point.

No mark...TAPE PLAYBACK ()...AM

< >...FM

(())...CD

• Important safety notice

Components identified by ⚠ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

- This schematic diagram may be modified at any time with the development of new technology.

→ : CD Signal Line

→ : Main Signal Line

→ : FM Signal Line

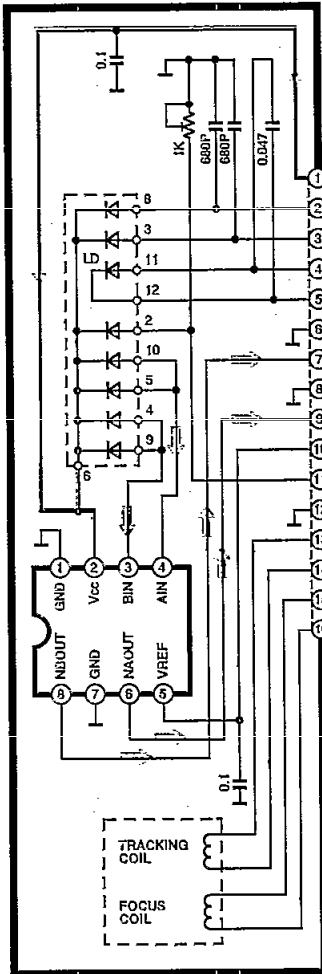
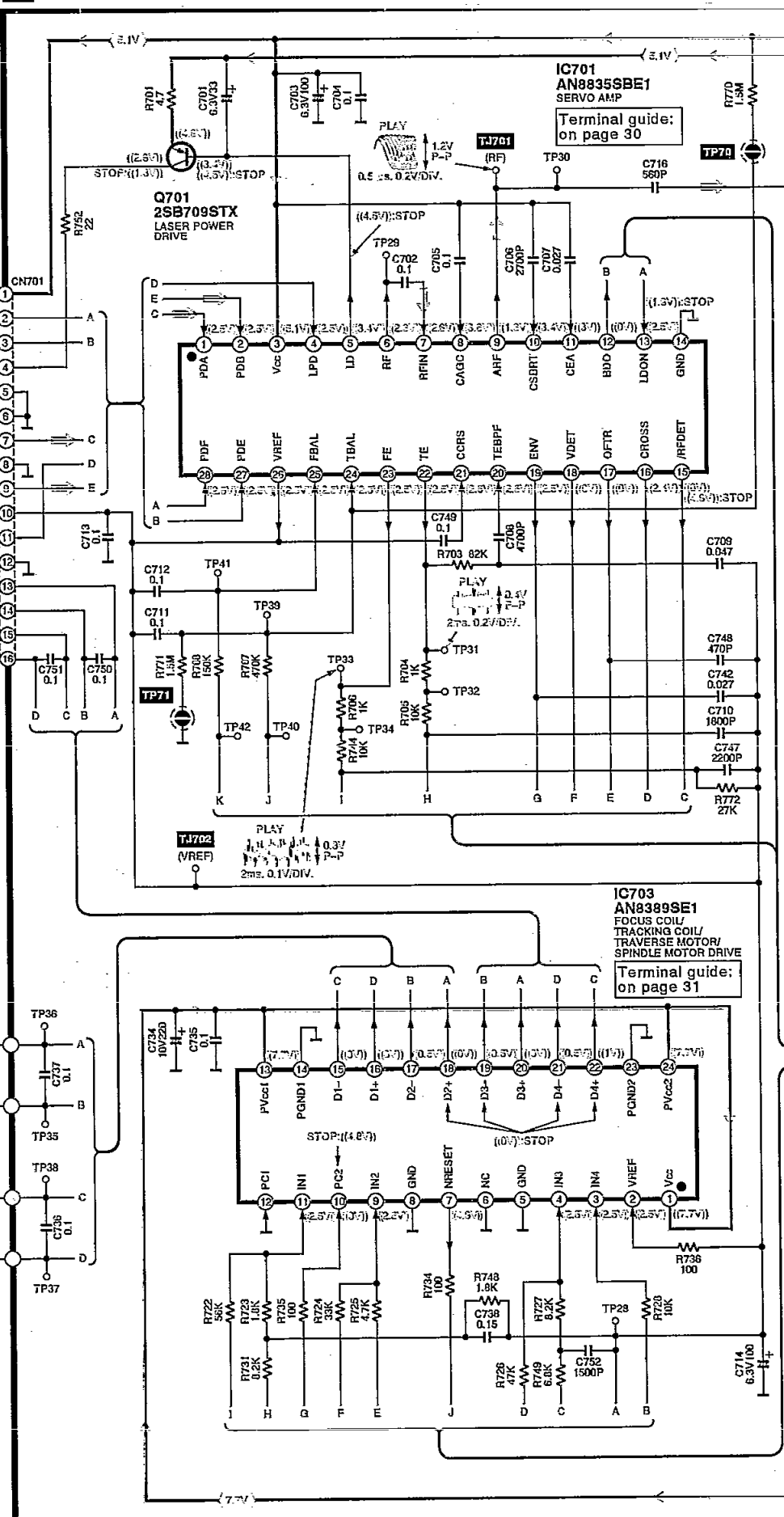
→ : Tape Playback Signal Line

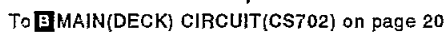
→ : Record Signal Line

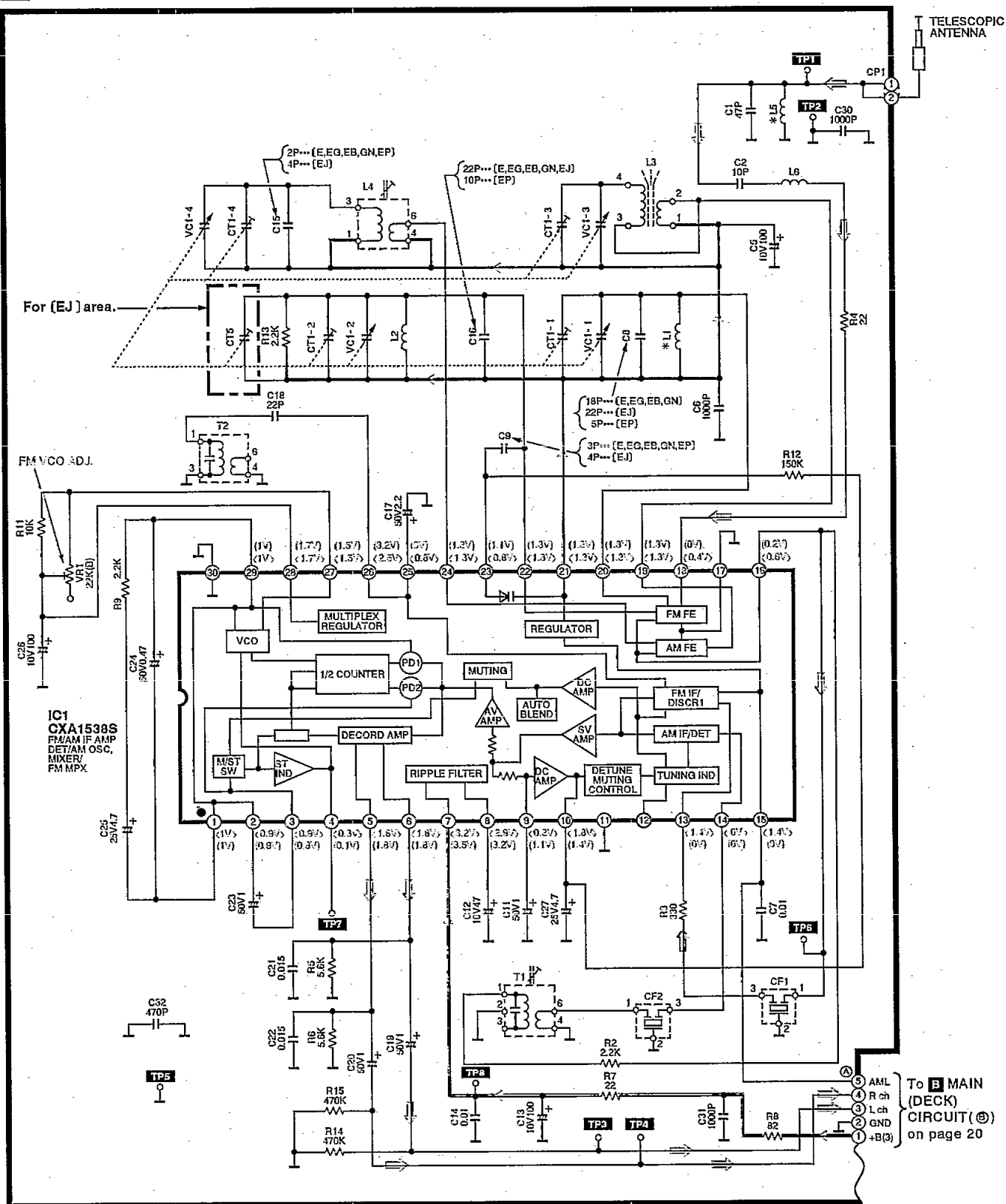
→ : + B Line

A CD CIRCUIT (P.C.Board: on page 22)

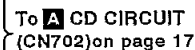
△ OPTICAL PICKUP CIRCUIT

M702
SPINDLE
MOTORM701
TRAVERSE
MOTOR



B MAIN(TUNER)CIRCUIT (P.C.Board: on page 23)

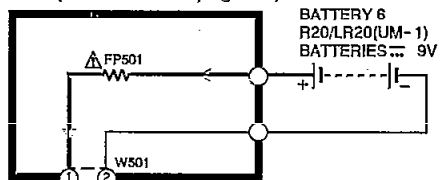




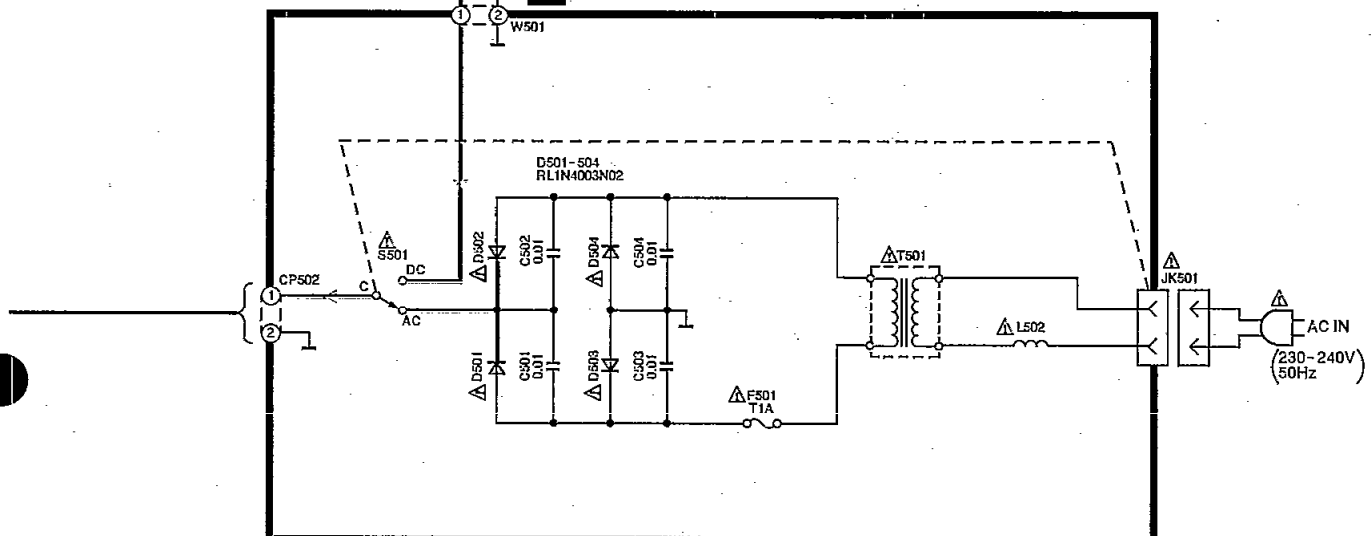
To **B** MAIN(TUNER)
CIRCUIT(**A**)
on page 18

