

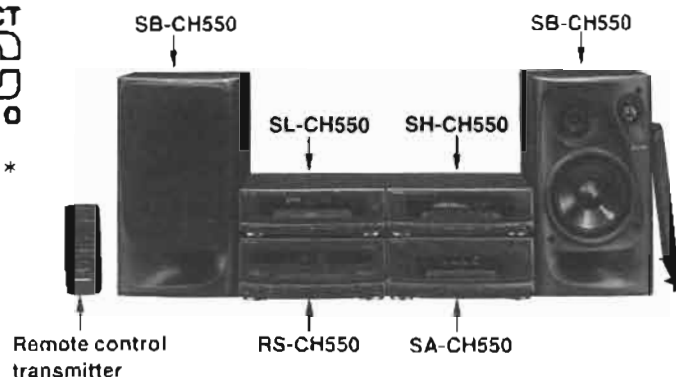
Service Manual

Compact Disc Player

Compact Disc Player

COMPACT
disc
DIGITAL AUDIO

MASH*
multi-stage noise shaping



SL-CH550

Colour

(K) Black Type

Area

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

System: SC-CH550

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

NEW TRAVERSE DECK (RAE0111Z) (Refer to page 24)

SPECIFICATIONS

(DIN 45 500)

AUDIO

Frequency response
Wow & Flutter

2-20,000 Hz, ± 1 dB
Below measurable limit

PICKUP

Wavelength

780 nm

GENERAL

Dimensions (W×H×D)
Weight

270×89.5×257 mm
2.1 kg

Notes:

- Specifications are subject to change without notice.
- Weight and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer

- * •Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs)
•MASH is a trademark of NTT.

System	Sound processor	Tuner amplifier	Compact disc player	Cassette deck	Speakers
SC-CH550	SH-CH550	SA-CH550	SL-CH550	RS-CH550	*SB-CH550

*Europe area...Made in PAES

Technics

■ CONTENTS

	Page		Page
● HANDLING PRECAUTIONS FOR TRAVERSE DECK	2	● NEW DIGITAL SERVO CIRCUIT	24
● PRECAUTION OF LASER DIODE	2, 3	● MEASUREMENTS AND ADJUSTMENTS	24, 25
● LOCATION OF CONTROLS	3, 4	● FUNCTION OF IC TERMINALS	26~28
● DISASSEMBLY INSTRUCTIONS	5~12	● TROUBLESHOOTING GUIDE	29, 30
● DESCRIPTION OF FL PANEL	13	● BLOCK DIAGRAM	31~34
● SCHEMATIC DIAGRAM	14~19	● REPLACEMENT PARTS LIST	35~38, 40, 41
● PRINTED CIRCUIT BOARD DIAGRAM	20~22	● CABINET PARTS LOCATION	39
● WIRING CONNECTION DIAGRAM	23	● LOADING UNIT PARTS LOCATION	42

■ 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)

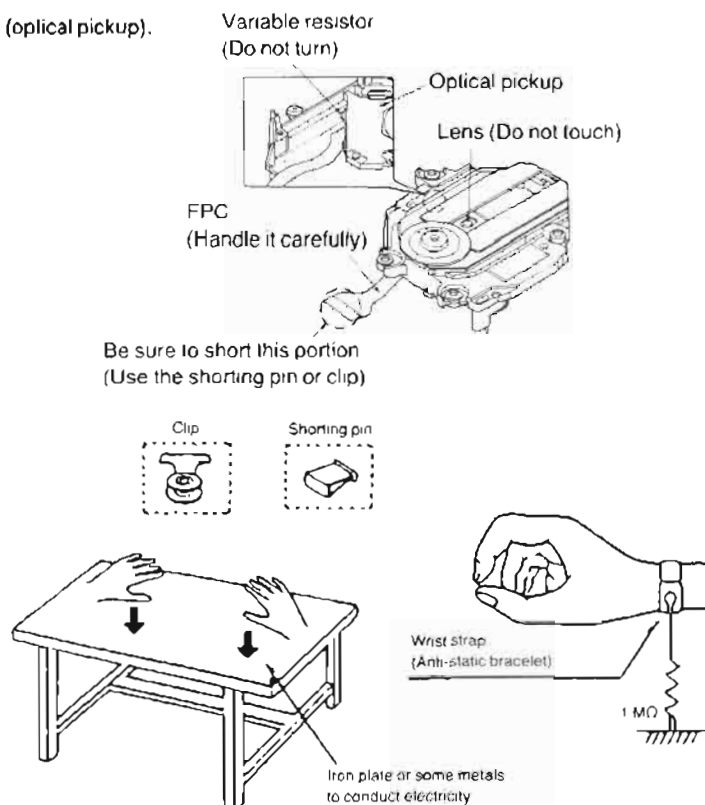
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
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.

● 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).



■ 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 μW/VDE

Laser radiation from the pick up lens 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 pickup 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.

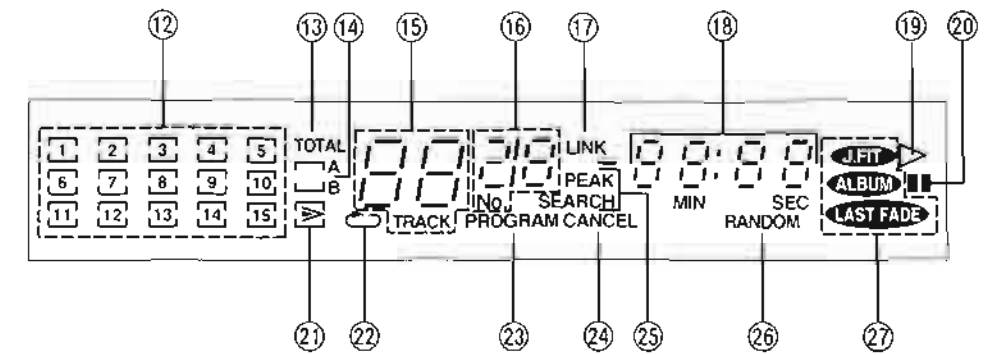
Wellenlänge: 780 nm

Maximale strahlungsleistung der lasereinheit: 100 μW/VDE

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

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

•Display section



⑫ Matrix display

Shows the total number of tracks on a disc, and shows the current playing track by flashing.

⑬ Total tracks indicator (TOTAL)

Lights to show the total number of tracks edited on side A and B when you use the edit-recording from a compact disc

⑭ Tape side indicator (A, B)

Shows which side of the cassette tape (A or B) will be recorded on when you use the edit-recording from a compact disc

⑮ Track number display

Shows the total number of tracks, and current playing or recording track number.

⑯ Program number display (No.)

Lights together with the program indicator to show the programmed order

⑰ Link indicator (LINK)

Lights to show the disc link is possible when you use the edit-recording from a compact disc

⑱ Time display

Shows the total playing time on the disc, and elapsed play time of the current track

⑲ Play indicator (▶)

Lights when you play a compact disc.

⑳ Pause indicator (⏸)

Lights when you press the pause button to stop the disc play temporarily.

㉑ Over indicator (⏮)

Lights if there are 16 or more tracks on a disc

㉒ Repeat mode indicator (↺)

Lights during the repeat mode of a compact disc

㉓ Program indicator (PROGRAM)

Lights during program play mode of a compact disc.

㉔ Program cancel indicator (CANCEL)

Lights when you cancel a program.

㉕ Peak search indicator (PEAK SEARCH)

In the edit-recording mode, lights when the compact disc player is automatically scanning the peak level on a disc. When peak search ends, "PEAK" flashes to indicate the peak level of a compact disc.

㉖ Random play indicator (RANDOM)

Lights during the random play mode

㉗ Edit mode indicators (J. FIT, ALBUM, LAST FADE)

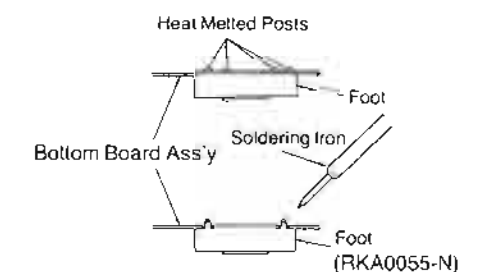
J.FIT: Lights when you activate the fit editing mode
ALBUM: Lights when you activate the sequential CD recording mode.
LAST FADE: Lights when you activate the fade out editing mode.

Note:

The functions indicated by the numbers with black background (for example ③) can also be activated from the remote control

•Replacement of the Foot

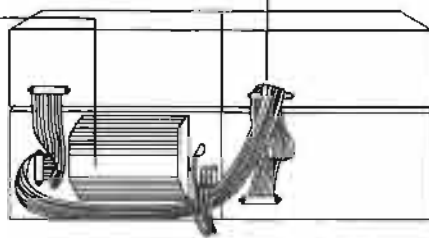
1. Remove the 4 heat melted posts on the bottom board ass'y with a pair of nippers or similar tool.
2. To replace the foot (RKA0055-N) on the bottom board ass'y, melt the 4 posts with a soldering iron



CLASS 1
LASER PRODUCT

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

Heat prevention
cover



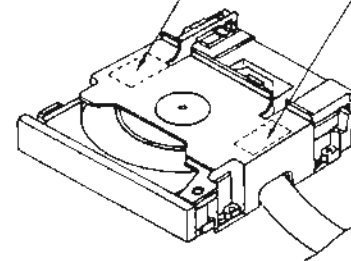
ADVARSEL: USYNLIG LASERSTRÅLING
VED ÅBNING. NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.

VORSICHT: Unsichtbare
Laserstrahlung, wenn
Abdeckung geöffnet.
Nicht dem Strahl
aussetzen

DANGER: Invisible
laser radiation when
open
AVOID DIRECT EX-
POSURE TO BEAM

VARO! Avauttaessa ja
suojalukitus ohitettaes-
sa olet alttiina
näkyvättömälle
lasersäteilylle.
Älä katso säteeseen.

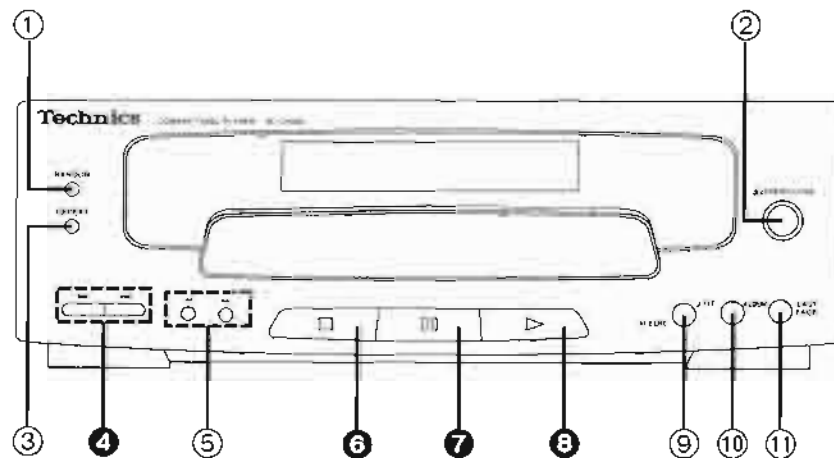
WARNING! Osynlig
laserstrålning när
denna del är öppen
och spårren är
urkopplad.
Betrakta ej strålen.



NOTES:

Refer to the service manual for Model No. SA-CH550, Order No. AD9208265C8 for information on ACCESSORIES, STACKING THE COMPONENTS, CONNECTIONS and PACKAGING.

■ LOCATION OF CONTROLS



① Random play button (RANDOM)

Press to play the disc's tracks in random order

② Disc tray open/close button (▲ OPEN/CLOSE)

Press to open and close the disc tray.

③ Repeat button (REPEAT)

Press to activate the repeat mode

④ Skip buttons (◀◀, ▶▶)

Press to skip tracks.

⑤ Search buttons (◀◀, ▶▶)

Press and hold to find the desired point on the track while in the play mode.

