

# Service Manual

**COMPACT  
DISC**  
DIGITAL AUDIO

**DIGITAL**

**MASH\***  
multi-stage noise shaping

Compact Disc Player  
**SL-PG300**



**Color**

(K)... Black Type

**Area**

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

## MECHANISM SERIES (SODD110Z)

## SPECIFICATIONS

**■ Audio**

No. of channels	2 (left and right, stereo)
Frequency response	2–20,000 Hz, ±1 dB
Output voltage	2 V (at 0 dB)
Dynamic range	92 dB
S/N ratio	100 dB
Total harmonic distortion	0.007% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	MASH (1 bit)
Output impedance	Approx. 1 kΩ
Load impedance	More than 10 kΩ
Headphone output level	15 mW max. 32Ω (adjustable)

- \* • 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.

**■ Pickup**

**Wavelength** 780 nm

**■ General**

**Power supply**  
For Continental Europe and Australia AC 50/60 Hz, 230–240 V  
For Others AC 50/60 Hz, 110 V/127 V/220 V/240 V

**Power consumption**

For Continental Europe and Australia 13 W  
For Others 12 W

**Dimensions (W×H×D)** 430×102.6×286.9 mm  
**Weight** 3.4 kg

**Note:**

Specifications subject to change without notice.  
Weight and dimensions shown are approximate.

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# Technics

## ■ ACCESSORIES

•AC power supply cord . . . . . 1 pc.	•Stereo connection cable . . . . . 1 pc.	•Remote control transmitter . . . . . 1 pc.	•Batteries . . . . . 2 pcs.
(SFDAC05E03) . . . . . (E)	cable . . . . . (SJP2249-3)	(RAK-SL304W) . . . . . (UM-4NE/2S)	
(RJA0004) . . . . . (GC)			
(SJA173) . . . . . (GN)			

• AC plug adaptor . . . . . 1 pc.  
(SJP9215) For (GC) area only

## ■ CONNECTIONS

Turn power off on all components before making connections.

### • Optical output terminal (DIGITAL OUT/OPTICAL)

This terminal can be used for connection with other equipment that has a digital input terminal, such as an amplifier, by using an optical cable (not included). A dust-protection cap is inserted in this terminal. Remove this cap only when a connection is to be made to this terminal.

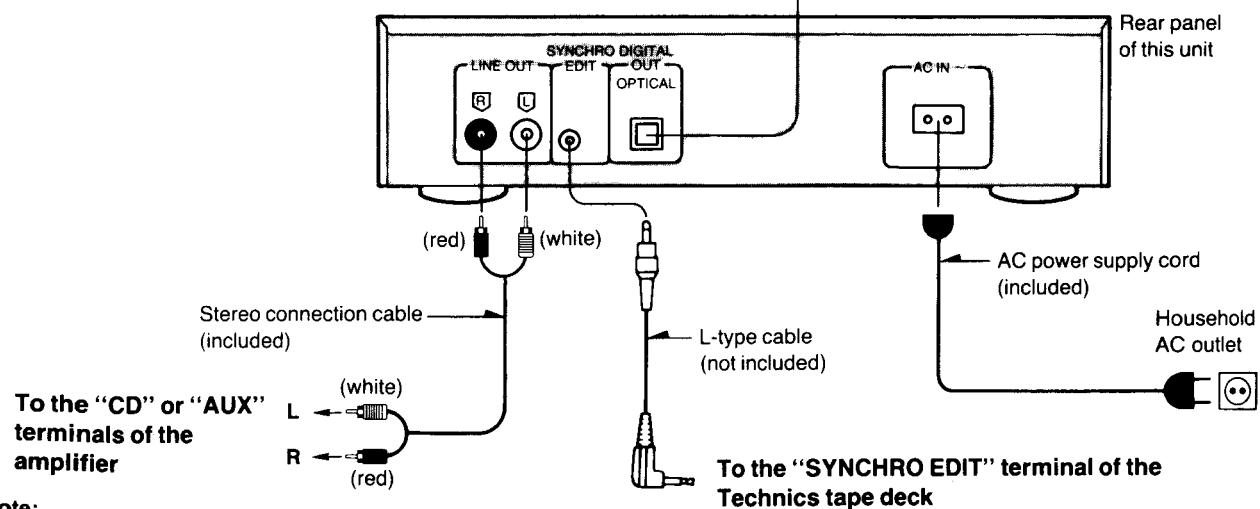
#### Note:

When the unit is working with digital output, the following functions do not work;

- Time fade function
- Fade-out function

#### Note:

The configuration of the AC outlet and AC power supply cord differs according to area.



#### Note:

Be sure to connect the stereo connection cable with the amplifier when using the synchro edit function even if the optical cable has been connected.

## ■ 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: 780nm

Maximum output radiation power from pick up: 100μW/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 laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

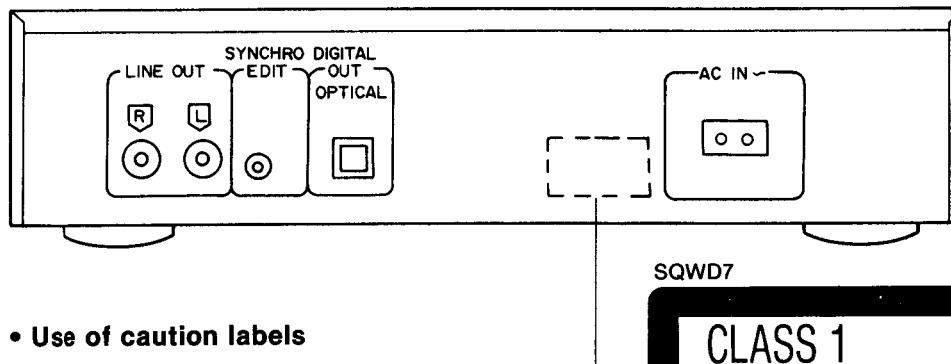
Wellenlänge: 780nm

Maximale strahlungsleistung der lasereinheit: 100μW/VDE

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

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den 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.

**ADVARSEL:** I dette a apparat anvendes laser.



RQLS0051



### • Use of caution labels

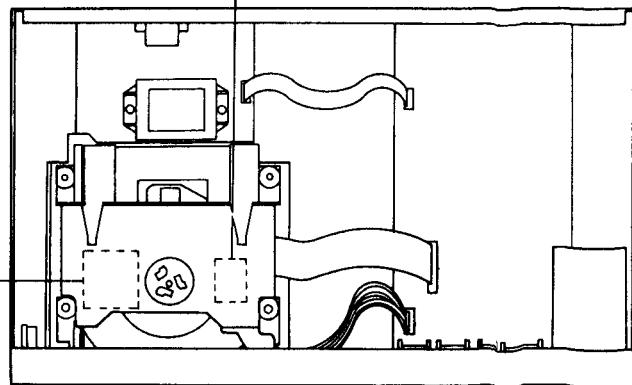
Note: ○ Mark is used, × Mark is not used.

Areas	SQWD7	RQLS0021	RQLS0051
(E)	○	○	○
Others	○	○	×

Obs:  
Apparaten innehåller laser  
Komponent av höger laserklass  
än klass 1.

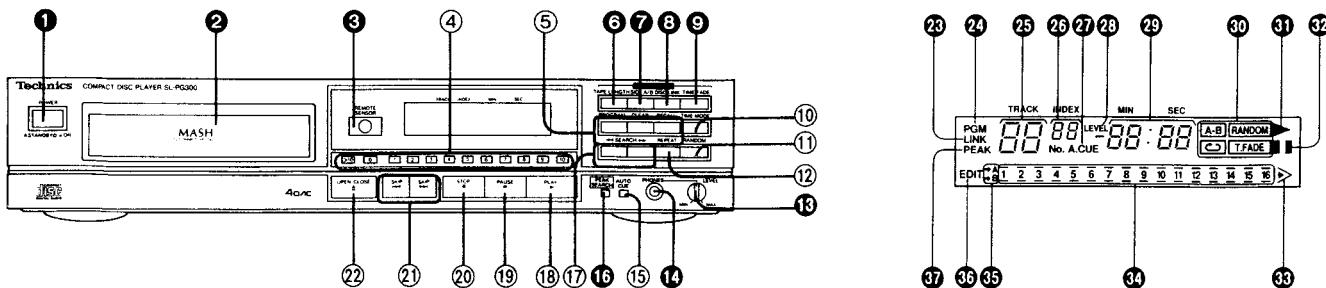


RQLS0021



## ■ LOCATION OF CONTROLS

The functions indicated by the black numbers (with white background, ④ etc.) can also be activated using the remote control transmitter.



### Control section

**1 Power "STANDBY □/ON" switch  
(POWER □ STANDBY □ ▲ ON)**

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY □ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

**2 Disc holder**

**3 Remote control signal sensor  
(REMOTE SENSOR)**

**4 Numeric buttons (>10, 0, 1~10)**

**5 Buttons for program function**

• **Program button (PROGRAM)**

Pressing this button initiates the program play mode. You can then enter specific tracks using the numeric buttons.

• **Clear button (CLEAR)**

Each pressing this button makes one track cleared from the programmed sequence.

• **Recall button (RECALL)**

This button can be used to display the contents of the programmed track sequence for confirmation.

**6 Edit tape length button (TAPE LENGTH)**

When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape used, so that as little tape as possible is wasted.

**7 Tape-side select button (SIDE A/B)**

When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

**8 Disc link button (DISC LINK)**

This button can be used for edit recording from several discs.

**9 Time fade button (TIME FADE)**

Pressing this button in the pause or stop mode causes the fade-out function to work at the specified time.

Pressing this button in the edit mode causes the fade-out function to work at the end of the tape when the track added exceeds the remaining time of the tape.

**10 Time mode select button (TIME MODE)**

**11 Random play button (RANDOM)**

This button can be used to play the tracks on a disc in a random sequence.

