

Service Manual

CD Changer

Compact Disc Player



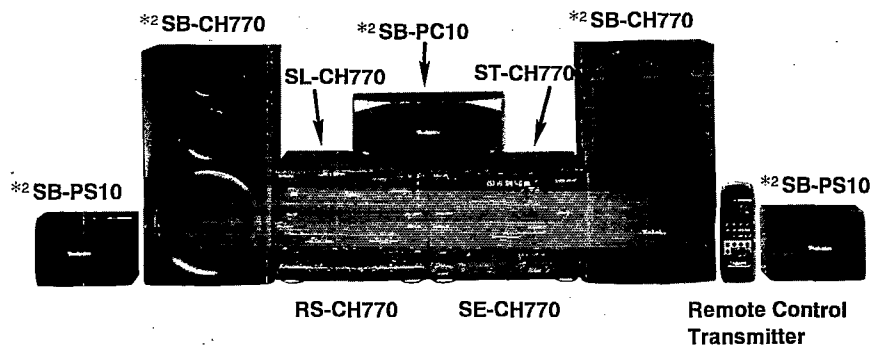
DIGITAL

MASH *1
 multi-stage noise shaping

SL-CH770

Colour

(K) : Black



Areas

Suffix for Model No.	Area	Colour
(E)	Europe, Asia, Latin America, Middle East, Africa and Oceania	(K)

System: SC-CH770

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

RAE0150Z MECHANISM SERIES

Specifications

■ Audio

DA converter

1 bit 2 DAC MASH

■ Pickup

Wavelength

780 nm

■ General

Dimensions (W × H × D)

270 × 89 × 330 mm

Weight

2.4 kg

Notes:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

* 1 MASH is a trademark of NTT.

System	Tuner/sound processor	Compact disc changer	Amplifier	Cassette deck	Front speakers	Center speaker	Surround speakers
SC-CH770	ST-CH770	SL-CH770	SE-CH770	RS-CH770	*2 SB-CH770	*2 SB-PC10	*2 SB-PS10

 *2 For Europe area: Made in PAES
 Except for Europe area : Made in NABEL

⚠ 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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Contents

	Page		Page
Handling Precautions for Traverse Deck	2	Schematic Diagram	21~25
Precaution of Laser Diode	2, 3	Printed Circuit Board Diagram	26~28
Location of Controls	3	Wiring Connection Diagram	28
How to Set the "Transport Mode"	3	Function of IC Terminals	29~31
Loading and Checking Compact Discs	4	Troubleshooting Guide	32, 33
Listening to Compact Discs	5	Block Diagram	34, 35
Operation Check and		Replacement Parts List	36~39
Main Component Replacement Procedures	6~17	Cabinet Parts Location	40
Error Code Display and Servo Adjustment Function	18, 19	Loading Unit Parts Location	41
To Supply Power Source	20		

NOTE:

Refer to the service manual for Model No. SE-CH770 (ORDER No. AD9603055C8) for information on "Accessories", "Stacking the Components", "Connections" and "Packaging".

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.

Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body. So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

● Handling of traverse deck (optical pickup)

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

● Grounding for electrostatic breakdown prevention

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

Caution:

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

Caution when Replacing the Traverse Deck:

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

Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.

Wave length: 780 nm

Maximum output radiation power from pick up: 100 μ W/VDE

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

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

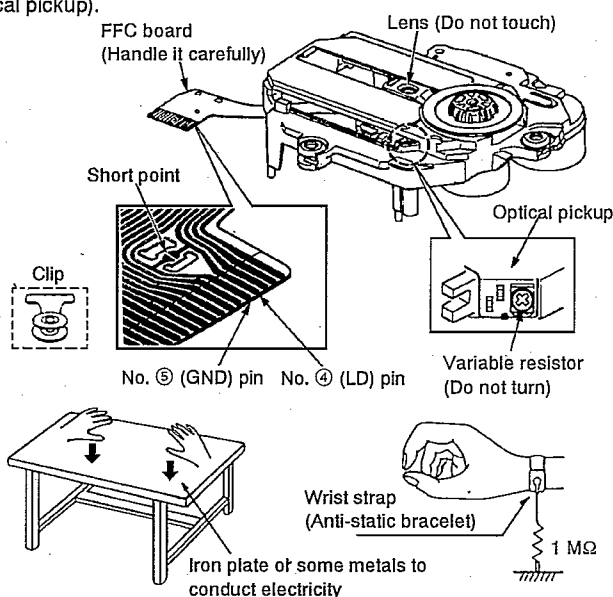
ACHTUNG: Dieses produkt enthält eine laserdioden. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

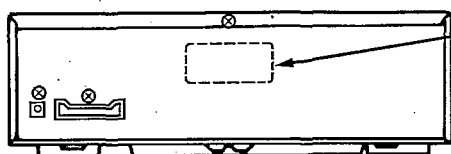
Wellenlänge: 780 nm

Maximale strahlungsleistung der lasereinheit: 100 μ W/VDE

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

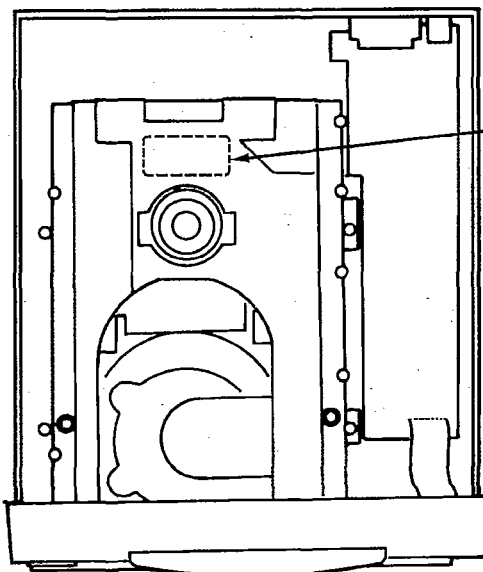
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdioden gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinheit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.





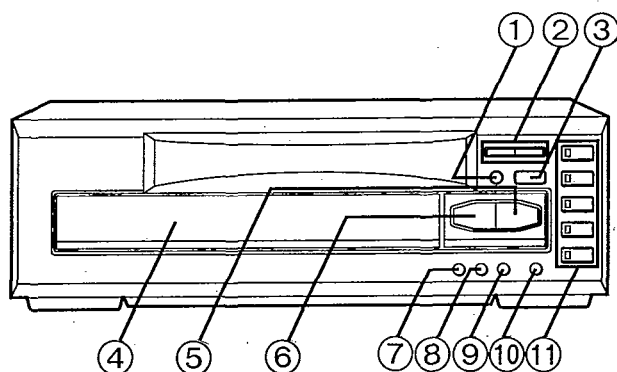
CLASS 1
LASER PRODUCT

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT



DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ADVARSEL	USYMLIG LASERSTRÅLING VED ÅBNING. UNDGÅ SIKKERHEDSÅFBRYDEDE ER UDE AF FUNKTION. UNDGA UDSÆTTELSE FOR STRÅLING.
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTIINA NÄKYMÄTÖNTÄ LASERSÄTELYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	OSYMLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÅRREK ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN
ADVARSEL	USYMLIG LASERSTRÅLING NÄR DEKSEL APNES OG SIKKERHEDSLÅS BRUTES. UNDGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	UNS CHTBARE LASERSTRÄHLUNG, WENN ABDECKUNG GEÖFFNET. ACHT! DEM STRAHL AUSSETZEN.

■ Location of Controls



- ① Pause button (II)
- ② Skip/search buttons (SKIP/SEARCH)
- ③ Disc tray open/close button (▲ OPEN/CLOSE)
- ④ Disc tray
- ⑤ Play button and indicator (▷)
- ⑥ Stop button (□)
- ⑦ Random play button (RANDOM)
- ⑧ Repeat button (REPEAT)
- ⑨ AI edit button (AI EDIT)
- ⑩ Disc check button (DISC CHECK)
- ⑪ Disc select buttons and indicators (DISC)

■ How to Set the "Transport Mode"

When the alignment of the unit is finished, please make sure to set it to the "Transport Mode" as following procedures;

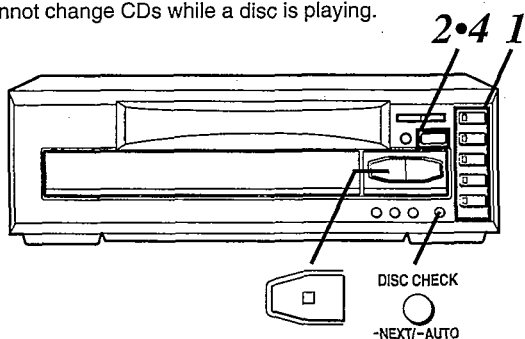
1. Take all CDs out from the unit.
2. With pressing the STOP key for more than 2 seconds, press the DISC 5 key for more than 2 seconds at the same time.
The traverse unit is lifted up to the top place, and all the disc trays are fixed automatically.
3. Turn the unit off.

NOTE:

The next time the unit is turned on, the "Transport Mode" is automatically cancelled.

■ Loading and Checking Compact Discs

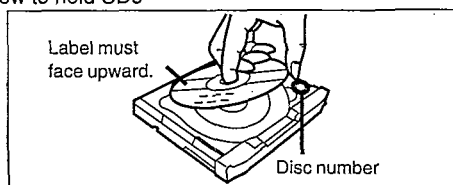
Always stop the changer before loading or changing CDs. You cannot change CDs while a disc is playing.



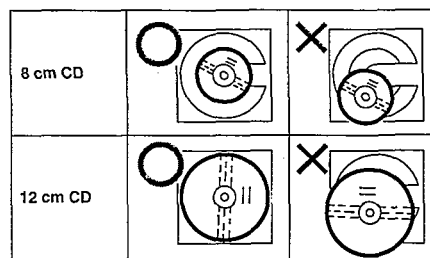
How to load CDs

- 1 Press DISC 1–5, whichever you want to open.
- 2 Press $\blacktriangle$ OPEN/CLOSE.
- 3 Set the CD in the tray.

•How to hold CDs

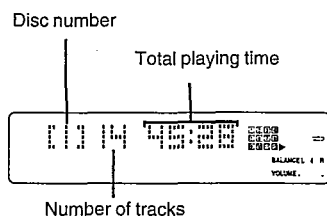


•Load CDs as shown below.



- 4 Press $\blacktriangle$ OPEN/CLOSE.

The open tray will close.



- 5 To load other CDs, repeat steps 1 through 4.

For your reference:

If the tray you want to open is already shown on the display, you obviously do not need to perform step 1.

How to check which trays have discs

DISC CHECK is a convenient way to know what discs you have in your changer and where.

Press DISC CHECK (-NEXT).

Not the disc number shown on the display, but the next tray after that will open. For example, when disc 4 is displayed, tray 5 will open.

- Every time you press the button, the next tray opens.
- You can change the CD while the tray is open.
- To close the tray, press $\blacktriangle$ OPEN/CLOSE.

Hold down DISC CHECK (-AUTO).

The trays will open (and close) automatically one after another. The first one to open will be the next tray after the disc number shown on the display. This way, you can check all trays in a row.

- To stop the auto check in course, press $\square$.

Note

Do not attempt to change CDs while trays are opening and closing in the auto check.

Disc indicators

When you open or close a tray with the $\blacktriangle$ OPEN/CLOSE button, the changer automatically detects whether there is a CD in the tray or not. The indicator will act as follows.

■ (orange)	There's a CD in the tray.
Out	There isn't a CD in the tray.

While the CD is playing, its indicator is green.

Note

In the following cases, CD detection is OFF. The indicators will be orange whether there is a disc in the tray or not.

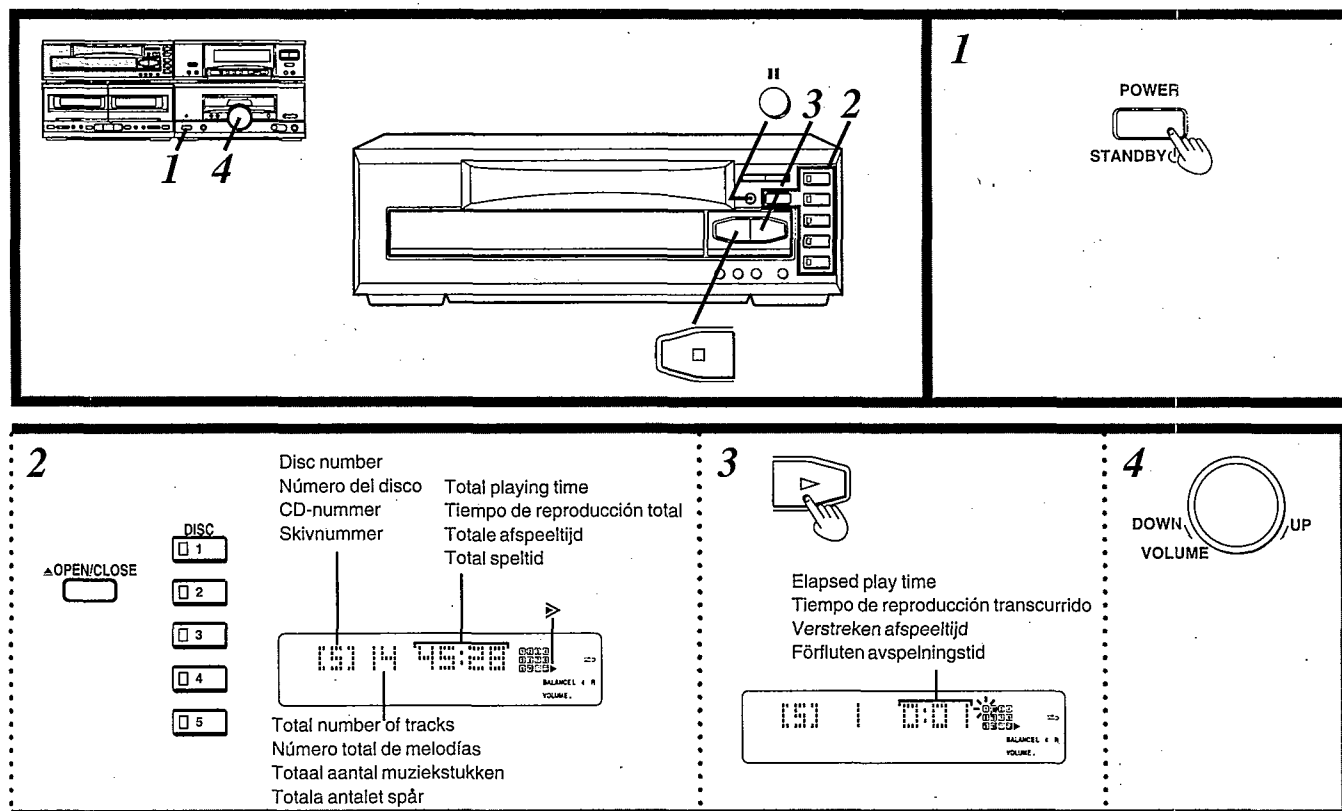
- When the tray is closed with DISC CHECK
- When the tray is closed with DISC 1–5
- When the tray is closed by selecting a mode other than CD

For your reference:

While the CD changer is changing discs, the disc indicators act as follows.

- All the indicators the changer skips through will flash.
- The indicator of the selected disc (or last disc in auto DISC CHECK) will light up.

■ Listening to Compact Discs



1 Switch on the power.

2 Insert CDs in the trays.

When the "CD" input source is selected, disc number, total number of tracks, and total playing time will appear on the display.

When there are 13 or more tracks on the CD, "➤" will appear.

Note

The total playing time displayed when a disc is loaded includes intervals between tracks. This is why sometimes the displayed time is longer than that listed on the CD.

3 Press ▷.

The changer will automatically play all tracks on all discs. It will start from the first track on the disc shown on the display, and will continue until playing the last track of the final disc (see below).

4 Adjust the volume level as you like.

To stop the disc play:

Press □.

To temporarily stop the disc play:

Press ■ button. ▷ indicator flashes up green.

To play again, press ▷.

What is meant by "final disc"?:

For example, if play starts from disc 4, disc 3 will be the "final disc".

Order of progression:

Disc 4→5→1→2→3

When "NO DISC" display appears:

It indicates that the disc tray now shown on the display is empty.

About ▷ indicator:

While halted: Lights up orange.

While playing: Lights up green.

For your reference:

If you press ▷ instead of ▲ OPEN/CLOSE after inserting a CD, the tray will close and play will start directly from the track 1.

■ Operation Check and Main Component Replacement Procedures

NOTE

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

● Contents

• CD Changer Disassembly / Reassembly

	page.
1. Removal for the CD changer unit.	6,7.
2. Removal for the traverse unit.	8.
3. Disassembly for the CD changer unit.	8,9.
4. Reassembly for the CD changer unit.	10~13.
5. Inspection for the CD changer unit.	13.

• Checking Procedures for each P.C.B.

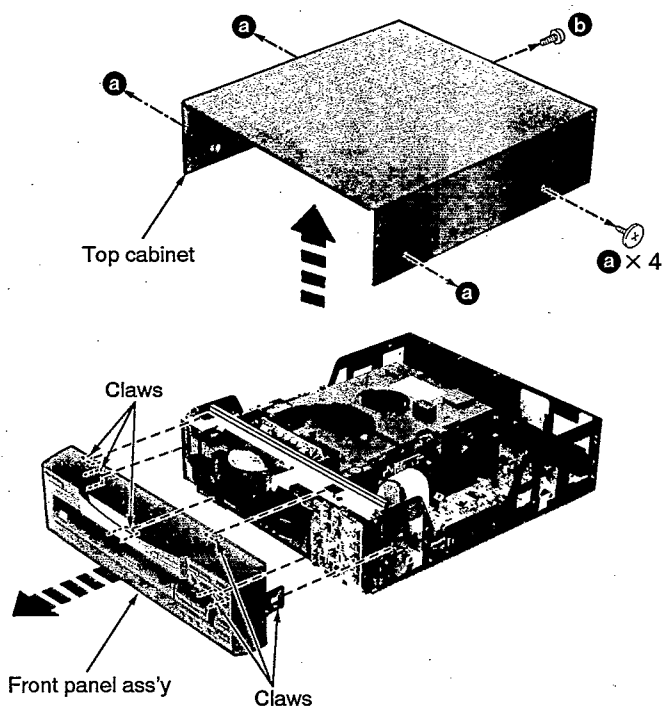
1. Checking for the main P.C.B..	14.
2. Checking for the operation P.C.B..	14,15.
3. Checking for the servo P.C.B..	15,16.