⑥ Stop button (□)

Press to stop the disc play

⑦ Pause button (⏸)

Press to stop the disc play temporarily

⑧ Play button (▶)

Press to start disc play and synchro start function

⑨ Fit edit button (J. FIT)

Press to activate the fit editing mode

⑩ Sequential CD recording button (ALBUM)

Press to activate the sequential CD recording mode

⑪ Last fade edit button (LAST FADE)

Press to activate the fade out editing mode.

DISASSEMBLY INSTRUCTIONS

SL-CH550

SL-CH550

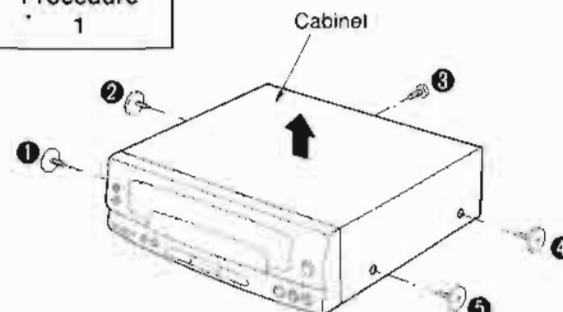
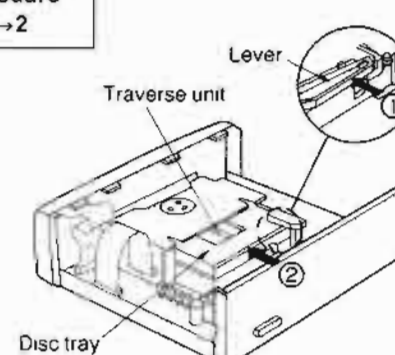
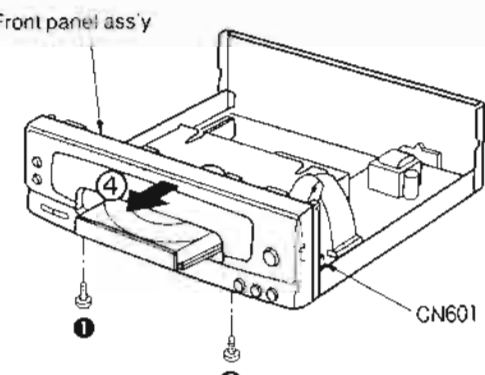
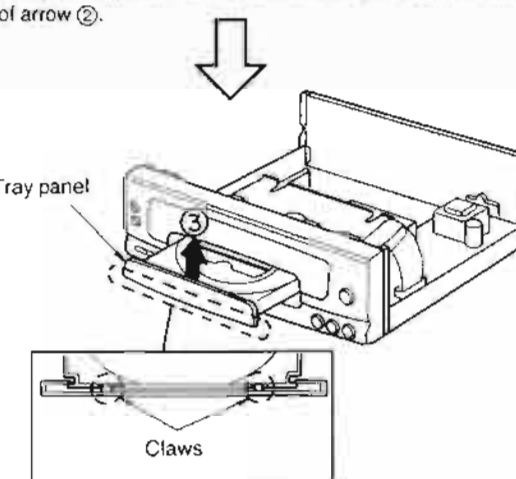
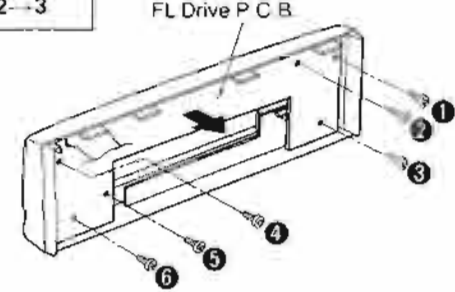
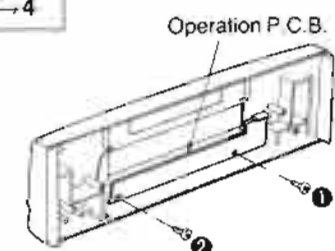
Warning: This product uses a laser diode. Refer to caution statements on page 2.

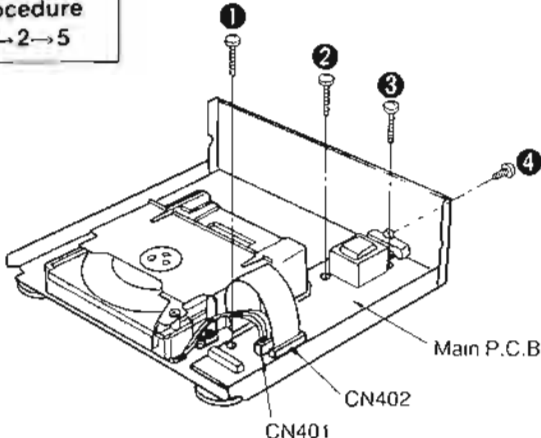
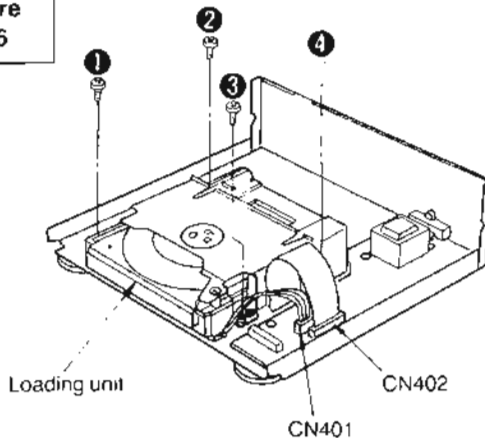
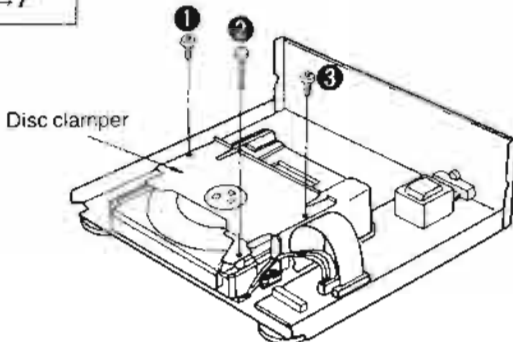
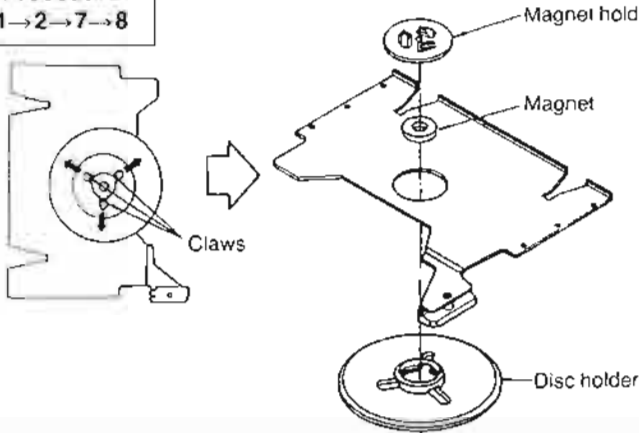
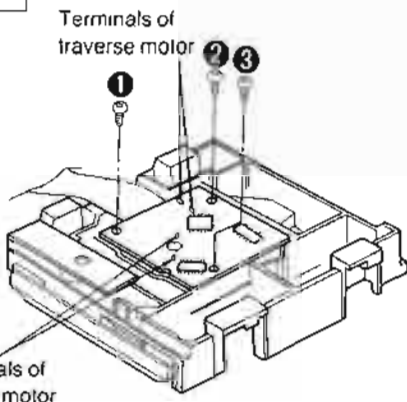
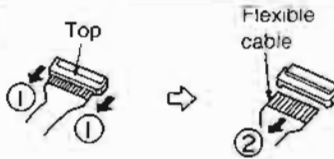
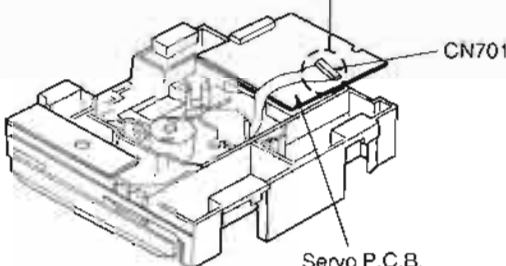
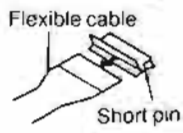
ACHTUNG: Die Lasereinheit nicht zerlegen.

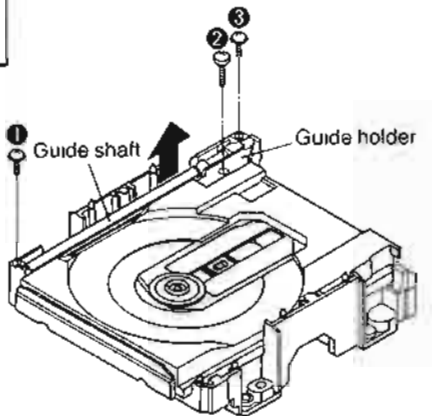
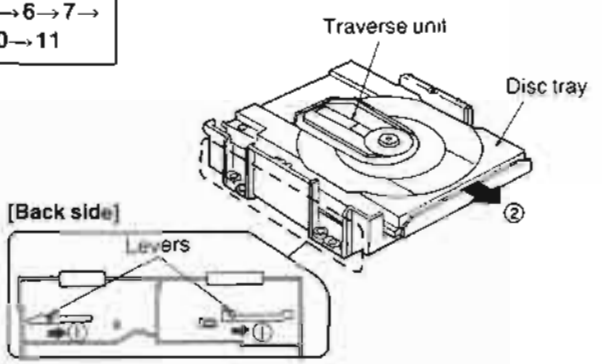
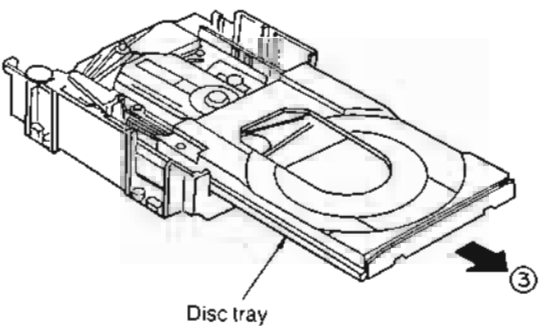
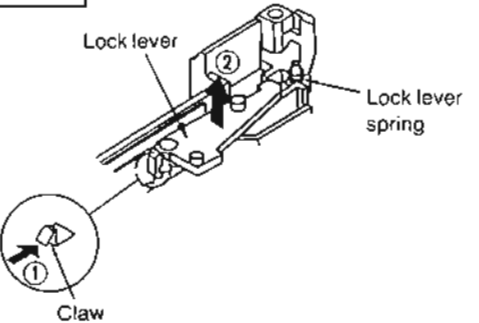
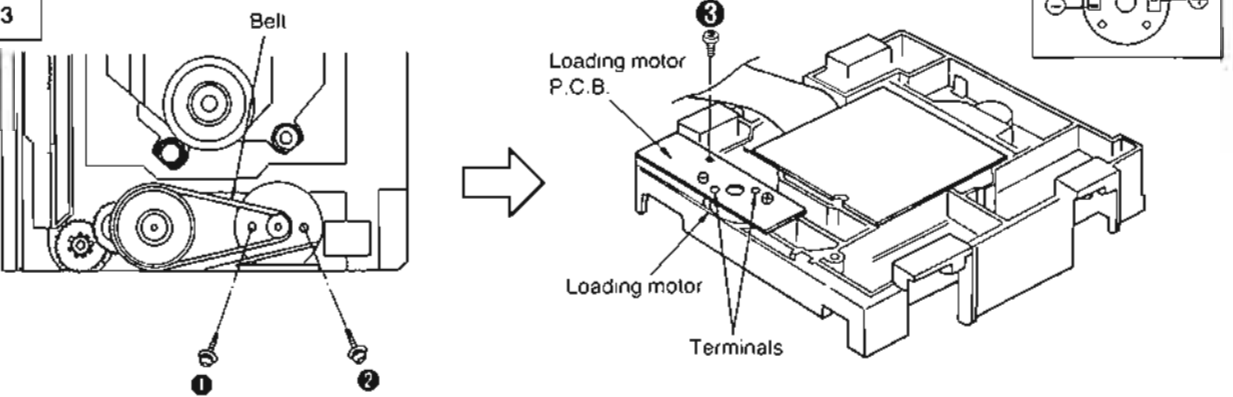
Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