-  : CD Signal Line
 : Main Signal Line
 : FM Signal Line
 : Tape Playback Signal Line
 : Record Signal Line
 : + B Line

E BATTERY TERMINAL CIRCUIT (P.C.Board: on page 23)



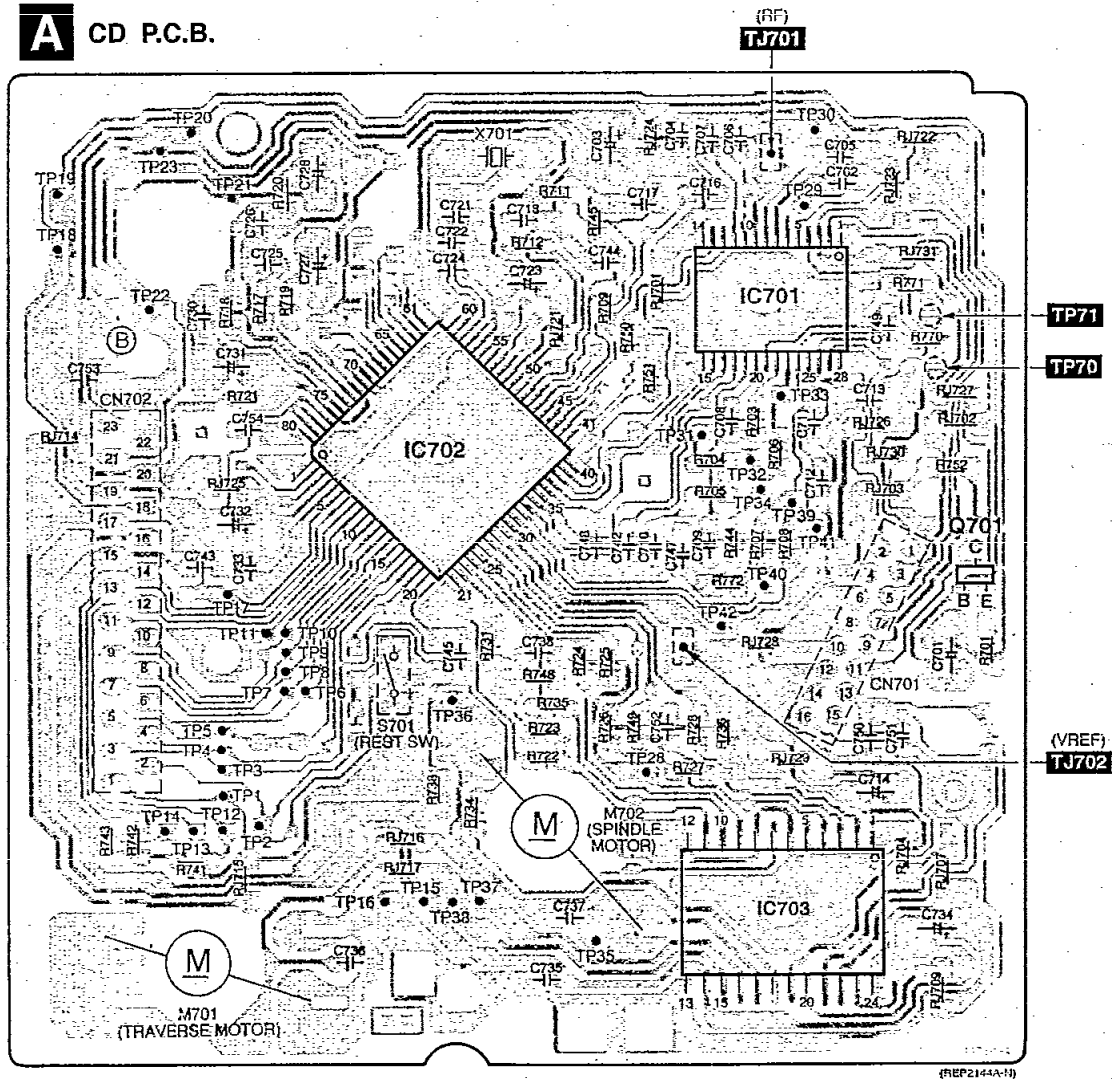
F POWER SUPPLY CIRCUIT (P.C.Board: on page 24)



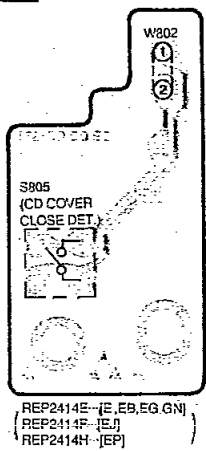
■ Printed Circuit Board Diagram

- This circuit board diagram may be modified at any time with the development of new technology.

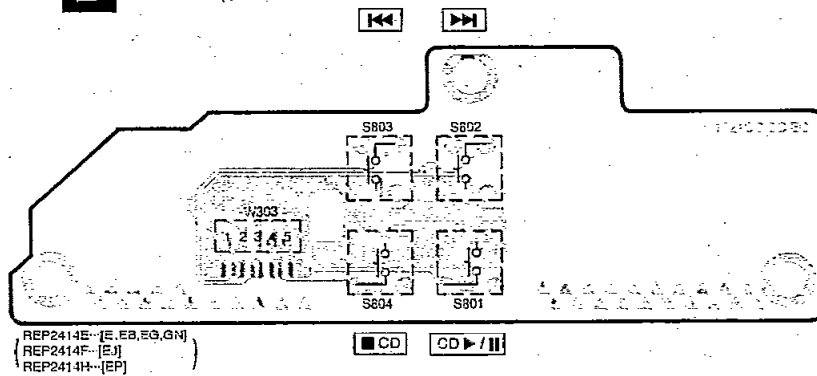
A CD. P.C.B.



C SWITCH P.C.B.

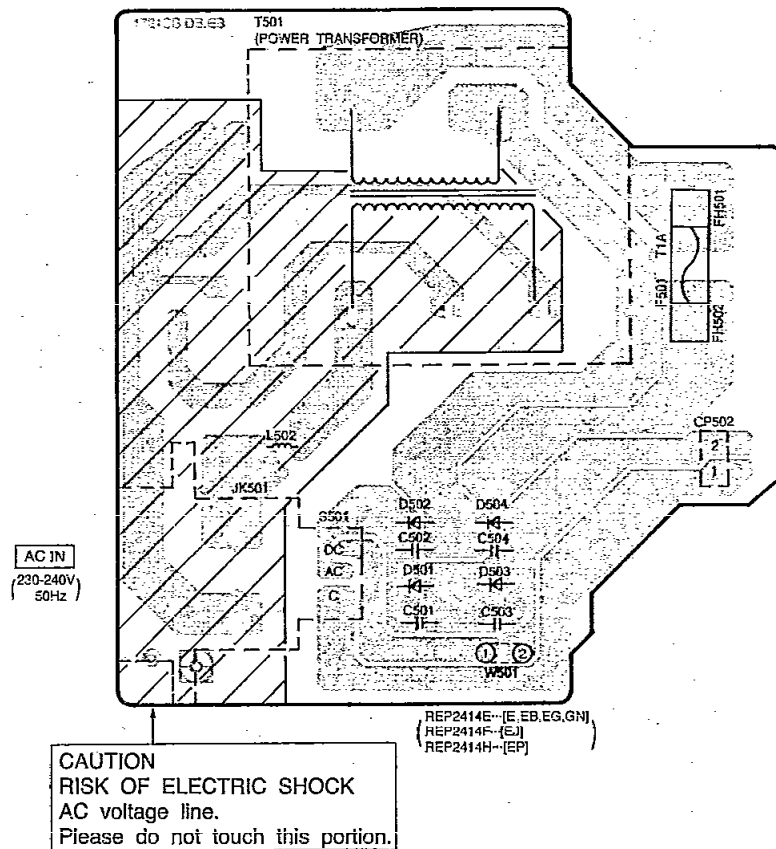


D OPERATION P.C.B.

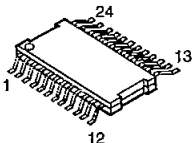
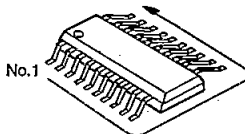
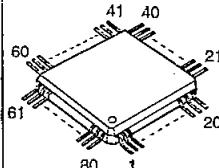
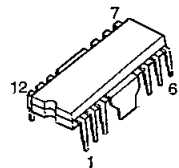
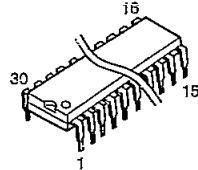
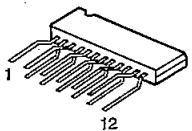
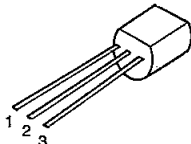
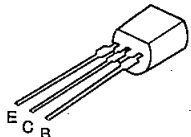
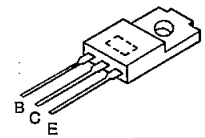
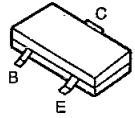
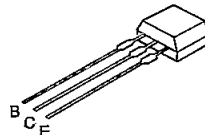
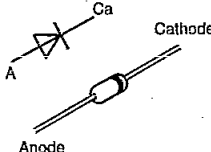
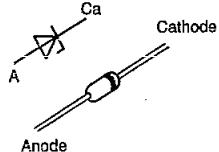
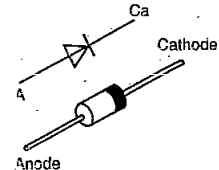




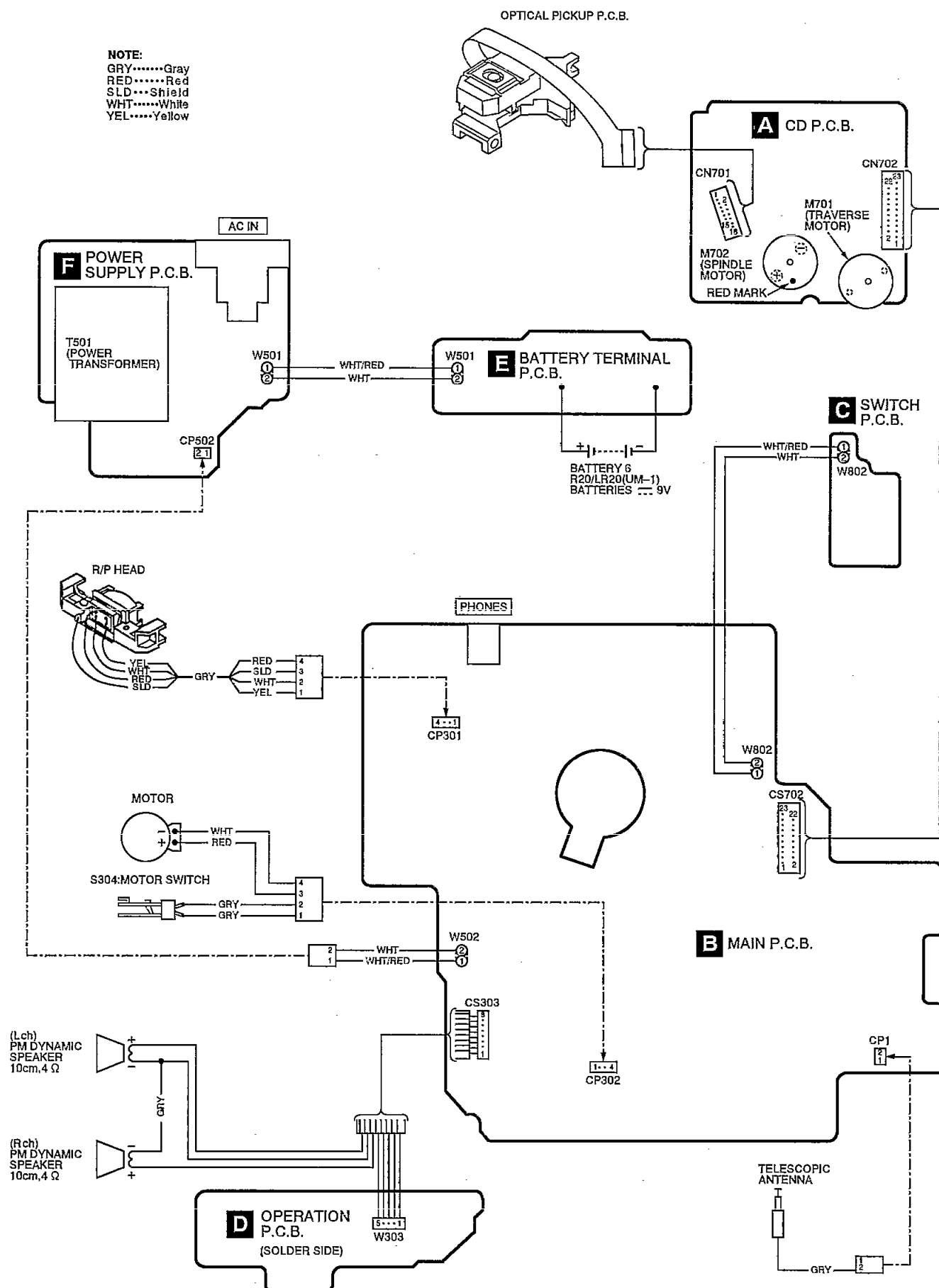
F POWER SUPPLY P.C.B.