**12 Repeat button (REPEAT)**

**13 Headphones volume control (LEVEL)**

Avoid listening to music at high volume levels for extended periods of time.

**14 Headphones jack (PHONES)**

**15 Auto cue button (AUTO CUE)**

Pressing this button enables the unit to stop at the beginning of every track and switch to the play standby mode.

**16 Peak level search button (PEAK SEARCH)**

Pressing this button enables the unit to search for the "peak signal" locations in tracks on a disc so as to adjust the suitable recording level on the cassette deck.

**17 Search buttons (◀◀ SEARCH ▶▶)**

These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

**18 Play button (▶ PLAY)**

**19 Pause button (■ PAUSE)**

**20 Stop button (■ STOP)**

This button can be used to stop disc play, as well as to cancel the various play modes.

**21 Skip buttons (◀◀ SKIP, ▶▶ SKIP)**

These buttons can be used to skip by track in the forward or reverse direction.

**22 Disc holder open/close button**

(▲ OPEN/CLOSE)

### Indicators section

**23 Disc link indicator (LINK)**

**24 Program play indicator (PGM)**

**25 Track number display (TRACK)**

**26 Index/program number display (INDEX, No.)**

**27 Auto cue indicator (A. CUE)**

**28 Level indicator (LEVEL)**

This indicator lights when the output level is attenuated by the remote control.

**29 Time display (MIN, SEC)**

**⑩ Operation indicators**

The following indicators light during their respective operations.

**[A-B]**: Peak level search

A-B repeat play (remote control operation)

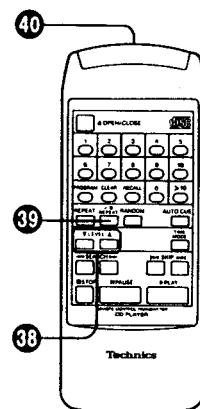
**[RANDOM]**: Random play

**[]**: Repeat play

**[T.FADE]**: Time fade (fade-out)

**⑪ Play indicator (▶)****⑫ Pause indicator (■)****⑬ "Over" mark (▷)**

This indicator lights if the total number of tracks on the disc is 17 or more.

**⑭ Track number indicator (1-16)****⑮ Tape side indicator (→ A, → B)****⑯ Compact disc edit indicator (EDIT)****⑰ Peak level search indicator (PEAK)**

Unnumbered buttons on the remote control transmitter function identically to their corresponding parts on the unit.

**Remote control transmitter****⑱ Level buttons (▼ LEVEL ▲)**

These buttons can be used to adjust output level (from 0 dB to -12 dB).

**⑲ A-B repeat button (A-B REPEAT)**

This button can be used to play the portion of a disc between two points (A and B) chosen by you.

**⑳ Remote control signal transmission window****■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP**

The laser diode in the 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 optical pickup.

**• Handling of optical pickup**

1. Do not subject the optical pickup to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic 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**

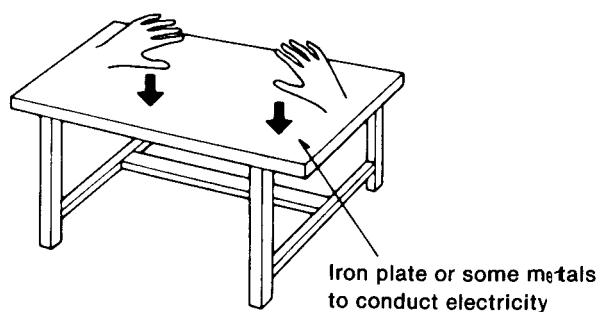
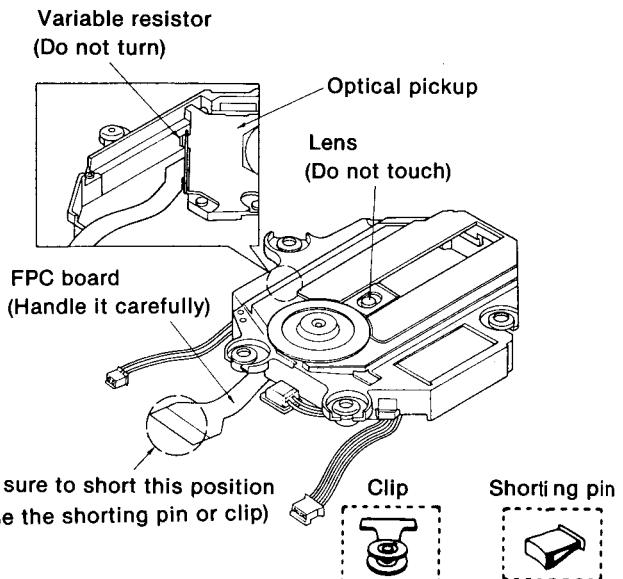
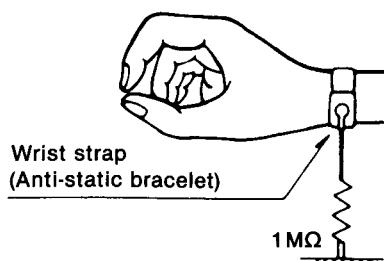
Use the anti-static wrist strap to discharge the static electricity from your body.

**2. Work table grounding**

Put a conductive material (sheet) or steel sheet on the area where the 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 optical pickup.

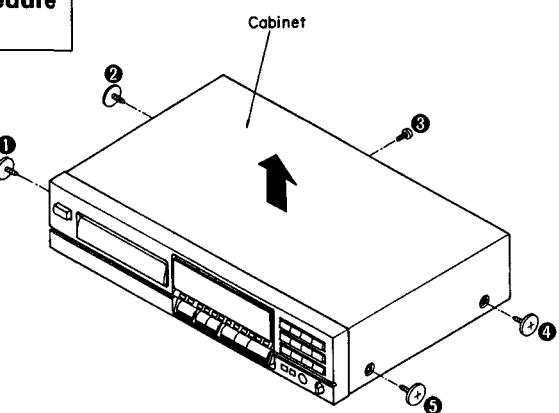
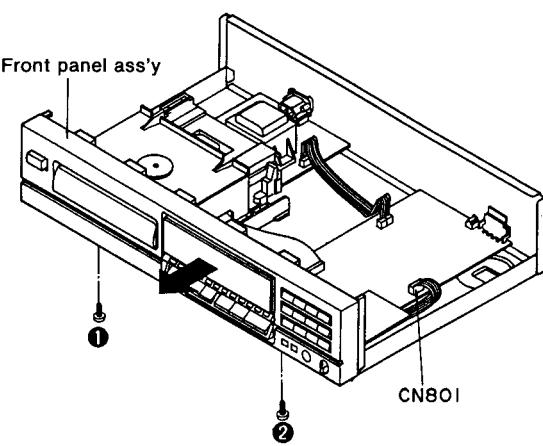
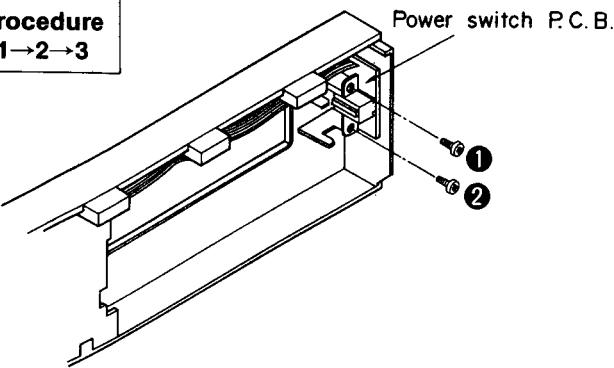
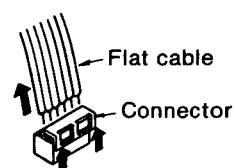
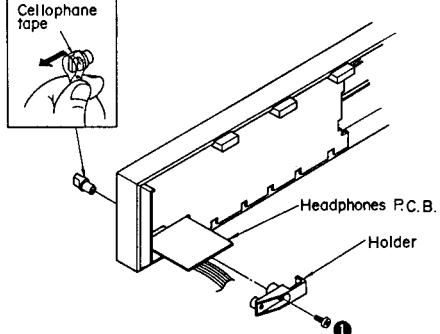
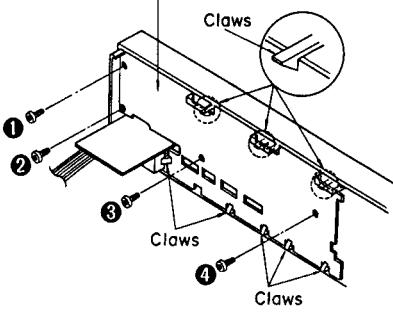


