ORDER NO. MD0501011C2

Service Manual

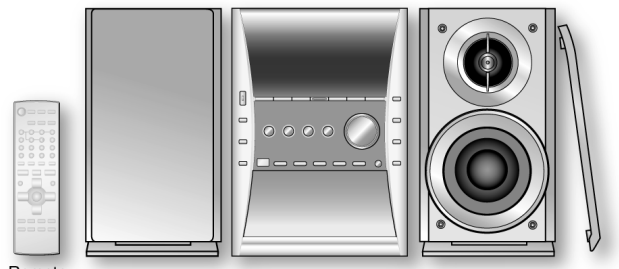
CD Stereo System

COMPACT disc DIGITAL AUDIO

SA-PM31E
SA-PM31EB
SA-PM31EG

Colour

(S)... Silver Type



Remote Control Transmitter SB-PM31 SA-PM31 SB-PM31

Specification

n Amplifier Section

RMS power output	
10% Total harmonic distortion	
1 kHz, both channels driven	
(Low channel)	41 W per channel (6Ω)
8 kHz, both channels driven	
(High channel)	39 W per channel (6Ω)
Total Bi-Amp power	80 W per channel
Output Impedance	
Headphone	16Ω - 32Ω

n FM Tuner Section

Frequency range	87.50 MHz - 108.00 MHz (50 kHz steps)
Sensitivity	1.02 µV (IHF)
S/N 26 dB	1.00 µV
Antenna terminal(s)	75Ω (unbalanced)

n AM Tuner Section

Frequency range	522 kHz - 1629 kHz (9 kHz steps)
	520 kHz - 1630 kHz (10 kHz steps)
Sensitivity	
S/N 20 dB (at 999 kHz)	900 µV/m

n Cassette Deck Section

Track system	4 track, 2 channel
Heads	
Record/playback	Solid permalloy head
Erasure	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias 100 kHz
Erasing system	AC erase 100 kHz
Tape speed	4.8 cm/s
Overall frequency response (+3 dB, -6 dB at DECK OUT)	
NORMAL	35 Hz - 14 kHz
S/N RATIO	42.64 dB (A weighted)
Wow and flutter	0.08% (WRMS)
Fast forward and rewind time	Approx. 120 seconds with C-60 cassette tape

n CD Section

Disc	
CD, CD-R, CD-RW, MP3	8 cm/12 cm
Sampling frequency	44.1 kHz
Decoding	16/20/24 bit linear
Beam source/wavelength	Semiconductor laser / 780 nm
Number of channels	Stereo
Frequency response	20 Hz - 20 kHz (+1dB, -2dB)
Wow and flutter	Below measurable limit
Digital filter	8 fs
D/A converter	MASH (1 bit DAC)

Panasonic

MP3	
Bit rate	32 kbps - 320 kbps
Sampling frequency	32 kHz, 44.1 kHz, 48 kHz

n General

Power supply	AC 230 V, 50 Hz (E/EG)
	AC 230 - 240 V, 50 Hz (EB)
Power consumption	130 W
Dimensions (W x H x D)	175 mm x 254 mm x 390.7 mm
Mass	5.63 kg
Power consumption in standby mode:	0.6 W

n System: SC-PM31E-S	Music Center: SA-PM31E-S
	Front speaker: SB-PM31E-M
n System: SC-PM31EB-S	Music Center: SA-PM31EB-S
	Front speaker: SB-PM31E-M
n System: SC-PM31EG-S	Music Center: SA-PM31EG-S
	Front speaker: SB-PM31E-M

Notes:

1. Specifications are subject to change without notice. Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.
3. The labels “HIGH” and “LOW” on the rear of the speakers refer to High frequency and Low frequency.

⚠ 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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1 Safety Cautions

1.1. GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, ensure that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, check for leakage current checks to prevent from being exposed to shock hazards.

1.1.1. LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Using an ohmmeter measure the resistance value, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2Ω.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

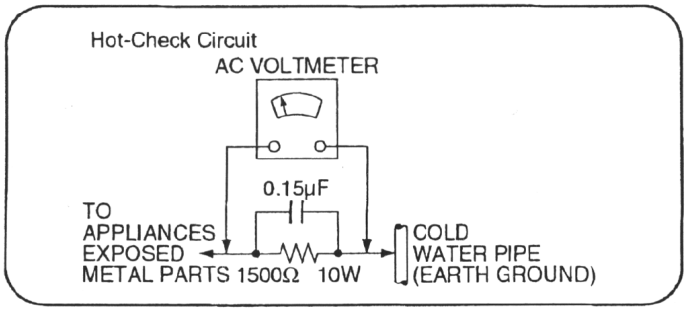


Fig. 1

1.1.2. LEAKAGE CURRENT HOT CHECK (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15µF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. Should the measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and re-checked before it is returned to the customer.

2 Caution for AC Mains Lead

(For United Kingdom)

("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 stated below.
If in any doubt please consult a qualified electrician.

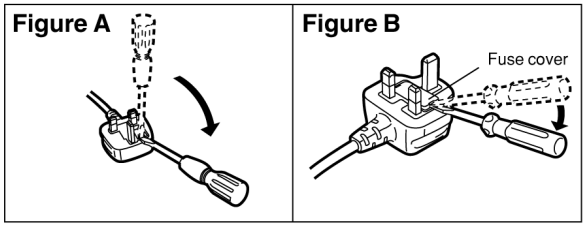
IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.
WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

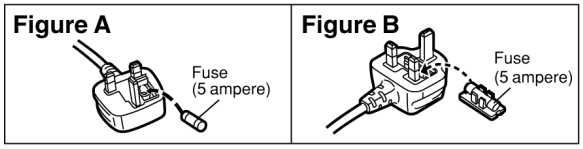
Before use
Remove the connector cover.

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.



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



3 Before Repair and Adjustment

Disconnect AC power, discharge Power Supply Capacitors C506, C507, C508, C600, C601, C602, C620 through a 10Ω, 1W resistor to ground.

DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices.

After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

- Current consumption at AC 230V, 50 Hz in NO SIGNAL mode (volume min) should be ~300 mA (E/EG).
- Current consumption at AC 230-240V, 50 Hz in NO SIGNAL mode (volume min) should be ~300 mA (EB).

4 Protection Circuitry

The protection circuitry may have operated if either of the following conditions are noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

5 Handling the Lead-free Solder

5.1. About lead free solder (PbF)

Distinction of PbF P.C.B.:

P.C.B.s (manufactured) using lead free solder will have a PbF stamp on the P.C.B.

Caution:

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a high temperature soldering iron. In case of soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C).
- Pb free solder will tend to splash when heated too high (about 1100°F/600°C).
- When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

6 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.
Wavelength : 780 nm
Maximum output radiation power from pick up : 100 µW/VDE
Laser radiation from pick up unit is safety level, but be sure the followings:

1. Do not disassemble the optical 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 Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.
Wellenlänge : 780nm
Maximale Strahlungsleistung der Lasereinheit :100µW/VDE
Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

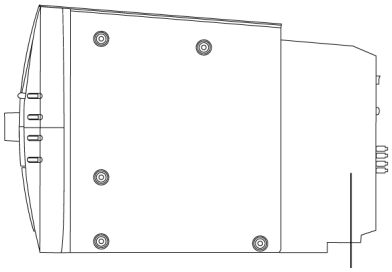
1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

ADVARSEL :

I dette a apparat anvendes laser.

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.

n Use of Caution Labels



Side of product

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

CAUTION	– INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. IEC60825-1 / Class 3b
VARNING	– OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL	– USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL	– USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARO!	AVATTAESSA OLET NÄKYMÄTÖNTÄ ALTTIINA LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VORSICHT	– UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENTION	– RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
注意	– 打开时有不可见激光辐射，避免激光束照射。
注意	– ここを開くと不可視レーザー光が出ます。ビームを見たり、触れたりしないで下さい。

Inside of product

7 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).

l Handling of CD 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. The short land between the No.4 (LD) and No.5 (GND) pins on the flexible board (FFC) is shorted with a solder build-up to prevent damage to the laser diode (Fig 1).
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

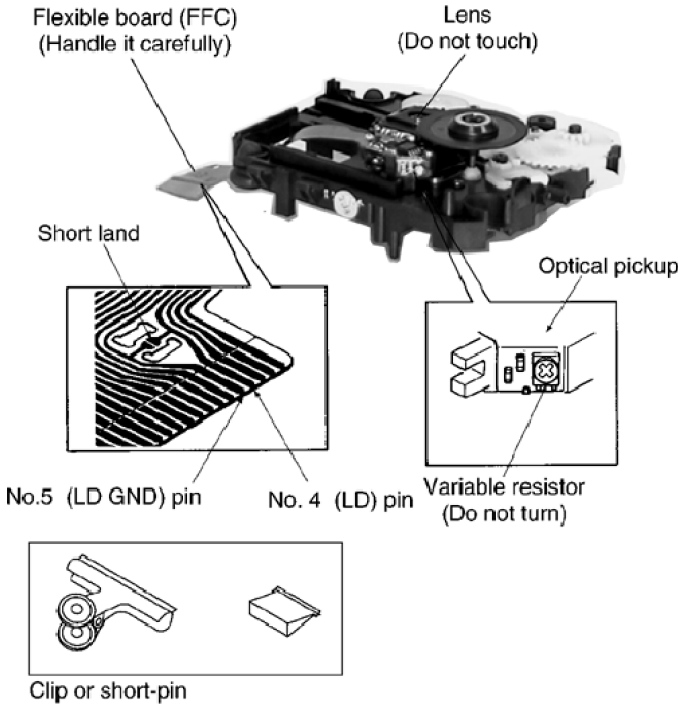


Fig 1

l Grounding for electrostatic breakdown prevention

1. Human body grounding (Fig 2)

   Use the anti-static wrist strap to discharge the static electricity from your body.

2. Work table grounding (Fig 2)

   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).

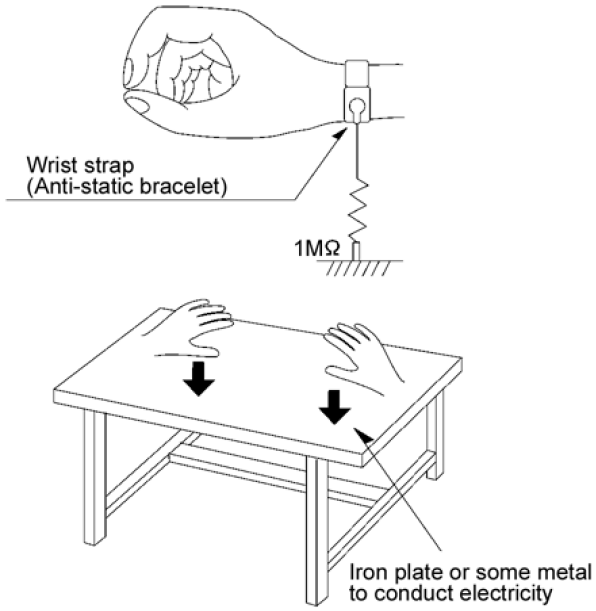


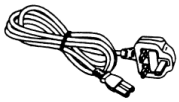
Fig 2

Caution when Replacing the Optical Pickup :

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

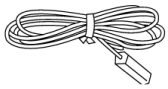
8 Accessories

Note : Refer to Packaging Materials & Accessories for the part number.

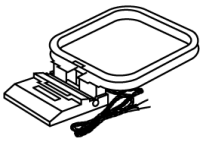


AC cord (EB)

AC cord (E/EG)

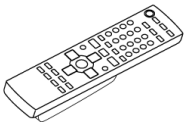


FM antenna



AM loop antenna

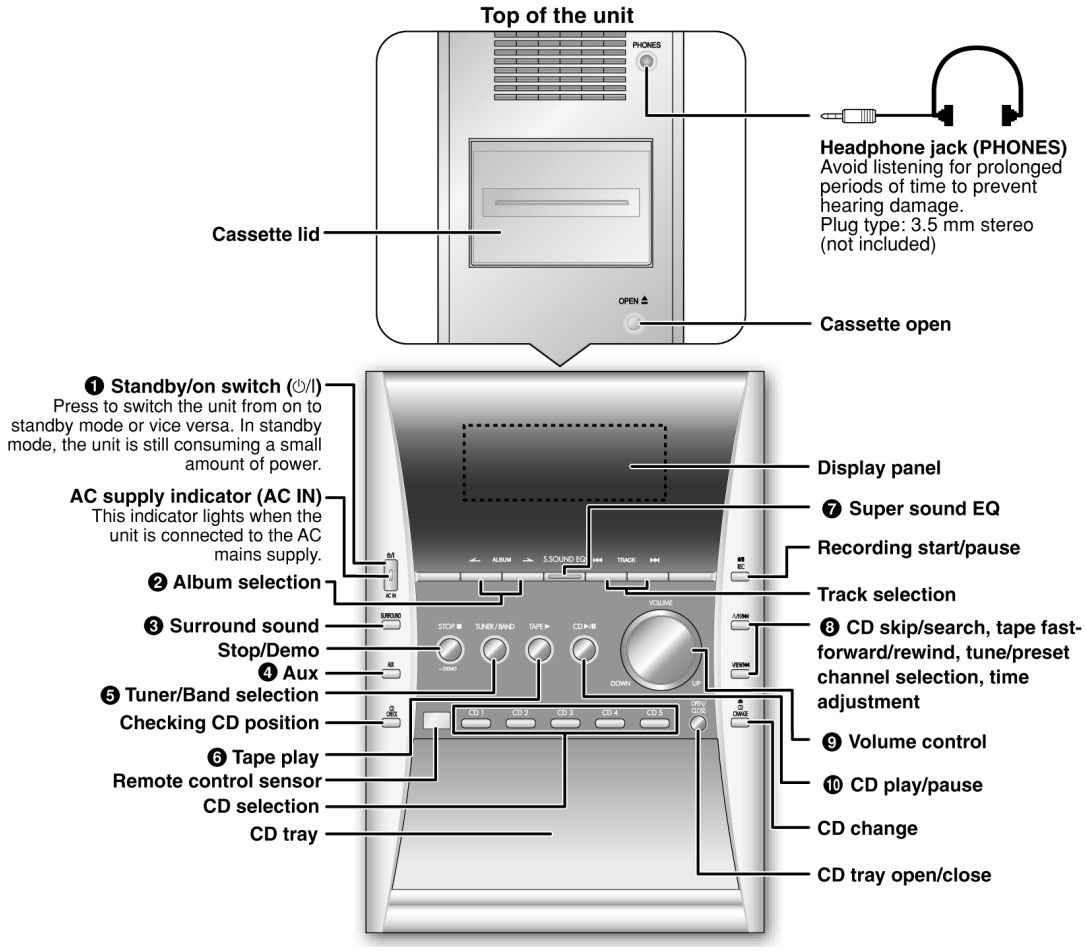
Antenna plug adaptor



Remote control

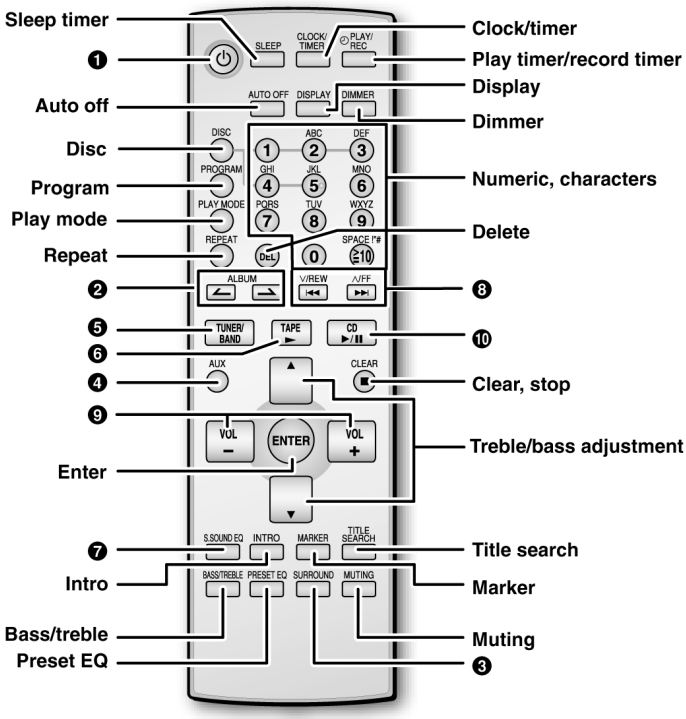
9 Operating Procedures

Main unit



Remote control

Buttons such as ❸ function the same as the controls on the main unit.



AUTO OFF — This function allows you to turn off the unit in **CDs or tape** mode only after left unused for 10 minutes.

- The setting is maintained even if the unit is turned off.

DIMMER — To dim the display panel.

MUTING — To mute the sound.

- Press the button to activate.
- Press again to cancel.

10 Information on Disc and MP3

NOTE on CDs

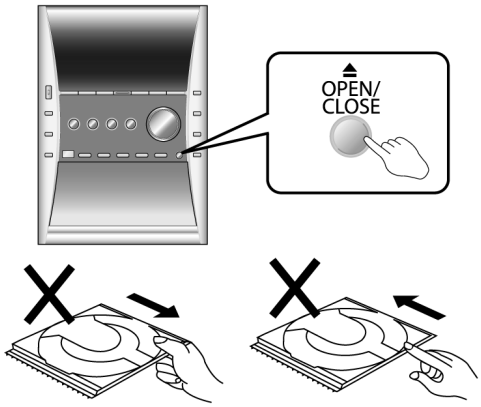
- This unit can access up to 99 tracks.
- Choose CD with this mark.

COMPACT disc DIGITAL AUDIO

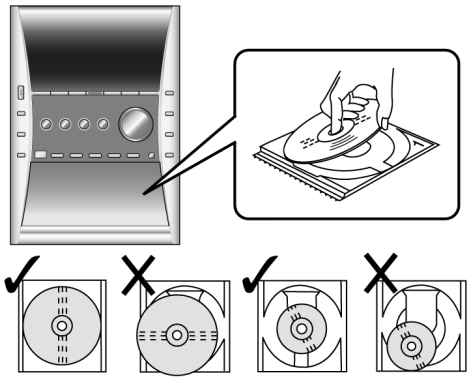
- This unit can play MP3 files and CD-DA format audio CD-R/RW that have been finalized.
- It may not be able to play some CD-R/RW due to the condition of the recording.
- Do not use irregular shaped disc.
- Do not use disc with labels and stickers that are coming off or with adhesive exuding from under labels and stickers.
- Do not attach extra labels or stickers on the disc.
- Do not write anything on the CD.

Not doing the following will cause damage to the unit.

- "**GOOD BYE**" is displayed when the unit turns off. Remove the power plug after this display disappears.



- Always press [⏏ OPEN/CLOSE] to insert or remove a disc.
- Do not push or pull out the tray by hand as this will cause an accident.



- Place the disc label-up in the center of tray.
- Insert only one disc into each tray.

NOTE on MP3

- When "NOT MP3/ERROR1" appears on the display, an unsupported MP3 format is being played. The unit will skip that track and play the next one.
- Files are treated as tracks and folders are treated as albums.
- This unit can access up to 999 tracks, 255 albums and 20 sessions.
- Disc must conform to ISO9660 level 1 or 2 (except for extended formats).
- To play in a certain order, prefix the folder and file names with 3-digits numbers in the order you want to play them.

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

11 Assembling and Disassembling

“ATTENTION SERVICER”

Some chassis components may be have sharp edges. Be careful when disassembly and servicing.

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.

Warning:

This product uses a laser diode. Refer to “Precaution of Laser Diode”.

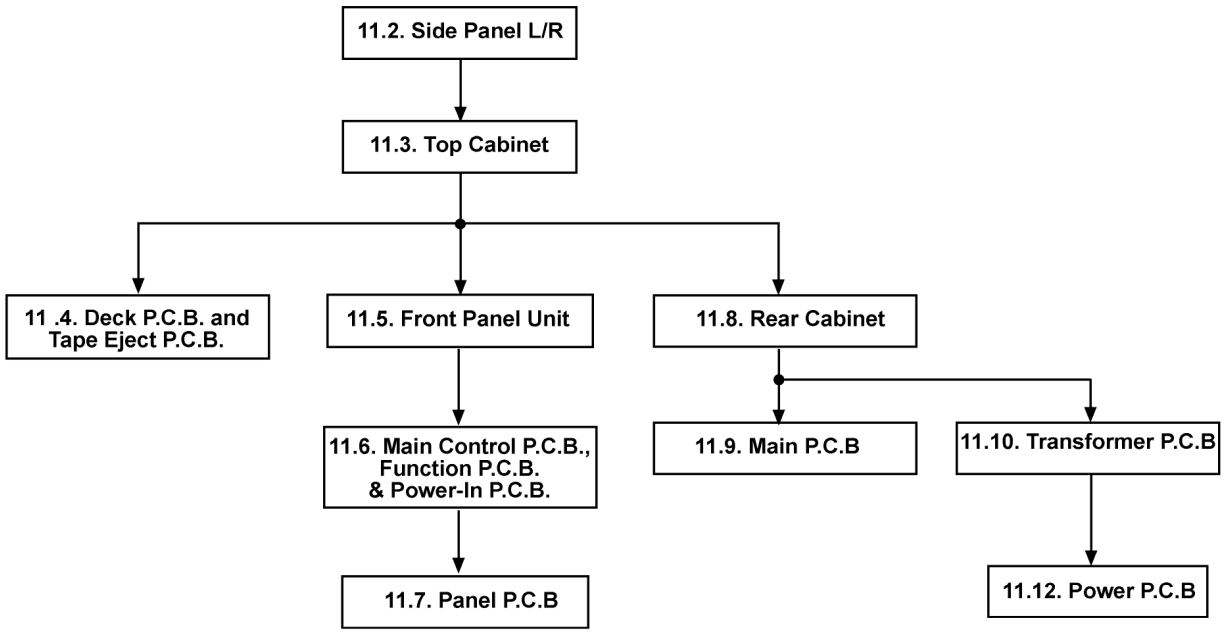
ACHTUNG:

Die Lasereinheit nicht zerlegen.
Die Lasereinheit darf nur gegen eine vom Hertsteller spezifizierte Einheit ausgetauscht werden.

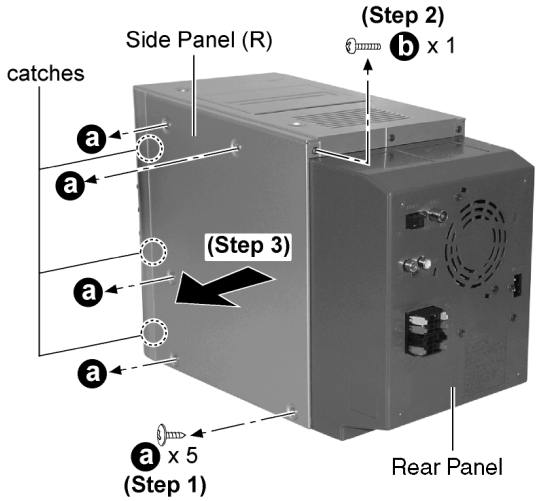
11.1. Disassembly flow chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart below.



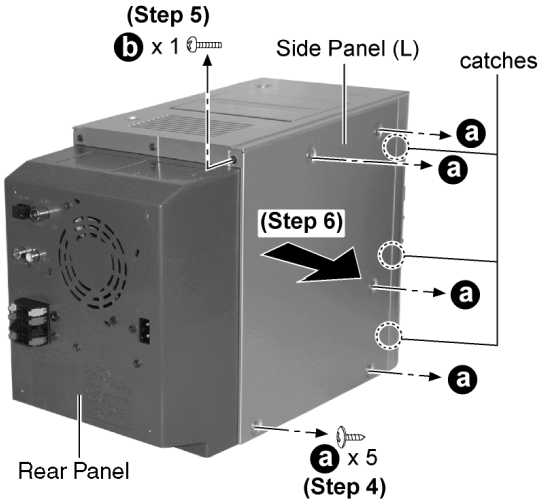
11.2. Disassembly of Side Panel L & R



Step 1 : Remove 5 screws.

Step 2 : Remove 1 screw.

Step 3 : Remove the side panel as arrow shown (Be careful of the catches).



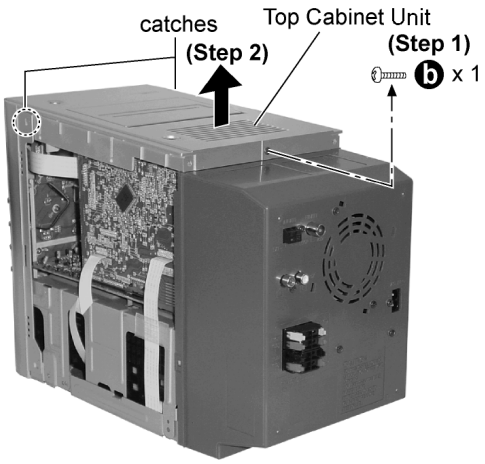
Step 4 : Remove 5 screws.

Step 5 : Remove 1 screw.

Step 6 : Remove the side panel as arrow shown (Be careful of the catches).

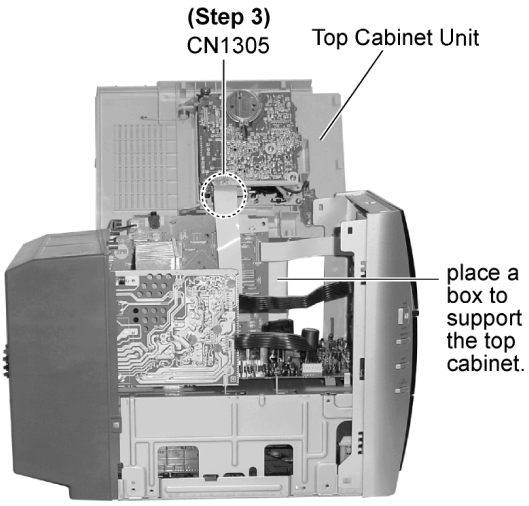
11.3. Disassembly of Top Cabinet Unit

・Follow the (Step 1) - (Step 6) of Item 11.2.



Step 1 : Remove 1 screw.

Step 2 : Lift up the top cabinet as arrow shown (Be careful of the catches).

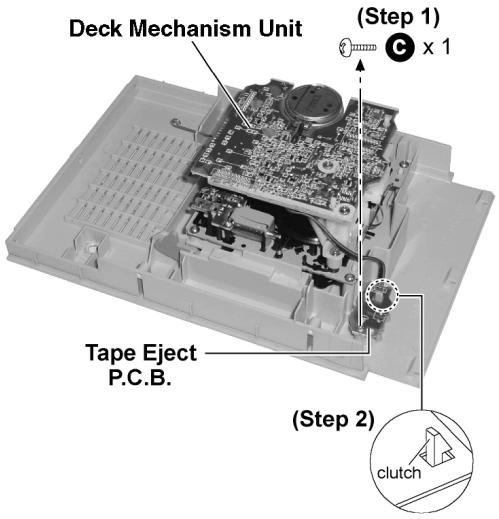


Step 3 : Place the top cabinet as shown and detach connector CN1305.

11.4. Disassembly of Deck P.C.B. and Tape Eject P.C.B.

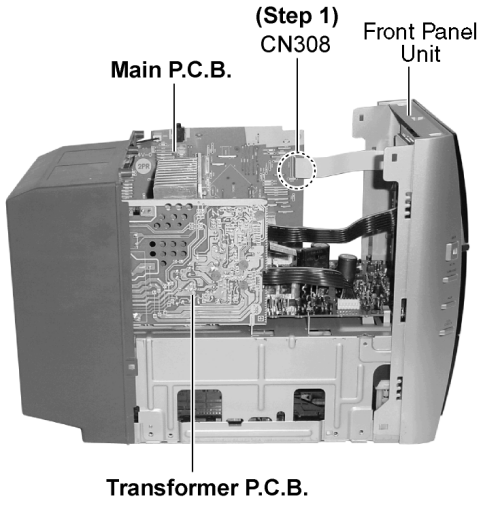
・Follow the (Step 1) - (Step 6) of Item 11.2.

・Follow the (Step 1) - (Step 3) of Item 11.3.

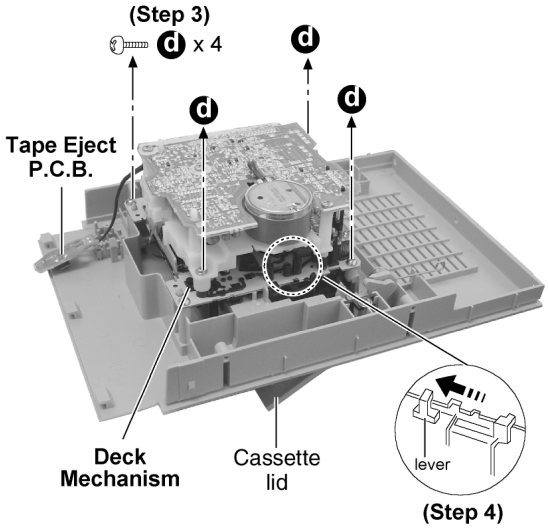


Step 1 : Remove 1 screw.

Step 2 : Release the clutch.

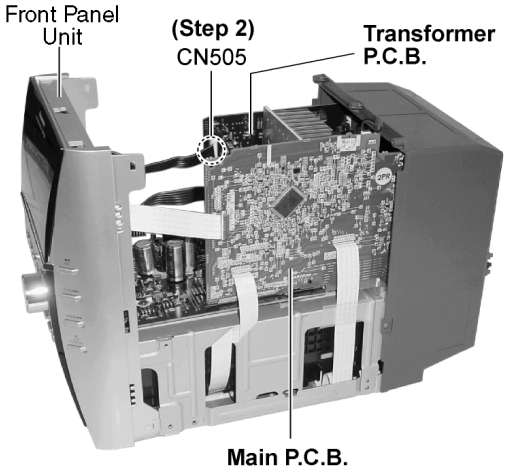


Step 1 : Detach the connector CN308.



Step 3 : Remove 4 screws.

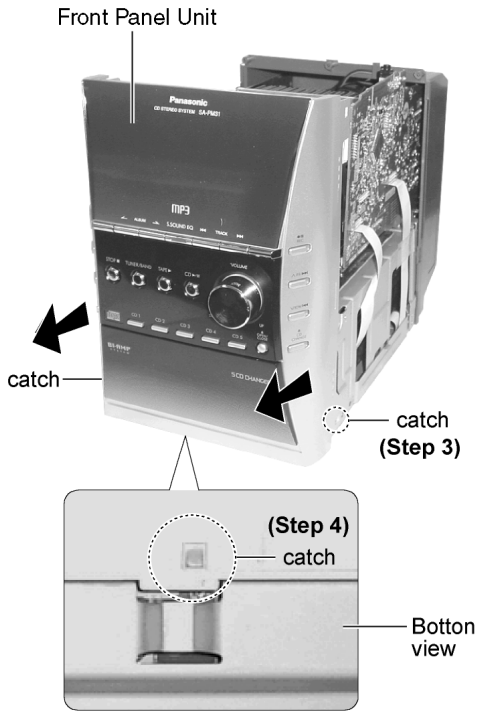
Step 4 : Push the lever as arrow shown to open the cassette lid and remove the Deck Mechanism Unit.



Step 2 : Detach the connector CN505.

11.5. Disassembly of Front Panel Unit

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.



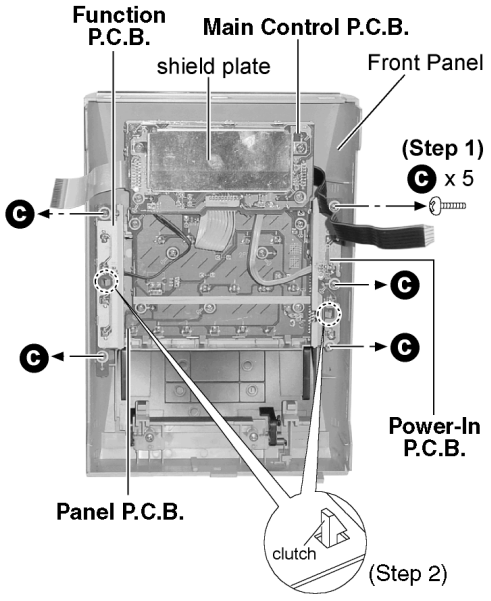
Step 3 : Release 2 catches.

Step 4 : Release the catch at the bottom cabinet and remove the front panel unit as arrows shown.

11.6. Disassembly of Main Control P.C.B., Function P.C.B. and Power-In P.C.B.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.

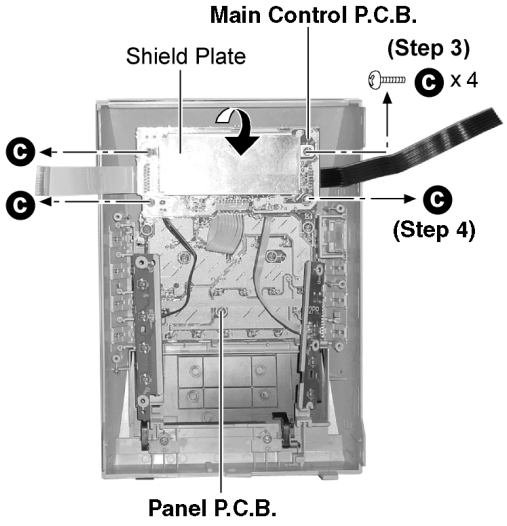
- Disassembly of Function P.C.B. and Power-In P.C.B.



Step 1 : Remove 5 screws.

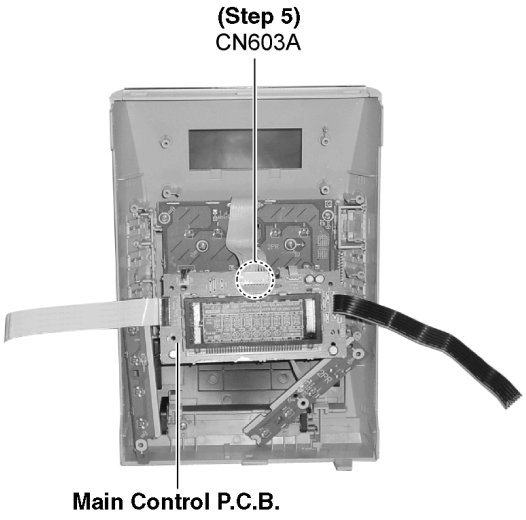
Step 2 : Release 2 clutches and remove both Function P.C.B. and Power-In P.C.B.

- Disassembly of Main Control P.C.B.



Step 3 : Remove 2 screws to remove the shield plate.

Step 4 : Remove 2 screws and flip the Main Control P.C.B. as arrow shown.

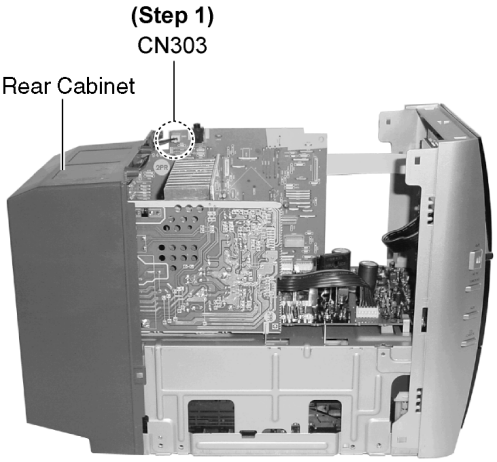


Step 5 : Detach the connector CN603A.

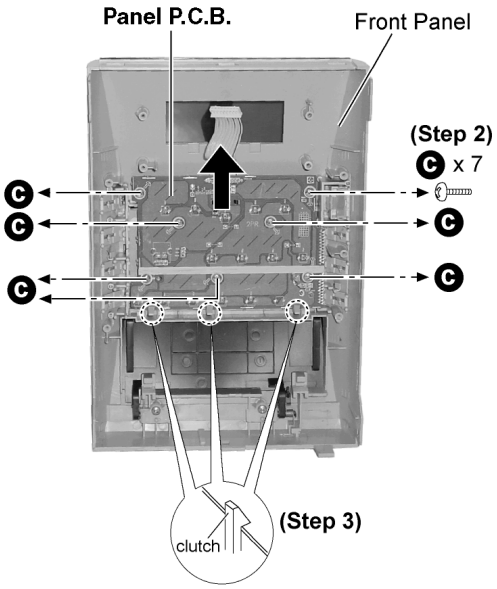
11.7. Disassembly of Panel P.C.B.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.6.

Step 1 : Remove the volume knob.



Step 1 : Detach the connector CN303.

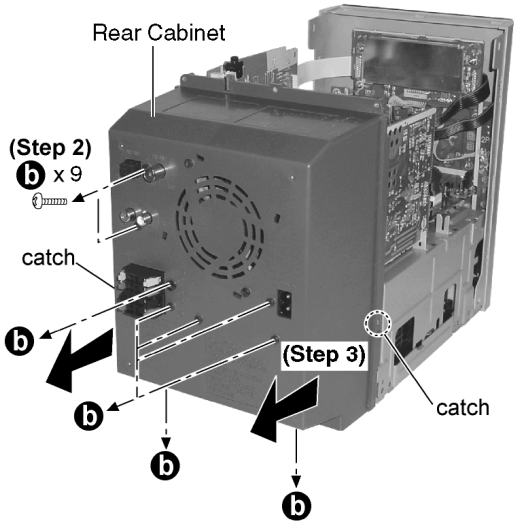


Step 2 : Remove 7 screws.

Step 3 : Release 3 clutches and remove the Panel P.C.B. as arrow shown.

11.8. Disassembly of Rear Cabinet

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.

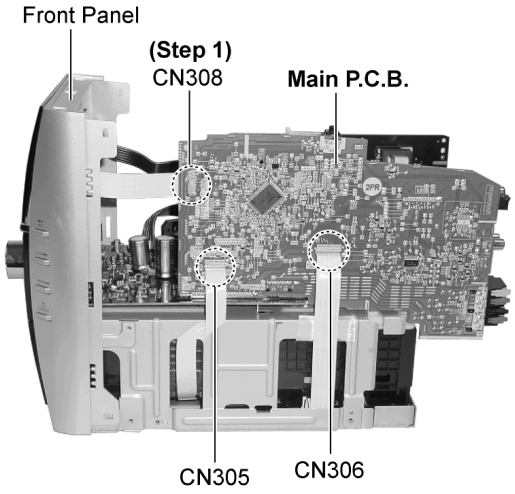


Step 2 : Remove 9 screws.

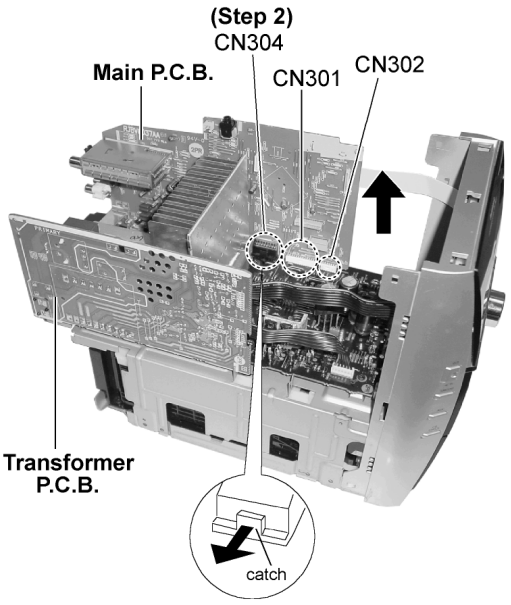
Step 3: Remove the rear cabinet as arrows shown (Be careful of the catches).

11.9. Disassembly of Main P.C.B.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 3) of Item 11.8.



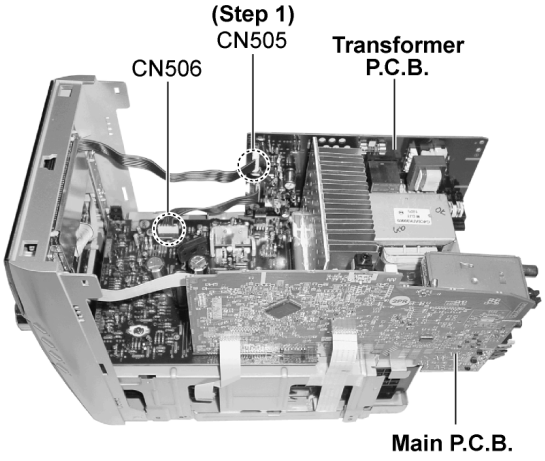
Step 1 : Detach connectors CN308, CN305 and CN306 .



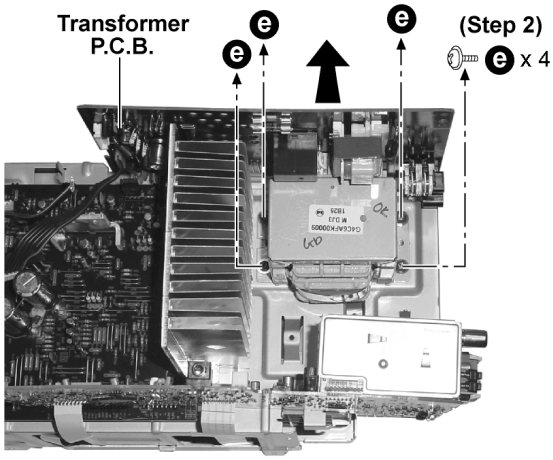
Step 2 : Detach the connectors CN304 (pull the catch as arrow shown), CN301 and CN302 and pull out the Main P.C.B as arrow shown.

11.10. Disassembly of Transformer P.C.B.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 3) of Item 11.8.



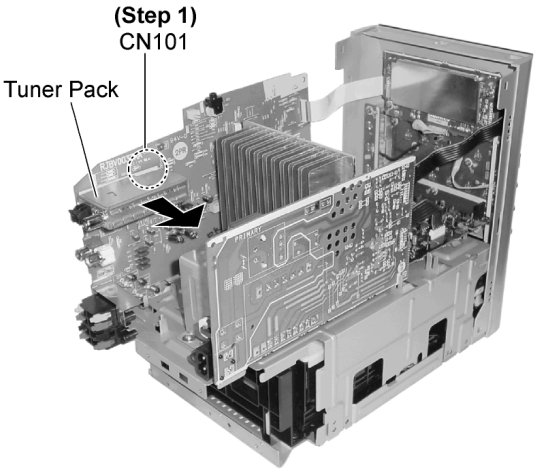
Step 1 : Detach the connectors CN505 and CN506.



Step 2 : Remove 4 screws and pull out the Transformer P.C.B. as arrow shown.

11.11. Disassembly of Tuner Pack

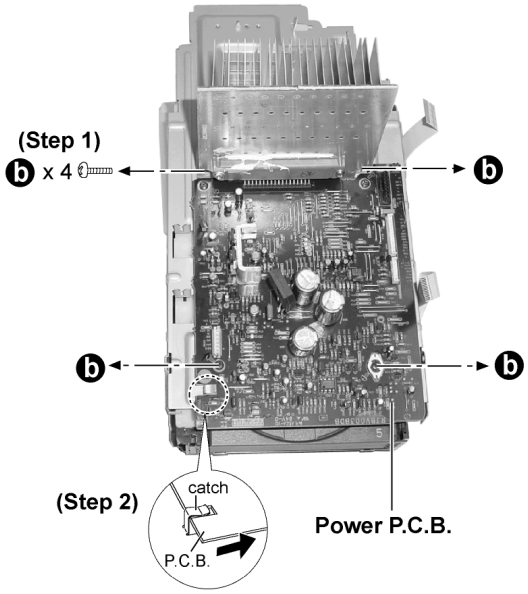
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 3) of Item 11.8.



Step 1 : Detach the connector CN101 and remove the tuner pack as arrow shown.

11.12. Disassembly of Power P.C.B

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 3) of Item 11.8.
- Follow the (Step 1) - (Step 2) of Item 11.9.
- Follow the (Step 1) - (Step 2) of Item 11.10.



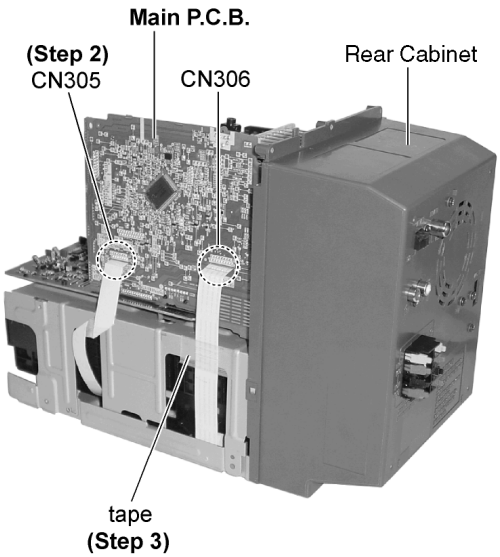
Step 1 : Remove 4 screws.

Step 2 : Remove the Power P.C.B. as arrow shown (be careful of the catch).

11.13. Disassembly of CR16 Mechanism

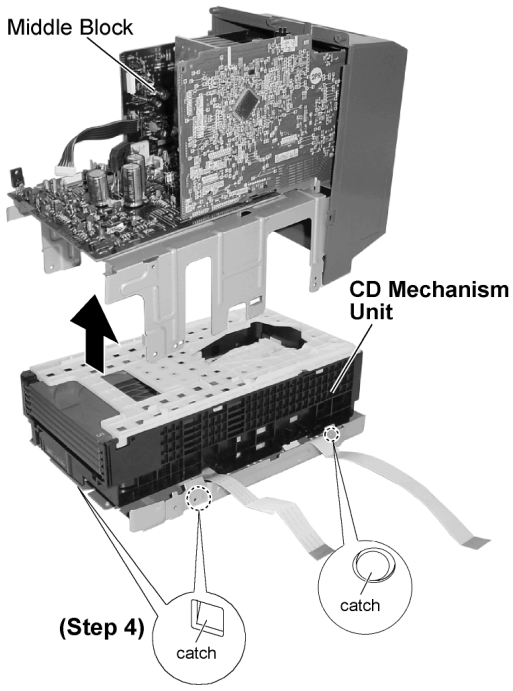
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.

Step 1 : Remove 2 screws.

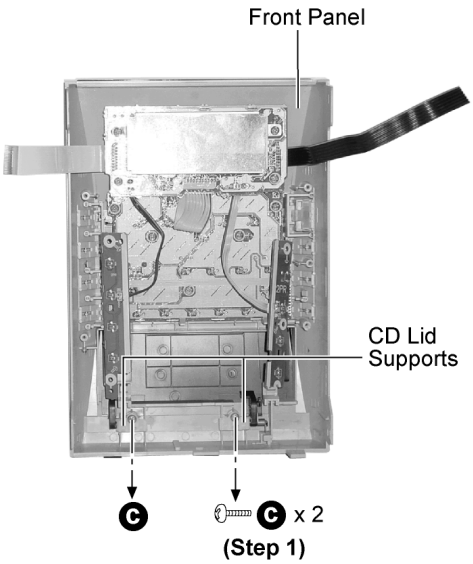


Step 2 : Detach the connectors CN305 and CN306.

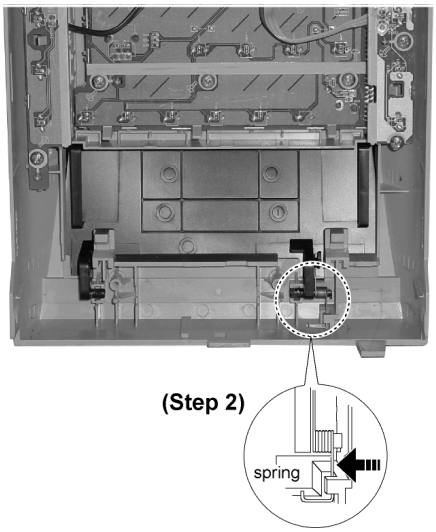
Step 3 : Remove the tape which used to secure the FFC connectors.



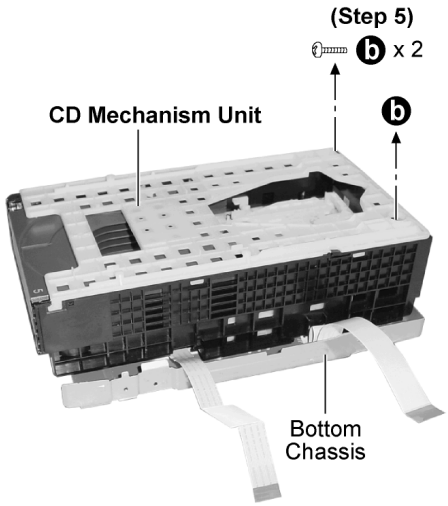
Step 4 : Release the catches and remove the middle block as arrow shown.



Step 1 : Remove 2 screws and the 2 CD lid supports.



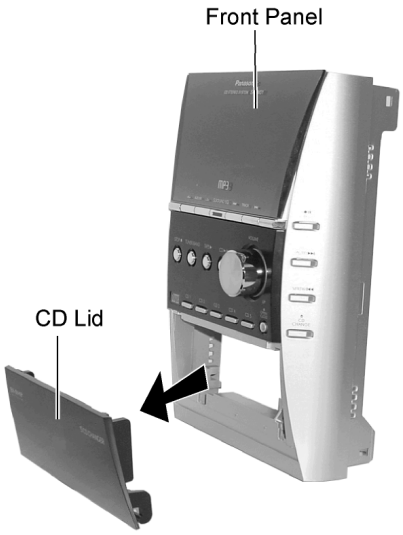
Step 2 : Push the spring as arrow shown.



Step 5 : Remove 2 screws and remove the CD Mechanism Unit from the bottom chassis.

11.14. Replacement of CD Lid

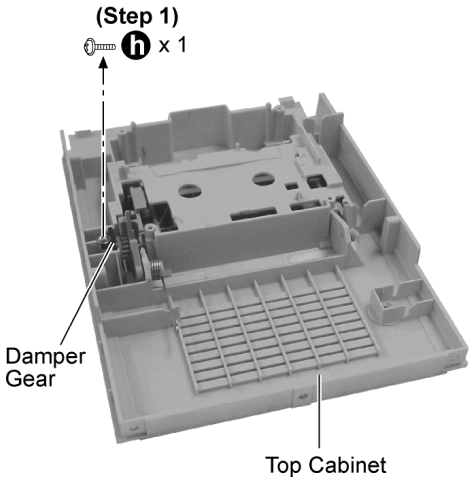
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.



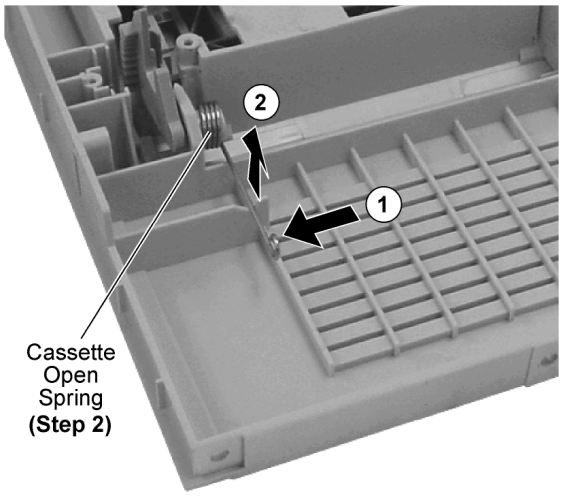
Step 3 : Remove the CD lid as arrow shown.

11.15. Replacement of Cassette Lid

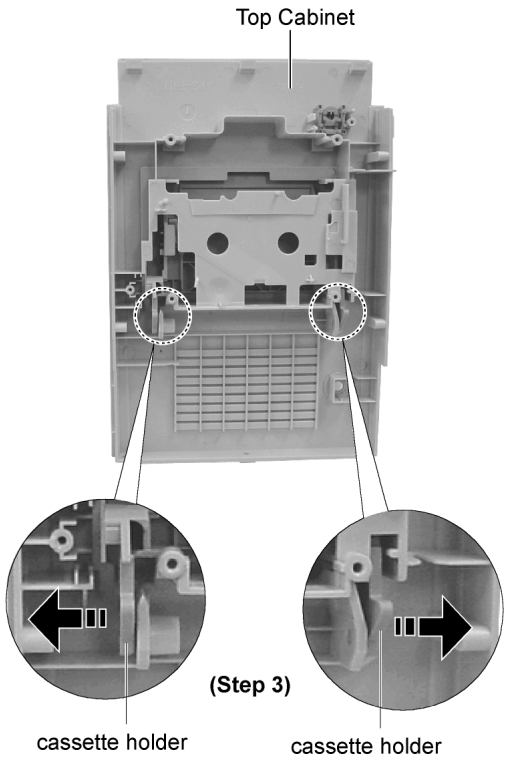
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.4.



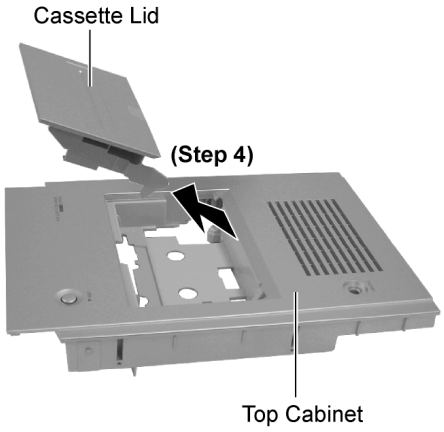
Step 1 : Remove 1 screw and the damper gear.



Step 2 : Remove the cassette open spring as arrows shown in order.



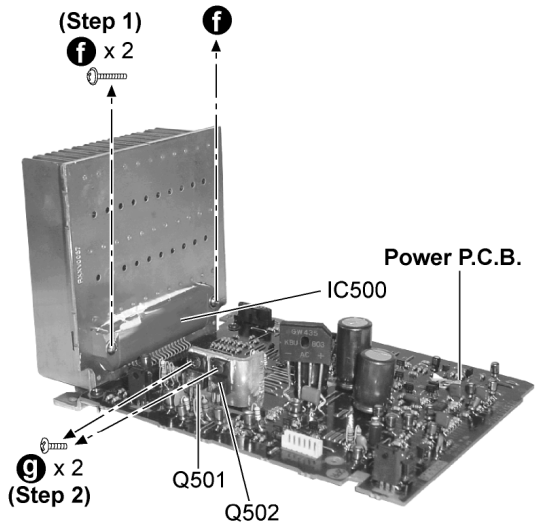
Step 3 : Pull both sides' cassette holders to the direction of the arrows shown.



Step 4 : Remove the cassette lid as arrow shown.

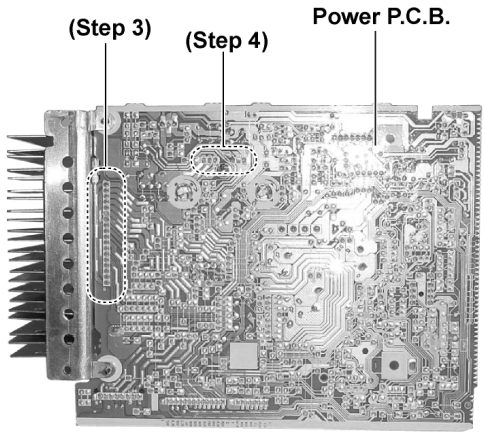
11.16. Replacement of the Power IC and Transistors.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 3) of Item 11.8.
- Follow the (Step 1) - (Step 2) of Item 11.9.
- Follow the (Step 1) - (Step 2) of Item 11.10.
- Follow the (Step 1) - (Step 2) of Item 11.12.



Step 1 : Remove 2 screws.

Step 2 : Remove 2 screws.



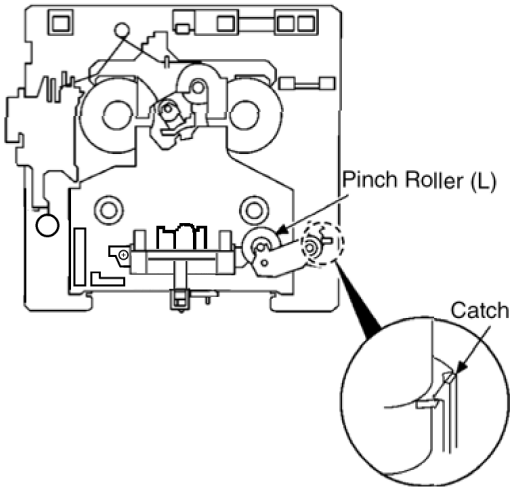
Step 3 : Unsolder the Power IC500.

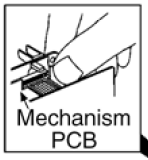
Step 4 : Unsolder the Transistors Q501 and Q502.

11.17. Procedure for Replacing Pinch Roller and Head Block (Cassette Mechanism Unit)

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.4.

Step 1
Release catches to remove the pinch rollers (L).

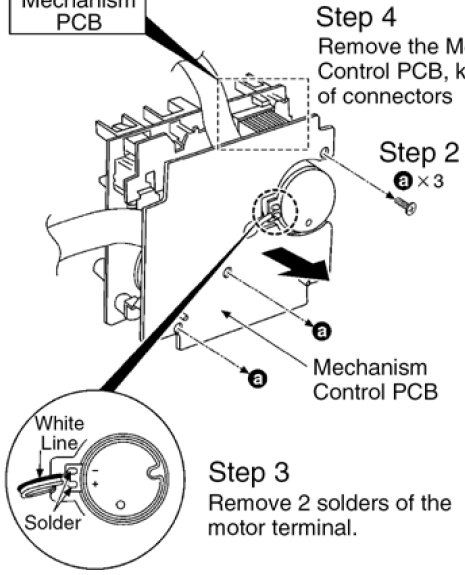




Note:
Support the Mechanism PCB by hand to remove the Mechanism Control PCB.

Step 4
Remove the Mechanism Control PCB, keeping track of connectors

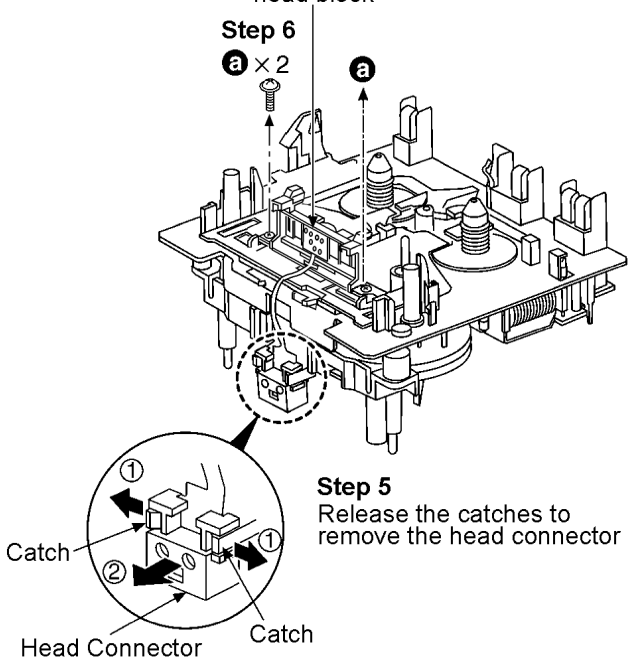
Step 2
ⓐ×3



Step 3
Remove 2 solders of the motor terminal.