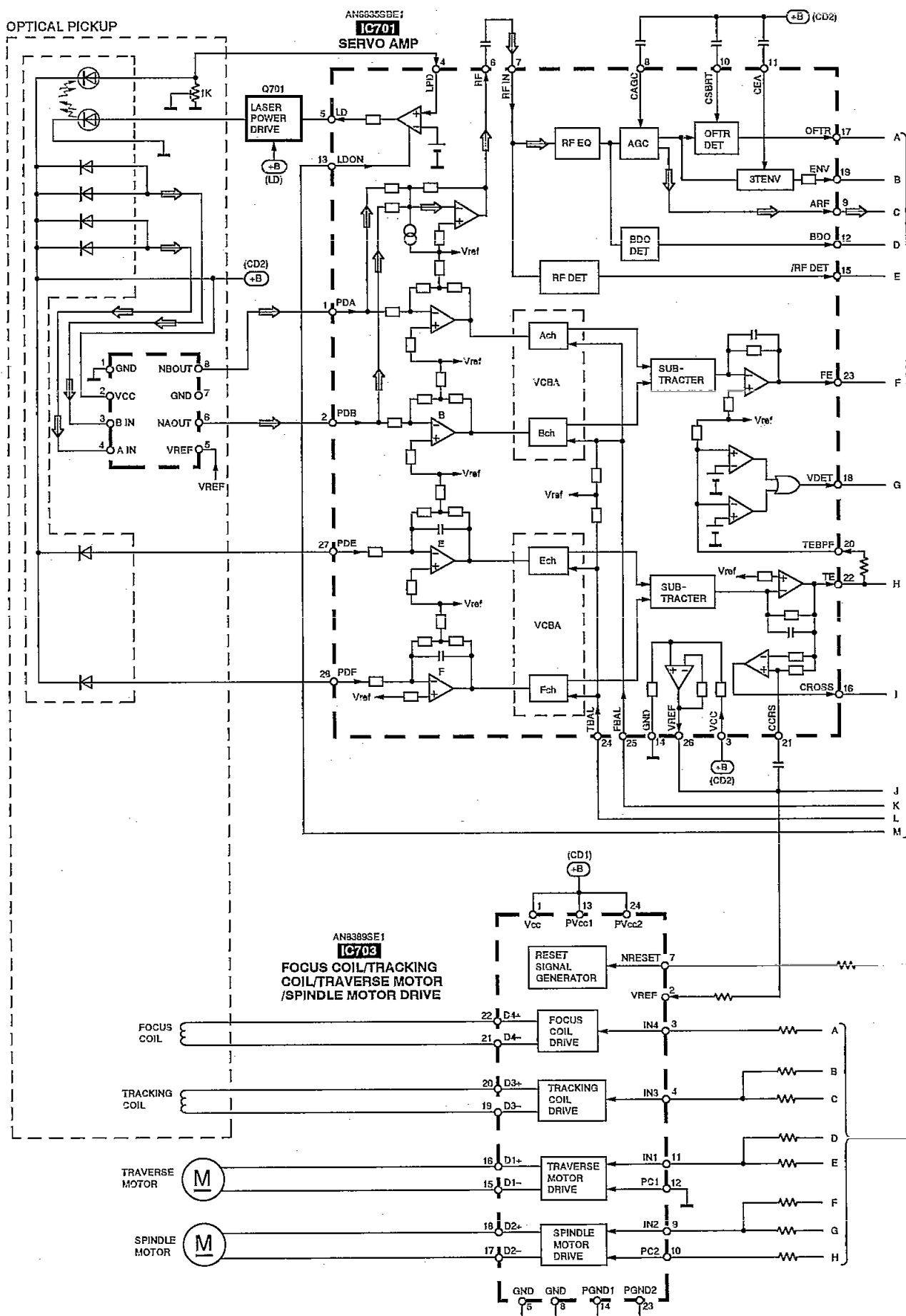
■ Type Illustration of IC's, Transistors and Diodes

AN8389SE1 	AN8835SBE128 Pin UPD75320402148 Pin 		MN662740RM1 	TA8227P 	CXA1538S 
BA3313L 	PST994DTA 	2SC4641SAA 2SD965RTA 	2SB1185E 	2SB709STX 	2SC3401AC RVTDTA143XST 
RVD1S133TA 	RVDMTZ5R6BTA RVDMTZ7R5CTA 	RL1N4003N02 			

Wiring Connection Diagram

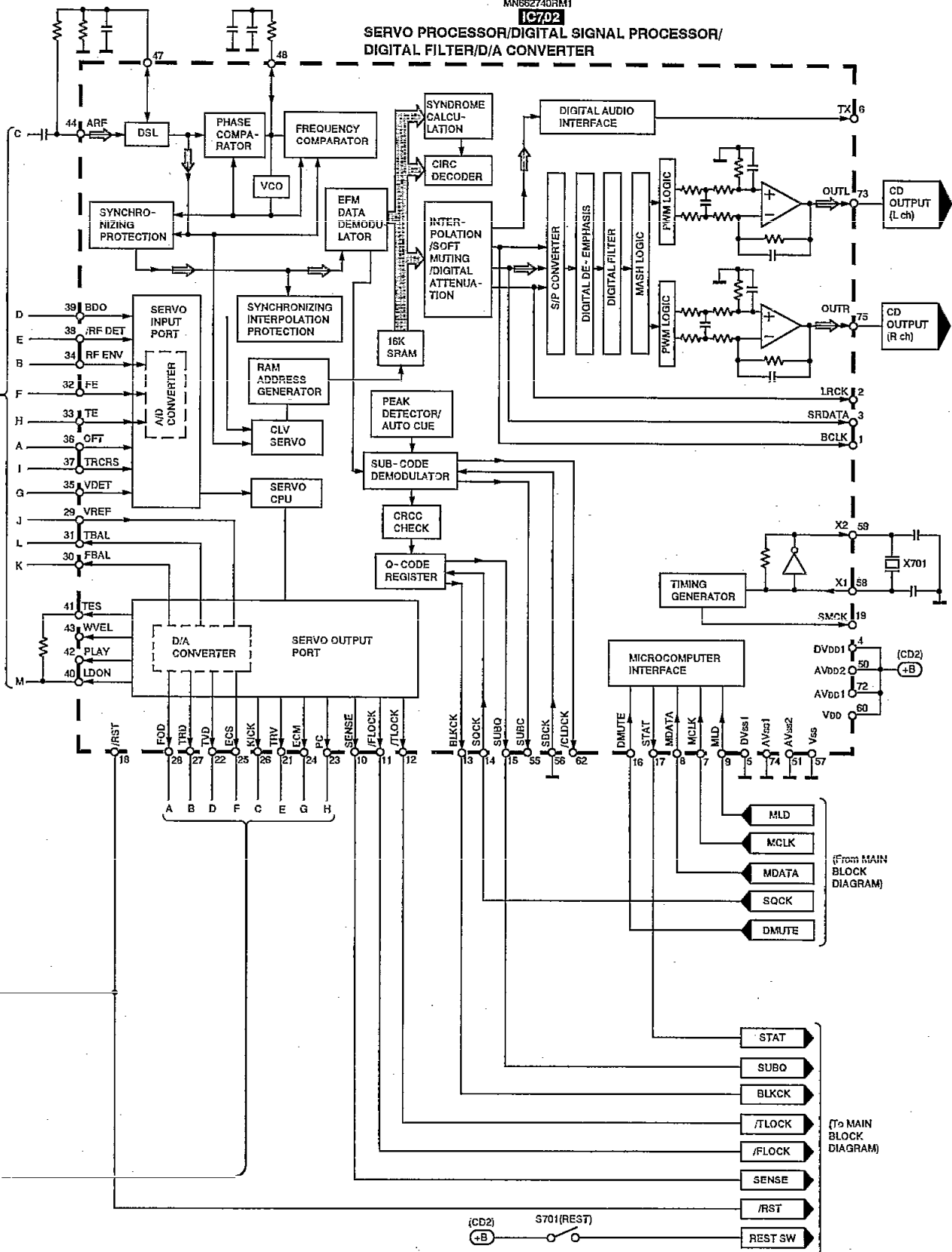


■ Block Diagram (CD section)



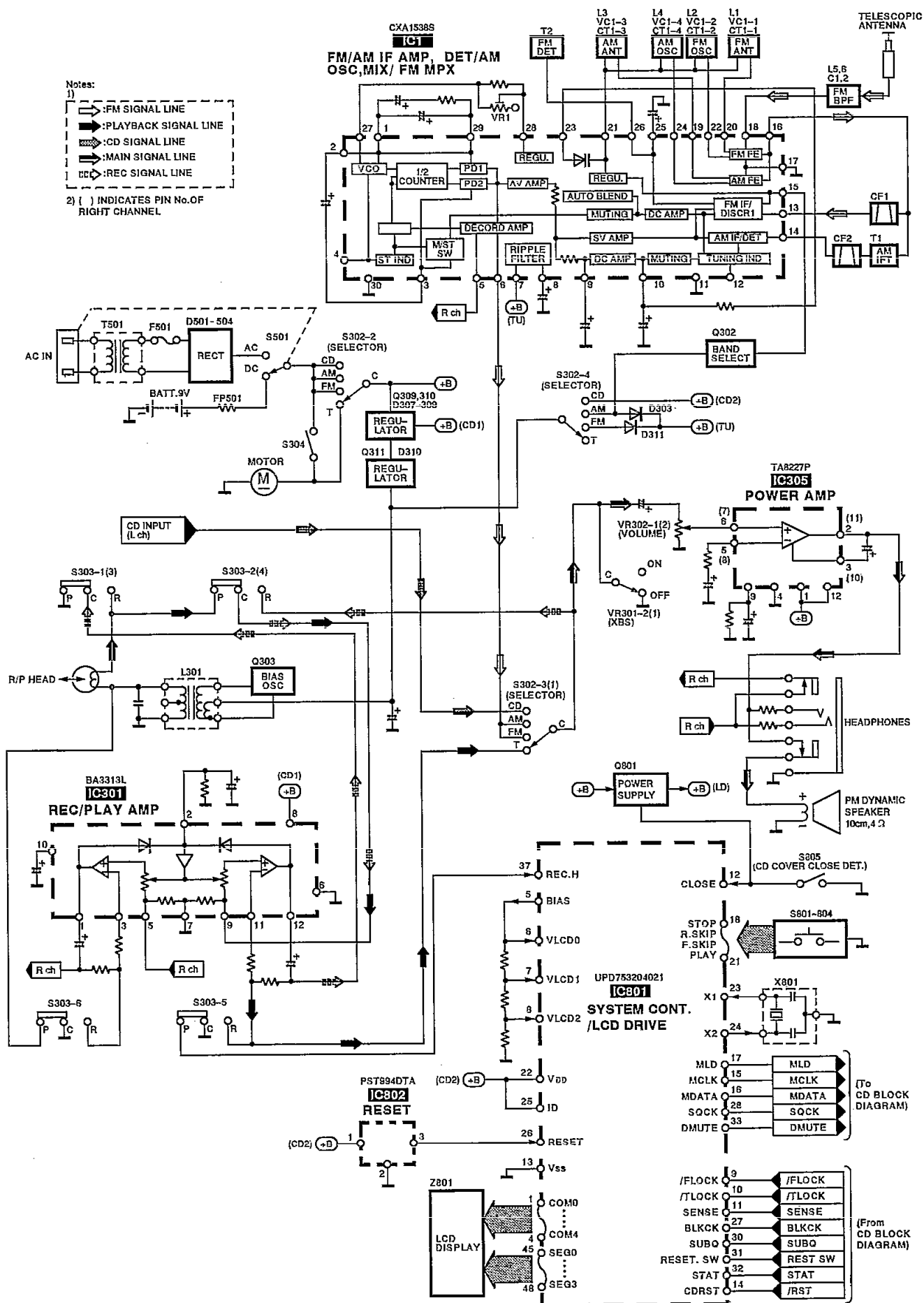
MN662740RM1

IC702

SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/D/A CONVERTER

Notes:
 → CD DIGITAL/ANALOG SIGNAL LINE

■ Block Diagram (Main section)