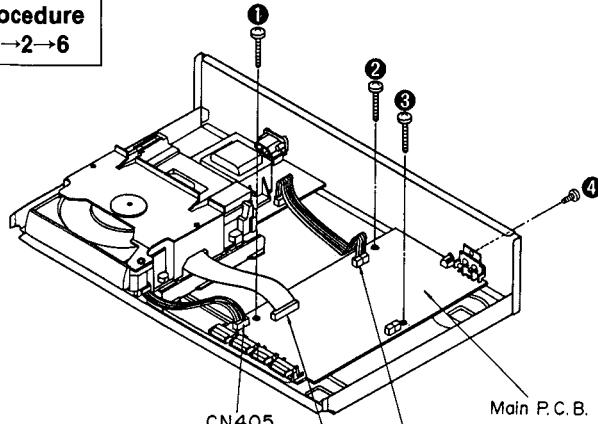
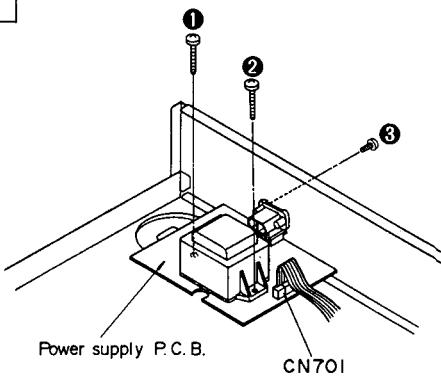
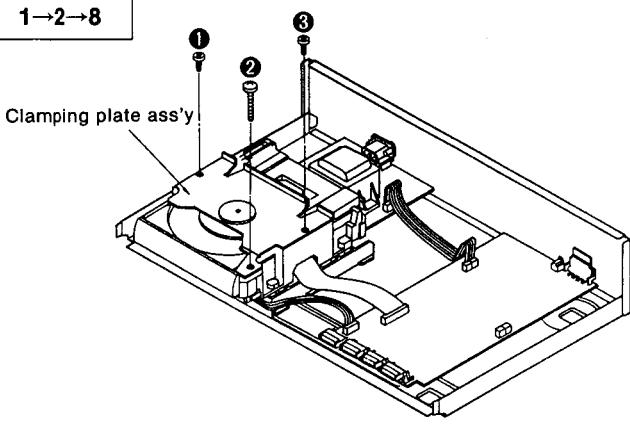
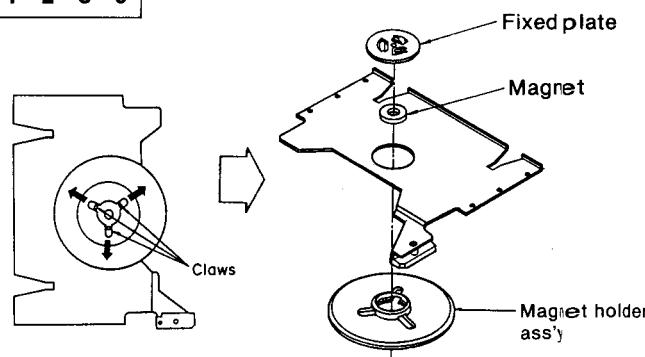
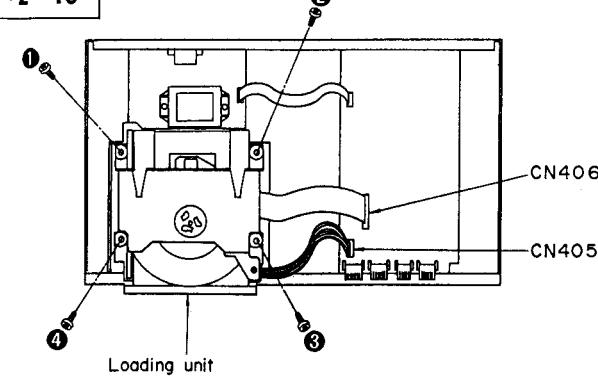
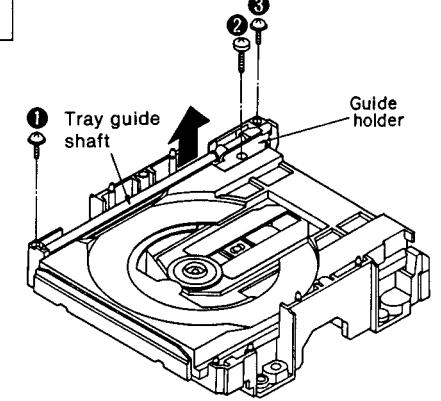
## ■ DISASSEMBLY INSTRUCTIONS

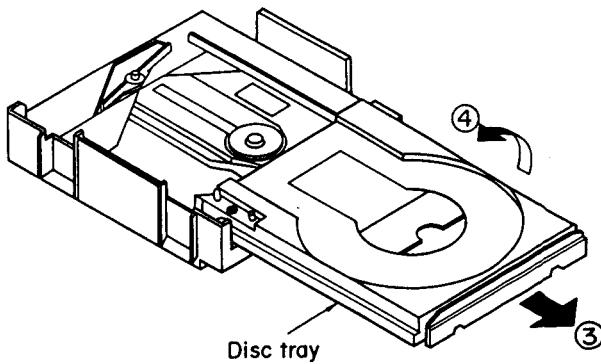
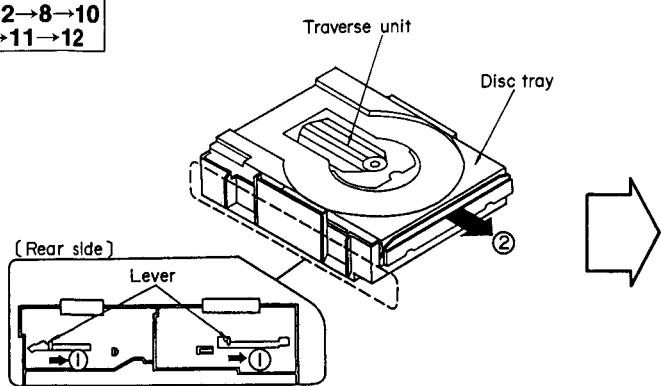
**Warning:** This product uses a laser diode. Refer to caution statements on page 3.

**ACHTUNG:** • Die Lasereinheit nicht zerlegen.  
• Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

\* This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.

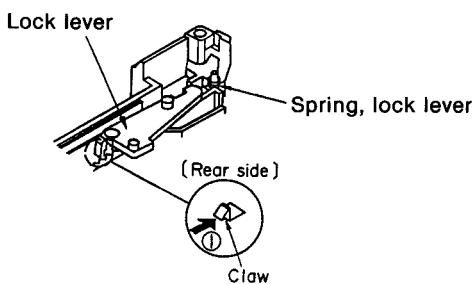
Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel ass'y
Procedure 1	 <ul style="list-style-type: none"> <li>Remove the 5 screws (1~5).</li> </ul>	Procedure 1→2	
Ref. No. 3	Removal of the power switch P.C.B.		<ol style="list-style-type: none"> <li>Remove the 1 flat cable (CN801).</li> <li>Remove the 2 screws (1, 2).</li> <li>Remove the front panel ass'y in the direction of arrow.</li> </ol>
Procedure 1→2→3	 <ul style="list-style-type: none"> <li>Remove the 2 screws (1, 2).</li> </ul>		<p><b>How to remove the flat cable</b></p>  <ol style="list-style-type: none"> <li>Lift the connector.</li> <li>Pull out the flat cable.</li> </ol>
Ref. No. 4	Removal of the headphones P.C.B.	Ref. No. 5	Removal of the operation P.C.B.
Procedure 1→2→4	 <ol style="list-style-type: none"> <li>Remove the headphones knob.</li> <li>Remove the 1 screw (1).</li> <li>Remove the holder.</li> </ol>	Procedure 1→2→4→5	 <ol style="list-style-type: none"> <li>Remove the 4 screws (1~4).</li> <li>Release the 8 claws.</li> </ol>

Ref. No. 6	Removal of the main P.C.B.	Ref. No. 7	Removal of the power supply P.C.B.
Procedure 1→2→6	 <p>1. Remove the 2 flat cables (CN11, CN406). 2. Remove the 1 connector (CN405). 3. Remove the 4 screws (1~4).</p>	Procedure 1→7	 <p>1. Remove the 1 flat cable (CN701). 2. Remove the 3 screws (1~3).</p>
Ref. No. 8	Removal of the clamping plate ass'y	Ref. No. 9	Removal of the fixed plate, magnet and magnet holder ass'y
Procedure 1→2→8	 <p>• Remove the 3 screws (1~3).</p>	Procedure 1→2→8→9	 <p>• Release the 3 claws.</p>
Ref. No. 10	Removal of the loading unit	Ref. No. 11	Removal of the tray guide shaft and guide holder
Procedure 1→2→10	 <p>1. Remove the 1 flat cable (CN406). 2. Remove the 1 connector (CN405). 3. Remove the 4 screws (1~4).</p>	Procedure 1→2→8 →10→11	 <p>1. Remove the 3 screws (1~3). 2. Remove the tray guide shaft and guide holder in the direction of arrow.</p>

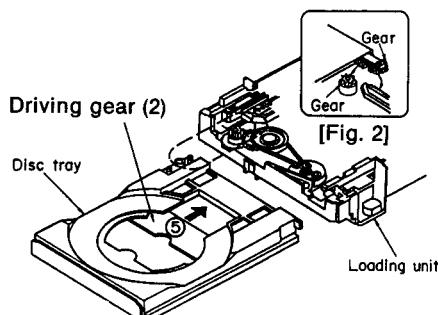
Ref. No.  
12**Removal of the disc tray****Procedure**  
1→2→8→10  
→11→12

1. Push the levers in the direction of arrows ①.  
The traverse unit will lower and the disc tray will move slightly in the direction of arrow ②.

2. Pull the disc tray fully in the direction of arrow ③.
3. Remove the disc tray in the direction of arrow ④.

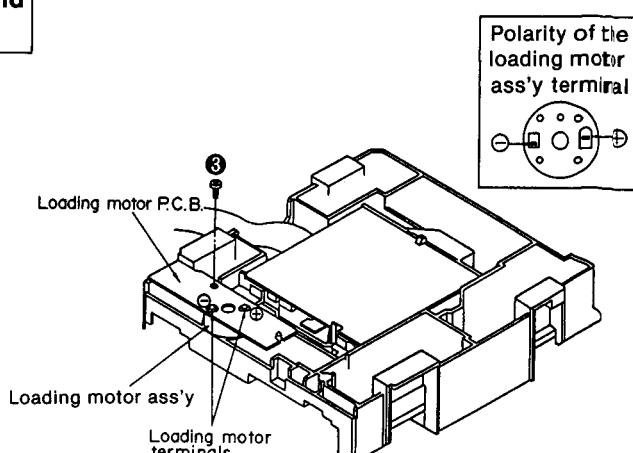
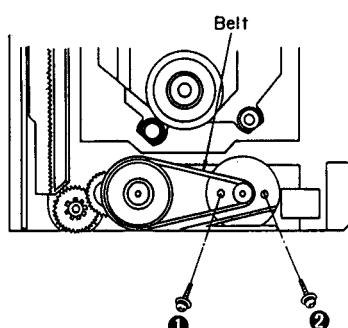
Ref. No.  
13**Removal of the lock lever****Procedure**  
1→2→8  
→10→11  
→12→13

1. Remove the spring.
2. Release the claw in the direction of arrow ① and then remove the lock lever in the direction of arrow ②.