• Main Component Replacement Procedures

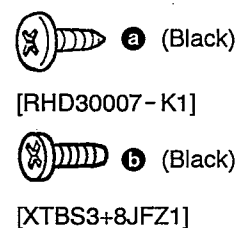
1. Replacement for the traverse deck ass'y.	16,17.
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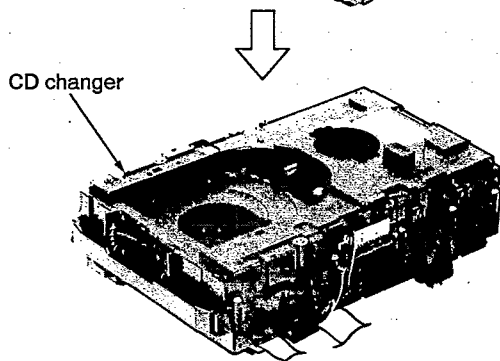
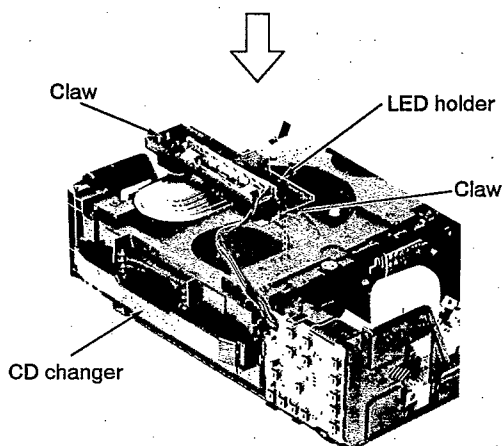
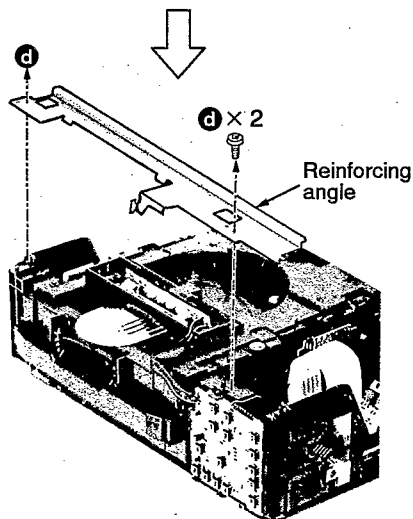
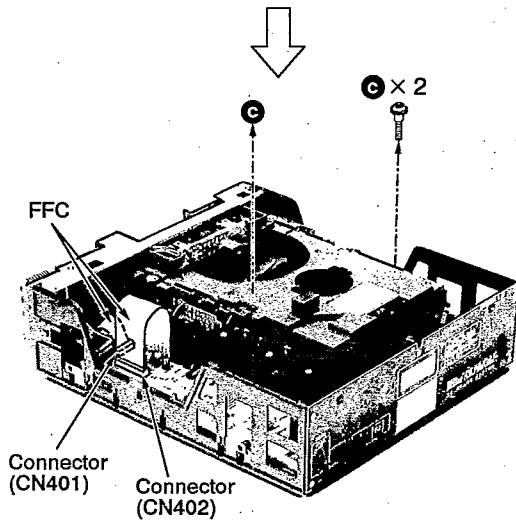
■ CD Changer Disassembly / Reassembly

Removal for the CD changer unit



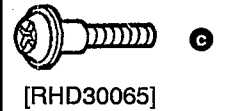
- Step 1** Remove the 5 screws.
- Step 2** Remove the top cabinet.
- Step 3** Release the 6 claws, and then remove the front panel ass'y.



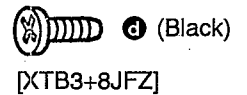


Step 4 Pull out the FFC (2 points).

Step 5 Remove the 2 screws.



Step 6 Remove the 2 screws.



Step 7 Remove the reinforcing angle.

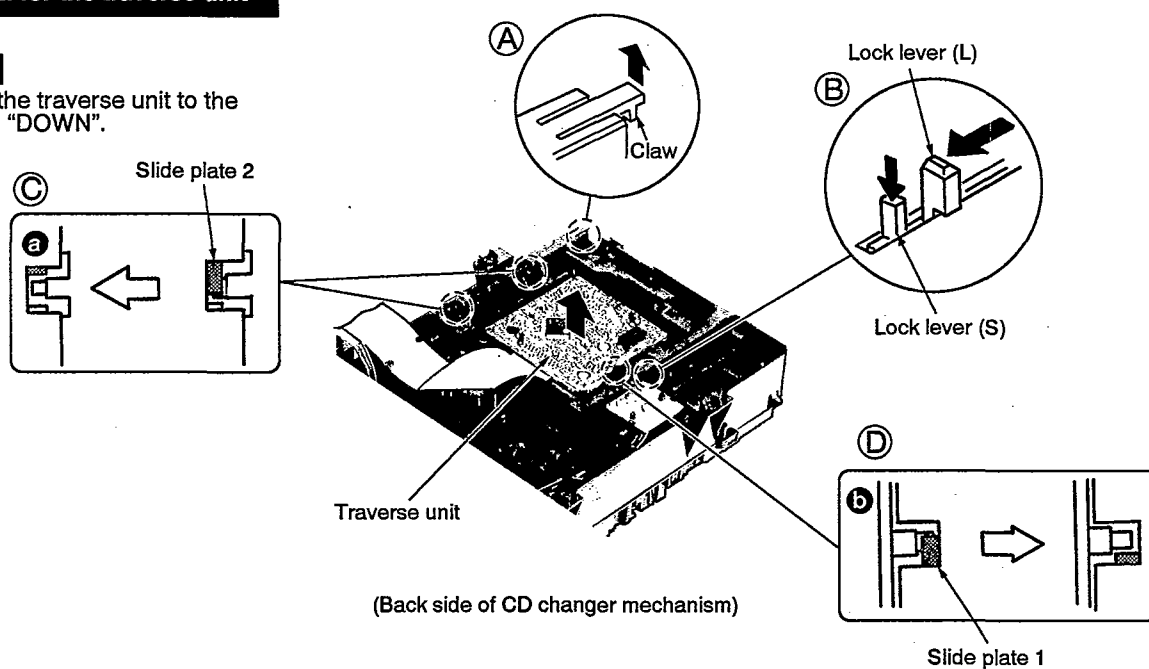
Step 8 Release the 2 claws, and then remove the LED holder.

The CD changer unit will be removed.

Removal for the traverse unit

NOTE

Locate the traverse unit to the position "DOWN".

**Procedures**

Step 1 Push the lock lever (S) with lifting the claw, and then push the lock lever (L) in the direction of arrow (→). Refer to the figures (A) and (B).

Step 2 The slide plate 1 and 2 of traverse retain boss **a** and **b** are open. Refer to the figures (C) and (D).

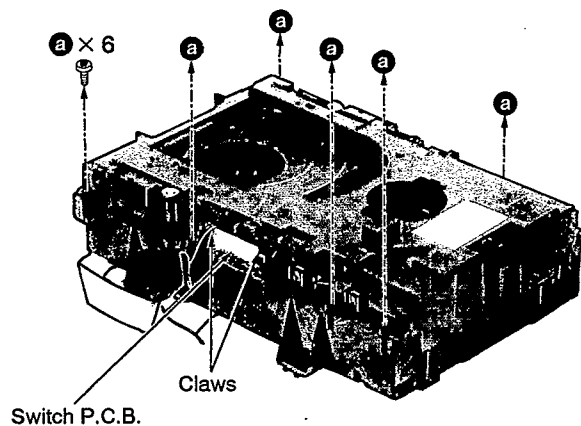
Step 3 Push the traverse unit in the direction of arrow (→).
(The FFC is connected.)

Step 4 The traverse unit will be removed.

Disassembly for the CD changer unit

NOTE

Locate the traverse unit to the position "DOWN".

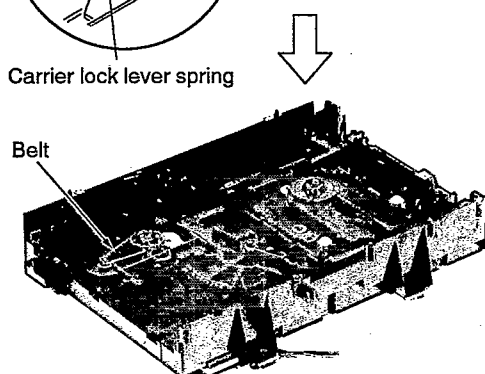
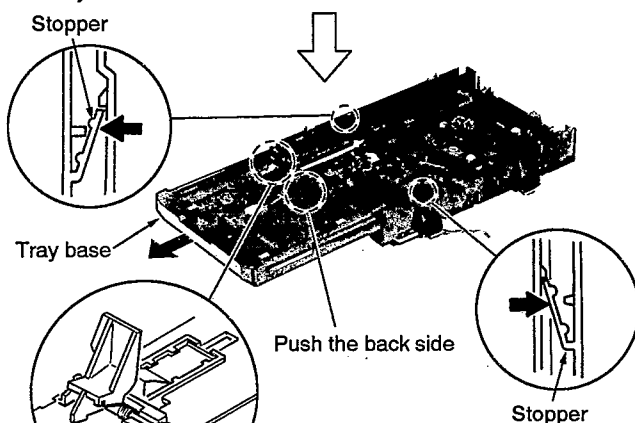
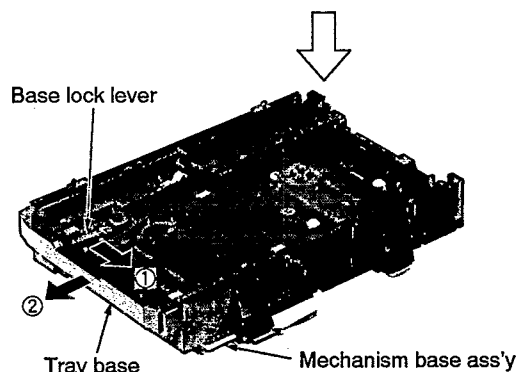
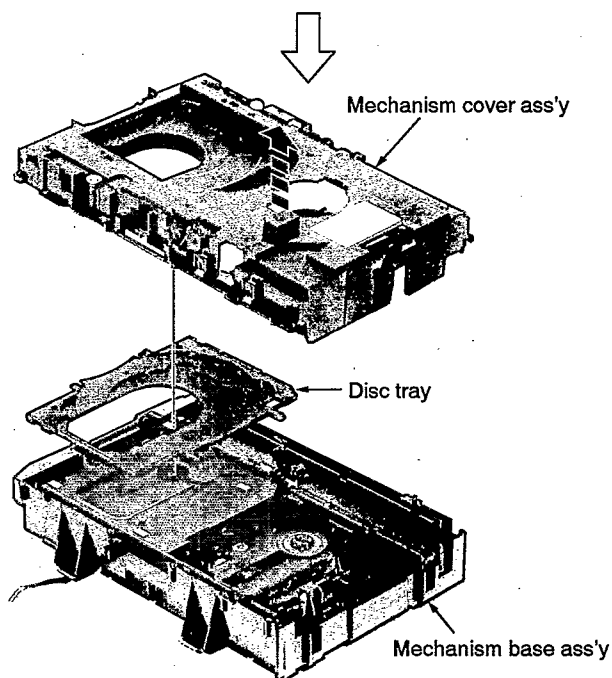


Step 1 Release the 2 claws, and then remove the switch P.C.B..

Step 2 Remove the 6 screws.



[XTB3+10J]



Step 3 Remove the mechanism cover ass'y.

ⓘ 4 disc trays contacted to the mechanism cover ass'y will be removed.
1 disc tray is removed to the mechanism base ass'y.

Step 4 Remove the disc tray sided mechanism base ass'y.

Step 5 Unlock the base lock lever.

Step 6 Draw the tray base until it will be stopped.

Step 7 Release the stopper manually.

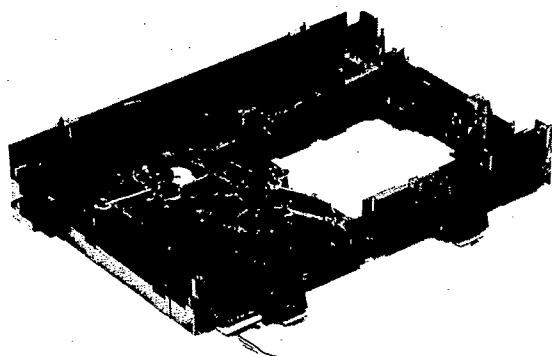
Step 8 Draw the tray base.

ⓘ In case that the tray base can not be open due to hooking, draw the tray base with finger pressing the back side indicated by ○ of base. (Take care handling of stopper.)

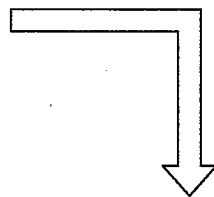
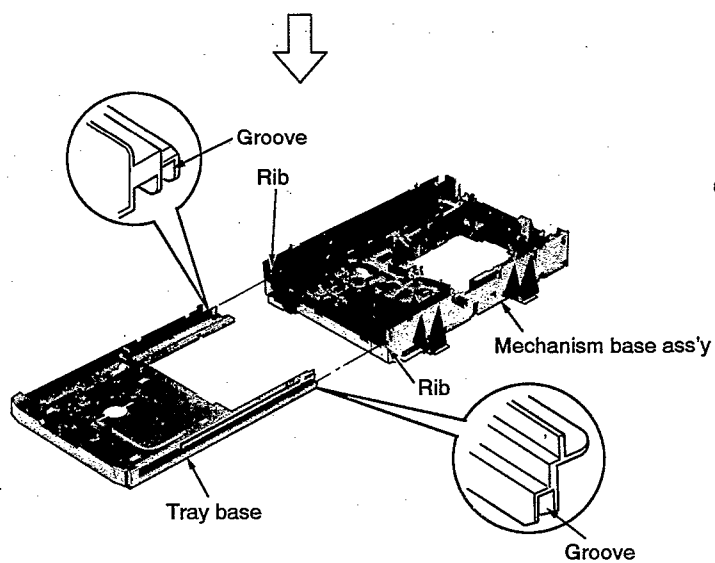
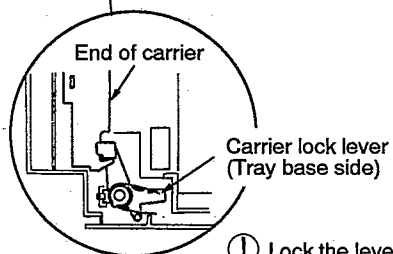
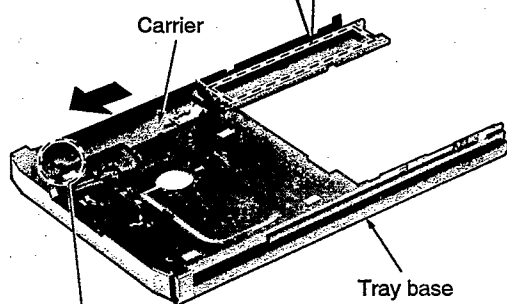
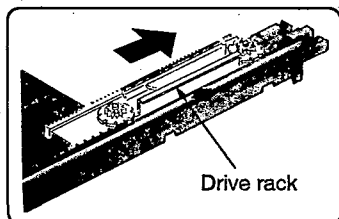
ⓘ Take care not avoid the carrier lock lever spring.

The belt and each part can be replaced after above procedures are performed.

Reassembly for the CD changer unit



[Back side]

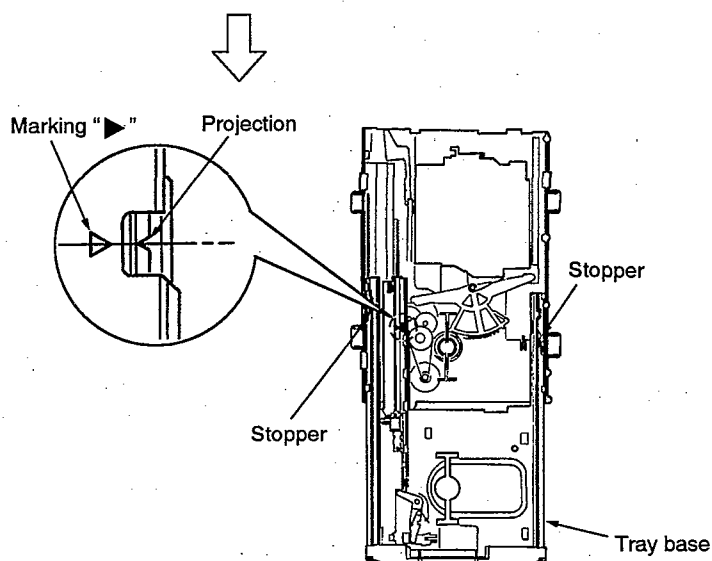
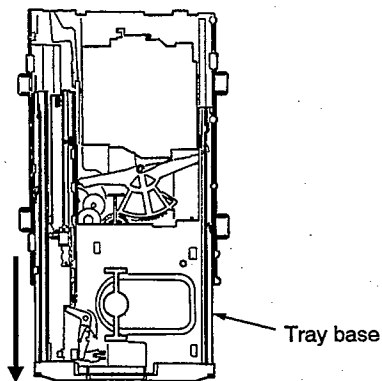
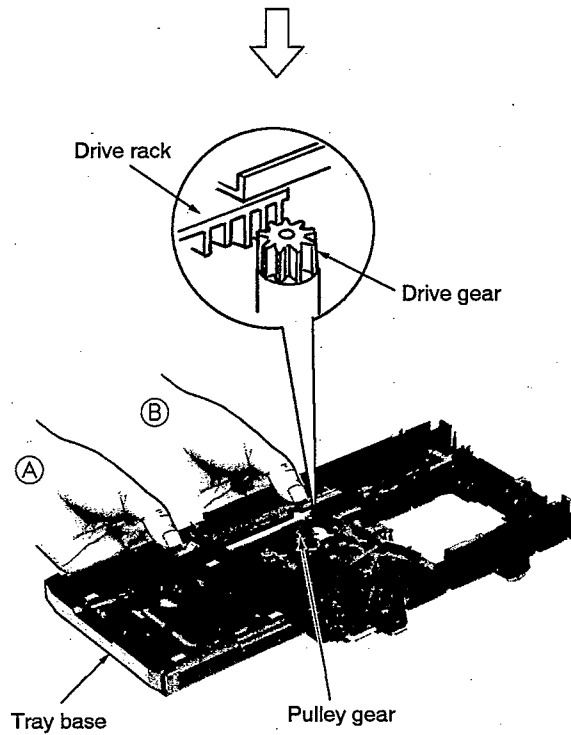


Step 1 Pull the drive rack in the direction of arrow (→) fully.