■ Terminal Function of IC's

● IC801 (UPD753204021): System control / LCD Drive

Pin No.	Terminal Name	I/O	Function
1 ~ 4	COM0 ~ 3	O	LCD common signal output
5	BIAS	O	LCD bias reference voltage output
6 ~ 8	VLCD0 ~ 2	I	LCD bias reference voltage input
9	/FLOCK	I	CD focus lock signal input
10	/TLOCK	I	CD tracking lock signal input
11	SENSE	I	CD sense signal input
12	CL.SW	I	CD lid open/close detect signal input
13	VSS	—	GND
14	CDRST	I	CD reset signal input
15	MCLK	O	CD clock signal output
16	MDATA	O	CD signal process data output
17	MLD	O	CD signal process strobe signal output
18	STOP	I	CD stop switch signal input
19	R.SKIP	I	CD skip/search switch signal input
20	F.SKIP	I	CD skip/search switch signal input
21	PLAY	I	CD play/pause switch signal input
22	VDD	—	Power supply input (+5V)

Pin No.	Terminal Name	I/O	Function
23	X1	I	Clock input
24	X2	O	Clock output
25	IC	—	Connected to VDD
26	RESET	I	Reset signal input
27	BLKCK	I	CD sub-code blockclock input
28	SQCK	O	CD sub-code reading clock output
29	—	—	Not used
30	SUBQ	I	CD sub-code data input
31	REST SW	I	Rest switch signal input
32	STAT	I	CD status signal input
33	D.MUTE	O	CD signal muting control signal output
34,35	—	—	Not used
36	MUTE.A	O	Audio signal muting control signal output
37	REC.H	I	REC mode detect signal input
38 ~ 44	—	—	Not used
45 ~ 48	SEG0 ~ 3	O	LCD segment signal output

● IC701 (AN8835SBE1): Servo Amp.

Pin No.	Terminal Name	I/O	Function
1	PDA	I	Focus (A-ch) signal input terminal
2	PDB	I	Focus (B-ch) signal input terminal
3	VCC	I	Power supply terminal
4	LPD	I	Laser PD signal input
5	LD	O	Laser power auto control signal output
6	RF	O	RF amp. terminal
7	RF IN	I	AGC input terminal
8	CAGC	I	AGC detection capacitor input
9	ARF	O	RF signal output
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control signal output
13	LDON	I	LD-APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal
15	/RFDET	O	RF detection signal output ("L": det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection signal output ("H": det.)
18	VDET	O	Vibration detection signal output ("H": det.)
19	ENV	O	Envelope output terminal
20	TEBPF	I	Vibration detection signal input ("H": det.)
21	CCRS	I	CROSS capacitor connection terminal
22	TE	O	Tracking error signal output
23	FE	O	Focus error signal output
24	TBAL	I	Tracking balance adjustment signal input
25	FBAL	I	Focus balance adjustment signal input
26	VREF	O	Reference voltage output
27	PDE	I	Tracking signal (E-ch) input terminal
28	PDF	I	Tracking signal (F-ch) input terminal

● IC702 (MN662740RM1): Servo Processor, Digital Signal Processor, Digital Filter, D/A Converter

Pin No.	Terminal Name	I/O	Function
1	BCLK	O	Bit clock output for serial data
2	LRCK	O	L/R clock signal output
3	SRDATA	O	Serial data output
4	DVDD1	—	Power supply input (for digital circuit)
5	DVSS1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG) (Not used, open)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed) (Not used, open)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q resistor
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset signal input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz) (Not used, open)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 kHz) (Not used, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)

IC702 Continued

Pin No.	Terminal Name	I/O	Function
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY) (Not used, open)
43	WVEL	O	Double speed status signal output ("H": Double speed) (Not used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (Not used, open)
47	DSLIF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	VCOF	I/O	VCO loop filter
50	AVDD2	—	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (Not used, open)
53	PCK	—	PLL extraction clock output (fPCK = 4.321 MHz during normal playback) (Not used, open)
54	PDO	—	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	O	Sub-code serial data output
56	SBCK	I	Clock input for sub-code serial data
57	Vss	—	GND
58	X1	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2	O	Crystal oscillating circuit output (f = 16.9344 MHz)
60	VDD	—	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK = 7.35 kHz, double = 14.7 kHz) (Not used, open)
64	IPFLAG	O	Interpolation flag output ("H": Interpolation)
65	FLAG	O	Flag output (Not used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (Not used, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (Not used, open)
69	RESY	—	Frame re-synchronizing signal output (Not used, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input

Pin No.	Terminal Name	I/O	Function
72	AVDD1	—	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AVSS1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level: RSEL = "H") (at "L" level: RSEL = "L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	PSEL	I	Audio serial data signal input
79	MSEL	I	Audio L/R clock signal input
80	SSEL	I	Audio Bit clock signal input

• IC703 (AN8389SE1): Focus/Tracking Coil Driver
Traverse/Spindle Motor Driver

Pin No.	Terminal Name	I/O	Function
1	Vcc	—	Power supply
2	VREF	I	VREF input
3	IN4	I	Focus driver (4) input
4	IN3	I	Tracking driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	—	Reset input (Not used, open)
8	GND	—	Ground connection
9	IN2	I	Spindle motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Traverse motor driver (1) input
12	PC1	I	PC1 (power cut) input
13	PVcc1	—	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1-	O	Traverse motor driver (1) reverse-action output
16	D1+	O	Traverse motor driver (1) forward-action output
17	D2-	O	Spindle motor driver (2) reverse-action output
18	D2+	O	Spindle motor driver (2) forward-action output
19	D3-	O	Tracking actuator (3) reverse-action output
20	D3+	O	Tracking actuator (3) forward-action output
21	D4-	O	Focus actuator (4) reverse-action output
22	D4+	O	Focus actuator (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVcc2	—	Power supply (2) for driver

Measurements and Adjustments

• ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- Set selector switch to AM, FM or TAPE.
- Set volume control to maximum.

- Output of signal generator should be no higher than necessary to obtain an output reading.

• AM ALIGNMENT

[The parts other than the ones listed below are aligned at the factory before they are supplied. Therefore, alignment of those parts is unnecessary when used for replacement.]

Supplied. Therefore, alignment of these parts is unnecessary when used for replacement.

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS
CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT					
(1) Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz	Point of non-interference. (on/about 600kHz)	TP3 ...(+) TP5 ...(-)	T1 (AM IFT)	Adjust for maximum output.
AM-RF ALIGNMENT					
(2) ◇	511 kHz	Tuning capacitor fully closed.	Headphones Jack (32Ω) { Fabricate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument. }	L4 (AM OSC Coil)	Adjust for maximum output.
(3) ◇	(E/EB/EG/EP/GN):1753 kHz (EJ):1639 kHz	Tuning capacitor fully open.		CT1-4 (AM OSC Trimmer)	Adjust for maximum output.
(4) ◇	550 kHz	Tune to signal		(*1) L3 (AM ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil along the ferrite core.
(5) ◇	1500 kHz	◇		CT1-3 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
(*1) Fix antenna coil with wax after completing alignment.					

• FM ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS	
CONNECTIONS	FREQUENCY					
FM-IF ALIGNMENT						
(6)	Connect to test point TP6 through ceramic capacitor (0.001μF). Negative side to test point TP2 .	(E/EB/EG/EJ/GN):10.7 MHz (EP):10.64 MHz	Point of non-interference. (on/about 90 MHz)	TP3 ...(+) TP5 ...(-)	T2 (FM 1st IFT) Waveform is shown in Fig.3.	
FM-RF ALIGNMENT						
(7)	Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	(E/EB/EG/GN):86.2 MHz (EJ):87.4 MHz (EP):63.7 MHz	Tuning capacitor fully closed.	Headphones Jack (32Ω)	L2 (FM OSC Coil) Adjust for maximum output.	
(8)	"	(E/EB/EG/EP/GN):109.2 MHz (EJ):108.35MHz	Tuning capacitor fully open.	Fabricate the plug as shown in Fig.2 and then connect the lead wires of the plug to the measuring instrument.	CT1-2 (FM OSC Trimmer)	"
(9)	"	(E/EB/EG/EJ/GN):106 MHz (EP):104 MHz	Tune to signal		CT1-1 (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
FM-STEREO ALIGNMENT						
(10)	"	90 MHz 60 dBμV (0%Mod.)	"	TP7 ...(+) TP5 ...(-)	T2 VR1	Adjust for 0 ± 50 mV. Adjust for 76000 ± 200 Hz.

• TAPE SPEED ALIGNMENT

TEST TAPE	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
QZZCWAT (3 kHz)	Headphones Jack(32 Ω) (Fabricate the plug as shown in Fig. 2 and then connect the lead wires of the plug to the measuring instrument.)	Motor VR (Shown in Fig. 4 and 5)	3000 $\pm$ 50 Hz	1. Playback mode. 2. Adjust motor VR, for 3000 $\pm$ 50 Hz reading on frequency counter.

• ALIGNMENT POINTS

Please refer to Printed Circuit Board Diagram for test point locations.

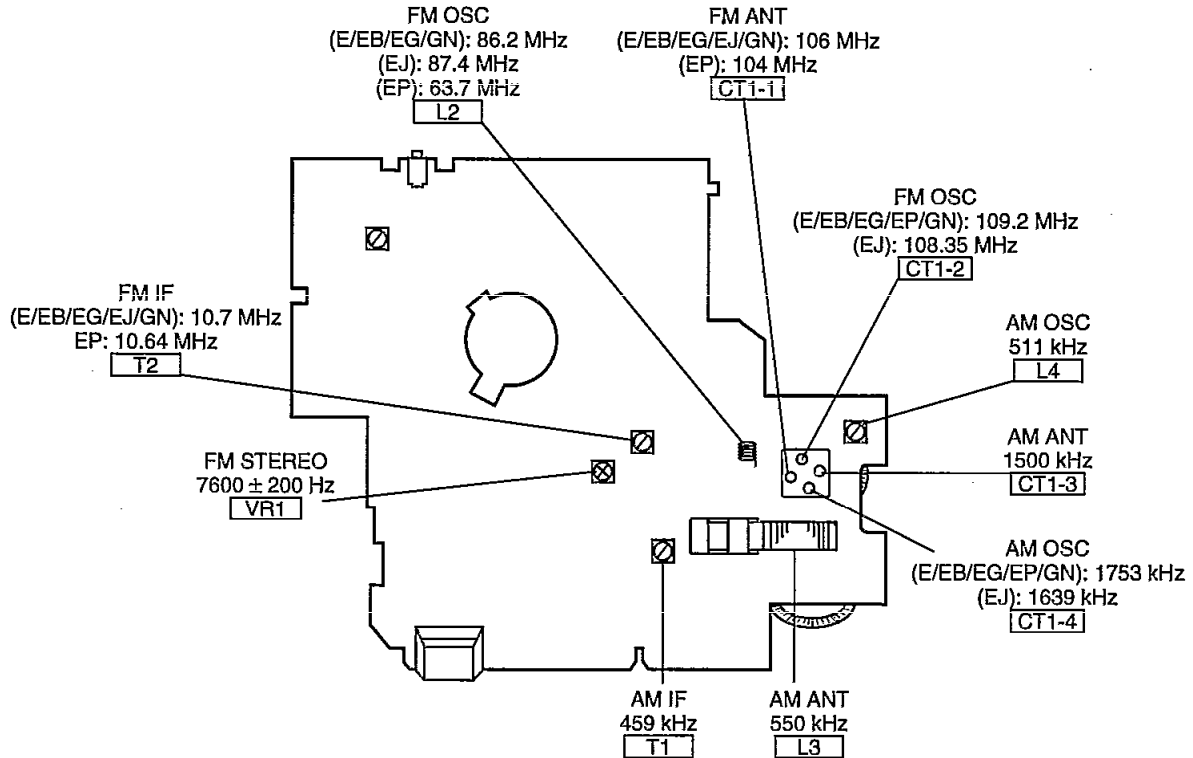


Fig.1

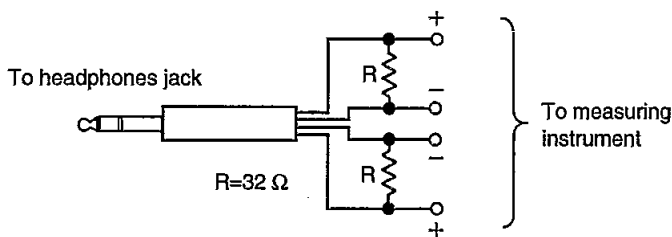


Fig.2

• Tape speed is adjustable even without disassembling the unit.