**Installation of the disc tray**

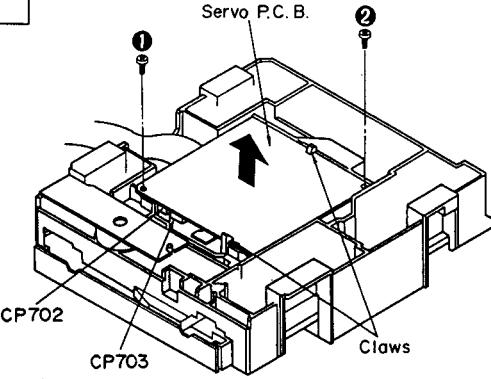
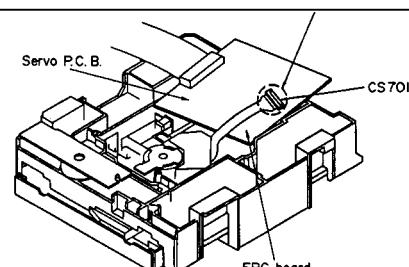
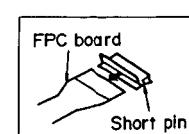
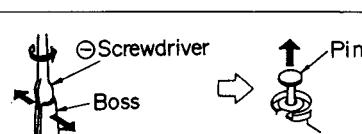
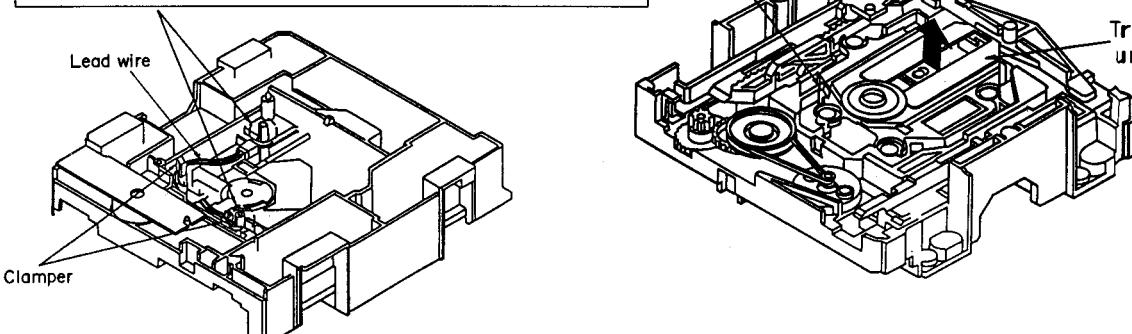
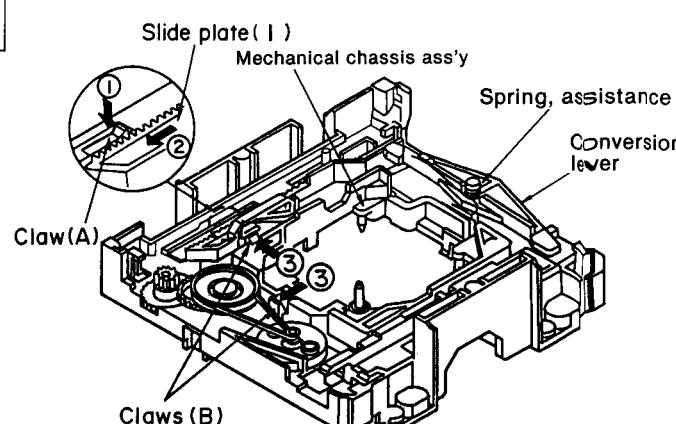
[Fig. 1]

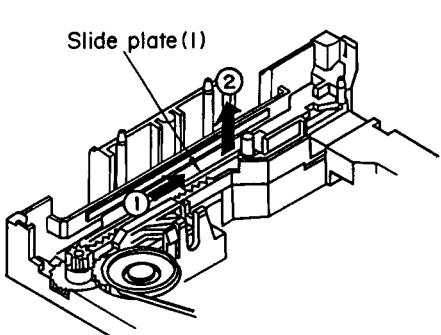
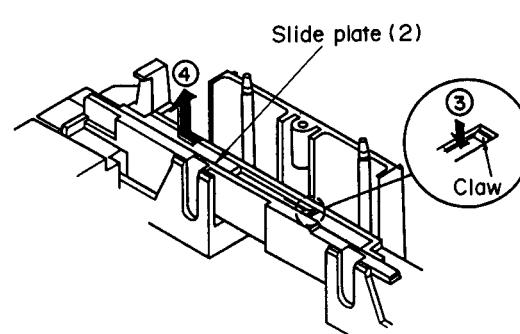
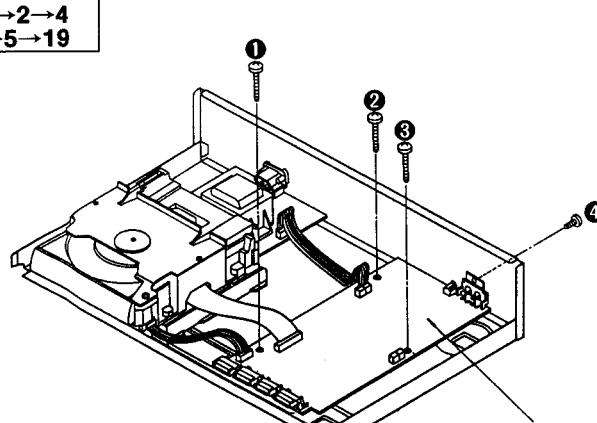
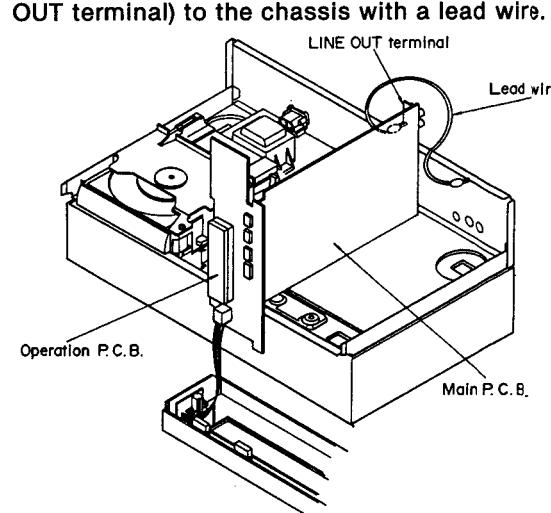
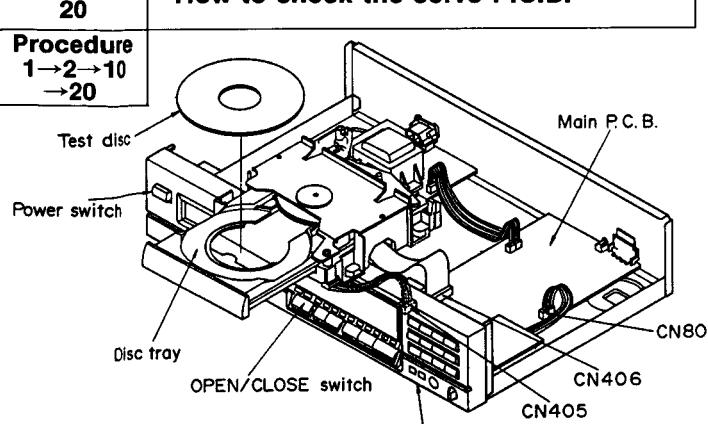
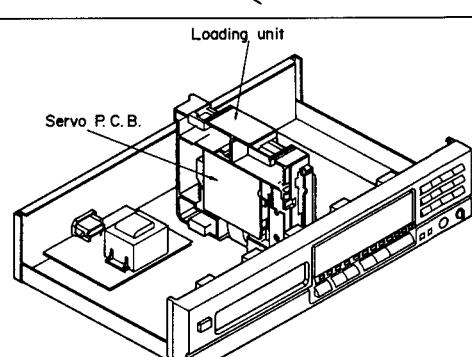
1. Move the driving gear (2) fully in the direction of arrow ⑤. (See Fig. 1.)
2. Engage the gears as shown in Fig. 2 and then move the disc tray in the same direction.

Ref. No.  
14**Removal of the loading motor ass'y and loading motor P.C.B.****Procedure**  
1→2→8  
→10→11  
→12→14

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.