Step 2 Slide the carrier in the direction of arrow (→).



Step 3 Insert the tray base to the mechanism base ass'y with keeping the procedures **Step 1** and **Step 2**.



Step 4 Insert the drive rack until the driver rack interferes with the drive gear.

Position ①

Step 5 Rotate the pulley gear clockwise gently by hand (5 or 6 times).

⚠ When the gear begins to rotate, rotate the pulley gear with finger pressure (position ②) because the drive rack gear will fall free.

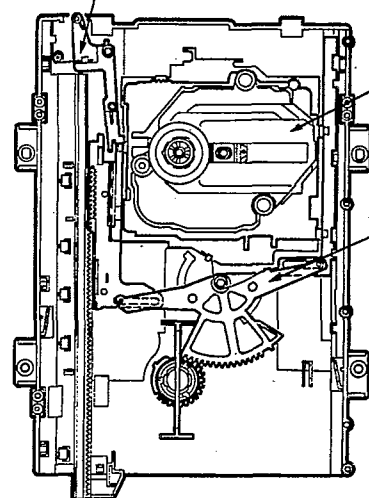
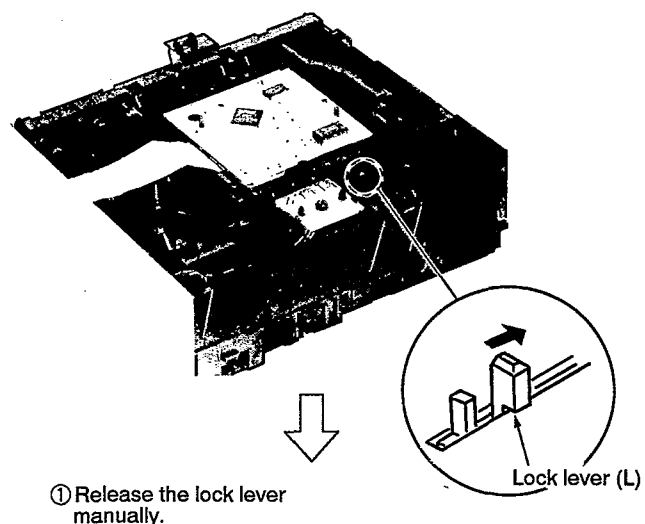
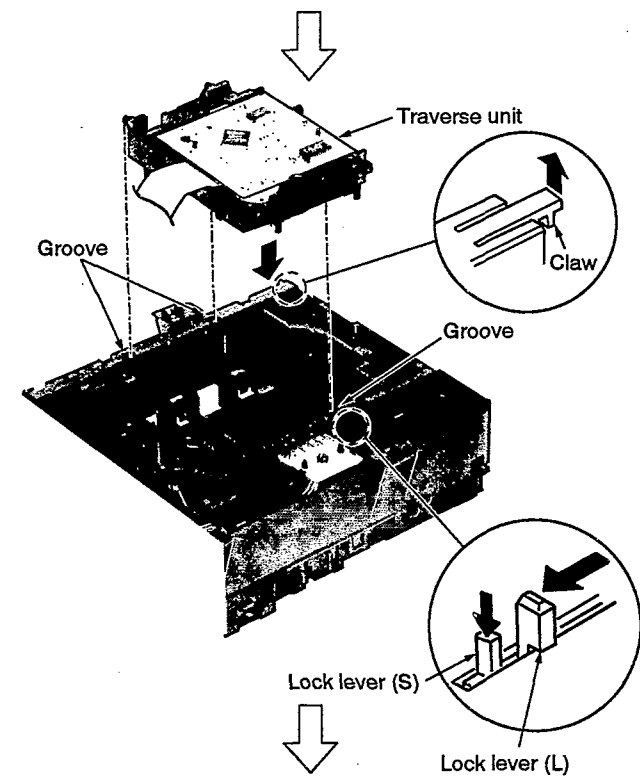
Step 6 Allow the tray base be open manually.

※ Draw the inserted tray base forward.

Step 7 Locate the projection at the marking "►" as shown left.

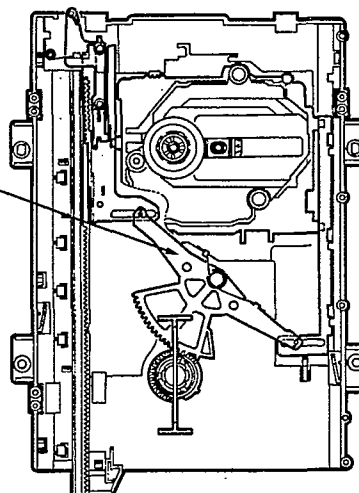
⚠ In case that the stated above is not operated draw the tray base again. (Refer to item ⚠ on page 9)

(Retry the item marked with ●)



⟨"DOWN"stated⟩

② Rotate the conversion lever manually.



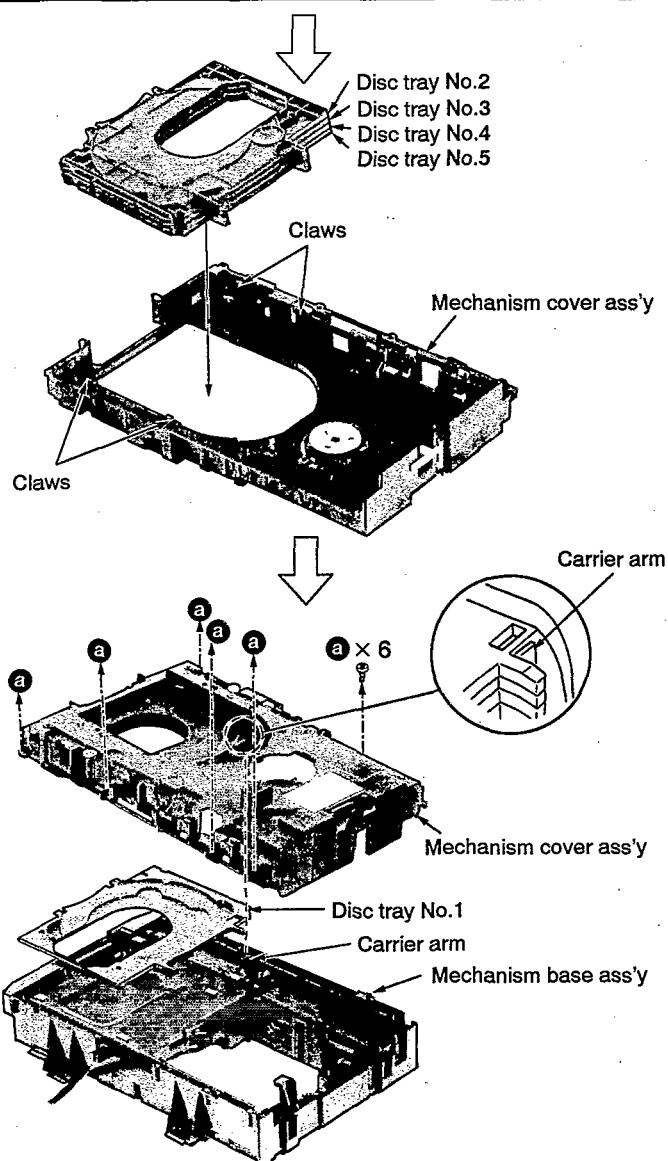
⟨"UP"stated⟩

Step 8 While lifting the claw upward, press the lock lever (L) with forcing the lock lever (S).

Step 9 Align the boss of traverse unit with the groove of mechanism base ass'y.

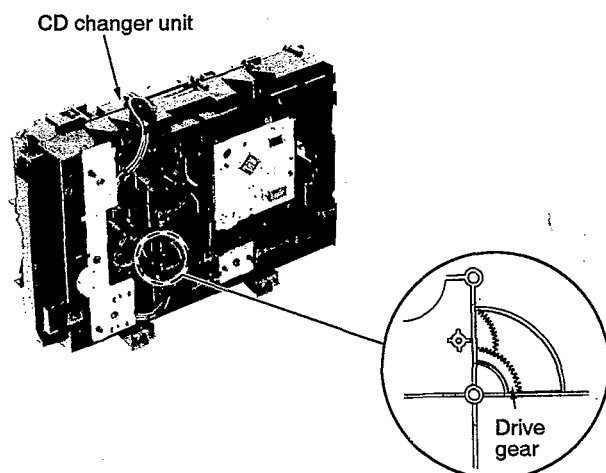
Step 10 Pull the lock lever (L) in the direction of arrow (→).

After assembly, confirm the traverse unit operation.



Inspection for CD changer unit

- Begin the inspections in condition that the traverse is kept from disc tray. (5 disc trays in the store compartment.)



Step 11 Install the 4 disc trays to the mechanism cover ass'y. (Allow them to lock with claws.)

- ❗ Install the disc trays in specific order.
(Disc tray No. is indicated on the tray.)

Step 12 Place the disc tray No.1 on the mechanism base ass'y.

Step 13 Install the mechanism cover ass'y.

- ❗ The carrier arm is positioned as shown left.



※ Manual operations

① Rotate the drive gear counterclockwise manually.

The traverse runs over the disc tray, and rises at maximum level.

② Rotate the drive gear clockwise manually.

The disc tray moves and is stored in upper compartment.

The tray base is open.

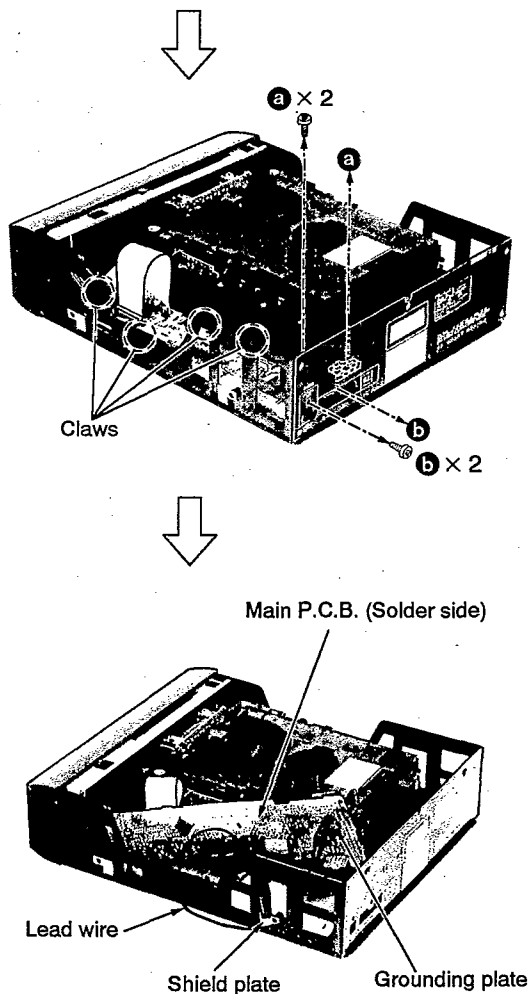
③ Again rotate the drive gear counterclockwise manually.

The tray base is closed, and then it returns to start position.

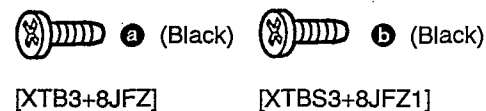
■ Checking Procedures for each P.C.B.

Checking for the main P.C.B.

Perform the items **Step 1** and **Step 2** for CD changer removal
(Refer to page 6.)



Step 1 Remove the 4 screws.



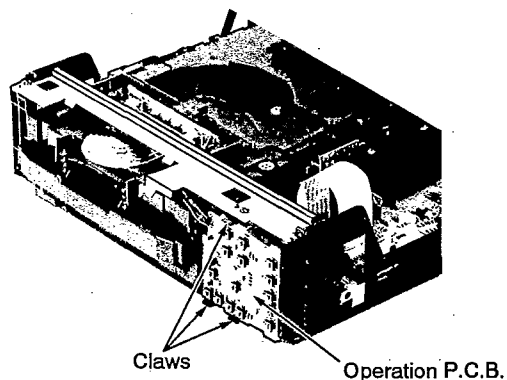
Step 2 Remove the 4 claws, and then stand the main P.C.B..

Step 3 Connect the lead wire between the grounding plate and shield plate.

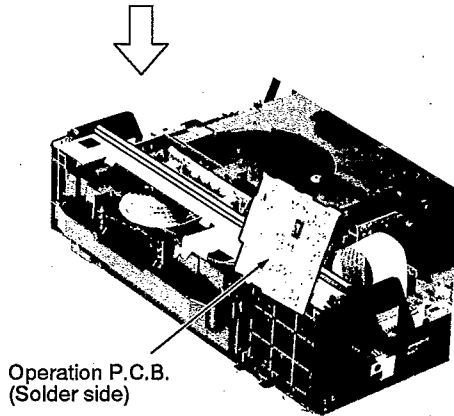
Check the main P.C.B. (solder side)
as shown left.

Checking for the operation P.C.B.

Perform the items **Step 1** ~ **Step 3** for CD changer removal
(Refer to page 6.)



Step 1 Release the 3 claws, and then upset the operation P.C.B..

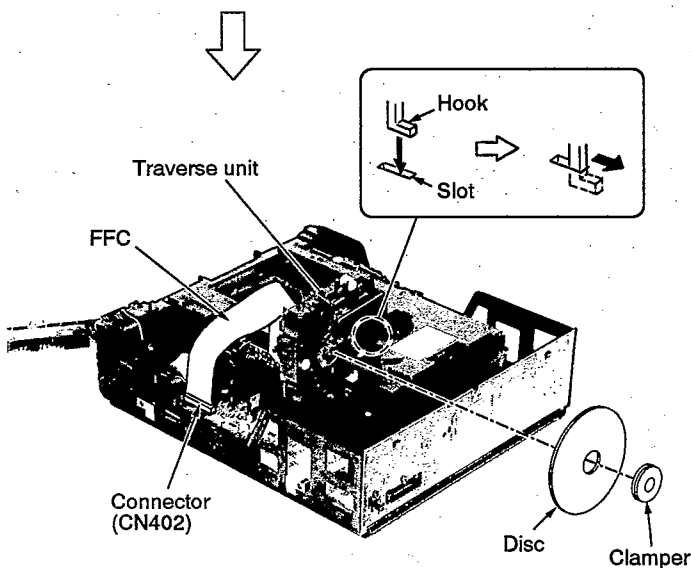
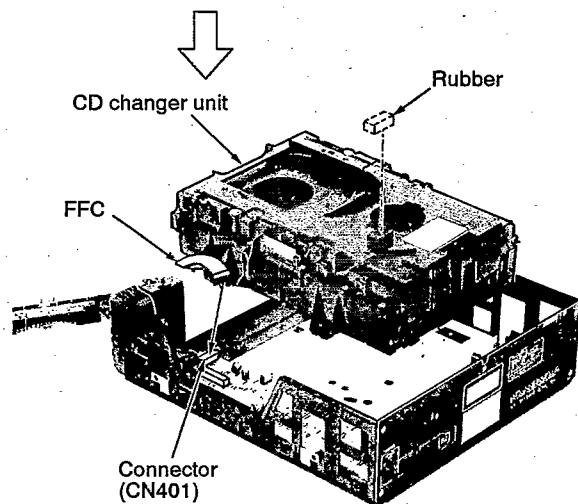


Check the operation P.C.B. (solder side)
as shown left.

Checking for the servo P.C.B.

Perform the items **Step 1** ~ **Step 8** for CD changer removal
(Refer to pages 6 and 7.)

Perform the items **Step 1** ~ **Step 4** for traverse unit removal
(Refer to page 8.)



Step 1 Install the CD changer unit to the set.

ⓘ Screw tighten is not necessary.

Step 2 Connect the FFC to the connector (CN401).

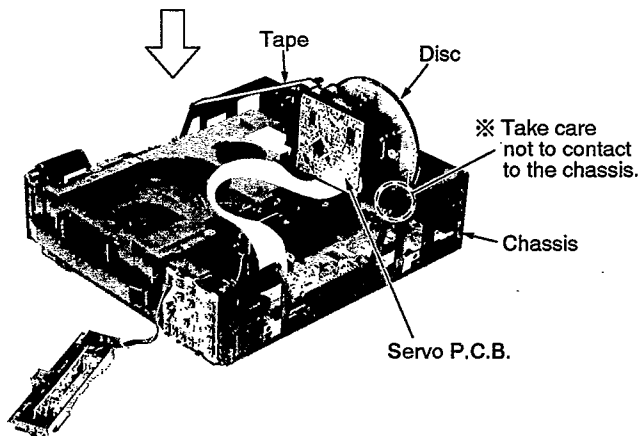
Step 3 Remove the rubber.

Step 4 Align the hook of traverse unit with the slot, and then stand it.

Step 5 Attach the disc and clamper with magnet to the traverse unit.

ⓘ Prepare the clamper used ordinarily.

Step 6 Connect the FFC to the connector (CN402).



Step 7

Apply the tape between the chassis and traverse unit not to contact the disc with chassis.