Step 7
Remove the head block

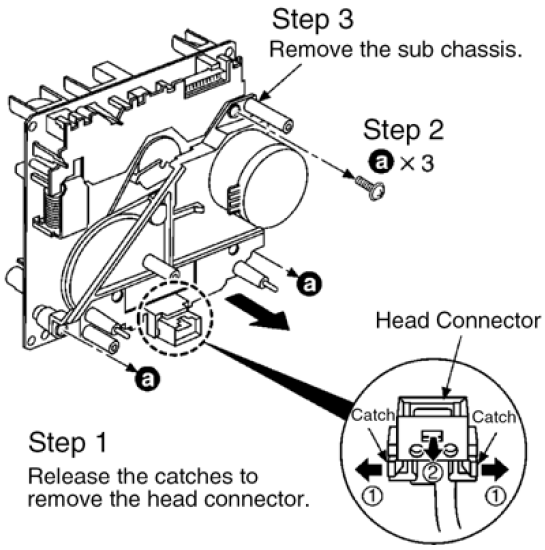
Step 6
ⓐ×2

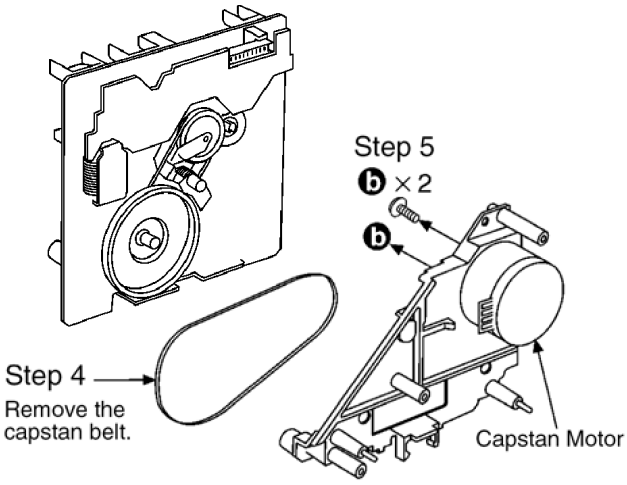


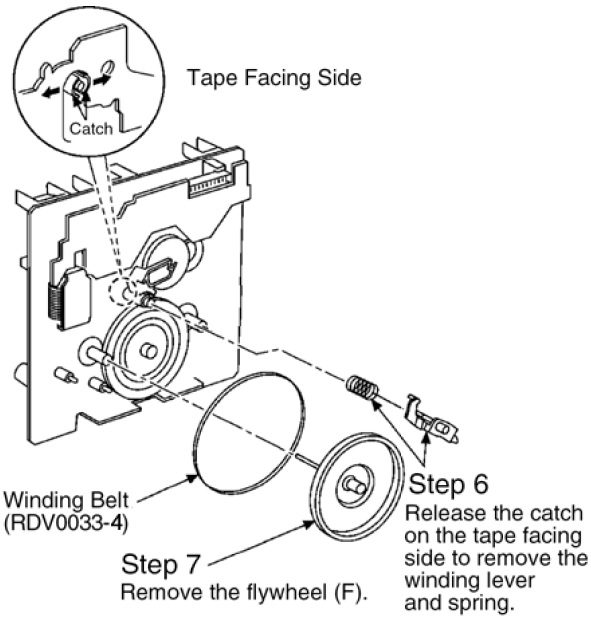
Step 5
Release the catches to remove the head connector

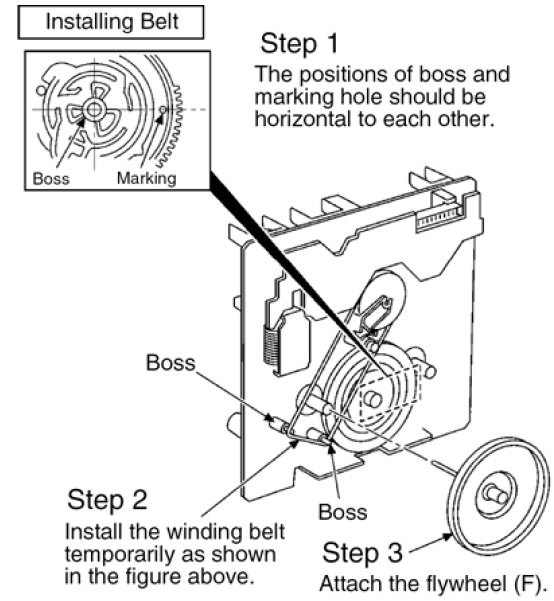
11.18. Procedure for Replacing Motor, Capstan Belt A, Capstan Belt B, and Winding Belt (Cassette Mechanism Unit)

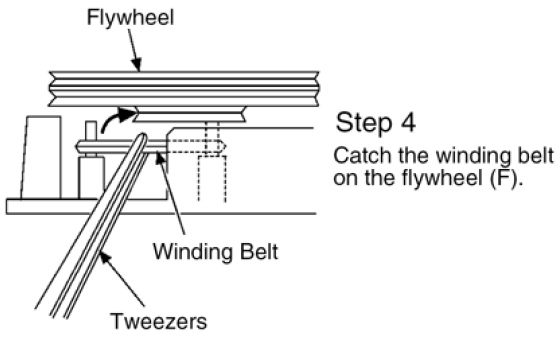
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.4.
- Follow the (Step 1) - (Step 4) of Item 11.17.

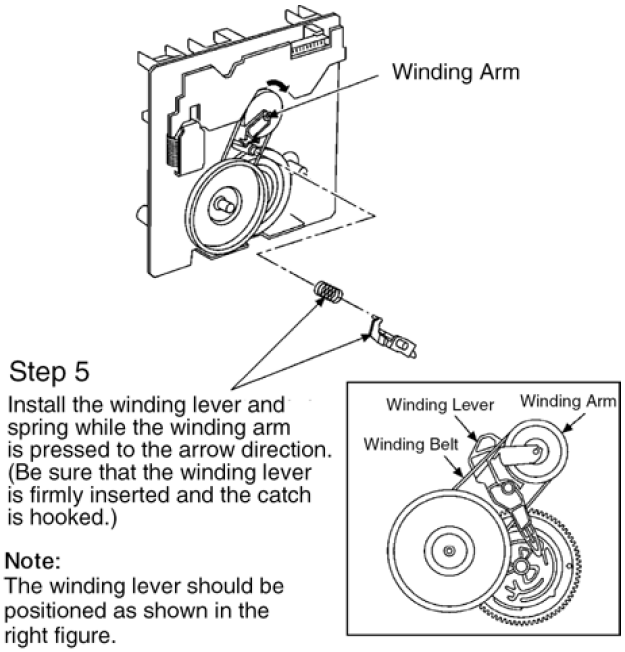

Step 3
Remove the sub chassis.
Step 2
ⓐ × 3
ⓐ
ⓐ
Head Connector
Catch
Catch
Step 1
Release the catches to remove the head connector.


Step 5
ⓑ × 2
ⓑ
Step 4
Remove the capstan belt.
Capstan Motor

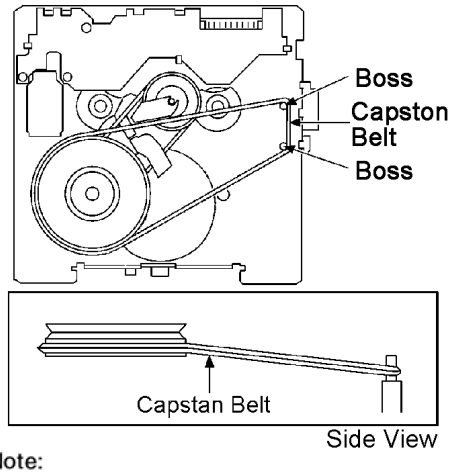

Tape Facing Side
Catch
Winding Belt
(RDV0033-4)
Step 6
Release the catch on the tape facing side to remove the winding lever and spring.
Step 7
Remove the flywheel (F).


Installing Belt
Boss
Marking
Step 1
The positions of boss and marking hole should be horizontal to each other.
Boss
Step 2
Install the winding belt temporarily as shown in the figure above.
Boss
Step 3
Attach the flywheel (F).


Flywheel
Step 4
Catch the winding belt on the flywheel (F).
Winding Belt
Tweezers


Winding Arm
Step 5
Install the winding lever and spring while the winding arm is pressed to the arrow direction. (Be sure that the winding lever is firmly inserted and the catch is hooked.)
Note:
The winding lever should be positioned as shown in the right figure.
Winding Lever
Winding Arm
Winding Belt

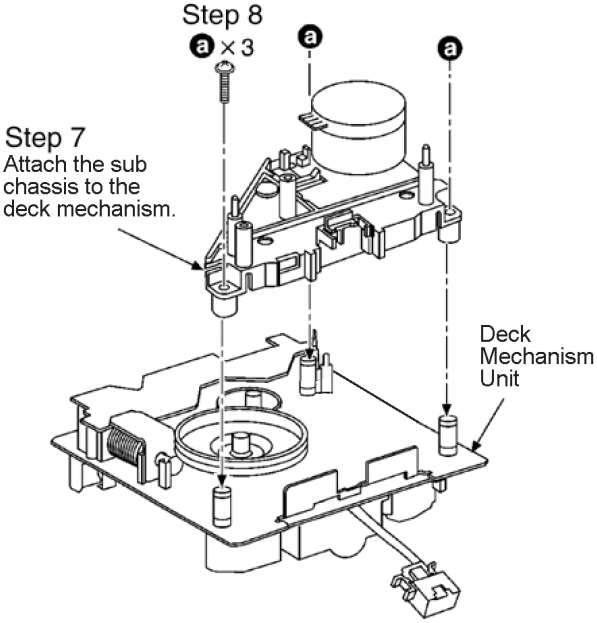
Step 6
Install the capstan belt temporarily as shown in the figure below.

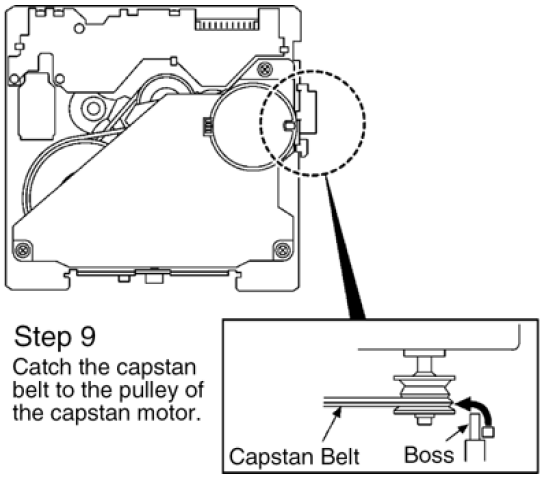


Note:
Keep the belt away from grease.

Step 8
ⓐ × 3

Step 7
Attach the sub chassis to the deck mechanism.

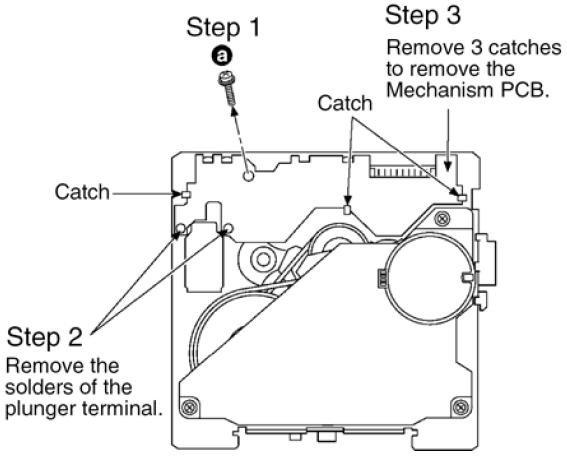




Step 9
Catch the capstan belt to the pulley of the capstan motor.

11.19. Procedure for Replacing Parts on Mechanism PCB

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.4.
- Follow the (Step 1) - (Step 5) of Item 11.17.

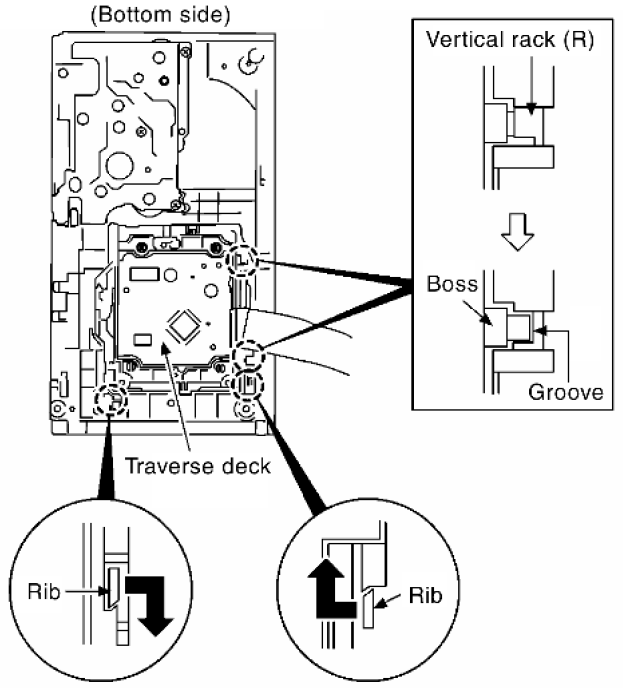


11.20. Replacement of CD traverse deck

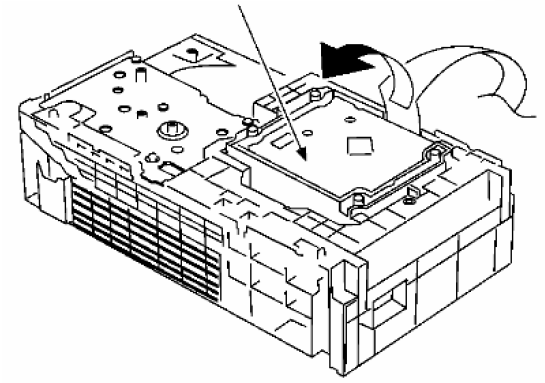
- Follow the (Step 1) - (Step 6) of Item 11.2.

- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.

Step 1
Move ribs at both sides to the arrow direction
(The vertical rack (R) slides and the groove opens)

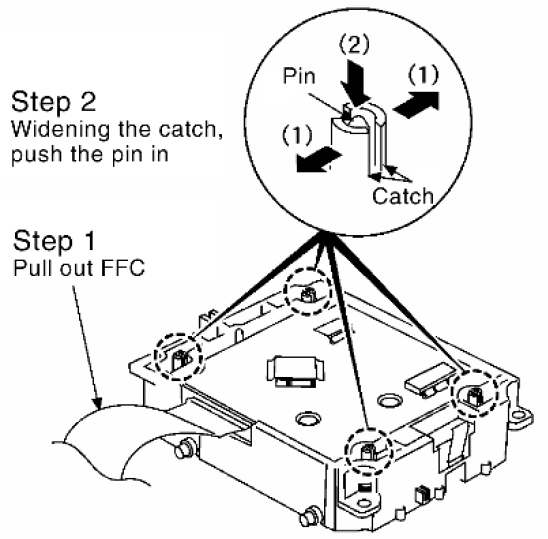


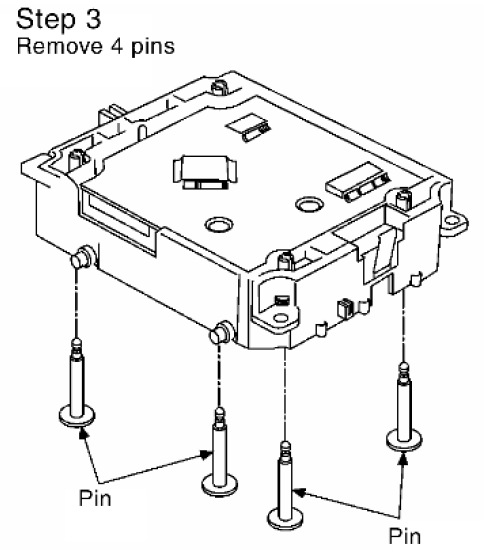
Step 2
Remove CD traverse deck rotating to
the arrow direction.

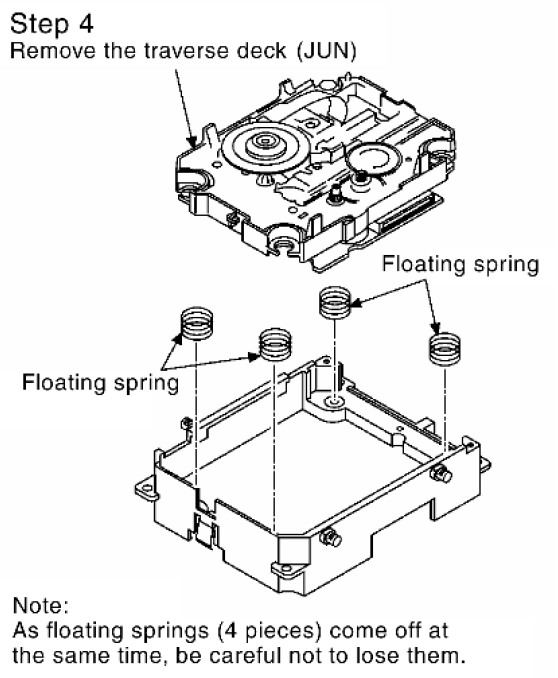


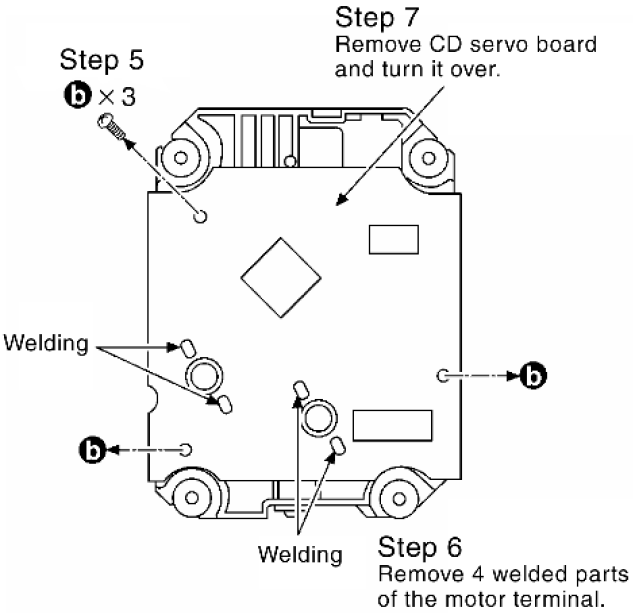
11.21. Replacement of optical pickup unit (CD mechanism)

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 2) of Item 11.20.

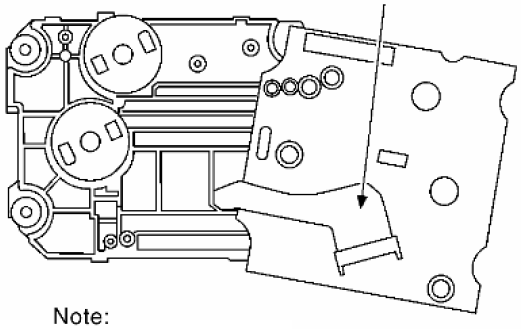




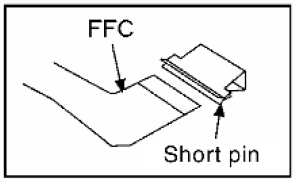


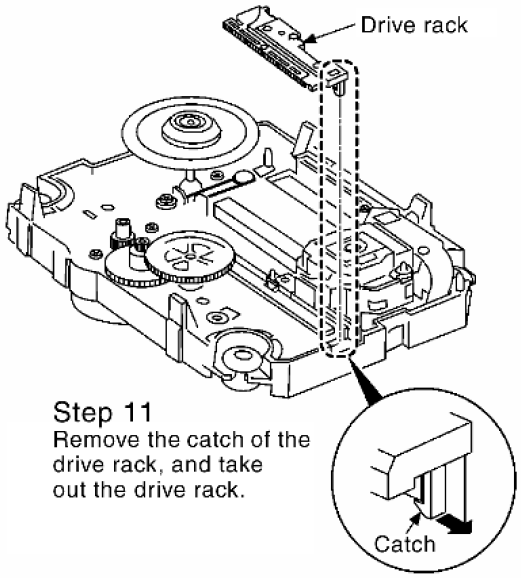


Step 8
Pull FFC out from the connector.



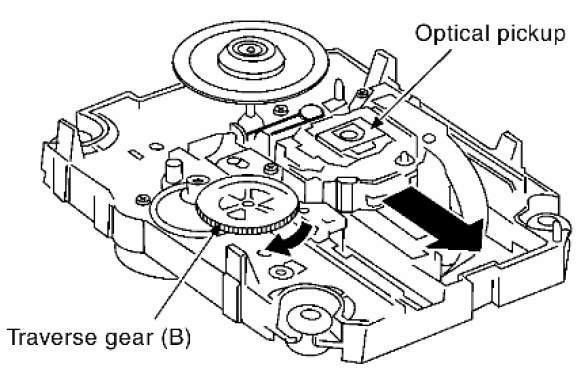
Note:
Insert a short pin into FFC of the optical pickup. [See "Notice on handling of the optical pickup"]

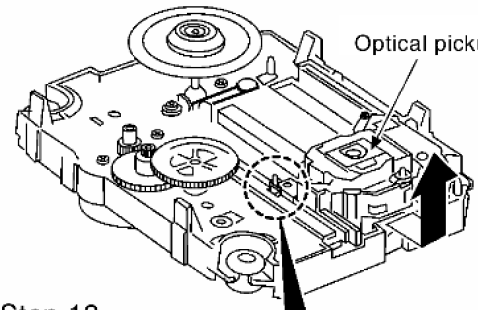




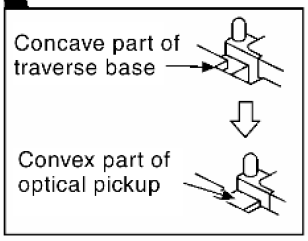
Step 11
Remove the catch of the drive rack, and take out the drive rack.

Step 9
Rotate the traverse deck (B) to the arrow direction and shift the optical pickup to the furthest backward.

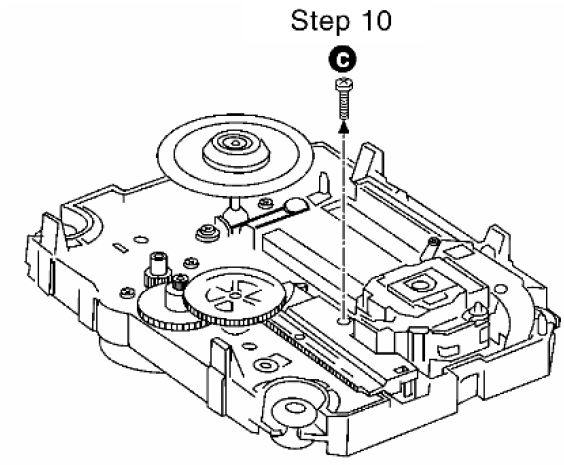


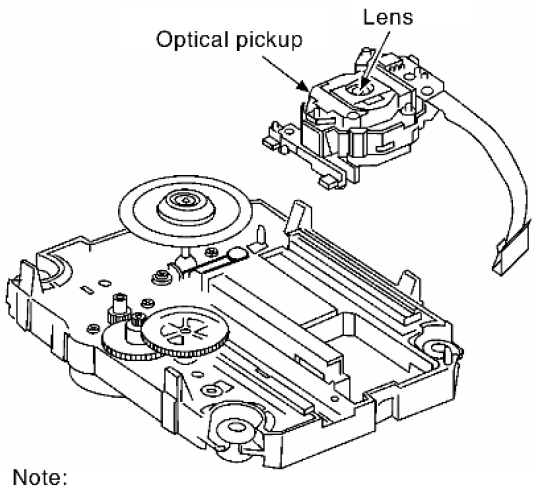


Step 12
Place the convex part of an optical pickup to the concave part of a traverse base, then take out the optical pickup.



Step 10





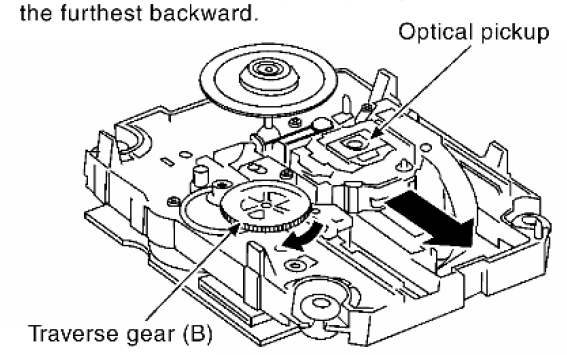
Note:
Do not touch the lens of the optical pickup

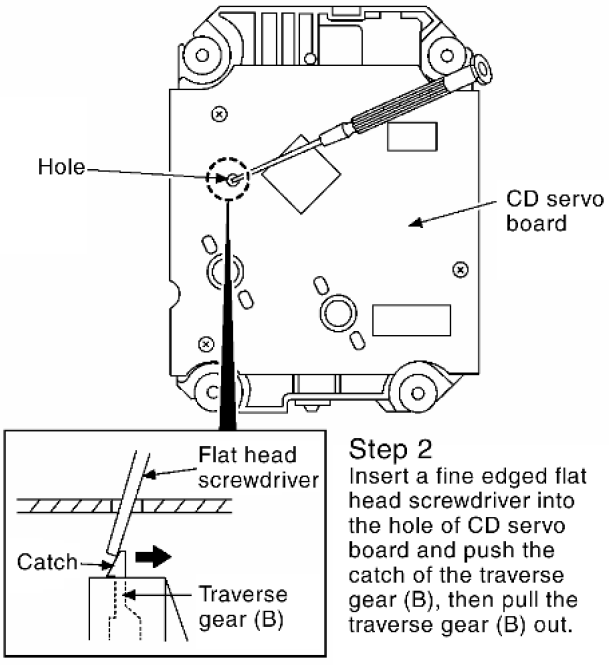
11.22. Replacement of a traverse gear A and a traverse gear B

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.

- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 2) of Item 11.20.
- Follow the (Step 1) - (Step 12) of Item 11.21.

Step 1
Rotate the traverse gear (B) to the arrow direction, and shift the optical pickup to the furthest backward.



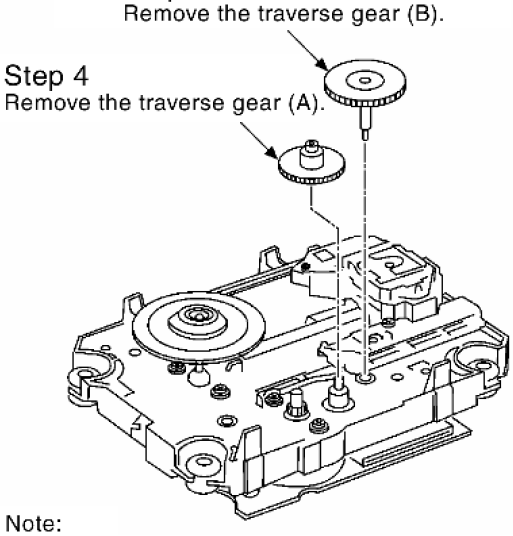


Step 2
Insert a fine edged flat head screwdriver into the hole of CD servo board and push the catch of the traverse gear (B), then pull the traverse gear (B) out.

Note:
Be careful not to break the hook of the traverse gear (B)

Step 3
Remove the traverse gear (B).

Step 4
Remove the traverse gear (A).



Note:
Do not use the removed traverse gear (B) anymore.
Surely replace with a new one.

11.23. Procedure for removing CD loading mechanism

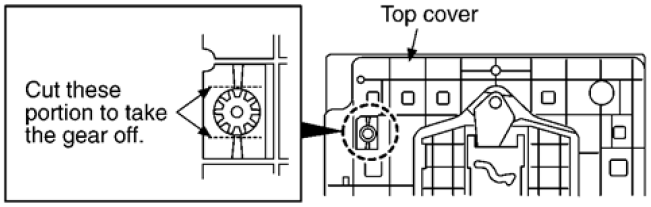
1. Turn off by pressing power SW in the body.
2. Unplug AC power cord after the indication of [GOOD-BYE], then disassemble the body.
3. Disassemble the body, and take out CD loading mechanism.
4. Perform disassembly according to the following procedure for disassembly.

11.24. CR16 mechanism disassembly procedure

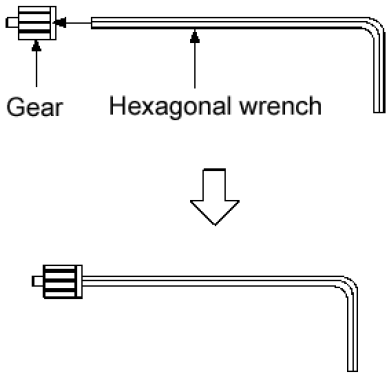
11.24.1. Gear for servicing information

- This unit has a gear which used for checking items (open/close of disc tray, up/down operation of traverse unit by manually) when servicing. (For gear information, that is described on the items for disassembly procedures.)
- For preparation of gear (for servicing), perform the procedures as follows.
- In case of re-servicing the same set, the “ gear for servicing” may be took off because it had been used. So, the “gear for servicing” must be stored.

1. Remove the gear attached to top cover of CD loading mechanism.



2. Insert the hexgonal wrench (2.5mm) into the gear.

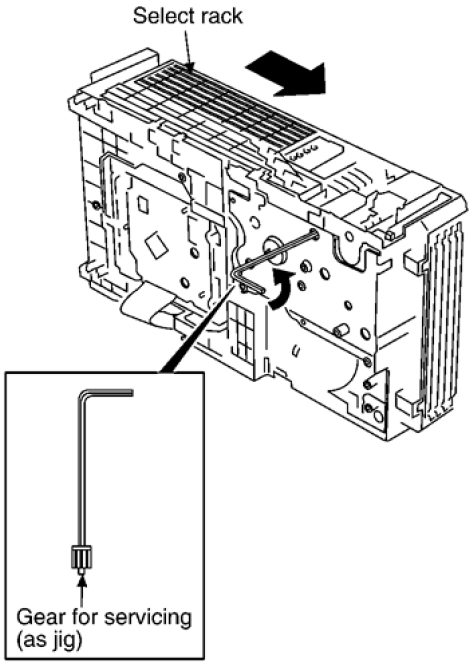


(Preparation of gear as jig is completed)

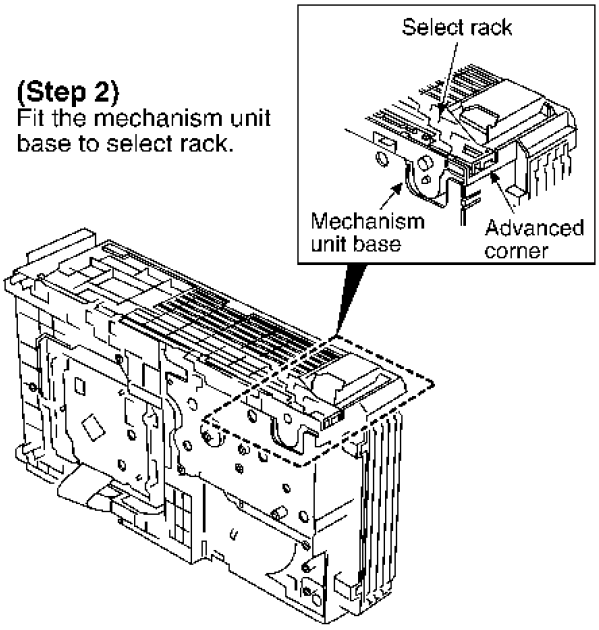
11.24.2. Replacement for the disc tray

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.

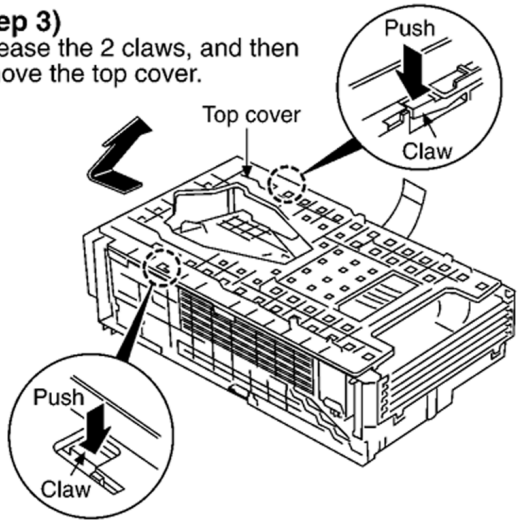
(Step 1)
Rotate the gear for servicing and move the select rack to advanced corner.



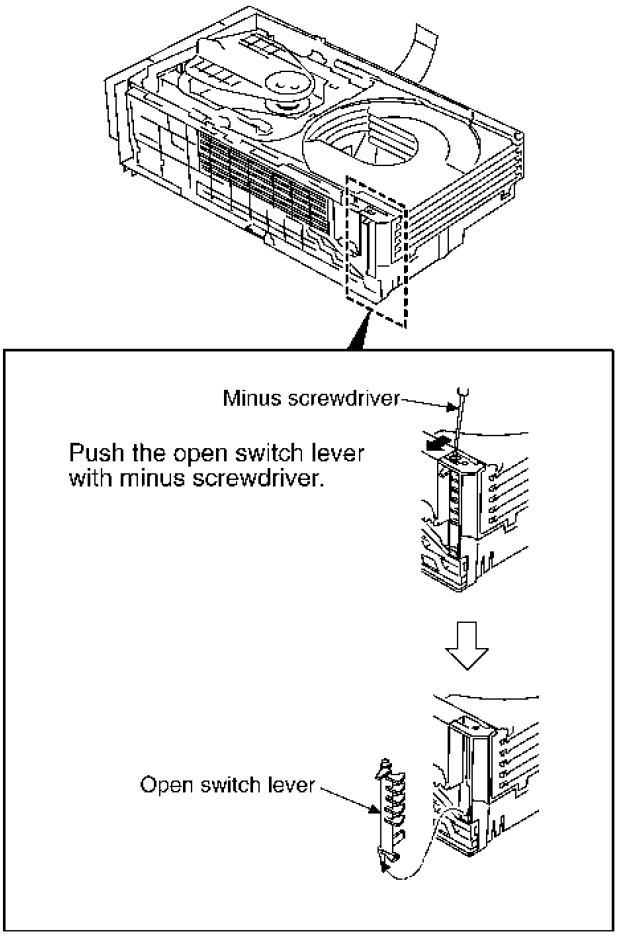
(Step 2)
Fit the mechanism unit base to select rack.



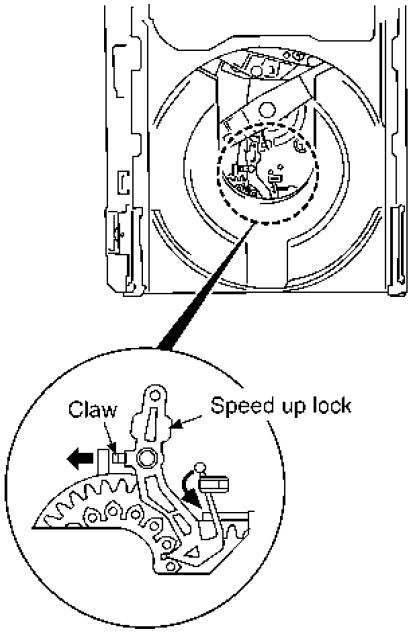
(Step 3)
Release the 2 claws, and then remove the top cover.



(Step 4)
Remove the open switch lever.



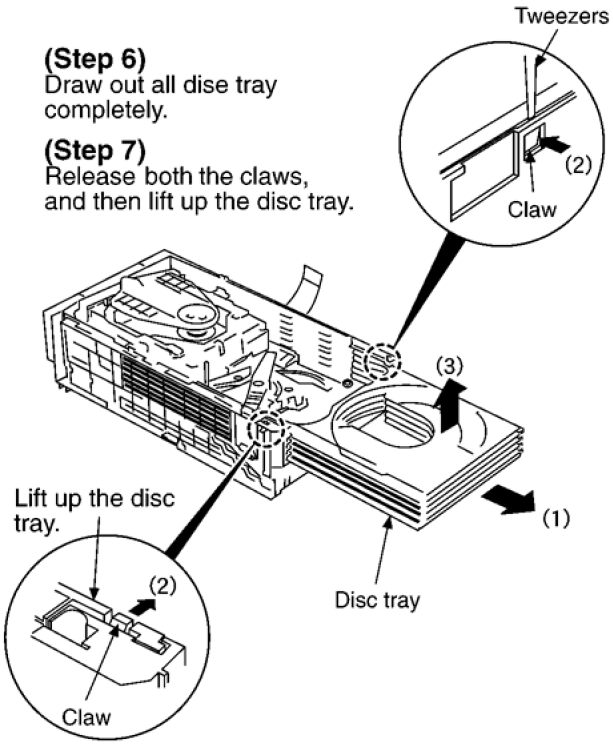
(Step 5)
Release the claw, and then remove the speed up lock.



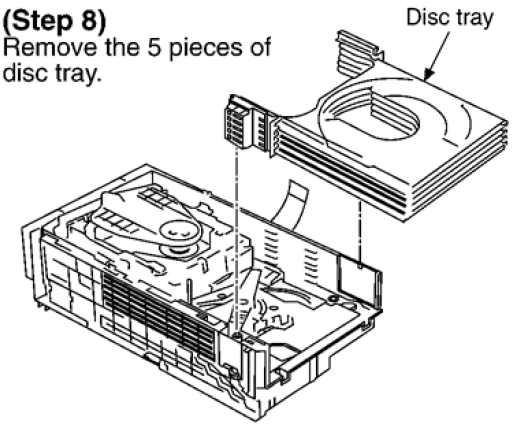
Insert the tweezers between the mechanism base and disc tray, and then lift up the disc tray.

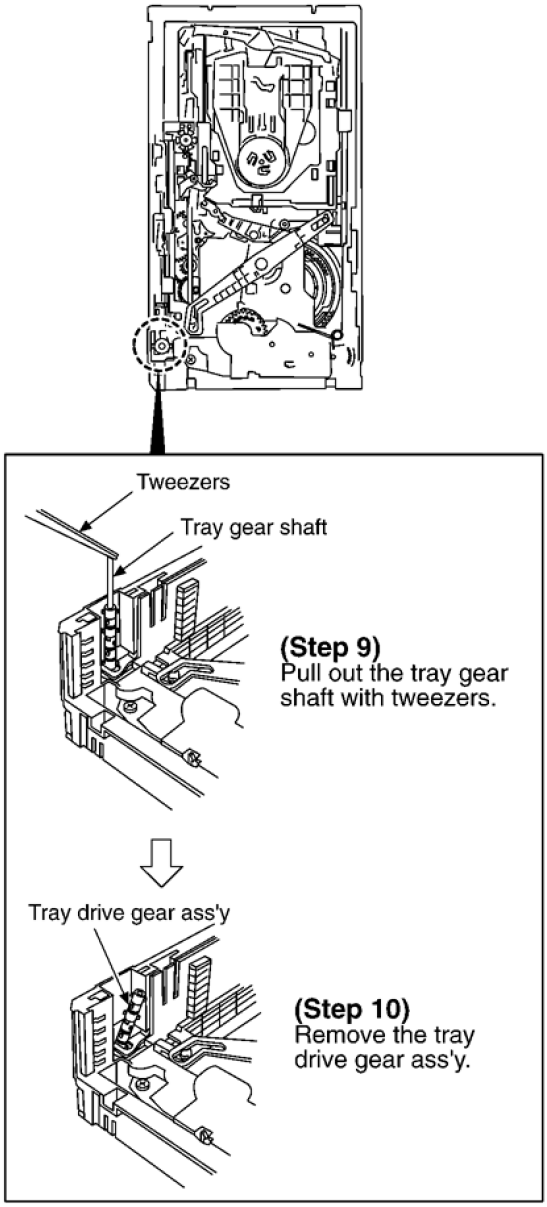
(Step 6)
Draw out all dise tray completely.

(Step 7)
Release both the claws, and then lift up the disc tray.



(Step 8)
Remove the 5 pieces of disc tray.



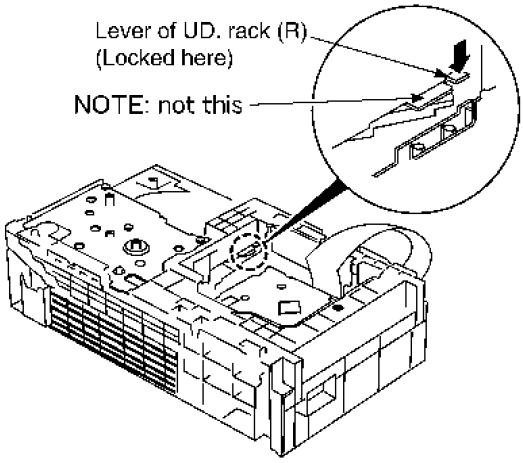


11.24.3. Replacement for the traverse deck

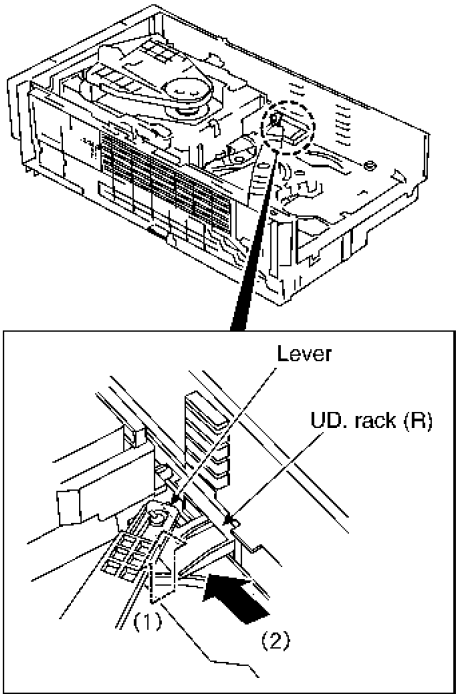
- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 10) of item 11.24.2.

(Step 1)
Confirm the position for lever of UD. rack (R) to remove traverse unit.

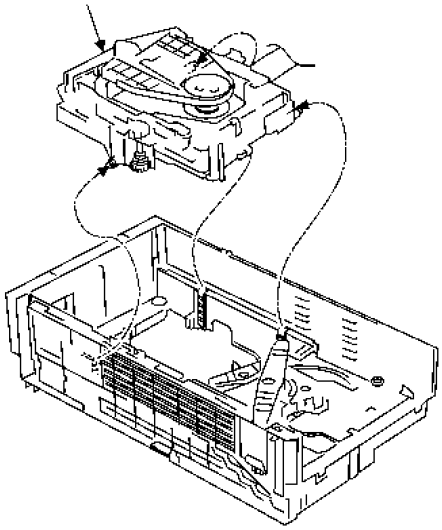
(Step 2)
Turn the unit over. (Upside: P.C.B.)



(Step 3)
Turn the unit over again, slide UD. rack (R) while pushing up the lever from the bottom.

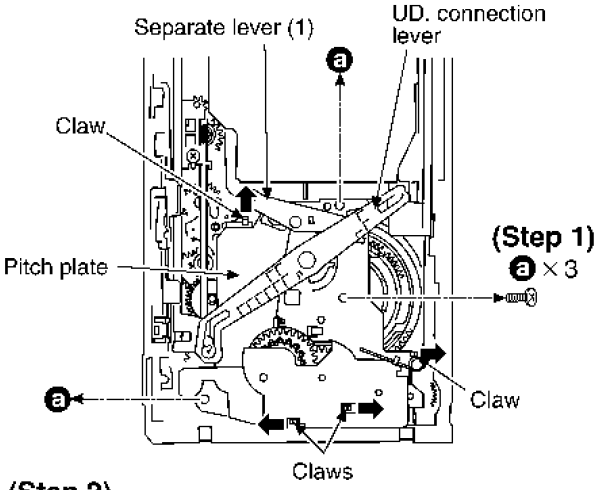


(Step 4)
Remove the traverse unit.



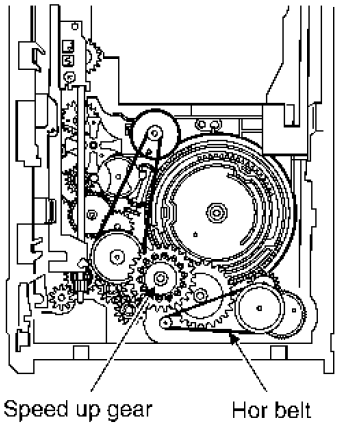
11.24.4. Disassembly for CD loading unit

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 10) of item 11.24.2.
- Follow the (Step 1) - (Step 4) of item 11.24.3.

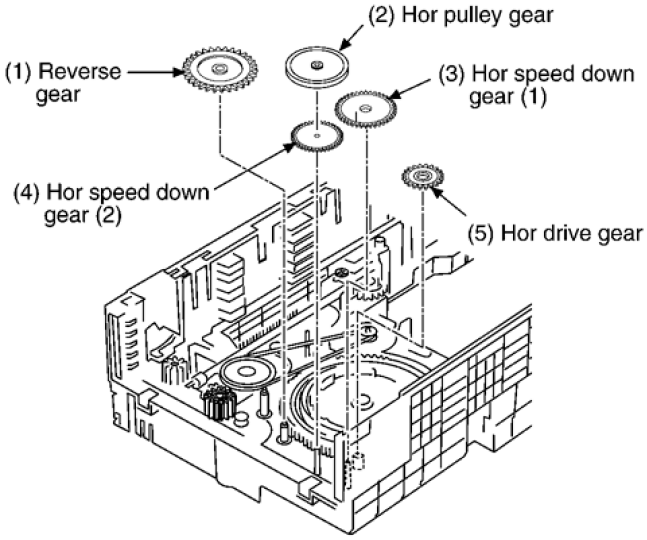


(Step 2)
Release the 4 claws, and then remove the pitch plate together with separate lever (1) and UD. connection lever.

(Step 3)
Remove the speed up gear and hor belt.

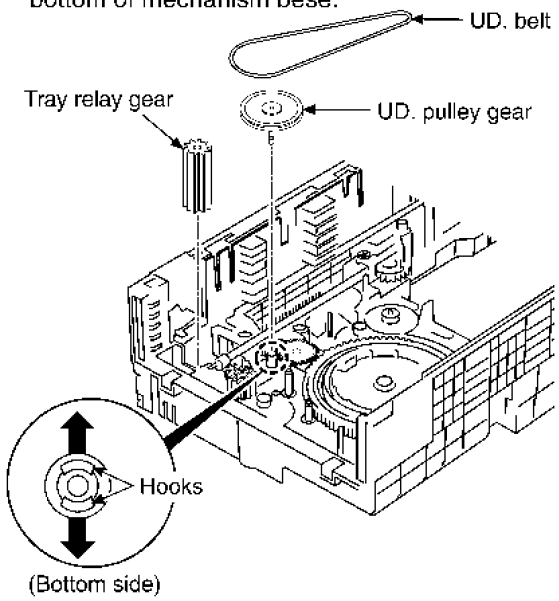


(Step 4)
Remove the reverse gear, hor pulley gear, hor speed down gear (1), hor speed down gear (2) and hor drive gear.

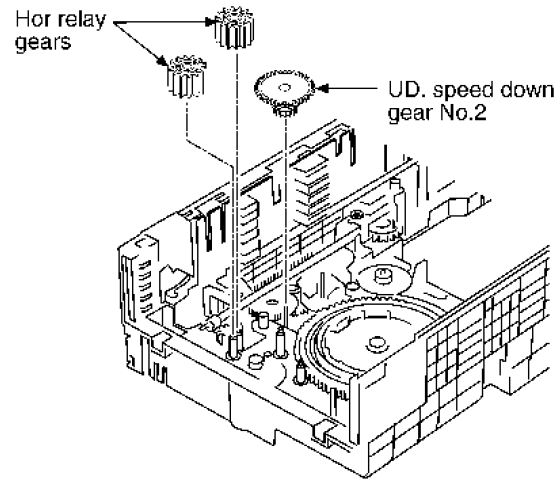


(Step 5)
Remove the UD. belt and tray relay gear.

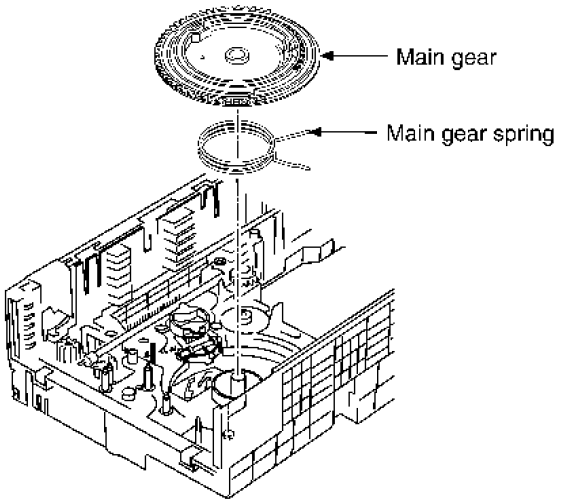
(Step 6)
Pull out the UD. pulley gear, loosen 2 hooks of the bottom of mechanism bese.



(Step 7)
Remove the 2 hor relay gears and UD. speed down gear No.2.

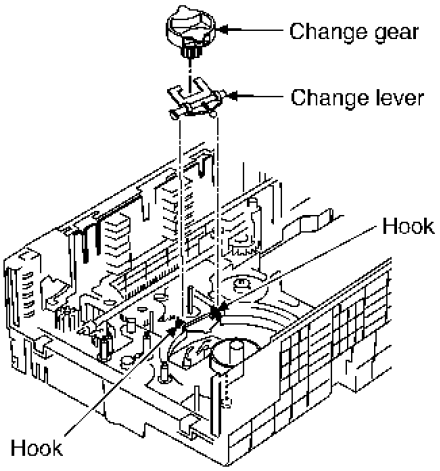


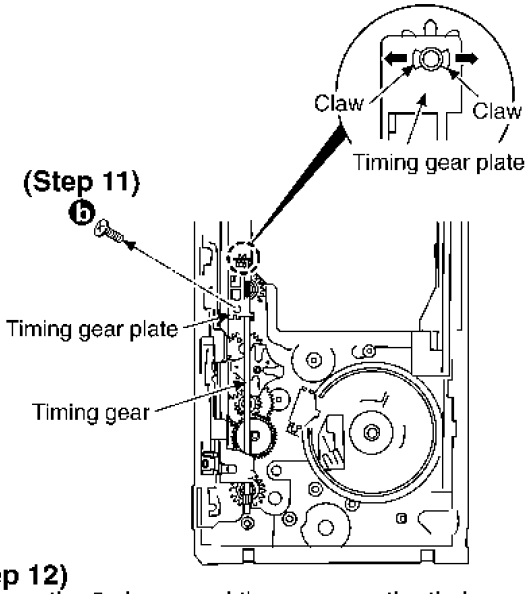
(Step 8)
Remove the main gear and main gear spring.



(Step 9)
Remove the change gear.

(Step 10)
Raise the change lever upright, and pull it out of hook.

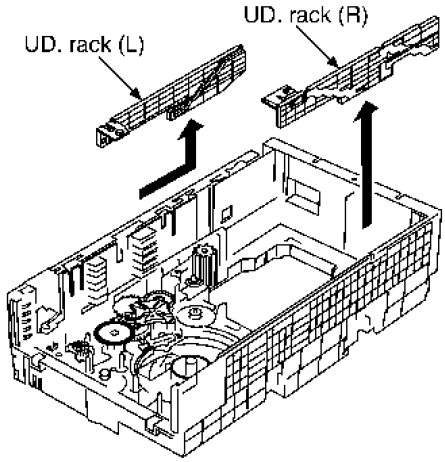




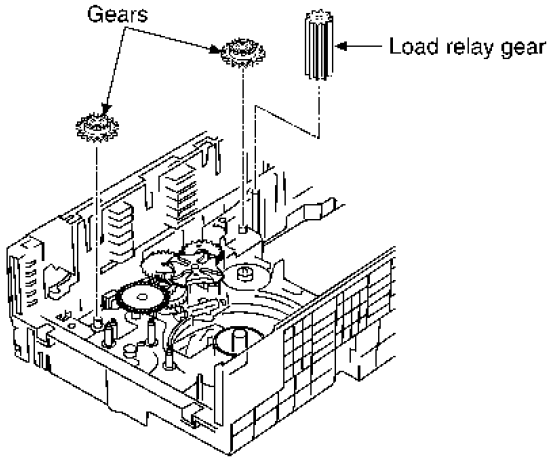
(Step 12)
Release the 2 claws, and then remove the timing gear and timing gear plate.

(Step 13)
Move the UD. rack (L) to backward, and then remove it.

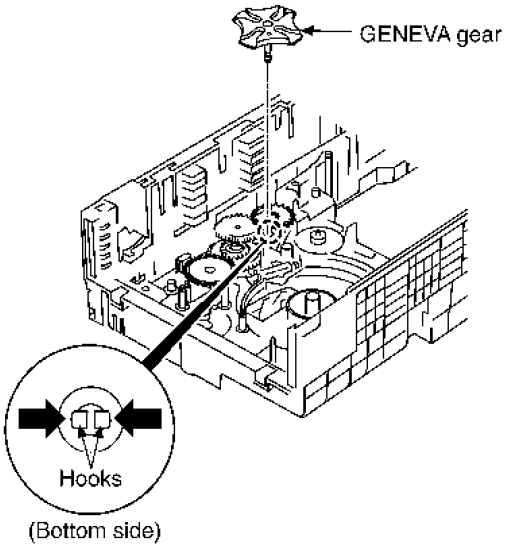
(Step 14)
Remove the UD. rack (R).



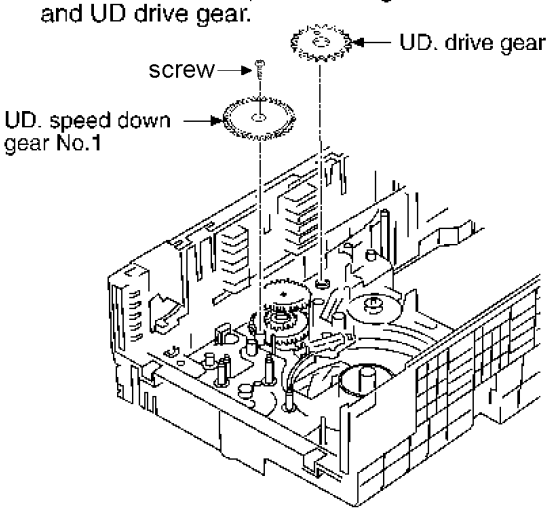
(Step 15)
Remove the 2 gears and load relay gear.



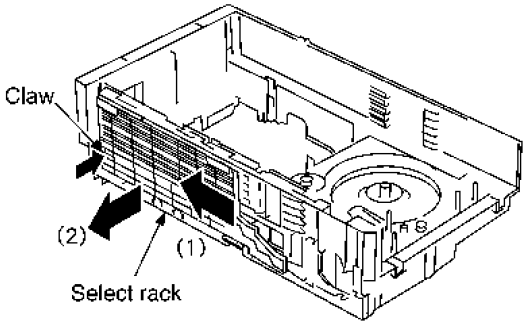
(Step 16)
Pull out the GENEVA gear, loosen 2 hooks of the bottom of mechanism base.

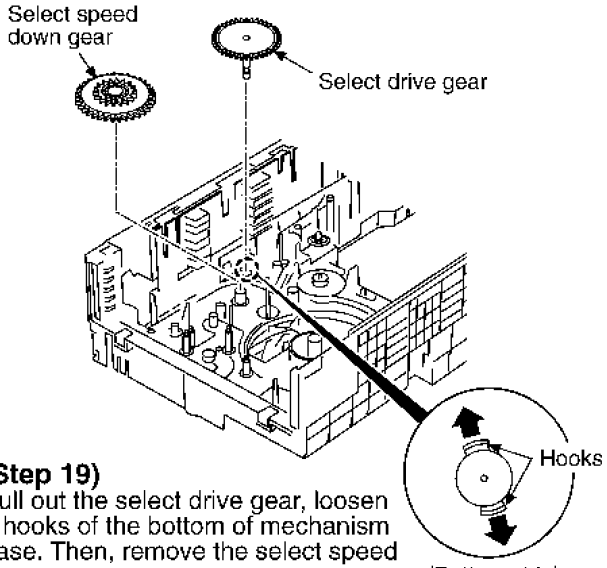


(Step 17)
Remove the UD. speed down gear No.1 and UD drive gear.



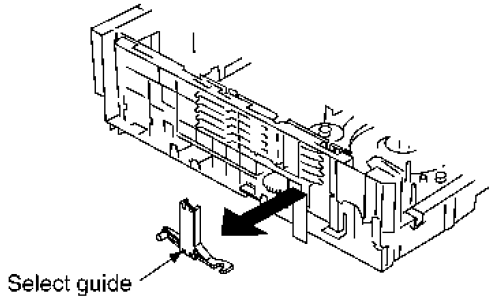
(Step 18)
Slide the select rack to the edge direction of the arrow (1). Push the claw and pull out to arrow (2) while sliding the select rack to the arrow (1).



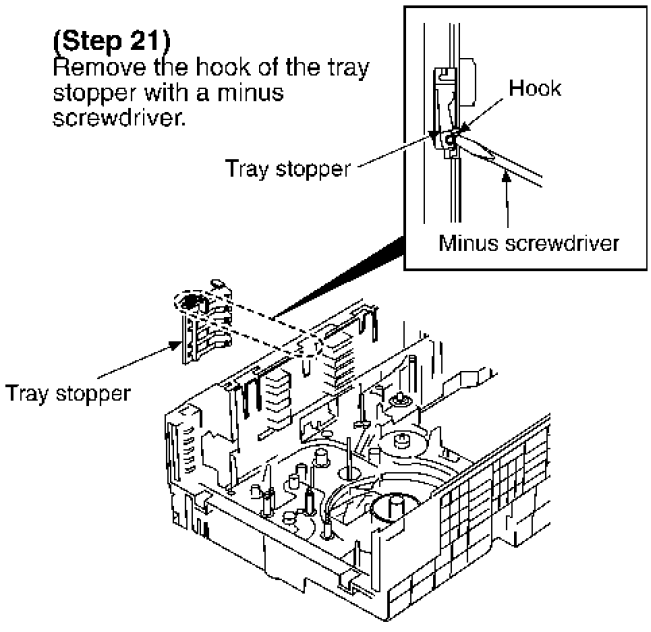


(Step 19)
Pull out the select drive gear, loosen 2 hooks of the bottom of mechanism base. Then, remove the select speed down gear.