<b>Ref. No.</b> 15  <b>Procedure</b> 1→2→10 →15	<b>Removal of the servo P.C.B.</b>	<p>1. Push the top of the connector in the direction of arrow ①. 2. Remove the FPC board in the direction of arrow ②.</p>  
<b>Ref. No.</b> 16  <b>Procedure</b> 1→2→8 →10→11→ 12→15→16	<b>Removal of the traverse unit</b>	<p>5. Remove the FPC board (CS701).</p> <p><b>Caution:</b> Insert a short pin into the traverse unit FPC board. (Refer to "handling precautions for optical pickup" on page 5.)</p> 
	<p>1. Widen the boss by using a regular screwdriver or similar object. 2. Pull out the pin.</p> 	
	<p>1. Remove the lead wire from clamper. 2. Remove the 2 pins.</p>	<p>3. Release the claw and then remove the traverse unit in the direction of arrow.</p>
<b>Ref. No.</b> 17  <b>Procedure</b> 1→2→8 →10→11→ 12→13→15 →16→17	<b>Removal of the mechanical chassis ass'y and conversion lever</b>	
	<p>1. Remove the spring. 2. Move the slide plate (1) in the direction of arrow ② while pushing the claw (A) in the direction of arrow ①. 3. Remove the conversion lever. 4. While pushing the claw (B) in the direction of arrow ③, lift the mechanical chassis ass'y.</p>	

Ref. No. 18	<b>Removal of the slide plate (1) and slide plate (2)</b>
<b>Procedure</b> 1→2→8→ 10→11→12 →13→15→ 16→17→18	
	
	<p><b>■ Removal of the slide plate (1)</b></p> <ul style="list-style-type: none"> <li>After moving the slide plate (1) fully in the direction of arrow ①, lift it in the direction of arrow ②.</li> </ul>
	<p><b>■ Removal of the slide plate (2)</b></p> <ul style="list-style-type: none"> <li>While pushing the claw in the direction of arrow ③, remove the slide plate (2) in the direction of arrow ④.</li> </ul>
Ref. No. 19	<b>How to check the main P.C.B.</b>
<b>Procedure</b> 1→2→4 →5→19	
	<ul style="list-style-type: none"> <li>When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown.</li> </ul> <p><b>Cautions:</b></p> <ol style="list-style-type: none"> <li>Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.</li> </ol>
	
	<p>1. Remove the 4 screws (①~④).</p>
Ref. No. 20	<b>How to check the servo P.C.B.</b>
<b>Procedure</b> 1→2→10 →20	
	
	<ol style="list-style-type: none"> <li>Attach the front panel ass'y to the unit.</li> <li>Connect the connector (CN405) and the flat cables (CN406 and CN801) to the corresponding terminals on the main board.</li> <li>Turn on the power and press the OPEN/CLOSE switch to open the disc tray.</li> <li>Load the test disc and press the OPEN/CLOSE switch again to close the disc tray.</li> <li>Place the loading unit sideways as shown in the figure above.</li> <li>After placing the unit as shown above, perform check and adjustment of the foil on the servo P.C.B.</li> </ol>

## MEASUREMENTS AND ADJUSTMENTS

**Warning:** This product uses a laser diode. Refer to caution statements on page 3.

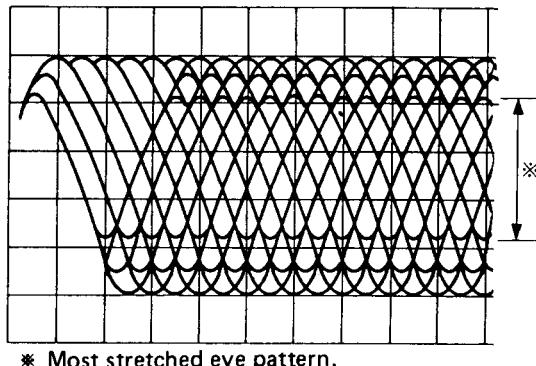
**Caution:** During adjustment, never connect CH-2 probe's GND to any place for it may short V-Ref. line. (Connect CH-1 probe's GND to specified TP. described in each section.)

### Measuring Instruments and Special Tools

- \* Test discs
- 1. Playability test disc (SZZP1054C)
- 2. Uneven test disc (SZZP1056C)
- \* Musical program disc (ordinary)
- \* Extension cable kit (RFKZ0009)
- \* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1:1 probe).
- \* Allen wrench (M2.0) (SZZP1101C)
- \* Lock paint (RZZOL01)

#### (1) MECHANICAL ADJUSTMENT

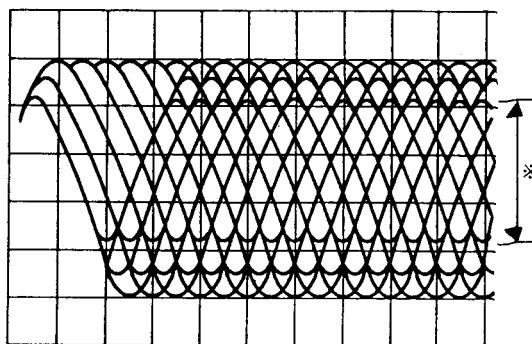
- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
  - Make adjustments to improve playability if the traverse deck has not been replaced.
1. Connect the oscilloscope's CH. 1 probe across **TP702** (RF) (+) and **TP703** (V-Ref.) (-) on the servo P.C.B.
  - Oscilloscope setting: VOLT.....200mV  
SWEEP .....0.5μs.  
Input coupling.AC
  2. Switch the player power **ON**, and play track 19 on the test disc (SZZP1056C).  
(Playing any other track is selected the HEX screws can not be accessed.)
  3. Leave the player in play mode, and place the traverse deck as shown Ref. No. 20 on page 10.
  4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.  
(Refer to Fig. 2 on page 12)
  5. After completing the adjustment, lock the mechanical adjusting screws with lock paint (RZZOL01).



\* Most stretched eye pattern.

#### (2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP702** (RF) (+) and **TP703** (V-Ref.) (-) on the servo P.C.B.
- Oscilloscope setting: VOLT.....200mV  
SWEEP .....0.5μs.  
Input coupling.AC
2. Switch the player power **ON**, and play the 1kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR701** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 1 on page 12)



\* Most stretched eye pattern.

### (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 0.7mm black dot and the 0.7mm 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 (SZZP1056C) and verify that no sound skip or noise occurs.

### • Adjustment points

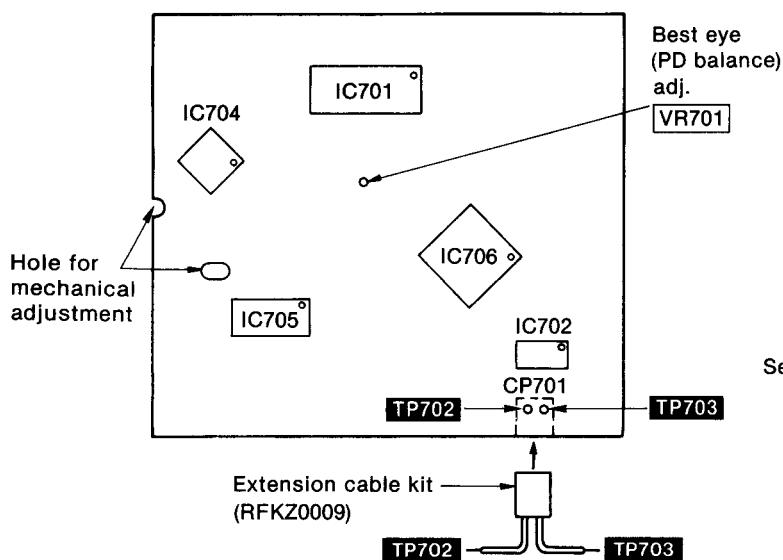


Fig. 1

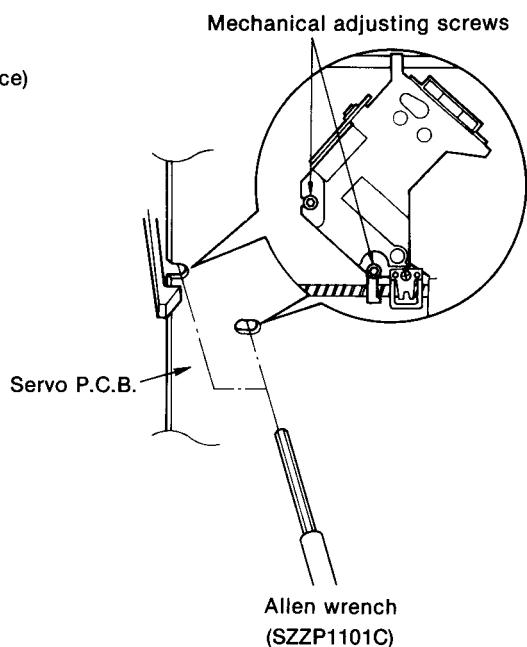


Fig. 2

## ■ TERMINAL FUNCTION OF IC'S

- IC601 (MN187164PKZ): System control & FL drive

Pin No.	Mark	I/O Division	Function
1	V <sub>DD</sub>	I	Power supply terminal
2	OSC 2	I	Clock input terminal (4.2336MHz)
3	OSC 1		
4	V <sub>SS</sub>	—	GND terminal
5	XI	I	(Not used, connected to GND)
6	XO	O	(Not used, open)
7	P27 (OPEN)	O	Loading motor "open" command signal
8	P26 (CLOSE)	O	Loading motor "close" command signal
9	P25 (OPEN SW)	I	Disc holder "open" detection
10	P24 (CLOSE SW)	I	Disc holder "close" detection
11	P23 (REST SW)	I	Rest position detection signal
12	P22 (EMPH)	—	(Not used, open)
13	P21 (SYNC • R)	O	Synchro edit control signal
14	P20 (REC • E)	I	
15	P15 (REMOCON)	I	Remote control signal
16	P14 (SENSE)	I	Optical servo condition (track cross) input
17	P13 (FLOCK)	I	Optical servo condition (focus) input
18	P12 (TLOCK)	I	Optical servo condition (tracking) input

Pin No.	Mark	I/O Division	Function
19	P11 (D MUTE)	O	Muting output
20	P10 (STAT)	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
21	P7 (RST)	I	Reset signal input
22	P5 (MCLK)	O	Command clock signal
23	P4 (MLD)	O	Command load signal ("L" LOAD)
24	P3 (MDATA)	O	Command data signal
25	P2 (SQCK)	O	Sub-code Q resistor clock
26	P1 (SUBQ)	I	Sub-code Q data
27	P0 (BLKCK)	I	Sub-code block clock (f=75Hz)
28	SYNC	—	(Not used, open)
29	CM	—	(Not used, connected to GND)
30 37	P47 P40	I	Key return signal
38 47	D0 D9	O	FL digit signal
48 63	S15 S0	O	FL segment signal and key scan signal
64	V <sub>PP</sub>	I	Power supply terminal

- IC701 (AN8800SCE2): Servo amp

Pin No.	Mark	I/O Division	Function
1	LDG	I	APC loop gain select
2	LDP	I	APC monitor PD polarity select
3	LD	O	Laser power auto control output
4	LPD	I	LD power monitor PD signal
5	GND	—	GND terminal
6	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
7	AMP I	I	RF signal (X30 amp)
8	AMP O	O	
9	RF IN	I	RF AGC signal input
10	RF EQ	—	GND terminal
11	C. AGC	I	AGC detection capacitor input
12	ARF	O	RF signal output
13	C. SBDO	I	Dropout detection capacitor input
14	RF DET	O	RF detection signal ("L": detecting)
15	BDO	O	Dropout detection output
16	V <sub>cc</sub>	I	Power supply terminal
17	SDO	O	Dropout detection pulse output
18	VAD+	O	Power supply terminal for A/D converter (+)
19	VREF	O	Reference voltage output
20	VAD-	O	Power supply terminal for A/D converter (-)
21	OFTR	O	Off track detection ("H": det.)