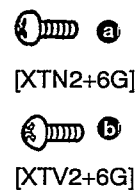
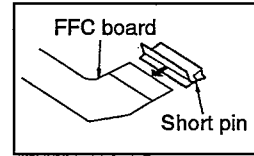
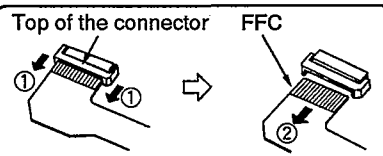
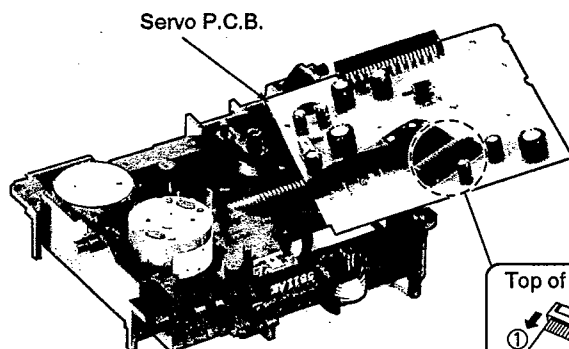
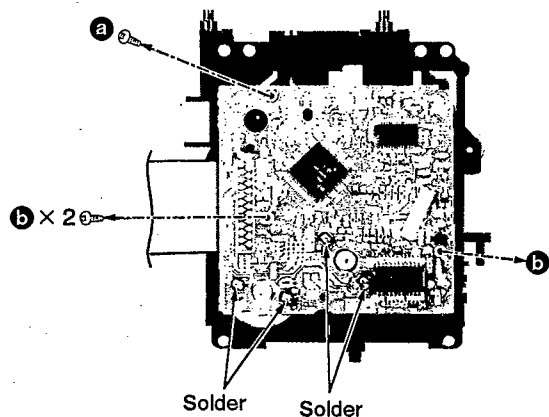
Check the servo P.C.B. (solder side) as shown left.

Main Component Replacement Procedures

Replacement for the traverse deck ass'y

Perform the items **Step 1** ~ **Step 8** for CD changer removal (Refer to pages 6 and 7.)

Perform the items **Step 1** ~ **Step 4** for traverse unit removal (Refer to page 8.)



Step 1

Remove the 3 screws.

Step 2

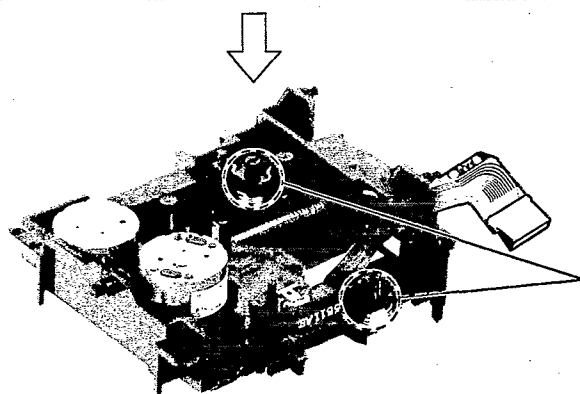
Unsolder the motor terminals.

Step 3

Remove the FFC from the connector, and then remove the servo P.C.B..

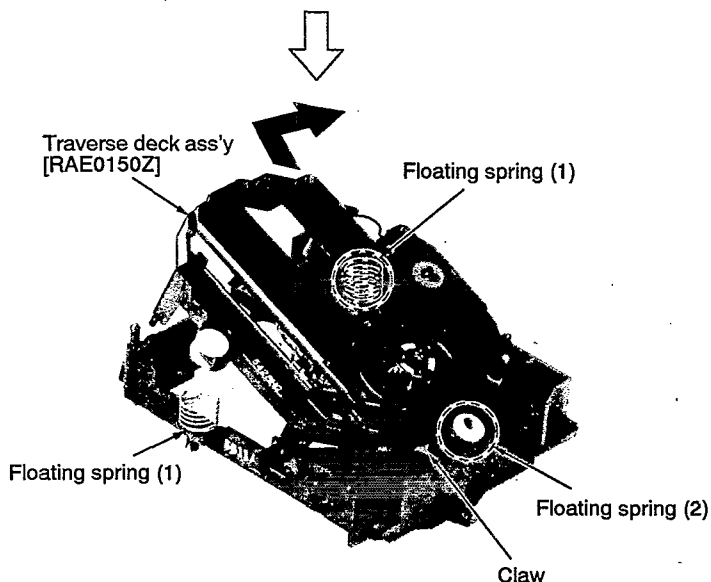
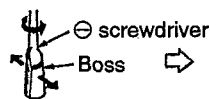
Caution:

Insert a short pin into the traverse unit FFC board.
(Refer to "Handling Precautions for Traverse Deck" on page 2.)



Step 4 Remove the pins.

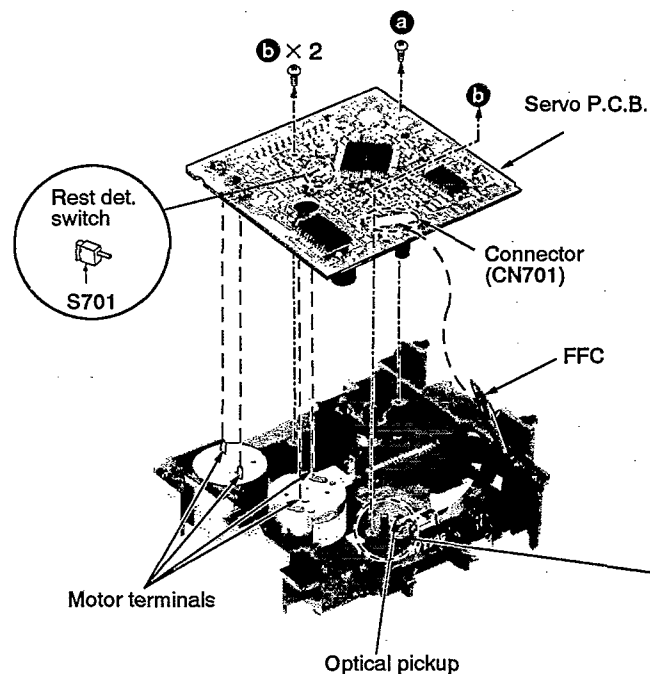
1. Spread the boss with $\ominus$ screwdriver.
2. Pull out the pin in the direction of arrow.



Step 5 Release the claws, and then remove the traverse deck ass'y.

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

Installation of the servo P.C.B.



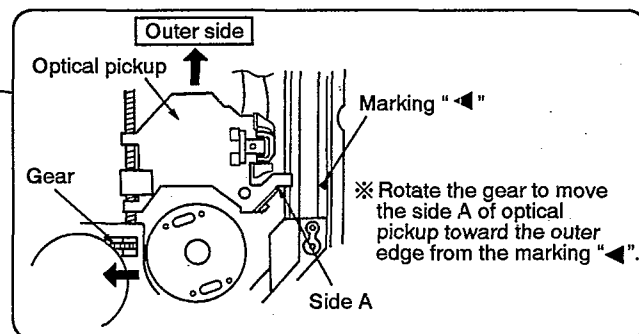
Step 1 Before installing the servo P.C.B., move the optical pickup toward the outer edge from mark "▼".

- ⚠ In case that the optical pickup is not moved toward the outer edge from the marking, the rest detect switch (S701) mounted on the servo P.C.B. may be damaged.

Step 2 Connect the FFC to the connector.

Step 3 Install the servo P.C.B., and then tighten screws.

- ⚠ After tightening screws, solder each motor terminal.



[XTN2+6G]

a



[XTV2+6G]

b

■ Error Code Display and Servo Adjustment Function

This unit has an error code display function, so that if the unit operates incorrectly, the fault is displayed using an error code on the FL display of the tuner (ST-CH770). It also has a servo adjustment function for displaying the status of servo system functions (Focus, Tracking, CLV Servo) on the tuner's FL display.

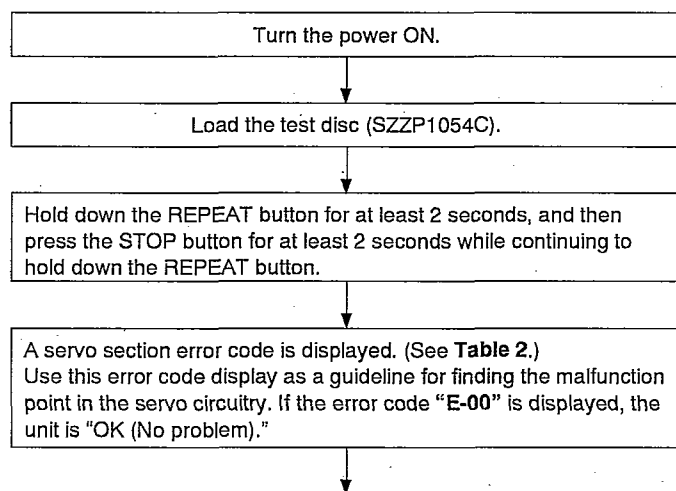
The system control IC and FL display are part of the tuner so make sure the system has been connected properly before using three functions. (This unit can be operated independently, although the error code display and servo adjustment functions cannot be used.)

Use these two functions for guidance during fault diagnosis and repair.

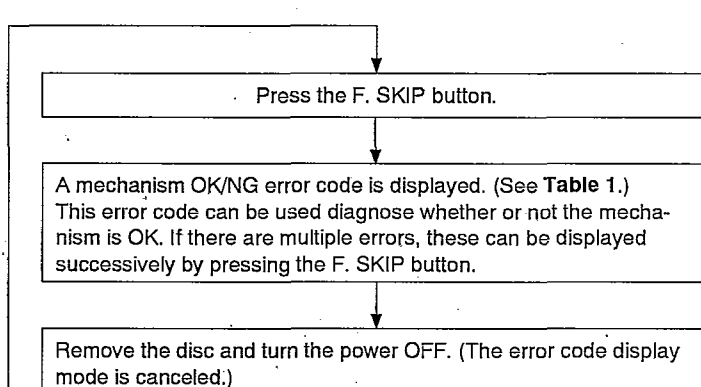
Note:
Check beforehand for scratching or soiling of the test disc (SZZP1054C), and soiling or other problems with the pickup lens.

● Error code display procedure

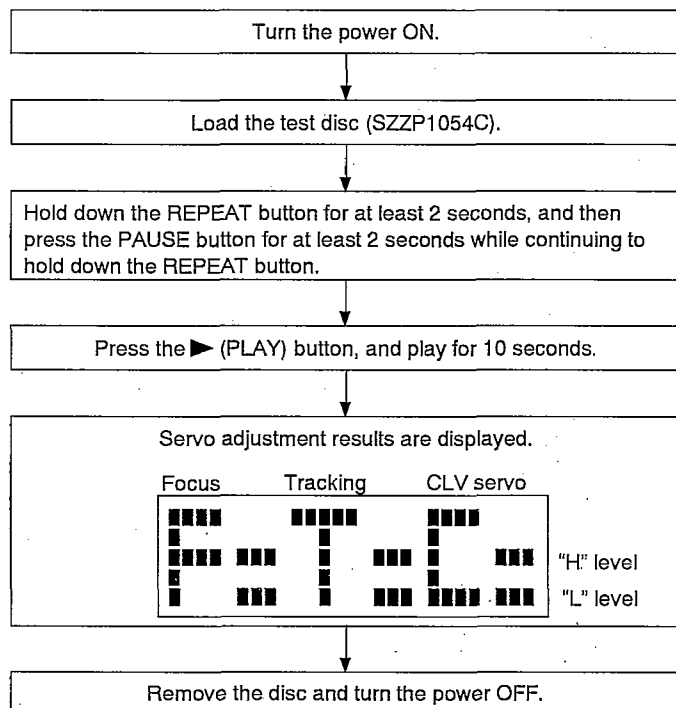
Automatic adjustment results



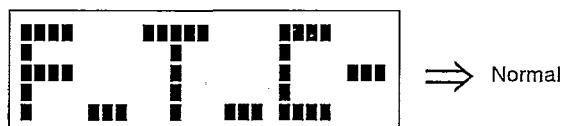
Checking the mechanism switches



● Servo adjustment procedure



(Example)



	"L" level	"H" level
Focus system	normal	defective
Tracking system	normal	defective
CLV servo system	defective	normal

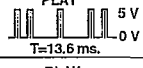
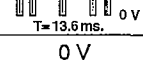
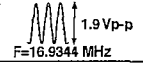
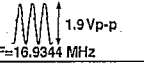
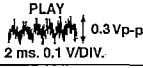
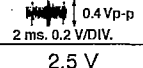
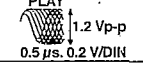
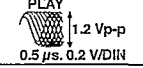
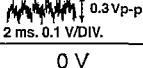
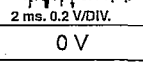
● Table 1

FL display	Symptom	Cause
H-15	When CD tray opens, it closes by itself.	Disc tray "Open" detection switch (S4) fault.
H-16	When CD tray close, it opens by itself.	
F-15	Does not play, even when CD play button is pressed.	Pickup rest position detection switch (S701) fault.
F-16	Traverse pushes up disc tray.	Up position detection switch (S3) fault.
F-26	Does not move even when "▶" (PLAY) button is pressed.	System control or servo processor IC (IC401, IC702) fault.
F-27	Tray keeps moving for a while, or selected tray does not open.	Disc number detection switch (S5) fault.
F-28		Stocker position detection, or play position detection switch (S1, S2) fault
F-75	NO DISC is displayed and unit does not play, even when a CD is loaded.	CD circuit power supply problem.

● Table 2

※ The unit is satisfactory if the error code is "E-00" or "E02".

※ Before testing, check that the test disc is free of scratches and optical pickup is clean.

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Location	Signal name	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in specified time period.	① Clocks X1 and X2, power supply VDD, and reset (/RST), all on IC702. ② MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	IC702 ⑧ pin	MDATA	 5 V T=13.6 ms.	0 V
			IC702 ⑦ pin	MCLK	 5 V T=13.6 ms.	4.8 V
			IC702 ⑨ pin	MLD	0 V	0 V
			IC702 ⑩ pin	SENSE	4.9 V	4.9 V
			IC702 ⑪ pin	/RST	4.9 V	4.9 V
			IC702 ⑪ pin	X1	 1.9 Vp-p F=16.9344 MHz	 1.9 Vp-p F=16.9344 MHz
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable	① Scratches or contaminants on disc surface ② Focus and Tracking servo circuits (check waveforms, voltages, and part values.) ③ Spindle driver circuit ④ Optical pickup	IC702 ⑫ pin	FE	 0.3 Vp-p 2 ms. 0.1 V/DIV.	2.5 V
			IC702 ⑬ pin	TE	 0.4 Vp-p 2 ms. 0.2 V/DIV.	2.5 V
			IC702 ⑭ pin	FOD	2.5 V	2.5 V
			IC702 ⑮ pin	TRD	2.5 V	2.5 V
			IC702 ⑯ pin	KICK	2.5 V	2.5 V
			IC702 ⑰ pin	/FLOCK	0 V	4.9 V
			IC702 ⑱ pin	/RF DET	0 V	4.9 V
			TJ701	RF	 1.2 Vp-p 0.5 μs. 0.2 V/DIV.	2.4 V
			IC702 ⑲ pin	STAT	4.9 V	0 V
			IC702 ⑳ pin	FBAL	2.5 V ± 1.25 V	2.5 V ± 1.25 V
E-04 E-06 E-0C E-0E	Best "eye" (PD balance) adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus servo circuit (check waveforms, voltages, and part values.) ③ Optical pickup	TJ701	RF	 1.2 Vp-p 0.5 μs. 0.2 V/DIV.	2.4 V
			IC702 ⑫ pin	FE	 0.3 Vp-p 2 ms. 0.1 V/DIV.	2.5 V
			IC702 ⑬ pin	OFT	0 V	0 V
			IC702 ⑭ pin	/TLOCK	0 V	0 V
			IC702 ⑮ pin	FE	 0.3 Vp-p 2 ms. 0.1 V/DIV.	2.5 V
E-08 E-0A	Focus or Tracking gain adjustment not completed in specified time period.	① Scratches or contaminants on disc surface ② Focus servo circuit (check waveforms, voltages, and part values.) ③ Optical pickup	IC702 ⑬ pin	TE	 0.4 Vp-p 2 ms. 0.2 V/DIV.	2.5 V
			IC702 ⑭ pin	OFT	0 V	0 V
			IC702 ⑮ pin	/TLOCK	0 V	0 V
			IC702 ⑯ pin	/TLOCK	0 V	0 V

■ To Supply Power Source

Cautions:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-CH770 is designed to operate on power supplied from the Amplifier SE-CH770 through the Tuner/Sound Processor ST-CH770.

When connecting the unit to other system components, do not connect to the Amplifier SE-CH770 directly. Be sure to connect this unit through the Tuner/Sound Processor ST-CH770.

When operating the unit SL-CH770 alone for testing and servicing, without having power supplied from the Amplifier SE-CH770 and the Tuner/Sound Processor ST-CH770, use the following method.

Power Supply to This Unit Alone

1. Short-circuit the section between jumper **J13** and jumper **J14** (**TEST MODE**).
2. Apply 11V AC power to the section between **AC IN** of the diode **D1** and the jumper **J3** (**GND**) as well as the section between **AC IN** of the diode **D2** and the jumper **J3** (**GND**). (Shown in Fig. 1)

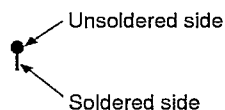
Operating the Unit Alone

When this unit is operated, alone without system connection to other units, the switches on the front panel remain inoperative. To operate the switches, follow the procedure below.

1. Short-circuit the section between jumper **J11** and jumper **J12** (**REF-M**).
2. Short-circuit the section between jumper **J15** and jumper **J16** (**KEY 2**).

To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (Lch) of the resistor **R447** and the GND point of the jumper **J3** as well as the section between LINE OUT (Rch) of the resistor **R448** and the GND point of the jumper **J3** and check if the signals are outputting from this unit. (Shown in Fig. 1)



Note:

The above symbol indicates a jumper soldered on one side. When this jumper is levered up using a ⊖ screwdriver, its unsoldered side is raised so that it can be seized with an alligator clip.