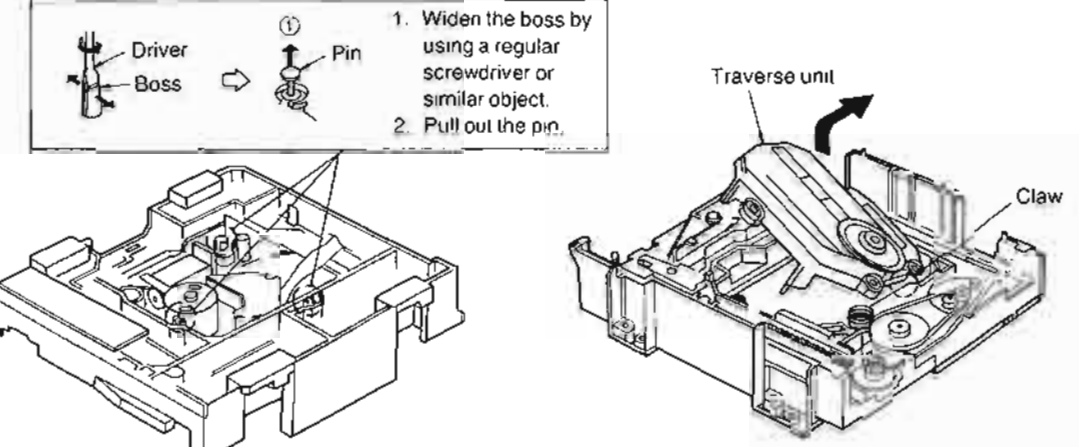
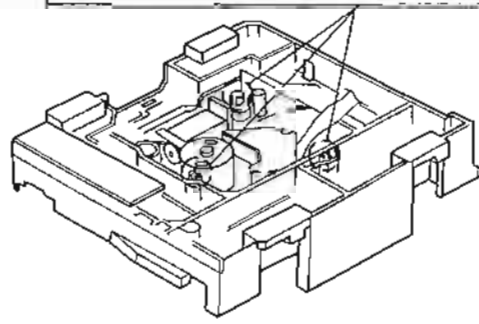
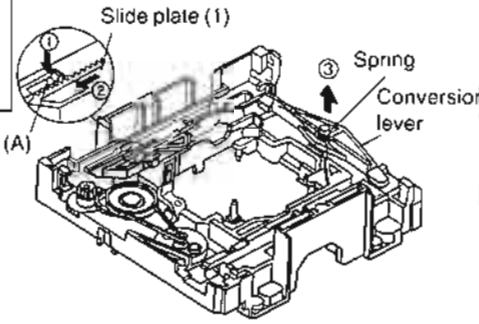
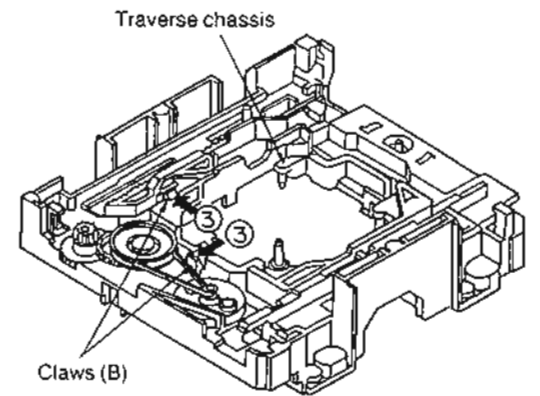
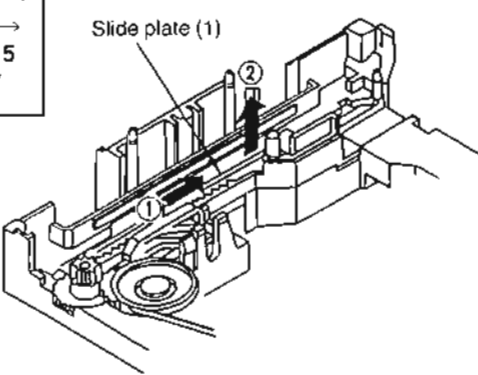
"ATTENTION SERVICER"

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

Ref. No. 1	Removal of the Cabinet	Ref. No. 2	Removal of the Front Panel Ass'y
Procedure 1	 - Remove the 5 screws (1~5). - Remove the cabinet in the direction of arrow.	 Push the lever in the direction of arrow ① until the traverse unit goes down and then push the disc tray in the direction of arrow ②.	
	 - Remove the 1 connector (CN601). - Remove the 2 screws (1, 2). - Remove the front panel ass'y in the direction of arrow ④.	 Remove the 2 claws and then remove the tray panel in the direction of arrow ③.	
Ref. No. 3	Removal of the FL Drive P.C.B.	Ref. No. 4	Removal of the Operation P.C.B.
Procedure 1→2→3	 - Remove the 6 screws (1~6). - Remove the FL drive P.C.B. in the direction of arrow.	 • Remove the 2 screws (1, 2).	

Ref. No. 5	Removal of the Main P.C.B.	Ref. No. 6	Removal of the Loading Unit
Procedure 1→2→5	 1 Remove the 2 connectors (CN401, CN402) 2 Remove the 4 screws (①-④)	 1 Remove the 2 connectors (CN401, CN402). 2 Remove the 4 screws (①-④).	
Ref. No. 7	Removal of the Disc Clamper	Ref. No. 8	Removal of the Magnet Holder, Magnet and Disc Holder
Procedure 1→2→7	 • Remove the 3 screws (①-③).	 • Release the 3 claws.	
Ref. No. 9	Removal of the Servo P.C.B.	• Removal of the flexible cable  1 Remove the 2 screws (①-②). 2 Unsolder the 2 terminals of spindle motor. 3 Unsolder the 2 terminals of traverse motor.	
Procedure 1→2→6→9		 Top Flexible cable  4 Remove the flexible cable (CN701). Note: Insert a short pin into the traverse unit flexible cable.  Flexible cable Short pin	

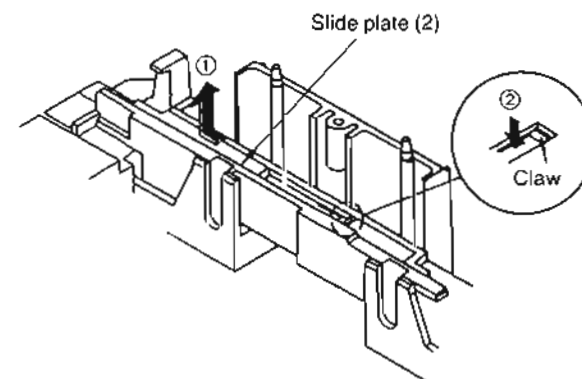
Ref. No. 10	Removal of the Guide Shaft and Guide Holder	Ref. No. 11	Removal of the Disc Tray
Procedure 1→2→6→7→ 10	 1. Remove the 3 screws (1~3). 2. Remove the guide shaft and guide holder in the direction of arrow.	Procedure 1→2→6→7→ 10→11	 1. Push the 2 levers in the direction of arrow ① until the traverse unit goes down and the disc tray slightly in the direction of arrow ②.
Ref. No. 12	Removal of the Lock Lever	 2. Remove the disc tray in the direction of arrow. ③.	
Procedure 1→2→6→7→ 10→11→12	 1. Remove the lock lever spring. 2. Release the claw in the direction of the arrow ①, and then remove the lock lever in the direction of arrow ②.		
Ref. No. 13	Removal of the Loading Motor P.C.B. and Loading Motor	 1. Remove the belt. 2. Remove the 2 screws (1, 2). 3. Remove the 1 screw (3). 4. Unsolder the 2 terminals of loading motor.	
Procedure 1→2→6→7→ 10→11→13			

Ref. No. 14	Removal of the Traverse Unit	 1. Widen the boss by using a regular screwdriver or similar object. 2. Pull out the pin.	
Procedure 1→2→6→7→ 9→10→11→14	 1. Remove the 3 pins in the direction of arrow ①		
Ref. No. 15	Removal of the Conversion Lever	 1. Remove the spring. 2. Push the claw (A) in the direction of arrow ①, and then move the slide plate (1) in the direction of arrow ②. 3. Remove the conversion lever in the direction of arrow ③.	
Procedure 1→2→6→7→ 9→10→11→ 12→14→15			
Ref. No. 17	Removal of the Slide Plate (1)	 1. Push the claw (A) in the direction of arrow ①, and then move the slide plate (1) in the direction of arrow ②. 2. Push 2 claws (B) in the direction of arrow ③, and then remove the traverse chassis.	
Procedure 1→2→6→7→ 9→10→11→ 12→14→15 →16→17	 1. Move the slide plate (1) in the direction of the arrow ①, and remove the slide plate (1) in the direction of the arrow ②.		

Ref. No. 18 Removal of the Slide Plate (2)

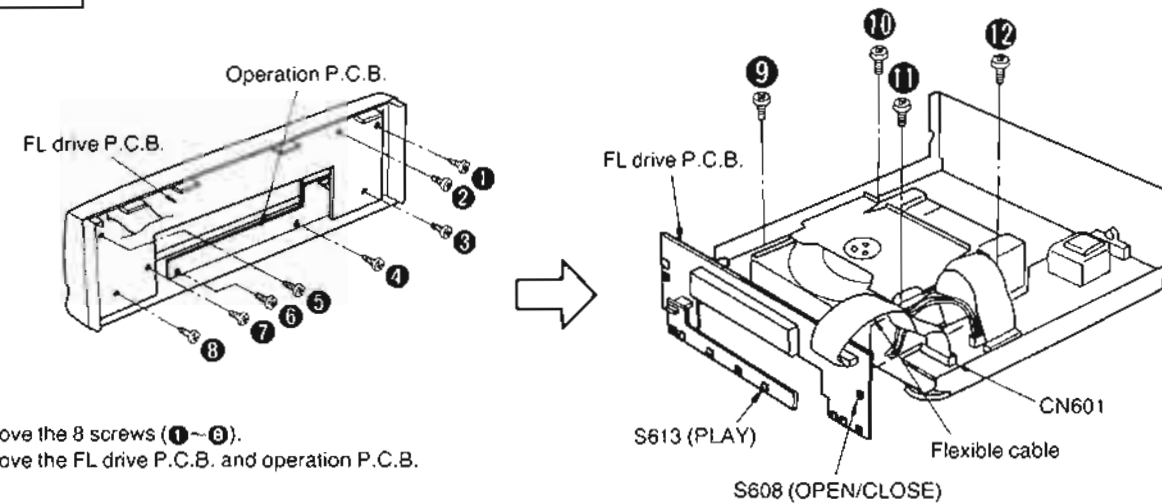
Procedure
1→2→6→7→
9→10→11→
12→14→15→
16→18

- Push the claw in the direction of the arrow ①, and remove the slide plate (2) in the direction of the arrow ②

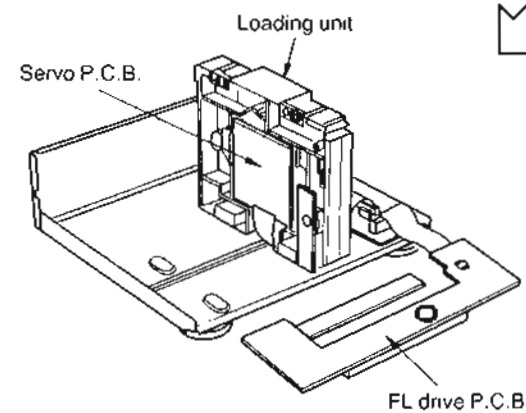


Ref. No. 19 How to check the FL Drive P.C.B. and Servo P.C.B.

Procedure
1→2→19



1. Remove the 8 screws (①~⑧).
2. Remove the FL drive P.C.B. and operation P.C.B.



3. Remove the 4 screws (⑨~⑫).
4. Connect the flexible cable to connector (CN601).

Note:
Make sure not to damage the flexible cable.