Insert the sharp screwdriver (–) straight to the tape speed adjustment hole of the unit's bottom.

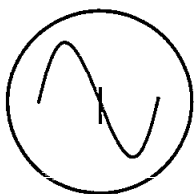
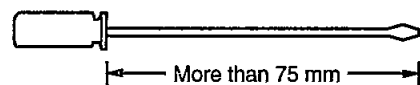


Fig.3

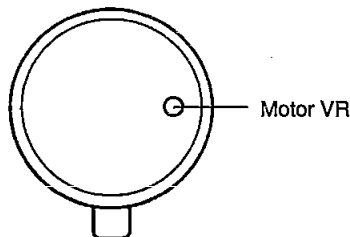
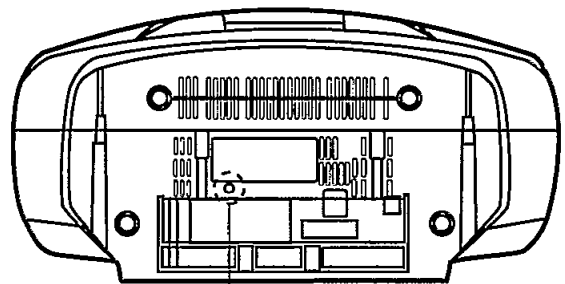


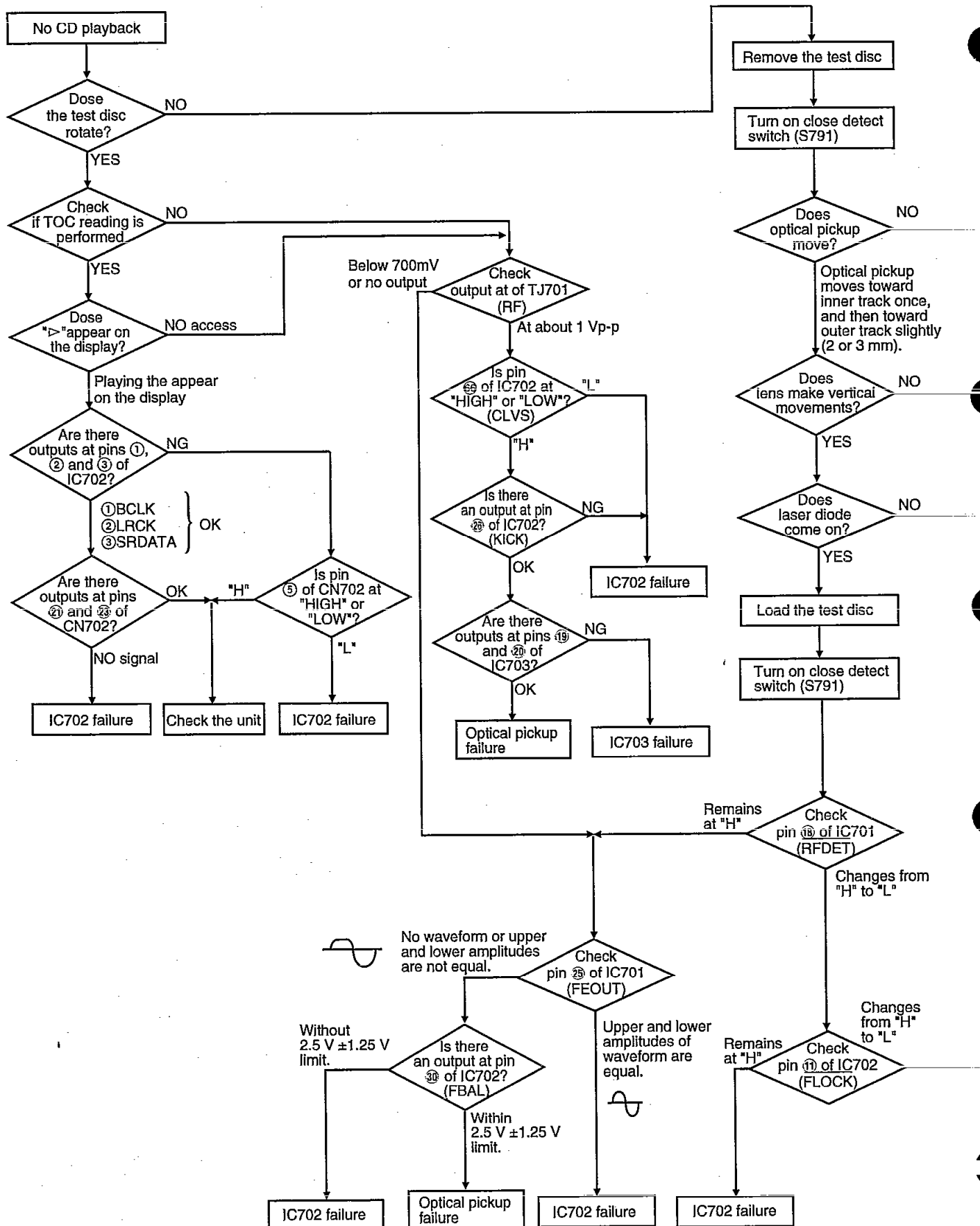
Fig.4

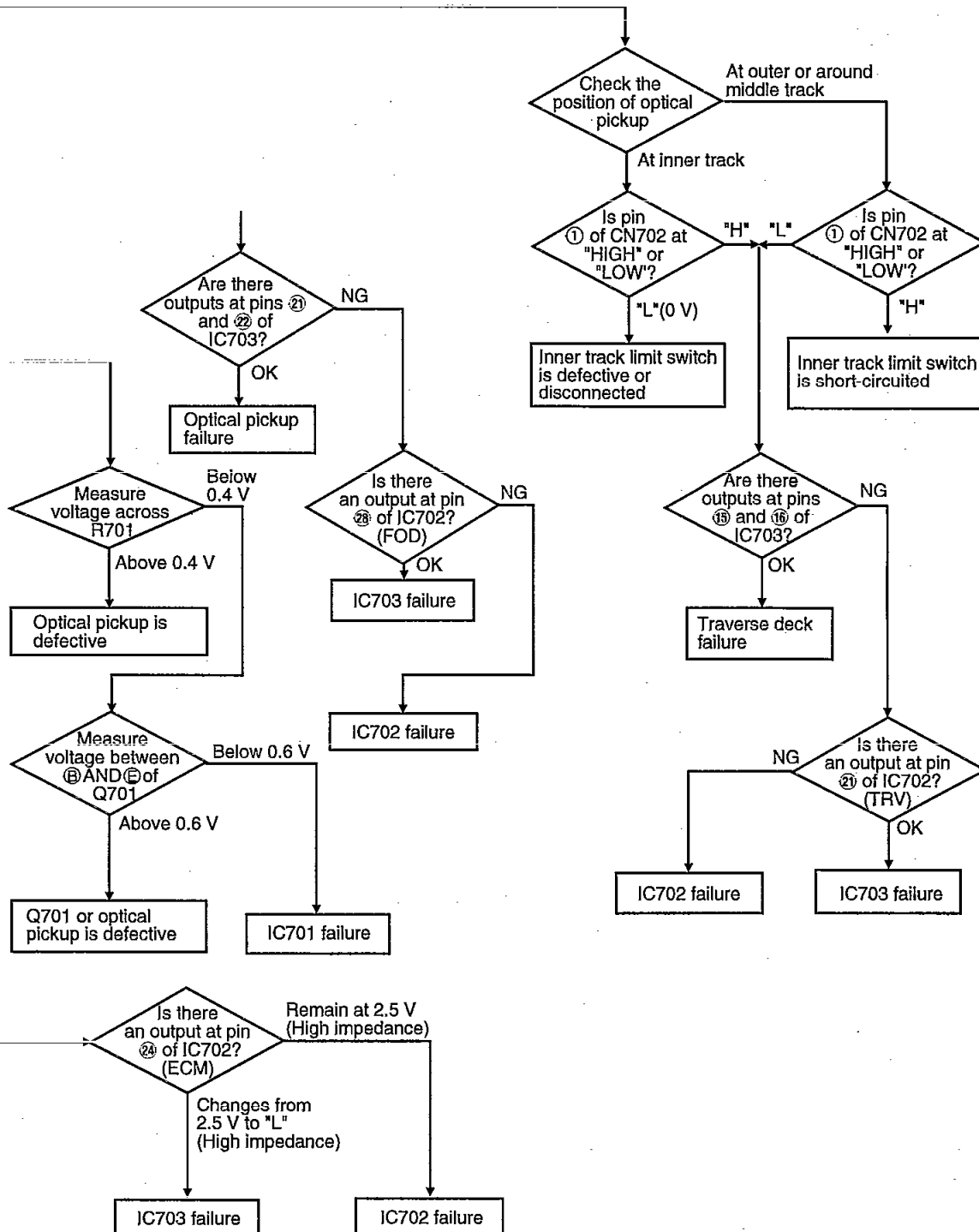


Tape speed adjustment hole

Fig.5

Troubleshooting Guide





■ Replacement Parts List (Electrical)

Notes: *Important safety notice:

Components identified by Δ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

*Remote Control Assy: Supply period for three years from termination of production.

*(MB) Indicates in Remarks columns parts that are supplied by MBV.

*Warning: This product uses a laser diode. Refer to caution statements on page 2.

*ACHTUNG: Die Lasereinheit nicht zerlegen.

Die Lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

*The "(SF)" mark denotes the standard part.