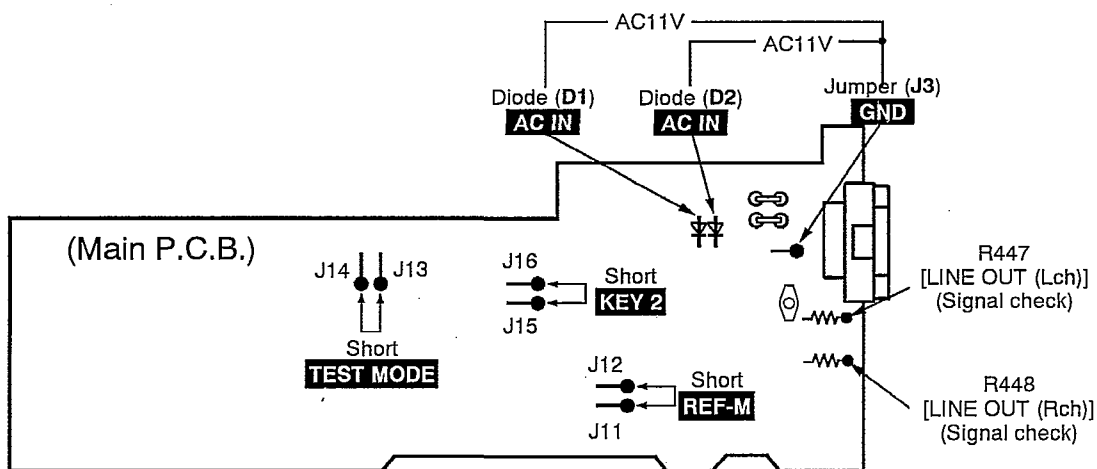
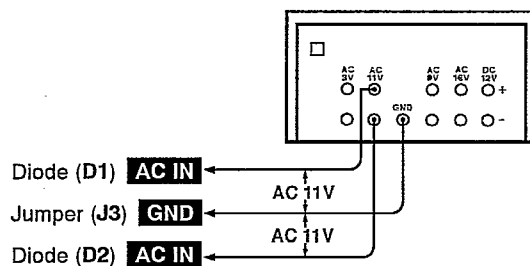


Fig. 1

Schematic Diagram

	Page
A SERVO CIRCUIT	22, 23
B SWITCH CIRCUIT	24
C SWITCH (S2, S3) CIRCUIT	24
D LED CIRCUIT	24
E LOADING MOTOR CIRCUIT	24
F OPERATION CIRCUIT	24
G MAIN CIRCUIT	24, 25

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

Notes:

- S1 : Stocker position detect switch
- S2 : Play position detect switch
- S3 : Up position detect switch
- S4 : Tray open detect switch
- S5 : Disc number detect switch
- S601 : Disc select switch (DISC 5)
- S602 : Disc select switch (DISC 4)
- S603 : Disc select switch (DISC 3)
- S604 : Disc select switch (DISC 2)
- S605 : Disc select switch (DISC 1)
- S606 : Disc check switch (DISC CHECK)
- S607 : Repeat switch (REPEAT)
- S608 : AI edit switch (AI EDIT)
- S609 : Random play switch (RANDOM)
- S610 : R. Skip/Search switch (|◀◀/▶▶|)
- S611 : Stop switch (□)
- S612 : Play switch (▷)
- S613 : F. Skip/Search switch (▶▶/▶▶|)
- S614 : Pause switch (||)
- S615 : Disc tray open/close switch (▲ OPEN/CLOSE)
- S701 : Rest switch

• Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

No mark : CD STOP

() : CD PLAY [1kHz, L + R, 0 dB]

• 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 components, be sure to use only manufacturer's specified parts shown in the parts list.

• Caution!

IC and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

Cover the parts boxes made of plastics with aluminum foil.

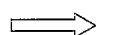
Ground the soldering iron.

Put a conductive mat on the work table.

Do not touch the legs of IC or LSI with the fingers directly.

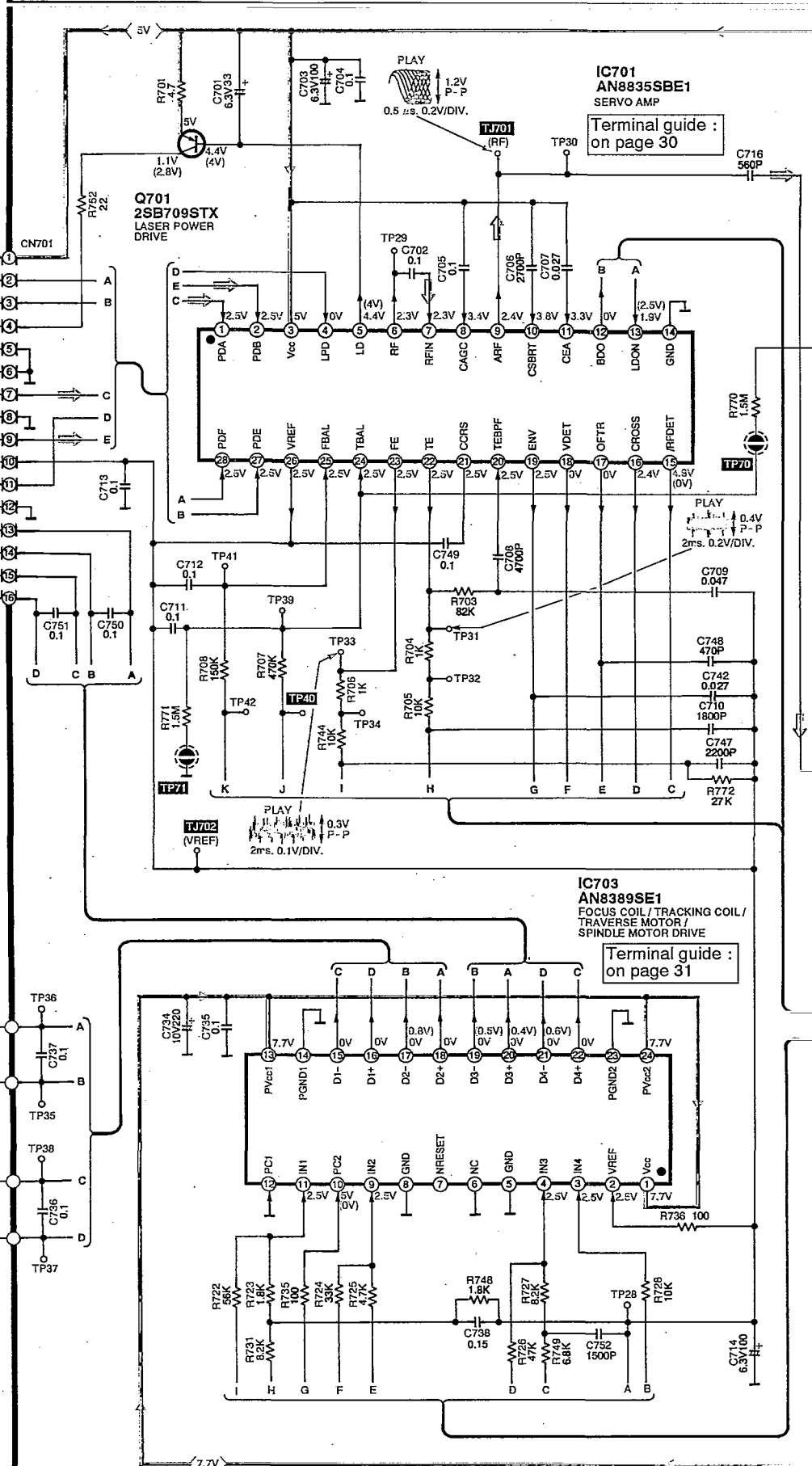
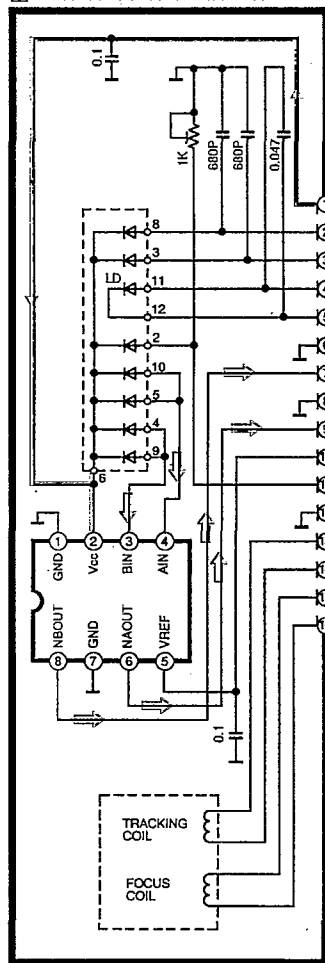
• Voltage and signal line

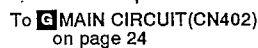
 : Positive voltage line

 : CD signal Line

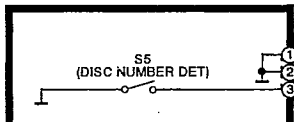
A SERVO CIRCUIT

Δ OPTICAL PICKUP CIRCUIT

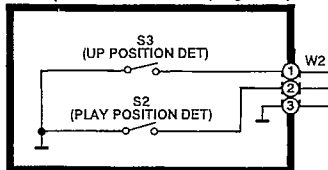




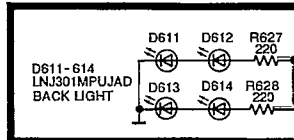
B SWITCH CIRCUIT
(P.C.Board : on page 26)



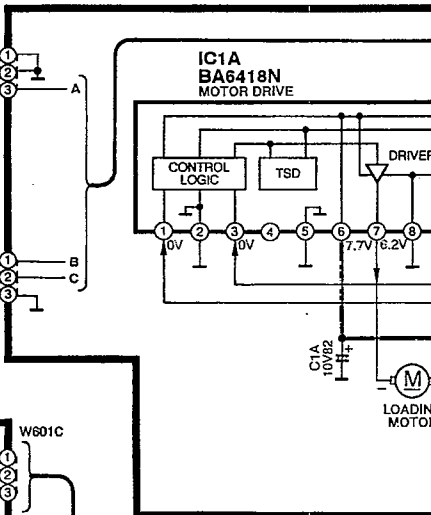
C SWITCH(S2,S3) CIRCUIT
(P.C.Board : on page 26)



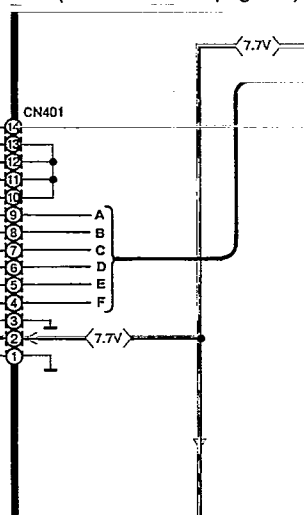
D LED CIRCUIT



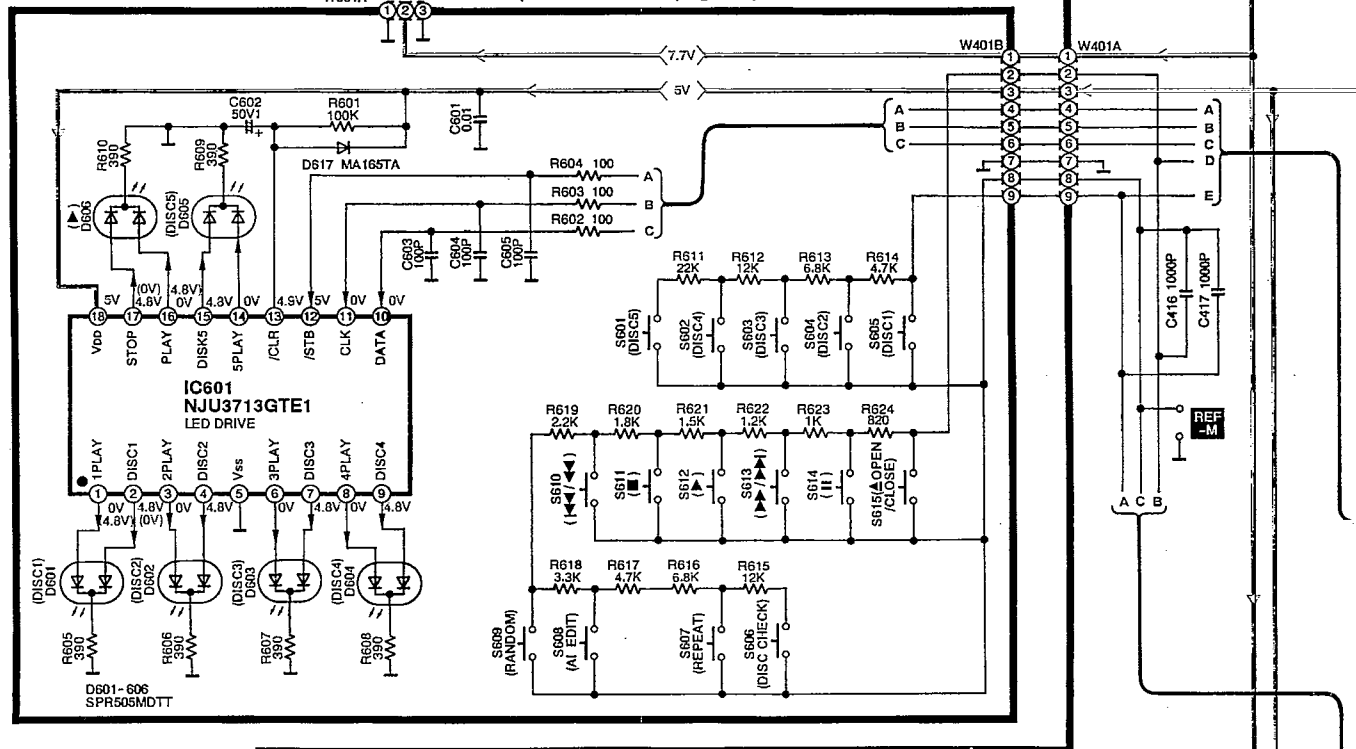
E LOADING MOTOR CIRCUIT (P.C.Board : on page 26)



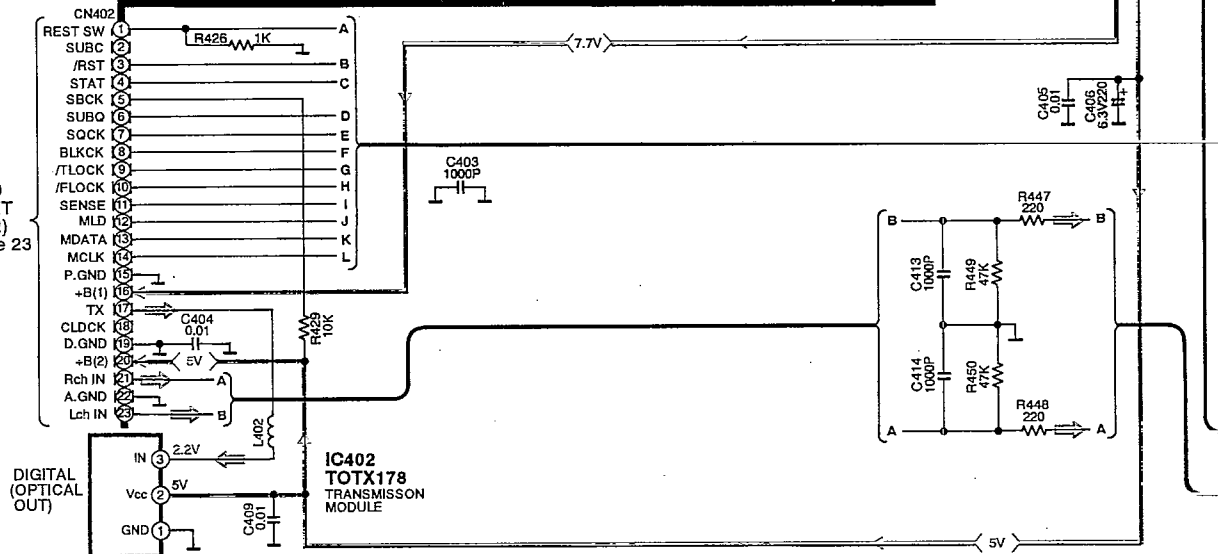
G **MAIN CIRCUIT**
(P.C.Board : on page 27)

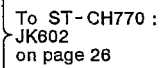


F OPERATION CIRCUIT
(P.C.Board : on page 27)



To **A** SERVO
CIRCUIT
(CN702) ←
on page 23

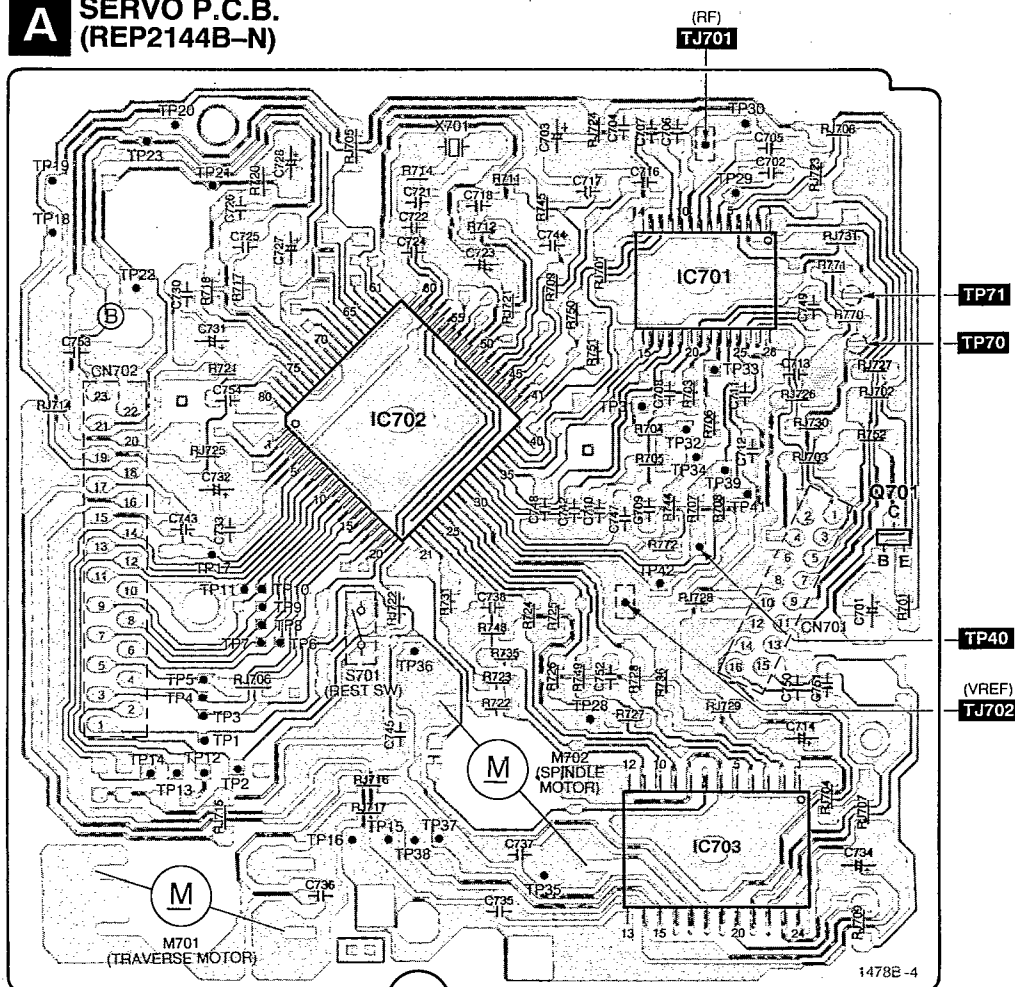




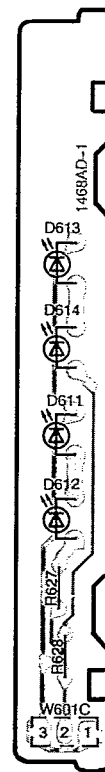
Printed Circuit Board Diagram

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

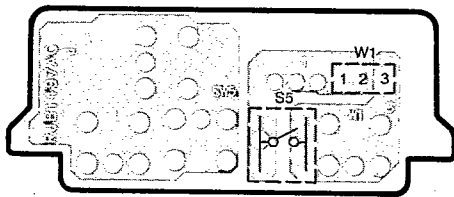
A SERVO P.C.B. (REP2144B-N)