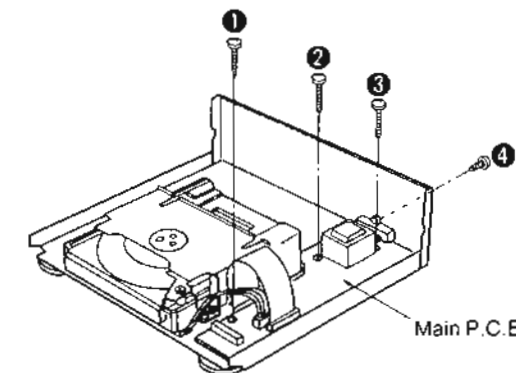
To play a disc

5. Place the loading unit sideways as shown above.
6. When checking the solder surface of the operation P.C.B. and servo P.C.B., do as shown above.
1. Push the S608 (OPEN/CLOSE) switch so that the loading unit comes up.
2. Playing the test disc on the tray. Then, push the S608 (OPEN/CLOSE) switch to set the test disc.
3. Push the S613 (PLAY) switch to start the disc play.

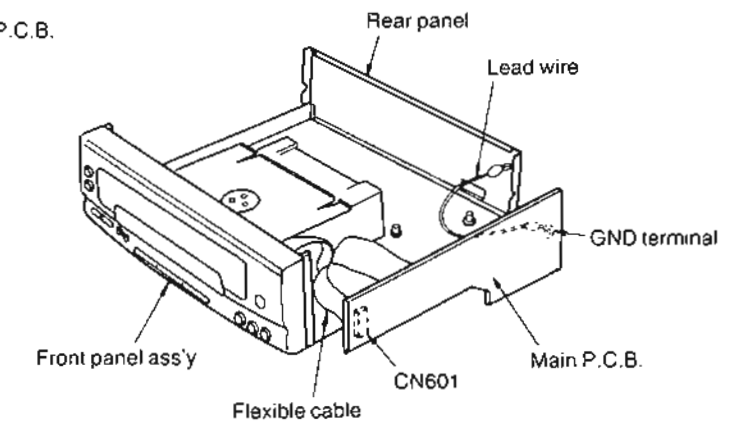
Ref. No. 20 How to check the Main P.C.B.

Procedure
1→2→20

- When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.



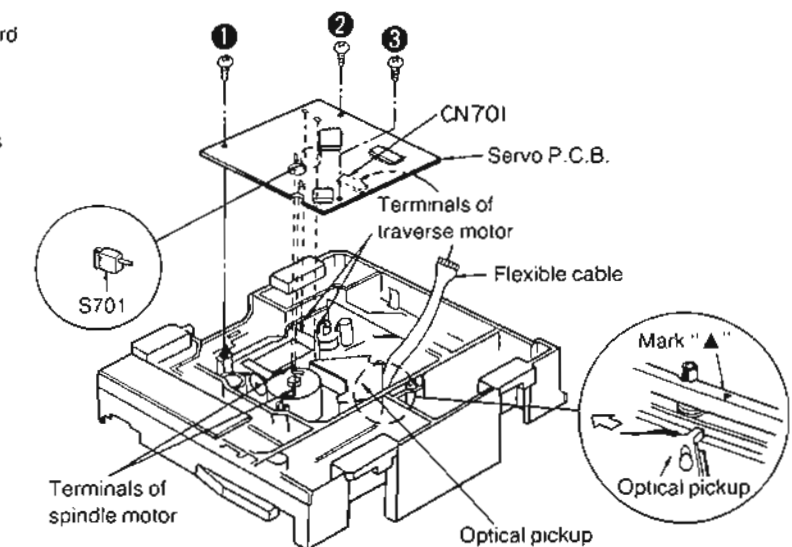
1. Remove the 4 screws (①~④).
2. Remove the main P.C.B. and then stand the main P.C.B. at the side of unit.



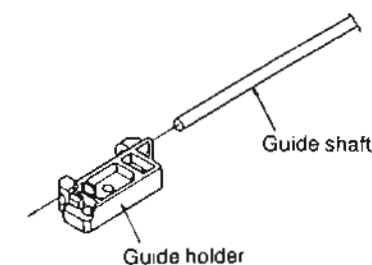
3. Reinstall the front panel ass'y to the unit and then connect the flexible cable (CN601).
4. Connect the GND terminal to the rear panel by the lead wire.

■ INSTALLING SERVO P.C.B.

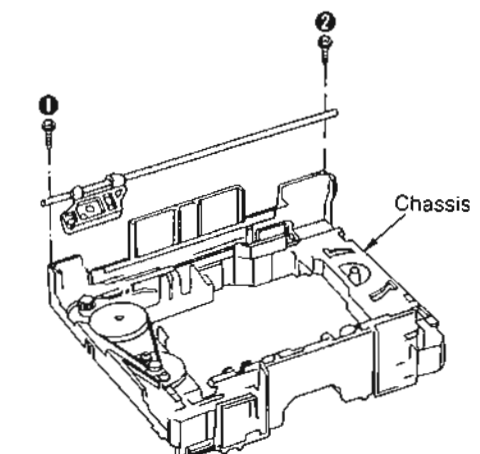
1. Before installing the servo P.C.B., move the optical pickup toward the outer edge from the mark "▲". Otherwise, the rest switch (S701) mounted on the servo P.C.B. may be damaged.
2. Connect the flexible cable to the connector (CN701).
3. Install the servo P.C.B. in the traverse unit with the three screws (①~③).
4. Solder the two terminals of the traverse motor and the two terminals of the spindle motor.



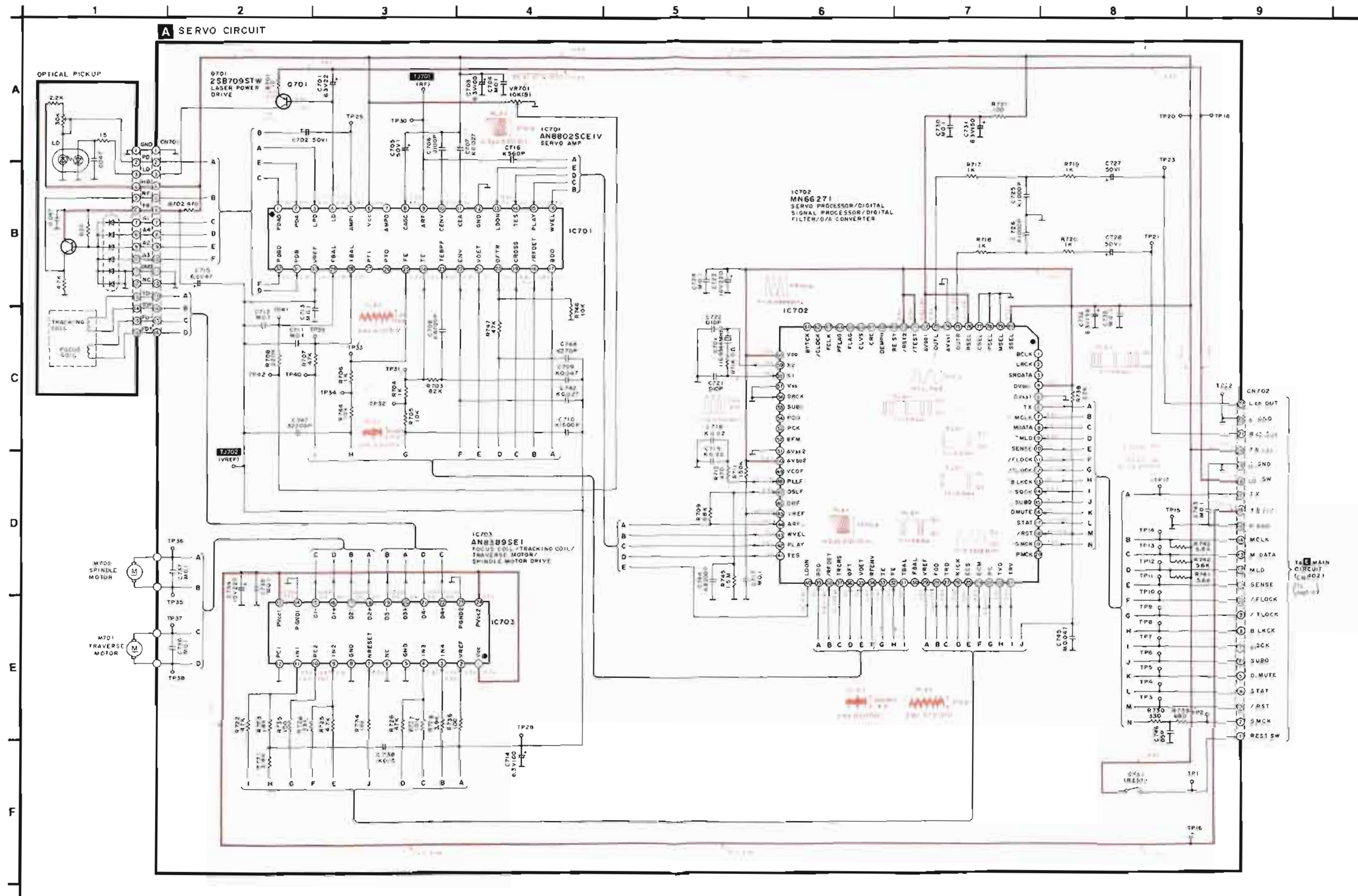
■ INSTALLING OF GUIDE SHAFT



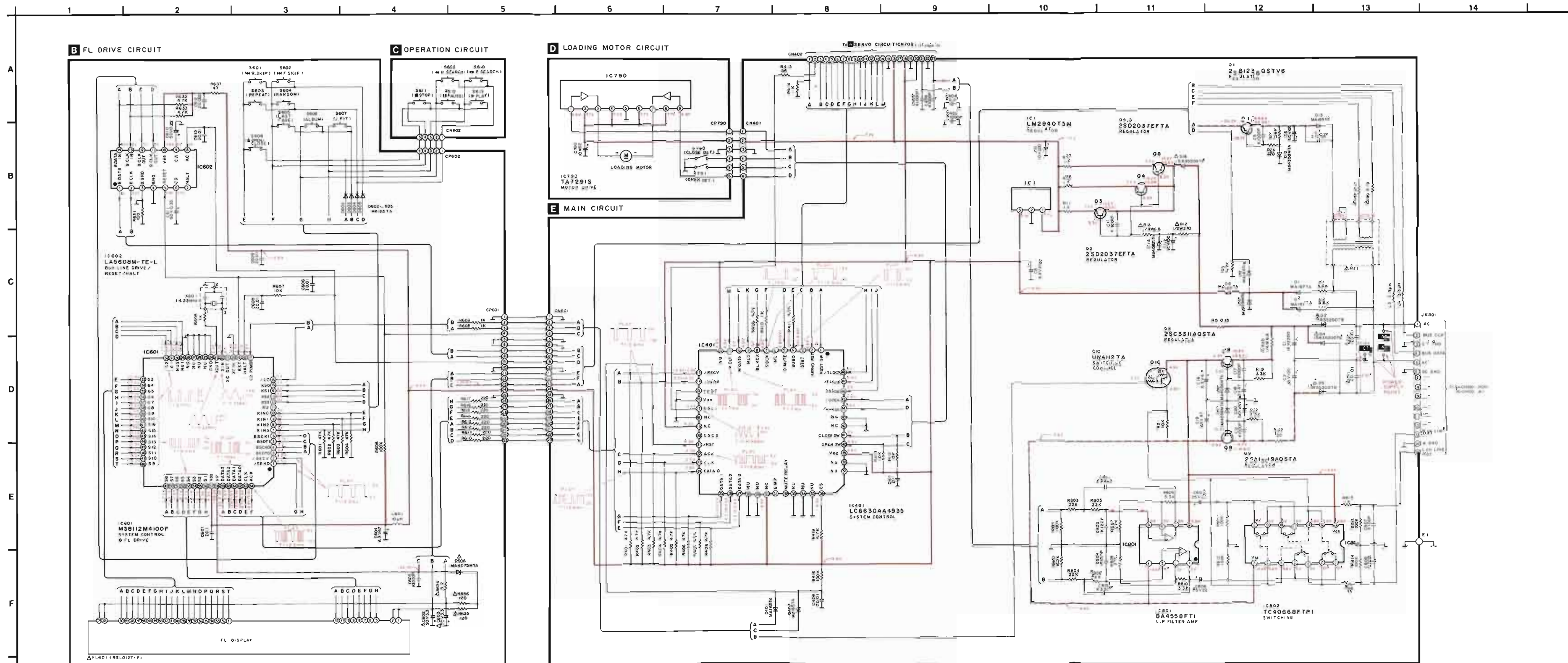
1. Insert the guide shaft into the guide holder.
2. Install the guide shaft on the chassis with the 2 screws (①, ②).