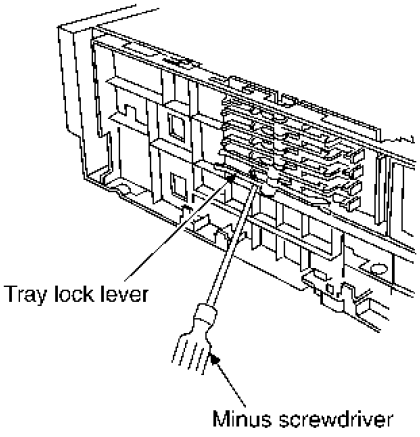
(Step 20)
Remove the select guide after sliding upside.



(Step 21)
Remove the hook of the tray stopper with a minus screwdriver.



(Step 22)
Remove the bottom of the tray lock lever with a minus screwdriver and others.



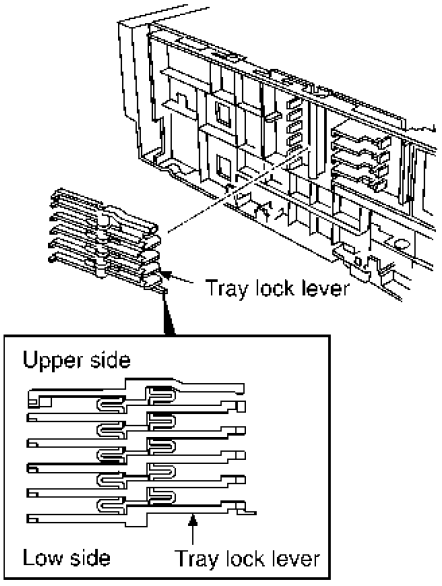
11.25. CR16 MECHANISM ASSEMBLY PROCEDURE

The following specified greases and/or oil must be applied when some specific parts are changed.

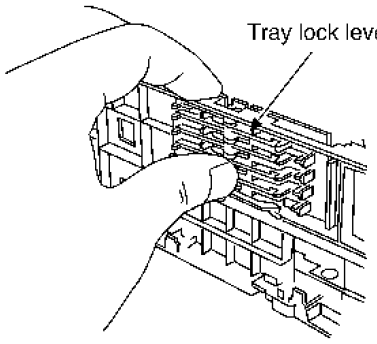
1. Floil grease (VFK1298) : The floil grease must be applied to tray, tray (L) and tray (R).
2. Hanarl oil (VFK1700) : The hanarl oil must be applied to any parts with grease other than the said parts.

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of item 11.3.
- Follow the (Step 1) - (Step 4) of item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 10) of item 11.24.2.
- Follow the (Step 1) - (Step 4) of item 11.24.3.
- Follow the (Step 1) - (Step 22) of item 11.24.4.

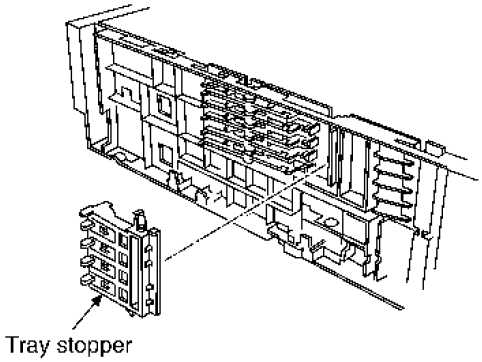
(Step 1)
Install the tray lock lever to mechanism base.



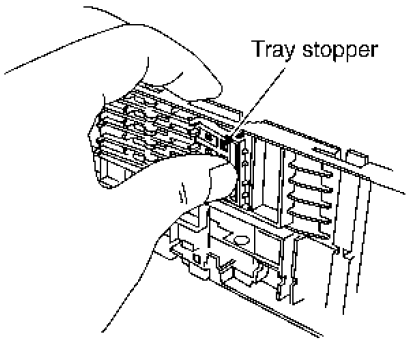
(Step 2)
Push the tray lock lever with a hand and install it.



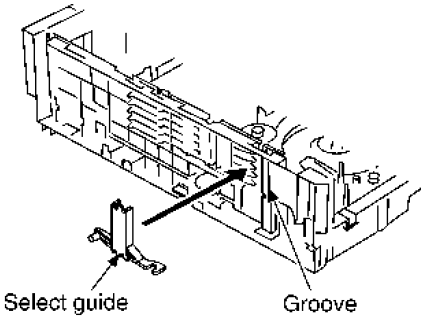
(Step 3)
Install the tray stopper to mechanism bese.



(Step 4)
Push the tray stopper with a hand and install it.

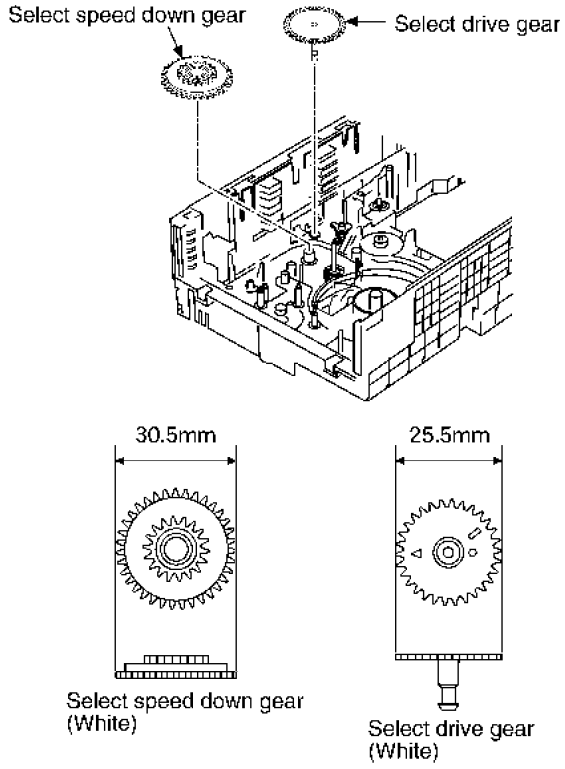


(Step 5)
Insert the select guide with a groove of the mechanism base and move it below.

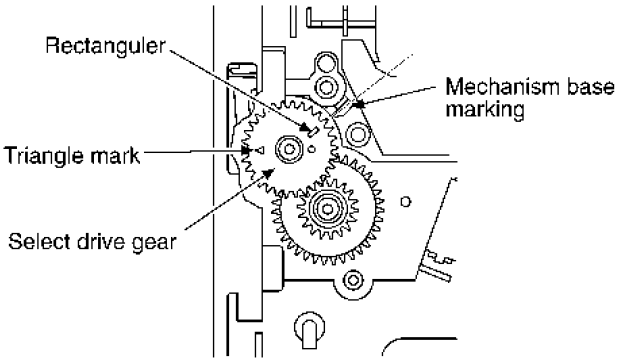


(Step 6)
Install the select speed down gear to mechanism base.

(Step 7)
Install the select drive gear to mechanism base.

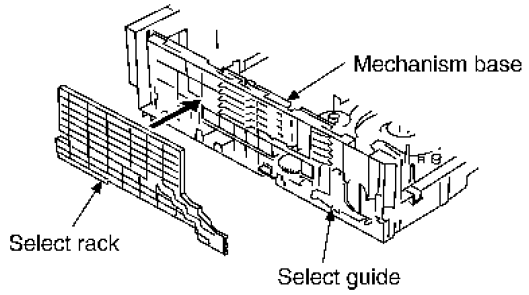


(Step 8)
Fit a mechanism base marking to the rectanguler mark of gear so that the triangle mark can indicate the sideward direction.

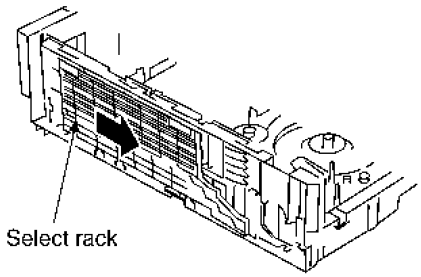


(Step 9)
Install the select rack to mechanism base.
Checking items before the installation.
1. Check select guide is completely in lowest position.
2. Check its phase of select drive gear is correct position.(Rectangle/Trianguler mark)(Refer to Step 8)

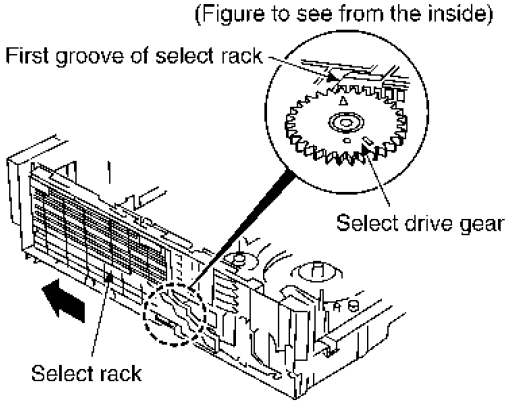
1. Put a select rack down with it fitted to its circumference of mechanism base.



2. Slide the select rack with it's pushing to a little right direction and install it.

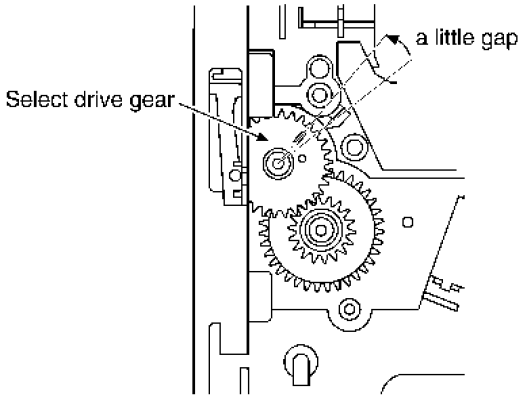


(Figure to see from the inside)

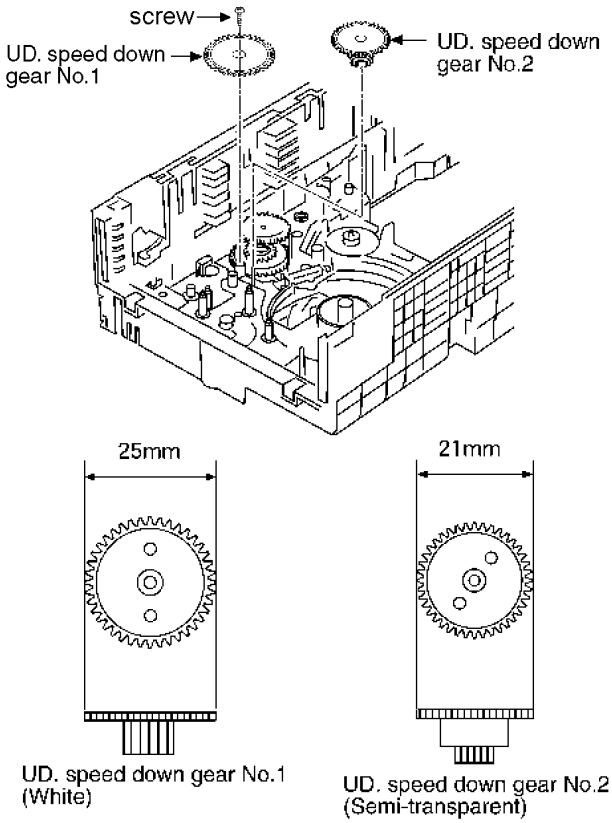


3. Check whether its end of triangular mark is in first groove of select rack, after fixing.
4. After insertion of select rack, continue the following work until the indication that it gose forward. And, all the while it must be checked that select rack is in the extreme end.

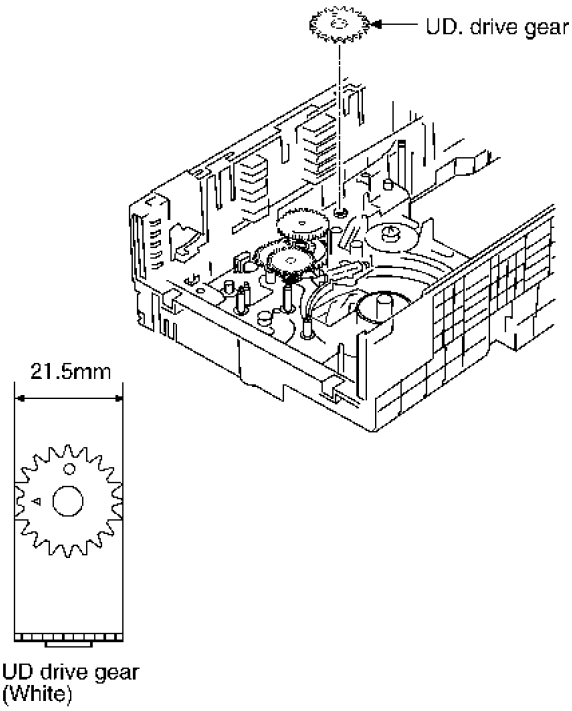
5. After insertion the select rack, the marking of select gear has a little gap when it is in the extreme end.



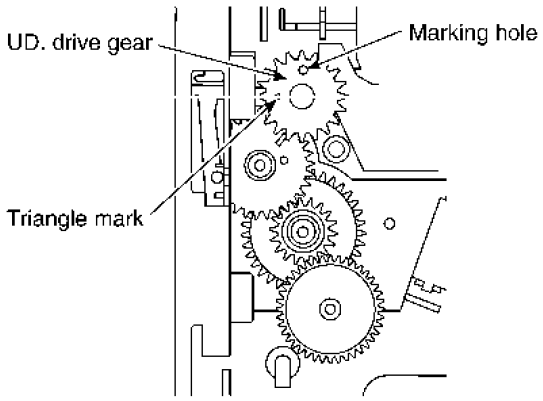
(Step 10)
Install the UD. speed down gear No.1 and UD. speed down gear No.2.



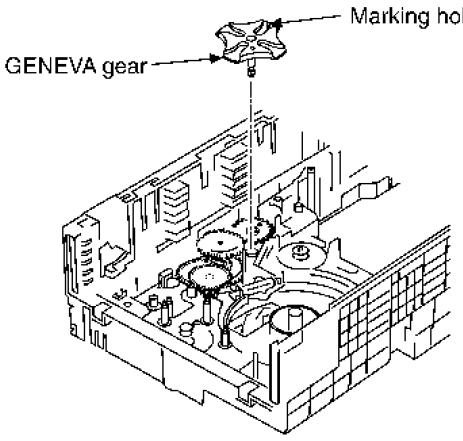
(Step 11)
Install the UD. drive gear to mechanism base.

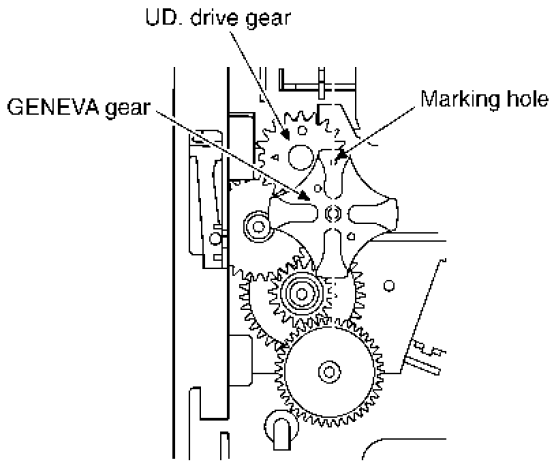


(Step 12)
Insert the UD. drive gear with its marking hole upward. At that time, its triangle mark should be sideways.

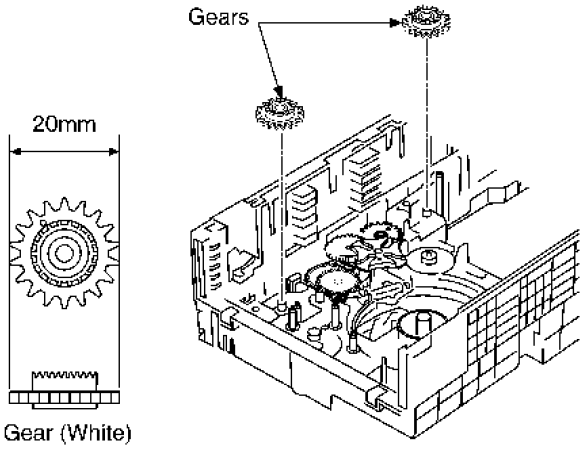


(Step 13)
Insert the GENEVA gear with its marking hole upward, and fix it by 2 hooks on bottom of mechanism base. At that time, UD. drive gear mustn't be moved.

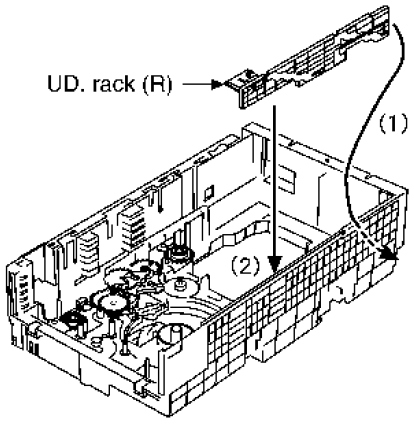




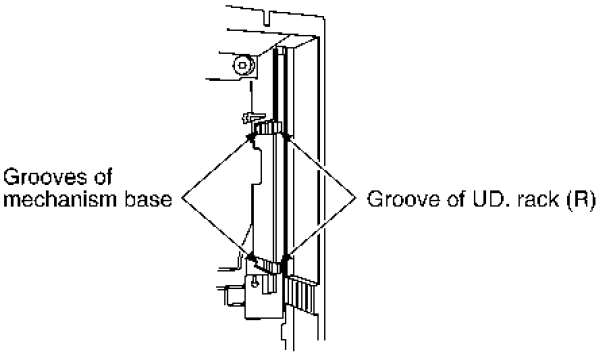
(Step 14)
Install the 2 gears to mechanism base.

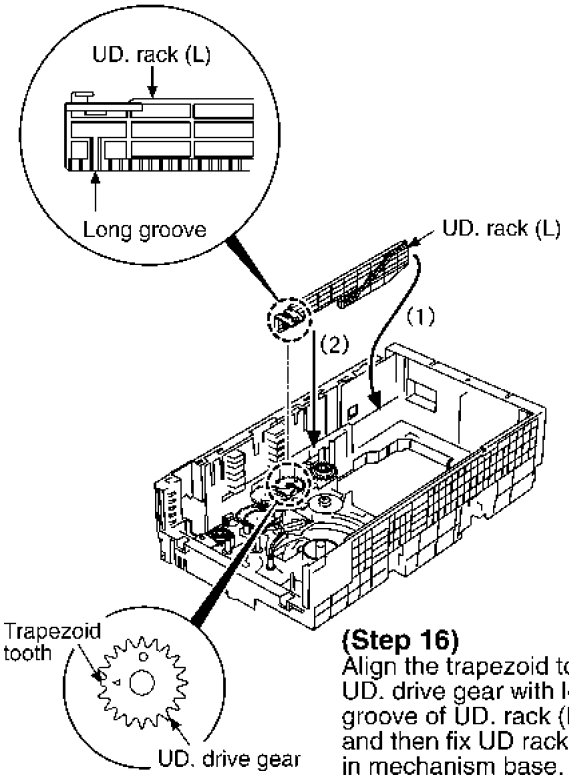


(Step 15)
Insert the UD. rack (R) to (2) from arrow (1).



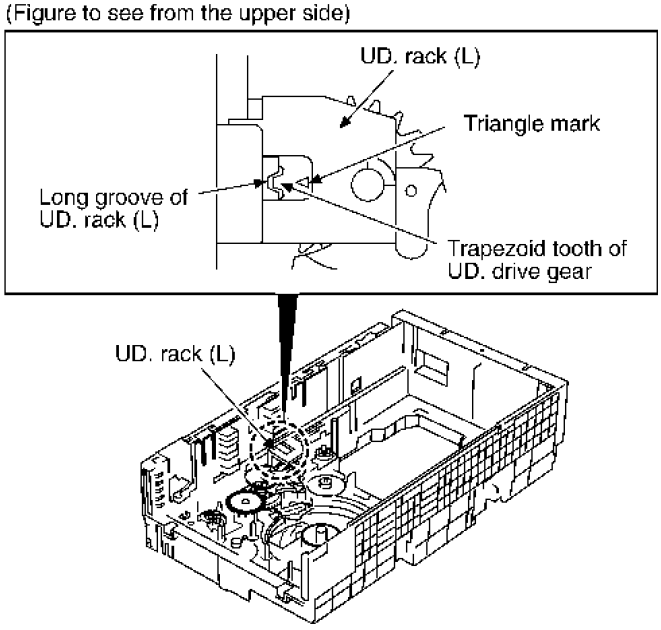
NOTE:
Put a groove of the mechanism base to the UD. rack (R).



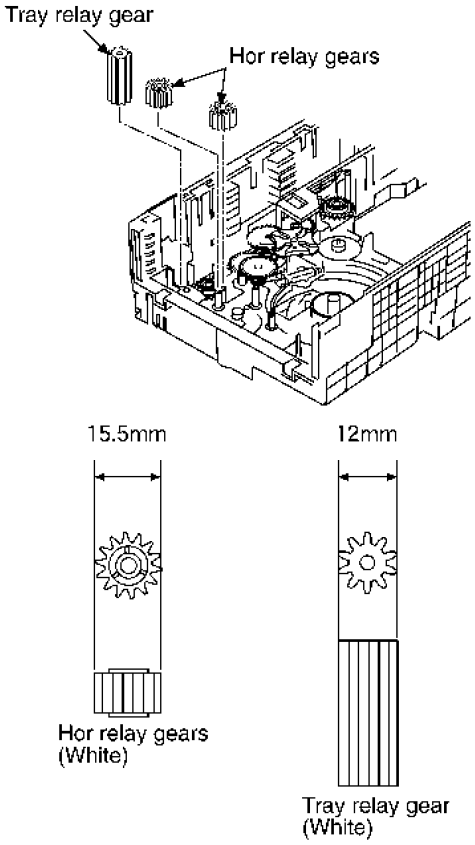


(Step 16)
Align the trapezoid tooth of UD. drive gear with long groove of UD. rack (L), and then fix UD rack (L) in mechanism base.

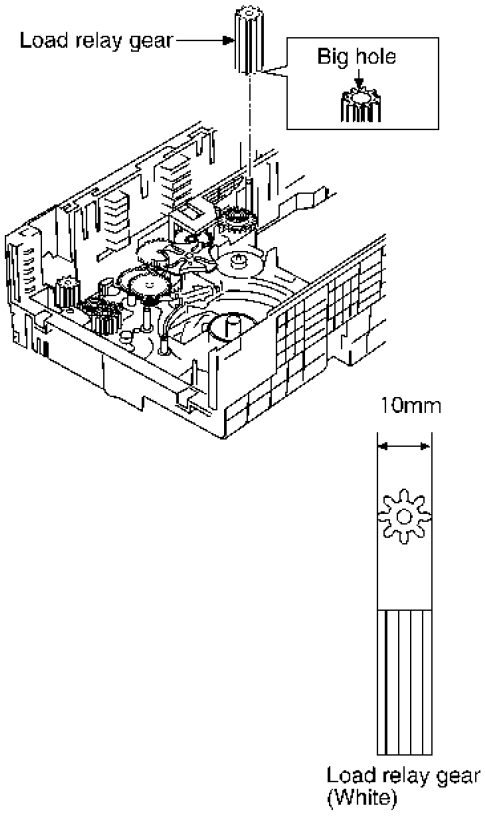
(Figure to see from the upper side)



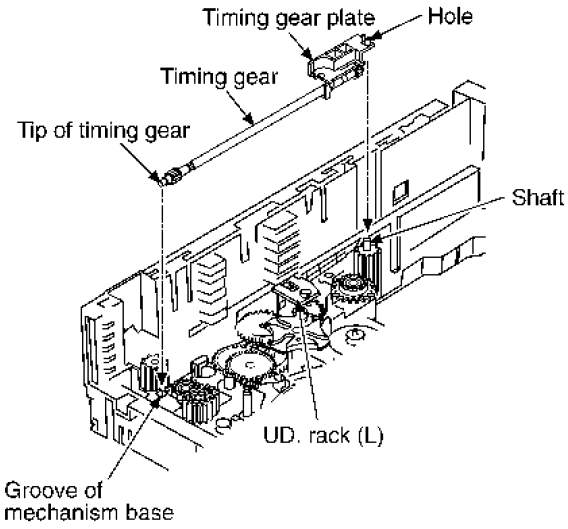
(Step 17)
Install the tray relay gear and 2 hor relay gears.



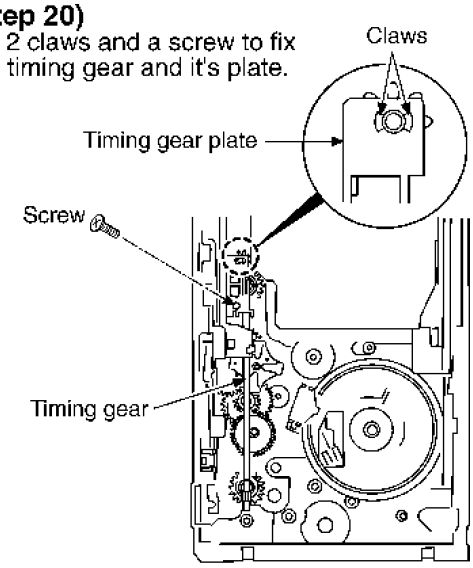
(Step 18)
Install the load relay gear to mechanism base.
(Fit load relay gear with its big hole downward.)



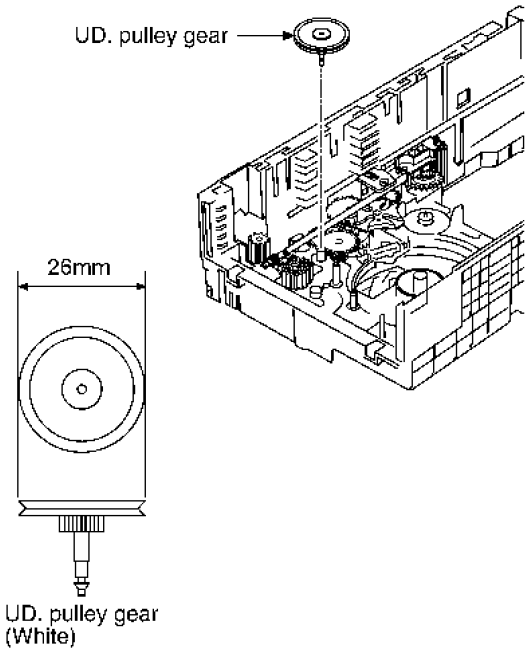
(Step 19)
Put on the top of the timing gear, then, install the timing gear and it's plate.
At that time avoid the UD. rack (L).



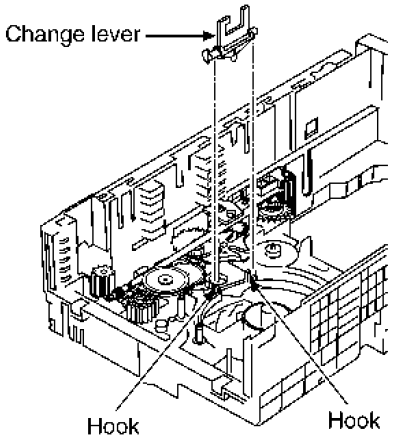
(Step 20)
Fix 2 claws and a screw to fix the timing gear and it's plate.



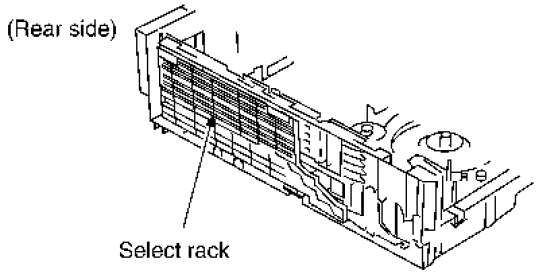
(Step 21)
Install the UD. pulley gear to mechanism base.

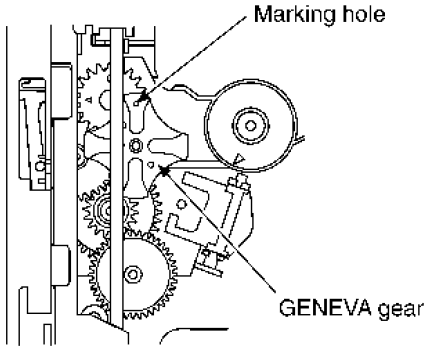


(Step 22)
Insert the change lever with it upright.

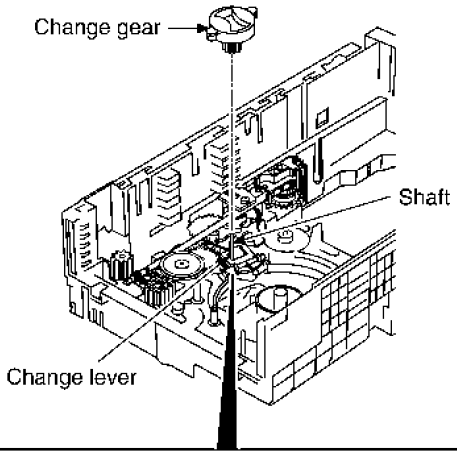


(Step 23)
Be sure the notice of bellow before fixing the change gear.
1. Select track should be in the rear of mechanism base.
2. Its hole of GENEVA gear should turn up.

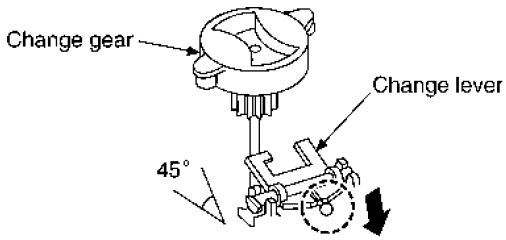




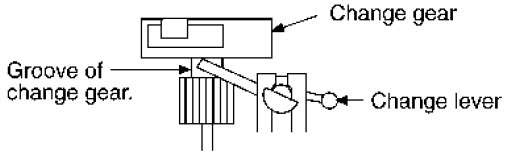
(Step 24)
Install the change gear as insert the change lever into the groove of change gear.



1. Pushing the ○ part and pull up the change lever 45°.

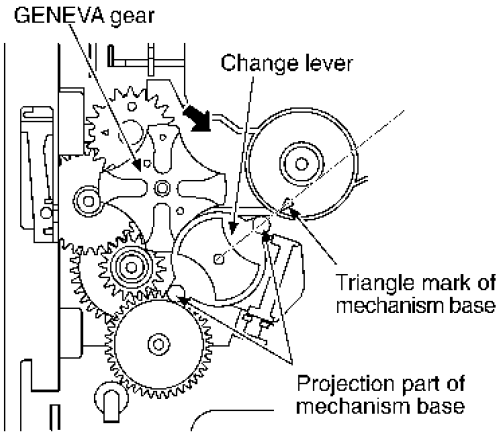


2. Insert the change lever into the groove of change gear.

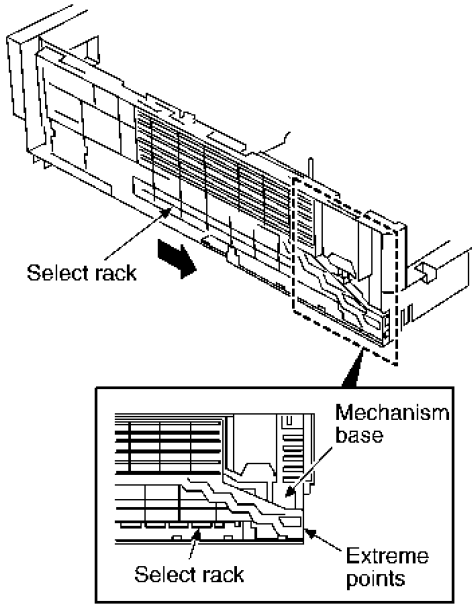


(Step 25)
Put change gear down with projection part of change gear fitted to triangle mark of mechanism base, when fixing change gear.
At that time, check change gear is inserted into the groove of change lever.

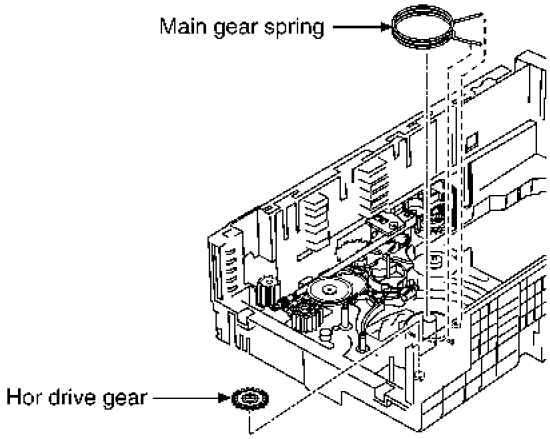
(Step 26)
Lastly, turn GENEVA gear clockwise slightly and drop change gear to mechanism base.

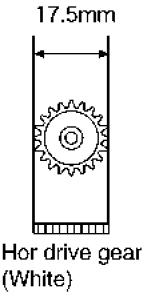


(Step 27)
Move the select rack smoothly forward manually until 2 extreme points of both select track and mechanism base.

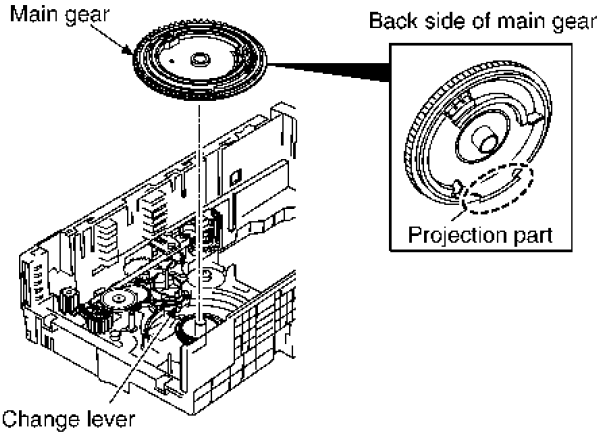


(Step 28)
Install the main gear spring and hor drive gear.

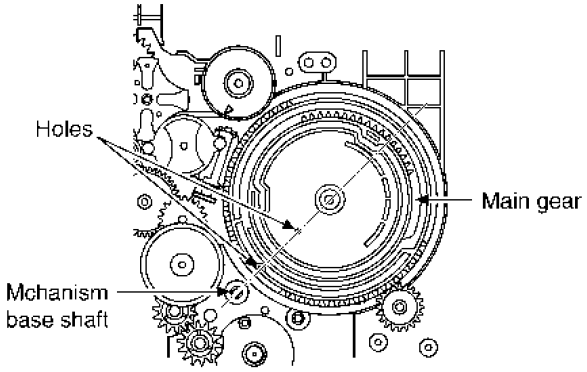




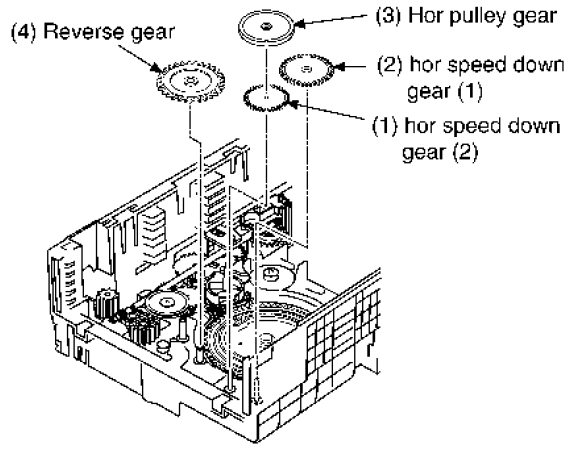
(Step 29)
Don't bring change lever into touch to projection part of main gear, when fixing main gear in mechanism base.

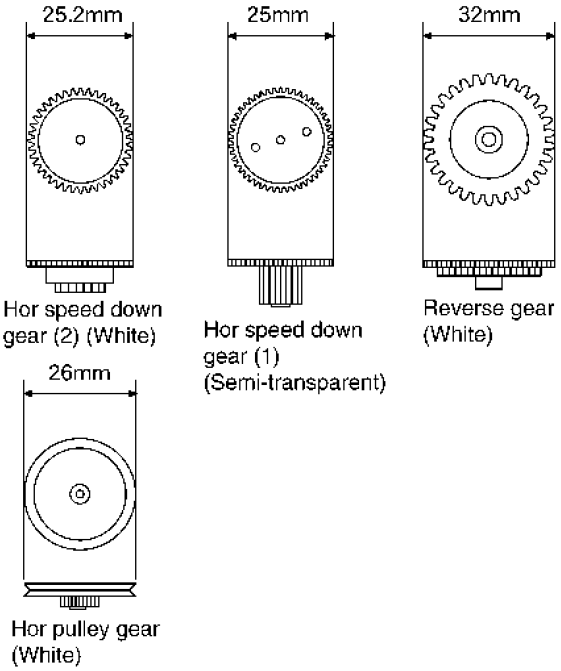


(Step 30)
After that, turn main gear so that 2 holes inside main gear would be in alignment with mechanism base.



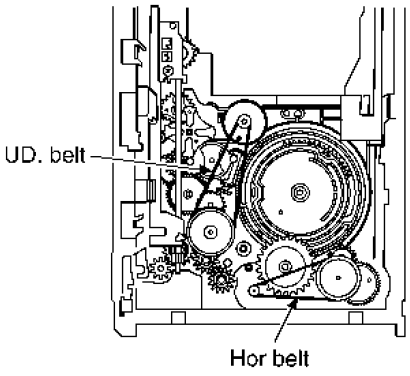
(Step 31)
Install the hor speed down gear (2), hor speed down gear (1), hor pullry gear and reverse gear.



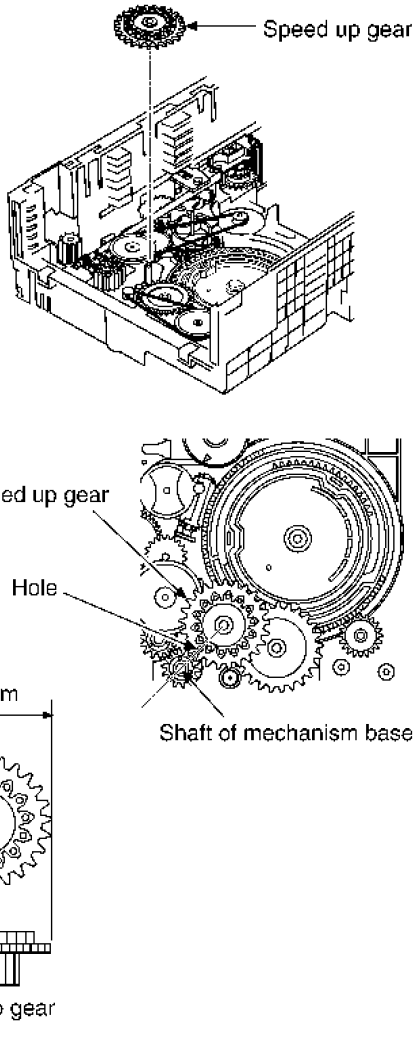


(Step 32)
Install the UD. belt and hor belt.

NOTE:
1. Take care not apply the grease to the belt.
2. Install the belt without twist.

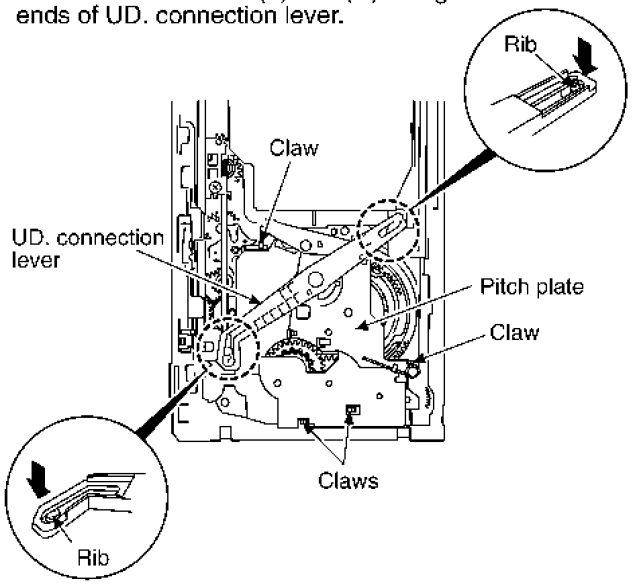


(Step 33)
Install speed up gear to its shaft of mechanism base with 2 fitting.

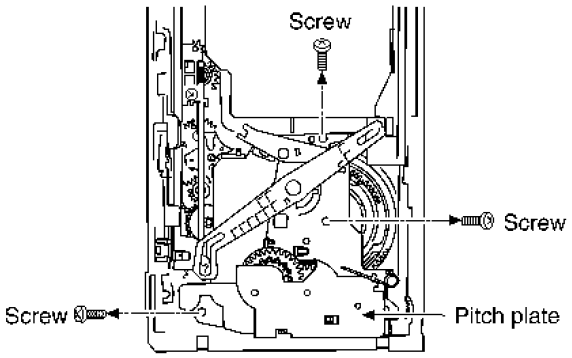


(Step 34)
Install the pitch plate. (The 4 claws should be latched.)

(Step 35)
Fix 2 ribs of UD. rack (L) and (R) into groove of both ends of UD. connection lever.

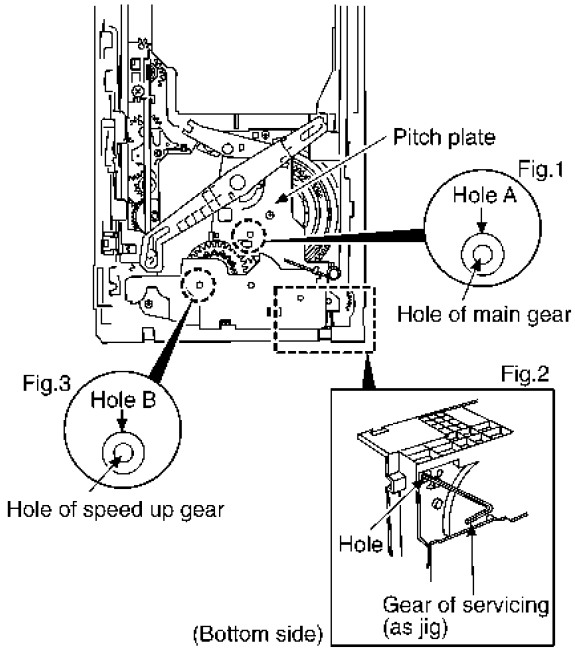


(Step 36)
Fixed it by three screws further.

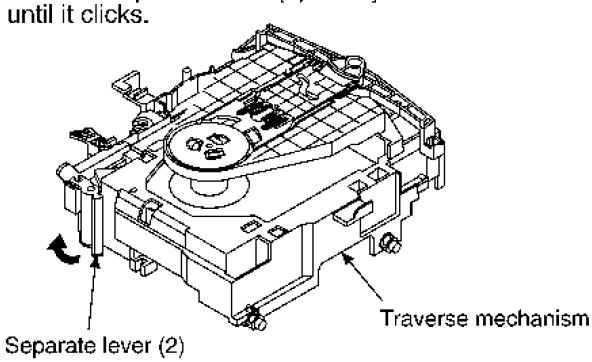


(Step 37)
Be sure the notice of below before fixing the traverse mechanism.

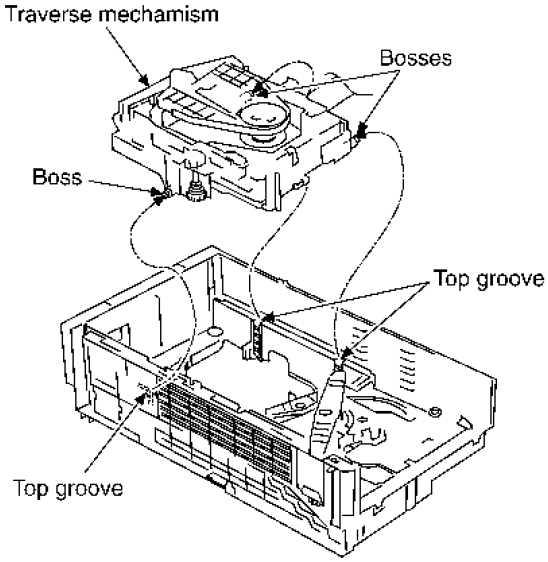
1. Check that 2 holes of both pitch plate and main gear is fitted. (Refer to Fig.1)
   If it's not fitted, put the gear for servicing in the hole of the bottom side and adjust it. (Refer to Fig.2)
2. Check that 2 holed of both pitch plate and speed up gear is futted. (Refer Fig.3)
   If it's not fitted turn the speed up gear to adjust it.



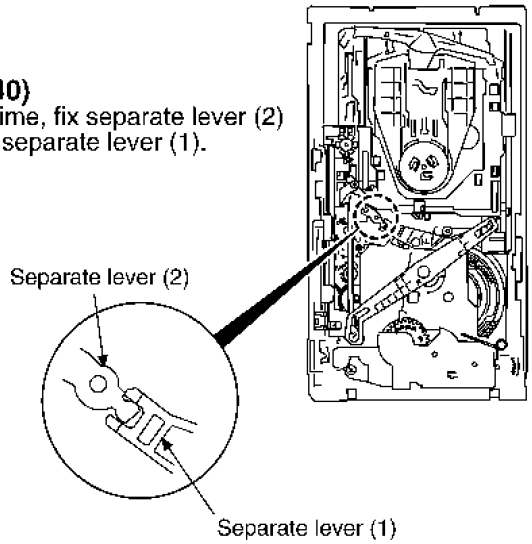
(Step 38)
Turn the separate lever (2) slowly toward left side until it clicks.



(Step 39)
Fix the left boss into the top groove of the UD. rack (L) and fix 2 bosses into the groove of the UD. rack (R).

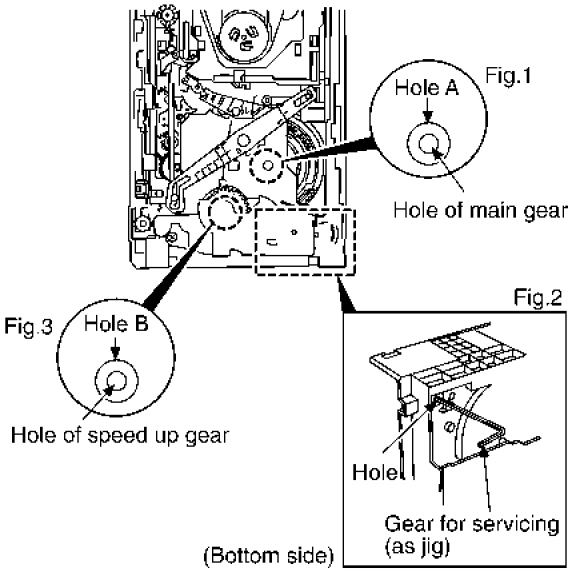


(Step 40)
At that time, fix separate lever (2) into the separate lever (1).

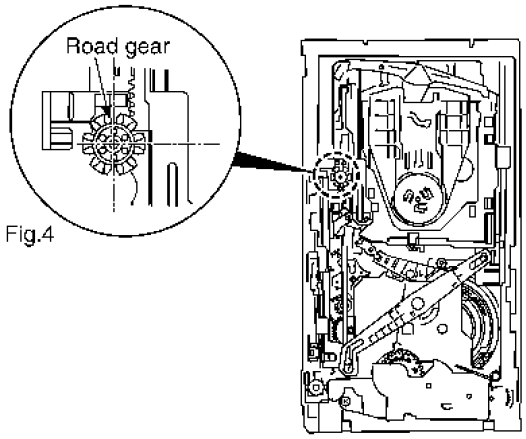


(Step 41)
After the traverse mechanism fixed,
confirm the phase in order below.

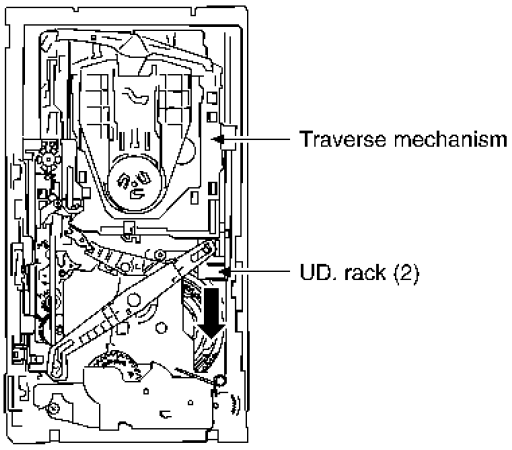
1. Check that 2 holes of both pitch plate and main gear is fitted. (Refer to Fig.1)
   If it's not fitted, put the gear for servicing in the hole of the bottom side and adjust it. (Refer to Fig.2)
2. Check that 2 holed of both pitch plate and speed up gear is futted. (Refer Fig.3)
   If it's not fitted turn the speed up gear to adjust it.



3. In the cog of road gear, the groove with it's cutting halfway set side ward. (Refer to Fig.4)
   Remove the traverse mechanism again when it is not set side ward and install it after adjustment of inserting position.
   NOTE: By this time, do not adjust to rotate the road gear.

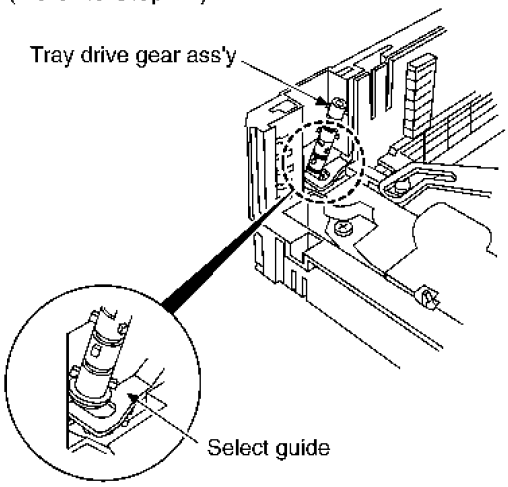


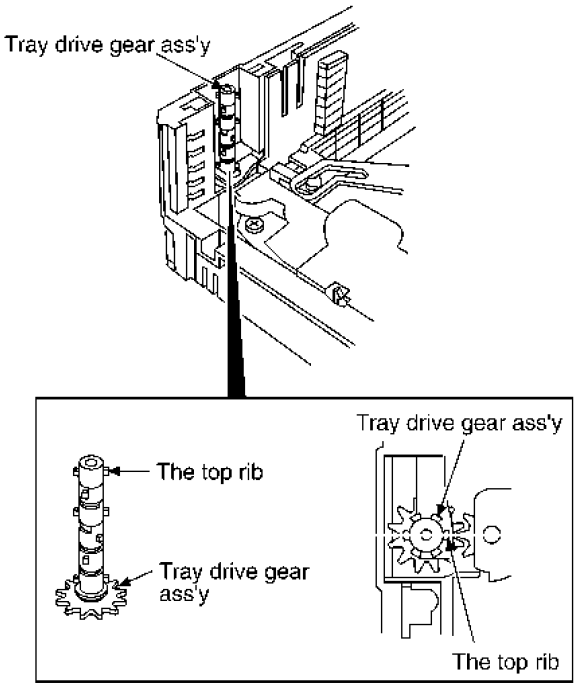
(Step 42)
After insertion of traverse mechanism, pull the UD. rack (R) on this side that each phase is "OK" and then lock the traverse mechanism.



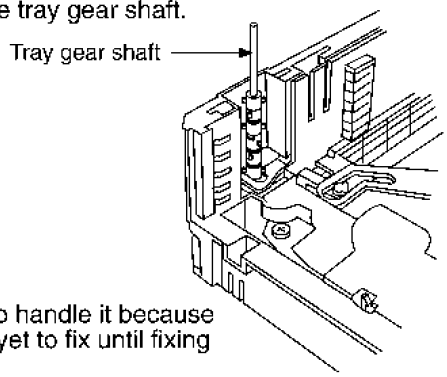
(Step 43)
Install the tray drive gear to select guide.
(Install the top rib of the tray drive gear with side ward.)

NOTE:
Confirm the each phase surely before install the tray drive gear. (Refer to Step 41).



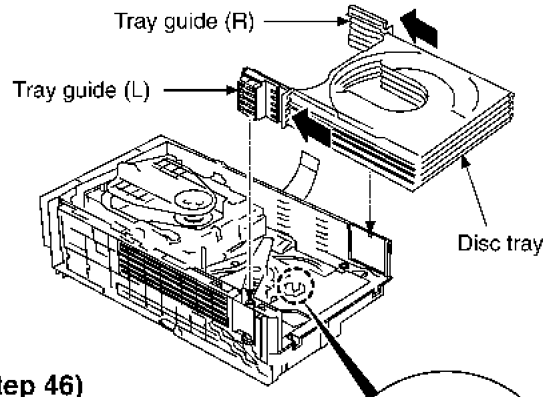


(Step 44)
Insert the tray gear shaft.

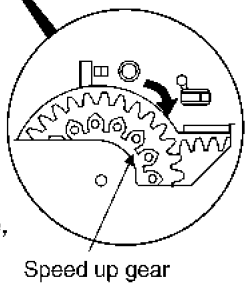


NOTE:
Be careful to handle it because the shaft is yet to fix until fixing top cover.

(Step 45)
Move the tray guide (R) and (L) to direction of arrow that fixed (stopped) it and install 5 pieces of disc tray.

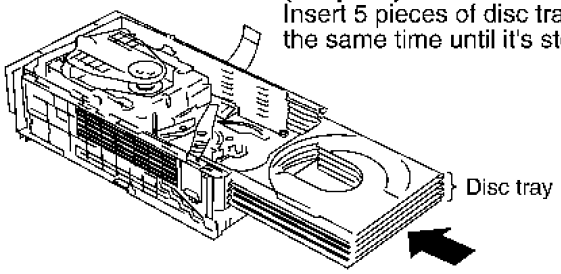


(Step 46)
Confirm that when the disc tray insert the upper side, the speed up gear is rotate clockwise a little.
- When the rotation of speed up gear is not clockwise or rotate, repeat from Step 45.
- Until the speed up gear rorate, repeat from Step 45 and 46.



NOTE:
While keeping all postion, install 5 pieces of disc tray.

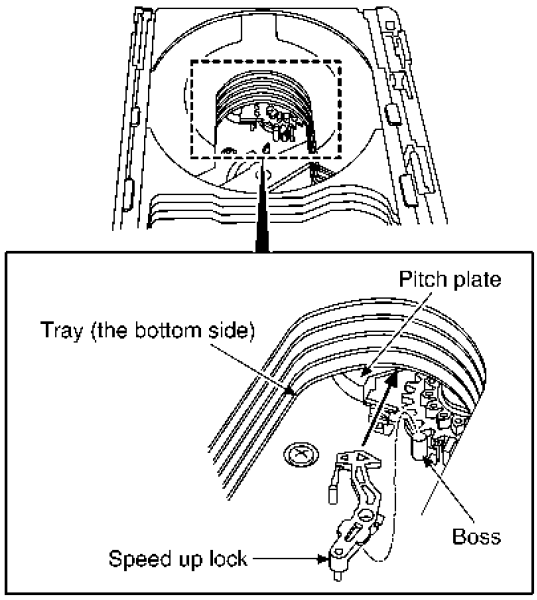
(Step 47)
Insert 5 pieces of disc tray at the same time until it's stop.



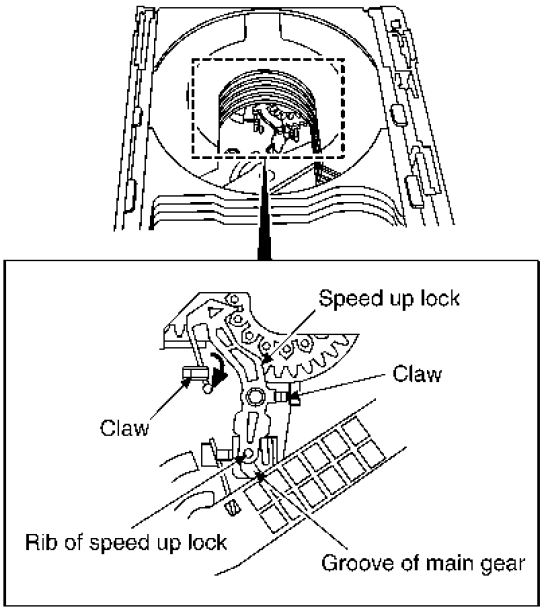
(Step 48)
Turn the traverse side 180°.

(Step 49)
While install the tip of speed up lock beween tray (No.1) of the most lower side and pitch plate for the time being.
(Do not to insert the cog of speed up gear), insert it to boss.

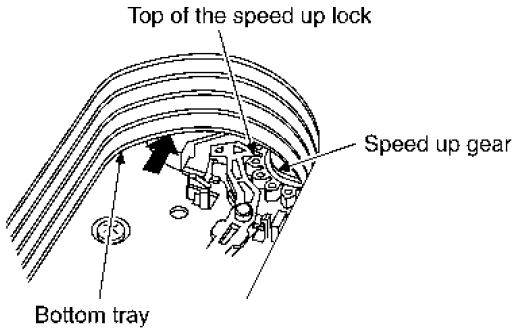
NOTE:
At that time, do not move the tray.
(See the tray the most front side)



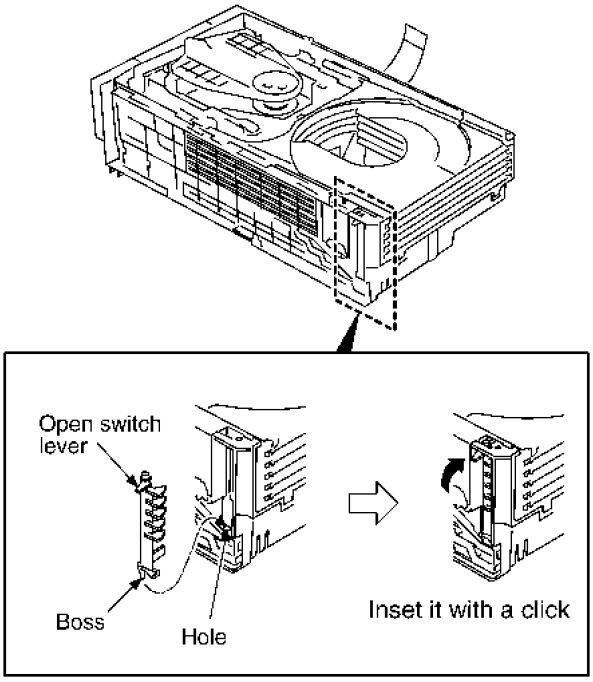
(Step 50)
Insert the rib of speed up lock into a groove of main gear, and lock it with 2 claws.