*(M) Indicates in Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)		L3	RLV2C031-0	COIL	[M]
				L4	RL02B020-T	COIL	[M]
				L6	RLQY30S1W	COIL	[M]
IC1	CXA1538S	IC	[M]	L301	RL09B17-T	COIL	[M]
IC301	BA3313L	IC	[M]	L502Δ	RL1500050T-Y	COIL	[M]
IC305	TA8227P	IC	[M]	L802	RL1500050T-Y	COIL	[M]
IC801	UPD753204021	IC	[M]			TRANSFORMER(S)	
IC802	PST994DTA	IC	[M]				
		TRANSISTOR(S)		T1	RL12B010-T	TRANSFORMER	[M]
				T2	RL14B153-T	TRANSFORMER	[M]
Q302	2SC3401AC	TRANSISTOR	[M]	T501Δ	RTP1K1B007-X	POWER TRANSFORMER	[M]
Q303	2SC4641SAA	TRANSISTOR	[M]			FILTER(S)	
Q309Δ	2SB1185E	TRANSISTOR	[M]				
Q310Δ	2SC4641SAA	TRANSISTOR	[M]	CF1	RLFFEIMN01AT	CERAMIC FILTER	[M] (E, EG, EB, GN, EJ)
Q311Δ	2SD965Q	TRANSISTOR	[M]	CF1	RLFFEIMN01DT	CERAMIC FILTER	[M] (EP)
Q801	RVTDTA143XST	TRANSISTOR	[M]	CF2	RLFCCFA459	CERAMIC FILTER	[M]
		DIODE(S)				OSCILLATOR(S)	
D303	RVD1SS133TA	DIODE	[M]	X801	EFOEC4194T4	OSCILLATOR	[M]
D307Δ	RVDMT27R5CTA	DIODE	[M]			FUSE(S)	
D308, 309	RVD1SS133TA	DIODE	[M]				
D310Δ	RVDMT25R6BTA	DIODE	[M]	F501Δ	XBA2C10TB0L	FUSE	[M]
D311	RVD1SS133TA	DIODE	[M]			CONNECTOR(S)	
D501-504Δ	RL1N4003N02	DIODE	[M]	CP1	RJP2G18ZA	CONNECTOR (2P)	[M]
		VARIABLE RESISTOR(S)		CP301	RJP4G18ZA	CONNECTOR (4P)	[M]
				CP302	RJT029W04V	CONNECTOR (4P)	[M]
VR1	QVNB3A00B223	V. R	[M]	CP502	RJT029W002	CONNECTOR (2P)	[M]
VR302	RRV20B03C10A	V. R	[M]	CS303	RJS8T7ZA	CONNECTOR (8P)	[M]
		VARIABLE CAPACITOR(S)		CS702	RJS1A6823-J	CONNECTOR (23P)	[M]
						FUSE HOLDER(S)	
VC1	RCV4LCTOV-R	V. C	[M] (E, EG, EB, GN, EJ)	FH501, 502	RJF0028	FUSE HOLDER	[M]
VC1	RCV4LDTOV-R	V. C	[M] (EP)			SWITCH(ES)	
		DISPLAY(S)					
				S301	RSS2B026-B	SW	[M]
Z801	RSL5165-T	DISPLAY	[M]	S302	RSS4D003-B	SW	[M]
		COIL(S)		S303	RSS2F001-B	SW	[M]
				S304	RSHLA006-U	SW	[M]
L2	RLD4Y53W	COIL	[M] (E, EG, EB, GN)				
L2	RL04N233-0	COIL	[M] (EJ)				
L2	RLD4Y54W-F	COIL	[M] (EP)				

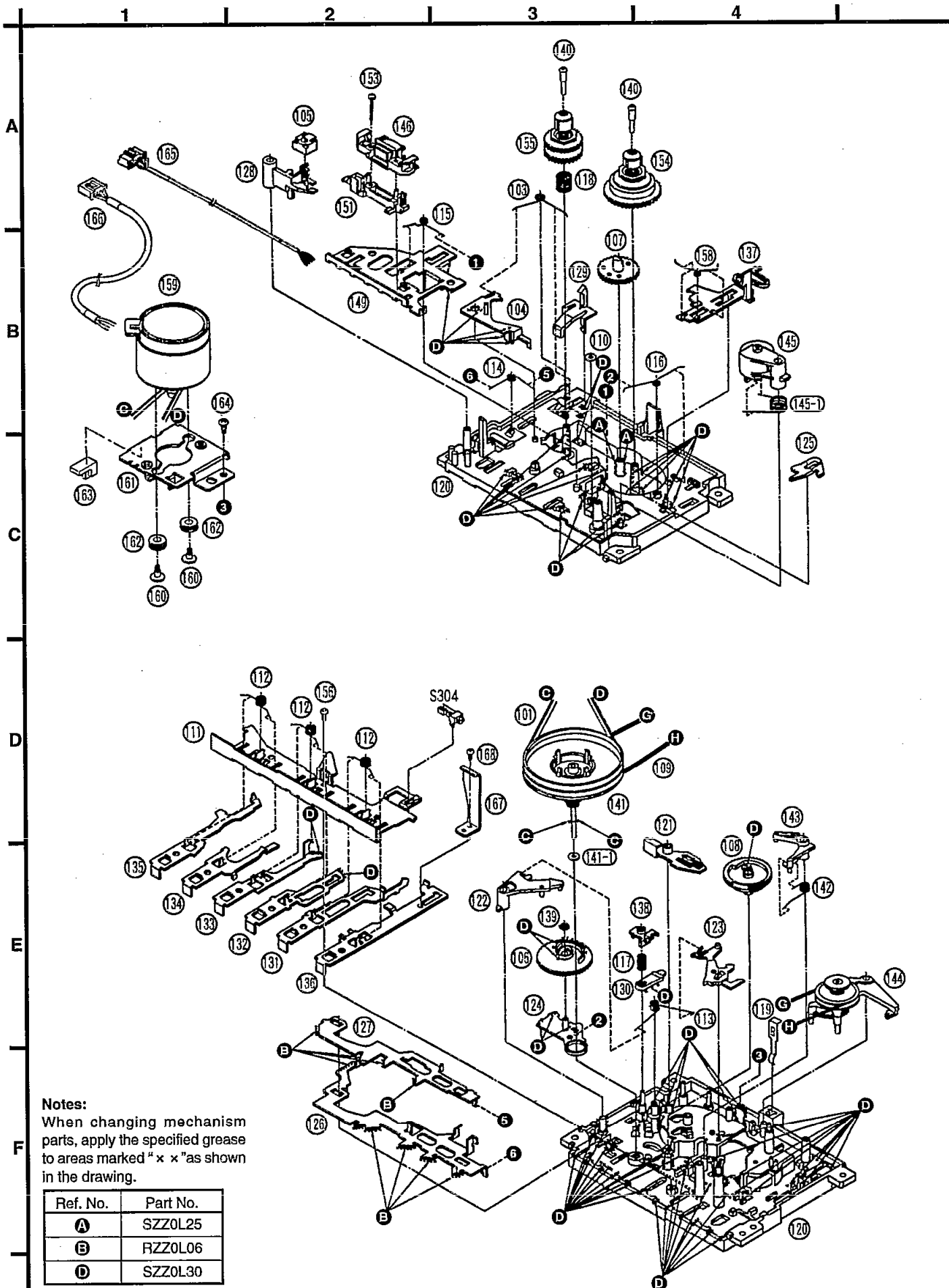
Resistors and Capacitors

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
 * Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R327	ERDS2TJ101	1/4W 100 [M]	C33	ECKR1H103ZF5	50V 0.01U [M]
			R328	ERDS2TJ680T	1/4W 68 [M]	C101	ECBT1C182MR5	16V 1800P [M]
			R329	ERDS2TJ103	1/4W 10K [M]	C102	ECEA1CU100	16V 10U [M]
R2	ERDS2TJ222	1/4W 2.2K [M]	R330	ERDS2TJ474	1/4W 470K [M]	C103	ECBT0J223MS5	6.3V 0.022U [M]
R3	ERDS2TJ331	1/4W 330 [M]	R331	ERDS2TJ101	1/4W 100 [M]	C104	ECEA1AU101	10V 100U [M]
R4	ERDS2TJ220T	1/4W 22 [M]	R801-803	ERDS2TJ104	1/4W 100K [M]	C106	ECBA1H681KB5	50V 680P [M]
R5, 6	ERDS2TJ562	1/4W 5.6K [M]	R805	ERDS2TJ104	1/4W 100K [M]	C108	ECEA1HUR22	50V 0.22U [M]
R7	ERDS2TJ220T	1/4W 22 [M]	R812	ERDS2TJ563	1/4W 56K [M]	C109	ECEA1HUR47B	50V 0.47U [M]
R8	ERDS2TJ820	1/4W 82 [M]	R813	ERDS2TJ392T	1/4W 3.9K [M]	C113	ECEA0JU101B	6.3V 100U [M]
R9	ERDS2TJ222	1/4W 2.2K [M]	R815	ERDS2TJ474	1/4W 470K [M]	C114	ECEA1AU101	10V 100U [M]
R11	ERDS2TJ103	1/4W 10K [M]			CAPACITORS	C115	RCQB2A104KM	100V 0.1U [M]
R12	ERDS2TJ154	1/4W 150K [M]				C116	ECEA1AU471	10V 470U [M]
R13	ERDS2TJ222	1/4W 2.2K [M]	C1	ECCR1H470KC5	50V 47P [M]	C117	ECBT1H102KB5	50V 1000P [M]
R14, 15	ERDS2TJ474	1/4W 470K [M]	C2	ECCR1H100KC5	50V 10P [M]	C122	ECBT1C332MR5	16V 3300P [M]
R101	ERDS2TJ183T	1/4W 18K [M]	C5	ECEA1AU101	10V 100U [M]	C201	ECBT1C182MR5	16V 1800P [M]
R102	ERDS2TJ272T	1/4W 2.7K [M]	C6	ECBT1H102KB5	50V 1000P [M]	C202	ECEA1CU100	16V 10U [M]
R103	ERDS2TJ474	1/4W 470K [M]	C7	ECBT1C103MS5	16V 0.01U [M]	C203	ECBT0J223MS5	6.3V 0.022U [M]
R104	ERDS2TJ682T	1/4W 6.8K [M]	C8	ECCR1H180JC5	50V 18P [M] (E, EG)	C204	ECEA1AU101	10V 100U [M]
R105	ERDS2TJ222	1/4W 2.2K [M]	C8	ECCR1H180JC5	50V 18P [M] (EB, GN)	C206	ECBA1H681KB5	50V 680P [M]
R106	ERDS2TJ680T	1/4W 68 [M]	C8	ECCF1H220K	50V 22P [M] (EJ)	C208	ECEA1HUR22	50V 0.22U [M]
R108	ERDS2TJ472	1/4W 4.7K [M]	C8	ECCR1H20C5	50V 5P [M] (EP)	C209	ECEA1HUR47B	50V 0.47U [M]
R111	ERDS2TJ222	1/4W 2.2K [M]	C9	ECCR1H30C5	50V 3P [M] (E, EG)	C213	ECEA0JU101B	6.3V 100U [M]
R112	ERDS2TJ123	1/4W 12K [M]	C9	ECCR1H30C5	50V 3P [M] (EB, GN)	C214	ECEA1AU181	10V 100U [M]
R113	ERDS2TJ472	1/4W 4.7K [M]	C9	ECCR1H30C5	50V 3P [M] (EP)	C215	RCQB2A104KM	100V 0.1U [M]
R114	ERDS2TJ101	1/4W 100 [M]	C9	ECCR1H40C5	50V 4P [M] (EJ)	C216	ECEA1AU471	10V 470U [M]
R115	ERDS2TJ181T	1/4W 180 [M]	C11	ECEA1HU1010	50V 1U [M]	C217	ECBT1H102KB5	50V 1000P [M]
R119	ERDS2TJ472	1/4W 4.7K [M]	C12	ECEA1AU470	10V 47U [M]	C222	ECBT1C332MR5	16V 3300P [M]
R201	ERDS2TJ183T	1/4W 18K [M]	C13	ECEA1AU101	10V 100U [M]	C301	ECEA1AU101	10V 100U [M]
R202	ERDS2TJ272T	1/4W 2.7K [M]	C14	ECBT1C103MS5	16V 0.01U [M]	C302	ECEA1AU221	10V 220U [M]
R203	ERDS2TJ474	1/4W 470K [M]	C15	ECCR1H20C5	50V 2P [M] (E, EG)	C305	ECEA1HUR22	50V 0.22U [M]
R204	ERDS2TJ682T	1/4W 6.8K [M]	C15	ECCR1H20C5	50V 2P [M] (EB, GN)	C307	RCQB2A392KM	100V 3900P [M]
R205	ERDS2TJ222	1/4W 2.2K [M]	C15	ECCR1H20C5	50V 2P [M] (EP)	C308	ECEA1AU101	10V 100U [M]
R206	ERDS2TJ680T	1/4W 68 [M]	C15	ECCR1H40C5	50V 4P [M] (EJ)	C309	ECBT1C682MR5	16V 6800P [M]
R208	ERDS2TJ472	1/4W 4.7K [M]	C16	ECCF1H220K	50V 22P [M] (E, EG)	C319A	ECEA1CU222	16V 2200U [M]
R211	ERDS2TJ222	1/4W 2.2K [M]	C16	ECCF1H220K	50V 22P [M] (EB, GN)	C320	ECBT1H102KB5	50V 1000P [M]
R212	ERDS2TJ123	1/4W 12K [M]	C16	ECCF1H220K	50V 22P [M] (EJ)	C322	ECBT1H102KB5	50V 1000P [M]
R213	ERDS2TJ472	1/4W 4.7K [M]	C16	ECCR1H100KC5	50V 10P [M] (EP)	C324	ECEA1AU470	10V 47U [M]
R214	ERDS2TJ101	1/4W 100 [M]	C17	ECEA1HU2R2	50V 2.2U [M]	C331	ECEA1AU221	10V 220U [M]
R215	ERDS2TJ181T	1/4W 180 [M]	C18	ECCF1H220K	50V 22P [M]	C332	ECBT1H102KB5	50V 1000P [M]
R219	ERDS2TJ472	1/4W 4.7K [M]	C19, 20	ECEA1HU1010	50V 1U [M]	C501-504	ECKR1H103ZF5	50V 0.01U [M]
R301	ERDS2TJ223	1/4W 22K [M]	C21, 22	ECBT0J153MS5	6.3V 0.015U [M]	C800	ECKR1H103ZF5	50V 0.01U [M]
R302	ERDS2TJ101	1/4W 100 [M]	C23	ECEA1HU1010	50V 1U [M]	C807	ECBT1C103MS5	16V 0.01U [M]
R307	ERDS2TJ221	1/4W 220 [M]	C24	ECEA1HUR47B	50V 0.47U [M]	C820	ECBT1H331KB5	50V 330P [M]
R308	ERDS2TJ473	1/4W 47K [M]	C25	ECEA1EU4R7	25V 4.7U [M]	C821	ECBT1H102KB5	50V 1000P [M]
R311	ERDS2TJ8R2T	1/4W 8.2 [M]	C26	ECEA1AU101	10V 100U [M]			
R312	ERDS2TJ331	1/4W 330 [M]	C27	ECEA1EU4R7	25V 4.7U [M]			
R324	ERDS2TJ222	1/4W 2.2K [M]	C30, 31	ECBT1H102KB5	50V 1000P [M]			
R325	ERDS2TJ473	1/4W 47K [M]	C32	ECBT1H471KB5	50V 470P [M]			
R326	ERDS2TJ681	1/4W 680 [M]						