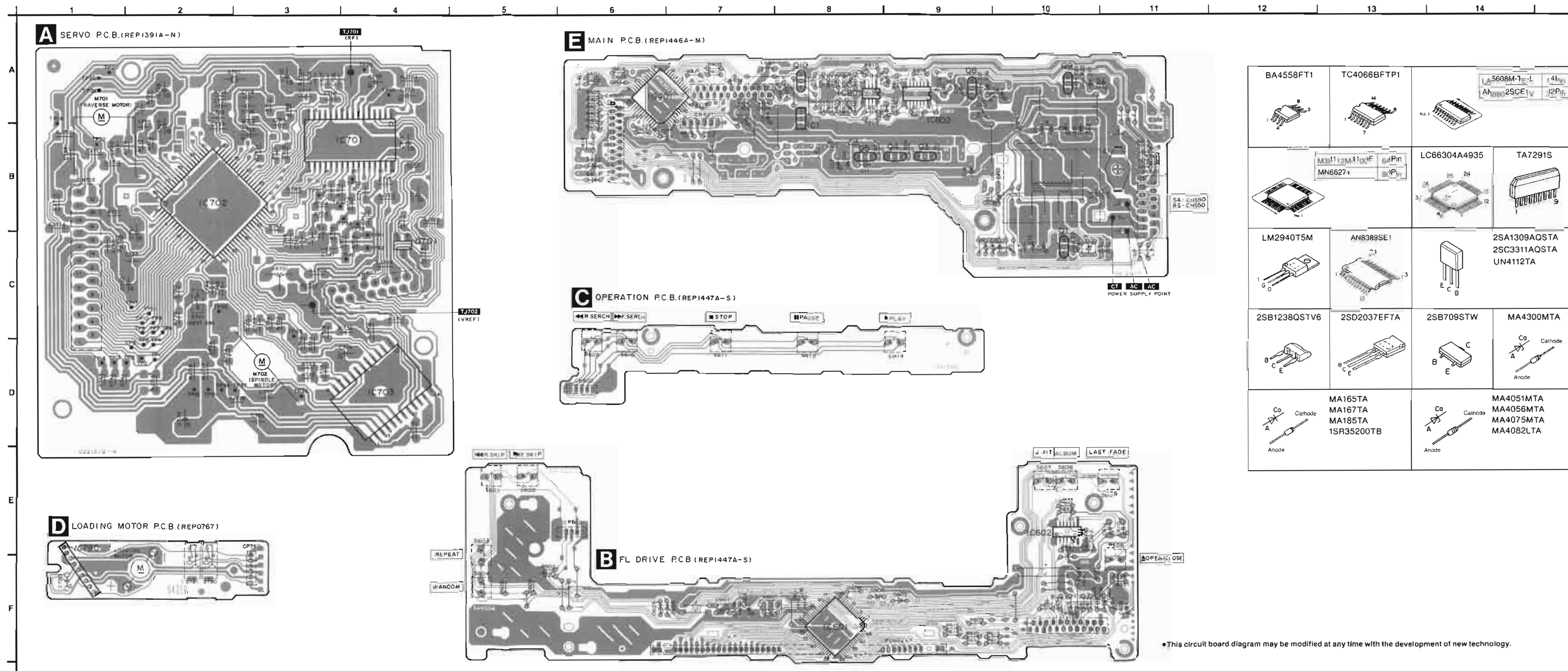
SCHEMATIC DIAGRAM • OPTICAL PICKUP AND SERVO CIRCUIT (Parts list on pages 35~38)



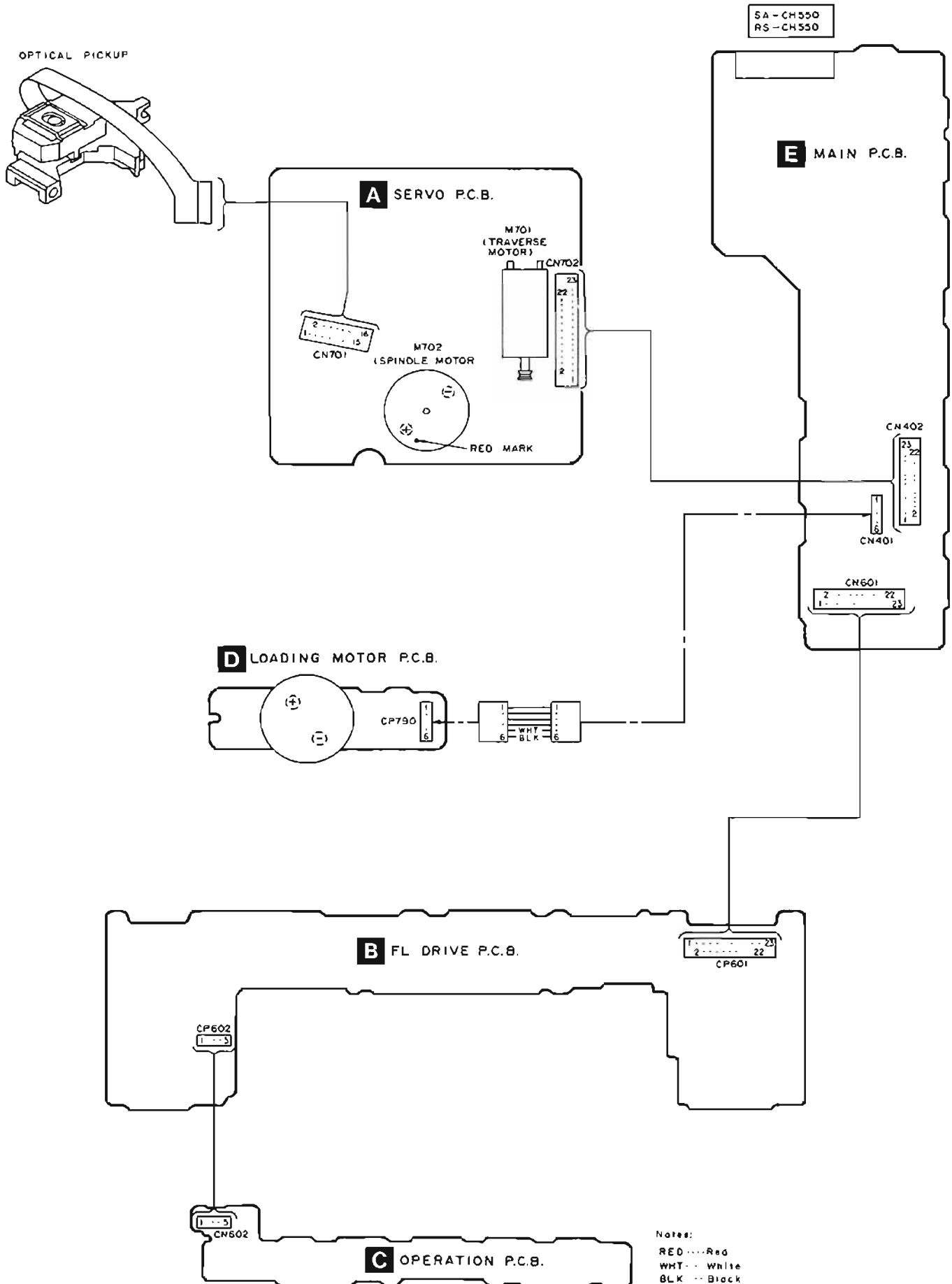
SCHEMATIC DIAGRAM • FL DRIVE, LOADING MOTOR, OPERATION AND MAIN CIRCUIT (Parts list on pages 35~38.)



■ PRINTED CIRCUIT BOARD DIAGRAM



■ WIRING CONNECTION DIAGRAM



■ NEW DIGITAL SERVO CIRCUIT

This model employs a new digital servo circuit. Compared to the old digital servo circuit, the following points have been improved.

1. **Reduced operated noise**
Loading mechanism 2-level speed reducer
2. **Reduced access time**
[(old) 2.9 seconds → (new) 1.9 seconds]
Change of traverse gear
3. **Improved vibration resistance**
Rubber and spring 2-level floating mechanism
(fo = 50 Hz (old) → 20 Hz (new))
4. **Reduced number of parts**
Use of a single super IC tip
3 chips (MN6626, MN6650, AN8800) are reduced to a single chip (MN66271)

• Refer to the service manual for Model No. SL-CH7, Order No. AD9104084C8 for information on DIGITAL SERVO SYSTEM and CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP).

■ MEASUREMENTS AND ADJUSTMENTS

Caution:

- 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-CH550) is actuated by power supply from the tuner amplifier SA-CH550.

If you wish to actuate this unit without using the tuner amplifier SA-CH550 for checking or repairing, follow below procedure.

- Apply AC 10 V between AC (J1) – CT (J3) – AC (J2).

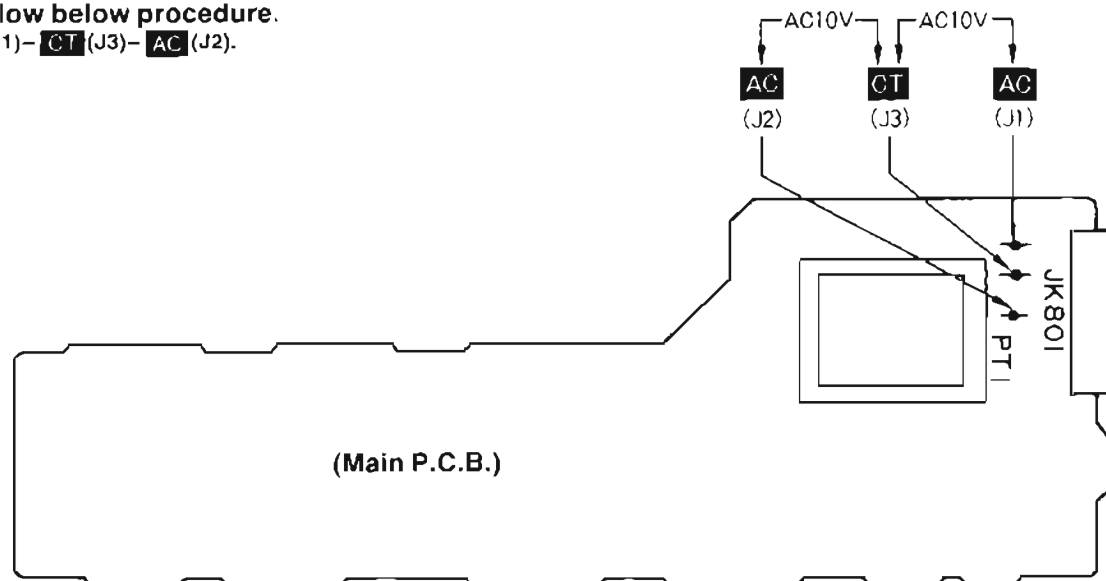


Fig. 1

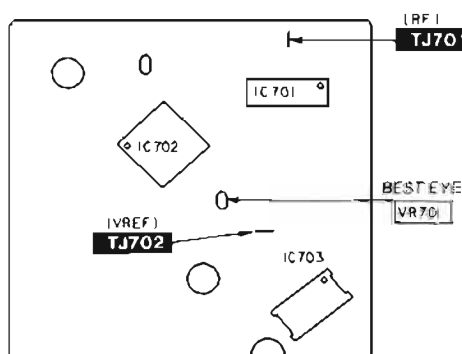


Fig. 2

Mechanical adjustment screw

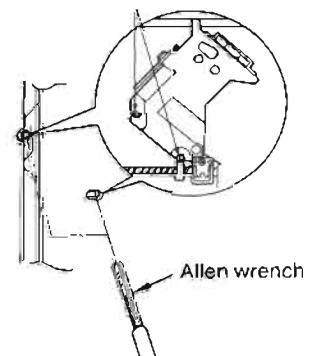


Fig. 3

Measuring Instruments and Special Tools

•Test disc

1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)