(Step 51)
Move the bottom tray to the arrow while pushing the top of the speed up gear. And insert it to a cog of the speed up gear.

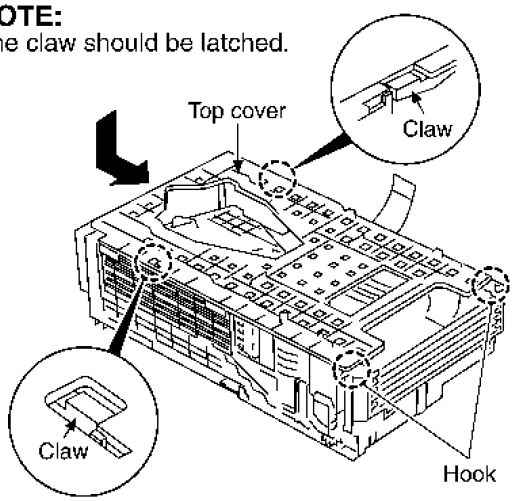


(Step 52)
Install the open switch lever.
(Put the boss into the hole of the mechanism base.)



(Step 53)
Install the top cover.
Fix it into hooks and slide direction to the arrow.

NOTE:
The claw should be latched.

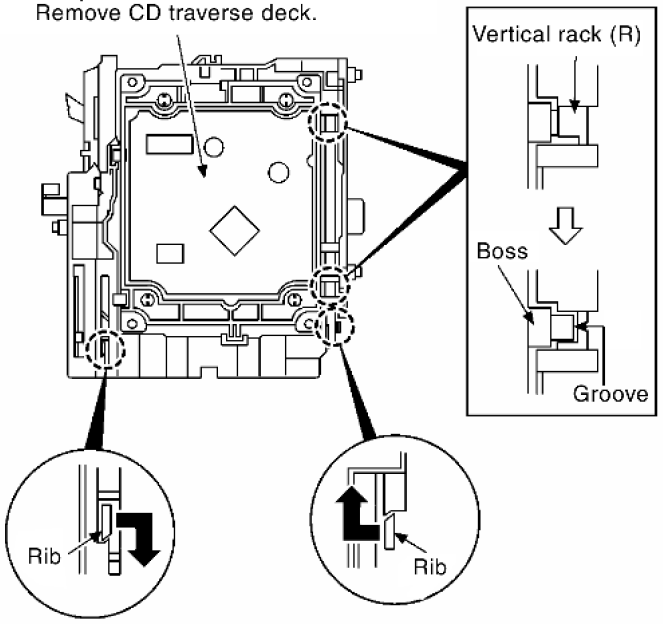


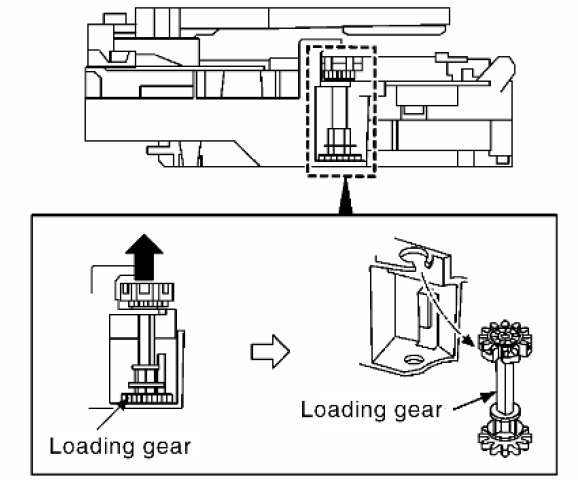
11.26. Disassembly of traverse mechanism

- Follow the (Step 1) - (Step 6) of Item 11.2.
- Follow the (Step 1) - (Step 3) of Item 11.3.
- Follow the (Step 1) - (Step 4) of Item 11.5.
- Follow the (Step 1) - (Step 5) of Item 11.13.
- Follow the (Step 1) - (Step 2) of Item 11.20.

Step 1
Shift ribs of both side to the arrow direction.
(A vertical rack (R) slides and groove opens)

Step 2
Remove CD traverse deck.

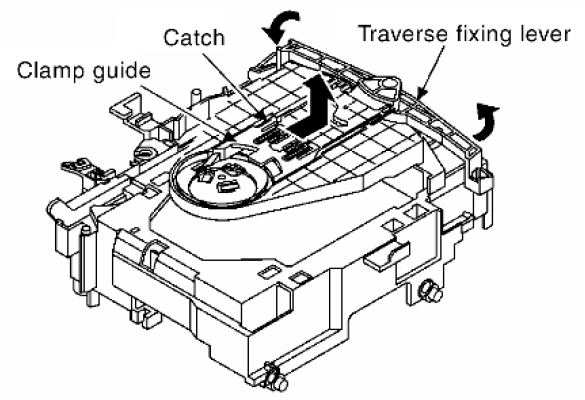




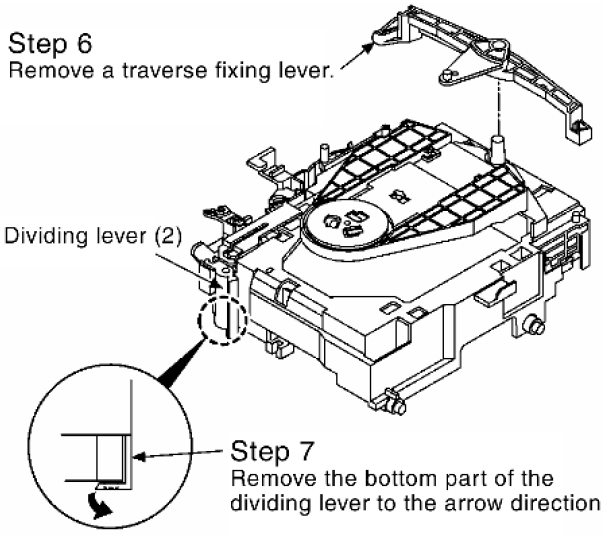
Step 3
Lift a loading gear slightly and pull out.

Step 4
Fixing lever to the arrow direction, rotate a traverse.

Step 5
Remove catch and take out a clamp guide.

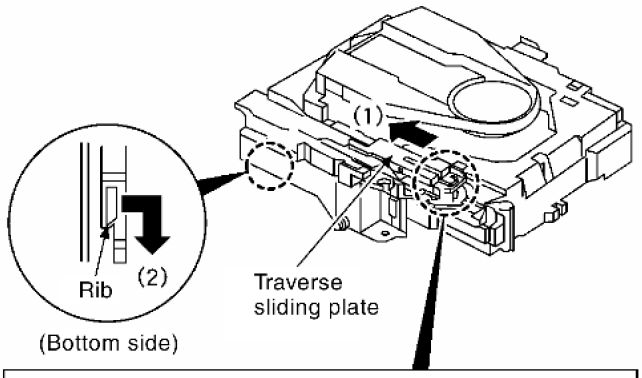


Step 6
Remove a traverse fixing lever.

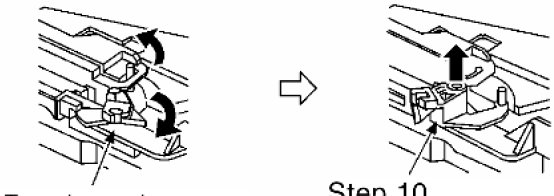


Step 7
Remove the bottom part of the dividing lever to the arrow direction.

Step 8
Slide a traverse sliding plate to the arrow direction (1), and shift a rib to the arrow direction (2).

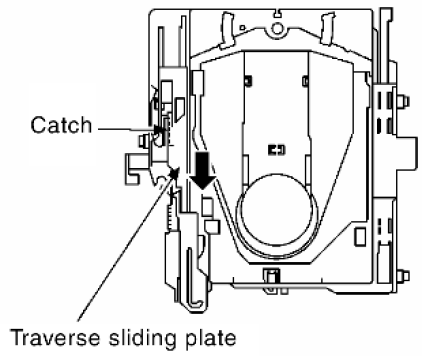


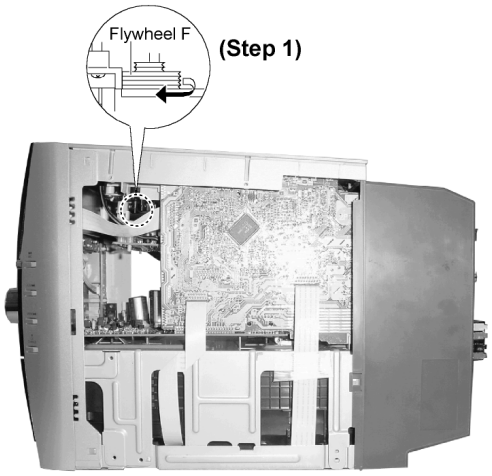
Step 9
Shifting a traverse sliding plate slightly and rotate a tray change lever.



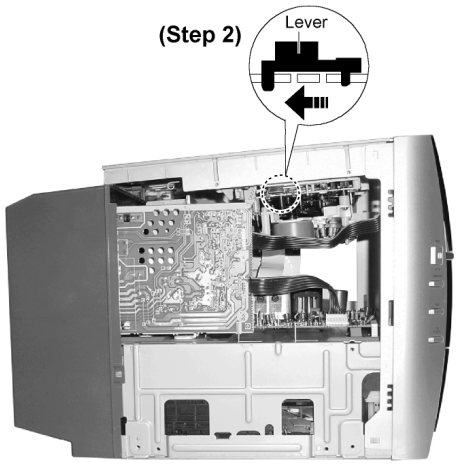
Step 10
Remove a tray change lever.

Step 11
Holding the catch down, slide a traverse sliding plate to the arrow direction and remove it.





Step 1 : If the cassette tape cannot eject due to twinning around capstan or pinch roller during play or record, rotate the flywheel F as arrow shown to remove twined tape.



Step 2 : Push the lever as arrow shown to open the cassette lid and remove the cassette tape.

11.27. Handling of Cassette Tape jam

・Follow the (Step 1) - (Step 6) of Item 11.2.

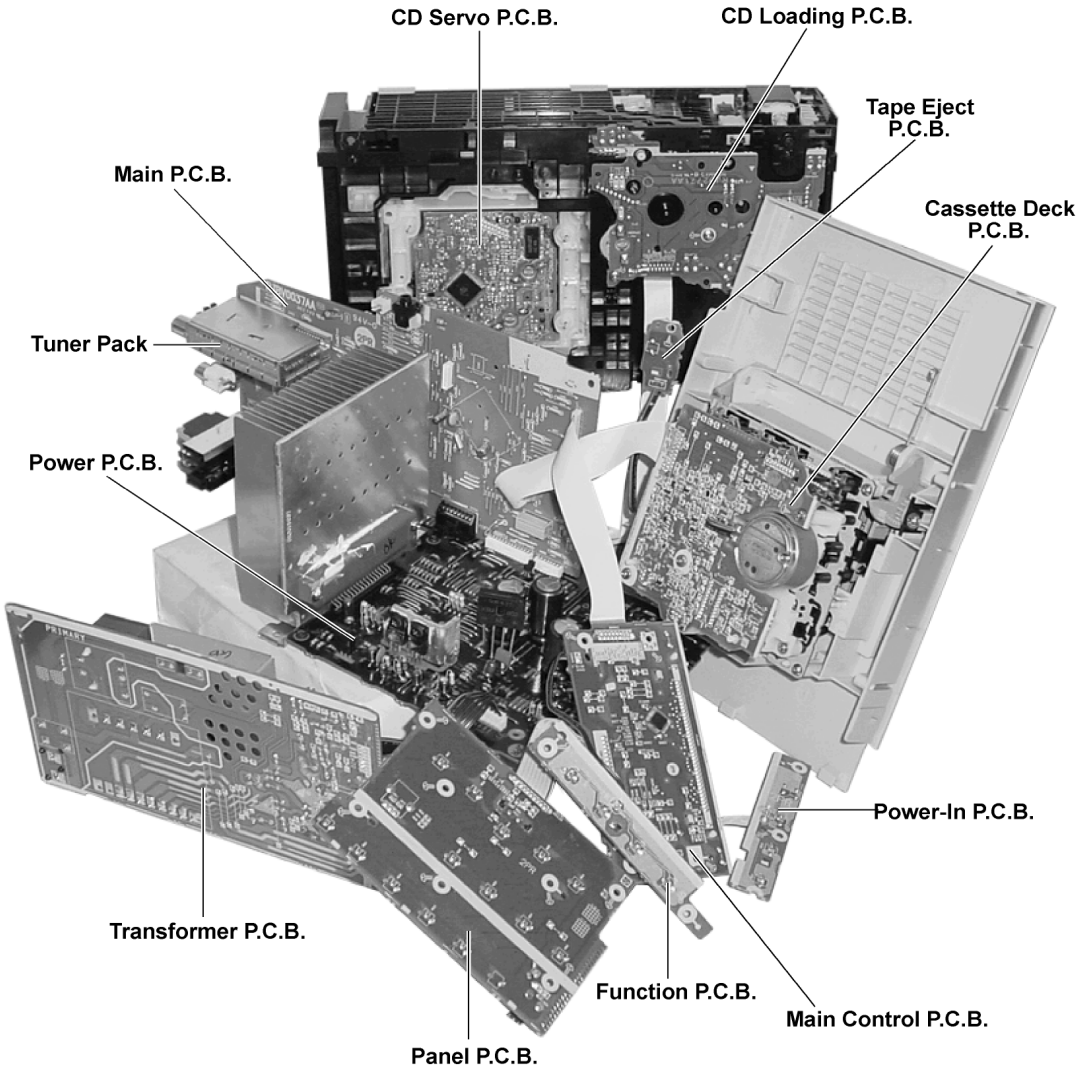
12 Service Positions

12.1. Checking procedure

Note : For the disassembling procedure, see the section 11.

12.2. Checking the major P.C.B.

1. Disassembly of Side Panel L & R
2. Disassembly of Top Cabinet
3. Disassembly of Deck P.C.B. and Tape Eject P.C.B.
4. Disassembly of Front Panel
5. Disassembly of Main Control P.C.B., Function P.C.B. and Power-In P.C.B.
6. Disassembly of Panel P.C.B.
7. Disassembly of Rear Panel P.C.B.
8. Disassembly of Main P.C.B.
9. Disassembly of Transformer P.C.B.
10. Disassembly of Tuner Pack.
11. Disassembly of Power P.C.B.
12. Disassembly of CR16 Mechanism



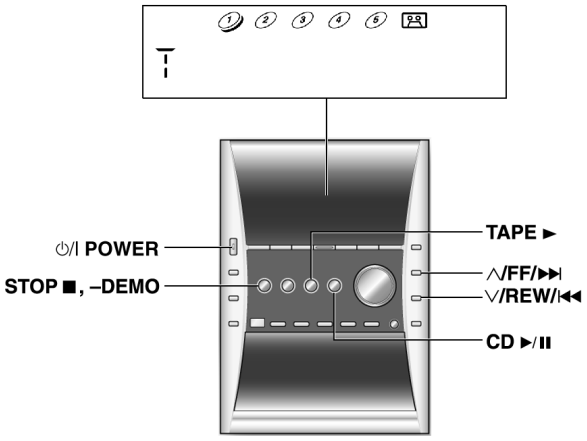
13 Self-Diagnostic Display Function

This unit is equipped with a self-diagnostic display function, which will be useful during servicing and maintenance.

13.1. Entering into Self-Diagnostic Mode

13.1.1. Setting of the Self-Diagnostic Mode (Test Mode)

No.	Operation Procedure	Operation and Processing of Microcomputer
1	Switch the SELECTOR to TAPE ▶. There should be NO cassettes loaded.	
2	Press the [STOP■/-DEMO] key for 2 sec and press [∧ /FF/ ▶▶|] for another 2 sec, it shall enter into the self-diagnostic mode.	[T] shall be displayed in the FL.



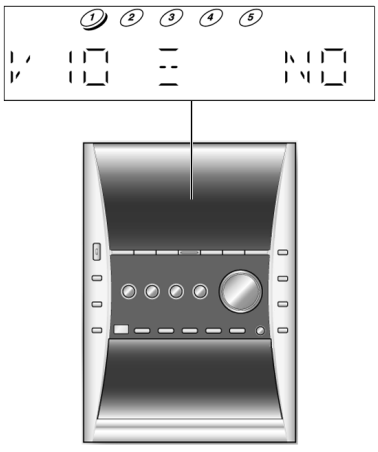
13.1.2. Setting of Self-Diagnostic (Doctor Mode)

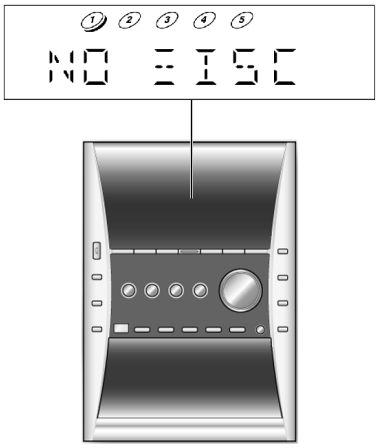
a) Turn on power for unit.

b) Select CD Mode. Ensure no disc is inserted in the unit.

c) Press and hold [STOP ■/-DEMO] button for at least 2 seconds, follow by [4] and [7] on remote control. In the case where there is EEPROM, then, the display should be as below:

This display shall be there for 1sec. After display the EEPROM information for 1sec, the display shall return to the normal Doctor Mode display.





d) Power down to exit by pressing [⏻/❙] button on the main unit.

e) The CLEAR key on the remote controller when used in any test items mode shall end the current test, operations and exit Doctor Mode.

13.1.3. Check Sum Display of EEPROM

- The check sum of EEPROM.
- When the operation which enters the doctor mode in the doctor mode is done, version No. of EEPROM; It is (DEC display) and a check sum (HEX display).

1. Doctor mode ON.
2. Pressing "C2DF"

   The following are displayed:

   CHECKSUM [CHK-EA]

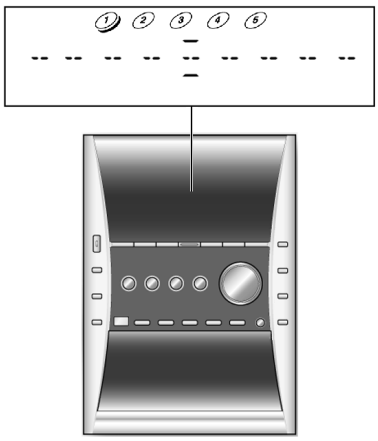
Note: Version/check sum displays ´. . . . . CHK-NO´ when display, when judged that there is EEPROM, and judged it is not.

- It returns to the doctor mode display of usually by the operation which enters the doctor mode of usually by the operation which enters the doctor mode again with the check sum displayed. (The display does not return by the time limitation)

13.1.4. Cold start setting

1. Doctor mode ON.
2. Press [4] button on the remote control.
   - Data shall be set in order to make a cold start (backup data are initialized) when reset starts next time.

     To clarify that the code was accepted at this time, the pattern below is displayed in the LCD for 2 seconds.



(Note) In the case that you unplug from AC outlet after this mode was set, then plug to AC again, a cold start shall begin.
And “- - - - - - - - -” is displayed in the FL for 2 seconds.

13.2. Clearing Self-Diagnostic Memory

<CD Section> (F15, F17, F22, F26, F27, F28, F29)

1. Enter into self-diagnostic mode.

2. Errors are stored in the unit memory. To clear memory, press and hold down "STOPn/-DEMO" button for 5 seconds or more during self-diagnostic mode. The message, "CLEAR" appears on the display when memory is erased, and the unit displays the message, "T".

   Memory is not affected by turning off the power or unplugging the socket.

   Be sure to clear memory after repair is completed.

3. Press "STOPn/-DEMO" button. A symbol of self-diagnostic is indicated on the display if an error is found. If several errors are found, a respective indication is displayed when "STOPn/-DEMO" button is pressing repeatedly. (e.g. H01 → CD F15 → F01) If no error is found, only "T " indication is displayed and remains unchange even if "STOPn/-DEMO" button is pressed.

13.3. Displaying Self-Diagnostic Results

<Cassette Deck Section> (H01, H02, H03, F01, F02)

1. Enter the self-diagnostic mode, following the instructions described in [13.1.1 Setting of the Self-Diagnostic Mode (Test Mode)].
2. Insert a normal-positioned music tape with erase prevention niches on both Sides A and B. Press [TAPE ▶] button to activate the TPS operation so that the tape automatically stops at an interval between music selections.
3. Press [CLEAR n] and [TAPE ▶] buttons together on the remote controller. (Recording does not start.)
4. Then, insert a Cr02-positioned blank cassette tape with an erase prevention niche of Side A or B set to the left side.
5. Press [∧ /FF/ ▶▶|] button. The tape will be forwarded and automatically stop after two seconds.
6. Remove the cassette tape, and set the other side.
7. Press [∨ /REW/ |◀◀] button. The tape will be rewound and automatically stops after two seconds.
8. Press [STOPn/-DEMO] button on the unit.

   If an error is found, a self-diagnostic key appears on the display.

   If several errors are found, the display shows these keys when [STOPn/-DEMO] button is pressed repeatedly. (Ex.: H01 - H02 - F01 - H01)

   If no error is found, only the message, "T" appears on the display.

(*1) TPS operation (music search) detects the blank sections between music selections. Therefore, do not use tapes with the following conditions:

- A blank section that lasts only 4 seconds or less.
- No blank sections (recording through microphones, etc.).
- Music selections that have extremely low pitches or prolonged silent sections (such as classical music).
- and/or Music recorded with fade in/out effect.

13.4. Error Code Table

13.4.1. Error code for Power Supply

Error Code	Abnormal Items	Possible Cause
F61	POWER AMP output abnormal	During normal operation, if either DCDET1 or DCDET2 becomes L, normal POWER OFF process shall not be executed, PCNT shall be switched to L immediately. GOODBYE shall not display and the error display F61 is displayed instead. 2 seconds after the F61 display, ECONO shall be set to ´L´ and LCD display shall be turned off. The error content shall be memorised when the abnormality occurs and can be display in the C-mecha self-diagnostic mode described later.

13.4.2. Error codes for CD Mechanism

Error Code	Abnormal Items	Possible Cause
F15	CD REST SW abnormal	CD traverse position initial setting operation failsafe counter (1000 ms) waiting for REST SW to turn on. Error No. shall be clear by force or during coldstart.
F26	CD servo LSI command signal abnormal	CD function DTMS command, after system setting, If SENSE = 'L' cannot be detected. Memory shall contain F26 code. After Power on, CD function shall continue, error shall occur "NO DISC". Error No. shall be clear by force or coldstart.
F28	DISC LOAD abnormal	While going to play position, if failsafe counter is finished and switch no change or switch target condition was not achieve, this error shall be memorized. Next time mechanism operates, it shall do coldstart. Error No. shall be clear by force or coldstart.
F29	DISC unload abnormal	While going to play position, if failsafe counter is finished and switch no change or switch target condition was not achieve, this error shall be memorized. Next time mechanism operates, it shall do coldstart. Error No. shall be clear by force or coldstart.
F27	Slide operation abnormal	During vertical operation, if failsafe timer is finished and switch no change or switch target condition was not achieve, this error shall be memorized. Next time mechanism operates, it shall do coldstart.Error No. shall be clear by force or coldstart.

Error Code	Abnormal Items	Possible Cause
F17	Down SW abnormal	During vertical operation going to the bottom position, if failsafe timer is finished and switch no change or switch target condition was not achieve, this error shall be memorized. The Next time mechanism operates, it shall do mechanism initialization.Error No. shall be clear by force or coldstart.
F22	Loading Mode / Mecha abnormal	During mecha initialization, Loading mode mechanism abnormal, normal operation cannot be achieve. The next time mechanism operates, it shall do mechanism initialization.Error No. shall be clear by force or coldstart.

13.4.3. Error codes for Cassette Mechanism

Error Code	Abnormal Items	Possible Cause
H01	MODE SW abnormal	Normal operation during mecha transition, MODE SW abnormal is memorised. The content of abnormality can be confirmed in the abnormal detection mode explained in the later section.
H02	REC INH SW abnormal	The content of abnormality can be confirmed in the abnormal detection mode explained in the later section.
H03	HALF SW abnormal	
F01	Reel pulse abnormal	
F02	TPS abnormal	

13.5. Cassette Mechanism Self-Diagnostic Mode

1. A Cr02-positioned blank cassette tape with an erase prevention niche on either Side A or B.
2. A normal-positioned music tape with erase prevention niches on both Sides A and B. Both tapes are halfway forwarded in advance.
3. The remote controller that comes with this unit.

No.	Operation Procedures	Micon operation & processing
1	C-mecha Abnormal Detection shall be executed for DECK 1 only.	Check that all DECK mechanism leaf SW are in OFF state.
2	[▶▶I] key is pressed, after loading in a NORMAL type cassette with the recording tab on the left side removed.	FF shall be executed for 2 sec, after which STOP. Check the following. { F.REC INH SW } is OFF { R.REC INH SW } is ON { HALF SW } is ON Reel pulse toggles between H & L.
3	[I◀◀] key is pressed, after loading a NORMAL, CrO2, METAL type cassette with the recording tab on the right side removed.	REW shall be executed for 2 sec, after which STOP. Check the following. { F.REC INH SW } is ON { R.REC INH SW } is OFF { HALF SW } is ON Reel pulse toggles between H & L.
4	[TAPE ▶] Key is pressed, after loading in a NORMAL, CrO2, METAL type cassette (cassette for TPS checking purposes and with both recording tabs intact).	TPS operation is executed. Check the following. { F.REC INH SW } is ON { R.REC INH SW } is ON { HALF SW } is ON TPS signal changes. After checking TPS, it shall STOP. If TPS checking is completed at TAPE END, it is considered as TPS abnormal.
5	[REC] key is pressed, after loading in a NORMAL type cassette (with both recording tabs intact)	REC operation shall not be executed. Check the following. { F.REC INH SW } is ON { R.REC INH SW } is ON { HALF SW } is ON
6	Self-diagnostic mode is stopped by pressing the [Clear n] Key.	LCD shall display the abnormality item code, when the [Clear n] key is pressed, it shall display the abnormality item code in the following sequence. [T H 0 1] [T H 0 2] [T H 0 3]
7	To clear all the abnormalities in the memory, press the [Clear n] Key for more than 5 sec while the self-diagnostic mode is stopped.	At this time, all the abnormalities item in the memory is cleared and is displayed on the LCD. [C L E A R] display for 1 sec. then, [T] is displayed.
8	To cancel the self-diagnostic mode press the [POWER] Key.	POWER is OFF. At the next POWER ON, normal operation shall be executed.

・If RAM check error occurs during microcomputer reset, COLDSTART shall be executed and all the error memory shall be cleared during RAM initialization.

13.6. Changer Reliability Test Mode

1. Doctor mode ON.
2. Press [2] on the remote control.
3. The flow below shall be done

   * During ageing test mode, press [STOP] button on remote control or main unit to stop the operation.

- During this series of operation, the number of its operation shall be shown in the alphanumeric display repeatedly.
  It shall start from [_ _ 00001]
- It shall move up one counter when step 1~8 of the above operations end.
  It shall display [_ _ 00000] after [_ _ 99999] has been reached.
- Press POWER key, tray return to PLAY position and then POWER is OFF.

During test mode, if mecha operation encounters abnormality or time over , retry operation shall be done but aging test mode shall stop

13.7. Changer Operation Checking

1. Doctor mode ON.
2. Press [DISC] key to ON
   Current disc setting shall be tray 1
   a. tray 1 load, tray 2 open then close
   b. tray 1 load, tray 3 open then close
   c. tray 1 load, tray 4 open then close
   d. tray 1 load, tray 5 open then close
   e. tray 1 load, while playing CD check mode 4 disc then close
   f. tray 1 stop unload
   g. CD check mode and then close
   h. tray 1 load
   i. after the above process, [CHNGR_OK] shall be displayed

- During this series of operation, the number of its operation shall be shown in the alphanumeric display repeatedly.
  It shall start from [_ _ 00001]
- It shall move up one counter when step 1~8 of the above operations end.
  It shall display [_ _ 00000] after [_ _ 99999] has been reached.
- Press POWER key, tray return to PLAY position and then POWER is OFF.

During test mode, if mecha operation encounters abnormality or time over, retry operation shall be done but ageing test mode shall stop

13.8. CR16 Mechanism Ageing Mode

To enter into ageing mode:

1. Enter into Doctor mode.
2. Press [2] button on the remote control. It enters into ageing mode.

Ageing process:

1. Tray 1 open.
2. It waits for 1 second (Note: Do not put any disc into the tray).
3. Tray 1 close.
4. TOC READ (Reading incomplete).
5. Tray 2 open and repeat process 1 to 4. (Process repeat until Tray 5).
6. Tray check.
7. Whole process complete (Counter on FL increased by 1).

Note: To exit ageing mode, press [⏻/❙] button. The unit will power down. Do not unplug the power cord until FL display shows “GOODBYE”. This is to avoid tray jam problem.

Display Example:	[00000T3OP]	...TRAY OPEN
	[00000T3CL]	...TRAY CLOSE
	[00000T3RE]	...TOC READING
	[00000T3CH]	...TRAY CHANGING

14 Procedure for Checking Operation of Individual Parts of Cassette Mechanism Unit

14.1. Operation Check with Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Fig. 6)
2. Supply DC5V to MOTOR. (→ MOTOR rotates.) (Fig. 5)
3. Insert a cassette tape to the unit.
4. Supply DC9V to the plunger, and turn the power ON and OFF. (→ Power +PL, -PL) (Fig. 5)
   a. FWD PLAY: Supply the plunger power in a flash. (ON: approx. 5msec)
   b. FWD FF: Supply the plunger power in a flash at PLAY mode. (ON: approx. 5msec)
   c. STOP: Supply the plunger power in a flash at FWD FF mode. (ON: approx. 5msec)
   d. REV PLAY: Supply the plunger power in a normal timing at STOP mode. (ON: approx. 200msec)
   e. REV REW: Supply the plunger power in a flash at REV PLAY mode. (ON: approx. 50msec)
   f. STOP: Supply the plunger power in a flash at FF mode. (ON: approx. 50msec)
   Repeat the operation (→ FWD PLAY)
   (Note) Other operation may start if a timing of supplying the plunger power is missed.

14.1.1. Connection Status between Mechanism and Power Supply (Motor, Plunger)

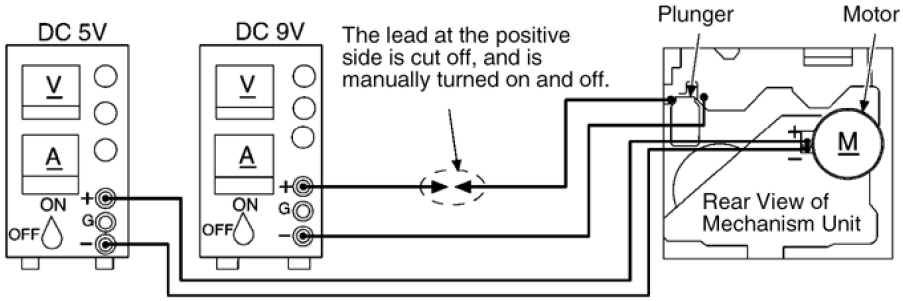


Fig. 5

14.1.2. Operative Parts of Mechanism Unit (EJECT lever fitted with rubber band, Plunger/Rib operation)

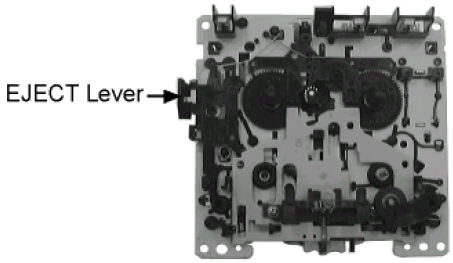


Fig. 6

14.2. Operation Check without Cassette Tape

1. Pull up the EJECT lever using a rubber band. (Fig. 6)
2. Supply DC5V to MOTOR. (→ MOTOR rotates.)
3. Lift up the mechanism unit's plunger/rib with the tip of a negative screwdriver, and operate the unit in the same timing as supplying the power. (Fig. 7)

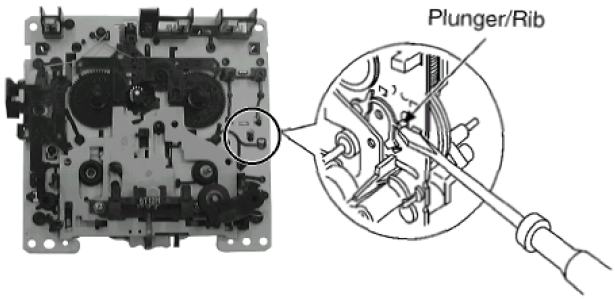


Fig. 7

15 Measurement And Adjustments

15.1. Tuner/CD Sections

No adjustment required.

15.2. Cassette Deck Section

15.2.1. Requirements

- Test tape (QZZCFM) (QZZCWAT)
- Normal blank cassette tape (QZZCRA)
- Frequency indicator
- Oscilloscope
- Electrical voltmeter
- Headphone jack output jig (Fig. 8)

15.2.2. Setting of Unit

- VOLUME: MAX

15.2.3. Preparations

1. Apply [11. Assembling and Disassembling].
2. Remove 4 screws from the mechanism unit to disassemble. [11. Assembling and Disassembling].
3. Connect the headphone jack output jig (Fig. 8) to headphone jack.

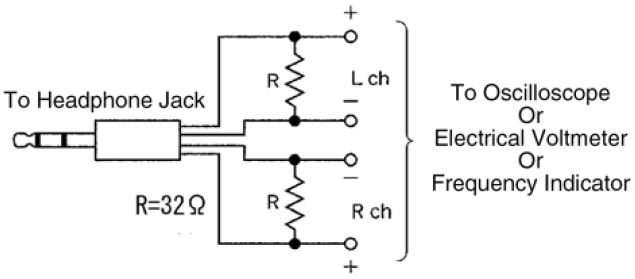


Fig. 8

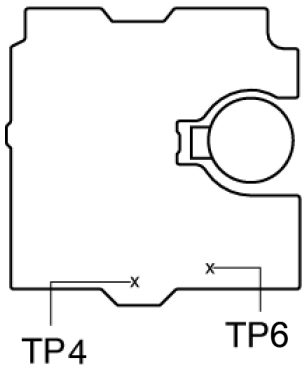


Fig. 9

15.2.4. Tape Speed Adjustment

- Normal speed adjustment (only during forward playback)
  (Product reference value: 3,000±90Hz)

1. Connect a frequency indicator. (Fig. 12)
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust the motor screw so that the following output level is produced. (Fig. 10)
   Adjustment Range: 3,000 ± 90Hz (a constant speed)

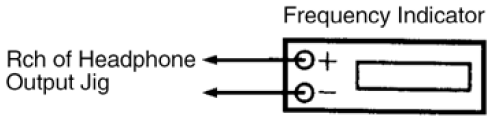


Fig. 10

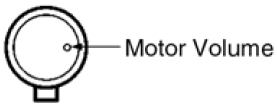


Fig. 11

15.2.5. Bias Voltage Check

1. Connect an electrical voltmeter. (Fig. 9) (Fig. 12)
2. Set the function to “TAPE” position.
3. Insert a normal blank cassette tape (QZZCRA).
4. While pressing and holding down [REC (● / ▮▮)] button, press [TAPE (►)] button to pause the recording mode. (Repeat pressing the buttons till the recording pause mode is activated.)
5. Check that the output level is within the standard range.

   Standard Range: 13.5 ± 4mV

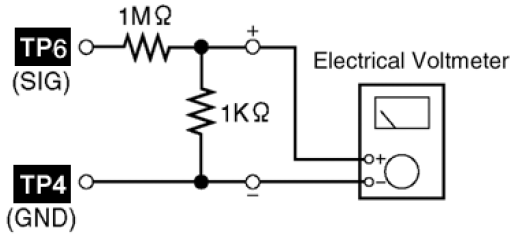


Fig. 12

15.2.6. Bias Frequency Check

1. Connect a digital frequency counter (Fig. 13).
2. Set the function to “TAPE” position.
3. Insert a normal blank cassette tape (QZZCRA) and press “REC” mode on main unit.
4. Check that the output frequency is within the standard range.

Standard Value: 98 ±8 kHz

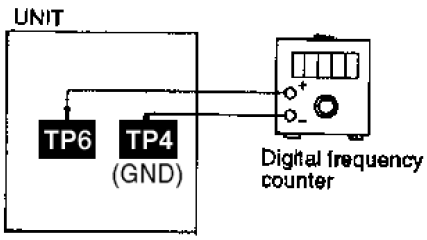


Fig. 13

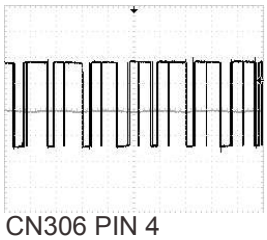
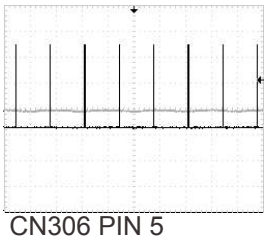
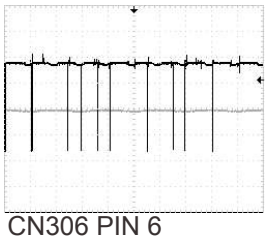
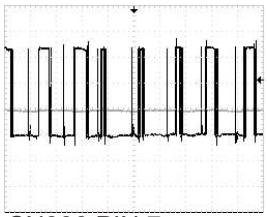
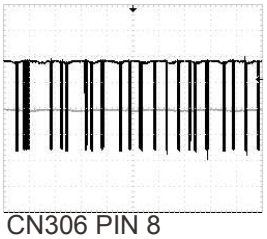
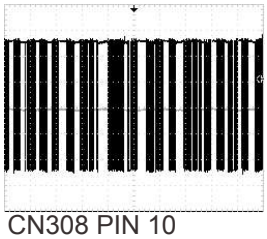
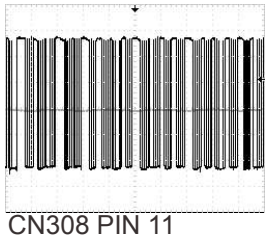
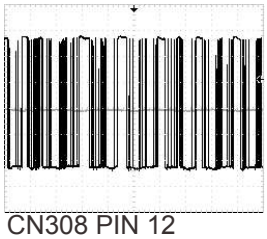
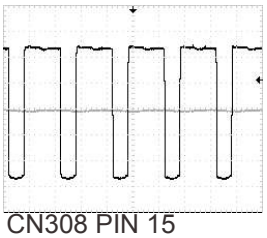
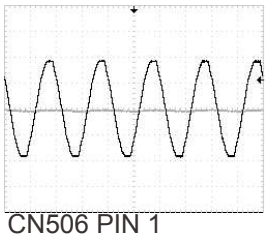
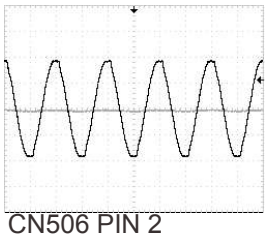
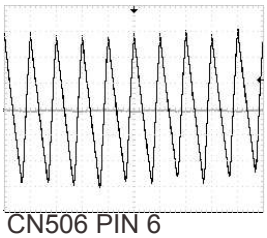
16 Voltage Measurement and Waveform Chart

ERROR: D:\printDB_0512\md0501011c2\volt_1.pdf

ERROR: D:\printDB_0512\md0501011c2\volt_2.pdf

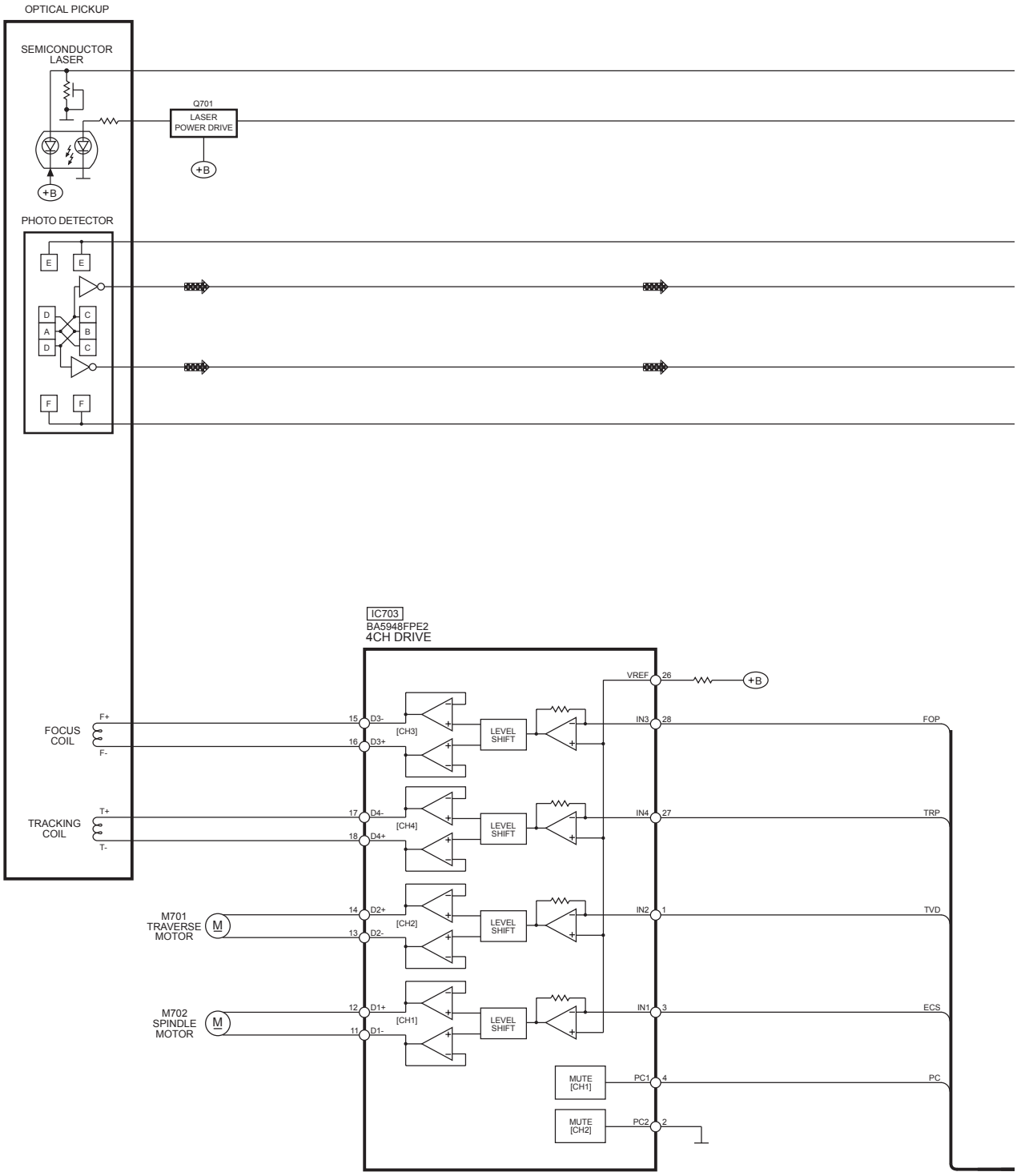
ERROR: D:\printDB_0512\md0501011c2\volt_3.pdf

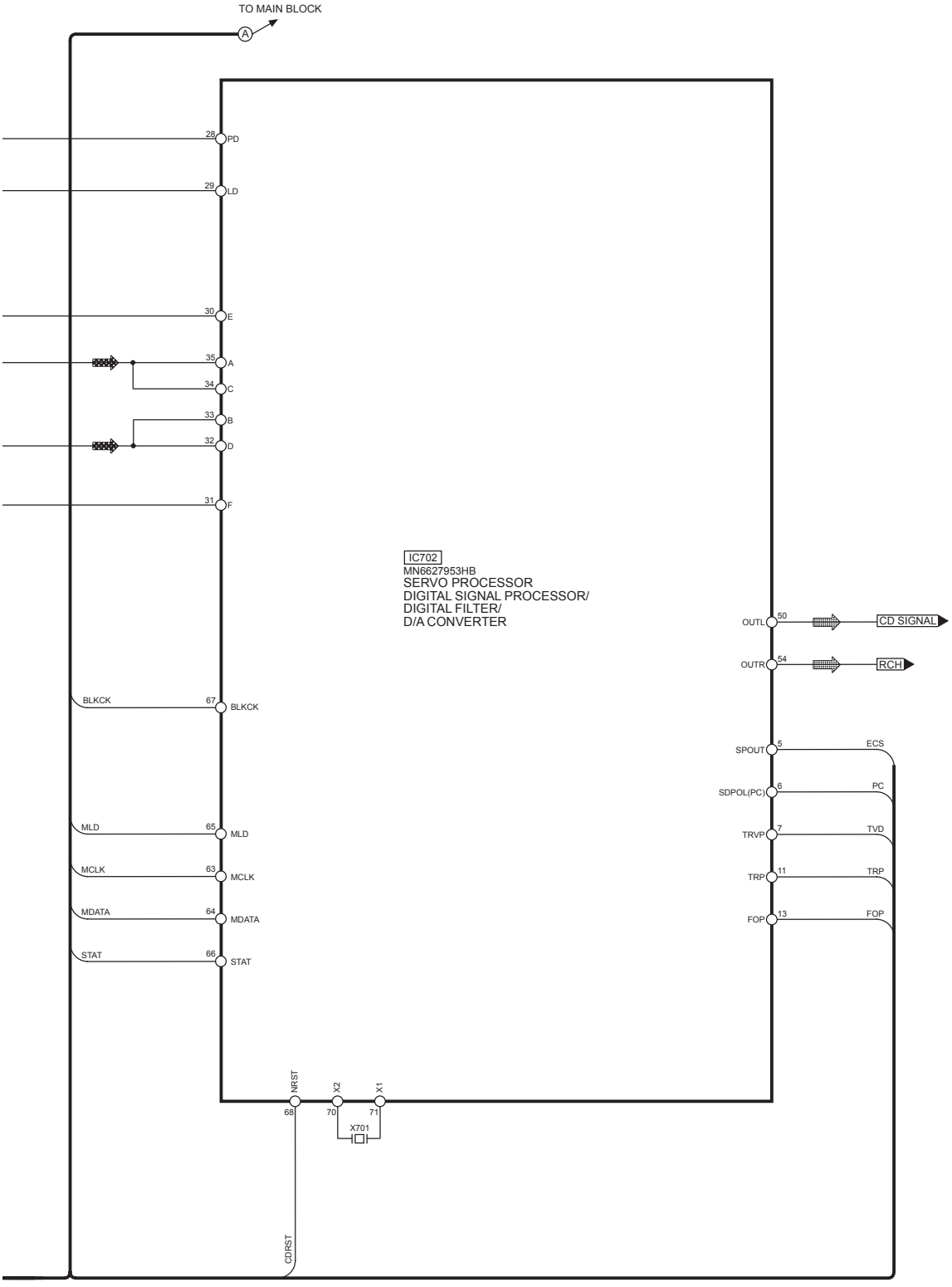
16.1. Waveform

 CN306 PIN 4 CD PLAY 3.64Vp-p (10msec.div)	 CN306 PIN 5 CD PLAY 3.24Vp-p (10msec.div)	 CN306 PIN 6 CD PLAY 3.76Vp-p (10msec.div)	 CN306 PIN 7 CD PLAY 4.12Vp-p (10msec.div)
 CN306 PIN 8 CD PLAY 3.96Vp-p (10msec.div)	 CN308 PIN 10 CD PLAY 5.40Vp-p (10msec.div)	 CN308 PIN 11 CD PLAY 5.32Vp-p (10msec.div)	 CN308 PIN 12 CD PLAY 5.20Vp-p (10msec.div)
 CN308 PIN 15 CD PLAY 5.20Vp-p (10msec.div)	 CN506 PIN 1 CD PLAY 75.2Vp-p (10msec.div)	 CN506 PIN 2 CD PLAY 74.4Vp-p (10msec.div)	 CN506 PIN 6 CD PLAY 1.22Vp-p (10msec.div)

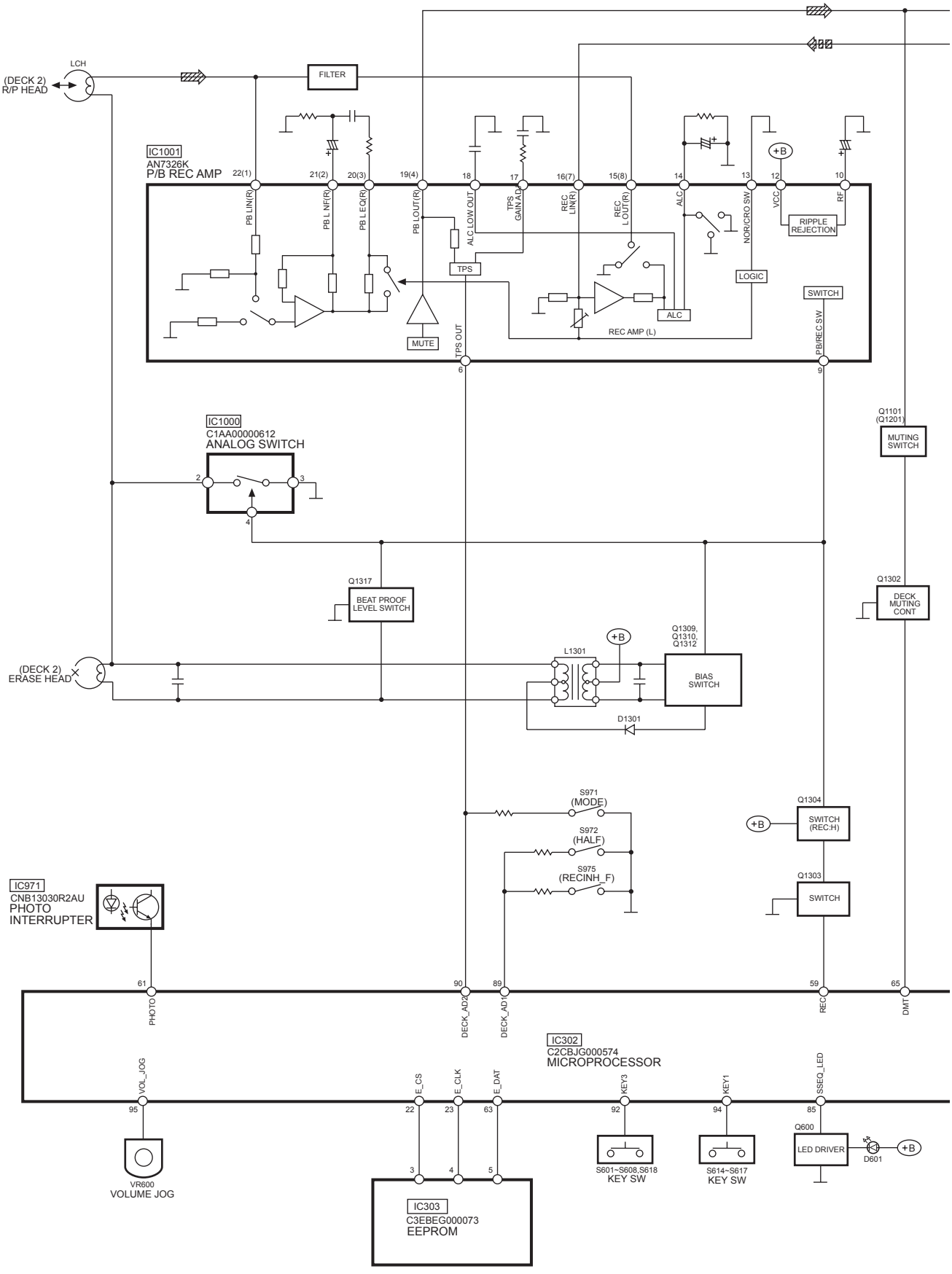
17 Block Diagram

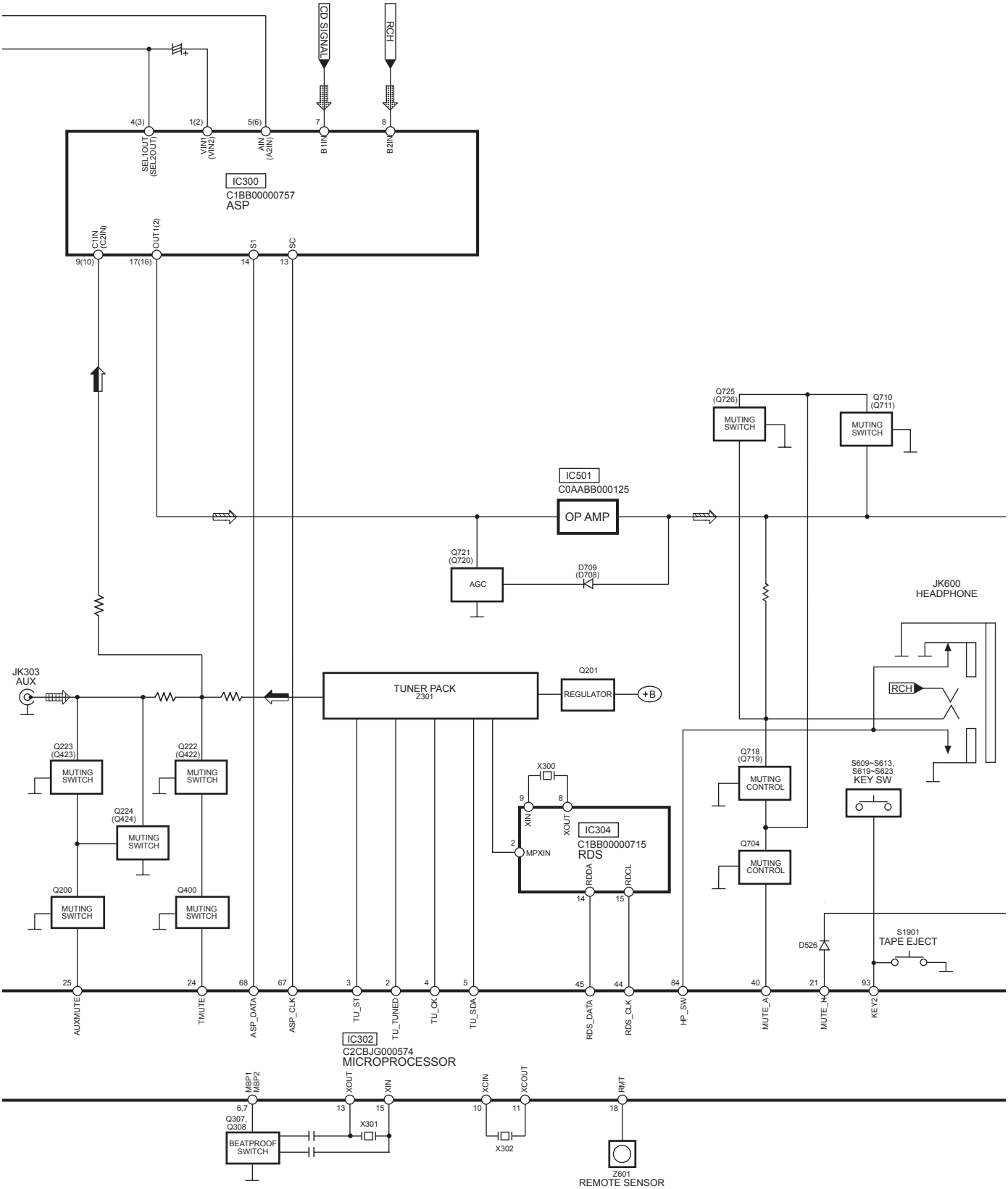
17.1. CD Servo Block

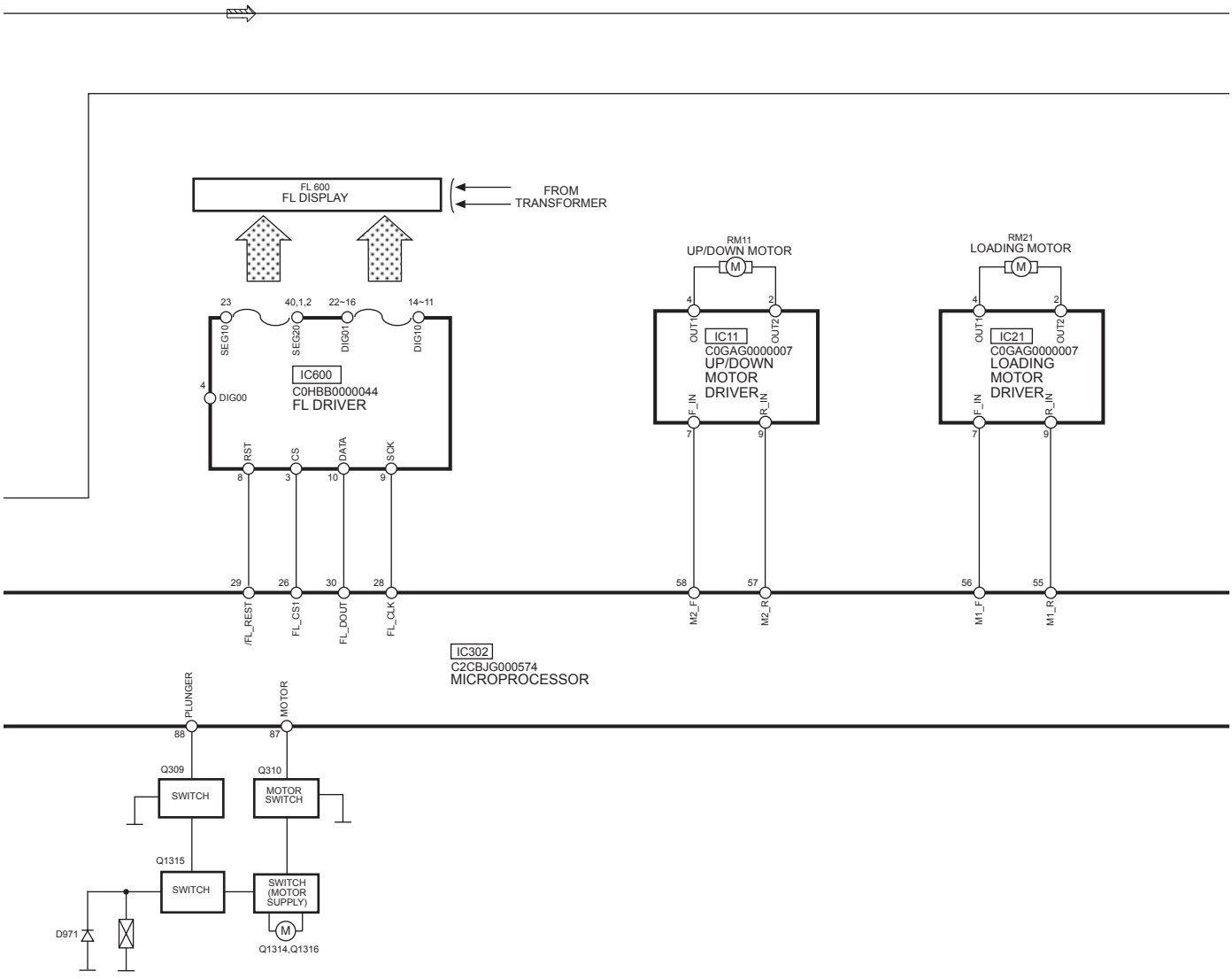


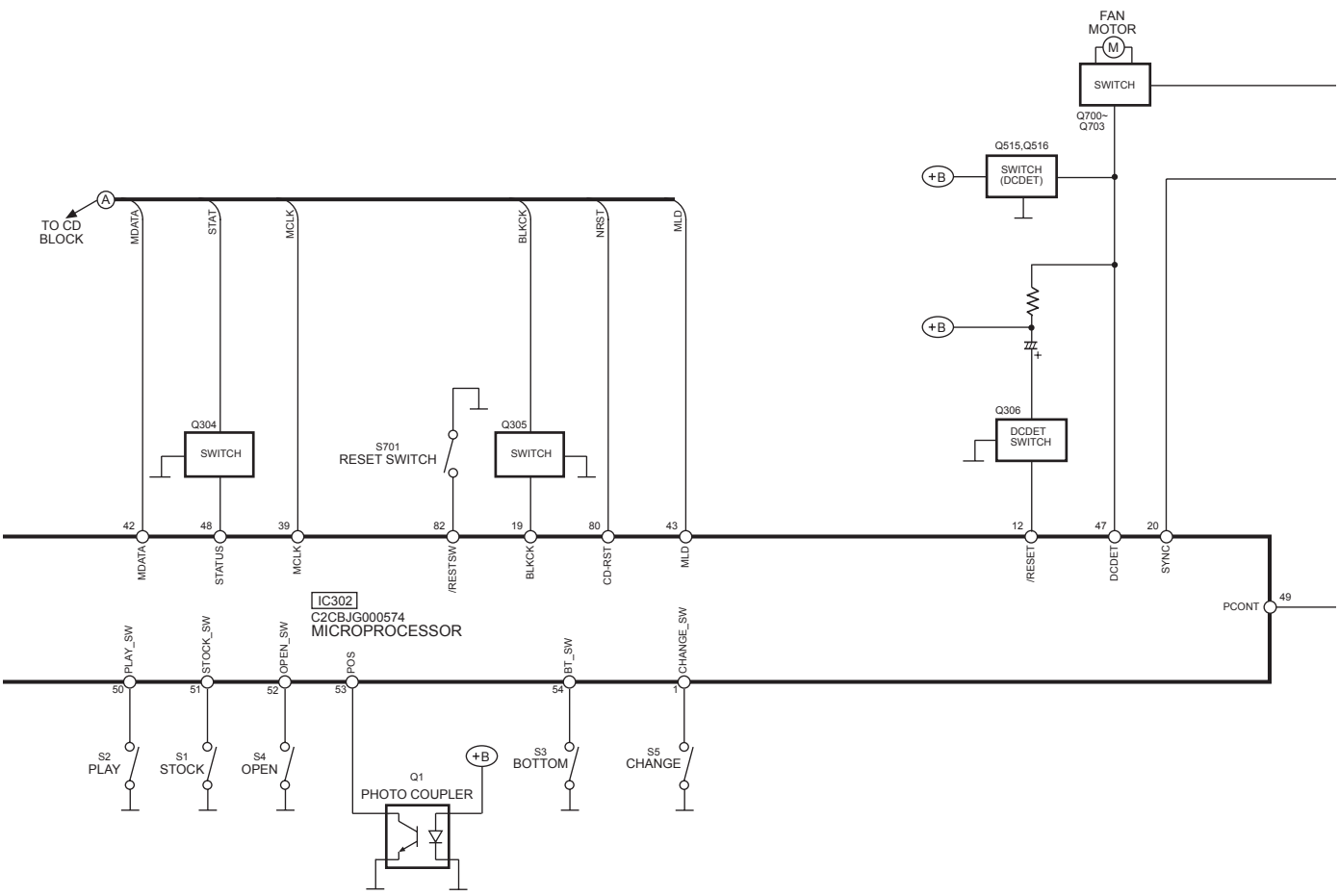

TO MAIN BLOCK
A
28 PD
29 LD
30 E
35 A
34 C
33 B
32 D
31 F
IC702
MN6627953HB
SERVO PROCESSOR
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/
D/A CONVERTER
OUTL 50 CD SIGNAL
OUTR 54 RCH
BLKCK 67 BLKCK
SPOUT 5 ECS
SDPOL(PC) 6 PC
MLD 65 MLD
TRVP 7 TVD
MCLK 63 MCLK
TRP 11 TRP
MDATA 64 MDATA
FOP 13 FOP
STAT 66 STAT
NRST 68
X2 70
X1 71
X701
CDRST