Pin No.	Mark	I/O Division	Function
22	PLAY	I	Play signal ("H": ON, "L": OFF)
23	WVEL	I	Double velocity ("H": double, "L": single)
24	TES	I	Tracking error shunt ("H": shunt, "L": output)
25	PTO	O	Potentio amp output
26	PTI	I	Potentio amp input
27	PBO	O	Potentio buffer output
28	POT	I	Potentio buffer input
29	CROSS	O	Tracking error zero cross output
30	TE	O	Tracking error signal
31	TE BAL	I	Oscillation det. signal
32	TBAL	I	Tracking balance adj. input
33	VDET	O	Oscillation det. signal ("H": det.)
34	FE	O	Focusing error signal
35	FBL 2	I	Focusing balance 2
36	FBL 1	I	Focusing balance 1
37	V <sub>cc</sub>	I	Power supply terminal
38	GND	—	GND terminal
39	PDBD	I	Photo detector Bch input with delay
40	PDA	I	Photo detector Ach input without delay
41	PDB	I	Photo detector Ach input with delay
42	PDAD	I	Photo detector Bch input without delay

• IC703 (AN8377N): Traverse motor drive

Pin No.	Mark	I/O Division	Function
1	P V <sub>cc</sub>	I	Drive power supply
2	V <sub>cc</sub>	I	Power supply terminal
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVD1	I	Traverse error signal input
6	TD1	I	Tracking error signal input
7	FD1	I	Focus error signal input
8	VREF	I	Reference voltage input

Pin No.	Mark	I/O Division	Function
9	FD+	O	Non-inverting output of focus driver
10	FD-	O	Inverting output of focus driver
11	TD+	O	Non-inverting output of tracking driver
12	TD-	O	Inverting output of tracking driver
13	TVD+	O	Non-inverting output of traverse driver
14	TVD-	O	Inverting output of driver
15	/RST	O	Reset signal output
16	PC	I	PC input (connect to GND)

• IC705 (MN6477T2): Digital filter & D/A converter

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L/R discriminating signal
2	BCLK	I	Serial bit clock input
3	SRDATA	I	Serial data output (MSB first)
4	COT 1	I	Test terminal (Ordinaly: L)
5	COT 2		
6	TEST		
7	V <sub>DD</sub>	I	Digital power supply terminal
8	X2	O	Clock terminal (f=33.8688MHz)
9	X1	I	
10	V <sub>ss</sub>	—	Digital GND terminal
11	AV <sub>DD</sub> . L	I	Analog power supply terminal 1
12	OUT. L	O	Analog signal output 1

Pin No.	Mark	I/O Division	Function
13	AV <sub>ss</sub> . L	—	Analog GND terminal
14	AV <sub>ss</sub> . R	—	
15	OUT. R	O	Analog signal output 2
16	AV <sub>DD</sub> . R	I	Analog power supply terminal 2
17	/RST	I	Reset signal input (Active: L)
18	PWM	O	PWM output (TP—"H": output, "L": High impedance)
19	TP	I	Test terminal (ordinaly: L)
20	WVEL	I	Double velocity ("H": double, "L": single)
21	DEMPH	I	Digital de-emphasis ON/OFF ("H": ON)
22	CSEL	I	Clock frequency select of CK 192
23	192FS	O	192fs (8.4672MHz) signal output (Not used, open)
24	384/768FS	O	Clock output terminal (184fs = 16.9344MHz)

- IC704 (MN6650): Digital servo processor

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal ("H": shunt)
2	PLAY	O	Play signal ("H": play)
3	/RFDET	I	RF det. signal ("L": det.)
4	DO	I	Dropout signal ("H": dropout)
5	OFT	I	Off track signal ("H": off track)
6	ARF	I	RF signal input
7	WVEL	O	Double velocity status signal ("H": double)
8	PBO	I	Potensio buffer signal (analog input)
9	TE	I	Tracking error signal (analog input)
10	FE	I	Focus error signal (analog input)
11	VR2	I	Reference voltage for A/D (Low)
12	VR1	I	Reference voltage for A/D (High)
13	LDON	O	Laser power control ("H": ON)
14	V <sub>ss</sub>	—	GND terminal
15	AV <sub>ss</sub>	—	GND terminal
16	AV <sub>DD</sub>	I	Power supply terminal
17	V <sub>DD</sub>	I	Power supply terminal
18	TRV	O	Traverse servo control output
19	TVD	O	Traverse drive signal output
20	FOD	O	Focus drive signal output
21	TRD	O	Tracking drive signal output

Pin No.	Mark	I/O Division	Function
22	KICK	O	Kick pulse output
23	/TEST	I	Test terminal
24	V <sub>ss</sub>	—	GND terminal
25	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
26	/TRON	O	Tracking servo ON signal ("L": ON)
27	MDATA	I	Command data signal
28	MCLK	I	Command clock signal
29	MLD	I	Command load signal ("L": LOAD)
30	SENSE	O	Sense signal
31	/FLOCK	O	Optical servo condition (focus) output
32	/TLOCK	O	Optical servo condition (tracking) output
33	/RST	I	Reset signal ("L": reset)
34	XI	I	Clock input (f=16.9344 MHz)
35	T0	O	Test terminal (Ordinarily: open)
38	T3		
39	T4	I	Test terminal (Ordinarily: L)
41	T6		
42	VDET	I	Oscillation det. signal ("H": det.)
43	TBAL	O	Tracking balance adj. output
44	TRCRS	I	Track cross signal input

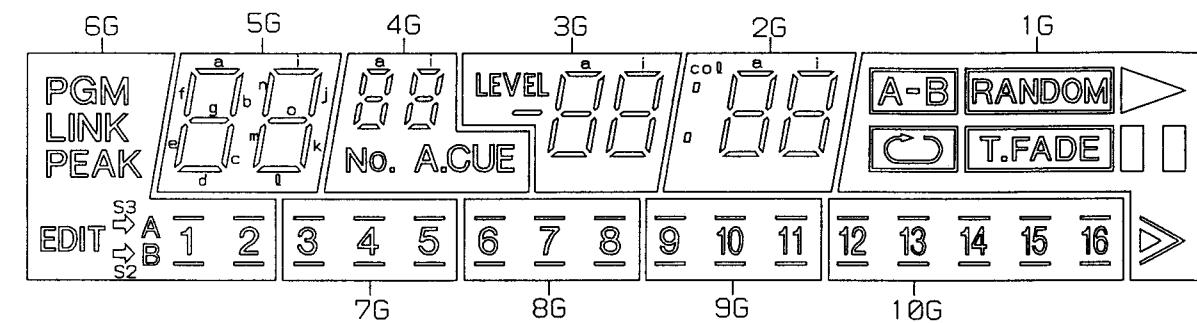
- IC706 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLF	I/O	DSL loop filter terminal
6	PLLF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 16	TBUS7 TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	RST	I	Reset terminal
23	TX	O	Digital audio signal
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f=16.9344MHz)
30	PMCK	O	Frequency division clock signal (Not used, open) (f = $\frac{1}{192} \times CK = 88.2\text{kHz}$ )
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f=16.9344MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	CLDCK	O	Sub-code frame clock (f=7.35kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock ( $f=75\text{Hz}$ )
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock ( $f=4.2336\text{MHz}$ )
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	TRON	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	TEST	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK= $4.2336\text{MHz}$ )
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock ( $f=4.3218\text{MHz}$ )
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

#### **■ INTERNAL CONNECTION OF FL**

- Grid connection diagram



- Anode connection table

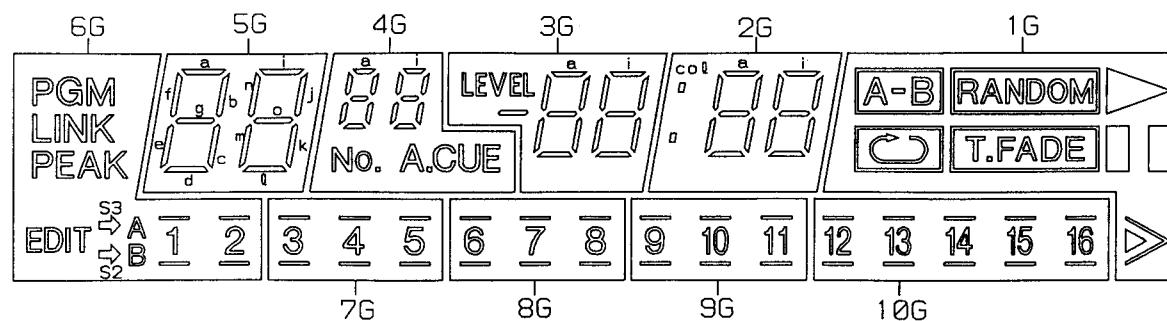
	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	12	9	6	3	EDIT A B	a	a	a	a	▶
P2	—(12)	—(9)	—(6)	—(3)	S2	b	b	b	b	□□
P3	—(12)	—(9)	—(6)	—(3)	S3	f	f	f	f	RANDOM
P4	13	10	7	4	1	g	g	g	g	T.FADE
P5	—(13)	—(10)	—(7)	—(4)	—(1)	c	c	c	c	🔗
P6	—(13)	—(10)	—(7)	—(4)	—(1)	e	e	e	e	A-
P7	14	11	8	5	2	d	d	d	d	B
P8	—(14)	—(11)	—(8)	—(5)	—(2)	—	No.	—	col	▷
P9	—(14)	—(11)	—(8)	—(5)	—(2)	i	i	i	i	>
P10	15	-	-	-	PGM	j	j	j	j	-
P11	—(15)	-	-	-	LINK	n	n	n	n	-
P12	—(15)	-	-	-	-	o	o	o	o	-
P13	16	-	-	-	PEAK	k	k	k	k	-
P14	—(16)	-	-	-	-	m	m	m	m	-
P15	—(16)	-	-	-	-	q	q	q	q	-
P16	-	-	-	-	-	-	A.CUE	LEVEL	-	-