•Allen wrench (M2.0) (SZZP1101C)

•Oscilloscope

(1) MECHANICAL ADJUSTMENT

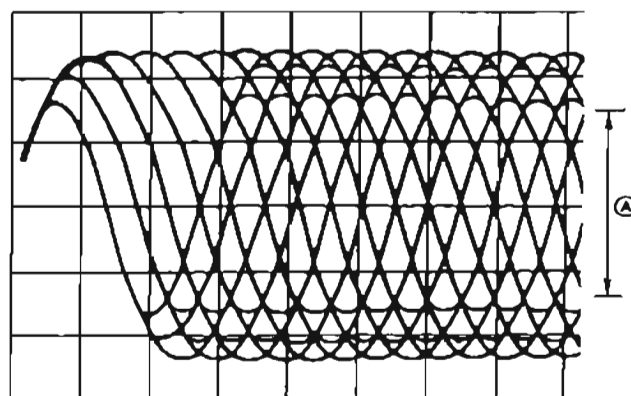
- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

1. Connect the oscilloscope's CH. 1 probe across **TJ701** (+) and **TJ702** (VREF) on the Servo P.C.B.

Oscilloscope setting:

VOLT 200 mV
 SWEEP 0.5 μ sec
 Input coupling AC

2. Switch the player power ON, and play track 19 on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the RF signal amplitude on the oscilloscope is maximize. (Shown in Fig. 3)
5. After completing the adjustment, lock the mechanical adjustments with lock paint (RZZOL01).



Ⓐ Maximize the amplitude.

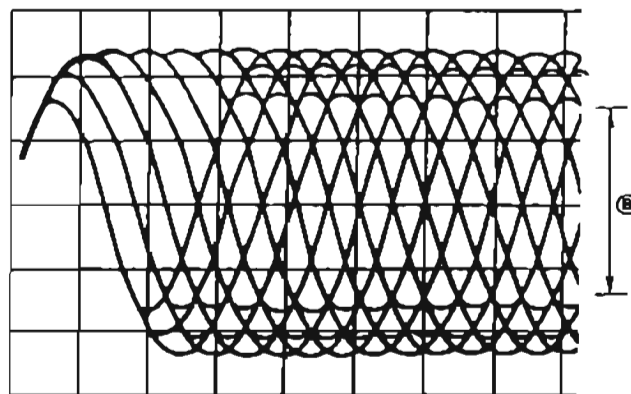
(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ701** (+) and **TJ702** (VREF) on the Servo P.C.B.

Oscilloscope setting:

VOLT 200 mV
 SWEEP 0.5 μ sec
 Input coupling AC

2. Switch the player power ON, and play the 1 kHz (track 1) on test disc (SZZP1054C).
3. Adjust **VR701** until the RF signal eye pattern amplitude is maximized. (Shown in Fig. 2)



Ⓑ Maximize the amplitude.

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

•Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

•Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

•Checking Playability

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

■ FUNCTION OF IC TERMINALS

●IC601 (M38112M4100F)

Pin No.	Terminal Name	I/O	Function
1	/SEND	O	Mechanism control communication transmission enable
2	/RECV	O	Mechanism control communication transmission enable
3	BSDTO	O	Bus data output
4	BSCO	O	Bus clock output
5	BSDTI	I	Bus data input
6	BSCI	I	Bus clock input
7	KIN3	I	Key matrix
8	KIN2	I	Key matrix
9	KIN1	I	Key matrix
10	KIN0	I	Key matrix
11	—	—	No use
12	KS3	O	Key scan strobing output
13	KS2	O	Key scan strobing output
14	KS1	O	Key scan strobing output
15	KS0	O	Key scan strobing output
16	/CD	O	CD power control
17	CD POWER	I	Station detector input
18	HALT	I	Power failure detection input
19	RST	I	Reset input
20	XC IN	—	No use
21	XCOU	—	No use
22	XIN	I	Oscillator connection clock input

Pin No.	Terminal Name	I/O	Function
23	XOUT	O	Oscillator connection clock output
24	GND	—	Power supply GND
25	—	—	No use (GND connection)
26	—		
27	—		
28	—		
29	MU1	O	Mute (for CD/TUNER)
30	MU2		
31 / 40	G1 G10	O	FLD grid output
41 / 56	S16 S1	O	FLD segment output
57	VDD	—	Power supply +5 V
58	VP	—	FLD pull-down power supply
59	DATA3	I/O	Mechanism control communication data
60	DATA2	I/O	Mechanism control communication data
61	DATA1	I/O	Mechanism control communication data
62	DATA0	I/O	Mechanism control communication data
63	CLK	I/O	Mechanism control communication clock
64	ACK	I/O	Mechanism control communication acknowledge

●IC703 (AN8389SE1)

Pin No.	Terminal Name	I/O	Function
1	Vcc	I	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	—	No connection
7	NRESET	I	Reset input
8	GND	—	Ground connection
9	IN2	I	Motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Motor driver (1) input
12	PC1	I	PC1 (power cut) input (no use, open)

Pin No.	Terminal Name	I/O	Function
13	PVCC1	I	Power supply (1) for driver
14	PGND1	—	Ground connection (1) for driver
15	D1—	O	Motor driver (1) reverse-action output
16	D1+	O	Motor driver (1) forward-action output
17	D2—	O	Motor driver (2) reverse-action output
18	D2+	O	Motor driver (2) forward-action output
19	D3—	O	Motor driver (3) reverse-action output
20	D3+	O	Motor driver (3) forward-action output
21	D4—	O	Motor driver (4) reverse-action output
22	D4+	O	Motor driver (4) forward-action output
23	PGND2	—	Ground connection (2) for driver
24	PVCC2	I	Power supply (2) for driver

■ IC701 (AN8802SCE1V)

Pin No.	Terminal Name	I/O	Function
1	PDAD	I	PD A channel signal input with delay
2	PDA	I	PD A channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	I	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	V _{cc}	I	Power supply connection
7	AMPO	O	RF amplifier output (no use, open)
8	CAGC	I	AGC loop filter connection
9	ARF	O	RF AGC output
10	CENV	I	Capacitor connection for RF detection
11	CEA	I	Capacitor connection for HPF amplifier
12	GND	—	Ground connection
13	LDON	I	ON/OFF input of LD APC ("H": ON, "L": OFF)
14	TES	I	Tracking error shunt signal input ("H": shunt)
15	PLAY	I	Play signal input ("H": PLAY)
16	WVEL	I	WVEL control
17	BDO	O	BDO output
18	/RFDET	O	NRFDDET output
19	CROSS	O	CROSS output
20	OFTR	O	OFTR output
21	VDET	O	VDET output
22	ENV	O	ENV output
23	TEBPF	I	Vibration detection input
24	TE	O	Tracking error output
25	FE	O	Focus error output
26	PTO	O	Potential amplifier output (no use, open)
27	PTI	I	Potential amplifier inversion input (no use, open)
28	TBAL	I	Tracking balance input
29	FBAL	I	Focus balance input
30	VREF	O	VREF output
31	PDB	I	PD B channel signal input without delay
32	POBD	I	PD B channel signal input with delay

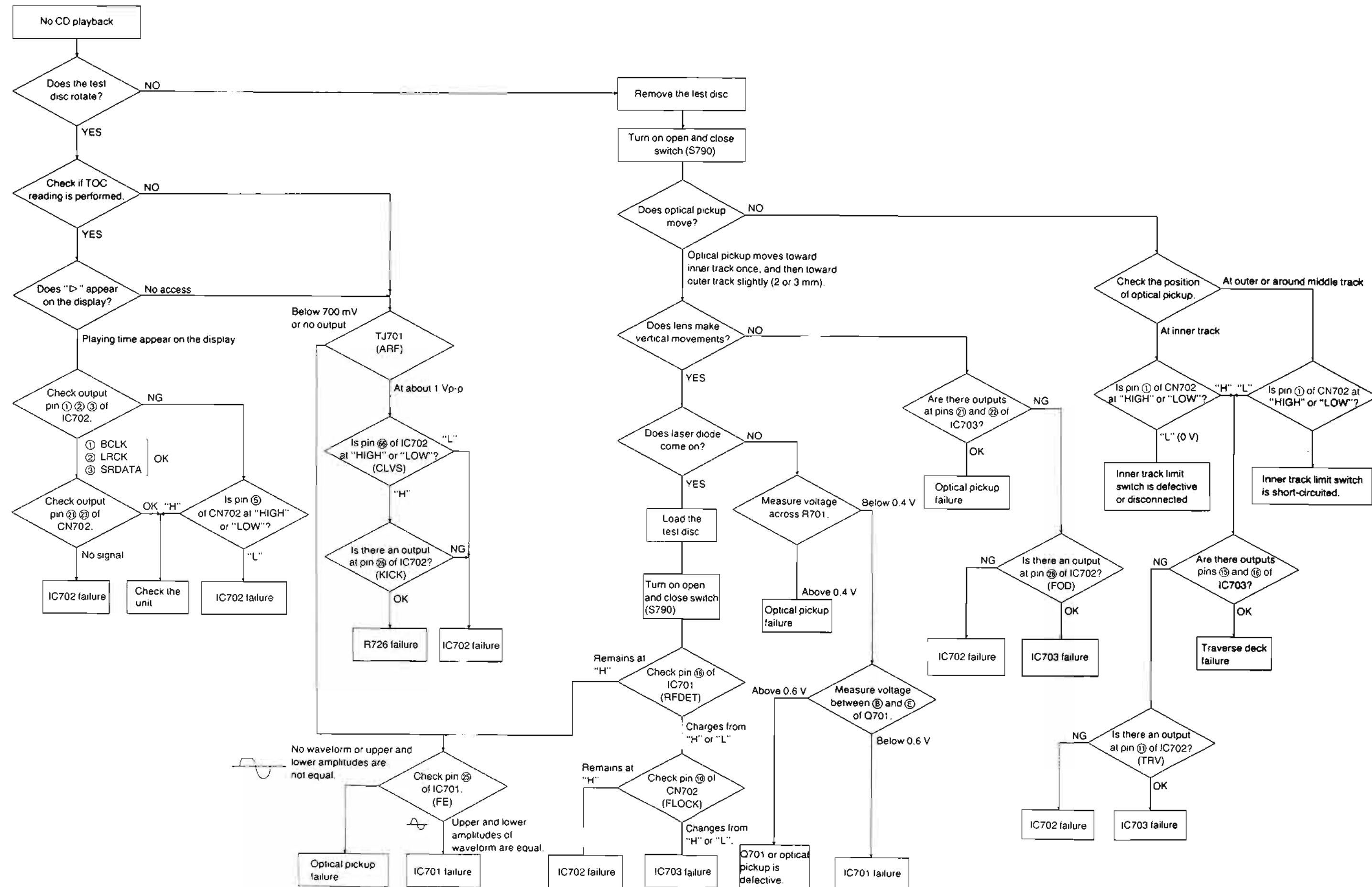
■ IC702 (MN66271)

Pin No.	Terminal Name	I/O	Function
1	BCLK	O	Bit clock output for serial data (no used, open)
2	LRCK	O	L/R identification signal output (no use, open)
3	SRDATA	O	Serial data output (no used, open)
4	DV _{cc} 1	I	Power supply input (for digital circuit)
5	DV _{ss} 1	—	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 register
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 input
19	SMCK	O	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)
20	PMCK	O	1/192-divided clock signal of crystal oscillating (fPMCK=88.2 KHz) (no use, 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