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks			
		CD SERVO CIRCUIT	C704, 705	ECUZNE104MBN	25V 0.1U [M]			
		RESISTORS	C706	ECUV1H272KBN	50V 2700P [M]			
			C707	ECUV1E273KBN	25V 0.027U [M]			
R701	ERJ6GEYJ4R7V	1/10W 4.7 [M]	C708	ECUE1H472KBN	50V 4700P [M]			
R703	ERJ6GEYJ823	1/10W 82K [M]	C709	ECUE1C473KBN	16V 0.047U [M]			
R704	ERJ6GEYJ102A	1/10W 1K [M]	C710	ECUV1H182KBN	50V 1800P [M]			
R705	ERJ6GEYJ103V	1/10W 10K [M]	C711, 712	ECUWNE104ZFN	25V 0.1U [M]			
R706	ERJ6GEYJ102A	1/10W 1K [M]	C713	ECUV1C104MBM	16V 0.1U [M]			
R707	ERJ6GEYJ474V	1/10W 470K [M]	C714	ECEAOJKA101I	6.3V 100U [M]			
R708	ERJ6GEYJ154V	1/10W 150K [M]	C716	ECUE1H561KBN	50V 560P [M]			
R709	ERJ6GEYJ683V	1/10W 68K [M]	C717	ECUWNE104ZFN	25V 0.1U [M]			
R711	ERJ6GEYJ154V	1/10W 150K [M]	C718	ECUVNC224KBN	16V 0.22U [M]			
R712	ERJ6GEYJ221V	1/10W 220 [M]	C721, 722	ECUV1H150JCN	50V 15P [M]			
R717-720	ERJ6GEYJ102A	1/10W 1K [M]	C723	ECEA1AKA221I	10V 220U [M]			
R721	ERJ6GEYJ101V	1/10W 100 [M]	C724	ECUV1C104MBM	16V 0.1U [M]			
R722	ERJ6GEYJ563V	1/10W 56K [M]	C725, 726	ECUE1H102KBN	50V 1000P [M]			
R723	ERJ6GEYJ182V	1/10W 1.8K [M]	C727, 728	ECEA1HPK010I	50V 1U [M]			
R724	ERJ6GEYJ333V	1/10W 33K [M]	C730	ECUWNE104ZFN	25V 0.1U [M]			
R725	ERJ6GEYJ472V	1/10W 4.7K [M]	C731, 732	ECEAOJKA221I	6.3V 220U [M]			
R726	ERJ6GEYJ473V	1/10W 47K [M]	C733	ECUZNE104MBN	25V 0.1U [M]			
R727	ERJ6GEYJ822V	1/10W 8.2K [M]	C734	ECEA1AKA221I	10V 220U [M]			
R728	ERJ6GEYJ103V	1/10W 10K [M]	C735-737	ECUWNE104ZFN	25V 0.1U [M]			
R731	ERJ6GEYJ822V	1/10W 8.2K [M]	C738	ECUV1C154KBN	16V 0.15U [M]			
R734-736	ERJ6GEYJ101V	1/10W 100 [M]	C742	ECUV1E273KBN	25V 0.027U [M]			
R738	ERJ6GEYJ223V	1/10W 22K [M]	C743	ECUWNE104ZFN	25V 0.1U [M]			
R741-743	ERJ6GEYJ562V	1/10W 5.6K [M]	C744	ECUE1E822KBN	25V 8200P [M]			
R744	ERJ6GEYJ103V	1/10W 10K [M]	C745	ECUE1C473KBN	16V 0.047U [M]			
R745	ERJ6GEYJ155V	1/10W 1.5M [M]	C747	ECUE1H222KBN	50V 2200P [M]			
R748	ERJ6GEYJ182V	1/10W 1.8K [M]	C748	ECUV1H471KBN	50V 470P [M]			
R749	ERJ6GEYJ682V	1/10W 6.8K [M]	C749	ECUZNE104MBN	25V 0.1U [M]			
R750, 751	ERJ6GEYJ473V	1/10W 47K [M]	C750	ECUV1C104MBM	16V 0.1U [M]			
R752	ERJ8GEYJ220V	1/8W 22 [M]	C751	ECUZNE104MBN	25V 0.1U [M]			
R770, 771	ERJ6GEYJ155V	1/10W 1.5M [M]	C752	ECUE1H152KBN	50V 1500P [M]			
R772	ERJ6GEYJ273V	1/10W 27K [M]	C753	ECUV1H471KBN	50V 470P [M]			
			C754	ECUE1H471KBN	50V 470P [M]			
		CHIP JUMPER(S)						
RJ701-704	ERJ8GEYOR00A	CHIP JUMPER [M]						
RJ707	ERJ8GEYOR00A	CHIP JUMPER [M]						
RJ709	ERJ8GEYOR00A	CHIP JUMPER [M]						
RJ714-717	ERJ8GEYOR00A	CHIP JUMPER [M]						
RJ721-731	ERJ6GEYOR00A	CHIP JUMPER [M]						
		TEST JUMPER(S)						
TJ701, 702	EYF8CU	TEST JUMPER [M]						
		CAPACITORS						
C701	ECEAOJKA330I	6.3V 33U [M]						
C702	ECUZNE104MBN	25V 0.1U [M]						
C703	ECEAOJKA101I	6.3V 100U [M]						

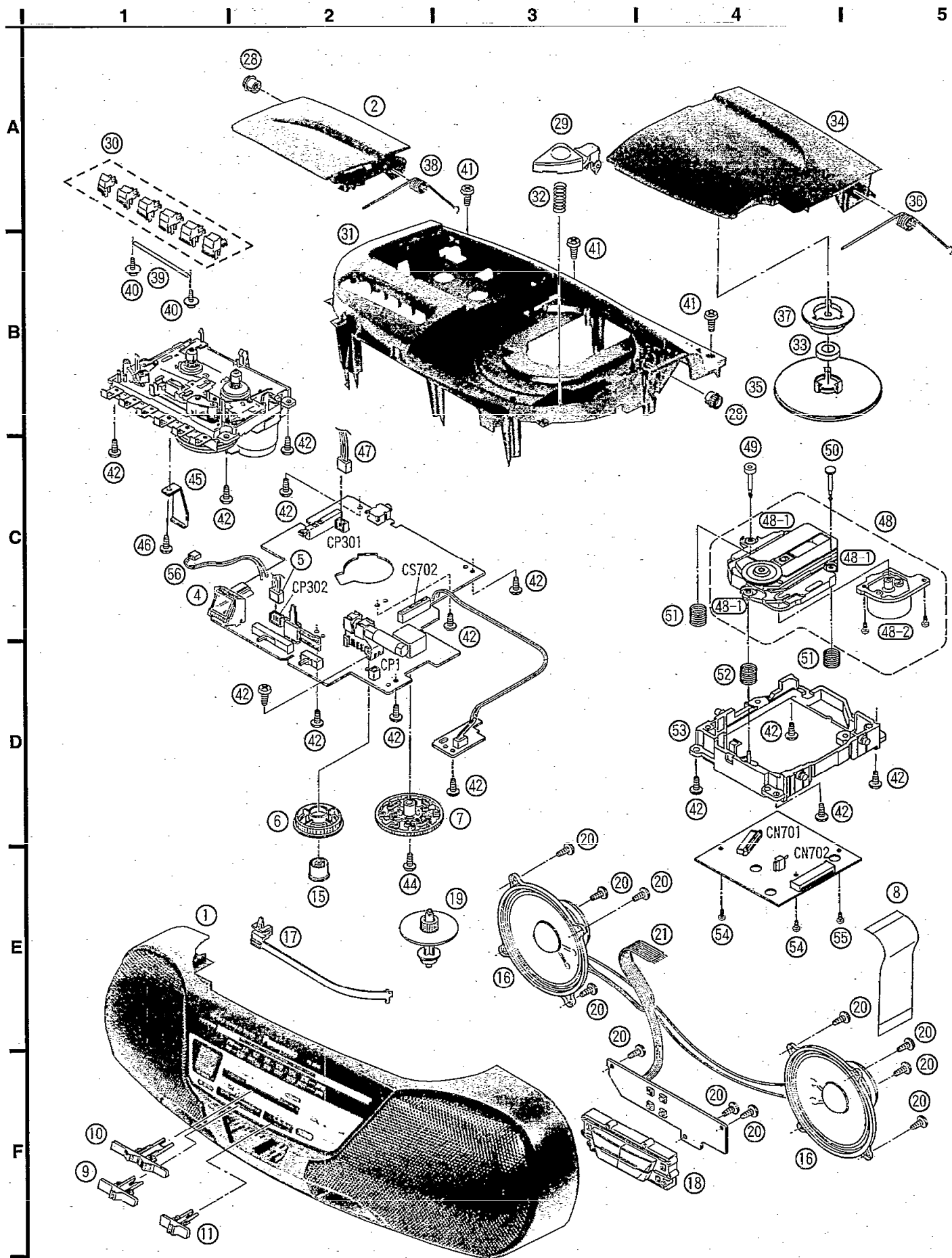
Mechanism Parts Location



■ Replacement Parts List (Mechanism)