- Pin connection

#### ■ INTERNAL CONNECTION OF FL

Function
block clock ( $f = 75\text{ Hz}$ )
ysis ON signal
signal
load signal (D)
clock signal
data signal
ut ("H": MUTE)
ock ( $f = 4.2336\text{ MHz}$ )
nal , CLVS, TTSTOP, OK)
CRC check terminal ("L": NG)
serial output data (open)
serial output clock (open)
servo ON signal
servo phase synchro
"L": Rough servo)
motor ON signal
motor drive signal (ode)
motor drive signal (er signal)
ply terminal
al (Normal: "H")
rminal mode select (de buffer)
rminal frequency : SMCK = $4.2336\text{ MHz}$ )
nizing signal of frame (used, open)
etection signal (out)
connected to GND)
(Not used, open)
clock ( $f = 4.3218\text{ MHz}$ )
eparated signal of CK (Not used, open)

- Grid connection diagram



- Anode connection table

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	12	9	6	3	EDIT A B	a	a	a	a	▶
P2	—(12)	—(9)	—(6)	—(3)	S2	b	b	b	b	□□
P3	—(12)	—(9)	—(6)	—(3)	S3	f	f	f	f	RANDOM
P4	13	10	7	4	1	g	g	g	g	T.FADE
P5	—(13)	—(10)	—(7)	—(4)	—(1)	c	c	c	c	clip
P6	—(13)	—(10)	—(7)	—(4)	—(1)	e	e	e	e	A-
P7	14	11	8	5	2	d	d	d	d	B
P8	—(14)	—(11)	—(8)	—(5)	—(2)	-	No.	-	col	▷
P9	—(14)	—(11)	—(8)	—(5)	—(2)	i	i	i	i	>
P10	15	-	-	-	PGM	j	j	j	j	-
P11	—(15)	-	-	-	LINK	n	n	n	n	-
P12	—(15)	-	-	-	-	o	o	o	o	-
P13	16	-	-	-	PEAK	k	k	k	k	-
P14	—(16)	-	-	-	-	m	m	m	m	-
P15	—(16)	-	-	-	-	q	q	q	q	-
P16	-	-	-	-	-	-	ACUE	LEVEL	-	-

- Pin connection

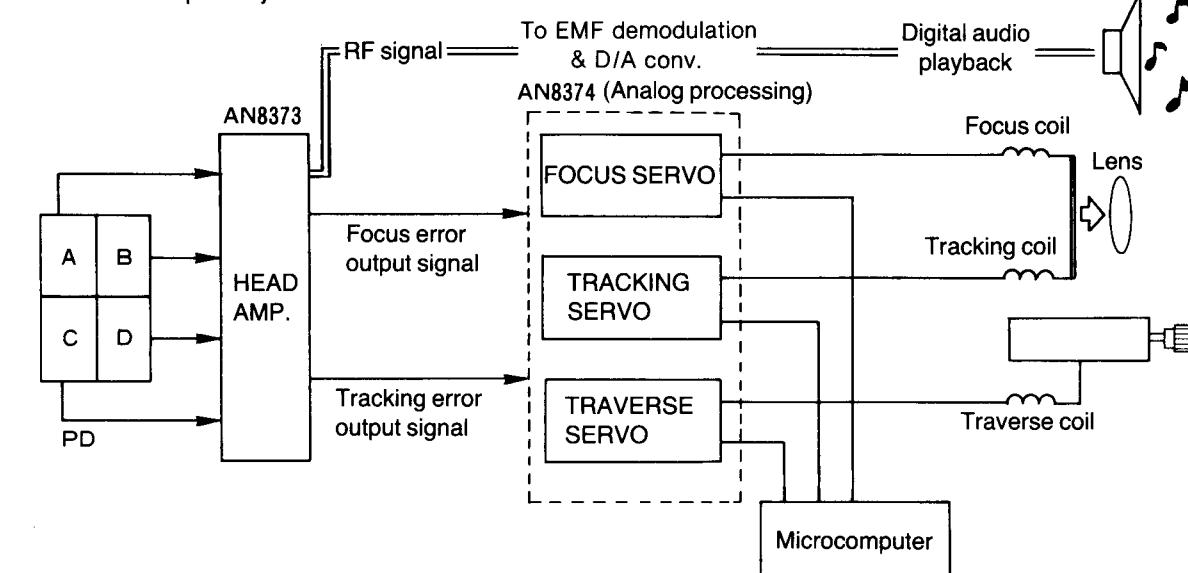
## DIGITAL SERVO SYSTEM

**The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.**

1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracksig error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.