17.2. Main Block



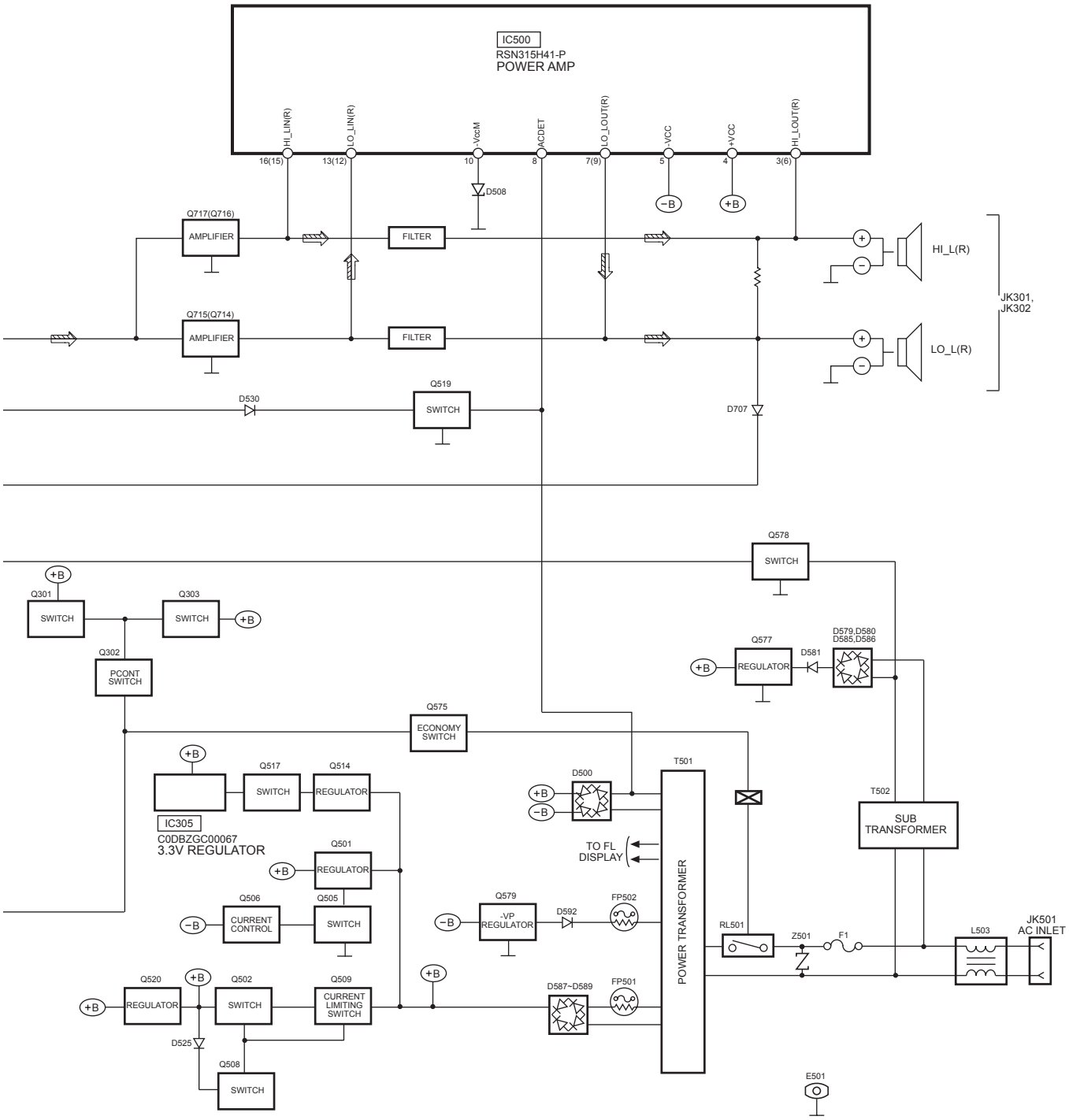

CD SIGNAL
RCH
IC300
C1BB00000757
ASP
SEL1OUT (SEL2OUT)
VIN1 (VIN2)
AIN (A2IN)
B1IN
B2IN
C1IN (C2IN)
OUT1(2)
S1
SC
IC501
C0AABB000125
OP AMP
Q725 (Q726)
Q710 (Q711)
MUTING SWITCH
Q721 (Q720)
AGC
D709 (D708)
JK600
HEADPHONE
JK303
AUX
TUNER PACK
Z301
Q201
REGULATOR
+B
RCH
Q223 (Q423)
Q222 (Q422)
Q224 (Q424)
Q200
Q400
X300
IC304
C1BB00000715
RDS
XIN
XOUT
MPXIN
RDDA
RDCL
Q718 (Q719)
MUTING CONTROL
Q704
S609~S613, S619~S623
KEY SW
D526
S1901
TAPE EJECT
AUXMUTE
TMUTE
ASP_DATA
ASP_CLK
TU_ST
TU_TUNED
TU_CK
TU_SDA
RDS_DATA
RDS_CLK
HP_SW
MUTE_A
MUTE_H
KEY2
IC302
C2CBJG000574
MICROPROCESSOR
MBP1
MBP2
XOUT
XIN
XCIN
XCOUT
RMT
Q307, Q308
BEATPROOF SWITCH
X301
X302
Z601
REMOTE SENSOR


FL 600
FL DISPLAY
FROM
TRANSFORMER
23
40,1,2
22~16
14~11
SEG10
SEG20
DIG01
DIG10
4
DIG00
IC600
C0HBB0000044
FL DRIVER
RST
CS
DATA
SCK
8
3
10
9
29
26
30
28
/FL_REST
FL_CS1
FL_DOUT
FL_CLK
RM11
UP/DOWN MOTOR
4
2
OUT1
OUT2
IC11
C0GAG0000007
UP/DOWN
MOTOR
DRIVER
F_IN
R_IN
7
9
58
57
M2_F
M2_R
RM21
LOADING MOTOR
4
2
OUT1
OUT2
IC21
C0GAG0000007
LOADING
MOTOR
DRIVER
F_IN
R_IN
7
9
56
55
M1_F
M1_R
IC302
C2CBJG000574
MICROPROCESSOR
PLUNGER
MOTOR
88
87
Q309
Q310
SWITCH
MOTOR
SWITCH
Q1315
SWITCH
SWITCH
(MOTOR
SUPPLY)
D971
M
Q1314,Q1316


FAN
MOTOR
M
SWITCH
Q700~
Q703
Q515,Q516
+B
SWITCH
(DCDET)
A
TO CD
BLOCK
MDATA
STAT
MCLK
BLKCK
NRST
MLD
+B
Q306
DCDET
SWITCH
Q304
SWITCH
S701
RESET SWITCH
Q305
SWITCH
42
48
39
82
19
80
43
12
47
20
MDATA
STATUS
MCLK
/RESTSW
BLKCK
CD-RST
MLD
/RESET
DCDET
SYNC
PCONT
49
IC302
C2CBJG000574
MICROPROCESSOR
PLAY_SW
STOCK_SW
OPEN_SW
POS
BT_SW
CHANGE_SW
50
51
52
53
54
1
S2
PLAY
S1
STOCK
S4
OPEN
Q1
PHOTO COUPLER
+B
S3
BOTTOM
S5
CHANGE

SIGNAL LINES

: MAIN SIGNAL LINE
: FM/AM SIGNAL LINE
: TAPE PLAYBACK SIGNAL LINE
: TAPE RECORD SIGNAL LINE
: CD-DA SIGNAL LINE
: AUX SIGNAL LINE
( ) Indicates Pin No. of Right Channel
Note : Signal Lines are applicable to the Left Channel only.



18 Notes of Schematic Diagram

(All schematic diagrams may be modified at any time with the development of new technology)

Note :

S1	Stock switch
S2	Play switch
S3	Bottom switch
S4	Open switch
S5	Change switch
S601	CD 1 switch
S602	CD 2 switch
S603	CD 3 switch
S604	CD 4 switch
S605	CD 5 switch
S606	CD Play/Pause switch
S607	Tape switch
S608	Tuner switch
S609	Track Up switch
S610	Track Down switch
S611	Album Up switch
S612	Album Down switch
S613	SSEQ switch
S614	Power switch
S615	Surround switch
S616	AUX switch
S617	CD Check switch
S618	Stop switch
S619	Open/Close switch
S620	CD Change switch
S621	REV switch
S622	FWD switch
S623	REC switch
S701	REST switch
S971	Mode switch
S972	Half switch
S973	CR02 switch
S975	Recinh_F switch
S1901	Tape Eject switch
VR600	Volume VR

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
- **Importance safety notice :**

  Components identified by ⚠ 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.

Caution !

IC, LSI and VLSI are sensitive to static electricity.

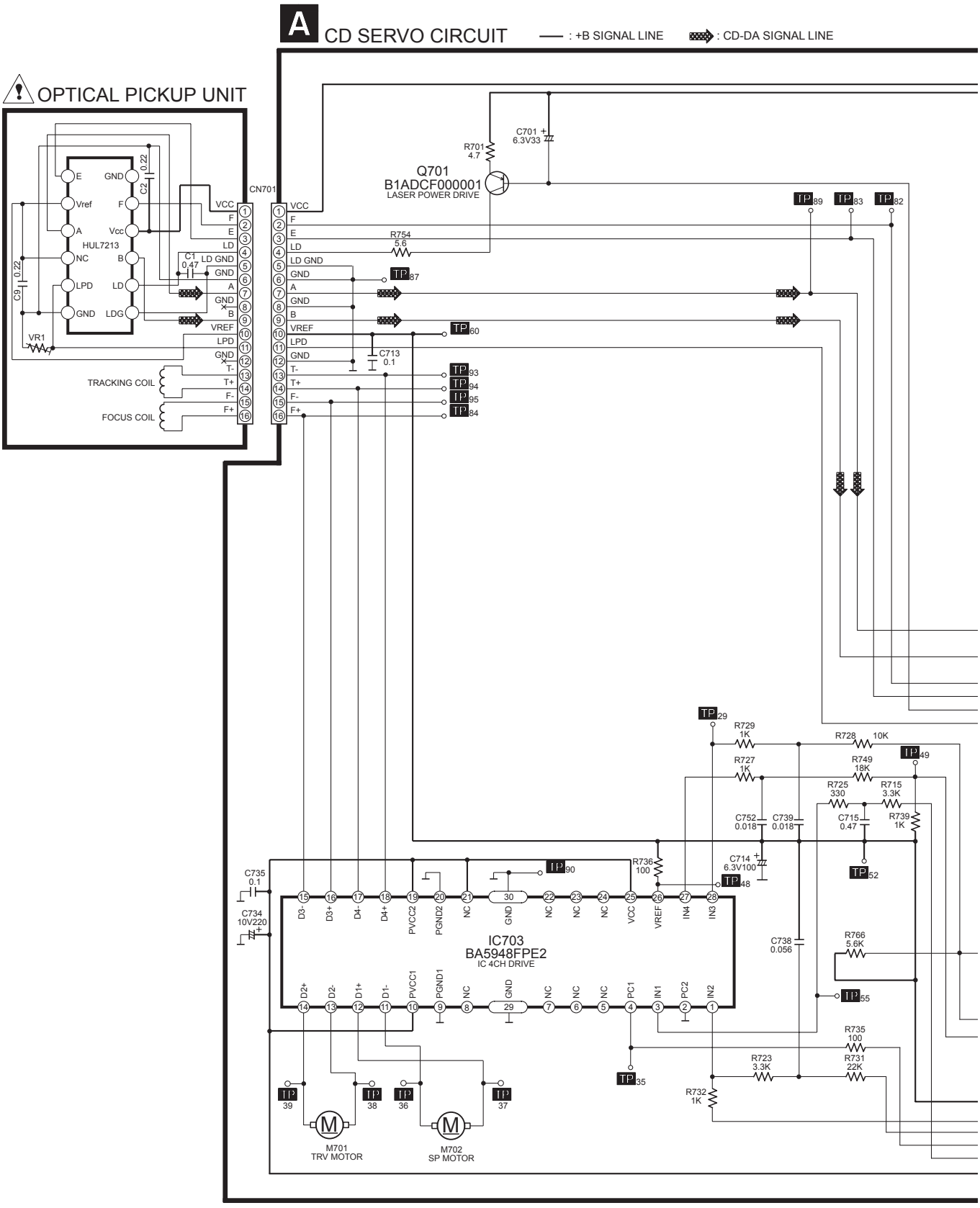
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminium foil.
- Put a conductive mat on the work table.
- Ground the soldering iron.
- Do not touch the pins of IC, LSI or VLSI with fingers directly.

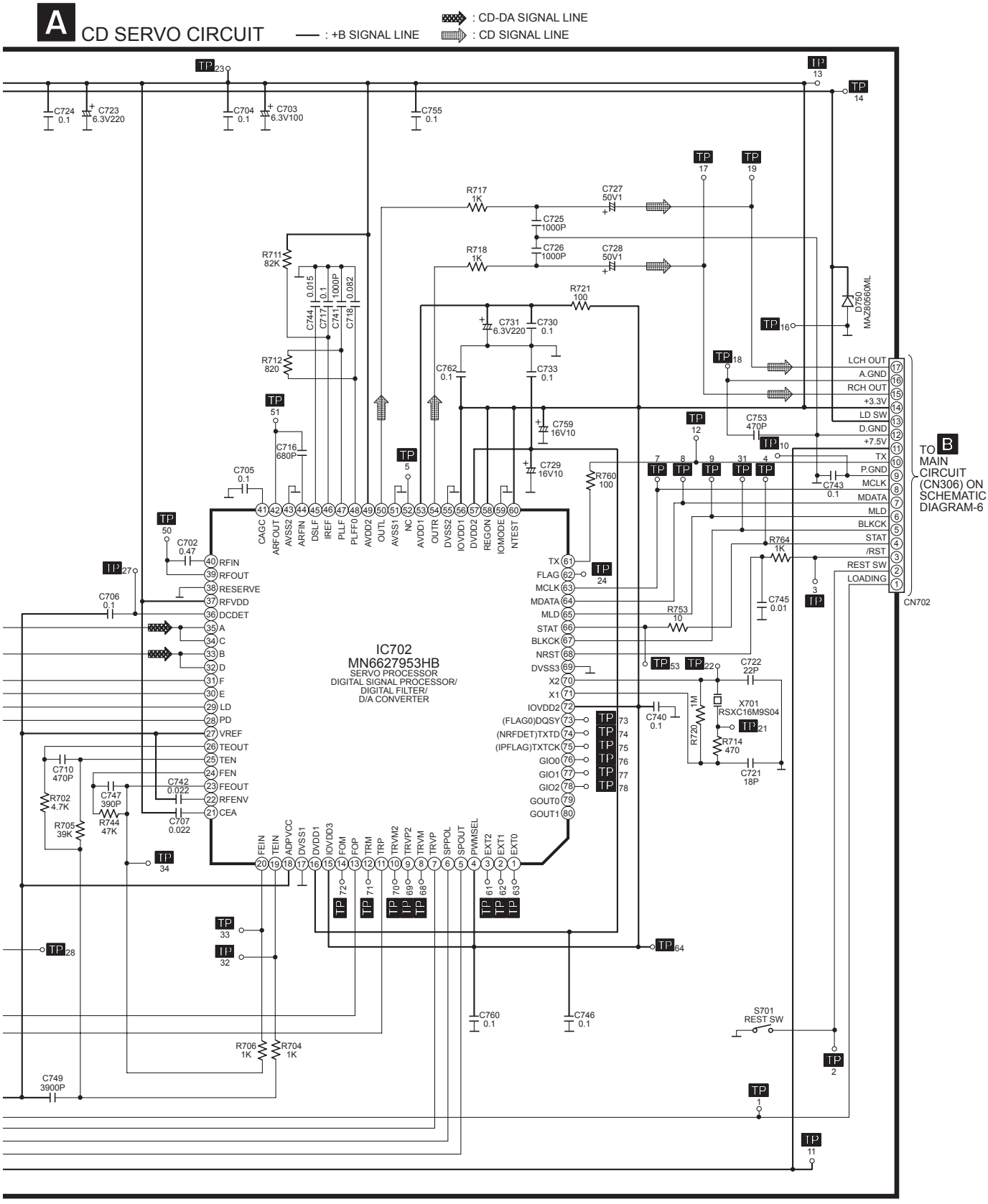
19 Schematic Diagram

19.1. CD Servo Circuit

SCHEMATIC DIAGRAM - 1



SCHEMATIC DIAGRAM - 2



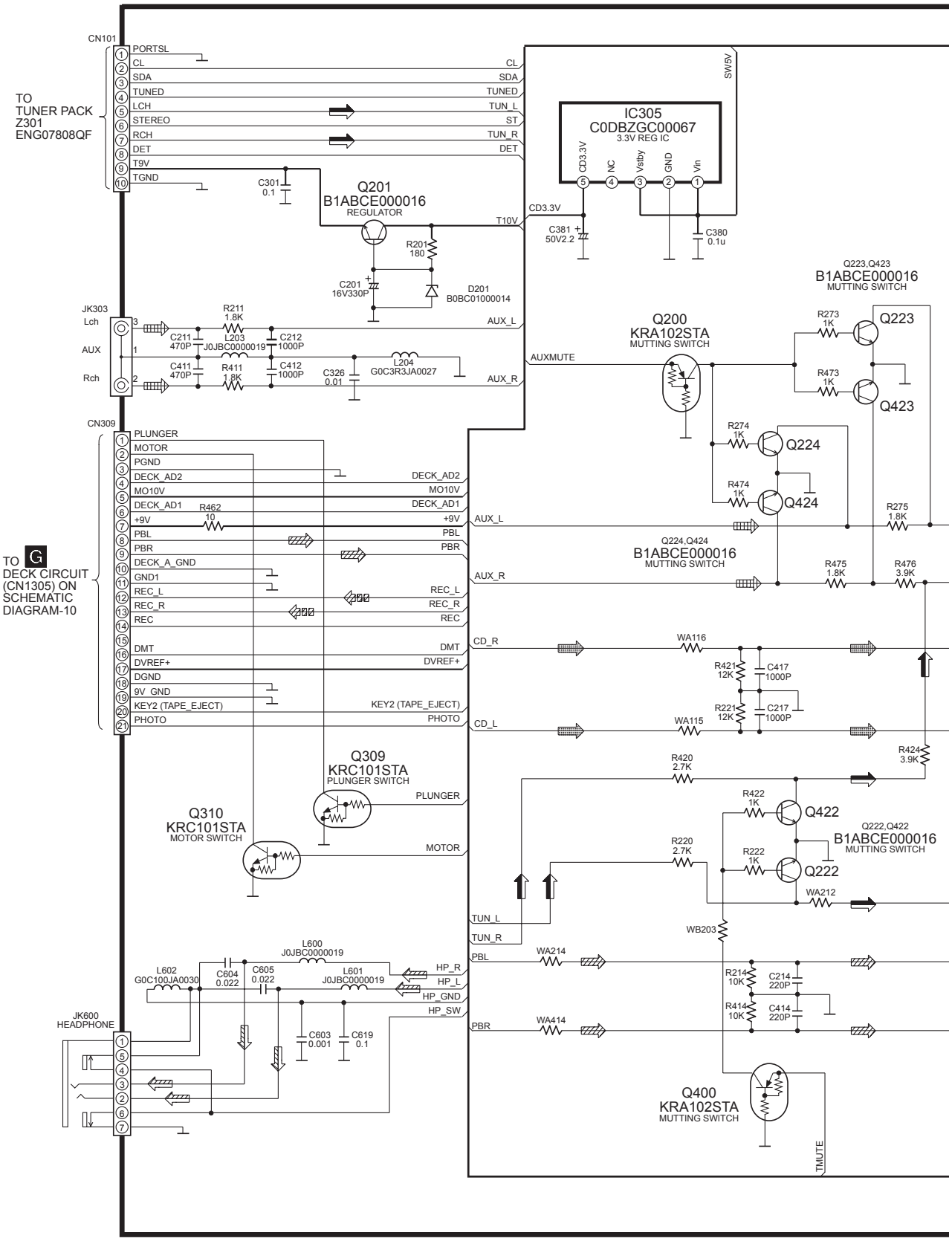
19.2. Main Circuit

SCHEMATIC DIAGRAM-3

B MAIN CIRCUIT

: +B SIGNAL LINE

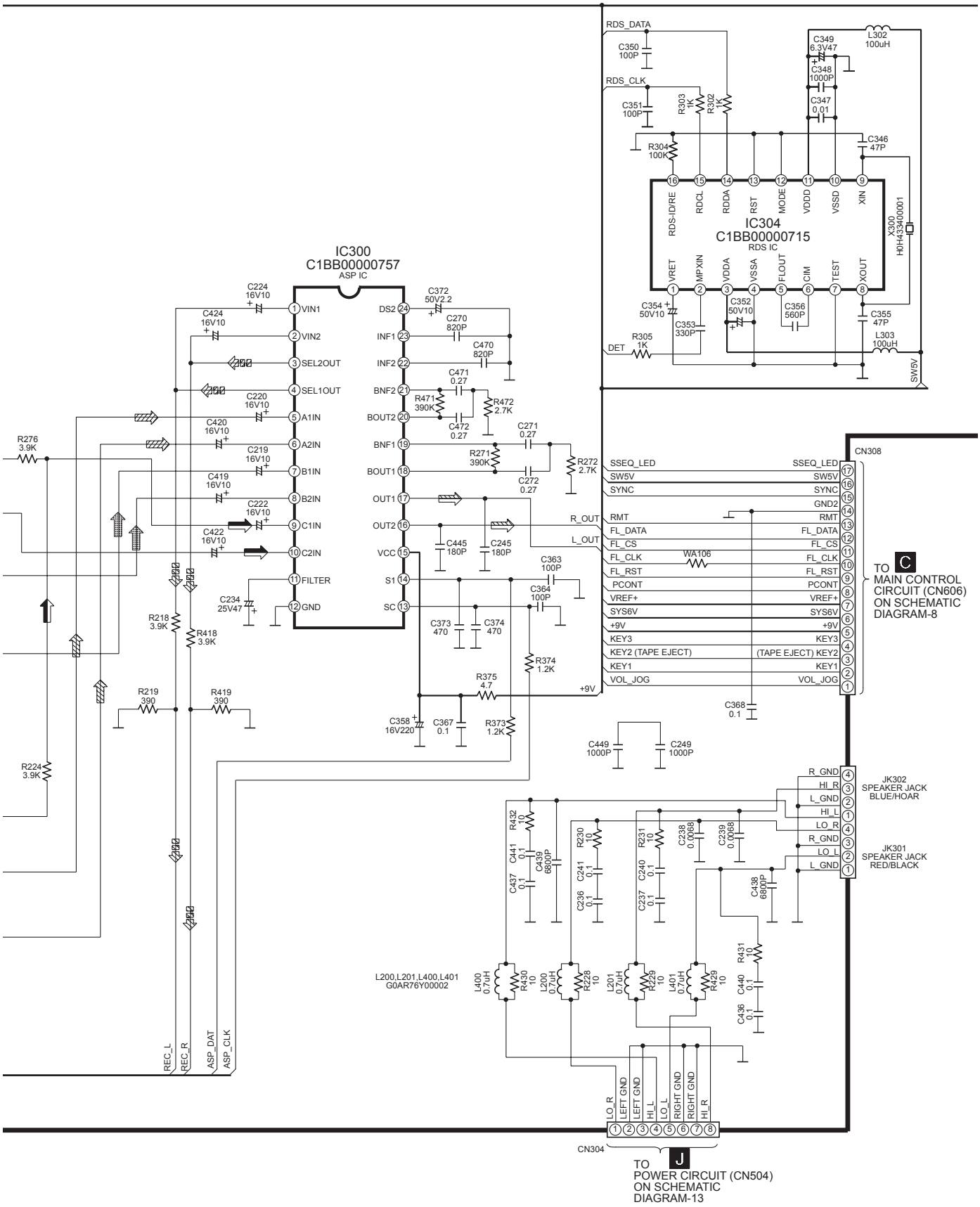
: MAIN SIGNAL LINE
: TAPE PLAYBACK SIGNAL LINE
: TAPE RECORD SIGNAL LINE
: FM/AM SIGNAL LINE
: CD SIGNAL LINE
: AUX SIGNAL LINE



SCHEMATIC DIAGRAM-4

B MAIN CIRCUIT

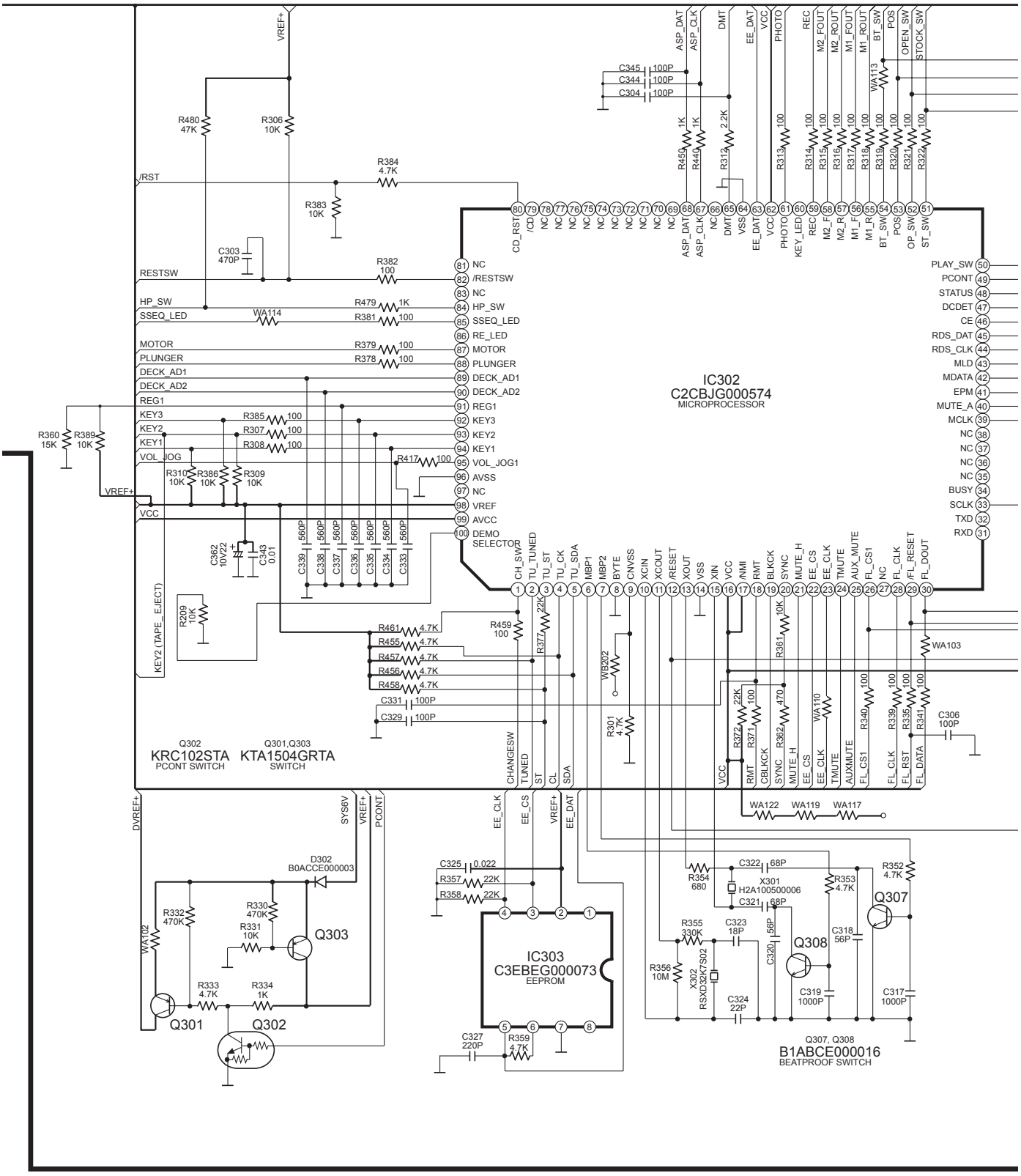
: +B SIGNAL LINE
: MAIN SIGNAL LINE
: FM/AM SIGNAL LINE
: TAPE PLAYBACK SIGNAL LINE
: TAPE RECORD SIGNAL LINE
: CD SIGNAL LINE



SCHEMATIC DIAGRAM-5

B MAIN CIRCUIT

——— : +B SIGNAL LINE



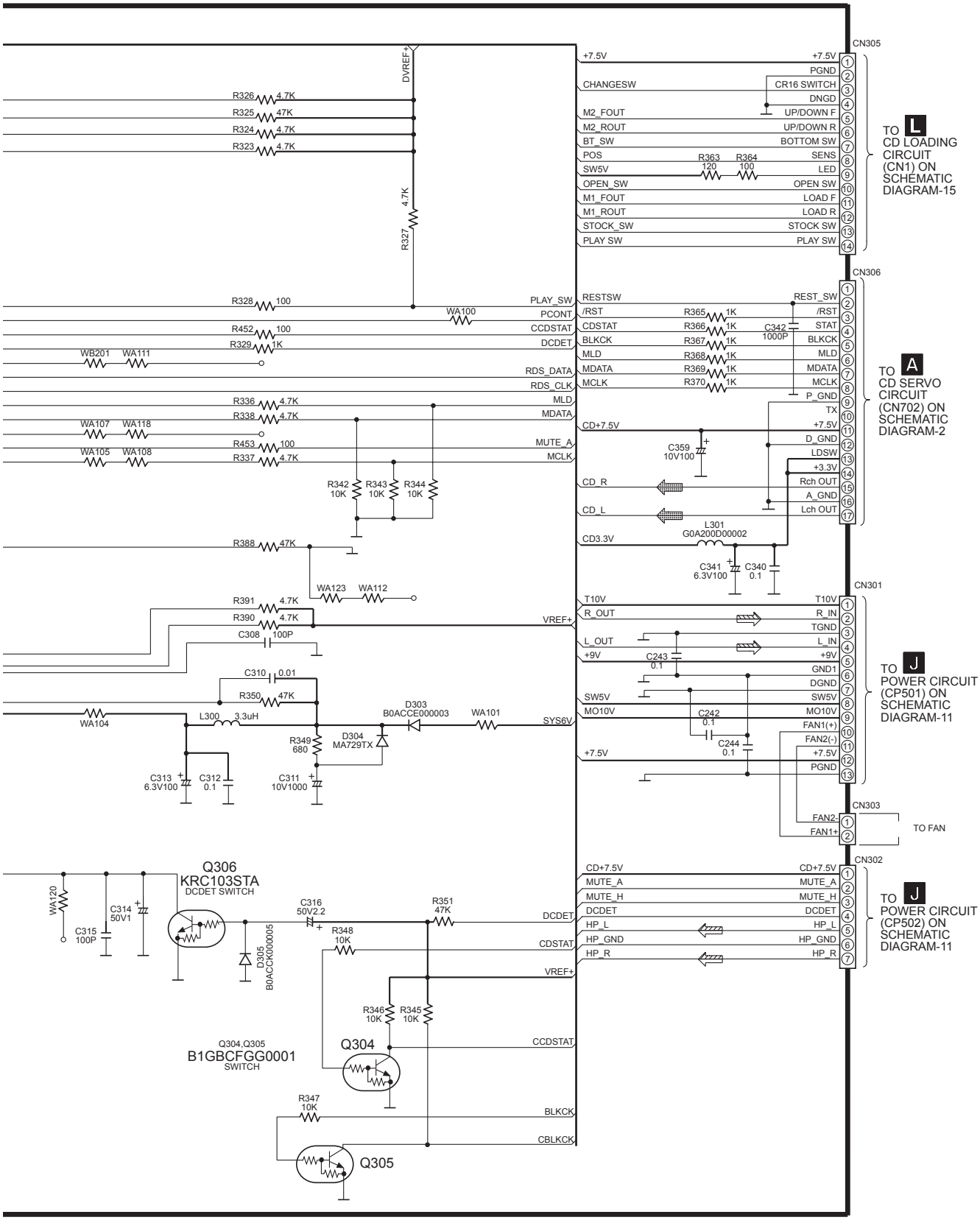
SCHEMATIC DIAGRAM-6

B MAIN CIRCUIT

: +B SIGNAL LINE

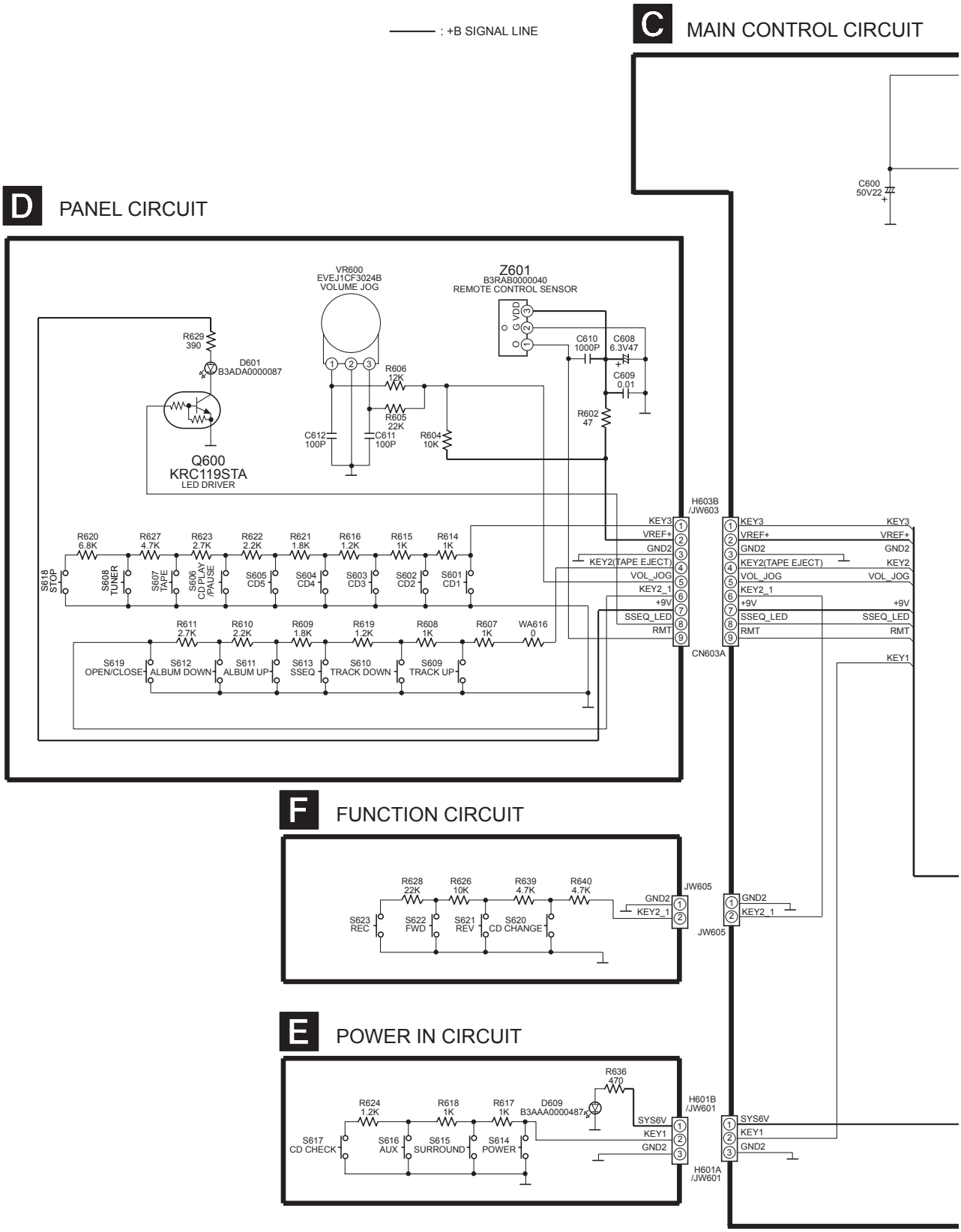
: MAIN SIGNAL LINE

: CD SIGNAL LINE



19.3. Main Control Circuit, Panel Circuit, Power-In Circuit and Function Circuit

SCHEMATIC DIAGRAM-7

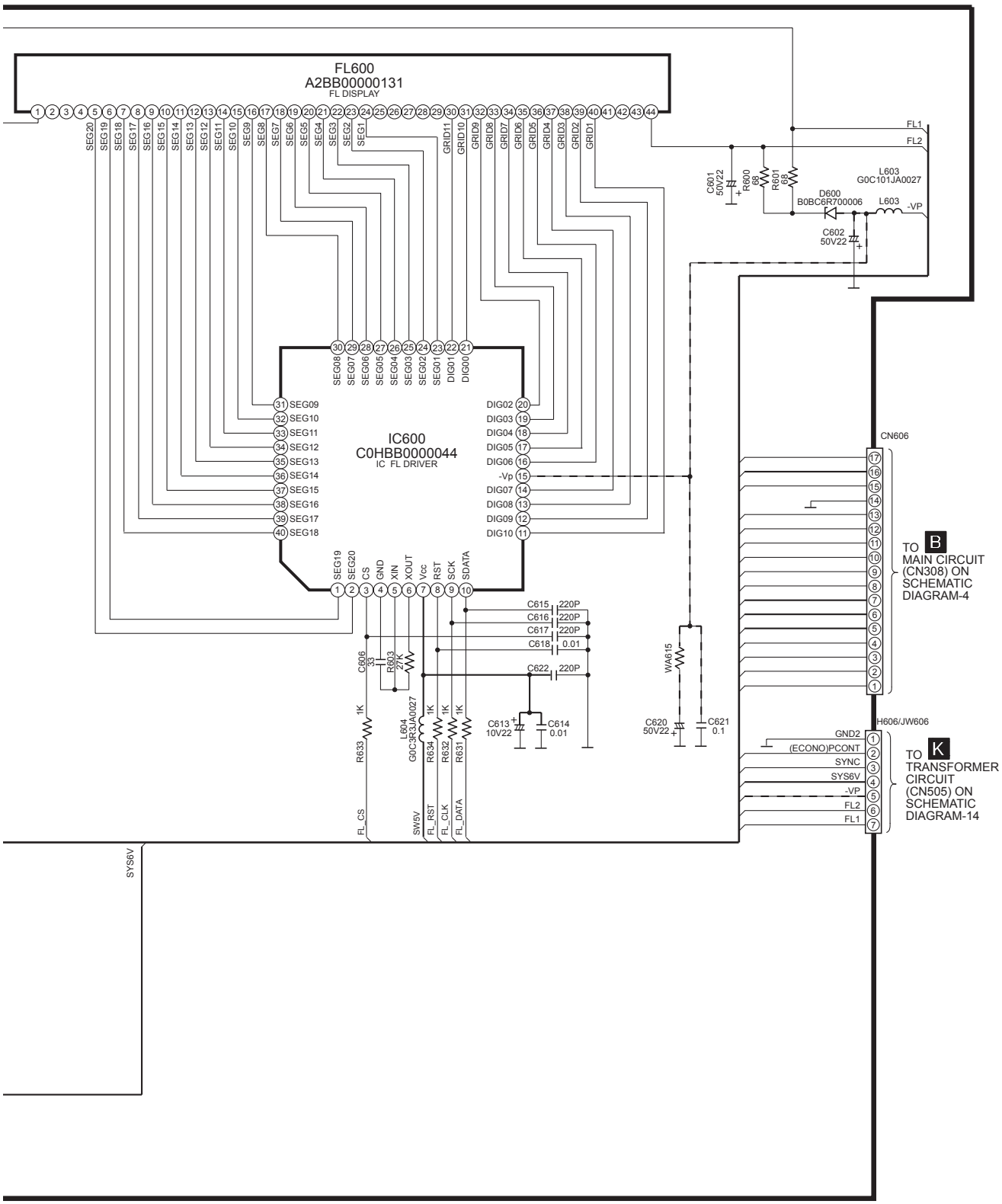


SCHEMATIC DIAGRAM-8

C MAIN CONTROL CIRCUIT

– – – : +B SIGNAL LINE

——— : +B SIGNAL LINE



19.4. Deck Circuit, Deck Mechanism Circuit and Tape Eject Circuit

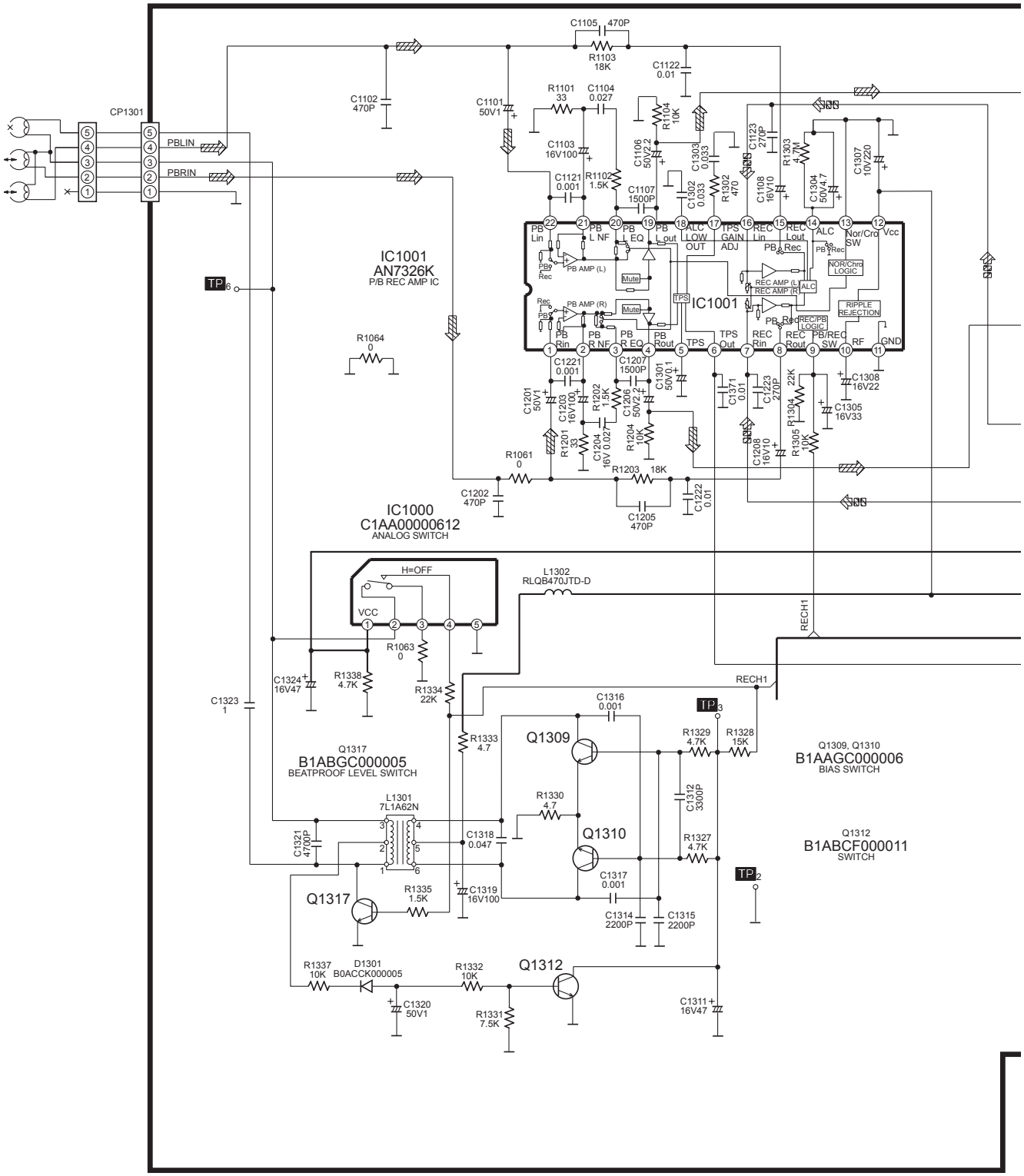
SCHEMATIC DIAGRAM-9

G DECK CIRCUIT

: +B SIGNAL LINE

: TAPE PLAYBACK SIGNAL LINE

: TAPE RECORD SIGNAL LINE



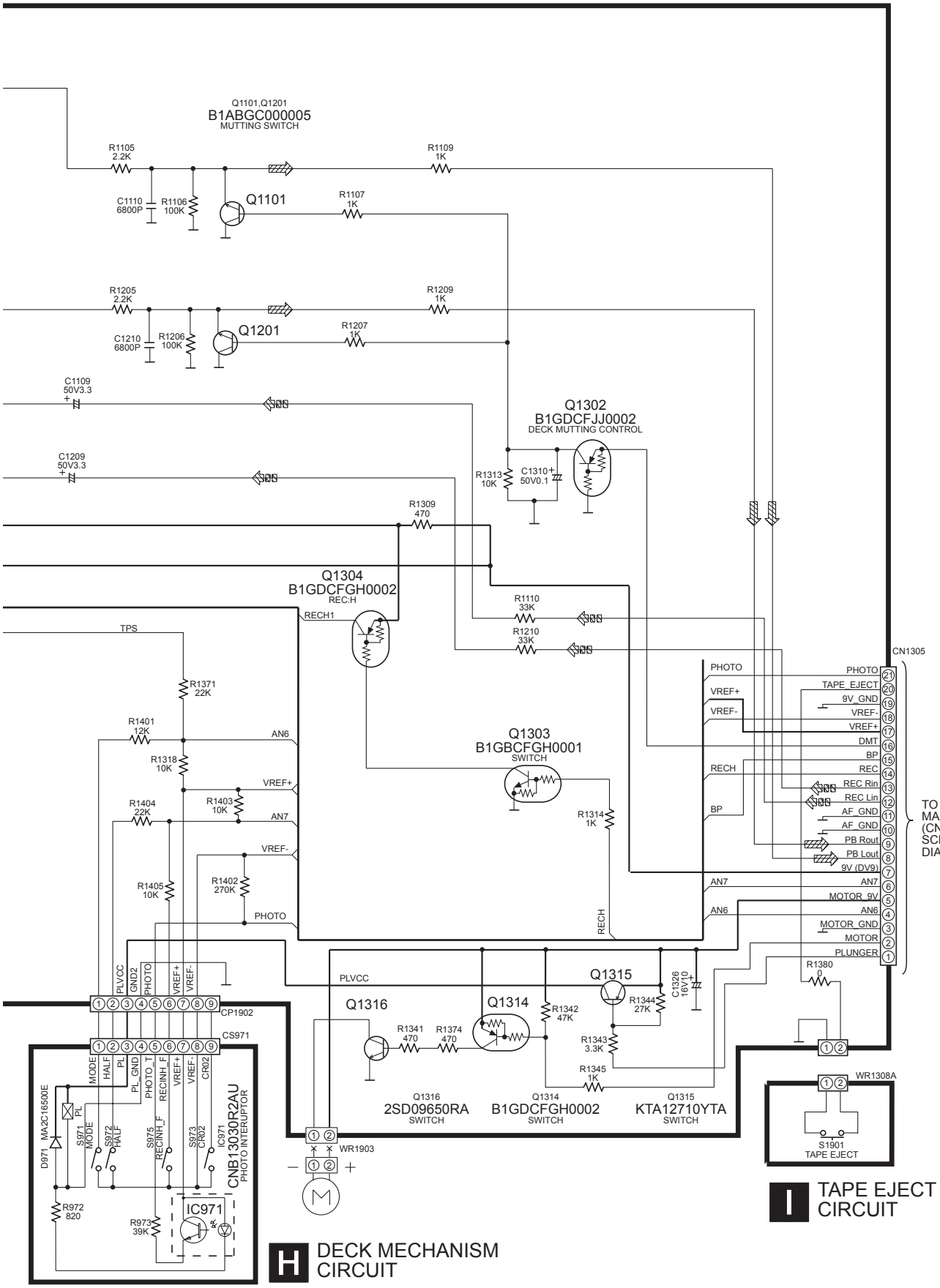
SCHEMATIC DIAGRAM-10

G DECK CIRCUIT

: +B SIGNAL LINE

: TAPE PLAYBACK SIGNAL LINE

: TAPE RECORD SIGNAL LINE



H DECK MECHANISM CIRCUIT

I TAPE EJECT CIRCUIT

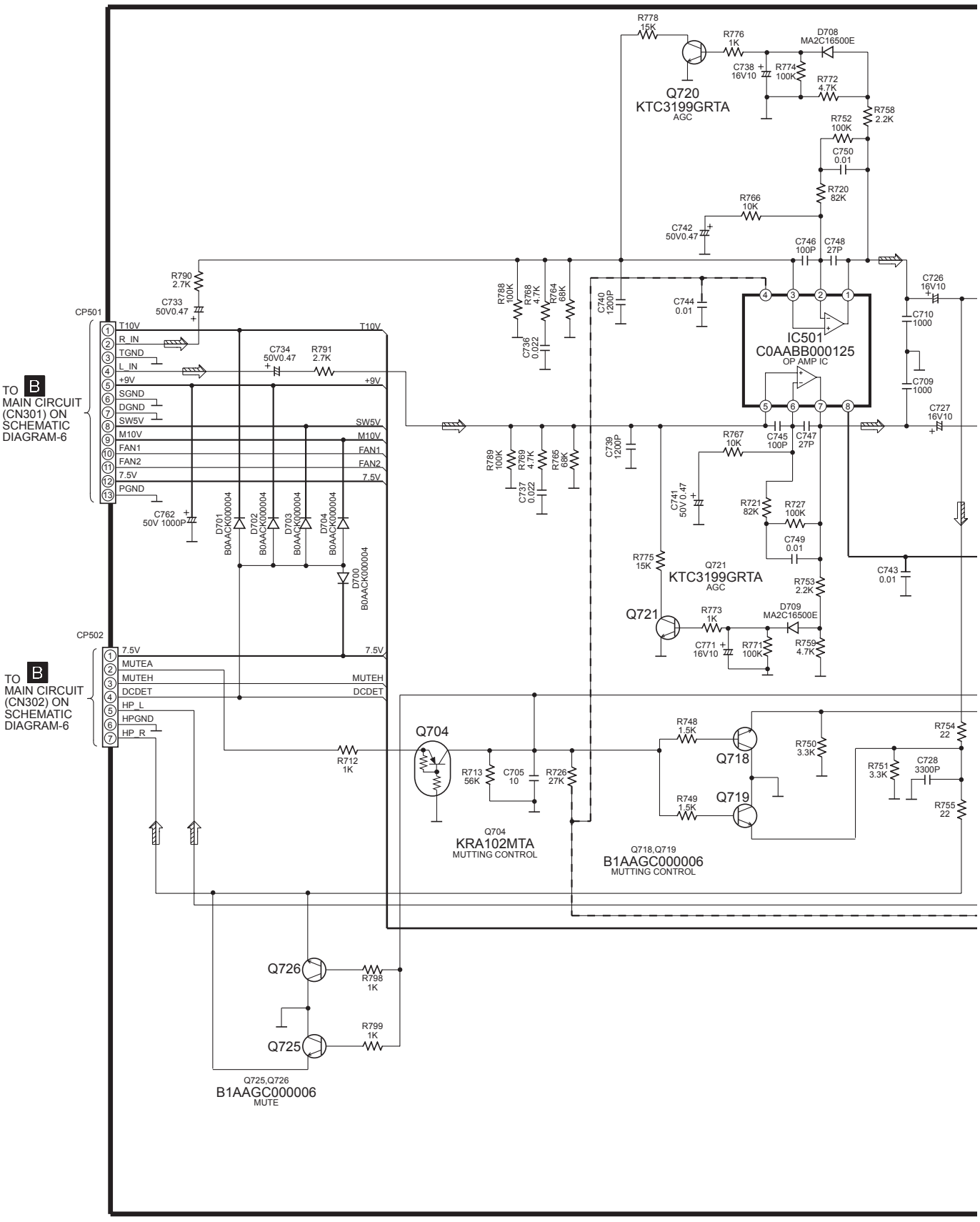
19.5. Power Circuit

SCHEMATIC DIAGRAM-11

J POWER CIRCUIT

: -B SIGNAL LINE

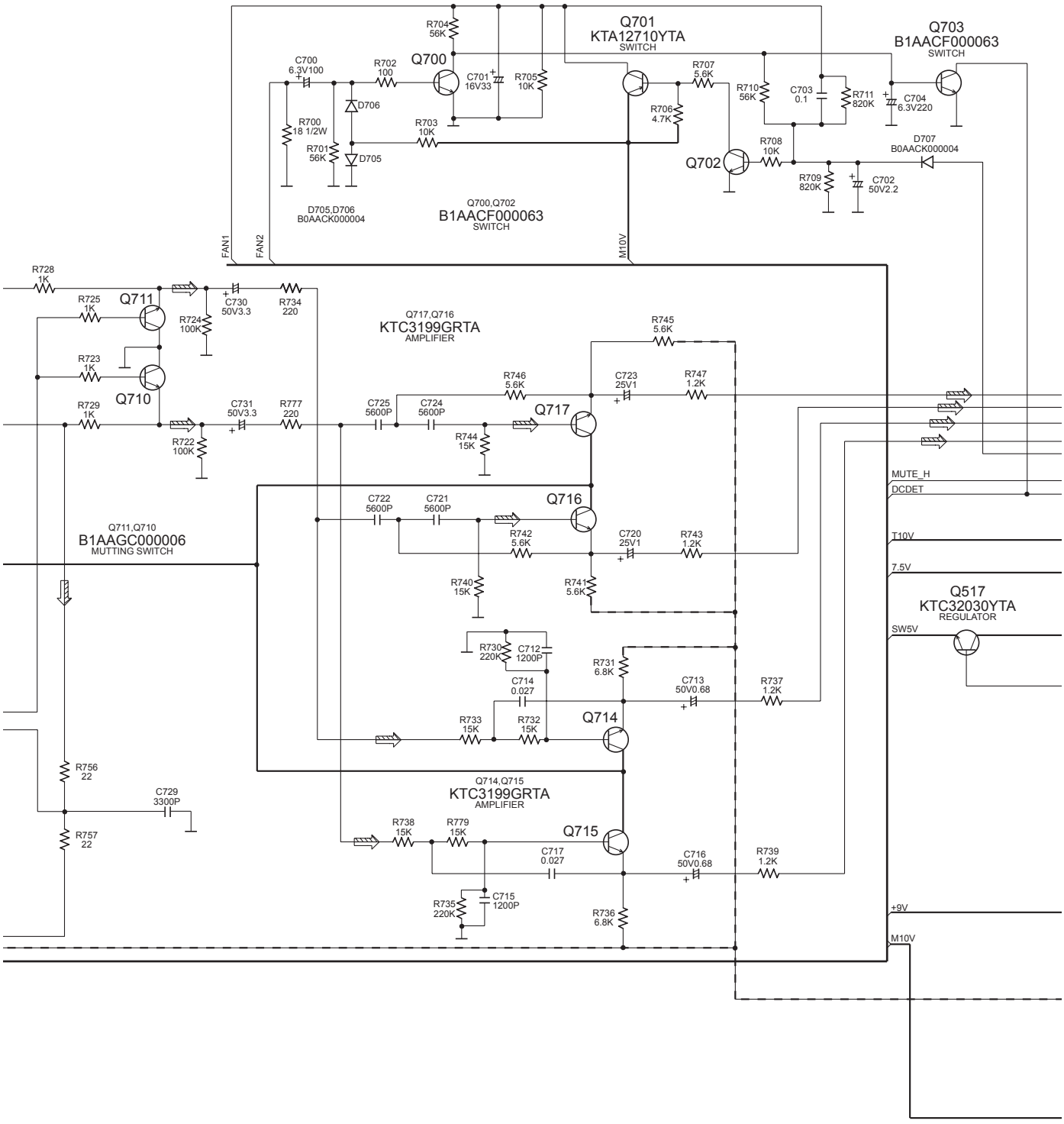
: +B SIGNAL LINE : MAIN SIGNAL LINE



SCHEMATIC DIAGRAM-12

J POWER CIRCUIT

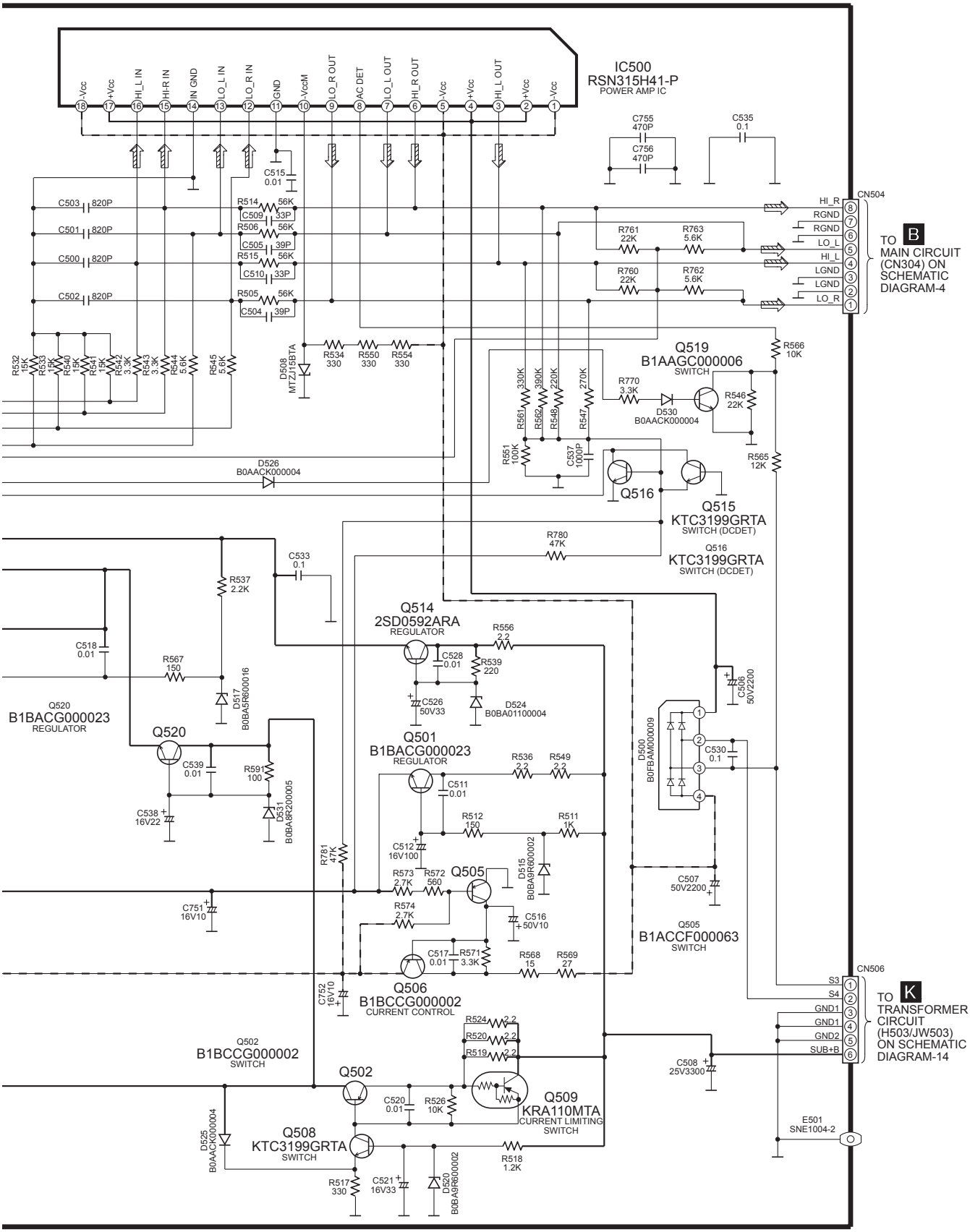
: -B SIGNAL LINE
: +B SIGNAL LINE
: MAIN SIGNAL LINE