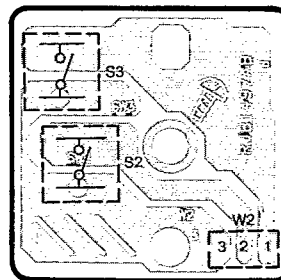
D LED P.C.B. (REP2292B-M)



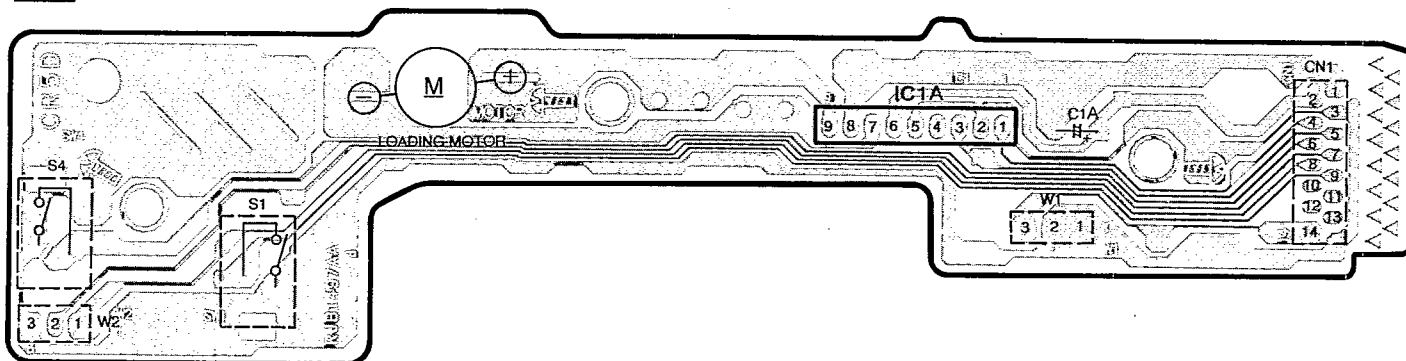
B SWITCH P.C.B. (REP2182A-N)



C SWITCH (S2,S3) P.C.B. (REP2182A-N)

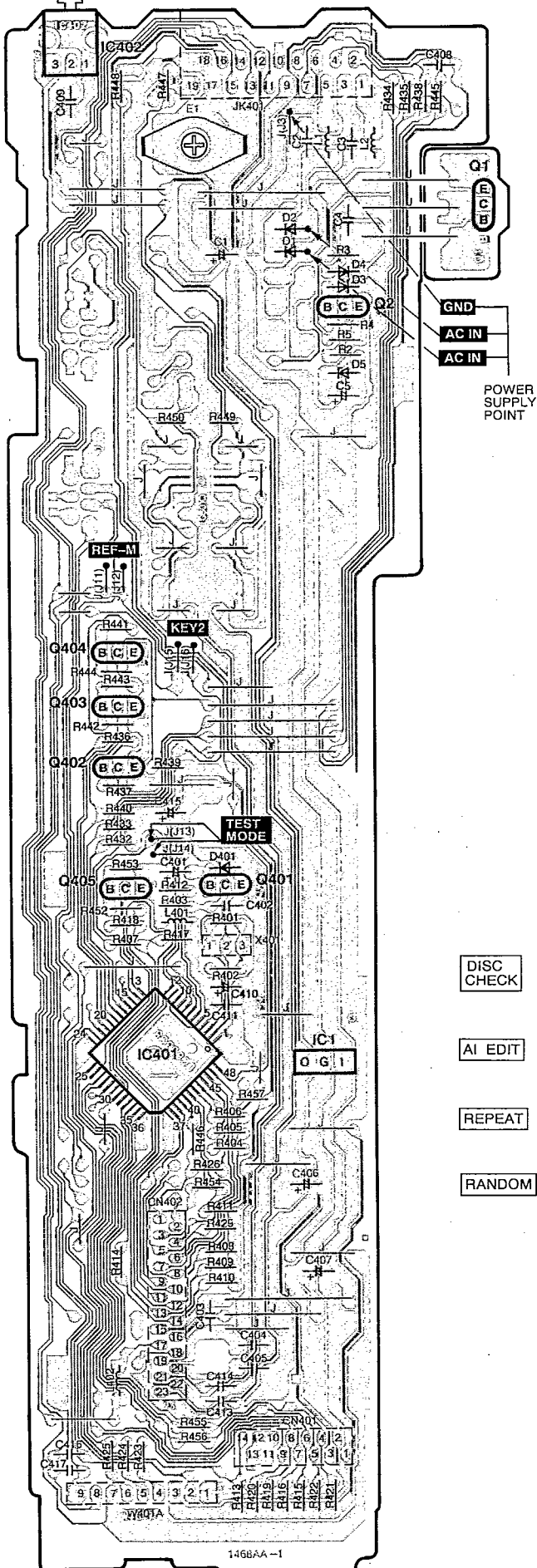
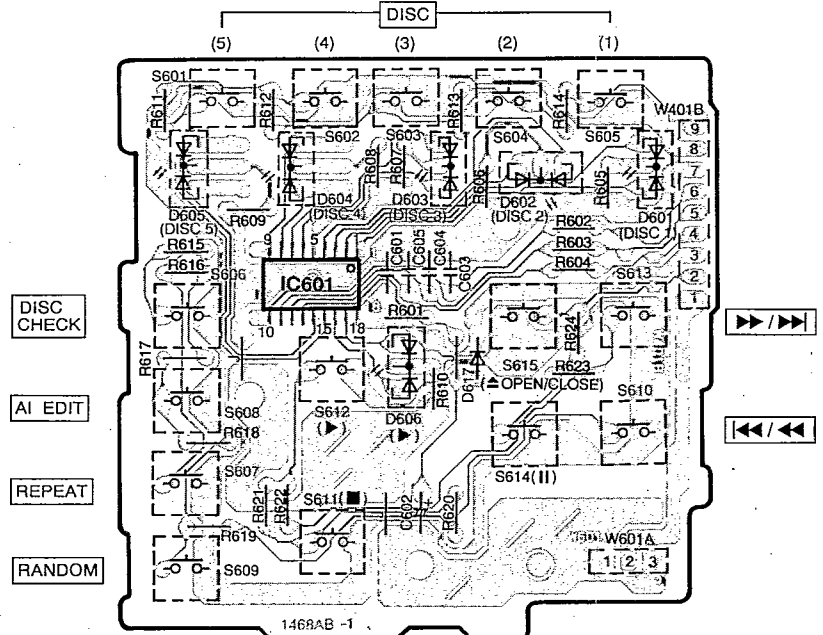


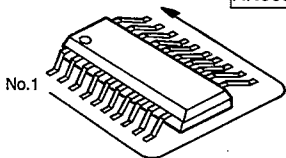
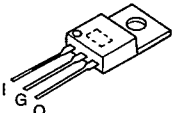
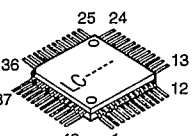
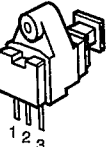
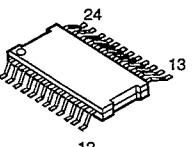
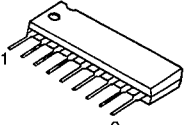
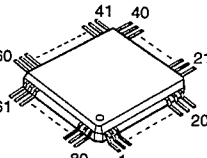
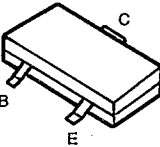
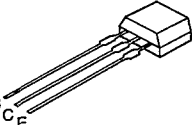
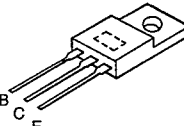
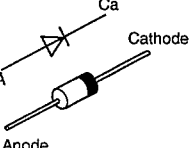
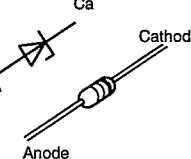
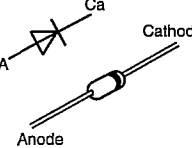
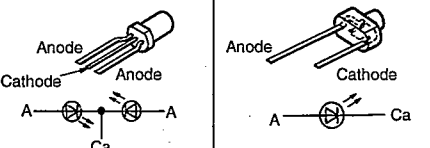
E LOADING MOTOR P.C.B. (REP2182A-N)



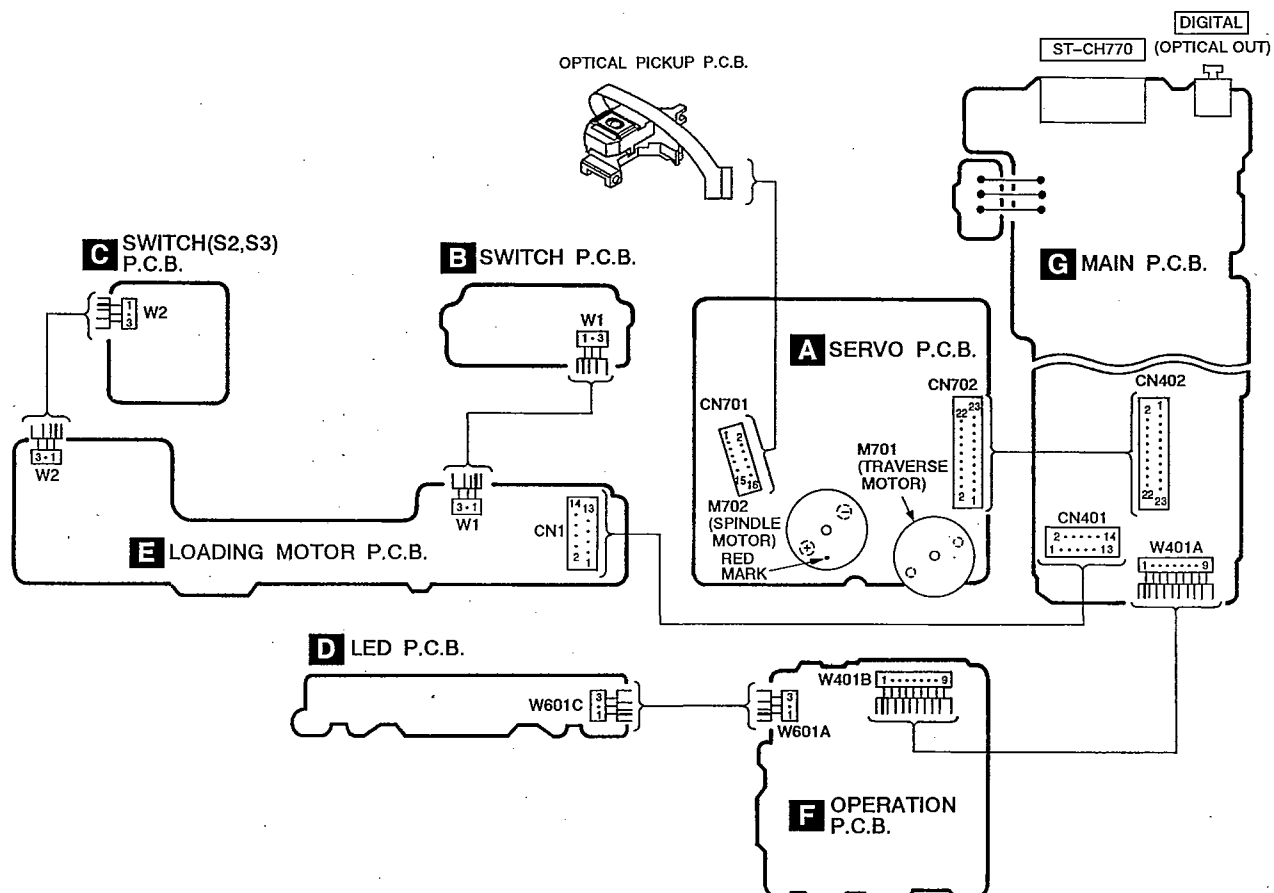
DIGITAL
(OPTICAL OUT)

ST-CH770

G MAIN P.C.B.
(REP2292B-M)**F** OPERATION P.C.B.
(REP2292B-M)

 NJU3713GTE1 18PIN AN8835SBE1 28PIN	 LM2940T5	 LC66538A4G99	 TOTX178	 AN8389SE1
 BA6418N	 MN662740RM1	 2SB709S	 DTC114YSTP	 2SA1309A-R 2SC3311AIQST
 2SB1548PQAU	 RL1N4003N02	 MA4075MTA	 MA165	 SPR505MDTT LNJ301MPUJAD

■ Wiring Connection Diagram



■ Function of IC Terminals

● IC401 (LC66538A4G99)

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, connected to GND
2	VSS	—	GND terminal
3	OSC1	I	Crystal oscillating circuit input (f = 4.23 MHz)
4	OSC2	O	Crystal oscillating circuit output (f = 4.23 MHz)
5	VDD	I	Power supply (+5 V)
6	/RST	I	Reset signal input ("L": reset)
7	NO SW	I	Disc tray number detection signal input
8	MODE	I	Test mode signal input
9	TEST	—	Test terminal
10	HOLD	I	No used, connected to power supply
11	MLD	O	Command load signal output
12	MDATA	O	Command data signal output
13	MCLK	O	Command clock signal output
14	VDATA IN	—	No used, connected to GND
15	EMPHA	—	No used, open
16	MUTE	—	No used, open
17	CS	O	Communication request signal output to ST-CH770
18	REQ	I	Communication request signal input from ST-CH770
19	DTI	I	Communication data signal input from ST-CH770
20	DTO	O	Communication data signal output to ST-CH770
21	CLK	O	Communication clock signal output to ST-CH770
22	VCS	—	No used, open
23	LSTB	O	LED drive signal output
24	LCLK	O	LED drive command clock signal output
25	LDATA	O	LED drive command data signal output
26	—	—	No used, connected to power supply
27	STOCK SW	I	Stocker position detection signal input
28	UP SW	I	Disc tray up position detection signal input
29	VCLK	—	No used, open
30	VDATA	—	No used, open
31	KEY1	I	Key switch detection signal input
32	KEY2	I	Key switch detection signal input

Pin No.	Terminal Name	I/O	Function
33	PLY SW	I	Disc tray play position detection signal input
34	OPEN SW	I	Disc tray open position detection signal input
35	REV	O	Loading motor drive (reverse) signal output
36	FWD	O	Loading motor drive (forward) signal output
37	SENSE	I	Sense signal input
38	FLOCK	I	Focus servo feeding signal input ("L": Feed)
39	TLOCK	I	Tracking servo feeding signal input ("L": Feed)
40	REST SW	I	Rest position detection signal input
41	SVRST	O	Reset signal output to IC702
42	STAT	I	Status signal input
43	SUBQ	I	Sub-code Q code input
44	DMUTE	—	No used, open
45	SQCK	O	Sub-code Q resister clock signal output
46	BLKCK	I	Sub-code block clock signal input (fBLKCK = 75 Hz during normal playback)
47	ESPD	—	No used, connected to power supply
48	GMUTE	—	No used, open

● IC701 (AN8835SBE1)

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

● IC702 (MN662740RM1)

Pin No.	Terminal Name	I/O	Function
1	BCLK	O	Bit clock output for serial data (no used, open)
2	LRCK	—	L/R identification signal output (no used, open)
3	SRDATA	—	Serial data output (no used, open)
4	DVdd1	—	Power supply input (for digital circuit)
5	DVss1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q resister
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset signal input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz) (no used, open)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 kHz) (no used, open)
21	TRV	O	Traverse forced feed output
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)