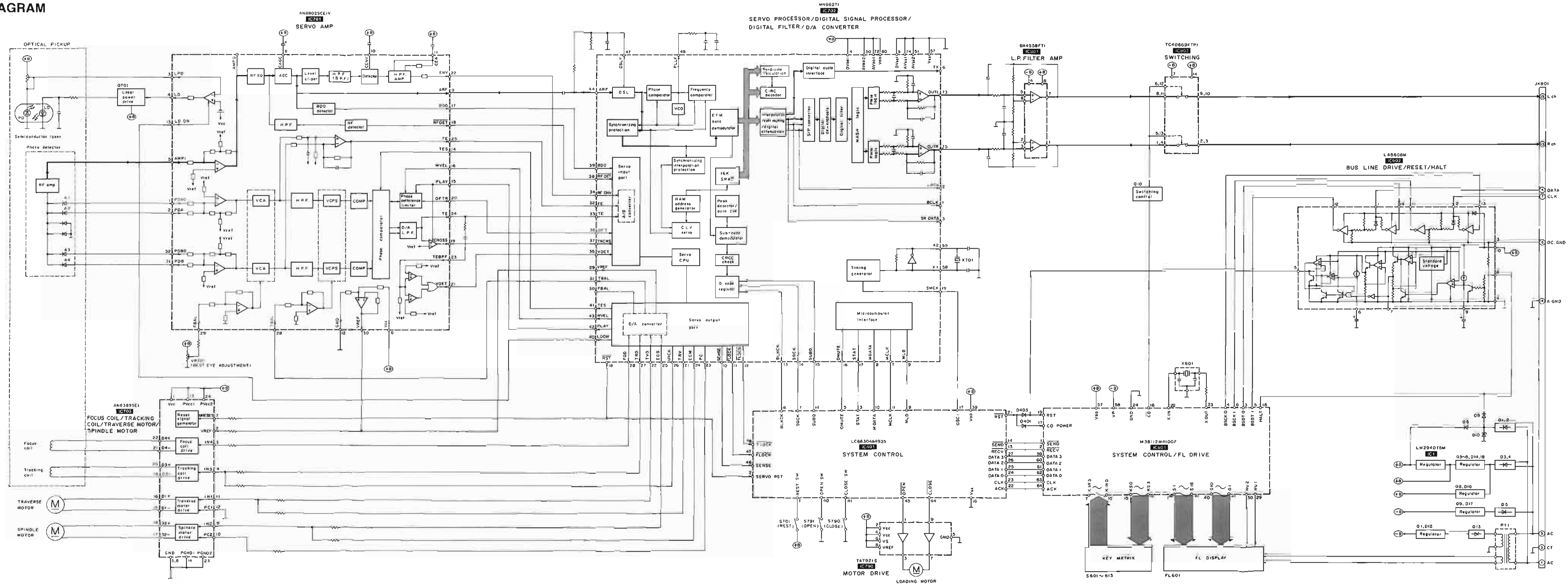
Pin No.	Terminal Name	I/O	Function
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) Reference voltage input
30	FBAL	O	Focus balance adjustment output (no use, open)
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)
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)
43	WVEL	O	Double speed status signal output ("H": Double speed)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias (no use, open)
47	DSLFI	I/O	DSL loop filter
48	PLLFI	I/O	PLL loop filter
49	VCOFI	I/O	VCO loop filter (no use, open)
50	AVDD2	I	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	O	EFM signal output (no use, open)
53	PCK	O	PLL extraction clock output (fPCK=4.321 MHz during normal playback) (no use, open)
54	PDO	O	Phase comparison signal of EFM and PCK signals (no use, open)
55	SUBC	O	Sub-code serial data output (no use, open)
56	SBCK	I	Clock input for sub-code serial data (no use, open)
57	V _{ss}	—	GND
58	X1	I	Crystal oscillating circuit input (f=16.9344 MHz)
59	X2	O	Crystal oscillating circuit output (f=16.9344 MHz)
60	VDO	I	Power supply input (for oscillating circuit)
61	BYTCK	O	Byte clock output (no use, open)

Pin No.	Terminal Name	I/O	Function
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK=7.35 kHz during normal playback)
63	FCLK	O	Crystal frame clock signal output (fFCLK=7.35 kHz, double=14.7 kHz)
64	PFLAG	O	Interpolation flag output ("H": Interpolation) (no use, open)
65	FLAG	O	Flage output (no use, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (no use, open)
67	CRC	O	Sub-code CRC checked output ("H": OK, "L": NG) (no use, open)
68	DEMPH	O	De-emphasis ON signal output ("H": ON) (no use, open)
69	RESY	O	Frame resynchronizing signal output (no use, open)
70	/RST2	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input
72	AVDD1	I	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") (no use, open)
79	MSEL	I	Output frequency switching for SMCK terminal "H": SMCK=8.4672 MHz "L": SMCK=4.2336 MHz (no use, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H": Q code buffer mode)

■ 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 manufacturer's specified parts shown in the parts list.

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

Parts without these indications can be used for all areas.

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

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)				VARIABLE RESISTOR(S)	
						(SERVO SCHEMATIC DIAGRAM)	
IC1	LM2940T5	I. C. REGULATOR		VR701	EVNDXAA00B14	V. R. BEST EYE ADJ.	
IC401	LC66304A4935	I. C. SYSTEM CONTROL				COIL(S)	
IC601	M38112M4100F	I. C. FL. DRIVE/SYSTEM CONT.					
IC602	LAS608M-TL-1	I. C. BUS LINE/ALUT/RESET					
IC790	TA7291S	I. C. MOTOR DRIVE					
IC801	SV1BA4552F	I. C. L. P. F. AMP.		L3.4	ELEXT3R3KA9	COIL	
IC802	TC4066BP1	I. C. SWITCHING		L601	ELEXT100KA9	COIL	
		INTEGRATED CIRCUIT(S)				OSCILLATOR(S)	
		(SERVO SCHEMATIC DIAGRAM)					
IC701	AN8802SCE1V	I. C. SERVO AMP.		X601	RSXY4M23M01T	OSCILLATOR	
IC702	MN66271	I. C. SERVO PROCESSOR				OSCILLATOR(S)	
IC703	AN8389SE1	I. C. MOTOR DRIVE				(SERVO SCHEMATIC DIAGRAM)	
		TRANSISTOR(S)		X701	BSX21M9M02T	OSCILLATOR	
Q1	2SB123AQ5V6	TRANSISTOR				DISPLAY	
Q3-5	2SD2037EFLA	TRANSISTOR		FL601	BS10121-F	FL. DISPLAY	Δ
Q8	2SC3111A-Q	TRANSISTOR				SWITCH(ES)	
Q9	2SA1309A-R	TRANSISTOR					
Q10	UN4112	TRANSISTOR		S601	EVQ21405H	SW. R. SLEEP	
		TRANSISTOR(S)		S602	EVQ21405H	SW. F. SLEEP	
		(SERVO SCHEMATIC DIAGRAM)		S603	EVQ21405R	SW. REPEAT	
Q701	2SB709S	TRANSISTOR		S604	EVQ21405H	SW. RANDOM	
		DIODE(S)		S605	EVQ21405R	SW. LAST FADE	
D1.2	MA167	DIODE		S606	EVQ21405R	SW. ALBUM	
D3-5	1SR35200TB	DIODE	Δ	S607	EVQ21405H	SW. J. FIT	
D6	MA165	DIODE		S608	EVQ21405R	SW. OPEN/CLOSE	
D8	MA165	DIODE		S609	EVQ21405R	SW. R. SEARCH	
D10	MA4051MTA	DIODE		S610	EVQ21405R	SW. F. SEARCH	
D12	MA4310UM	DIODE		S611	EVQ21405R	SW. STOP	
D13	MA185TA	DIODE		S612	EVQ21405R	SW. PAUSE	
D14	MA4082LTA	DIODE		S613	EVQ21405H	SW. PLAY	
D16.17	MA4056MTA	DIODE		S790	RSH1A005	SW. LOADING CLOSE DETECT	
D18	1SR35200TB	DIODE	Δ	S791	RSH1A005	SW. LOADING OPEN DETECT	
D401	MA165	DIODE				SWITCH(ES)	
D403	MA165	DIODE				(SERVO SCHEMATIC DIAGRAM)	
D602-G05	MA165	DIODE		S701	RSM0006-P	SW. REST	
D606	MA4075MTA	DIODE					

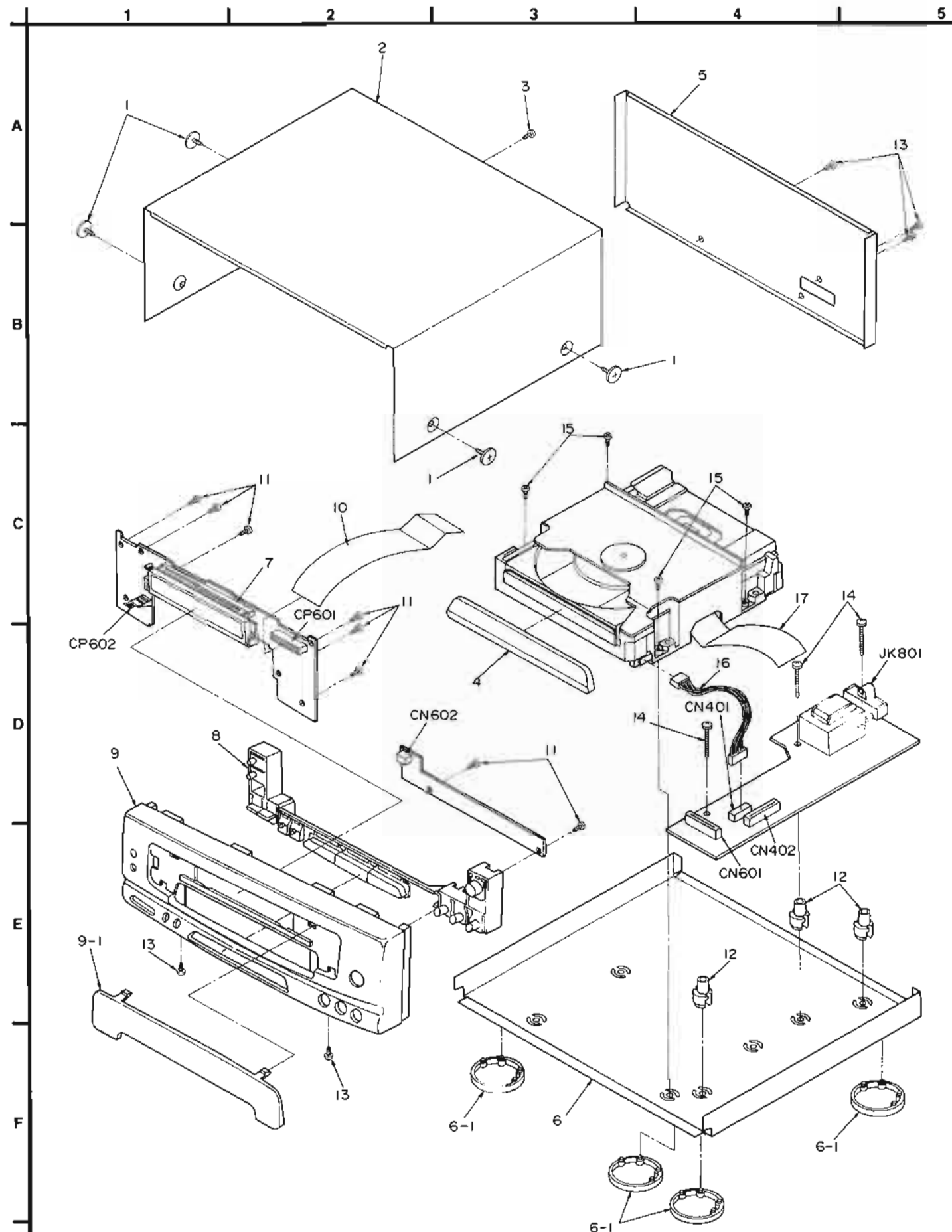
Ref. No.	Part No.	Part Name & Description	Remarks				
		CONNECTOR(S)					
CN401	RJT029W06VT	CONNECTOR(6P)					
CN402	RJS1A6823	SOCKET(23P)					
CN601	RJS1A6823	SOCKET(23P)					
CN602	SJS5058188	SOCKET(5P)					
CP601	RJS1A6823	SOCKET(23P)					
CP602	SJT305498B1	CONNECTOR(5P)					
CP790	RJP6G172A	CONNECTOR(6P)					
		CONNECTOR(S)					
		(SERVO SCHEMATIC DIAGRAM)					
CN701	RJU035TD16-1	SOCKET(16P)					
CN702	RJS1A6723-1Q	SOCKET(23P)					
		EARTH TERMINAL(S)					
E1	SME1004-1	GND PLATE					
		TRANSFORMER(S)					
PT1	RTP114G003	POWER TRANSFORMER	Δ				
		JACK(S)					
JK803	RJT085K15	CONNECTOR(15P)					
		TEST JUMPER(S)					
		(SERVO SCHEMATIC DIAGRAM)					
TJ701	RRJ8GET001H	TEST JUMPER					
TJ702	RRJ8GET001H	TEST JUMPER					