SCHEMATIC DIAGRAM-13

J POWER CIRCUIT

: -B SIGNAL LINE
: +B SIGNAL LINE
: MAIN SIGNAL LINE



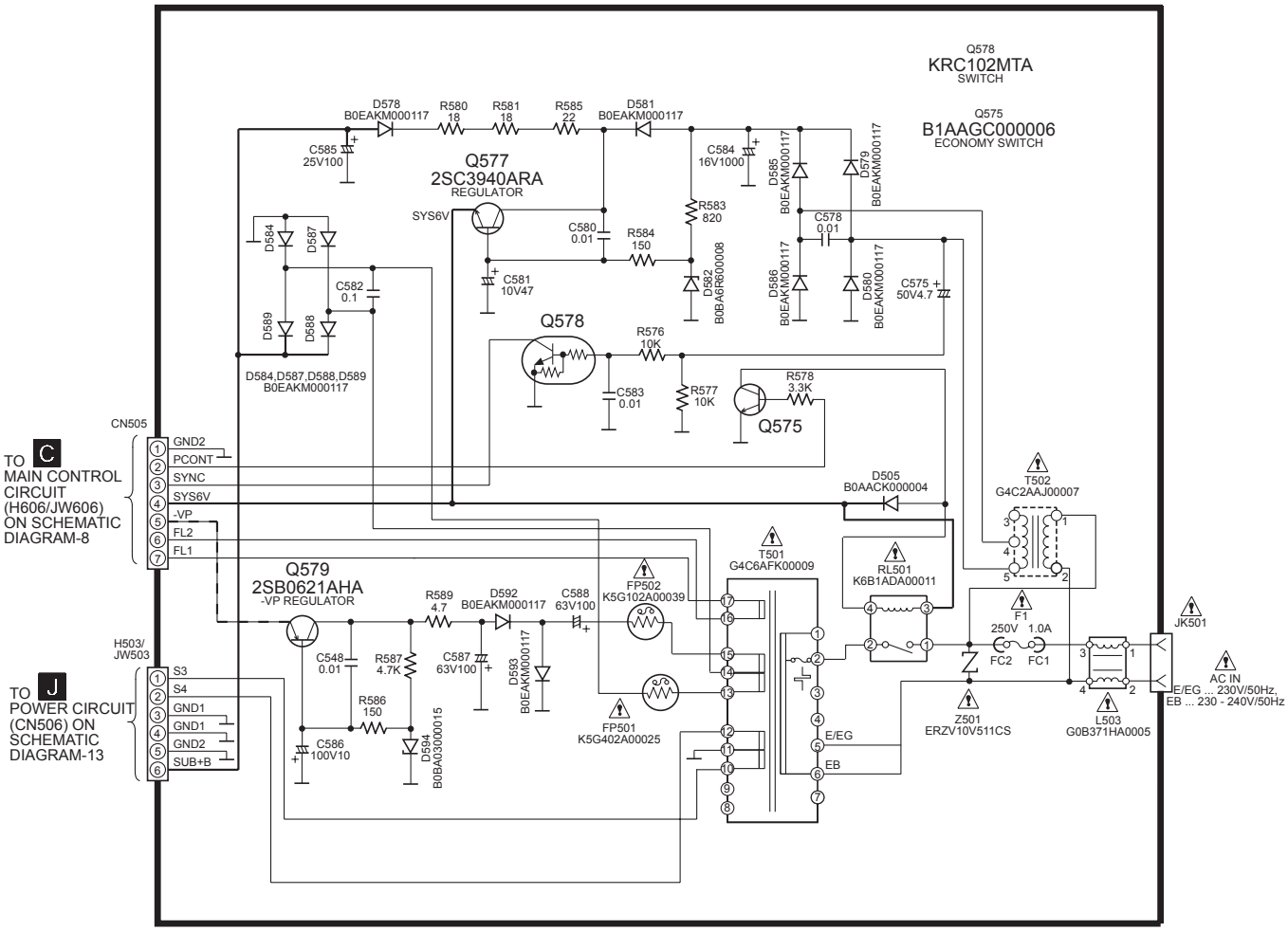
19.6. Transformer Circuit

SCHEMATIC DIAGRAM-14

K TRANSFORMER CIRCUIT

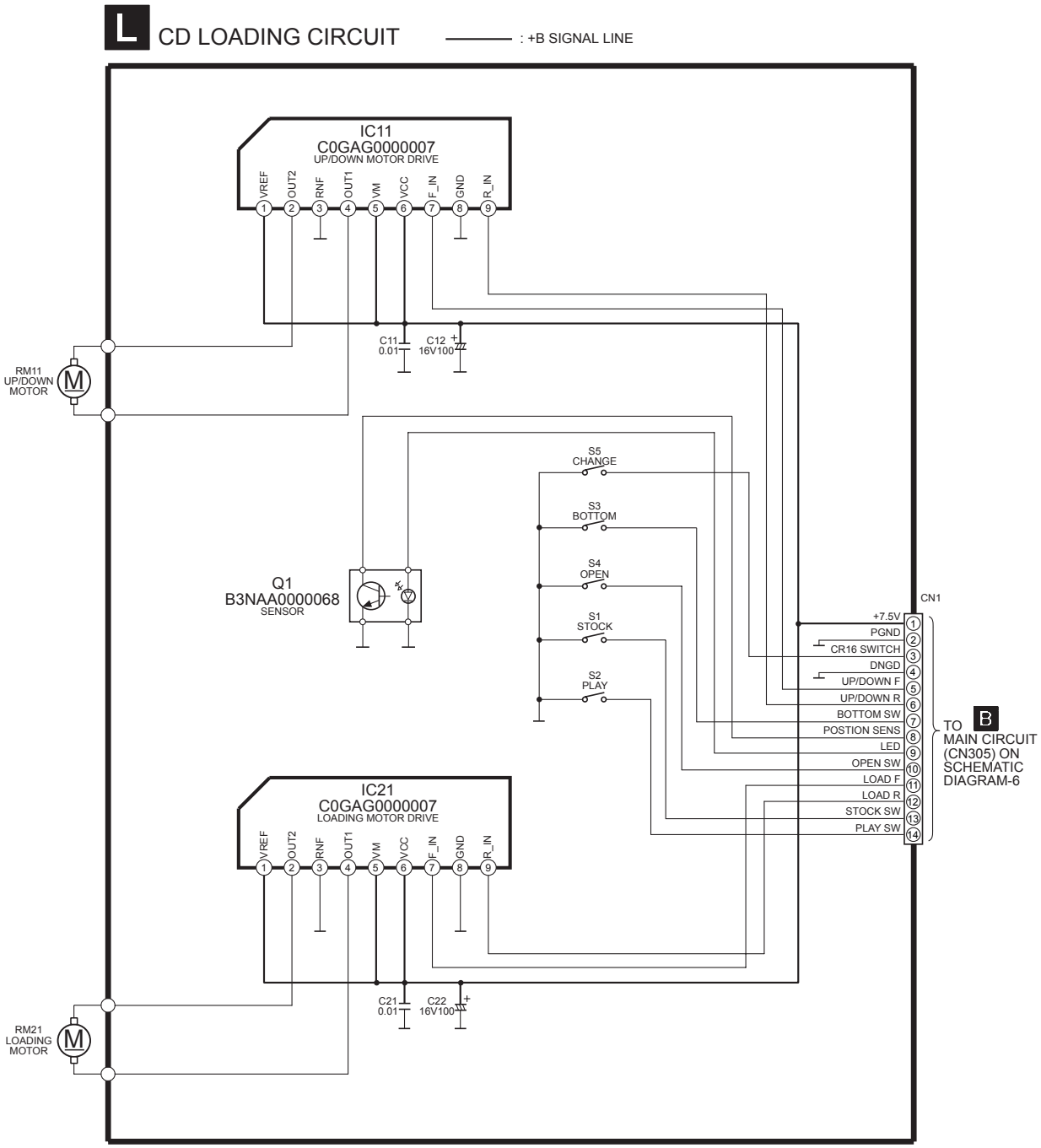
– – – : -B SIGNAL LINE

——— : +B SIGNAL LINE



19.7. CD Loading Circuit

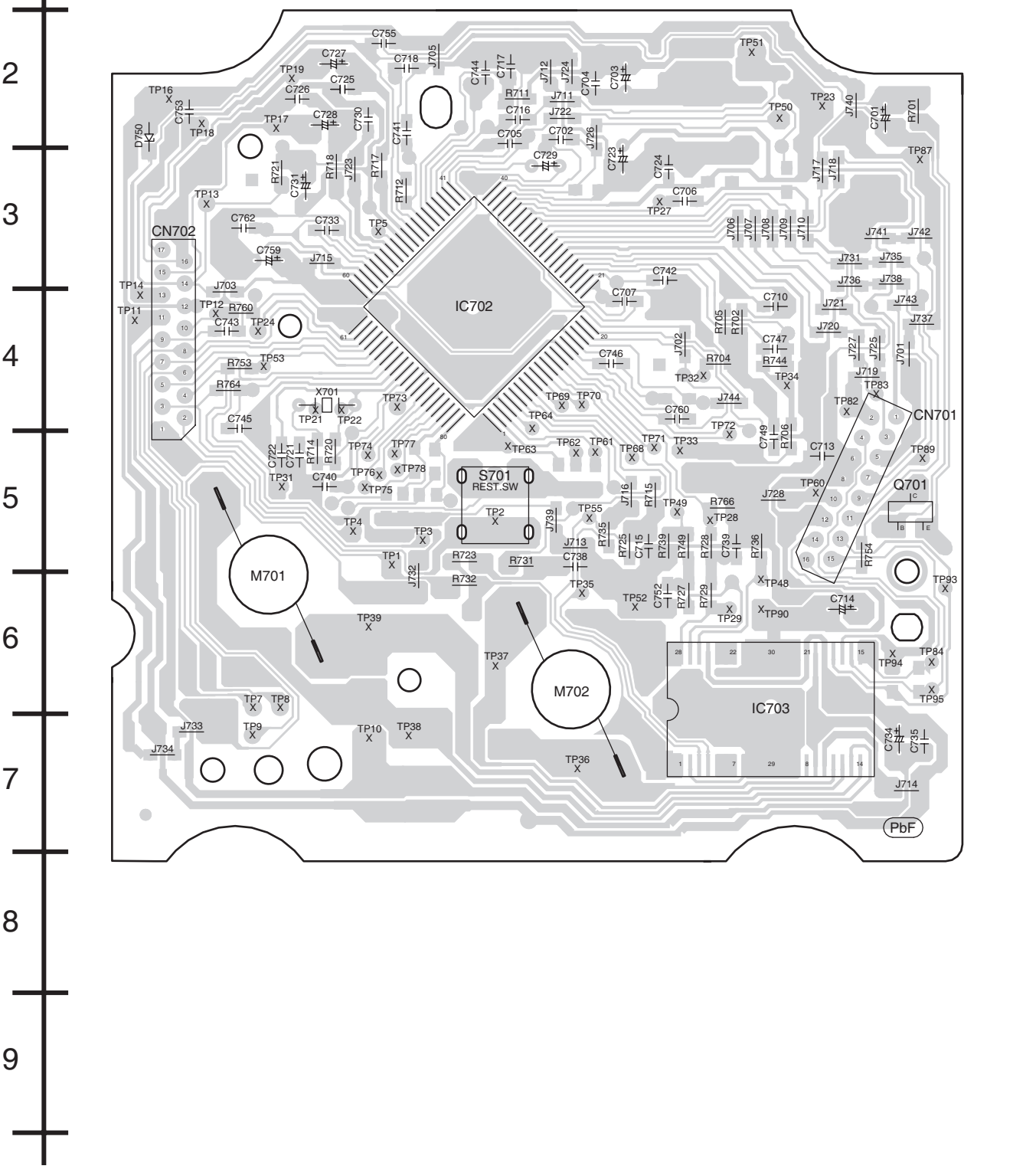
SCHEMATIC DIAGRAM-15



20 Printed Circuit Board

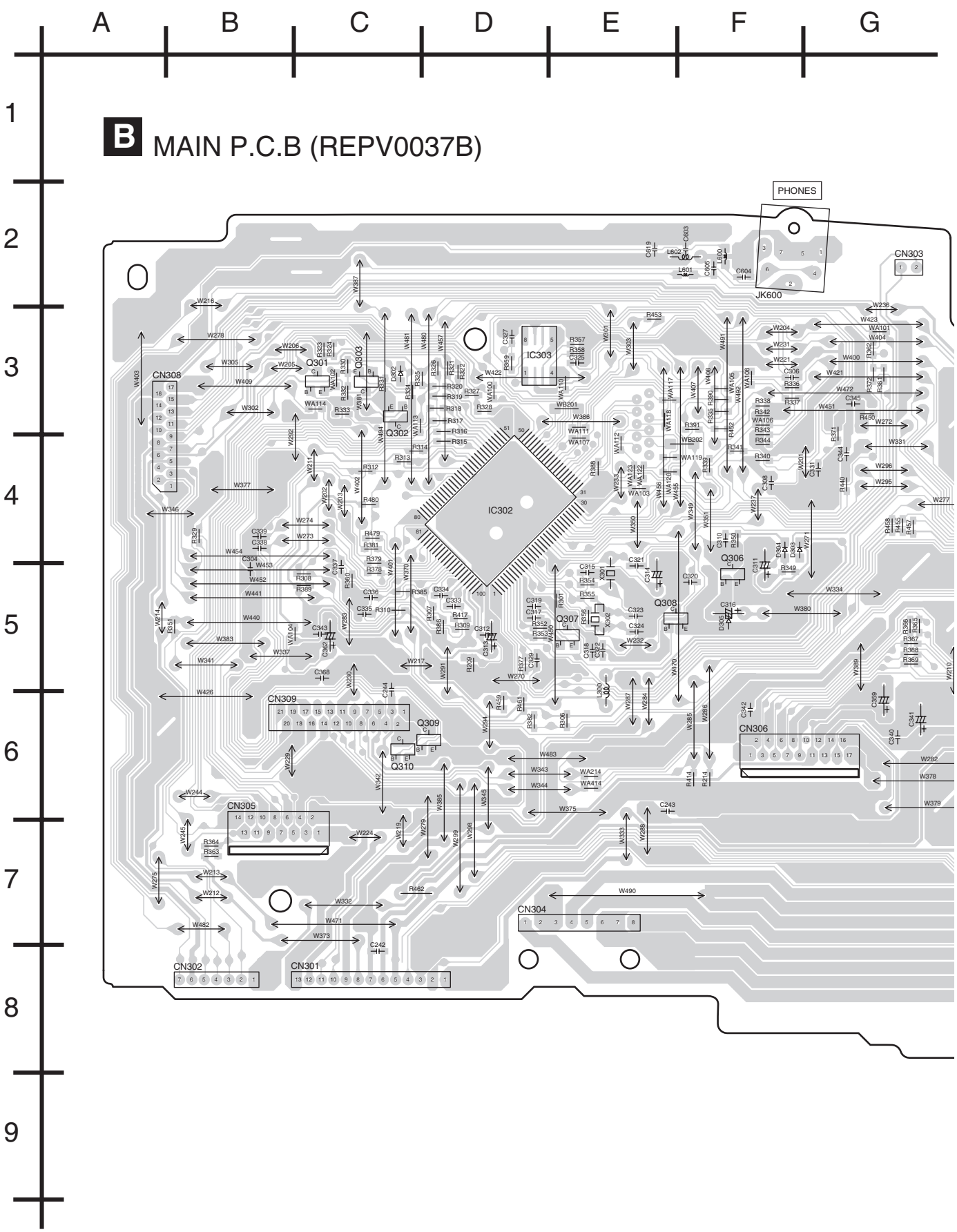
20.1. CD Servo P.C.B.

A CD SERVO P.C.B (REPV0039A)

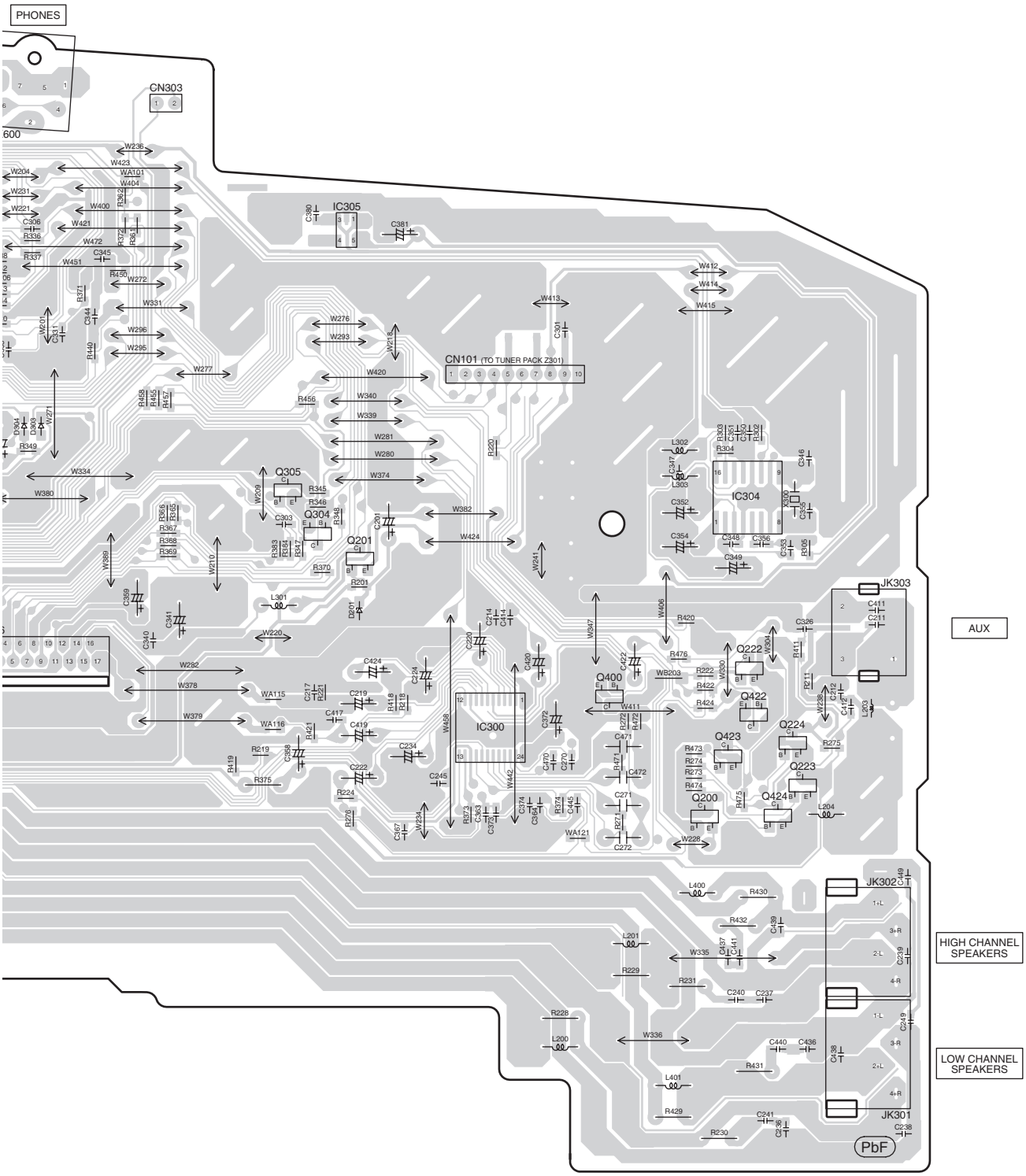


20.2. Main P.C.B.

B MAIN P.C.B (REPV0037B)

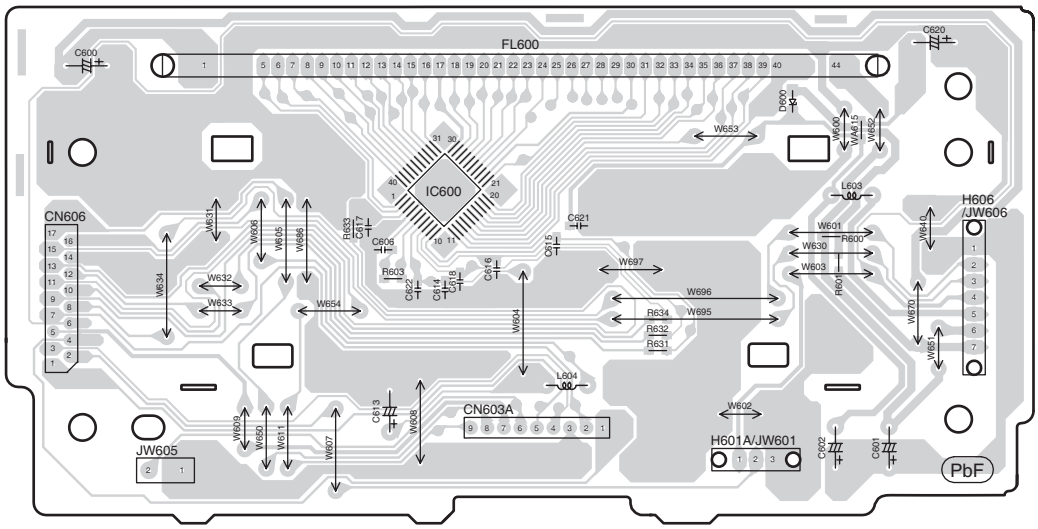


G H I J K L M

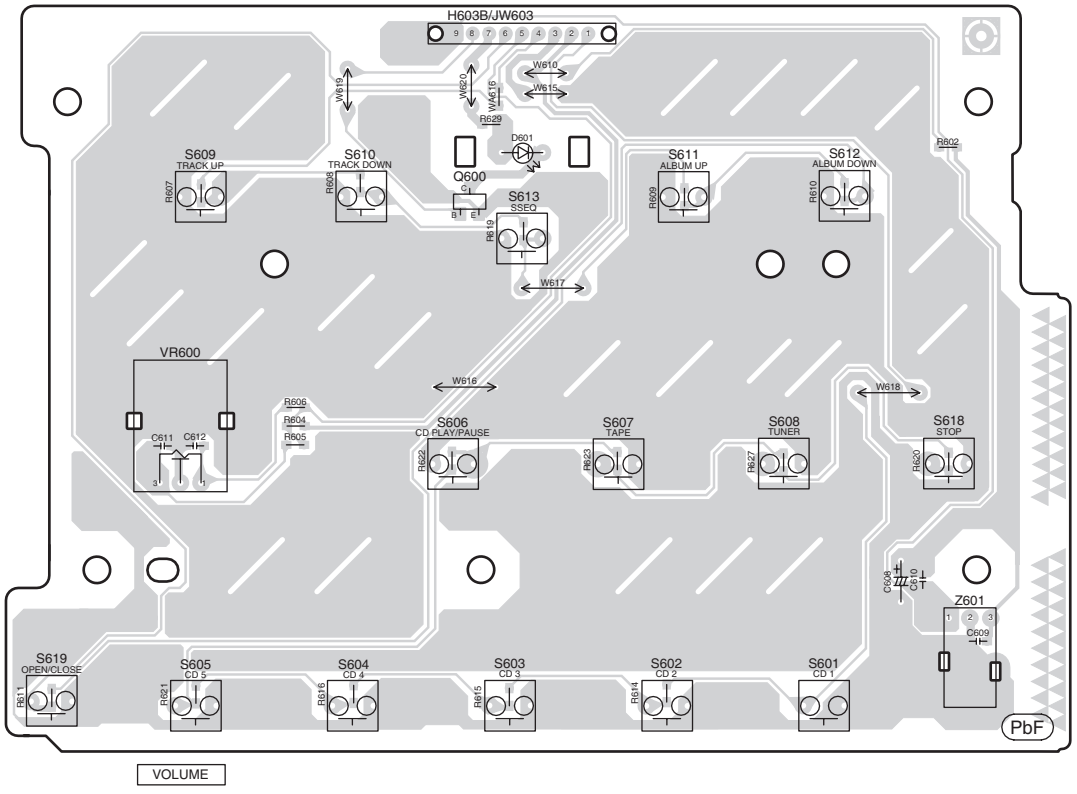

PHONES
CN303
IC305
CN101 (TO TUNER PACK Z301)
IC304
IC300
Q305
Q304
Q201
Q222
Q422
Q400
Q224
Q423
Q223
Q424
Q200
JK303
JK302
JK301
AUX
HIGH CHANNEL SPEAKERS
LOW CHANNEL SPEAKERS
PbF

20.3. Main Control P.C.B. and Panel P.C.B.

C MAIN CONTROL P.C.B (REPV0037B)

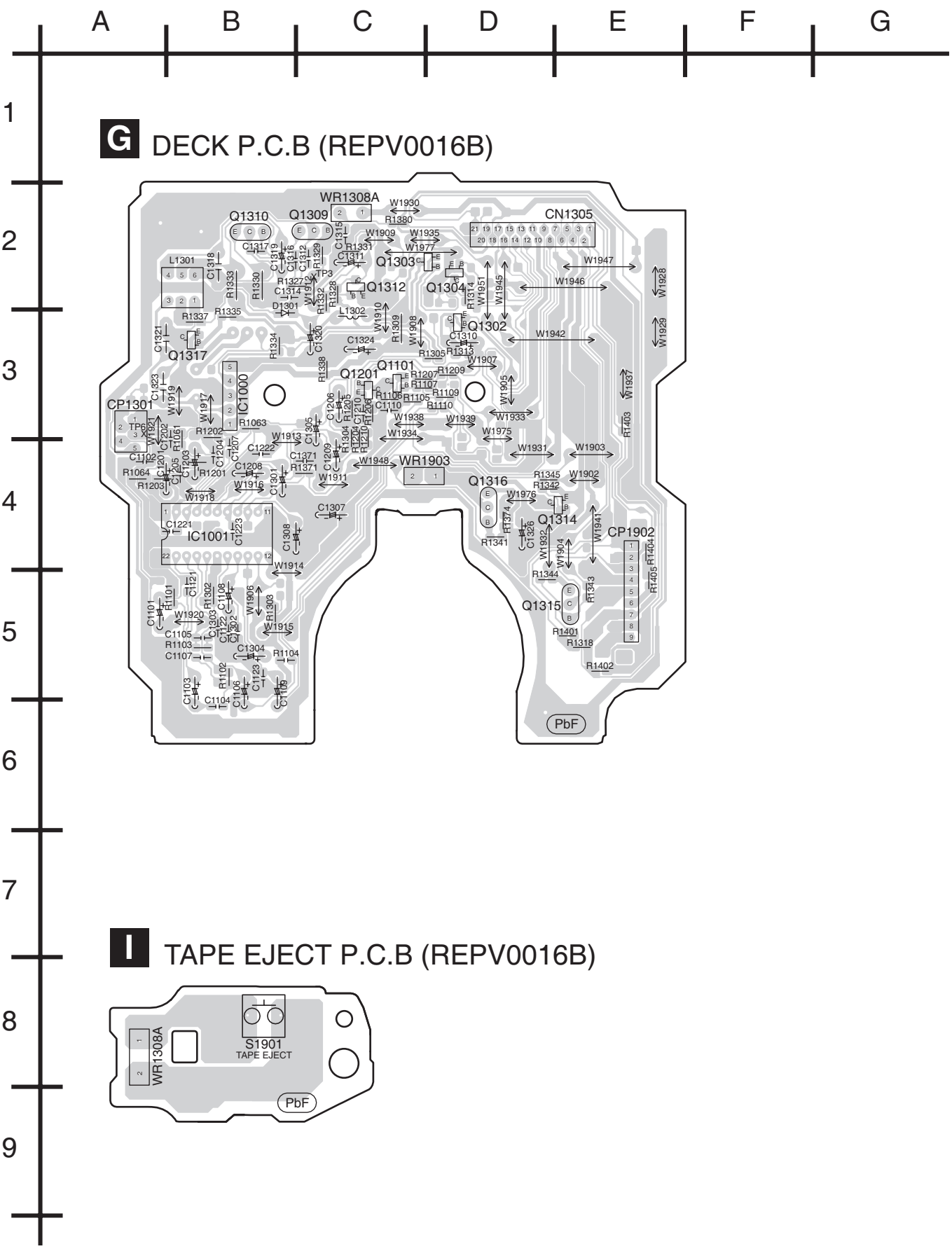


D PANEL P.C.B (REPV0037B)



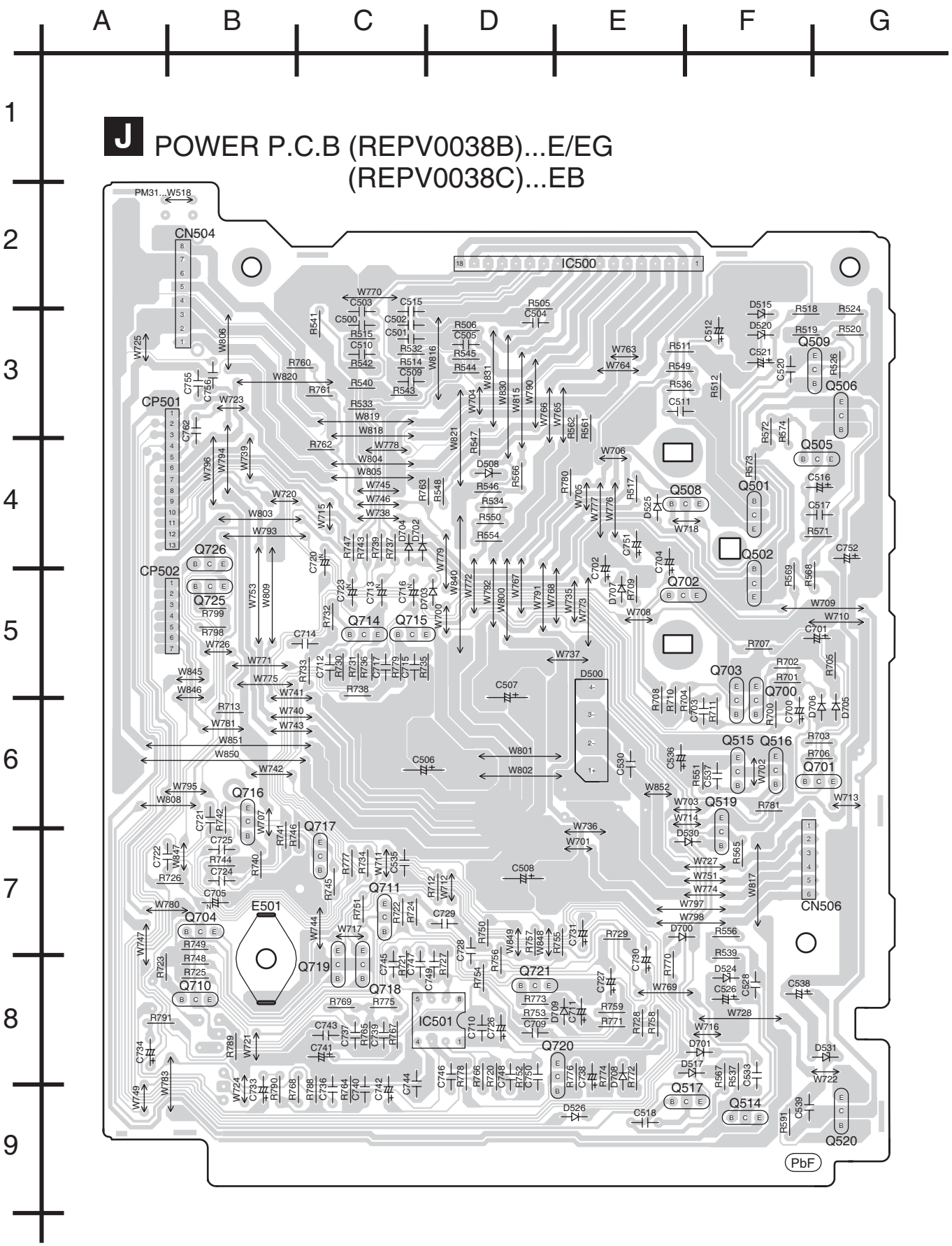
20.4. Power In P.C.B., Function P.C.B. and Deck Mechanism P.C.B.

20.5. Deck P.C.B. and Tape Eject P.C.B.

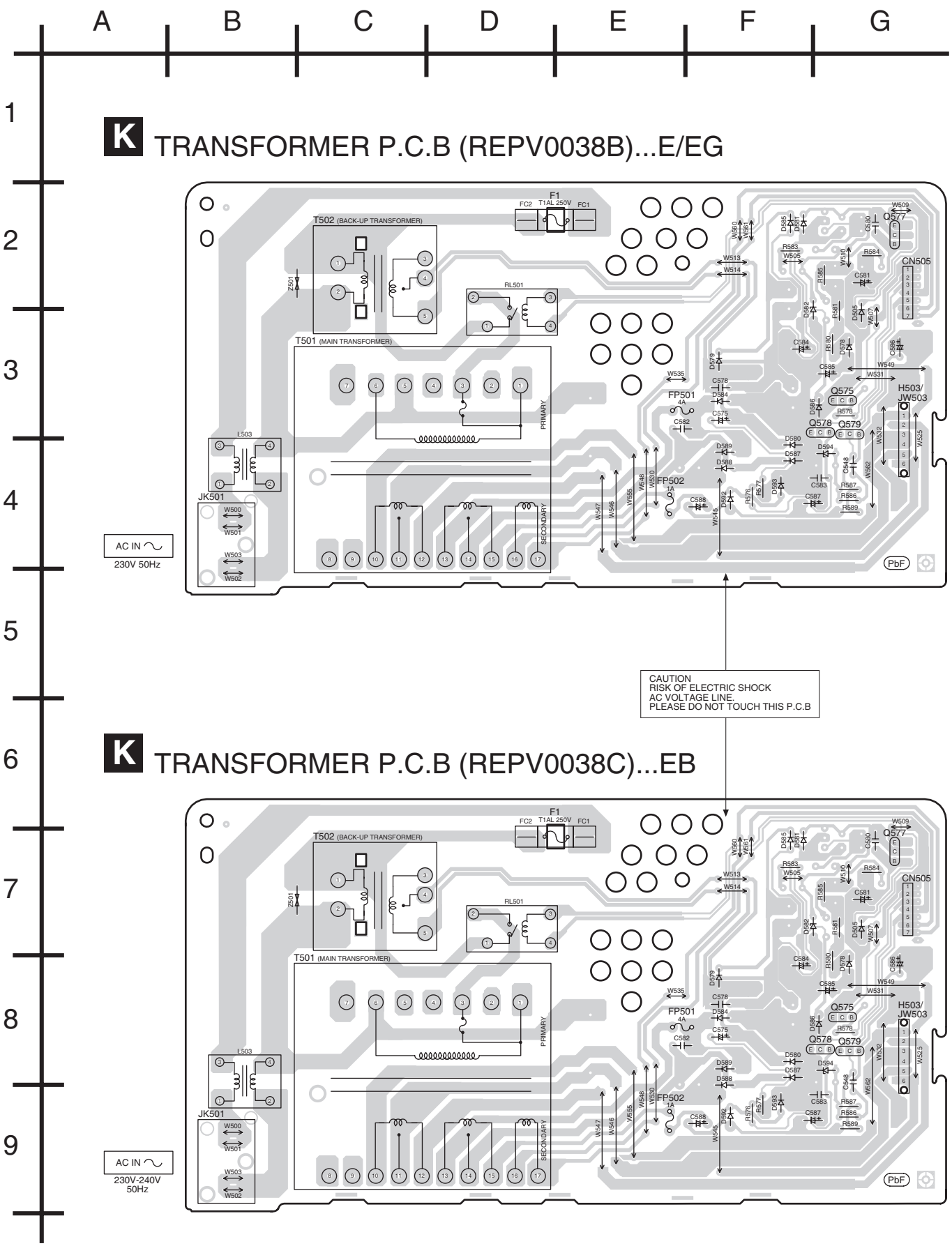


20.6. CD Loading P.C.B.

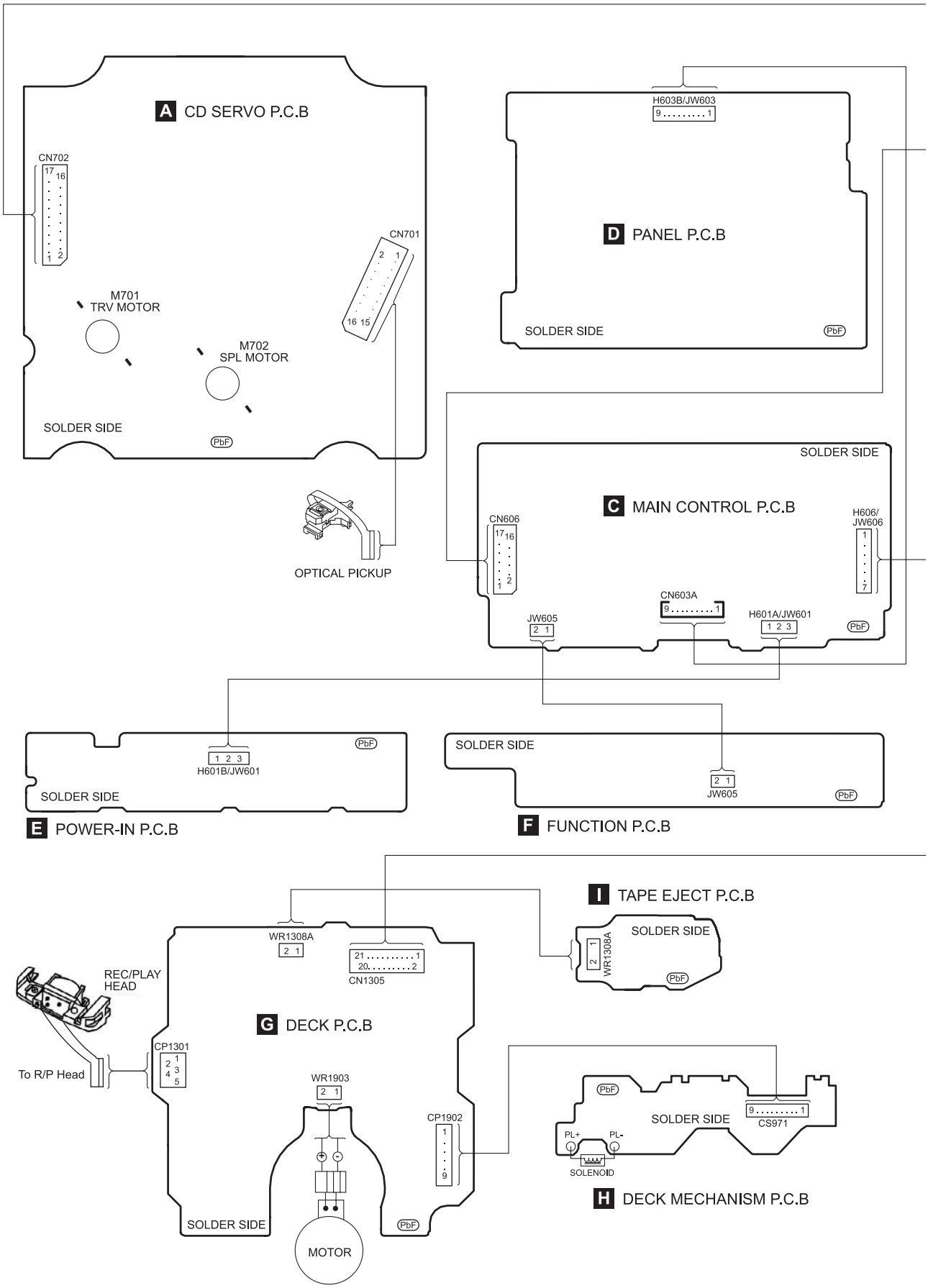
20.7. Power P.C.B.

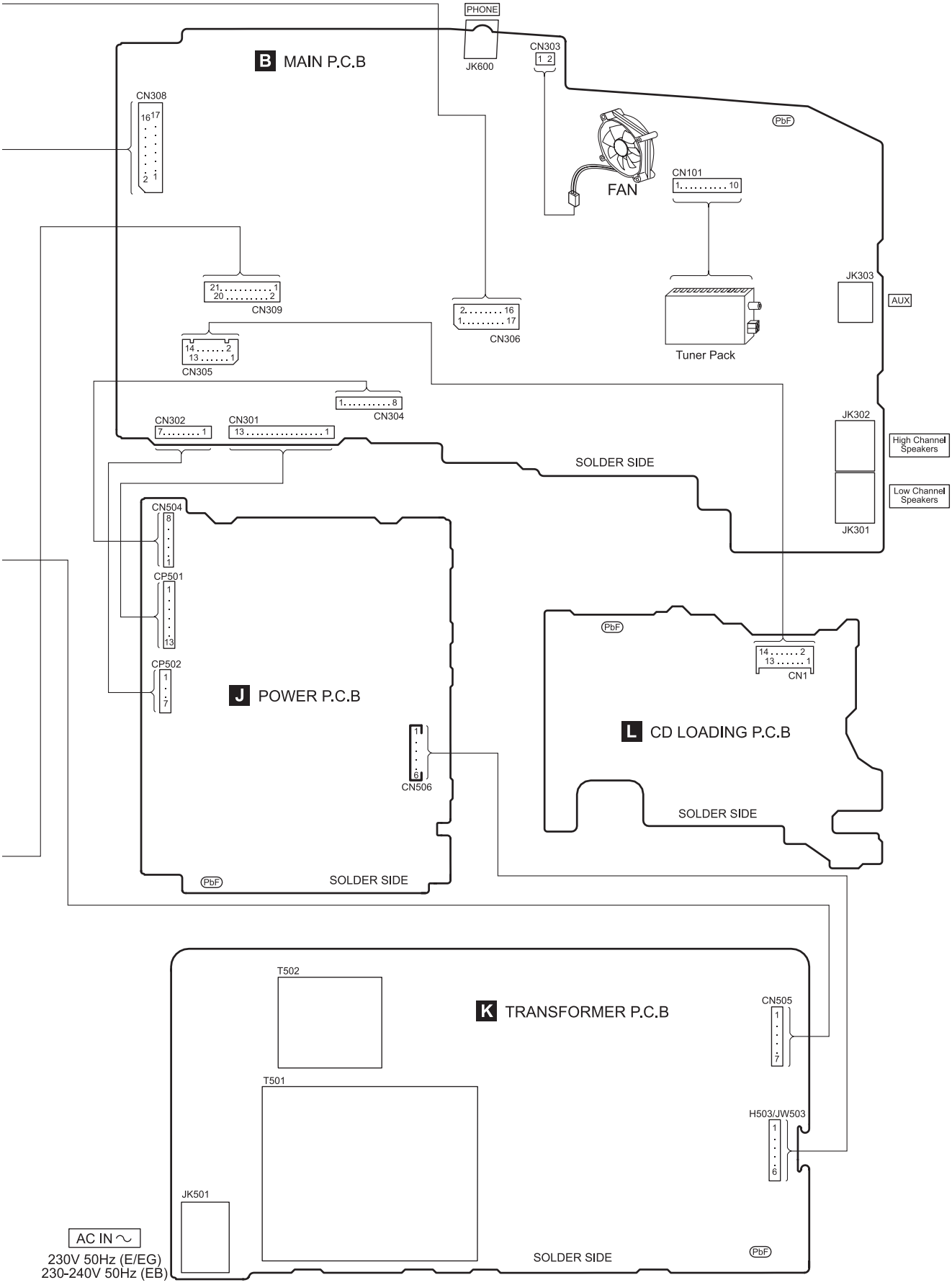


20.8. Transformer P.C.B.

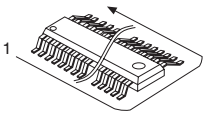
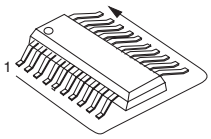
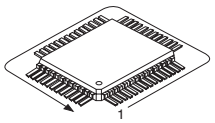
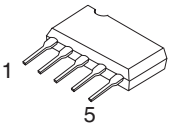
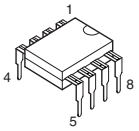
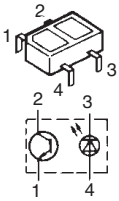
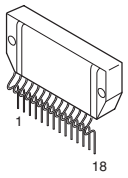
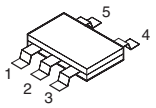
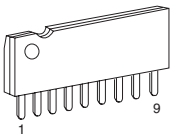
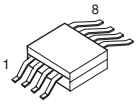
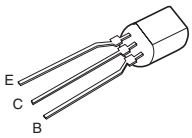
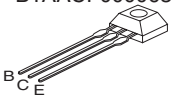
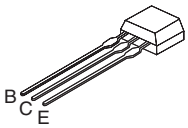
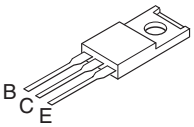
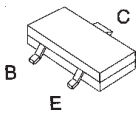
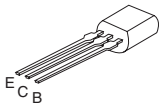
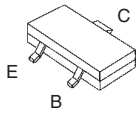
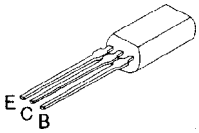
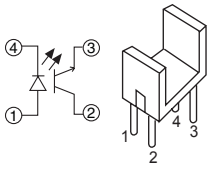
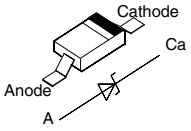
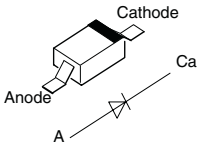
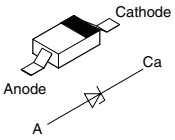
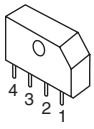
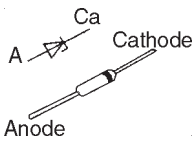
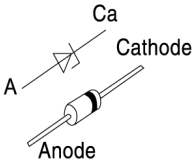
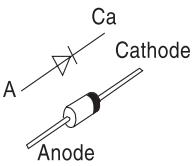
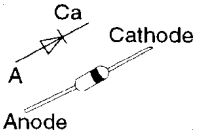
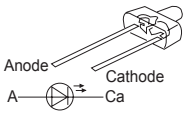


21 Wiring Connection Diagram




B MAIN P.C.B
PHONE
JK600
CN303
1 2
CN308
16 17
2 1
PbF
FAN
CN101
1 10
JK303
AUX
21 1
20 2
CN309
2 16
1 17
CN306
Tuner Pack
14 2
13 1
CN305
1 8
CN304
CN302
7 1
CN301
13 1
JK302
High Channel Speakers
Low Channel Speakers
JK301
SOLDER SIDE
CN504
8
1
CP501
1
13
CP502
1
7
J POWER P.C.B
1
6
CN506
PbF
SOLDER SIDE
PbF
14 2
13 1
CN1
L CD LOADING P.C.B
SOLDER SIDE
T502
K TRANSFORMER P.C.B
CN505
1
7
T501
H503/JW503
1
6
JK501
AC IN ~
230V 50Hz (E/EG)
230-240V 50Hz (EB)
SOLDER SIDE
PbF

22 Illustration of IC's, Transistors and Diodes

BA5948FPE2 (28P) AN7326K (22P) 	C1BB00000757 (24P) C1BB00000715(16P) 	C0HBB0000044 (40P) MN6627953HB (80P) C2CBJG000574 (100P) 	C1AA00000612 (5P) 	C0AABB000125 (8P) 	CNB13030R2AU (4P) 
RSN315H41-P (18P) 	C0DBZGC00067 	C0GAG0000007 (9P) 	C3EBEG000073 (8P) 	2SB0621AHA 	KRA102MTA KRC102MTA KRA110MTA B1ACCF000063 KTC3199GRTA B1AACF000063 
B1AAGC000006 	B1BACG000023 B1BCCG000002 	B1ABGC000005 KRA102STA KRC101STA KRC102STA KRC103STA B1GBCFGG0001 B1GDCFJJ0002 B1ABCE000016 B1ADCF000001	B1GBCFGH0001 B1GDCFGH0002 B1ABCF000011 	2SD0592ARA 2SD09650RA KTA12710YTA KTA1504GRTA KTC32030YTA 	KRC119STA 
2SC3940ARA 	B3NAA0000068 	B0ACCK000005 	B0BC01000014 B0ACCE000003 B0BC6R700006 	MAZ80560ML 	B0FBAM000009 
B0BA5R600016 B0BA9R600002 B0BA6R600008 B0BA01100004 B0BA8R200005 MTZJ15BTA 		B0BA03000015 	B0EAKM000117 	B0AACK000004 MA729TX MA2C16500E 	B3ADA0000087 B3AAA0000487 

23 Terminal Function of IC´s

23.1. IC702 (MN6627953HB) Servo processor/ Digital signal processor/ Digital filter/ D/A converter

Pin No.	Mark	I/O	Function
1	EXT0	I/O	Extend input/output port 0
2	EXT1	I/O	Extend input/output port 1
3	EXT2	I/O	Extend input/output port 2
4	PWMSEL	I	PWM output selection input (L: Direct; H: Tri-State
5	SPOUT	O	Spindle driver output signal
6	SPPOL	O	Spindle driver output signal
7	TRVP	O	Spindle driver output signal
8	TRVM	O	Spindle driver output signal
9	TRVP2	O	Traverse driver output signal 2 (+)
10	TRVM2	O	Traverse driver output signal 2 (-)
11	TRP	O	Traverse driver output signal (+)
12	TRM	O	Traverse driver output signal (-)
13	FOP	O	Traverse driver output signal (+)
14	FOM	O	Traverse driver output signal (-)
15	IOVDD3	-	I/O power supply 3
16	DVDD1	-	Power supply 1 for digital circuit
17	DVSS1	-	Digital circuit GND 1
18	ADPVCC	I	Power voltage monitor. Power voltage input
19	TEIN	I	DSP traverse error signal input
20	FEIN	I	DSP focus error signal input
21	CEA	I/O	HPF-Amp capacitance connection terminal
22	RFENV	O	RF envelope signal monitor
23	FEOUT	O	FE Amp output
24	FEN	I	FE Amp reversal input
25	TEN	I	TE Amp reversal input
26	TEOUT	O	TE Amp output
27	VREF	-	VREF voltage
28	PD	I	APC Amp input
29	LD	O	APC Amp output
30	E	I	Tracking input signal 1
31	F	I	Tracking input signal 2
32	D	I	Tracking input signal 4
33	B	I	Tracking input signal 2
34	C	I	Tracking input signal 3
35	A	I	Focus input signal 1
36	DCDET	-	Detection HPF capacitance terminal
37	RFVDD	-	RF Amp power supply
38	RESERVE	-	GND
39	RFOUT	O	RF Amp output
40	RFIN	I	AGC input
41	CAGC	I/O	AGC control terminal
42	ARFOUT	O	AGC output (Audio RF)
43	AVSS2	-	Analog circuit GND 2
44	ARFIN	I	RF signal input
45	DSLF	O	DSL loop filter
46	IREF	I	I (current), Reference input
47	PLLF	O	PLL loop filter
48	PLLF0	O	PLL loop filter
49	AVDD2	-	Analog circuit power supply 2
50	OUTL	O	LCH output signal
51	AVSS1	-	Audio output circuit GND 1
52	N.C.	-	No Connection
53	AVDD1	-	Power supply 1 for analog circuit
54	OUTR	O	RCH output signal
55	DVSS2	-	Digital circuit GND 2
56	IOVDD1	-	I/O power supply 1
57	DVDD2	-	Power supply 2 for Digital circuit
58	REGON	I	Laser diode control (H: ON)
59	IOMODE	I	I/O switching setting input
60	NTEST	I	Test mode setting input (H: ON)
61	TX	O	Digital audio interface output
62	FLAG	O	Flag signal output
63	MCLK	I	Micro-P serial command CLK
64	MDATA	I	Micro-P serial command DATA
65	MLD	I	Micro-P serial command LOAD
66	STAT	O	Status signal output
67	BLKCK	O	Subcode block clock
68	NRST	I	LSI reset input (L: RESET)
69	DVSS3	-	Digital circuit GND 3
70	X2	O	Crystal oscillator circuit output
71	X1	I	Crystal oscillator circuit input
72	IOVDD2	I	I/O power supply 2
73	DQSY	O	Pack signal output for CD-Text data
74	TXTD	O	CD Text signal output
75	TXTCK	I	External clock signal input for CD-Text register
76	GIO0	I/O	General purpose input/output Terminal 0
77	GIO1	I/O	General purpose input/output Terminal 1
78	GIO2	I/O	General purpose input/output Terminal 2
79	GOUT0	O	General purpose output Terminal 0
80	GOUT1	O	General purpose output Terminal 1