IC702 Continued

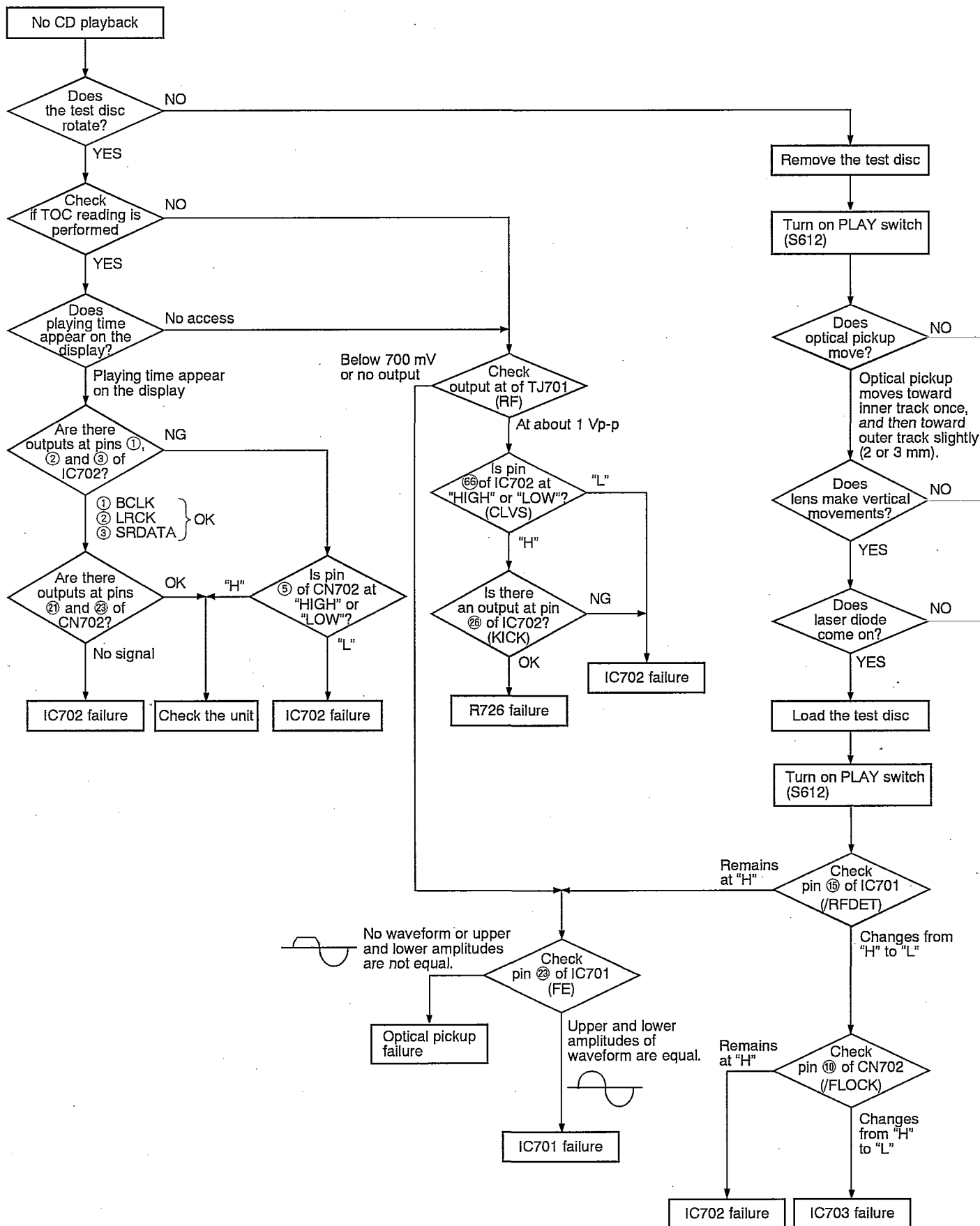
Pin No.	Terminal Name	I/O	Function
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	O	Play signal out ("H": PLAY) (no used, open)
43	WVEL	O	Double speed status signal output ("H": Double speed) (no used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (no used, open)
47	DSLIF	I/O	DSL loop filter
48	PLLIF	I/O	PLL loop filter
49	VCOF	I/O	VCO loop filter
50	AVDD2	—	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (no used, open)
53	PCK	—	PLL extraction clock output (fPCK = 4.321 MHz during normal playback) (no used, open)
54	PDO	—	Phase comparison signal of EFM and PCK signals (no used, open)
55	SUBC	O	Sub-code serial data output
56	SBCK	I	Clock input for sub-code serial data
57	Vss	—	GND
58	X1	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2	O	Crystal oscillating circuit output (f = 16.9344 MHz)
60	VDD	—	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (no used, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK = 7.35 kHz, double = 14.7 kHz) (no used, open)
64	IPFLAG	O	Interpolation flag output ("H": Interpolation) (no used, open)
65	FLAG	O	Flag output (no used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (no used, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (no used, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (no used, open)
69	RESY	—	Frame re-synchronizing signal output (no used, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input

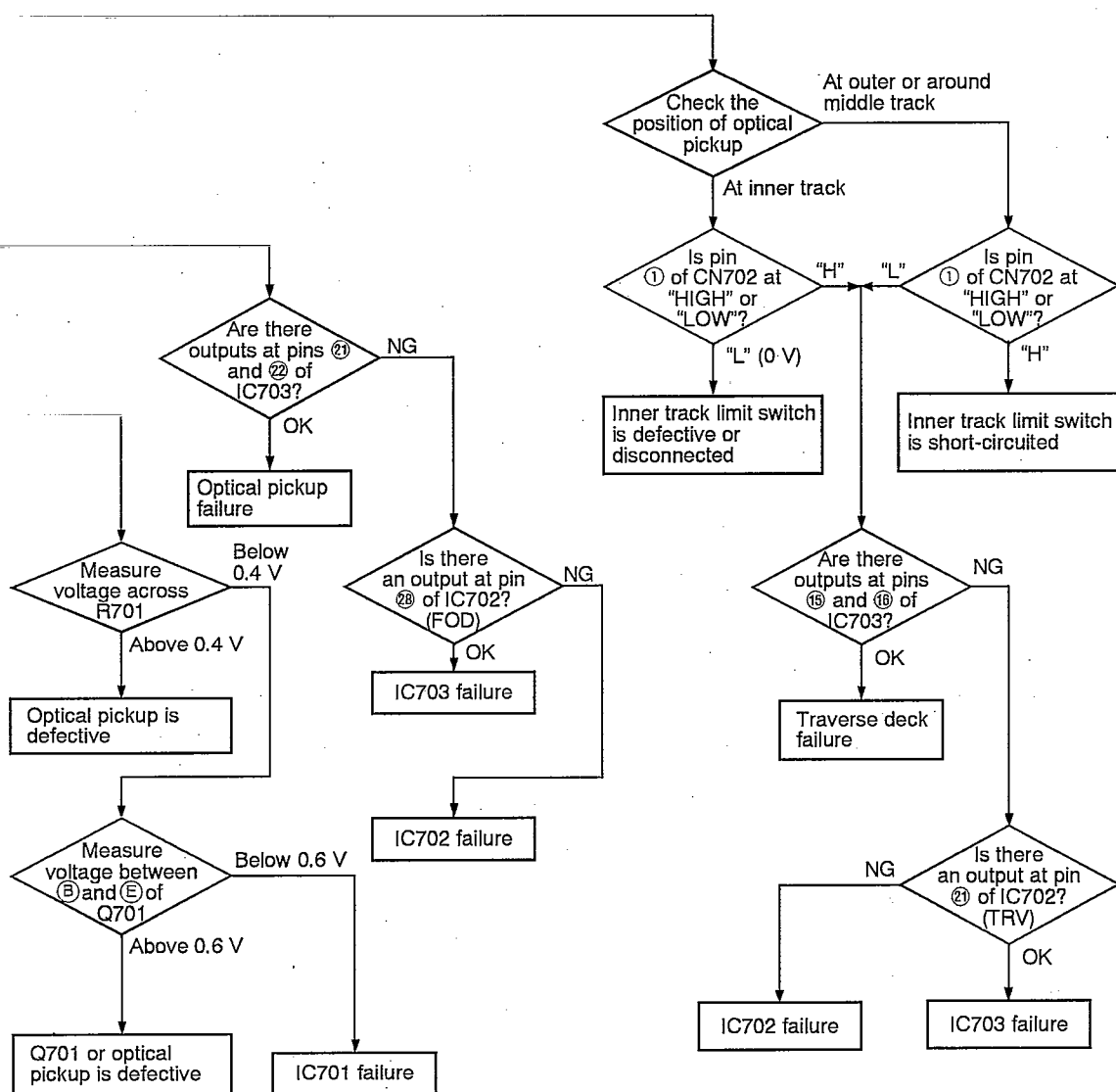
Pin No.	Terminal Name	I/O	Function
72	AVDD1	—	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AVSS1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level: RSEL = "H") (at "L" level: RSEL = "L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344 MHz) ("H": 33.8688 MHz)
78	PSEL	I	Test input (normally, "L")
79	MSEL	I	Output frequency switching for SMCK terminal ("H": SMCK = 8.4672 MHz) ("L": SMCK = 4.2336 MHz)
80	SSEL	I	Output mode switching of SUBQ terminal ("H": Q code buffer mode)

● IC703 (AN8389SE1)

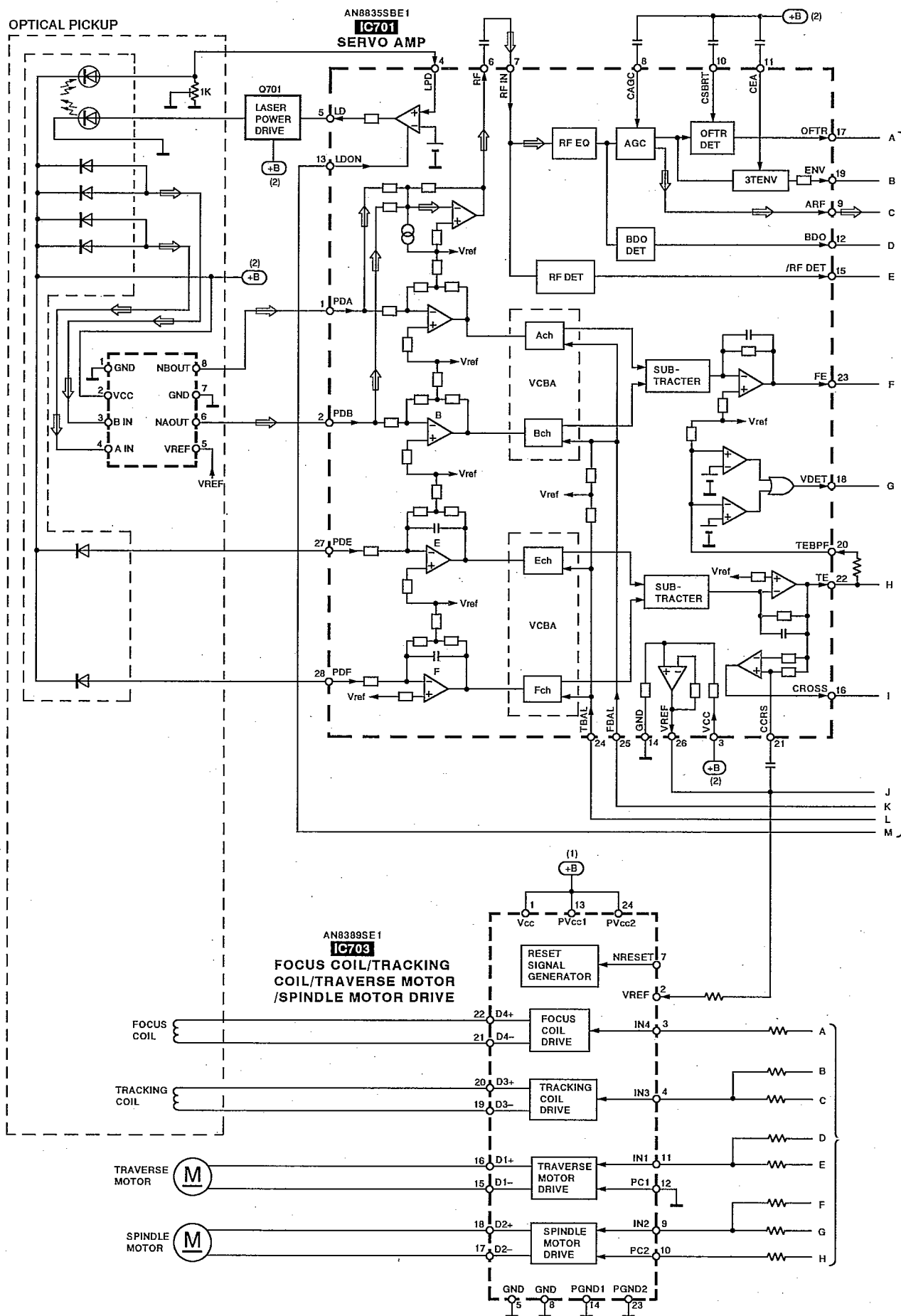
Pin No.	Terminal Name	I/O	Function
1	Vcc	—	Power supply
2	VREF	I	VREF input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	—	Reset input (no used, open)
8	GND	—	Ground connection
9	IN2	I	Spindle motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Traverse motor driver (1) input
12	PC1	I	PC1 (power cut) input
13	PVcc1	—	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1-	O	Traverse motor driver (1) reverse-action output
16	D1+	O	Traverse motor driver (1) forward-action output
17	D2-	O	Spindle motor driver (2) reverse-action output
18	D2+	O	Spindle motor driver (2) forward-action output
19	D3-	O	Tracking actuator (3) reverse-action output
20	D3+	O	Tracking actuator (3) forward-action output
21	D4-	O	Focus actuator (4) reverse-action output
22	D4+	O	Focus actuator (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVcc2	—	Power supply (2) for driver

Troubleshooting Guide





Block Diagram





■ Replacement Parts List

Notes: *Important safety notice:

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

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

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

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

Parts without these indications can be used for all areas.

* [M] Indicates in Remarks columns parts that are supplied by MESA.

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

*ACHTUNG: Die Lasereinheit nicht zerlegen.

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

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		S3	RSH1A032-U	SW, UP POSITION DETECT	
				S4	RSH1A005	SW, TRAY OPEN DETECT	
				S5	RSH1A032-U	SW, DISC NUMBER DETECT	
IC1	LM2940T5	IC, REGULATOR	Δ	S601	EVQ21405R	SW, DISC 5	
IC1A	BA6418N	IC, MOTOR DRIVE		S602	EVQ21405R	SW, DISC 4	
IC401	LC66538A4G99	IC, SYSTEM CONTROL		S603	EVQ21405R	SW, DISC 3	
IC402	TOTX178	IC, TRANSMISSION MODULE		S604	EVQ21405R	SW, DISC 2	
IC601	NJU3713GTE1	IC, LED DRIVE		S605	EVQ21405R	SW, DISC 1	
IC701	AN8835SBE1	IC, SERVO AMP.		S606	EVQ21405R	SW, DISC CHECK	
IC702	MN662740RM1	IC, SERVO PROCESSOR		S607	EVQ21405R	SW, REPEAT	
IC703	AN8389SE1	IC, COIL & MOTOR DRIVE		S608	EVQ21405R	SW, AI EDIT	
		TRANSISTOR(S)		S609	EVQ21405R	SW, RANDOM	
				S610	EVQ21405R	SW, R. SKIP/SEARCH	
Q1	2SB1548PQAU	TRANSISTOR	Δ	S611	EVQ21405R	SW, STOP	
Q2	2SC3311AIQST	TRANSISTOR	Δ	S612	EVQ21405R	SW, PLAY	
Q401	DTC114YSTP	TRANSISTOR		S613	EVQ21405R	SW, F. SKIP/SEARCH	
Q402-404	2SC3311AIQST	TRANSISTOR		S614	EVQ21405R	SW, PAUSE	
Q405	2SA1309A-R	TRANSISTOR		S615	EVQ21405R	SW, OPEN/CLOSE	
Q701	2SB709S	TRANSISTOR		S701	RSM0006-P	SW, REST	
						CONNECTOR(S)	
		DIODE(S)					
				CN1	RJS1A6714	CONNECTOR(14P)	
D1, 2	RL1N4003N02	DIODE	Δ	CN401	RJS1A6814	CONNECTOR(14P)	
D3, 4	MA165	DIODE		CN402	RJS1A6823	CONNECTOR(23P)	
D5	MA4075MTA	DIODE	Δ	CN701	RJU035T016-1	CONNECTOR(16P)	
D401	MA165	DIODE		CN702	RJS1A6723-1Q	CONNECTOR(23P)	
D601-606	SPR505MDTT	L. E. D.				GND PLATE	
D611-614	LNJ301MPUJAD	DIODE					
D617	MA165	DIODE		E1	SNE1004-2	GND PLATE	
		COIL(S)				JASK(S)	
L1, 2	BL02RN2R65T2	COIL	Δ	JK401	RJT065K19	SYSTEM CONNECTOR(19P)	
L401	RLQA100JT-Y	COIL				TEST JUMPER(S)	
L402	BL02RN2R65T2	COIL					
		OSCILLATOR(S)		TJ701, 702	EYF8CU	TEST JUMPER	
X401	EF0EC4234T3	OSCILLATOR(4.23 MHz)					
X701	RSXB16M9J02T	OSCILLATOR(16.9344 MHz)					
		SWITCH(ES)					
S1	RSH1A005	SW, STOCKER POSITION DETECT					
S2	RSH1A032-U	SW, PLAY POSITION DETECT					