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, K=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						
R1, 2	ERDS2TJ562	1/4W 5.6K	R702	ERJ6GEYJ471V	1/10W 470	RJ716	ERJ8GEYOR00A	1/10W 0
R3	ERDS2TJ472	1/4W 4.7K	R703	ERJ6GEYJ823	1/10W 82K	RJ717	ERJ8GEYOR00A	1/10W 0
R5	ERJ8GNWR15E	1W 0.15	R704	ERJ6GEYJ102A	1/10W 1K	RJ721	ERJ8GEYOR00A	1/10W 0
R7	ERDS2TJ562	1/4W 5.6K	R705	ERJ6GEYJ103V	1/10W 10K	RJ722	ERJ8GEYOR00A	1/10W 0
R8	ERDS2TJ8R2T	1/4W 8.2 Δ	R706	ERJ6GEYJ102A	1/10W 1K	RJ724	ERJ8GEYOR00A	1/10W 0
R9	ERDS2TJ6R8	1/4W 6.8 Δ	R707	ERJ6GEYJ473V	1/10W 47K	RJ725	ERJ8GEYOR00A	1/10W 0
R11	ERDS2TJ1R2	1/4W 1.2	R708	ERJ6GEYJ224V	1/10W 220K	RJ726	ERJ8GEYOR00A	1/10W 0
R12	ERDS1FVJ271T	1/2W 270 Δ	R709	ERJ6GEYJ687V	1/10W 68K			CAPACITORS
R13	ERD2FCVJ6R8T	1/4W 6.8 Δ	R711	ERJ6GEYJ154V	1/10W 150K			
R19	ERDS2TJ332	1/4W 3.3K	R712	ERJ6GEYJ471V	1/10W 470			
R20	ERD2FCVJ6R8T	1/4W 6.8 Δ	R714	ERJ6GEYOR00A	1/10W 0.00			
R21	ERDS2TJ103	1/4W 10K	R717-720	ERJ6GEYJ102A	1/10W 1K			
R22	ERDS2TJ332	1/4W 3.3K	R721	ERJ8GEYJ101V	1/8W 100			
R23	ERDS2TJ121	1/4W 120	R722	ERJ6GEYJ473V	1/10W 47K			
R24	ERDS2TJ471	1/4W 470	R723	ERJ6GEYJ182V	1/10W 1.8K			
R26, 27	ERDS2TJ1R2	1/4W 1.2	R724	ERJ6GEYJ333V	1/10W 33K			
R401-403	ERDS2TJ472	1/4W 4.7K	R725	ERJ6GEYJ472V	1/10W 4.7K			
R410	ERDS2TJ102	1/4W 10K	R726	ERJ6GEYJ473V	1/10W 47K			
R411	ERDS2TJ472	1/4W 4.7K	R727	ERJ6GEYJ103V	1/10W 10K			
R412, 413	ERDS2TJ103	1/4W 10K	R728	ERJ6GEYJ392V	1/10W 3.9K			
R414	ERDS2TJ102	1/4W 10K	R730	ERJ6GEYJ331V	1/10W 330			
R415	ERDS2TJ360T	1/4W 56	R731	ERJ6GEYJ392V	1/10W 3.9K			
R416	ERDS2TJ104	1/4W 100K	R734-736	ERJ6GEYJ101V	1/10W 100			
R419	ERDS2TJ472	1/4W 4.7K	R738	ERJ6GEYJ223V	1/10W 22K			
R601-604	ERDS2TJ473	1/4W 47K	R739	ERJ6GEYJ681V	1/10W 680			
R605	ERDS2TJ102	1/4W 10K	R741-743	ERJ6GEYJ562V	1/10W 5.6K			
R606	ERDS2TJ104	1/4W 100K	R744	ERJ6GEYJ103V	1/10W 10K			
R607	ERDS2TJ103	1/4W 10K	R745	ERJ6GEYJ153V	1/10W 1.5K			
R608, 609	ERDS2TJ102	1/4W 10K	R746	ERJ6GEYJ103V	1/8W 10K			
R610-617	ERDS2TJ221	1/4W 220	R747	ERJ6GEYJ473V	1/10W 47K			
R631	ERDS2TJ101	1/4W 100			CHIP JUMPERS			
R632, 633	ERDS2TJ472	1/4W 4.7K			SERVO SCHEMATIC DIAGRAM			
R634	ERDS2TJ8R2T	1/4W 8.2 Δ	RJ701	ERJ8GEYOR00A	1/10W 0			
R635, 636	ERDS2TJ121	1/4W 120	RJ702	ERJ8GEYOR00A	1/10W 0			
R637	ERDS2TJ470	1/4W 47	RJ703	ERJ8GEYOR00A	1/10W 0			
R801, 802	ERDS2TJ104	1/4W 100K	RJ704	ERJ8GEYOR00A	1/10W 0			
R803, 806	ERDS2TJ223	1/4W 22K	RJ705	ERJ8GEYOR00A	1/10W 0			
R807, 808	ERDS2TJ273	1/4W 27K	RJ706	ERJ8GEYOR00A	1/10W 0			
R809, 810	ERDS2TJ332	1/4W 3.3K	RJ707	ERJ8GEYOR00A	1/10W 0			
R811-814	ERDS2TJ104	1/4W 100K	RJ708	ERJ8GEYOR00A	1/10W 0			
R815, 816	ERDS2TJ102	1/4W 10K	RJ709	ERJ8GEYOR00A	1/10W 0			
		RESISTORS	RJ710	ERJ8GEYOR00A	1/10W 0			
		SERVO SCHEMATIC DIAGRAM	RJ711	ERJ8GEYOR00A	1/10W 0			
			RJ712	ERJ8GEYOR00A	1/10W 0			
			RJ713	ERJ8GEYOR00A	1/10W 0			
			RJ714	ERJ8GEYOR00A	1/10W 0			
R701	ERJ6GEYJ100	1/10W 10	RJ715	ERJ8GEYOR00A	1/10W 0			

Ref. No.	Part No.	Values & Remarks						
C701	ECEA0JKA220	6.3V 220						
C702	ECEA1HK40101	50V 100						
C703	ECEA0JKA1011	6.3V 1000						
C704	ECU21E104MBN	25V 0.10						
C705	ECEA1HK40101	50V 100						
C706	ECUE1H1013CN	50V 100P						
C707	ECU21E273KBN	25V 0.0270						
C708	ECUE1H472KBN	50V 4700P						
C709	ECUE1C473KBN	16V 0.0470						
C710	ECUE1H152NBN	50V 1500P						
C711, 712	ECU21E104MBN	25V 0.10						
C713	ECU21C104MBM	16V 0.10						
C714	ECEA0JKA1011	6.3V 1000						
C715	ECEA0JKA4701	6.3V 470						
C716	ECUE1H561KBN	50V 500P						
C717	ECU21E104MBN	25V 0.10						
C718, 719	ECU21C224KBN	16V 0.220						
C721, 722	ECUE1H1000CN	50V 100P						
C723	ECEA1KA2211	10V 2200						
C724	ECU21C104MBM	16V 0.10						
C725, 726	ECUE1H102NBN	50V 1000P						
C727, 728	ECEA1HK40101	50V 100						
C730	ECU21E104MBN	25V 0.10						
C731, 732	ECEA0JKA4701	6.3V 470						
C733	ECU21E104MBN	25V 0.10						
C734	ECEA1KA2211	10V 2200						
C735, 737	ECU21E104MBN	25V 0.10						
C738	ECU21C154KBN	16V 0.150						
C742	ECU21E273KBN	25V 0.0270						
C743	ECU21E104MBN	25V 0.10						
C744	ECUE1H472KBN	50V 8200P						
C745	ECUE1C473KBN	16V 0.0470						
C746	ECUE1H1500CN	50V 1500P						
C747	ECUE1H222KBN	50V 2200P						
C748	ECU21H271KBN	50V 270P						

CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS					
1	PHD00007	SCREW					
2	RKMD203-1K	CABINET					
3	XTBS3-8JFZ1	SCREW					
4	RKMD478-K	TRAY PANEL					
5	RKMD146A-C	REAR PANEL					
6	HFJLCH550NK	BOTTOM BOARD ASS'Y					
6-1	RKMD55-N	FOOT					
7	RKMD182-1	FL HOLDER					
8	HCU0761-K	OPERATION BUTTON					
8	HFJLCH550NK	FRONT PANEL ASS'Y					
9-1	RKMD222-K	FL PANEL					
10	RKJG42310DEE	FLEXIBLE CABLE (23P)					
11	XTBS25-B1	SCREW					
12	SHE185-2	P.C.B. SPACER					
13	XTBS3-8JFZ1	SCREW					
14	XTBS3-16JFZ	SCREW					
15	XTBS3-8JFZ	SCREW					
16	HEX0354	LEAD CABLE (6P)					
17	HE2053	FLEXIBLE CABLE (23P)					

LOADING UNIT PARTS LOCATION

Ref.No.	Part No.	Part Name & Description	Remarks
		LOADING PARTS	
101	RFKJLPG440BK	CHASSIS ASS'Y	
101A	RDG0142	LOADING GEAR	
101B	RDG0193	LOADING GEAR(1)	
101C	RDP0041	PULLEY	
102	REM0019	MOTOR ASS'Y	
103	RMN0339	HOLDER	
104	RMD0063	LOCK LEVER SPRING	
105	RMD0087	SPRING	
106	RMG0158	BELT	
107	RML0177	CONVERSION LEVER	
108	RML0178-1	LOCK LEVER	
109	RMN0059-1	SLIDE PLATE(2)	
110	RMN0074	SLIDE PLATE(1)	
111	XTN25-6G	SCREW	
112	XYN2-F6FZ	SCREW	
113	RDR0036	GUIDE HOLDER	
114	RHD20010	SCREW	
115	RMN0046	GUIDE SHAFT	
116	RMD452A	MAGNET	
117	RMN0327-1	DISC CLAMPER	
118	RMN0334	MAGNET HOLDER	
119	RXQ0123	DISC HOLDER	
120	RFRNLP6440-B	DRIVE RACK ASS'Y	
121	RQGH088-K	DISC TRAY	
122	RHD20009-1	SCREW	
123	XTB3-25GFZ	SCREW	
124	XTN20-6G	SCREW	
125	XTN3-8JFZ	SCREW	
126	RAEU1112	TRAVERSE UNIT ASS'Y	
126A	SHGD112	RUBBER(A)	
126B	SHGD113-1	RUBBER(B)	
126C	RDP0023	BELT	
126D	SNSD38	SCREW	
127	RMD109	SPRING	
128	RMS0123-1	PIN(A)	
129	RMS0350	PIN(B)	
130	RMN0533-K	TRAVERSE CHASSIS	
131	XTV2-6G	SCREW	