23.2. IC703 (BA5948FPE2) IC 4CH DRIVE

Pin No.	Mark	I/O	Function
1	IN2	I	Motor Driver Input
2	PC2	I	Turntable Motor Drive Signal (“L”: ON)
3	IN1	I	Motor Driver (1) Input
4	PC1	-	Traverse Motor Drive Signal (“L”:ON)
5	N.C.	-	No Connection
6	N.C.	-	No Connection
7	N.C.	-	No Connection
8	N.C.	-	No Connection
9	PGND1	-	Ground Connection (1) for Driver
10	PVCC1	I	Power Supply (1) for Driver
11	D1-	O	Motor Driver (1) reverse - action output

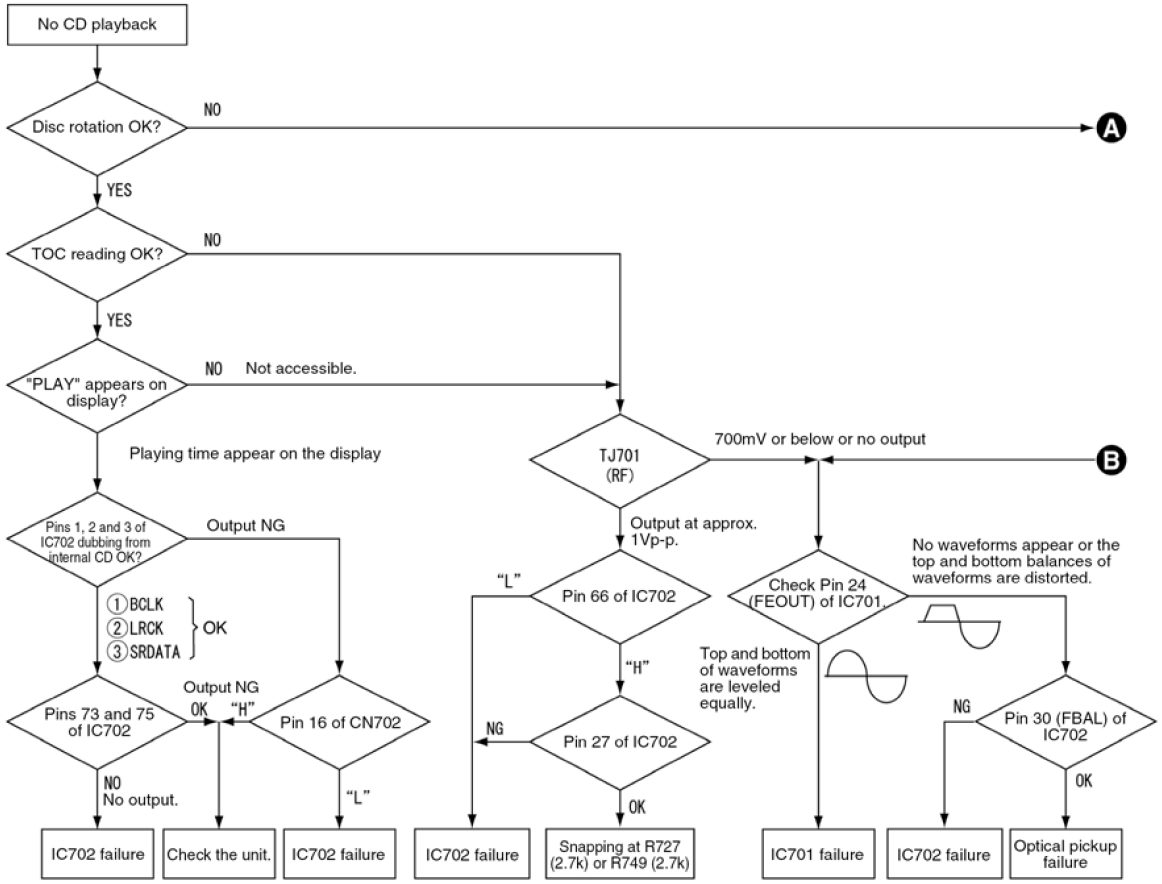
Pin No.	Mark	I/O	Function
12	D1+	O	Motor Driver (1) forward - action output
13	D2-	O	Motor Driver (2) reverse - action output
14	D2+	O	Motor Driver (2) forward - action output
15	D3-	O	Motor Driver (3) reverse - action output
16	D3-	O	Motor Driver (3) forward - action output
17	D4-	O	Motor Driver (4) reverse - action output
18	D4+	O	Motor Driver (4) forward - action output
19	PVCC2	-	Power Supply (2) for Driver
20	PGND2	-	Ground Connection (2) for Driver
21	N.C.	-	No Connection
22	N.C.	-	No Connection
23	N.C.	-	No Connection
24	N.C.	-	No Connection
25	VCC	-	Power Supply Terminal
26	VREF	-	Reference Voltage Input
27	IN4	I	Motor Driver (4) Input
28	IN3	I	Motor Driver (3) Input

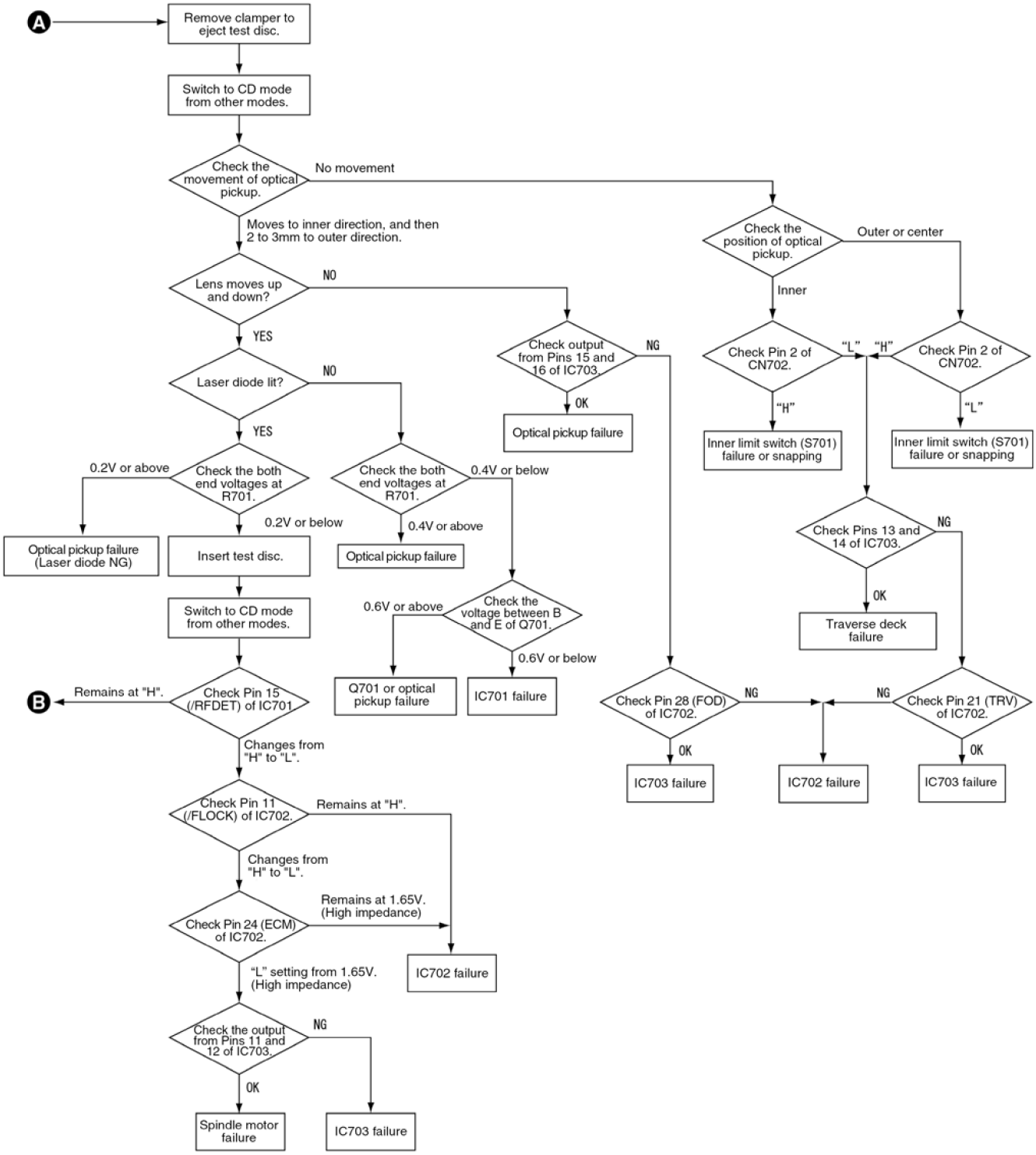
23.3. IC302 (C2CBJG000574) MICRO PROCESSOR

Pin No.	Mark	I/O	Function
1	CH_SW	I	Change Switch (CR16)
2	TU_TUNED	I	Tuner tuned signal
3	TU_ST	I	Tuner Stereo signal
4	TU_CK	I	Tuner Serial Clock Input
5	TU_SDA	I/O	Tuner Serial Data Input
6	MBP1	O	Microcomputer Beat Proof Output 1 (CONTROL)
7	MBP2	O	Microcomputer Beat Proof Output 2 (CONTROL)
8	BYTE	-	External Data Bus Width Select Input (Connect To Ground)
9	CNVSS/	-	Flash Mode Terminal (Connected To Ground)
10	XCIN	-	32.768 kHz Sub Clock
11	XCOUT	-	32.768 kHz Sub Clock
12	/RESET	-	Reset Input (ACTIVE L)
13	XOUT	-	10 MHz Main Clock
14	VSS	-	Ground (0V)
15	XIN	-	10 MHz Main Clock
16	VCC	-	Power Supply (+5V)
17	/NMI	-	Connect to Vcc (+5V)
18	RMT	I	Remote Control Input
19	BLKCK	I	CD Block Clock Input (Inverted)
20	SYNC	I	AC Failure Detect Input
21	MUTE_H	O	HIC Mute
22	EE_CS/	O	EEPROM Chip Select
23	EE_CLK	O	EEPROM CLOCK
24	TMUTE	O	H=Tuner muting
25	AUX_MUTE	O	A=AUX muting
26	FL_CS1	O	FL Driver Chip Select (Master)
27	NC	-	No Connection
28	FL_CLK	O	Serial Clock to FL Driver
29	/FL_RESET	O	Reset Input (ACTIVE: L)
30	FL_DOUT	O	Serial Data To FL Driver (Output)
31	RXD	-	No Connection
32	TXD	-	No Connection
33	SCLK	-	No Connection
34	BUSY	-	No Connection
35	NC	-	No Connection
36	NC	-	No Connection
37	NC	-	No Connection
38	NC	-	No Connection
39	MCLK	O	CD Command CLK Output
40	MUTE_A	O	Audio Mute
41	EPM	-	-
42	MDATA	O	CD Command Data Output
43	MLD	O	CD Command Load Output/
44	RDS_CLK	I	RDS Clock Input
45	RDS_DAT	I	RDS Data Input
46	CE	-	-
47	DCDET	I	DC Detect Input
48	STATUS	I	CD Servo LSI Status Input (Inverted)
49	PCONT	O	Main Transformer Control Output
50	PLAY_SW	I	Play Switch (CR16)
51	ST_SW	I	Stock Switch (CR16)
52	OP_SW	I	Open Switch (CR16)
53	POS	I	Position Switch (CR16)
54	BT_SW	I	Bottom Switch (CR16)
55	M1_R	O	Changer Motor 1 Reverse Control
56	M1_F	O	Changer Motor 1 Forward Control
57	M2_R	O	Changer Motor 2 Reverse Control
58	M2_F	O	Changer Motor 2 Forward Control
59	REC	O	when record circuit is operating DURING RECORDING=H
60	KEY_LED	O	Dimmer ON=L, Dimmer Off=H-
61	PHOTO	I	PHOTO (SG Mechanism only)
62	VCC	-	Power Supply (+5V)
63	EE_DAT	I/O	EEPROM DATA
64	VSS	-	Ground (0V)
65	DMT	O	Deck Mute at mecha transition L=mute OFF, H=mute ON
66	NC	-	-
67	ASP_CLK	O	ASP CLK
68	ASP_DAT	O	ASP DATA
69	N.C.	-	No Connection
70	N.C.	-	No Connection
71	N.C.	-	No Connection
72	N.C.	-	No Connection
73	N.C.	-	No Connection
74	N.C.	-	No Connection
75	N.C.	-	No Connection
76	N.C.	-	No Connection
77	N.C.	-	No Connection
78	N.C.	-	No Connection
79	/CD	O	CD POWER CONTROL (Active Low)
80	CD_RST	O	CD Reset Output
81	N.C.	-	No Connection
82	/RESTSW	I	CD Limit Switch Input for the Most Inner Point (Active Low)
83	N.C.	-	No Connection
84	HP_SW	I	Headphone Detect SW Input
85	SSEQ_LED	O	Super Sound EQ LED Control
86	RE_LED	O	MP3/WMA Re-master Control
87	MOTOR	O	MOTOR Control Output L=OFF, H=ON
88	PLUNGER	O	Deck PLUNGER Control Output L=OFF, H=ON
89	DECK_AD1	I	DECK AD Input 1
90	DECK_AD2	I	DECK AD Input 2

Pin No.	Mark	I/O	Function
91	REG1	I	Region Setting 1
92	KEY3	I	KEY3 INPUT
93	KEY2	I	KEY2 INPUT
94	KEY1	I	KEY1 INPUT
95	VOL_JOG1	I	Volume Jog 1
96	AVSS	-	Analog Power Supply Input (Connect to GND)
97	N.C.	-	No Connection
98	VREF	-	Reference for A-D (5V)
99	AVCC	-	Analog Power Supply Input
100	N.C. Demo selector	I	(H=default demo on, L=default demo off)

24 Troubleshooting Flowchart (CD Section Circuit)




A
Remove clamper to eject test disc.
Switch to CD mode from other modes.
Check the movement of optical pickup.
No movement
Moves to inner direction, and then 2 to 3mm to outer direction.
Lens moves up and down?
NO
YES
Laser diode lit?
NO
YES
Check the both end voltages at R701.
0.2V or above
Optical pickup failure (Laser diode NG)
0.2V or below
Insert test disc.
Switch to CD mode from other modes.
Check the both end voltages at R701.
0.4V or below
0.4V or above
Optical pickup failure
Check the voltage between B and E of Q701.
0.6V or above
Q701 or optical pickup failure
0.6V or below
IC701 failure
Check output from Pins 15 and 16 of IC703.
NG
OK
Optical pickup failure
Check the position of optical pickup.
Outer or center
Inner
Check Pin 2 of CN702.
"L"
"H"
Check Pin 2 of CN702.
"H"
Inner limit switch (S701) failure or snapping
"L"
Inner limit switch (S701) failure or snapping
Check Pins 13 and 14 of IC703.
NG
OK
Traverse deck failure
B
Remains at "H".
Check Pin 15 (/RFDET) of IC701
Changes from "H" to "L".
Check Pin 11 (/FLOCK) of IC702.
Remains at "H".
Changes from "H" to "L".
Check Pin 24 (ECM) of IC702.
Remains at 1.65V. (High impedance)
IC702 failure
"L" setting from 1.65V. (High impedance)
Check the output from Pins 11 and 12 of IC703.
NG
OK
Spindle motor failure
IC703 failure
Check Pin 28 (FOD) of IC702.
NG
OK
IC703 failure
NG
IC702 failure
Check Pin 21 (TRV) of IC702.
OK
IC703 failure

25 Parts Location and Replacement Parts List

Notes:

- Important safety notice:

  Components identified by ⚠ 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.

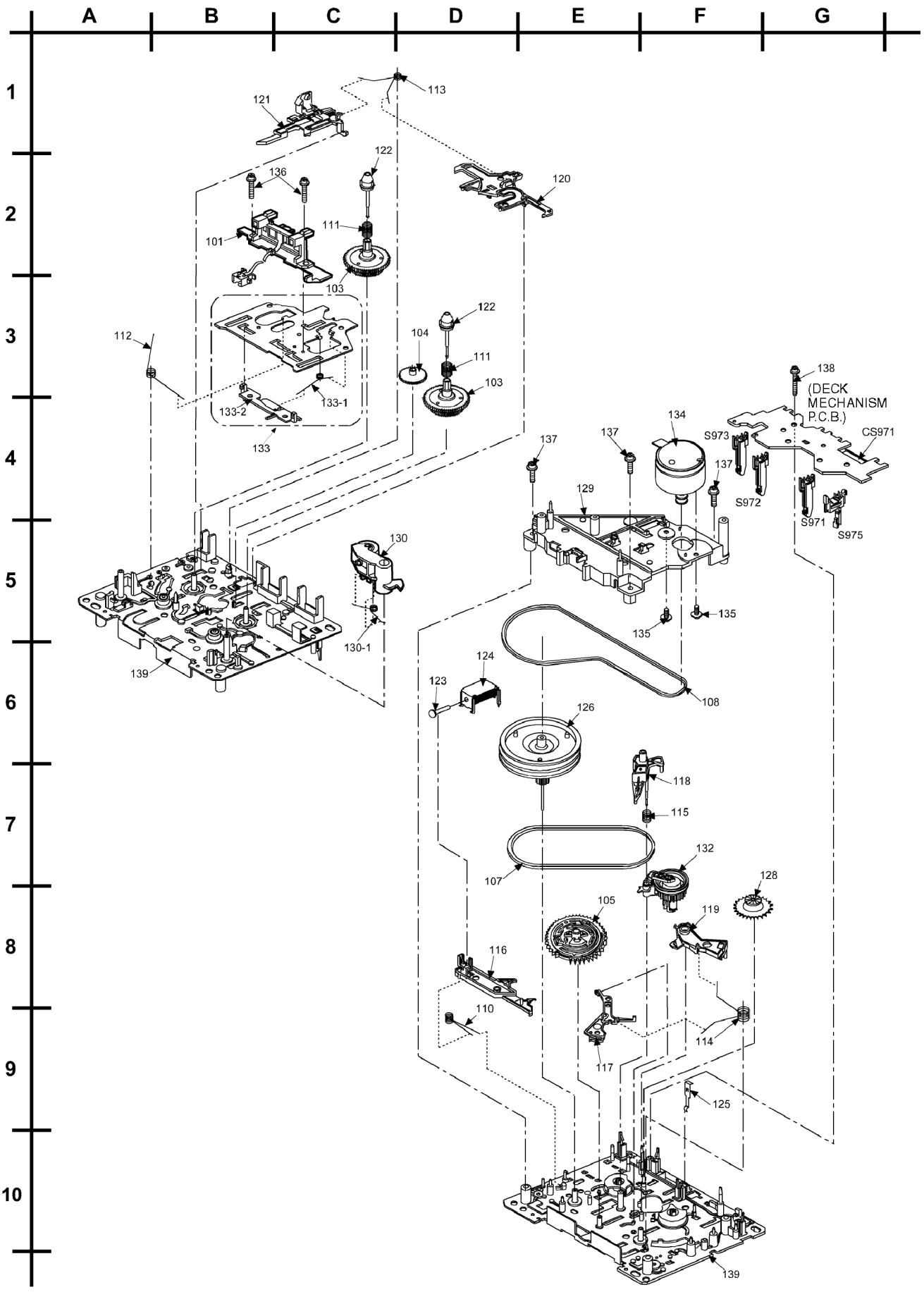
  When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.
- The parenthesized indications in the Remarks columns specify the areas or colour. (Refer to the cover page for area or colour)

  Parts without these indications can be used for all areas.
- Warning: This product uses a laser diode. Refer to Precaution of Laser Diode.
- Capacitor values are in microfarads (μF) unless specified otherwise, P= Pico-farads (pF), F= Farads.
- Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
- The marking (RTL) indicates that the Retention Time is limited for this items. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of a availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- [M] Indicates in the Remarks columns indicates parts supplied by **PAVCSG.**
- Reference for O/I book languages are as follows:

Ar:	Arabic	Du:	Dutch	It:	Italian	Sp:	Spanish
Cf:	Canadian French	En:	English	Ko:	Korean	Sw:	Swedish
Cz:	Czech	Fr:	French	Po:	Polish	Co:	Traditional Chinese
Da:	Danish	Ge:	German	Ru:	Russian	Cn:	Simplified Chinese
Pe:	Persian	Ur:	Ukraine				

25.1. Deck Mechanism

25.1.1. Deck Mechanism Parts Location (RAA4402-S)

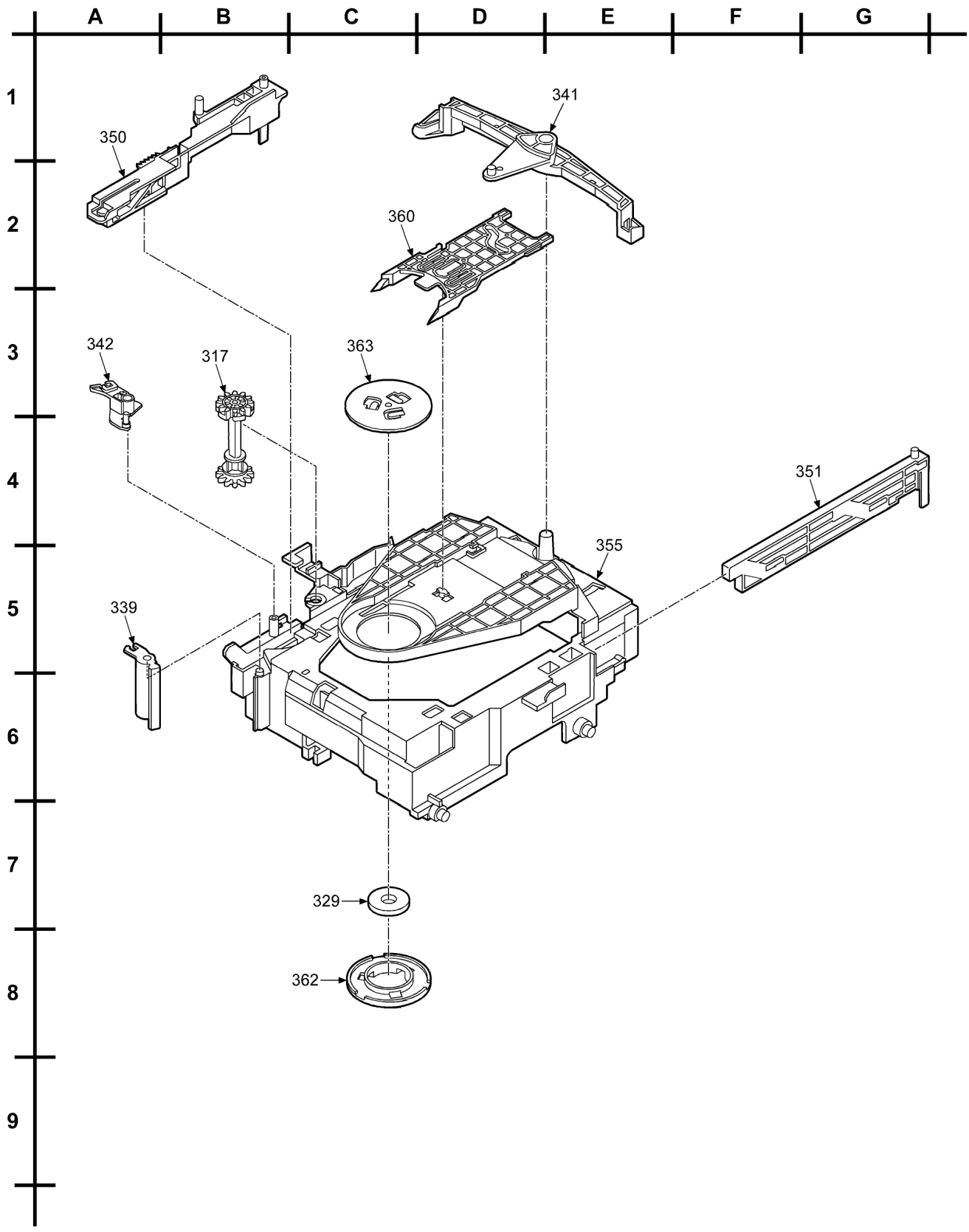


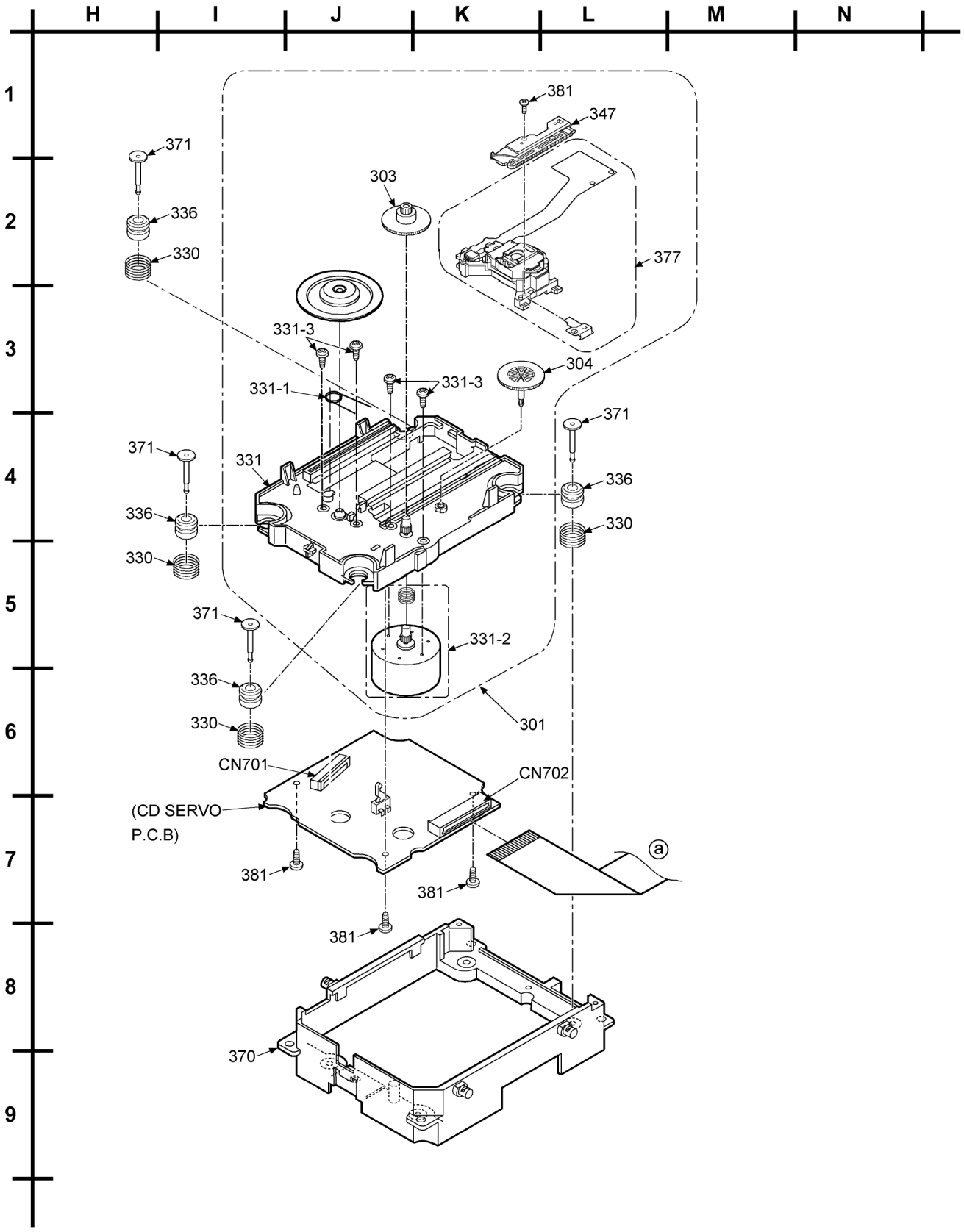
25.1.2. Deck Mechanism Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		CASSETTE DECK	
101	RED0067	R/P HEAD BLOCK UNIT	[M]
103	RDG0300	REEL BASE GEAR	[M]
104	RDG0301	WINDING RELAY GEAR	[M]
105	RDK0026	MAIN GEAR	[M]
107	RDV0033-4	WINDING BELT	[M]
108	RDV0064	CAPSTAN BELT	[M]
110	RMB0312	TRIGGER LEVER SPRING	[M]
111	RMB0400	REEL SPRING	[M]
112	RMB0403	HEAB PANEL SPRING	[M]
113	RMB0404	BRAKE ROD SPRING	[M]
114	RMB0406	FR LEVER SPRING	[M]
115	RMB0408	THRUST SPRING	[M]
116	RML0370	TRIGGER LEVER	[M]
117	RML0371	FR LEVER	[M]
118	RML0372	WINDING LEVER	[M]
119	RML0374	EJECT LEVER	[M]
120	RMM0131	BRAKE ROD	[M]
121	RMM0133	EJECT ROD	[M]
122	RMQ0519	REEL HUB	[M]
123	RMS0398-1	MOVING CORE	[M]
124	RXQ0470	PLUNGER	[M]
125	RMC0061	PACK SPRING	[M]
126	RXF0061	FLYWHEEL F ASS'Y	[M]
128	RXG0040	FF RELAY GEAR ASS'Y	[M]
129	RMK0283A-J	SUB-CHASSIS	[M]
130	RXL0124	PINCH ROLLER F ASS'Y	[M]
130-1	RMB0401	PINCH ARM SPRING F	[M]
132	RXL0126	WINDING ARM ASS'Y	[M]
133	RXQ0412	HEAD PANEL ASS'Y	[M]
133-1	RMB0405	FR ROD SPRING	[M]
133-2	RMM0132	FR ROD	[M]
134	REM0120	CAP MOTOR ASS'Y	[M]
135	RHD26022	MOTOR SCREW	[M]
136	XTW2+5L	HEAD BLOCK UNIT SCREW	[M]
137	XTW26+10S	SUB-CHASSIS SCREW	[M]
138	XYC2+JF17	PCB EARTH SCREW	[M]
139	RFKJSTR280PP	CHASSIS ASS'Y	[M]

25.2. CD Loading Mechanism

25.2.1. CD Loading Mechanism Parts Location

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(CD SERVO
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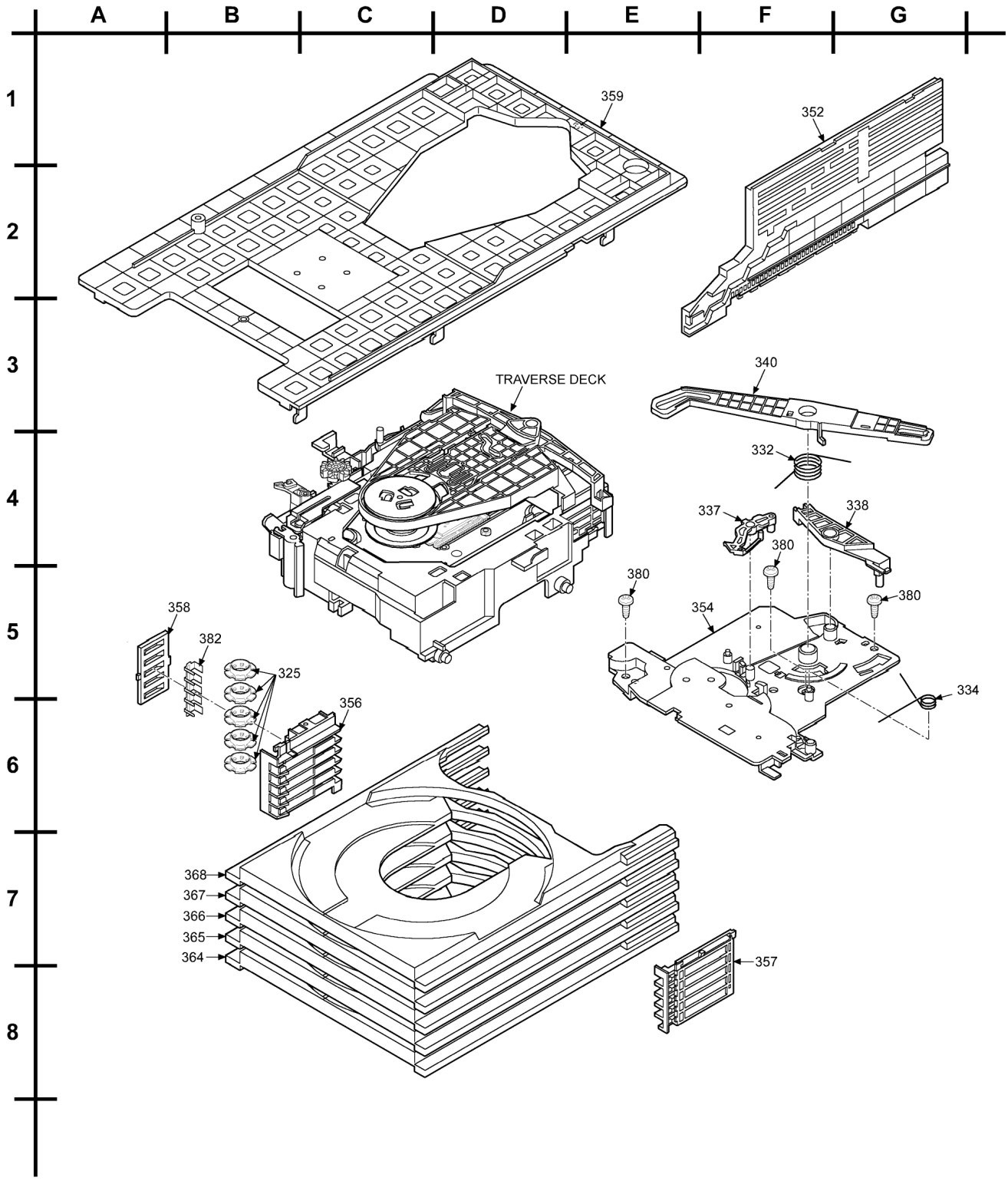
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TRAVERSE DECK
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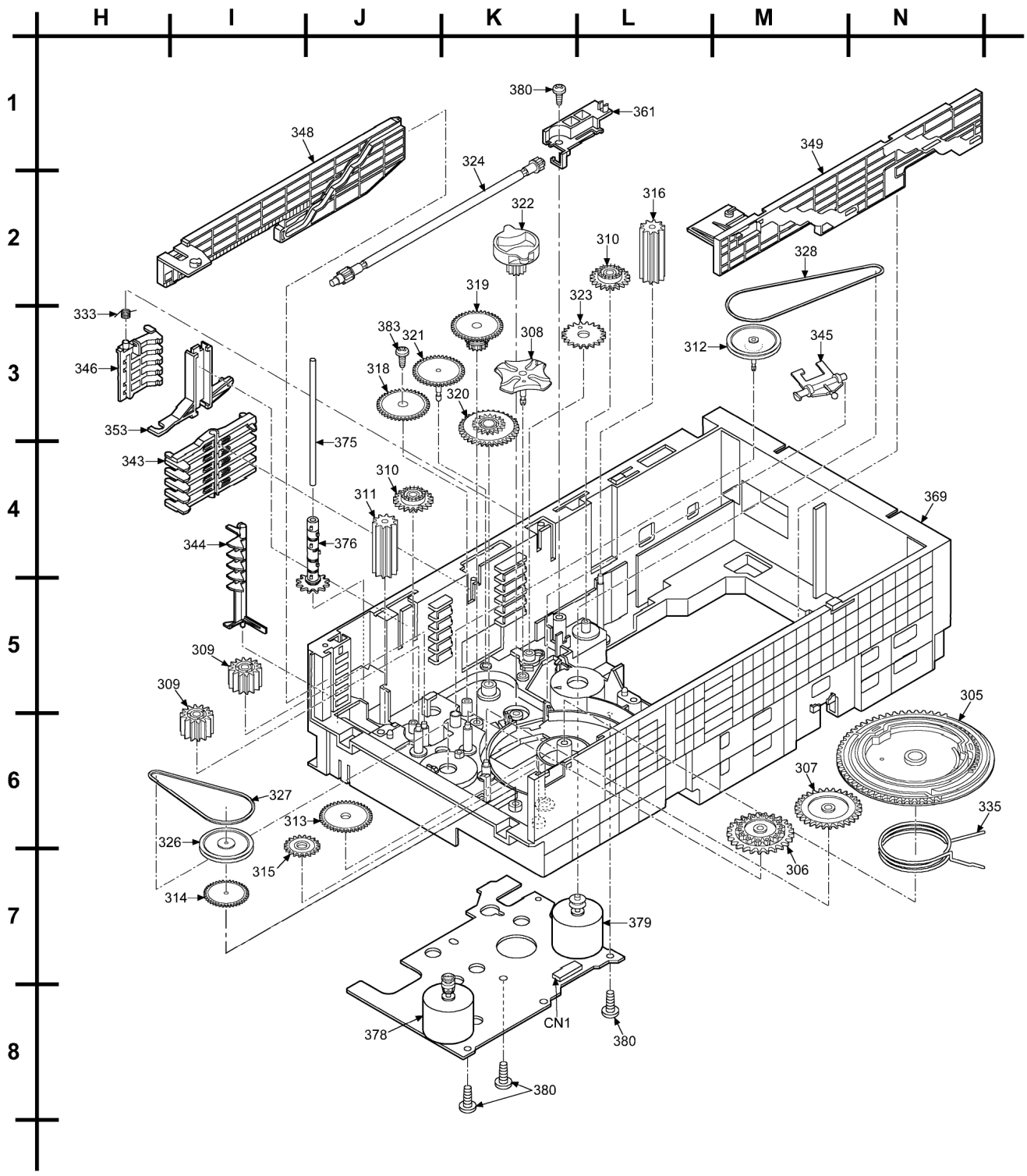
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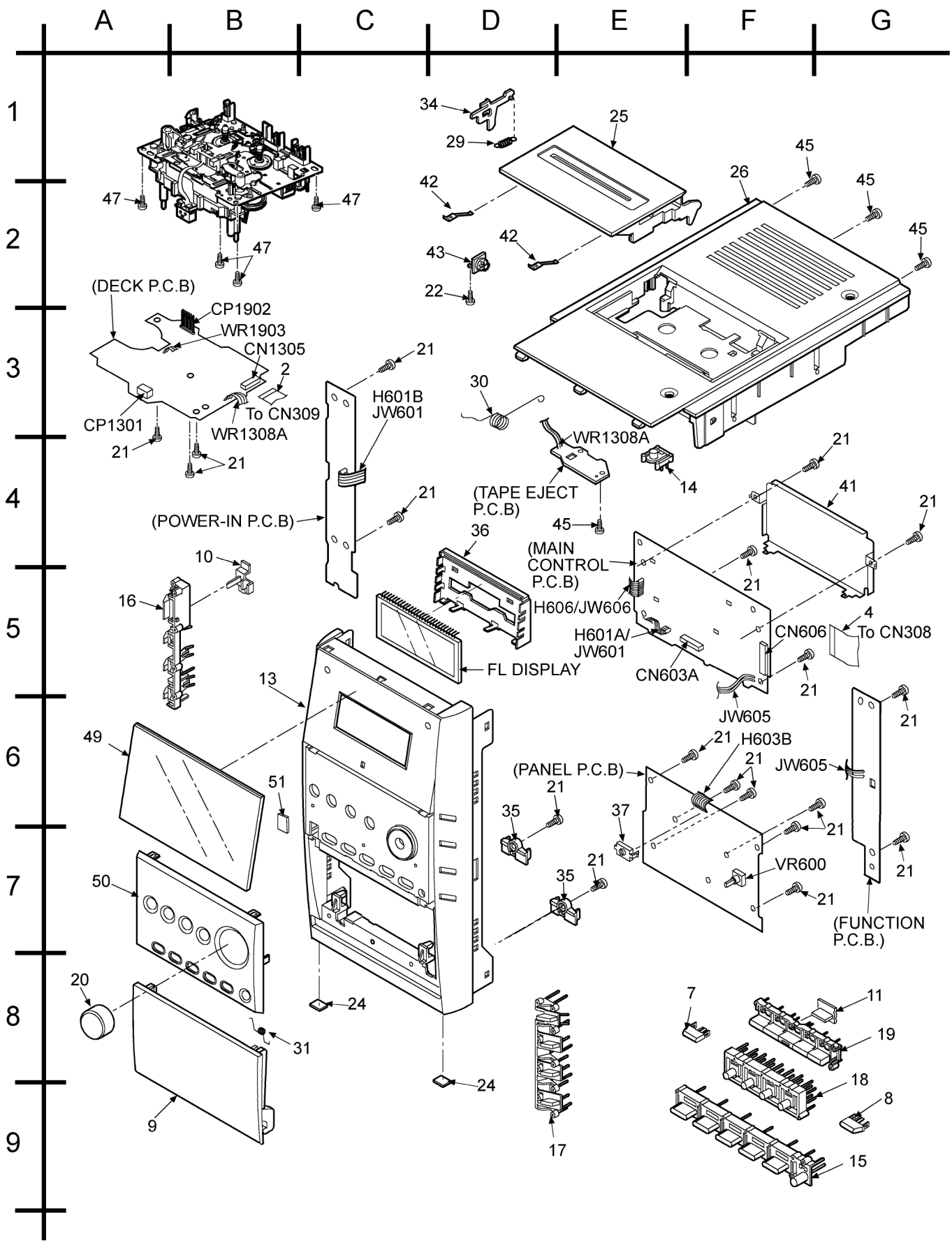
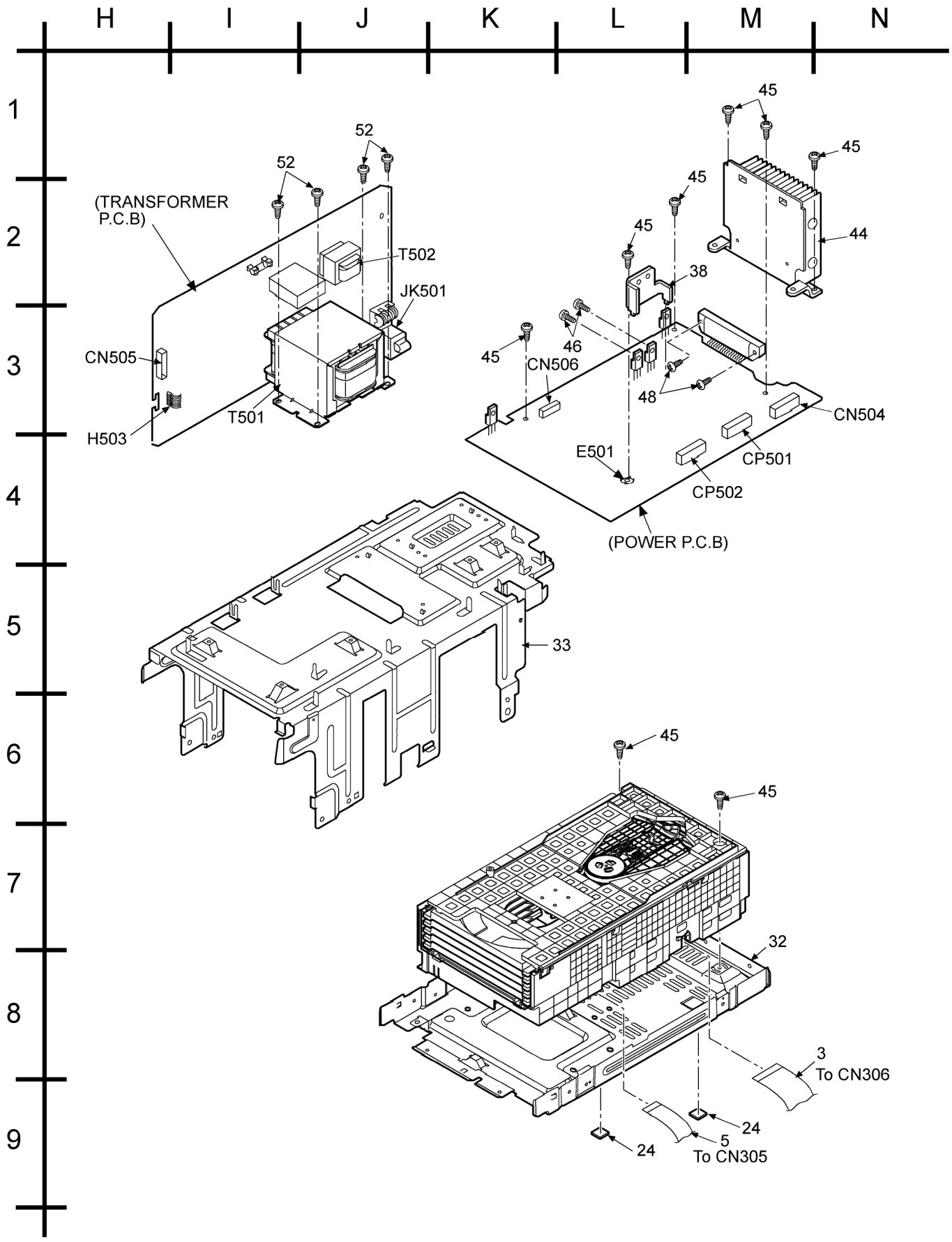
25.2.2. CD Loading Mechanism Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		TRAVERSE DECK	
301	RAE0157A-V	TRV UNIT W/O SERVO	[M]
303	RDG0455	TRAVERSE GEAR (A)	[M]
304	RDG0456	TRAVERSE GEAR (B)	[M]
305	RDG0519	MAIN GEAR	[M]
306	RDG0520	SPEED UP GEAR	[M]
307	RDG0521	REVERSE GEAR	[M]
308	RDG0522	GENEVA GEAR	[M]
309	RDG0523	HOR RELAY GEAR	[M]
310	RDG0525	CROWN GEAR	[M]
311	RDG0526	TRAY RELAY GEAR	[M]
312	RDG0527	UD PULLEY GEAR	[M]
313	RDG0528	HOR SPEED DOWN GEAR	[M]
314	RDG0529	HOR SPEED DOWN GEAR	[M]
315	RDG0530	HOR DRIVE GEAR	[M]
316	RDG0531	LOAD RELAY GEAR	[M]
317	RDG0532	LOAD GEAR	[M]
318	RDG0535	UD SPEED DOWN GEAR	[M]
319	RDG0534	UD SPEED DOWN GEAR	[M]
320	RDG0536	SELECT SPEED DOWN GEAR	[M]
321	RDG0537	SELECT DRIVE GEAR	[M]
322	RDG0538	CHANGE GEAR	[M]
323	RDG0539	UD DRIVE GEAR	[M]
324	RDG0540	TIMING GEAR	[M]
325	RDG0542	TRAY GEAR	[M]
326	RDG0543	HOR PULLEY GEAR	[M]
327	RDV0068	HOR BELT	[M]
328	RDV0069	UD BELT	[M]
329	RHM0001	MAGNET	[M]
330	RME0109	FLOATING SPRING	[M]
331	RFKNCT101	TRAVERSE UNIT	[M]
331-1	RME0369	PRESS SPRING	[M]
331-2	RXQ0632	TRAVERSE MOTOR UNIT	[M]
331-3	XQN17+C28FJ	SCREW	[M]
332	RME0344	UD ASSIST SPRING	[M]
333	RME0361	TRAY STOPPER SPRING	[M]
334	RME0363	LIMIT SPRING	[M]
335	RME0368	MAIN GEAR SPRING	[M]
336	RMG0563-T	FLOATING RUBBER	[M]
337	RML0616	SPEED UP LOCK	[M]
338	RML0617	SEPARATE LEVER 1	[M]
339	RML0618	SEPARATE LEVER 2	[M]
340	RML0619-1	UD. CONNECTION LEVER	[M]
341	RML0620	TRV.CONNECT LEVER	[M]
342	RML0621	TRAY CHANGE LEVER	[M]
343	RML0622	TRAY LOCK LEVER	[M]
344	RML0623	OPEN SW. LEVER	[M]
345	RML0624	CHG. LEVER	[M]
346	RML0637	TRAY STOPPER	[M]
347	RMM0218	TRAVERSE DRIVE RACK	[M]
348	RMM0239	UD RACK L	[M]
349	RMM0240	UD.RACK R	[M]
350	RMM0241	TRV. SLIDE PLATE L	[M]
351	RMM0242	TRV. SLIDE PLATE R	[M]
352	RMM0243	SELECT RACK PART	[M]
353	RMM0244	SELECT GUIDE	[M]
354	RMQ1051	PITCH PLATE PART	[M]
355	RMQ1052	UD BASE PART	[M]
356	RMQ1056	TRAY GUIDE L	[M]
357	RMQ1057	TRAY GUIDE R	[M]
358	RMQ1058	GEAR HOLDER	[M]
359	RMQ1059	TOP COVER	[M]
360	RMQ1060	CLAMP GUIDE	[M]
361	RMQ1061	TG.PLATE	[M]
362	RMR0334	FIXTURE	[M]
363	RMR0624-W5	CLAMPER	[M]
364	RMR1407A-H6	TRAY 1	[M]
365	RMR1407B-H6	TRAY 2	[M]
366	RMR1407C-H6	TRAY 3	[M]
367	RMR1407D-H6	TRAY 4	[M]
368	RMR1407E-H6	TRAY 5	[M]
369	RFKNAPM77MDS	MECHA BASE ASS'Y	[M]
370	RMR1427-X	MIDDLE CHASSIS	[M]
371	RMS0757-1	FIXED PIN	[M]
375	RMS0762	TRAY GEAR SHAFT	[M]
376	RXG0053	TRAY DRIVE GEAR ASSY	[M]
377	RXQ0999	OPU UNIT	[M]
378	RXQ0803	LOADING MOTOR ASS'Y	[M]
379	RXQ0804	UD MOTOR ASS'Y	[M]
380	XTB3+10JFJ	SCREW	[M]
381	XTN2+6GFJ	SCREW	[M]
382	RMC0472	TRAY SPRING	[M]
383	RHD26045-L	SCREW	[M]

25.3. Cabinet

25.3.1. Cabinet Parts Location

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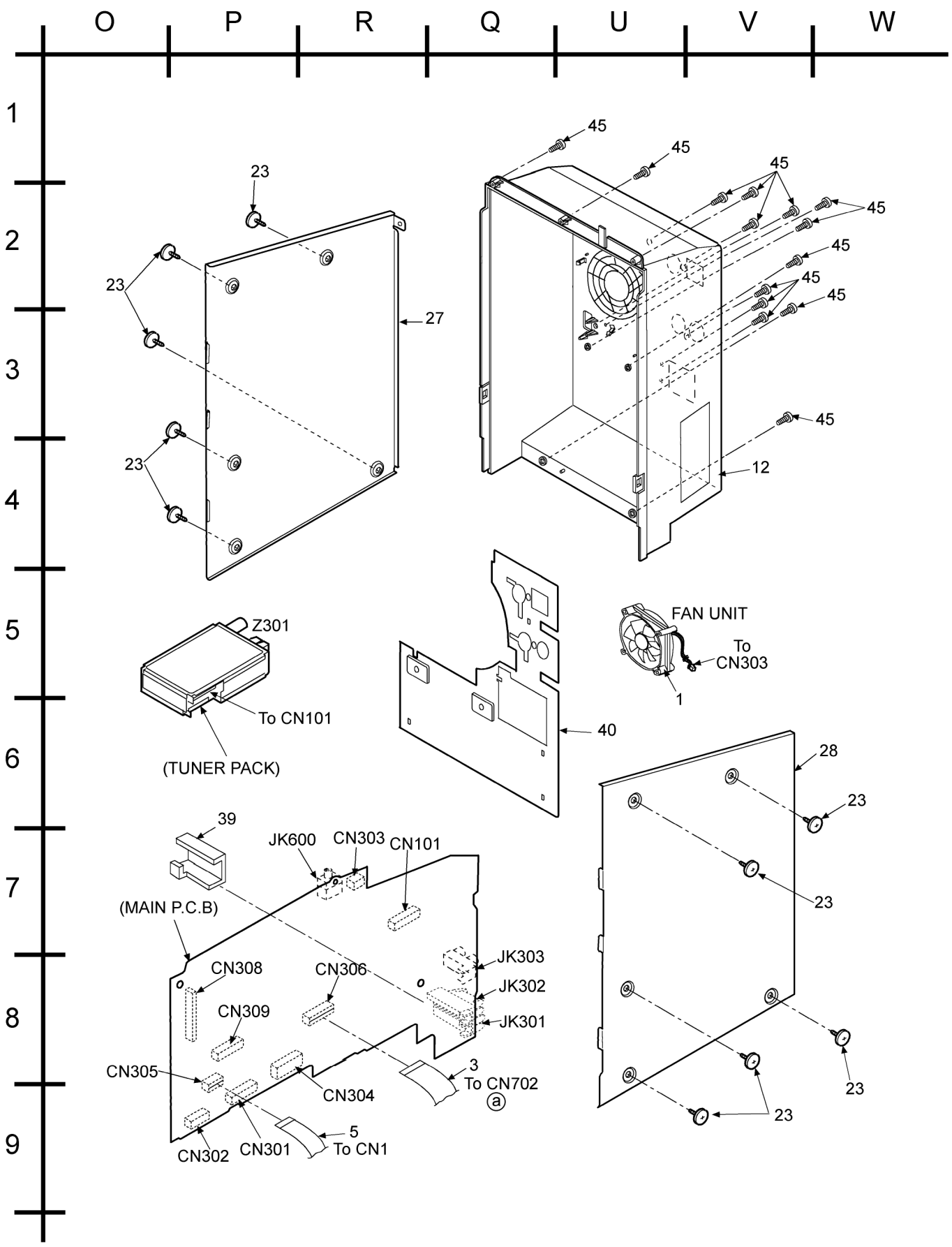
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JK303
JK302
JK301
CN309
CN305
CN304
3
To CN702
ⓐ
CN302
CN301
5
To CN1

25.3.2. Cabinet Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	L6FALEFH0023	DC FAN	[M]
2	REEV0026	21P FFC (DECK PCB)	[M]
3	REEV0039	17P FFC (CR16-MAIN)	[M]
4	REEV0070	17P FFC (PANEL-MAIN)	[M]
5	REEX0166	14P FFC WIRE (CR16)	[M]
7	RGKV0090-S	LEFT STRIP ORNAMENT	[M]
8	RGKV0091-S	RIGHT STRIP ORNAMENT	[M]
9	RFKLAPM31EBS	CD LID ASS'Y	[M]
10	RGLV0046	AC IN LIGHTING TIP	[M]
11	RGLV0047	SSEQ LIGHTING TIP	[M]
12	RKSV0024C-H	REAR CABINET	[M]EG E
12	RKSV0024D-H	REAR CABINET	[M]EB
13	RKMV0044A-S	FRONT PANEL	[M]
14	RGU2280-S	CASS EJECT BUTTON	[M]
15	RGUV0110-S	CD SELECTION BUTTON	[M]
16	RGUV0111-S	POWER BUTTON	[M]
17	RGUV0112-S	FUNCTION BUTTON	[M]
18	RGUV0114-S	MAIN CONTROL BUTTON	[M]
19	RGUV0115-S	MP3 BUTTON	[M]
20	RGWV0035-S	VOLUME KNOB	[M]
21	RHD26046-L	SCREW	[M]
22	RHD26049	SCREW	[M]
23	RHD30007-1SJ	SCREW	[M]
24	RHGV0008	LEG CUSHION	[M]
25	RKF0688-S	CASS HOLDER/LID	[M]
26	RKMV0045A-S	TOP CABINET	[M]
27	RKMV0046-S	SIDE PANEL LEFT	[M]
28	RKMV0047-S	SIDE PANEL RIGHT	[M]
29	RMB0448-J	LOCK ROD SPRING	[M]
30	RMB0780	CASS OPEN SPRING	[M]
31	RMB0783	CD LID OPEN SPRING	[M]
32	RMK0595	BOTTOM CHASSIS	[M]
33	RMKV0037	INNER CHASSIS	[M]
34	RMM0163-1	CASSETTE LOCK ROD	[M]
35	RMN0780	CD LID SUPPORT	[M]
36	RMNV0014	FL HOLDER	[M]
37	RMNV0053	SSEQ LED COVER	[M]
38	RMY0260	HEAT SINK	[M]
39	RSC0669	SP EARTH R	[M]
40	RSCV0052	REAR SHIELD PLATE	[M]
41	RSCV0054	FL REAR SHIELD	[M]
42	RUS757ZAA	CASS HALF SPRING	[M]
43	RXGX0003	DAMPER GEAR UNIT	[M]
44	RXXV0037	HEAT SINK UNIT	[M]
45	XTB3+10JFJK	SCREW	[M]
46	XTB3+8JFJK	SCREW	[M]
47	XTV3+10GFJ-M	SCREW	[M]
48	XTW3+15TFJ	SCREW	[M]
49	RGPV0066A-Q	FL WINDOW	[M]
50	RGKV0088-S	CENTER ORNAMENT	[M]
51	RKWV0045A	SENSOR WINDOW	[M]
52	XTWS3+6TFJ	SCREW	[M]