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

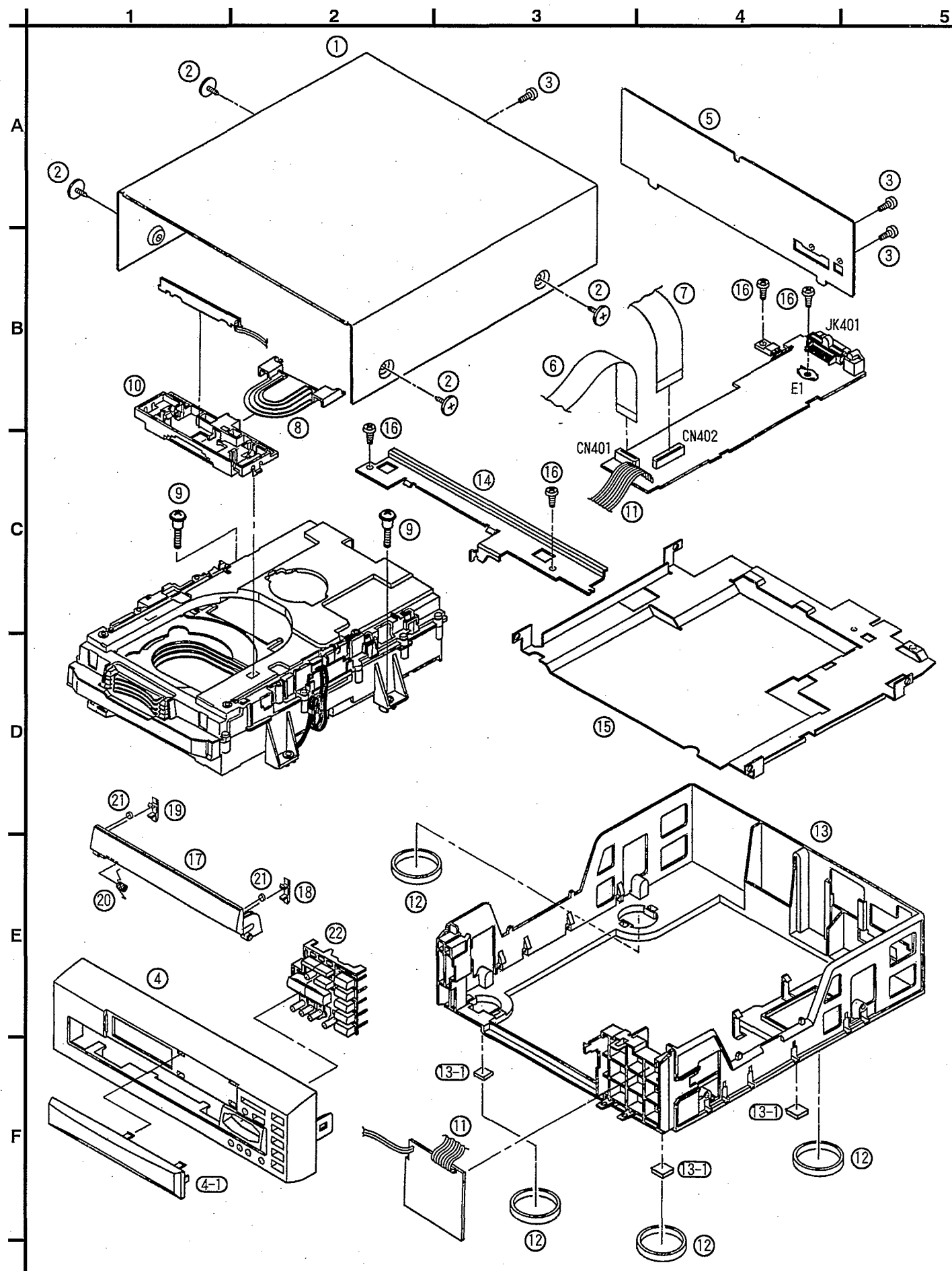
Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R617	ERDS2TJ472	1/4W 4.7K	C1	ECA1CM222B	16V 2200U Δ
			R618	ERDS2TJ332	1/4W 3.3K	C1A	ECA1AKF820E	10V 82U
			R619	ERDS2TJ222	1/4W 2.2K	C2, 3	ECBT1E103ZF	25V 0.01U
R2	ERDS2TJ471	1/4W 470	R620	ERDS2TJ182	1/4W 1.8K	C4	ECBT1H102KB5	50V 1000P
R3	ERDS2TJ223	1/4W 22K	R621	ERDS2TJ152	1/4W 1.5K	C5	RCE1CKA470BG	16V 47U
R4	ERDS2TJ101	1/4W 100	R622	ERDS2TJ122	1/4W 1.2K	C401	RCE1HKA3R3BG	50V 3.3U
R5	ERDS2TJ102	1/4W 1K	R623	ERDS2TJ102	1/4W 1K	C402, 403	ECBT1H102KB5	50V 1000P
R401	ERDS2TJ105T	1/4W 1M	R624	ERDS2TJ821	1/4W 820	C404, 405	ECBT1E103ZF	25V 0.01U
R402	ERDS2TJ102	1/4W 1K	R627, 628	ERDS2TJ221	1/4W 220	C406	ECEAOJKA221B	6.3V 220U
R403	ERDS2TJ104	1/4W 100K	R701	ERJ6GEYJ4R7V	1/10W 4.7	C407	ECEA1AKA221B	10V 220U
R404	ERDS2TJ471	1/4W 470	R703	ERJ6GEYJ823	1/10W 82K	C408	ECBT1H101KB5	50V 100P
R405	ERDS2TJ101	1/4W 100	R704	ERJ6GEYJ102A	1/10W 1K	C409	ECBT1E103ZF	25V 0.01U
R406	ERDS2TJ471	1/4W 470	R705	ERJ6GEYJ103V	1/10W 10K	C410	ECEAOJKA470B	6.3V 47U
R407	ERDS2TJ123	1/4W 12K	R706	ERJ6GEYJ102A	1/10W 1K	C411	ECBT1H104ZF5	50V 0.1U
R408-413	ERDS2TJ103	1/4W 10K	R707	ERJ6GEYJ474V	1/10W 470K	C413, 414	ECBT1H102KB5	50V 1000P
R414	ERDS2TJ471	1/4W 470	R708	ERJ6GEYJ154V	1/10W 150K	C415	ECEAOJKA470B	6.3V 47U
R415-422	ERDS2TJ103	1/4W 10K	R709	ERJ6GEYJ683V	1/10W 68K	C416, 417	ECBT1H102KB5	50V 1000P
R423-425	ERDS2TJ101	1/4W 100	R711	ERJ6GEYJ154V	1/10W 150K	C601	ECBT1E103ZF	25V 0.01U
R426	ERDS2TJ102	1/4W 1K	R712	ERJ6GEYJ221V	1/10W 220	C602	ECEA1HKA010B	50V 1U
R429	ERDS2TJ103	1/4W 10K	R714	ERJ6GEYJ121V	1/10W 120	C603-605	ECBT1H101KB5	50V 100P
R432	ERDS2TJ123	1/4W 12K	R717, 718	ERJ6GEYJ102A	1/10W 1K	C701	ECEAOJKA330I	6.3V 33U
R433	ERDS2TJ103	1/4W 10K	R720	ERJ6GEYOR00A	1/10W 0	C702	ECUZNE104MBN	25V 0.1U
R434	ERDS2TJ102	1/4W 1K	R721	ERJ6GEYJ101V	1/10W 100	C703	ECEAOJKA101I	6.3V 100U
R435	ERDS2TJ101	1/4W 100	R722	ERJ6GEYJ563V	1/10W 56K	C704, 705	ECUZNE104MBN	25V 0.1U
R436, 437	ERDS2TJ472	1/4W 4.7K	R723	ERJ6GEYJ182V	1/10W 1.8K	C706	ECUV1H272KBN	50V 2700P
R438	ERDS2TJ102	1/4W 1K	R724	ERJ6GEYJ333V	1/10W 33K	C707	ECUV1E273KBN	25V 0.027U
R439	ERDS2TJ123	1/4W 12K	R725	ERJ6GEYJ472V	1/10W 4.7K	C708	ECUE1H472KBN	50V 4700P
R440	ERDS2TJ473	1/4W 47K	R726	ERJ6GEYJ473V	1/10W 47K	C709	ECUE1C473KBN	16V 0.047U
R441	ERDS2TJ472	1/4W 4.7K	R727	ERJ6GEYJ822V	1/10W 8.2K	C710	ECUV1H182KBN	50V 1800P
R442	ERDS2TJ332	1/4W 3.3K	R728	ERJ6GEYJ103V	1/10W 10K	C711, 712	ECUWNE104ZFN	25V 0.1U
R443, 444	ERDS2TJ472	1/4W 4.7K	R731	ERJ6GEYJ822V	1/10W 8.2K	C713	ECUV1C104MBN	16V 0.1U
R445	ERDS2TJ102	1/4W 1K	R735, 736	ERJ6GEYJ101V	1/10W 100	C714	ECEAOJKA101I	6.3V 100U
R446	ERDS2TJ472	1/4W 4.7K	R744	ERJ6GEYJ103V	1/10W 10K	C716	ECUE1H561KBN	50V 560P
R447, 448	ERDS2TJ221	1/4W 220	R745	ERJ6GEYJ155V	1/10W 1.5M	C717	ECUWNE104ZFN	25V 0.1U
R449, 450	ERDS2TJ473	1/4W 47K	R748	ERJ6GEYJ182V	1/10W 1.8K	C718	ECUVNC224KBN	16V 0.22U
R452	ERDS2TJ103	1/4W 10K	R749	ERJ6GEYJ682V	1/10W 6.8K	C721	ECUV1H100DCN	50V 10P
R453	ERDS2TJ473	1/4W 47K	R750, 751	ERJ6GEYJ473V	1/10W 47K	C722	ECUV1H150JCN	50V 15P
R454	ERDS2TJ102	1/4W 1K	R752	ERJ8GEYJ220V	1/8W 22	C723	ECEA1AKA221I	10V 220U
R455, 456	ERDS2TJ471	1/4W 470	R770, 771	ERJ6GEYJ155V	1/10W 1.5M	C724	ECUV1C104MBN	16V 0.1U
R457	ERDS2TJ473	1/4W 47K	R772	ERJ6GEYJ273V	1/10W 27K	C725, 726	ECUE1H102KBN	50V 1000P
R601	ERDS2TJ104	1/4W 100K				C727, 728	ECEA1HPK010I	50V 1U
R602-604	ERDS2TJ101	1/4W 100			CHIP JUMPER(S)	C730	ECUWNE104ZFN	25V 0.1U
R605-610	ERDS2TJ391	1/4W 390				C731, 732	ECEAOJKA221I	6.3V 220U
R611	ERDS2TJ223	1/4W 22K	J701-709	ERJ8GEYOR00A	1/8W 0	C733	ECUZNE104MBN	25V 0.1U
R612	ERDS2TJ123	1/4W 12K	J714-717	ERJ8GEYOR00A	1/8W 0	C734	ECEA1AKA221I	10V 220U
R613	ERDS2TJ682T	1/4W 6.8K	J721-731	ERJ6GEYOR00A	1/10W 0	C735-737	ECUWNE104ZFN	25V 0.1U
R614	ERDS2TJ472	1/4W 4.7K				C738	ECUV1C154KBN	16V 0.15U
R615	ERDS2TJ123	1/4W 12K			CAPACITORS	C742	ECUV1E273KBN	25V 0.027U
R616	ERDS2TJ682T	1/4W 6.8K				C743	ECUWNE104ZFN	25V 0.1U

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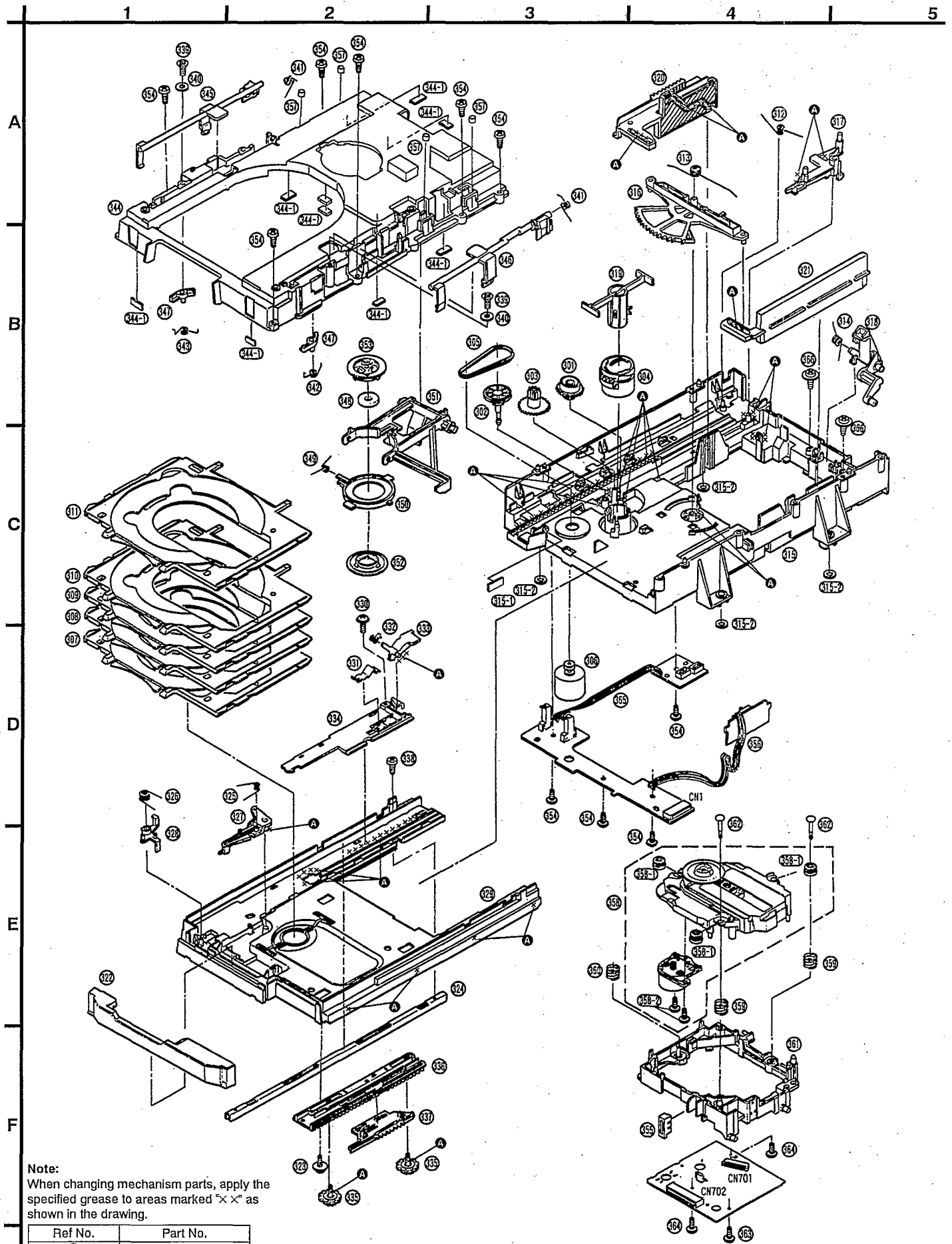
Note: The reference number SA represent the grease and tool used for this unit.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS		323	RHD20010	SCREW	
1	RKM0222-3K	TOP CABINET		324	RMA0868	REINFORCING ANGLE	
2	RHD30007-K1	SCREW		325	RME0171	BASE LOCK LEVER SPRING	
3	XTBS3+8JFZ1	SCREW		326	RME0172	CARRIER LOCK LEVER SPRING	
4	RFKGLCH770EK	FRONT PANEL ASS'Y		327	RML0377	BASE LOCK LEVER	
4-1	RKWD400-Q	PANEL		328	RML0378	CARRIER LOCK LEVER	
5	RGR0217B-E	REAR PANEL		329	RMR0884-K	TRAY BASE	
6	REZ0555	FFC(14P)		330	RHD20009-1	SCREW	
7	REZ0765	FFC(23P)		331	RMC0274	TRAY HOOK SPRING	
8	RGL0314-Q	PANEL LIGHT		332	RME0173	CARRIER ARM SPRING	
9	RHD30065	SCREW		333	RML0376-1	CARRIER ARM	
10	RXQ0507-K	HOLDER ARM ASS'Y		334	RMD137	CARRIER	
11	RWJ7009125KK	FLAT CABLE(9P) (W401)		335	RDG0312	SPEED GEAR	
12	RKA0068-N	FOOT		336	RMD134	DRIVE RACK	
13	RFKJLCA7-N	BOTTOM FRAME ASS'Y		337	RMD135	CUSHION RACK	
13-1	SHG1654	RUBBER		338	XTN2+6F	SCREW	
14	RMA0931	ANGLE		339	XTS3+8J	SCREW	
15	RSC0425	SHIELD PLATE		340	XWE4E10	WASHER	
16	XTB3+8JFZ	SCREW		341	RME0178	HOLD SPRING	
17	RGK0737-K	TRAY DOOR		342	RME0181	LIFT PREVENTION SPRING(1)	
18	RKQ0197-X	SLIDE PLATE		343	RME0182	LIFT PREVENTION SPRING(2)	
19	RKQ0204-X	SLIDE PLATE		344	RFKNLCA10EAK	MECHANISM COVER ASS'Y	
20	RMB0472	SPRING		344-1	RMF0221	FELT	
21	RMG0305-K	RUBBER		345	RML0381	HOLD NAIL(1)	
22	RFKNLCH770EK	BUTTON ASS'Y		346	RML0382	HOLD NAIL(2)	
		LOADING MECHANISM		347	RML0384	LIFT PREVENTION LEVER	
301	RDG0309	INTERMEDIATE GEAR		348	RHM245ZA	MAGNET	
302	RDG0310	PULLEY GEAR		349	RME0174	CLAMP LEVER SPRING	
303	RDG0311	DRIVE GEAR		350	RFKNACH430GE	CLAMP BASE ASS'Y	
304	RDG0313	UP/DOWN GEAR		351	RML0388-1	CLAMP LEVER	
305	RDV0036	BELT		352	RMR0761-W	CLAMPER	
306	RFKPD5790PK1	MOTOR ASS'Y		353	RMR0899-K	FIXED PLATE	
307	RGQ0170-K3	DISC TRAY(1)		354	XTB3+10J	SCREW	
308	RGQ0171-K	DISC TRAY(2)		355	RMR0975-W	TRAVERSE CAP	
309	RGQ0172-K	DISC TRAY(3)		356	REZ0793	FLAT CABLE(3P) (W1)	
310	RGQ0173-K	DISC TRAY(4)		357	RMG0430-Q	RUBBER TUBE	
311	RGQ0174-K	DISC TRAY(5)		358	RAE0150Z	TRAVERSE DECK ASS'Y	
312	RME0170	LOCK LEVER SPRING		358-1	SHGD113-1	FLOATING RUBBER	
313	RME0179	ASSIST SPRING		358-2	SNSD38	SCREW	
314	RME0180	TRAY HOLD SPRING		359	RME0109	FLOATING SPRING(1)	
315	RFKNACH430GC	MECHANISM BASE ASS'Y		360	RME0142	FLOATING SPRING(2)	
315-1	RMF0221	FELT		361	RMD0293	TRAVERSE CHASSIS	
315-2	RMG0402-K	RUBBER WASHER		362	RMS0123-1	TRAVERSE FIXED PIN	
316	RML0379	CONVERSION LEVER		363	XTN2+6G	SCREW	
317	RML0380	LOCK LEVER		364	XTV2+6G	SCREW	
318	RML0383	TRAY HOLD LEVER		365	REZ0792	FLAT CABLE(3P) (W2)	
319	RML0385	UP/DOWN LEVER		366	XTWS3+8T	SCREW	
320	RMD139	SLIDE PLATE(1)				GREASE OR JIG/TOOL	
321	RMD141	SLIDE PLATE(2)		SA1	SZZP1054C	TEST DISC(PLAYABILITY)	
322	RGQ0175-K	TRAY ORNAMENT		SA2	RFKNLCH770EK	GREASE(CD MECHANISM)	

Cabinet Parts Location



Loading Unit Parts Location



1000