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
				149	RMA0696	HEAD BASE ASS'Y, 1	[M]
				151	RMQ0384	HEAD BASE, 2	[M]
				153	XTN2+14F	SCREW	[M]
		CASSETTE MECHANISM PARTS		154	RXR0004	TAKE-UP REEL ASS'Y	[M]
				155	RXR0005	SUPPLY REEL ASS'Y	[M]
101	RDV0021	MAIN BELT	[M]	156	XTN2+6J	SCREW	[M]
103	RMB0109-1	SPRING	[M]	158	RME0098-2	SPRING	[M]
104	RML0116	BRAKE	[M]	159	RFM179ZA	MOTOR ASS'Y	[M]
105	RBR2CY009	ERASE HEAD	[M]	160	RHD26002	SCREW	[M]
106	RDG0057-1	IDLER GEAR	[M]	161	RMA0108	MOTOR ANGLE	[M]
107	RDG0059	FF RELAY GEAR	[M]	162	RMG0102-1	RUBBER SPACER	[M]
108	RDK0005-1	CAM GEAR	[M]	163	RMR1063-K	STOPPER	[M]
109	RDV0006-1	RF BELT	[M]	164	XTN26+8J	SCREW	[M]
110	RHW16009	WASHER	[M]	165	REX0836	WIRE ASS'Y	[M]
111	RMA0109	BACK PLATE	[M]	166	REX0835Y	WIRE ASS'Y	[M]
112	RMB0043-1	SPRING	[M]	167	RMQ0315	SPRING	[M]
113	RMB0045	SPRING	[M]	168	XTN2+4F	SCREW	[M]
114	RMB0046-1	SPRING	[M]				
115	RMB0047	SPRING	[M]				
116	RMB0048-1	SPRING	[M]				
117	RMB0053	SPRING	[M]				
118	RMB0125	SPRING	[M]				
119	RMQ0061	SPRING	[M]				
120	RFKRC090P-K	CHASSIS ASS'Y	[M]				
121	RML0071-1	SWAY LEVER	[M]				
122	RML0072-1	AS RELEASE LEVER	[M]				
123	RML0073-1	AS PROTECT LEVER	[M]				
124	RML0074-1	IDLER LEVER	[M]				
125	RML0076	EJECT LEVER	[M]				
126	RML0077-1	LOCK PLATE	[M]				
127	RML0078	FUNCTION PLATE	[M]				
128	RML0080	ERASE HEAD ARM	[M]				
129	RML0081-2	LEVER	[M]				
130	RML0082	PAUSE LEVER	[M]				
131	RMQ0023	PLAY ROD	[M]				
132	RMQ0024	REW ROD	[M]				
133	RMQ0025	FF ROD	[M]				
134	RMQ0026	STOP ROD	[M]				
135	RMQ0027	PAUSE ROD	[M]				
136	RMQ0028	REC ROD	[M]				
137	RMQ0029	EJECT SLIDE LEVER	[M]				
138	RMR0211-1	PAUSE BUSH	[M]				
139	RMR0227	IDLER GEAR BUSH	[M]				
140	RMS0055	REEL SHAFT	[M]				
141	RXF0012	FLYWHEEL ASS'Y	[M]				
141-1	RHW21008	WASHER	[M]				
142	RMB0044	SPRING	[M]				
143	RML0075	TRIGGER LEVER	[M]				
144	RXP0014	RF CLUTCH ASS'Y	[M]				
145	RXP0015	PINCH ROLLER ASS'Y	[M]				
145-1	RMB0049	SPRING	[M]				
146	RBR4CY016-1M	R/P HEAD	[M]				

Cabinet Parts Location



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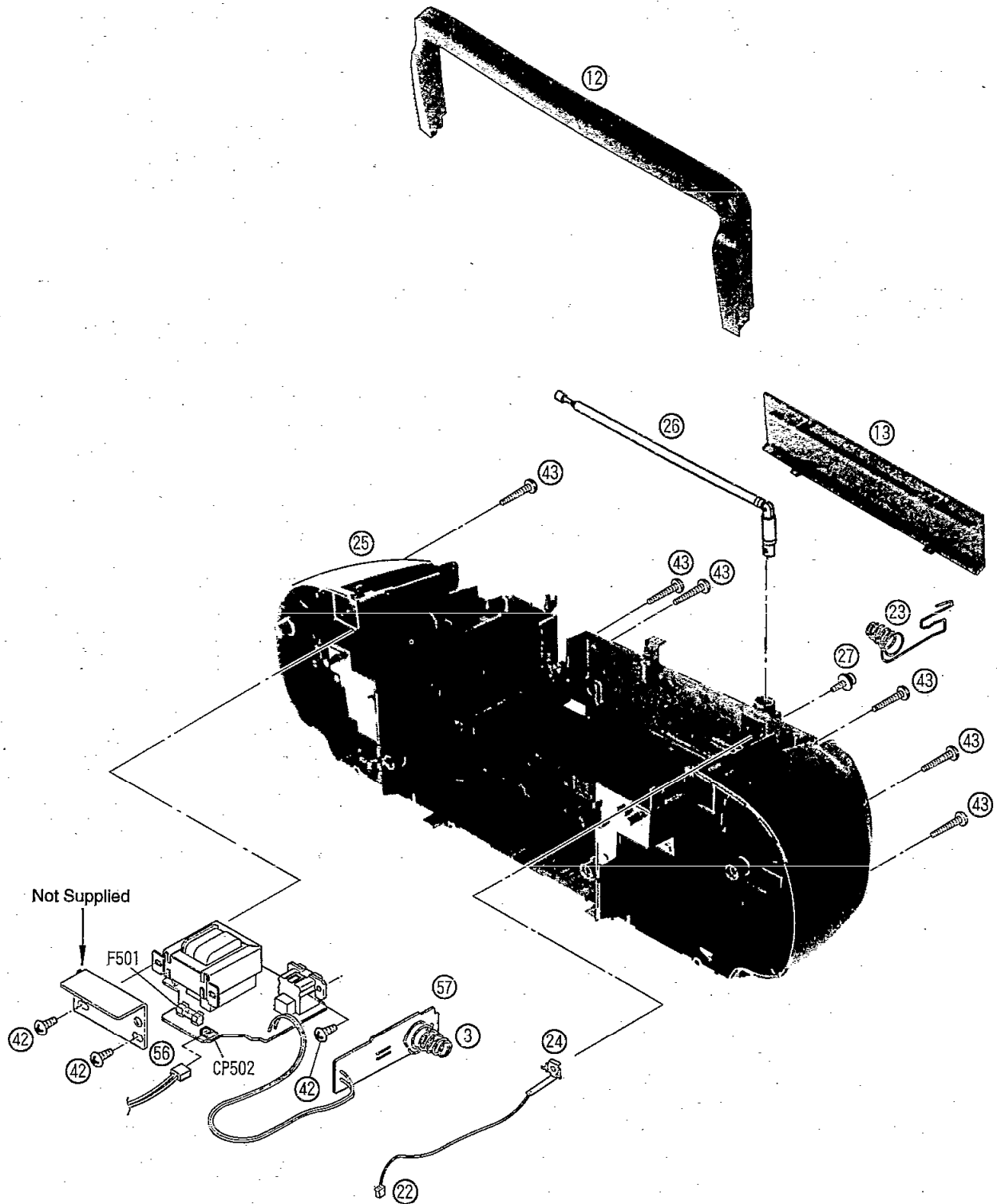
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Replacement Parts List (Cabinet, Packing, Accessory)

Note: The reference number SA represent the grease and tool used for this unit.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS		48	RAE0150Z	TRAVERSE DECK ASS'Y	[M]
1	RFKXDS11E-K	FRONT CABINET ASS'Y	[M] (E, EG, EB, GN, EP)	48-1	SHGD113-1	FLOATING RUBBER	[M]
1	RFKXDS11GCK	FRONT CABINET ASS'Y	[M] (EJ)	48-2	SNSD38	SCREW	[M]
2	RFKLXDS11-K	CASSETTE HOLDER ASS'Y	[M]	49	RMS0350	PIN 1	[M]
3	RJC511XA	BATTERY TERMINAL	[M]	50	RMS0123-1	PIN 2	[M]
4	RMND404	LCD HOLDER	[M]	51	RME0109	FLOATING SPRING 1	[M]
5	REX0835Y	WIRE ASS'Y (4P)	[M]	52	RME0142	FLOATING SPRING 2	[M]
6	RDG0376	GEAR	[M]	53	RMR0698-K	TRAVERSE CHASSIS	[M]
7	RDG5845ZAB	GEAR	[M]	54	XTV2+GG	SCREW	[M]
8	REE0744	FFC	[M]	55	XTN2+GG	SCREW	[M]
9	RGVD190-K	KNOB, OPERATION	[M]	56	REX0833	WIRE ASS'Y (W502/2P)	[M]
10	RGVD191-K	KNOB, VOLUME	[M]	57	RFKXDS11E-K	BATTERY P. C. B.	[M] (E, EG, EB, GN)
11	RGVD192-K	KNOB, TONE	[M]	57	RFKXDS11EJK	BATTERY P. C. B.	[M] (EJ)
12	RKHD039-K	HANDLE	[M]	57	RFKXDS11EPK	BATTERY P. C. B.	[M] (EP)
13	RKK3182C-0	BATTERY COVER	[M]			PACKING MATERIALS	
15	RMND405	GEAR HOLDER	[M]	P1	RPG3191	GIFT BOX	[M] (E, EG, EB)
16	RAS10P10-G	SPEAKER	[M]	P1	RPG3408	GIFT BOX	[M] (GN)
17	RGJ0021-W	DIAL POINTER	[M]	P2	RPHD131	PROTECTION COVER	[M]
18	RGU1477-K	BUTTON, CD OPERATION	[M]	P3	RPN1012	PAD 1	[M]
19	RGWD255-K	KNOB, TUNING	[M]	P4	RPQ0707	PAD 2	[M]
20	XTV3+10G	SCREW	[M]			ACCESSORIES	
21	RWJ1108420XX	FLAT CABLE (W303/8P)	[M]	A1	RQT3647-E	INSTRUCTION MANUAL	[M] (E)
22	REX0834	WIRE ASS'Y	[M]	A1	RQT3648-D	INSTRUCTION MANUAL	[M] (EG)
23	RJC91009	BATTERY TERMINAL	[M]	A1	RQT3699-D	INSTRUCTION MANUAL	[M] (EG, EJ)
24	RJRD173	ANTENNA TERMINAL	[M]	A1	RQT3646-B	INSTRUCTION MANUAL	[M] (EB, GN)
25	RKS0252C-K	REAR CABINET	[M] (E, EG)	A1	RQT3649-Q	INSTRUCTION MANUAL	[M] (EP)
25	RFKXDS11EBK	REAR CABINET ASS'Y	[M] (EB)	A2△	RJAD019-2K	AC POWER CORD	[M] (E, EG)
25	RFKXDS11GNK	REAR CABINET ASS'Y	[M] (GN)	A2△	RJAD053-X	AC POWER CORD	[M] (EB)
25	RFKXDS11EJK	REAR CABINET ASS'Y	[M] (EJ)	A2△	RJAD035-X	AC POWER CORD	[M] (GN)
25	RFKXDS11EPK	REAR CABINET ASS'Y	[M] (EP)	A2△	RJAD019-1U	AC POWER CORD	[M] (EJ)
26	XEAR175EA-H	TELESCOPIC ANTENNA	[M]			JIG (S) / TOOL (S)	
27	XYN3+F12FY	SCREW	[M]	SA1	QZZCWAT	TEST TAPE	[M]
28	RDG0288	GEAR	[M]	SA2	SZZOL25	GREASE	[M]
29	RGU1476-K	BUTTON, CD EJECT	[M]	SA3	RZZOL06	GREASE	[M]
30	RGZ0036-K	BUTTON, MECHANISM	[M]	SA4	SZZOL30	GREASE	[M]
31	RKQ0214A-K	TOP CABINET	[M]				
32	RMB0509	SPRING	[M]				
33	RHM245ZA	MAGNET	[M]				
34	RKF0498-K	CD COVER	[M]				
35	RFKXDT37-K	CD CLAMPER ASS'Y	[M]				
36	RME0228	SPRING	[M]				
37	RMQ0152-E	MAGNET HOLDER	[M]				
38	RME0229	SPRING	[M]				
39	SUX102	SHAFT	[M]				
40	XTWS3+8T	SCREW	[M]				
41	XTN3+12GFZ	SCREW	[M]				
42	XTV3+12G	SCREW	[M]				
43	XTV3+20JFZ	SCREW	[M]				
44	XYN2G+C6	SCREW	[M]				
45	RMCO315	R/P SPRING	[M]				
46	XTN2+4F	SCREW	[M]				
47	REX0836	WIRE ASS'Y (4P)	[M]				

Packaging