25.4. Electrical Part List

Ref. No.	Part No.	Part Name & Description	Remarks
		PRINTED CIRCUIT BOARD	
	REPV0016B	DECK P.C.B. / TAPE EJECT P.C.B.	[M] (RTL)
	REPV0037B	MAIN P.C.B./ MAIN CONTROL P.C.B. / POWER-IN P.C.B. / PANEL P.C.B. / FUNCTION P.C.B.	[M] (RTL)
	REPV0038B	POWER P.C.B. / TRANSFORMER P.C.B.	[M]E/EG (RTL)
	REPV0038C	POWER P.C.B. / TRANSFORMER P.C.B.	[M]EB (RTL)
	REPX0321H	DECK MECHANISM P.C.B.	[M] (RTL)
	REP3569A	CD LOADING P.C.B.	[M] (RTL)
	REPV0039A	CD SERVO P.C.B.	[M] (RTL)
		INTEGRATED CIRCUITS	
IC11	C0GAG0000007	UP/DOWN MOTOR DRIVE	[M]
IC21	C0GAG0000007	LOADING MOTOR DRIVE	[M]
IC300	C1BB00000757	IC ASP	[M]
IC302	C2CBJG000574	MICROPROCESSOR	[M]
IC303	C3EBEG000073	EEPROM	[M]
IC304	C1BB00000715	IC RDS	[M]
IC305	C0DBZGC00067	3.3V REGULATOR	[M]
IC500	RSN315H41-P	IC POWER AMP	[M]
IC501	C0AABB000125	IC OP AMP	[M]
IC600	C0HBB0000044	IC FL DRIVER	[M]
IC702	MN6627953HB	SERVO PROCESSOR DIGITAL SIGNAL PROCESSOR / DIGITAL FILTER D/A CONVERTER	[M]
IC703	BA5948FPE2	IC 4CH DRIVE	[M]
IC971	CNB13030R2AU	PHOTO INTERUPTOR	[M]
IC1000	C1AA00000612	ANALOG SWITCH	[M]
IC1001	AN7326K	P/B REC AMP	[M]
		TRANSISTORS	
Q1	B3NAA0000068	TRANSISTOR	[M]
Q200	KRA102STA	TRANSISTOR	[M]
Q201	B1ABCE000016	TRANSISTOR	[M]
Q222	B1ABCE000016	TRANSISTOR	[M]
Q223	B1ABCE000016	TRANSISTOR	[M]
Q224	B1ABCE000016	TRANSISTOR	[M]
Q301	KTA1504GRTA	TRANSISTOR	[M]
Q302	KRC102STA	TRANSISTOR	[M]
Q303	KTA1504GRTA	TRANSISTOR	[M]
Q304	B1GBCFGG0001	TRANSISTOR	[M]
Q305	B1GBCFGG0001	TRANSISTOR	[M]
Q306	KRC103STA	TRANSISTOR	[M]
Q307	B1ABCE000016	TRANSISTOR	[M]
Q308	B1ABCE000016	TRANSISTOR	[M]
Q309	KRC101STA	TRANSISTOR	[M]
Q310	KRC101STA	TRANSISTOR	[M]
Q400	KRA102STA	TRANSISTOR	[M]
Q422	B1ABCE000016	TRANSISTOR	[M]
Q423	B1ABCE000016	TRANSISTOR	[M]
Q424	B1ABCE000016	TRANSISTOR	[M]
Q501	B1BACG000023	TRANSISTOR	[M]
Q502	B1BCCG000002	TRANSISTOR	[M]
Q505	B1ACCF000063	TRANSISTOR	[M]
Q506	B1BCCG000002	TRANSISTOR	[M]
Q508	KTC3199GRTA	TRANSISTOR	[M]
Q509	KRA110MTA	TRANSISTOR	[M]
Q514	2SD0592ARA	TRANSISTOR	[M]
Q515	KTC3199GRTA	TRANSISTOR	[M]
Q516	KTC3199GRTA	TRANSISTOR	[M]
Q517	KTC32030YTA	TRANSISTOR	[M]
Q519	B1AAGC000006	TRANSISTOR	[M]
Q520	B1BACG000023	TRANSISTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
Q575	B1AAGC000006	TRANSISTOR	[M]
Q577	2SC3940ARA	TRANSISTOR	[M]
Q578	KRC102MTA	TRANSISTOR	[M]
Q579	2SB0621AHA	TRANSISTOR	[M]
Q600	KRC119STA	TRANSISTOR	[M]
Q700	B1AACF000063	TRANSISTOR	[M]
Q701	B1ADCF000001	TRANSISTOR	[M]
Q701	KTA12710YTA	TRANSISTOR	[M]
Q702	B1AACF000063	TRANSISTOR	[M]
Q703	B1AACF000063	TRANSISTOR	[M]
Q704	KRA102MTA	TRANSISTOR	[M]
Q710	B1AAGC000006	TRANSISTOR	[M]
Q711	B1AAGC000006	TRANSISTOR	[M]
Q714	KTC3199GRTA	TRANSISTOR	[M]
Q715	KTC3199GRTA	TRANSISTOR	[M]
Q716	KTC3199GRTA	TRANSISTOR	[M]
Q717	KTC3199GRTA	TRANSISTOR	[M]
Q718	B1AAGC000006	TRANSISTOR	[M]
Q719	B1AAGC000006	TRANSISTOR	[M]
Q720	KTC3199GRTA	TRANSISTOR	[M]
Q721	KTC3199GRTA	TRANSISTOR	[M]
Q725	B1AAGC000006	TRANSISTOR	[M]
Q726	B1AAGC000006	TRANSISTOR	[M]
Q1101	B1ABGC000005	TRANSISTOR	[M]
Q1201	B1ABGC000005	TRANSISTOR	[M]
Q1302	B1GDCFJJ0002	TRANSISTOR	[M]
Q1303	B1GBCFGH0001	TRANSISTOR	[M]
Q1304	B1GDCFGH0002	TRANSISTOR	[M]
Q1309	B1AAGC000006	TRANSISTOR	[M]
Q1310	B1AAGC000006	TRANSISTOR	[M]
Q1312	B1ABCF000011	TRANSISTOR	[M]
Q1314	B1GDCFGH0002	TRANSISTOR	[M]
Q1315	KTA12710YTA	TRANSISTOR	[M]
Q1316	2SD09650RA	TRANSISTOR	[M]
Q1317	B1ABGC000005	TRANSISTOR	[M]
		DIODES	
D201	B0BC01000014	DIODE	[M]
D302	B0ACCE000003	DIODE	[M]
D303	B0ACCE000003	DIODE	[M]
D304	MA729TX	DIODE	[M]
D305	B0ACCK000005	DIODE	[M]
D500	B0FBAM000009	DIODE	[M]
D505	B0AACK000004	DIODE	[M]
D508	MTZJ15BTA	DIODE	[M]
D515	B0BA9R600002	DIODE	[M]
D517	B0BA5R600016	DIODE	[M]
D520	B0BA9R600002	DIODE	[M]
D524	B0BA01100004	DIODE	[M]
D525	B0AACK000004	DIODE	[M]
D526	B0AACK000004	DIODE	[M]
D530	B0AACK000004	DIODE	[M]
D531	B0BA8R200005	DIODE	[M]
D578	B0EAKM000117	DIODE	[M]
D579	B0EAKM000117	DIODE	[M]
D580	B0EAKM000117	DIODE	[M]
D581	B0EAKM000117	DIODE	[M]
D582	B0BA6R600008	DIODE	[M]
D584	B0EAKM000117	DIODE	[M]
D585	B0EAKM000117	DIODE	[M]
D586	B0EAKM000117	DIODE	[M]
D587	B0EAKM000117	DIODE	[M]
D588	B0EAKM000117	DIODE	[M]
D589	B0EAKM000117	DIODE	[M]
D592	B0EAKM000117	DIODE	[M]
D593	B0EAKM000117	DIODE	[M]
D594	B0BA03000015	DIODE	[M]
D600	B0BC6R700006	DIODE	[M]
D601	B3ADA0000087	DIODE	[M]
D609	B3AAA0000487	DIODE	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
D700	B0AACK000004	DIODE	[M]
D701	B0AACK000004	DIODE	[M]
D702	B0AACK000004	DIODE	[M]
D703	B0AACK000004	DIODE	[M]
D704	B0AACK000004	DIODE	[M]
D705	B0AACK000004	DIODE	[M]
D706	B0AACK000004	DIODE	[M]
D707	B0AACK000004	DIODE	[M]
D708	MA2C16500E	DIODE	[M]
D709	MA2C16500E	DIODE	[M]
D750	MAZ80560ML	DIODE	[M]
D971	MA2C16500E	DIODE	[M]
D1301	B0ACCK000005	DIODE	[M]
		VARIABLE RESISTOR	
VR600	EVEJ1CF3024B	VOLUME ENCORDER	[M]
		SWITCHES	
S1	K0L1BA000065	STOCK SWITCH	[M]
S2	K0L1BA000065	PLAY SWITCH	[M]
S3	K0L1BA000078	BOTTOM SWITCH	[M]
S4	RSH1A045-1A	OPEN SWITCH	[M]
S5	K0L1BA000065	CHANGE SWITCH	[M]
S601	EVQ21405RJ	CD 1 SWITCH	[M]
S602	EVQ21405RJ	CD 2 SWITCH	[M]
S603	EVQ21405RJ	CD 3 SWITCH	[M]
S604	EVQ21405RJ	CD 4 SWITCH	[M]
S605	EVQ21405RJ	CD 5 SWITCH	[M]
S606	EVQ21405RJ	CD PLAY/PAUSE SWITCH	[M]
S607	EVQ21405RJ	TAPE SWITCH	[M]
S608	EVQ21405RJ	TUNER SWITCH	[M]
S609	EVQ21405RJ	TRACK UP SWITCH	[M]
S610	EVQ21405RJ	TRACK DOWN SWITCH	[M]
S611	EVQ21405RJ	ALBUM UP SWITCH	[M]
S612	EVQ21405RJ	ALBUM DOWN SWITCH	[M]
S613	EVQ21405RJ	SSEQ SWITCH	[M]
S614	EVQ21405RJ	POWER SWITCH	[M]
S615	EVQ21405RJ	SURROUND SWITCH	[M]
S616	EVQ21405RJ	AUX SWITCH	[M]
S617	EVQ21405RJ	CD CHECK SWITCH	[M]
S618	EVQ21405RJ	STOP SWITCH	[M]
S619	EVQ21405RJ	OPEN/CLOSE SWITCH	[M]
S620	EVQ21405RJ	CD CHANGE SWITCH	[M]
S621	EVQ21405RJ	REV SWITCH	[M]
S622	EVQ21405RJ	FWD SWITCH	[M]
S623	EVQ21405RJ	REC SWITCH	[M]
S701	RSH1A048-A	REST SWITCH	[M]
S971	RSH1A018-3U	MODE SWITCH	[M]
S972	RSH1A019-2U	HALF SWITCH	[M]
S973	RSH1A019-2U	CR02 SWITCH	[M]
S975	RSH1A019-2U	RECINH_F SWITCH	[M]
S1901	EVQ21405RJ	TAPE EJECT SWITCH	[M]
		CONNECTORS	
CN1	K1MN14B00066	14P FFC CONNECTOR	[M]
CN101	K1KA10A00263	10P CONNECTOR	[M]
CN301	K1KB13B00017	13P CONNECTOR	[M]
CN302	K1KB07A00018	7P CONNECTOR	[M]
CN303	K1KA02A00008	2P CONNECTOR (FAN)	[M]
CN304	K1KA08B00255	8P CONNECTOR	[M]
CN305	K1MN14C00004	14P FFC CONNECTOR	[M]
CN306	K1MN17C00002	17P FFC CONNECTOR	[M]
CN308	K1MN17A00040	17P FFC CONNECTOR	[M]
CN309	K1MN21A00031	21P CONNECTOR	[M]
CN504	K1KB08A00100	8P CONNECTOR	[M]
CN505	K1KB07A00016	7P CONNECTOR	[M]
CN506	RJT119W06V	6P CONNECTOR	[M]
CN603A	K1KA09B00096	9P CONNECTOR	[M]
CN606	K1MN17B00032	17P CONNECTOR	[M]
CN701	RJS2A8616	16P FPC CONNECTOR	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
CN702	RJS2A7717	17P FFC CONNECTOR	[M]
CN1305	K1MN21B00010	21P FFC CONNECTOR	[M]
CP501	K1KA13A00100	13P CONNECTOR	[M]
CP502	K1KA07A00082	7P CONNECTOR	[M]
CP1301	K1MN05A00019	5P CONNECTOR	[M]
CP1902	K1KA09B00058	9P CONNECTOR	[M]
CS971	RJU071H09M1	9P CONNECTOR	[M]
		COILS & TRANSFORMERS	
L200	G0AR76Y00002	CHOKE COIL	[M]
L201	G0AR76Y00002	CHOKE COIL	[M]
L203	J0JBC0000019	CHIP INDUCTOR	[M]
L204	G0C3R3JA0027	COIL	[M]
L300	G0C3R3JA0027	COIL	[M]
L301	G0A200D00002	RF CHOKE COIL	[M]
L302	G0C101JA0030	COIL	[M]
L303	G0C101JA0030	COIL	[M]
L400	G0AR76Y00002	CHOKE COIL	[M]
L401	G0AR76Y00002	CHOKE COIL	[M]
L503	G0B371HA0005	LINE FILTER	[M] ⚠
L600	J0JBC0000019	CHIP INDUCTOR	[M]
L601	J0JBC0000019	CHIP INDUCTOR	[M]
L602	G0C100JA0030	INDUCTOR	[M]
L603	G0C101JA0027	COIL	[M]
L604	G0C3R3JA0027	COIL	[M]
L1301	7L1A62N	BIAS OCS COIL	[M]
L1302	RLQB470JTD-D	RF CHOKE COIL	[M]
T501	G4C6AFK00009	MAIN TRANSFORMER	[M] ⚠
T502	G4C2AAJ00007	BACK-UP TRANSFORMER	[M] ⚠
		COMPONENT COMBINATIONS	
Z301	ENG07808QF	TUNER PACK	[M]
Z501	ERZV10V511CS	ZENER	[M] ⚠
Z601	B3RAB0000040	REMOTE SENSOR	[M]
		RELAY	
RL501	K6B1ADA00011	RELAY	[M] ⚠
		OSCILLATORS	
X300	H0H433400001	CRYSTAL OSCILLATOR	[M]
X301	H2A100500006	RESONATOR	[M]
X302	RSXD32K7S02	CRYSTAL OSCILLATOR	[M]
X701	RSXC16M9S04	CRYSTAL OSCILLATOR	[M]
		DISPLAY TUBE	
FL600	A2BB00000131	FL DISPLAY	[M]
		FUSE	
F1	K5D102BK0008	FUSE	[M] ⚠
		FUSE HOLDERS	
FC1	EYF52BCY	FUSE CLIP	[M]
FC2	EYF52BCY	FUSE CLIP	[M]
		FUSE PROTECTORS	
FP501	K5G402A00025	FUSE PROTECTOR	[M] ⚠
FP502	K5G102A00023	FUSE PROTECTOR	[M] ⚠
		HOLDERS	
H503	K1YF06000002	6P WIRE HOLDER	[M]
H601A	RMR0312	3P CABLE HOLDER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
H601B	RMR0312	3P CABLE HOLDER	[M]
H603B	RMR0318	9P WIRE HOLDER	[M]
H606	RMR0316	7P WIRE HOLDER	[M]
		JACKS	
JK301	K4BC04B00060	JK RED/BLACK SPEAKER	[M]
JK302	K4BC04B00059	JK BLUE/HOAR SPEAKER	[M]
JK303	K4BK02B00007	JK AUX-IN	[M]
JK501	K2AA2B000004	JK AC INLET	[M] ⚠
JK600	K2HC103B0049	JK HEADPHONE	[M]
		EARTH TERMINAL	
E501	SNE1004-2	EARTH TERMINAL	[M]
		CHIP JUMPERS	
WA100	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA101	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA102	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA103	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA104	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA105	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA106	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA107	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA108	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA110	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA111	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA112	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA113	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA114	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA115	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA116	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA117	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA118	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA119	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA120	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA121	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA122	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA123	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA214	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA414	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA615	ERJ3GEY0R00V	CHIP JUMPER	[M]
WA616	ERJ3GEY0R00V	CHIP JUMPER	[M]
WB201	ERJ8GEY0R00V	CHIP JUMPER	[M]
WB202	ERJ8GEY0R00V	CHIP JUMPER	[M]
WB203	ERJ8GEY0R00V	CHIP JUMPER	[M]
		WIRES	
WR1308A	RWJ0102110SS	2P (MTR WIRE)	[M]
WR1903	RWJ0102050KR	2P (MOTOR WIRE)	[M]
JW503	REXV0020	6P WIRE (PWR-TRAN)	[M]
JW601	RWJ1103120XX	3P CASS OPEN-DECK	[M]
JW603	REXV0024	9P WIRE (PANEL-MAIN)	[M]
JW605	RWJ1802110SS	2P WIRE (PANEL-FUSE)	[M]
JW606	RWJ0207180XQ	7P WIRE (PANEL-TRAN)	[M]
		RESISTORS	
R201	D0GB181JA007	180 1/16W	[M]
R209	ERJ3GEYJ103V	10K 1/16W	[M]
R211	D0GB182JA007	1.8K 1/16W	[M]
R214	ERJ3GEYJ103V	10K 1/16W	[M]
R218	D0GB392JA041	3.9K 1/16W	[M]
R219	D0GB391JA041	390 1/16W	[M]
R220	D0GB272JA041	2.7K 1/16W	[M]
R221	D0GB123JA007	12K 1/16W	[M]
R222	ERJ3GEYJ102V	1K 1/16W	[M]
R224	D0GB392JA041	3.9K 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R228	D0AF100JA039	10 1/4W	[M]
R229	D0AF100JA039	10 1/4W	[M]
R230	D0AF100JA039	10 1/4W	[M]
R231	D0AF100JA039	10 1/4W	[M]
R271	ERJ6GEYJ394V	390K 1/10W	[M]
R272	ERJ6GEYJ272V	2.7K 1/10W	[M]
R273	ERJ3GEYJ102V	1K 1/16W	[M]
R274	ERJ3GEYJ102V	1K 1/16W	[M]
R275	D0GB182JA007	1.8K 1/16W	[M]
R276	D0GB392JA041	3.9K 1/16W	[M]
R301	D0GB472JA041	4.7K 1/16W	[M]
R302	ERJ3GEYJ102V	1K 1/16W	[M]
R303	ERJ3GEYJ102V	1K 1/16W	[M]
R304	D0GB104JA007	100K 1/16W	[M]
R305	ERJ3GEYJ102V	1K 1/16W	[M]
R306	ERJ3GEYJ103V	10K 1/16W	[M]
R307	D0GB101JA007	100 1/16W	[M]
R308	D0GB101JA007	100 1/16W	[M]
R309	ERJ3GEYJ103V	10K 1/16W	[M]
R310	ERJ3GEYJ103V	10K 1/16W	[M]
R312	D0GB222JA041	2.2K 1/16W	[M]
R313	D0GB101JA007	100 1/16W	[M]
R314	D0GB101JA007	100 1/16W	[M]
R315	D0GB101JA007	100 1/16W	[M]
R316	D0GB101JA007	100 1/16W	[M]
R317	D0GB101JA007	100 1/16W	[M]
R318	D0GB101JA007	100 1/16W	[M]
R319	D0GB101JA007	100 1/16W	[M]
R320	D0GB101JA007	100 1/16W	[M]
R321	D0GB101JA007	100 1/16W	[M]
R322	D0GB101JA007	100 1/16W	[M]
R323	D0GB472JA041	4.7K 1/16W	[M]
R324	D0GB472JA041	4.7K 1/16W	[M]
R325	D0GB473JA041	47K 1/16W	[M]
R326	D0GB472JA041	4.7K 1/16W	[M]
R327	D0GB472JA041	4.7K 1/16W	[M]
R328	D0GB101JA007	100 1/16W	[M]
R329	ERJ3GEYJ102V	1K 1/16W	[M]
R330	D0GB474JA041	470K 1/16W	[M]
R331	ERJ3GEYJ103V	10K 1/16W	[M]
R332	D0GB474JA041	470K 1/16W	[M]
R333	D0GB472JA041	4.7K 1/16W	[M]
R334	ERJ3GEYJ102V	1K 1/16W	[M]
R335	D0GB101JA007	100 1/16W	[M]
R336	D0GB472JA041	4.7K 1/16W	[M]
R337	D0GB472JA041	4.7K 1/16W	[M]
R338	D0GB472JA041	4.7K 1/16W	[M]
R339	D0GB101JA007	100 1/16W	[M]
R340	D0GB101JA007	100 1/16W	[M]
R341	D0GB101JA007	100 1/16W	[M]
R342	ERJ3GEYJ103V	10K 1/16W	[M]
R343	ERJ3GEYJ103V	10K 1/16W	[M]
R344	ERJ3GEYJ103V	10K 1/16W	[M]
R345	ERJ3GEYJ103V	10K 1/16W	[M]
R346	ERJ3GEYJ103V	10K 1/16W	[M]
R347	ERJ3GEYJ103V	10K 1/16W	[M]
R348	ERJ3GEYJ103V	10K 1/16W	[M]
R349	ERJ3GEYJ681V	680 1/16W	[M]
R350	D0GB473JA041	47K 1/16W	[M]
R351	D0GB473JA041	47K 1/16W	[M]
R352	D0GB472JA041	4.7K 1/16W	[M]
R353	D0GB472JA041	4.7K 1/16W	[M]
R354	ERJ3GEYJ681V	680 1/16W	[M]
R355	D0GB334JA041	330K 1/16W	[M]
R356	ERJ3GEYJ106V	10M 1/16W	[M]
R357	D0GB223JA041	22K 1/16W	[M]
R358	D0GB223JA041	22K 1/16W	[M]
R359	D0GB472JA041	4.7K 1/16W	[M]
R360	D0GB153JA007	15K 1/16W	[M]
R361	ERJ3GEYJ103V	10K 1/16W	[M]
R362	D0GB471JA041	470 1/16W	[M]
R363	ERJ3GEYJ121V	120 1/16W	[M]
R364	D0GB101JA007	100 1/16W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R365	ERJ3GEYJ102V	1K 1/16W	[M]
R366	ERJ3GEYJ102V	1K 1/16W	[M]
R367	ERJ3GEYJ102V	1K 1/16W	[M]
R368	ERJ3GEYJ102V	1K 1/16W	[M]
R369	ERJ3GEYJ102V	1K 1/16W	[M]
R370	ERJ3GEYJ102V	1K 1/16W	[M]
R371	D0GB101JA007	100 1/16W	[M]
R372	D0GB223JA041	22K 1/16W	[M]
R373	ERJ3GEYJ122V	1.2K 1/16W	[M]
R374	ERJ3GEYJ122V	1.2K 1/16W	[M]
R375	ERD2FCVJ4R7T	4.7 1/4W	[M]
R377	D0GB223JA041	22K 1/16W	[M]
R378	D0GB101JA007	100 1/16W	[M]
R379	D0GB101JA007	100 1/16W	[M]
R381	D0GB101JA007	100 1/16W	[M]
R382	D0GB101JA007	100 1/16W	[M]
R383	ERJ3GEYJ103V	10K 1/16W	[M]
R384	D0GB472JA041	4.7K 1/16W	[M]
R385	D0GB101JA007	100 1/16W	[M]
R386	ERJ3GEYJ103V	10K 1/16W	[M]
R388	D0GB473JA041	47K 1/16W	[M]
R389	ERJ3GEYJ103V	10K 1/16W	[M]
R390	D0GB472JA041	4.7K 1/16W	[M]
R391	D0GB472JA041	4.7K 1/16W	[M]
R411	D0GB182JA007	1.8K 1/16W	[M]
R414	ERJ3GEYJ103V	10K 1/16W	[M]
R417	D0GB101JA007	100 1/16W	[M]
R418	D0GB392JA041	3.9K 1/16W	[M]
R419	D0GB391JA041	390 1/16W	[M]
R420	D0GB272JA041	2.7K 1/16W	[M]
R421	D0GB123JA007	12K 1/16W	[M]
R422	ERJ3GEYJ102V	1K 1/16W	[M]
R424	D0GB392JA041	3.9K 1/16W	[M]
R429	D0AF100JA039	10 1/4W	[M]
R430	D0AF100JA039	10 1/4W	[M]
R431	D0AF100JA039	10 1/4W	[M]
R432	D0AF100JA039	10 1/4W	[M]
R440	ERJ3GEYJ102V	1K 1/16W	[M]
R450	ERJ3GEYJ102V	1K 1/16W	[M]
R452	D0GB101JA007	100 1/16W	[M]
R453	D0GB101JA007	100 1/16W	[M]
R455	D0GB472JA041	4.7K 1/16W	[M]
R456	D0GB472JA041	4.7K 1/16W	[M]
R457	D0GB472JA041	4.7K 1/16W	[M]
R458	D0GB472JA041	4.7K 1/16W	[M]
R459	D0GB101JA007	100 1/16W	[M]
R461	D0GB472JA041	4.7K 1/16W	[M]
R462	ERD2FCVG100T	10 1/4W	[M]
R471	ERJ6GEYJ394V	390K 1/10W	[M]
R472	ERJ6GEYJ272V	2.7K 1/10W	[M]
R473	ERJ3GEYJ102V	1K 1/16W	[M]
R474	ERJ3GEYJ102V	1K 1/16W	[M]
R475	D0GB182JA007	1.8K 1/16W	[M]
R476	D0GB392JA041	3.9K 1/16W	[M]
R479	ERJ3GEYJ102V	1K 1/16W	[M]
R480	D0GB473JA041	47K 1/16W	[M]
R505	D0AE563JA048	56K 1/4W	[M]
R506	D0AE563JA048	56K 1/4W	[M]
R511	D0AF102JA039	1K 1/4W	[M]
R512	D0AF151JA039	150 1/4W	[M]
R514	D0AE563JA048	56K 1/4W	[M]
R515	D0AE563JA048	56K 1/4W	[M]
R517	D0AE331JA048	330 1/4W	[M]
R518	D0AE122JA048	1.2K 1/4W	[M]
R519	ERDS2TJ2R2T	2.2 1/4W	[M]
R520	ERDS2TJ2R2T	2.2 1/4W	[M]
R524	ERDS2TJ2R2T	2.2 1/4W	[M]
R526	D0AE103JA048	10K 1/4W	[M]
R532	D0AE153JA048	15K 1/4W	[M]
R533	D0AE153JA048	15K 1/4W	[M]
R534	D0AF331JA039	330 1/4W	[M]
R536	ERDS1FVJ2R2T	2.2 1/2W	[M]
R537	ERDS2TJ222T	2.2K 1/4W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R539	D0AF221JA039	220 1/4W	[M]
R540	D0AE153JA048	15K 1/4W	[M]
R541	D0AE153JA048	15K 1/4W	[M]
R542	ERDS2TJ332T	3.3K 1/4W	[M]
R543	ERDS2TJ332T	3.3K 1/4W	[M]
R544	D0AE562JA048	5.6K 1/4W	[M]
R545	D0AE562JA048	5.6K 1/4W	[M]
R546	D0AE223JA048	22K 1/4W	[M]
R547	D0AE274JA048	270K 1/4W	[M]
R548	ERDS2TJ224T	220K 1/4W	[M]
R549	ERDS1FVJ2R2T	2.2 1/2W	[M]
R550	D0AF331JA039	330 1/4W	[M]
R551	D0AE104JA048	100K 1/4W	[M]
R554	D0AF331JA039	330 1/4W	[M]
R556	ERDS1FVJ2R2T	2.2 1/2W	[M]
R561	ERDS2TJ334T	330K 1/4W	[M]
R562	ERDS2TJ394T	390K 1/4W	[M]
R565	D0AE123JA048	12K 1/4W	[M]
R566	D0AE103JA048	10K 1/4W	[M]
R567	ERDS2TJ151T	150 1/4W	[M]
R568	D0AF150JA039	15 1/4W	[M]
R569	D0AF270JA039	27 1/4W	[M]
R571	D0AF332JA039	3.3K 1/4W	[M]
R572	ERDS2TJ561T	560 1/4W	[M]
R573	D0AE272JA048	2.7K 1/4W	[M]
R574	D0AE272JA048	2.7K 1/4W	[M]
R576	D0AE103JA048	10K 1/4W	[M]
R577	D0AE103JA048	10K 1/4W	[M]
R578	ERDS2TJ332T	3.3K 1/4W	[M]
R580	D0AF180JA039	18 1/4W	[M]
R581	D0AF180JA039	18 1/4W	[M]
R583	ERDS2TJ821T	820 1/4W	[M]
R584	ERDS2TJ151T	150 1/4W	[M]
R585	D0AF220JA039	22 1/4W	[M]
R586	ERDS2TJ151T	150 1/4W	[M]
R587	D0AE472JA048	4.7K 1/4W	[M]
R589	ERD2FCVJ4R7T	4.7 1/4W	[M]
R591	D0AE101JA048	100 1/4W	[M]
R600	ERJ3GEYJ680V	68 1/16W	[M]
R601	ERJ3GEYJ680V	68 1/16W	[M]
R602	D0GB470JA008	47 1/16W	[M]
R603	D0GB273JA007	27K 1/16W	[M]
R604	ERJ3GEYJ103V	10K 1/16W	[M]
R605	D0GB223JA041	22K 1/16W	[M]
R606	D0GB123JA007	12K 1/16W	[M]
R607	ERJ3GEYJ102V	1K 1/16W	[M]
R608	ERJ3GEYJ102V	1K 1/16W	[M]
R609	D0GB182JA007	1.8K 1/16W	[M]
R610	D0GB222JA041	2.2K 1/16W	[M]
R611	D0GB272JA041	2.7K 1/16W	[M]
R614	ERJ3GEYJ102V	1K 1/16W	[M]
R615	ERJ3GEYJ102V	1K 1/16W	[M]
R616	ERJ3GEYJ122V	1.2K 1/16W	[M]
R617	ERJ3GEYJ102V	1K 1/16W	[M]
R618	ERJ3GEYJ102V	1K 1/16W	[M]
R619	ERJ3GEYJ122V	1.2K 1/16W	[M]
R620	ERJ3GEYJ682V	6.8K 1/16W	[M]
R621	D0GB182JA007	1.8K 1/16W	[M]
R622	D0GB222JA041	2.2K 1/16W	[M]
R623	D0GB272JA041	2.7K 1/16W	[M]
R624	ERJ3GEYJ122V	1.2K 1/16W	[M]
R626	ERJ3GEYJ103V	10K 1/16W	[M]
R627	D0GB472JA041	4.7K 1/16W	[M]
R628	D0GB223JA041	22K 1/16W	[M]
R629	D0GB391JA041	390 1/16W	[M]
R631	ERJ3GEYJ102V	1K 1/16W	[M]
R632	ERJ3GEYJ102V	1K 1/16W	[M]
R633	ERJ3GEYJ102V	1K 1/16W	[M]
R634	ERJ3GEYJ102V	1K 1/16W	[M]
R636	D0GB471JA041	470 1/16W	[M]
R639	ERJ3GEYJ682V	6.8K 1/16W	[M]
R640	D0GB472JA041	4.7K 1/16W	[M]
R700	D0AF180JA039	18 1/4W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R701	D0AE563JA048	56K 1/4W	[M]
R701	D0GB4R7JA007	4.7 1/16W	[M]
R702	D0AE101JA048	100 1/4W	[M]
R702	D0GB472JA041	4.7K 1/16W	[M]
R703	D0AE103JA048	10K 1/4W	[M]
R704	D0AE563JA048	56K 1/4W	[M]
R704	ERJ3GEYJ102V	1K 1/16W	[M]
R705	D0AE103JA048	10K 1/4W	[M]
R705	D0GB393JA041	39K 1/16W	[M]
R706	D0AE472JA048	4.7K 1/4W	[M]
R706	ERJ3GEYJ102V	1K 1/16W	[M]
R707	D0AE562JA048	5.6K 1/4W	[M]
R708	D0AE103JA048	10K 1/4W	[M]
R709	ERDS2TJ824T	820K 1/4W	[M]
R710	D0AE563JA048	56K 1/4W	[M]
R711	D0GB823JA007	82K 1/16W	[M]
R711	ERDS2TJ824T	820K 1/4W	[M]
R712	D0AE102JA048	1K 1/4W	[M]
R712	D0GB821JA007	820 1/16W	[M]
R713	D0AE563JA048	56K 1/4W	[M]
R714	D0GB471JA041	470 1/16W	[M]
R715	D0GB332JA007	3.3K 1/16W	[M]
R717	ERJ3GEYJ102V	1K 1/16W	[M]
R718	ERJ3GEYJ102V	1K 1/16W	[M]
R720	D0GB105JA007	1M 1/16W	[M]
R720	ERDS2TJ823T	82K 1/4W	[M]
R721	D0GB101JA007	100 1/16W	[M]
R721	ERDS2TJ823T	82K 1/4W	[M]
R722	D0AE104JA048	100K 1/4W	[M]
R723	D0AE102JA048	1K 1/4W	[M]
R723	D0GB332JA007	3.3K 1/16W	[M]
R724	D0AE104JA048	100K 1/4W	[M]
R725	D0AE102JA048	1K 1/4W	[M]
R725	D0GB331JA007	330 1/16W	[M]
R726	ERDS2TJ273T	27K 1/4W	[M]
R727	D0AE104JA048	100K 1/4W	[M]
R727	ERJ3GEYJ102V	1K 1/16W	[M]
R728	D0AE102JA048	1K 1/4W	[M]
R728	ERJ3GEYJ103V	10K 1/16W	[M]
R729	D0AE102JA048	1K 1/4W	[M]
R729	ERJ3GEYJ102V	1K 1/16W	[M]
R730	ERDS2TJ224T	220K 1/4W	[M]
R731	D0GB223JA041	22K 1/16W	[M]
R731	ERDS2TJ682T	6.8K 1/4W	[M]
R732	D0AE153JA048	15K 1/4W	[M]
R732	ERJ3GEYJ102V	1K 1/16W	[M]
R733	D0AE153JA048	15K 1/4W	[M]
R734	D0AE221JA048	220 1/4W	[M]
R735	D0GB101JA007	100 1/16W	[M]
R735	ERDS2TJ224T	220K 1/4W	[M]
R736	D0GB101JA007	100 1/16W	[M]
R736	ERDS2TJ682T	6.8K 1/4W	[M]
R737	D0AE122JA048	1.2K 1/4W	[M]
R738	D0AE153JA048	15K 1/4W	[M]
R739	D0AE122JA048	1.2K 1/4W	[M]
R739	ERJ3GEYJ102V	1K 1/16W	[M]
R740	D0AE153JA048	15K 1/4W	[M]
R741	D0AE562JA048	5.6K 1/4W	[M]
R742	D0AE562JA048	5.6K 1/4W	[M]
R743	D0AE122JA048	1.2K 1/4W	[M]
R744	D0AE153JA048	15K 1/4W	[M]
R744	D0GB473JA041	47K 1/16W	[M]
R745	D0AE562JA048	5.6K 1/4W	[M]
R746	D0AE562JA048	5.6K 1/4W	[M]
R747	D0AE122JA048	1.2K 1/4W	[M]
R748	ERDS2TJ152T	1.5K 1/4W	[M]
R749	D0GB183JA007	18K 1/16W	[M]
R749	ERDS2TJ152T	1.5K 1/4W	[M]
R750	ERDS2TJ332T	3.3K 1/4W	[M]
R751	ERDS2TJ332T	3.3K 1/4W	[M]
R752	D0AE104JA048	100K 1/4W	[M]
R753	D0GB100JA007	10 1/16W	[M]
R753	ERDS2TJ222T	2.2K 1/4W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R754	D0GB5R6JA007	5.6 1/16W	[M]
R754	ERDS2TJ220T	22 1/4W	[M]
R755	ERDS2TJ220T	22 1/4W	[M]
R756	ERDS2TJ220T	22 1/4W	[M]
R757	ERDS2TJ220T	22 1/4W	[M]
R758	ERDS2TJ222T	2.2K 1/4W	[M]
R759	D0AE472JA048	4.7K 1/4W	[M]
R760	D0AE223JA048	22K 1/4W	[M]
R760	D0GB101JA007	100 1/16W	[M]
R761	D0AE223JA048	22K 1/4W	[M]
R762	D0AE562JA048	5.6K 1/4W	[M]
R763	D0AE562JA048	5.6K 1/4W	[M]
R764	ERDS2TJ683T	68K 1/4W	[M]
R764	ERJ3GEYJ102V	1K 1/16W	[M]
R765	ERDS2TJ683T	68K 1/4W	[M]
R766	D0AE103JA048	10K 1/4W	[M]
R766	D0GB562JA007	5.6K 1/16W	[M]
R767	D0AE103JA048	10K 1/4W	[M]
R768	D0AE472JA048	4.7K 1/4W	[M]
R769	D0AE472JA048	4.7K 1/4W	[M]
R770	ERDS2TJ332T	3.3K 1/4W	[M]
R771	D0AE104JA048	100K 1/4W	[M]
R772	D0AE472JA048	4.7K 1/4W	[M]
R773	D0AE102JA048	1K 1/4W	[M]
R774	D0AE104JA048	100K 1/4W	[M]
R775	D0AE153JA048	15K 1/4W	[M]
R776	D0AE102JA048	1K 1/4W	[M]
R777	D0AE221JA048	220 1/4W	[M]
R778	D0AE153JA048	15K 1/4W	[M]
R779	D0AE153JA048	15K 1/4W	[M]
R780	D0AE473JA048	47K 1/4W	[M]
R781	D0AE473JA048	47K 1/4W	[M]
R788	D0AE104JA048	100K 1/4W	[M]
R789	D0AE104JA048	100K 1/4W	[M]
R790	D0AE272JA048	2.7K 1/4W	[M]
R791	D0AE272JA048	2.7K 1/4W	[M]
R798	D0AE102JA048	1K 1/4W	[M]
R799	D0AE102JA048	1K 1/4W	[M]
R972	ERDS2TJ821T	820 1/4W	[M]
R973	ERDS2TJ393T	39K 1/4W	[M]
R1061	ERJ3GEY0R00V	0 1/16W	[M]
R1063	ERJ3GEY0R00V	0 1/16W	[M]
R1064	ERJ3GEY0R00V	0 1/16W	[M]
R1101	D0GB330JA007	33 1/16W	[M]
R1102	D0GB152JA007	1.5K 1/16W	[M]
R1103	D0GB183JA007	18K 1/16W	[M]
R1104	ERJ3GEYJ103V	10K 1/16W	[M]
R1105	D0GB222JA041	2.2K 1/16W	[M]
R1106	D0GB104JA007	100K 1/16W	[M]
R1107	ERJ3GEYJ102V	1K 1/16W	[M]
R1109	ERJ3GEYJ102V	1K 1/16W	[M]
R1110	D0GB333JA007	33K 1/16W	[M]
R1201	D0GB330JA007	33 1/16W	[M]
R1202	D0GB152JA007	1.5K 1/16W	[M]
R1203	D0GB183JA007	18K 1/16W	[M]
R1204	ERJ3GEYJ103V	10K 1/16W	[M]
R1205	D0GB222JA041	2.2K 1/16W	[M]
R1206	D0GB104JA007	100K 1/16W	[M]
R1207	ERJ3GEYJ102V	1K 1/16W	[M]
R1209	ERJ3GEYJ102V	1K 1/16W	[M]
R1210	D0GB333JA007	33K 1/16W	[M]
R1302	D0GB471JA041	470 1/16W	[M]
R1303	ERJ3GEYJ475V	4.7M 1/16W	[M]
R1304	D0GB223JA041	22K 1/16W	[M]
R1305	ERJ3GEYJ103V	10K 1/16W	[M]
R1309	D0AF471JA039	470 1/4W	[M]
R1313	ERJ3GEYJ103V	10K 1/16W	[M]
R1314	ERJ3GEYJ102V	1K 1/16W	[M]
R1318	ERJ3GEYJ103V	10K 1/16W	[M]
R1327	D0GB472JA041	4.7K 1/16W	[M]
R1328	D0GB153JA007	15K 1/16W	[M]
R1329	D0GB472JA041	4.7K 1/16W	[M]
R1330	ERD2FCVJ4R7T	4.7 1/4W	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
R1331	ERJ3GEYJ752V	7.5K 1/16W	[M]
R1332	ERJ3GEYJ103V	10K 1/16W	[M]
R1333	ERD2FCVJ4R7T	4.7 1/4W	[M]
R1334	D0GB223JA041	22K 1/16W	[M]
R1335	D0GB152JA007	1.5K 1/16W	[M]
R1337	ERJ3GEYJ103V	10K 1/16W	[M]
R1338	D0GB472JA041	4.7K 1/16W	[M]
R1341	D0GB471JA041	470 1/16W	[M]
R1342	D0GB473JA041	47K 1/16W	[M]
R1343	D0GB332JA007	3.3K 1/16W	[M]
R1344	D0GB273JA007	27K 1/16W	[M]
R1345	ERJ3GEYJ102V	1K 1/16W	[M]
R1371	D0GB223JA041	22K 1/16W	[M]
R1374	D0GB471JA041	470 1/16W	[M]
R1380	ERJ3GEY0R00V	0 1/16W	[M]
R1401	D0GB123JA007	12K 1/16W	[M]
R1402	D0GB274JA007	270K 1/16W	[M]
R1403	ERJ3GEYJ103V	10K 1/16W	[M]
R1404	D0GB223JA041	22K 1/16W	[M]
R1405	ERJ3GEYJ103V	10K 1/16W	[M]
		CAPACITORS	
C11	F1D1E103A001	0.01 25V	[M]
C12	F2A1C101A234	100P 16V	[M]
C21	F1D1E103A001	0.01 25V	[M]
C22	F2A1C101A234	100P 16V	[M]
C201	ECA1CM331B	330 16V	[M]
C211	F1H1H471A219	470P 50V	[M]
C212	F1H1H102A219	1000P 50V	[M]
C214	F1H1H2210001	220P 50V	[M]
C217	ECJ1VC1H102J	1000P 50V	[M]
C219	ECA1CAK100XB	10 16V	[M]
C220	ECA1CAK100XB	10 16V	[M]
C222	ECA1CAK100XB	10 16V	[M]
C224	ECA1CAK100XB	10 16V	[M]
C234	ECA1EPX470B	47 25V	[M]
C236	F1H1E104A029	0.1 25V	[M]
C237	F1H1E104A029	0.1 25V	[M]
C238	F1H1H682A219	6800P 50V	[M]
C239	F1H1H682A219	6800P 50V	[M]
C240	F1H1E104A029	0.1 25V	[M]
C241	F1H1E104A029	0.1 25V	[M]
C242	F1H1H104A783	0.1 50V	[M]
C243	F1H1H104A783	0.1 50V	[M]
C244	F1H1H104A783	0.1 50V	[M]
C245	ECJ1VC1H181J	180P 50V	[M]
C249	ECJ1VC1H102J	1000P 50V	[M]
C270	ECJ1VB1H821K	820P 50V	[M]
C271	ECQV1H274JL3	0.27 50V	[M]
C272	ECQV1H274JL3	0.27 50V	[M]
C301	F1H1H104A783	0.1 50V	[M]
C303	F1H1H471A219	470P 50V	[M]
C304	ECJ1VC1H101K	100P 50V	[M]
C306	ECJ1VC1H101K	100P 50V	[M]
C308	ECJ1VC1H101K	100P 50V	[M]
C310	F1H1E103A029	0.01 25V	[M]
C311	ECA1AM102B	1000 10V	[M]
C312	F1J1H104A578	0.1 50V	[M]
C313	ECA0JAK101XB	100 6.3V	[M]
C314	ECA1HAK010XB	1 50V	[M]
C315	ECJ1VC1H101K	100P 50V	[M]
C316	ECA1HAK2R2XB	2.2 50V	[M]
C317	ECJ1VC1H102J	1000P 50V	[M]
C318	ECJ1VC1H560J	56P 50V	[M]
C319	F1H1H102A219	1000P 50V	[M]
C320	ECJ1VC1H560J	56P 50V	[M]
C321	ECJ1VC1H680J	68P 50V	[M]
C322	ECJ1VC1H680J	68P 50V	[M]
C323	ECJ1VC1H180J	18P 50V	[M]
C324	ECJ1VC1H220J	22P 50V	[M]
C325	F1H1E223A002	0.022 25V	[M]
C326	F1H1H103A219	0.01 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C327	F1H1H2210001	220P 50V	[M]
C329	ECJ1VC1H101K	100P 50V	[M]
C331	ECJ1VC1H101K	100P 50V	[M]
C333	ECJ1VB1H561K	560P 50V	[M]
C334	ECJ1VB1H561K	560P 50V	[M]
C335	ECJ1VB1H561K	560P 50V	[M]
C336	ECJ1VB1H561K	560P 50V	[M]
C337	ECJ1VB1H561K	560P 50V	[M]
C338	ECJ1VB1H561K	560P 50V	[M]
C339	ECJ1VB1H561K	560P 50V	[M]
C340	F1H1H104A783	0.1 50V	[M]
C341	ECA0JAK101XB	100 6.3V	[M]
C342	F1H1H102A219	1000P 50V	[M]
C343	F1H1H103A219	0.01 50V	[M]
C344	F1H1H101A230	100P 50V	[M]
C345	F1H1H101A230	100P 50V	[M]
C346	F1H1H470A230	47P 50V	[M]
C347	F1H1E103A029	0.01 25V	[M]
C348	F1H1H102A219	1000P 50V	[M]
C349	ECEA0JKA470B	47 6.3V	[M]
C350	ECJ1VC1H101K	100P 50V	[M]
C351	ECJ1VC1H101K	100P 50V	[M]
C352	ECA1HAK100XB	10 50V	[M]
C353	F1H1H331A013	330P 50V	[M]
C354	ECA1HAK100XB	10 50V	[M]
C355	F1H1H470A230	47P 50V	[M]
C356	ECJ1VC1H561J	560P 50V	[M]
C358	ECA1CAM221XB	220 16V	[M]
C359	ECEA1AKA101B	100 10V	[M]
C362	ECA1AAK220XB	22 10V	[M]
C363	F1H1H101A230	100P 50V	[M]
C364	F1H1H101A230	100P 50V	[M]
C367	F1H1H104A783	0.1 50V	[M]
C368	F1H1H104A783	0.1 50V	[M]
C372	ECA1HAK2R2XB	2.2 50V	[M]
C373	F1H1H471A219	470P 50V	[M]
C374	F1H1H471A219	470P 50V	[M]
C380	F1H1H104A783	0.1 50V	[M]
C381	ECA1HAK2R2XB	2.2 50V	[M]
C411	F1H1H471A219	470P 50V	[M]
C412	F1H1H102A219	1000P 50V	[M]
C414	F1H1H2210001	220P 50V	[M]
C417	ECJ1VC1H102J	1000P 50V	[M]
C419	ECA1CAK100XB	10 16V	[M]
C420	ECA1CAK100XB	10 16V	[M]
C422	ECA1CAK100XB	10 16V	[M]
C424	ECA1CAK100XB	10 16V	[M]
C436	F1H1E104A029	0.1 25V	[M]
C437	F1H1E104A029	0.1 25V	[M]
C438	F1H1H682A219	6800P 50V	[M]
C439	F1H1H682A219	6800P 50V	[M]
C440	F1H1E104A029	0.1 25V	[M]
C441	F1H1E104A029	0.1 25V	[M]
C445	ECJ1VC1H181J	180P 50V	[M]
C449	ECJ1VC1H102J	1000P 50V	[M]
C470	ECJ1VB1H821K	820P 50V	[M]
C471	ECQV1H274JL3	0.27 50V	[M]
C472	ECQV1H274JL3	0.27 50V	[M]
C500	F1D1H821A012	820P 50V	[M]
C501	F1D1H821A012	820P 50V	[M]
C502	F1D1H821A012	820P 50V	[M]
C503	F1D1H821A012	820P 50V	[M]
C504	F1D1H390A006	39P 50V	[M]
C505	F1D1H390A006	39P 50V	[M]
C506	ECA1HAM222XE	2200 50V	[M]
C507	ECA1HAM222XE	2200 50V	[M]
C508	ECA1EAM332XE	3300 25V	[M]
C509	F1D1H330A041	33P 50V	[M]
C510	F1D1H330A041	33P 50V	[M]
C511	F1B1H103A007	0.01 50V	[M]
C512	ECA1CAM101XB	100 16V	[M]
C515	F1E1H1030001	0.01 50V	[M]
C516	ECA1HAK100XB	10 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C517	F1B2H103A032	0.01 500V	[M]
C518	F1B1H103A007	0.01 50V	[M]
C520	F1B1H103A007	0.01 50V	[M]
C521	ECA1CAK330XB	33 16V	[M]
C526	ECA1HM330B	33 50V	[M]
C528	F1B1H103A007	0.01 50V	[M]
C530	ECQE2104KF3	0.1 250V	[M]
C533	ECQV1H104JL3	0.1 50V	[M]
C535	ECQV1H104JL3	0.1 50V	[M]
C536	ECA0JAK221XB	220 6.3V	[M]
C537	F1D1H102A012	1000P 50V	[M]
C538	ECA1CAK220XB	22 16V	[M]
C539	F1B1H103A007	0.01 50V	[M]
C548	ECKR1H103KB5	0.01 50V	[M]
C575	ECA1HAK4R7XB	4.7 50V	[M]
C578	F1B1H103A007	0.01 50V	[M]
C580	F1B1H103A007	0.01 50V	[M]
C581	ECA1AAK470XB	47 10V	[M]
C582	ECQV1H104JL3	0.1 50V	[M]
C583	F1B1H103A007	0.01 50V	[M]
C584	ECA1CAM102XB	1000 16V	[M]
C585	ECA1EAM101XB	100 25V	[M]
C586	ECA2AM100B	10 100V	[M]
C587	ECA1JM101B	100 63V	[M]
C588	ECA1JM101B	100 63V	[M]
C600	ECA1HAK220XB	22 50V	[M]
C601	ECA1HAK220XB	22 50V	[M]
C602	ECA1HAK220XB	22 50V	[M]
C603	F1H1H102A219	1000P 50V	[M]
C604	F1H1E223A002	0.022 25V	[M]
C605	F1H1E223A002	0.022 25V	[M]
C606	ECJ1VC1H330J	33P 50V	[M]
C608	ECEA0JKA470B	47 6.3V	[M]
C609	F1H1H103A219	0.01 50V	[M]
C610	F1H1H102A219	1000P 50V	[M]
C611	F1H1H101A230	100P 50V	[M]
C612	F1H1H101A230	100P 50V	[M]
C613	ECA1AAK220XB	22 10V	[M]
C614	F1H1H103A219	0.01 50V	[M]
C615	F1H1H2210001	220P 50V	[M]
C616	F1H1H2210001	220P 50V	[M]
C617	F1H1H2210001	220P 50V	[M]
C618	F1H1H103A219	0.01 50V	[M]
C619	F1H1H104A783	0.1 50V	[M]
C620	ECA1HAK220XB	22 50V	[M]
C621	F1H1H104A783	0.1 50V	[M]
C622	F1H1H2210001	220P 50V	[M]
C700	ECA0JAK101XB	100 6.3V	[M]
C701	ECA1CAK330XB	33 16V	[M]
C701	ECEA0JKA330I	33 6.3V	[M]
C702	ECA1HAK2R2XB	2.2 50V	[M]
C702	F1H1A4740009	0.47 10V	[M]
C703	ECEA0JKA101I	100 6.3V	[M]
C703	F1D1H1040002	0.1 50V	[M]
C704	ECA0JAK221XB	220 6.3V	[M]
C704	F1H1C104A041	0.1 16V	[M]
C705	ECEA1AKN100B	10 10V	[M]
C705	F1H1C104A041	0.1 16V	[M]
C706	F1H1C104A041	0.1 16V	[M]
C707	F1H1E223A002	0.022 25V	[M]
C709	F1D1H102A012	1000P 50V	[M]
C710	ECJ1VC1H471J	470P 50V	[M]
C710	F1D1H102A012	1000P 50V	[M]
C711	ECA1CAK100XB	10 16V	[M]
C712	F1D1C122A010	1200P 16V	[M]
C713	ECEA1HKAR68B	0.68 50V	[M]
C713	F1H1C104A041	0.1 16V	[M]
C714	ECEA0JKA101I	100 6.3V	[M]
C714	F1C1C273A003	0.027 16V	[M]
C715	F1D1C122A010	1200P 16V	[M]
C715	F1H1A4740009	0.47 10V	[M]
C716	ECEA1HKAR68B	0.68 50V	[M]
C716	ECJ1VB1H681K	680P 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C717	F1C1C273A003	0.027 16V	[M]
C717	F1H1C104A041	0.1 16V	[M]
C718	ECJ1VB1C823K	0.082 16V	[M]
C720	ECEA1HKN010B	1 50V	[M]
C721	ECJ1VC1H180J	18P 50V	[M]
C721	F1D1C562A010	5600P 16V	[M]
C722	F1D1C562A010	5600P 16V	[M]
C722	F1H1H220A230	22P 50V	[M]
C723	ECEA0JKA221I	220 6.3V	[M]
C723	ECEA1HKN010B	1 50V	[M]
C724	F1D1C562A010	5600P 16V	[M]
C724	F1H1C104A041	0.1 16V	[M]
C725	F1D1C562A010	5600P 16V	[M]
C725	F1H1H102A219	1000P 50V	[M]
C726	ECA1CAK100XB	10 16V	[M]
C726	F1H1H102A219	1000P 50V	[M]
C727	ECA1CAK100XB	10 16V	[M]
C727	ECA1HAK010XI	1 50V	[M]
C728	ECA1HAK010XI	1 50V	[M]
C728	F1D1H332A046	3300P 50V	[M]
C729	ECEA1CKA100I	10 16V	[M]
C729	F1D1H332A046	3300P 50V	[M]
C730	ECA1HAK3R3XB	3.3 50V	[M]
C730	F1H1C104A041	0.1 16V	[M]
C731	ECA0JAK221XI	220 6.3V	[M]
C731	ECA1HAK3R3XB	3.3 50V	[M]
C733	ECA1HAKR47XB	0.47 50V	[M]
C733	F1H1C104A041	0.1 16V	[M]
C734	ECA1HAKR47XB	0.47 50V	[M]
C734	ECEA1AKA221I	220 10V	[M]
C735	F1H1E104A030	0.1 25V	[M]
C736	F1B1H223A007	0.022 50V	[M]
C737	F1B1H223A007	0.022 50V	[M]
C738	ECA1CAK100XB	10 16V	[M]
C738	ECJ1VB1C563K	0.056 16V	[M]
C739	F1D1C122A010	1200P 16V	[M]
C739	F1H1E1830001	0.018 25V	[M]
C740	F1D1C122A010	1200P 16V	[M]
C740	F1H1C104A041	0.1 16V	[M]
C741	ECA1HAKR47XB	0.47 50V	[M]
C741	F1H1H102A219	1000P 50V	[M]
C742	ECA1HAKR47XB	0.47 50V	[M]
C742	F1H1E223A002	0.022 25V	[M]
C743	F1E1H1030001	0.01 50V	[M]
C743	F1H1E104A030	0.1 25V	[M]
C744	F1E1H1030001	0.01 50V	[M]
C744	F1H1E1530002	0.015 25V	[M]
C745	F1D1H101A012	100P 50V	[M]
C745	F1H1E103A029	0.01 25V	[M]
C746	F1D1H101A012	100P 50V	[M]
C746	F1H1C104A041	0.1 16V	[M]
C747	F1D1H270A006	27P 50V	[M]
C747	F1H1H391A013	390P 50V	[M]
C748	F1D1H270A006	27P 50V	[M]
C749	ECQB1H103JF3	0.01 50V	[M]
C749	F1H1H392A013	3900P 50V	[M]
C750	ECQB1H103JF3	0.01 50V	[M]
C751	ECA1CAK100XB	10 16V	[M]
C752	ECA1CAK100XB	10 16V	[M]
C752	F1H1E1830001	0.018 25V	[M]
C753	F1H1H471A219	470P 50V	[M]
C755	F1D1H471A012	470P 50V	[M]
C755	F1H1C104A041	0.1 16V	[M]
C756	F1D1H471A012	470P 50V	[M]
C759	ECEA1CKA100I	10 16V	[M]
C760	F1H1C104A041	0.1 16V	[M]
C762	F1D1H102A012	1000P 50V	[M]
C762	F1H1C104A041	0.1 16V	[M]
C1101	ECA1HAK010XB	1 50V	[M]
C1102	F1H1H471A219	470P 50V	[M]
C1103	ECA1CAK101XB	100 16V	[M]
C1104	F1H1E273A002	0.027 25V	[M]
C1105	F1H1H471A219	470P 50V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C1106	ECA1HAK2R2XB	2.2 50V	[M]
C1107	F1H1H152A219	1500P 50V	[M]
C1108	ECA1CAK100XB	10 16V	[M]
C1109	ECA1HAK3R3XB	3.3 50V	[M]
C1110	ECJ1VB1H682K	6800P 50V	[M]
C1121	F1H1H102A219	1000P 50V	[M]
C1122	F1H1E103A029	0.01 25V	[M]
C1123	ECJ1VB1H271K	270P 50V	[M]
C1201	ECA1HAK010XB	1 50V	[M]
C1202	F1H1H471A219	470P 50V	[M]
C1203	ECA1CAK101XB	100 16V	[M]
C1204	F1H1E273A002	0.027 25V	[M]
C1205	F1H1H471A219	470P 50V	[M]
C1206	ECA1HAK2R2XB	2.2 50V	[M]
C1207	F1H1H152A219	1500P 50V	[M]
C1208	ECA1CAK100XB	10 16V	[M]
C1209	ECA1HAK3R3XB	3.3 50V	[M]
C1210	ECJ1VB1H682K	6800P 50V	[M]
C1221	F1H1H102A219	1000P 50V	[M]
C1222	F1H1E103A029	0.01 25V	[M]
C1223	ECJ1VB1H271K	270P 50V	[M]
C1301	ECA1HAK0R1XB	0.1 50V	[M]
C1302	F1H1C3330001	0.033 16V	[M]
C1303	F1H1C3330001	0.033 16V	[M]
C1304	ECEA1HKA4R7B	4.7 50V	[M]
C1305	ECA1CAK330XB	33 16V	[M]
C1307	ECA1AAK221XQ	220 10V	[M]
C1308	ECA1CAK220XB	22 16V	[M]
C1310	ECA1HAK0R1XB	0.1 50V	[M]
C1311	ECA1CAK470XB	47 16V	[M]
C1312	F1H1H332A013	3300P 50V	[M]
C1314	F1H1H222A013	2200P 50V	[M]
C1315	F1H1H222A013	2200P 50V	[M]
C1316	F1H1H102A219	1000P 50V	[M]
C1317	F1H1H102A219	1000P 50V	[M]
C1318	ECQV1H473JL3	0.047 50V	[M]
C1319	ECA1CAK101XB	100 16V	[M]
C1320	ECA1HAK010XB	1 50V	[M]
C1321	F0A2A472A019	4700P 100V	[M]
C1323	ECEA1HKN010B	1 50V	[M]
C1324	ECA1CAK470XB	47 16V	[M]
C1326	ECA1CAK100XB	10 16V	[M]
C1371	F1H1E103A029	0.01 25V	[M]

25.5. Packaging Materials & Accessories Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIALS	
P1	RPGV0177	PACKING CASE	[M]EB EG
P1	RPGV0236	PACKING CASE	[M]E
P2	RPNV0061	POLYFOAM	[M]
P3	RPHV0001-1	MIRAMAT SHEET	[M]
		ACCESSORIES	
A1	N2QAJB000132	REMOTE CONTROL	[M]
A1-1	RKK-HTR0051K	R/C BATTERY COVER	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
A2	K2CQ2CA00002	AC CORD	[M]EG E ⚠
A2	RJA0053-3X	AC CORD	[M]EB ⚠
A3	RQT7926-D	O/I BOOK (Ge/It/Fr)	[M]EG
A3	RQT7927-H	O/I BOOK (Du/Da/Sw)	[M]EG
A3	RQT7928-B	O/I BOOK (En)	[M]EB E
A3	RQT7929-E	O/I BOOK (Sp/Po/Cz)	[M]E
A4	N1DAAAA00001	AM LOOP ANTENNA	[M]
A5	RSA0007-L	FM ANTENNA	[M]
A6	K1YZ02000013	ANTENNA PLUG ADAPTOR	[M]EB

25.6. Packaging