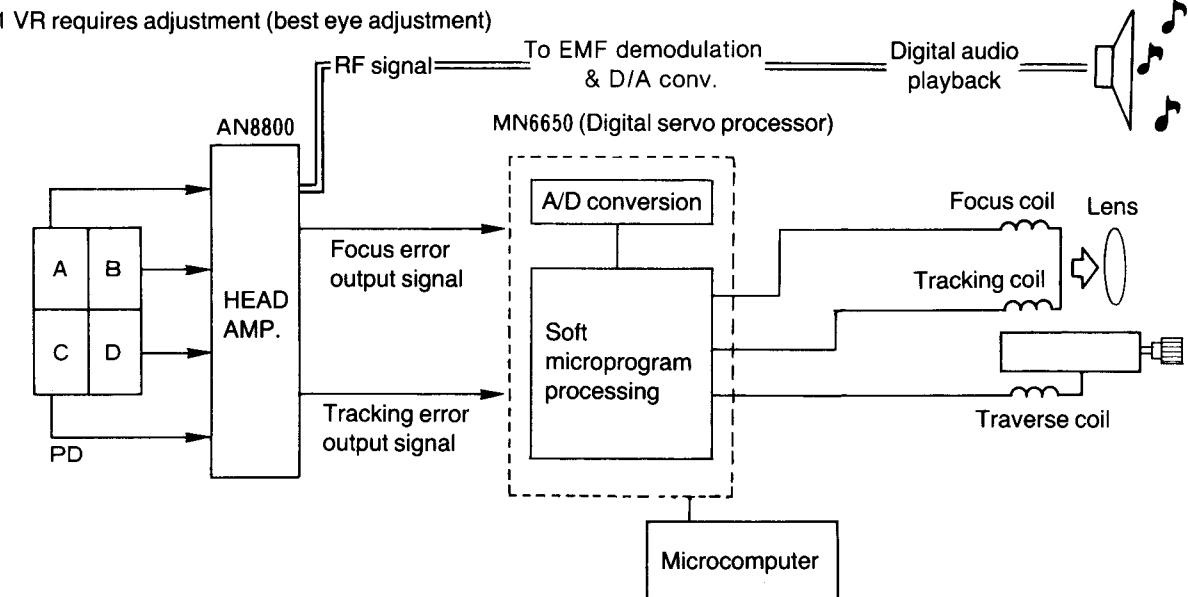
#### **ANALOG SERVO SYSTEM**

6 VRs require adjustment



#### DIGITAL SERVO SYSTEM

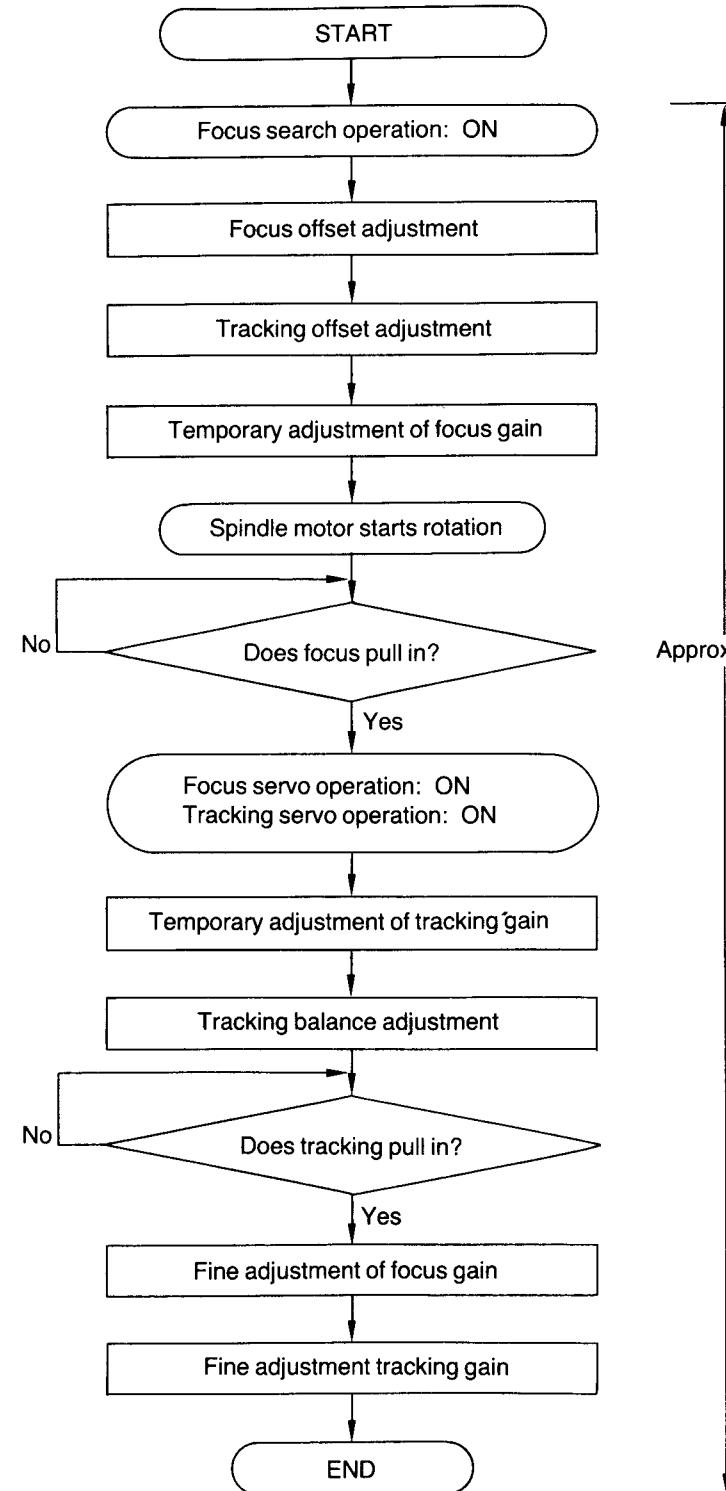
 Only 1 VR requires adjustment (best eye adjustment)



2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:  
 (1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted. You can obtain an optimum servo control for a disc to be played.  
 [You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustment.

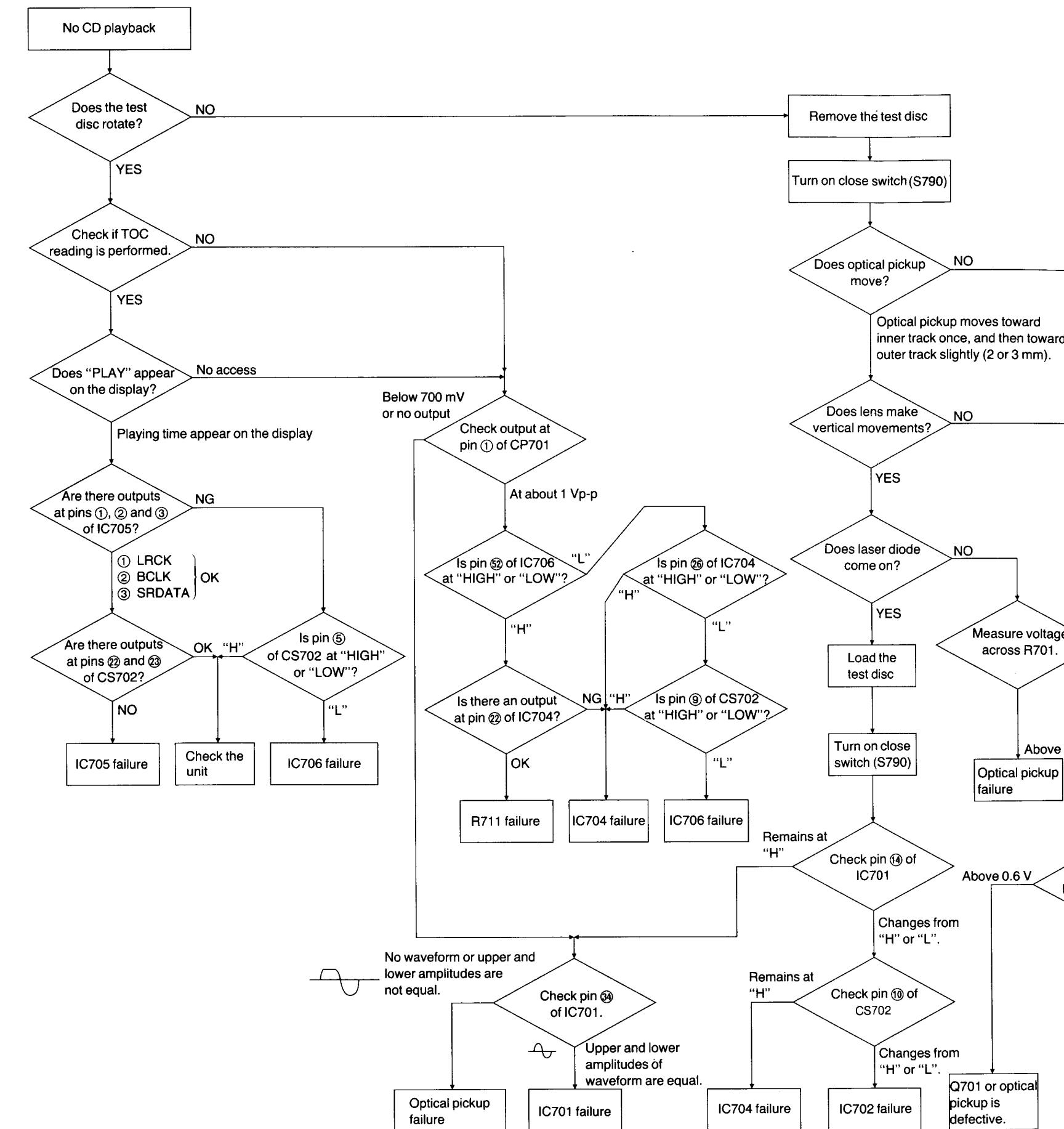
#### •Flow chart on automatic adjustment sequence



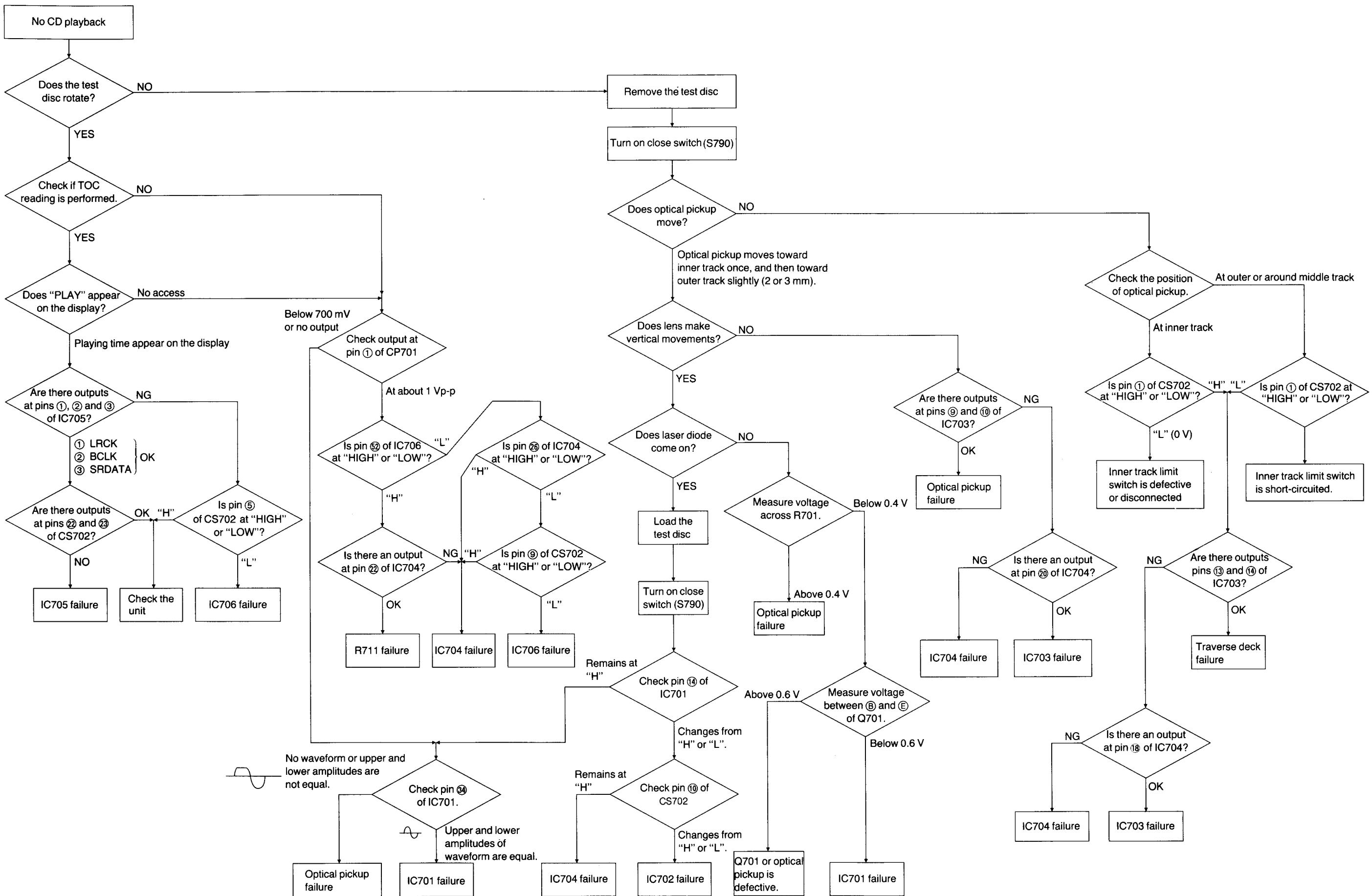
\*Because the microcomputer precisely performs automatic adjustments as shown in the flow chart it will take approx. 5 seconds to finish reading 1 data if a used disc is eccentric one or its surface warped.

Approx. 2.5

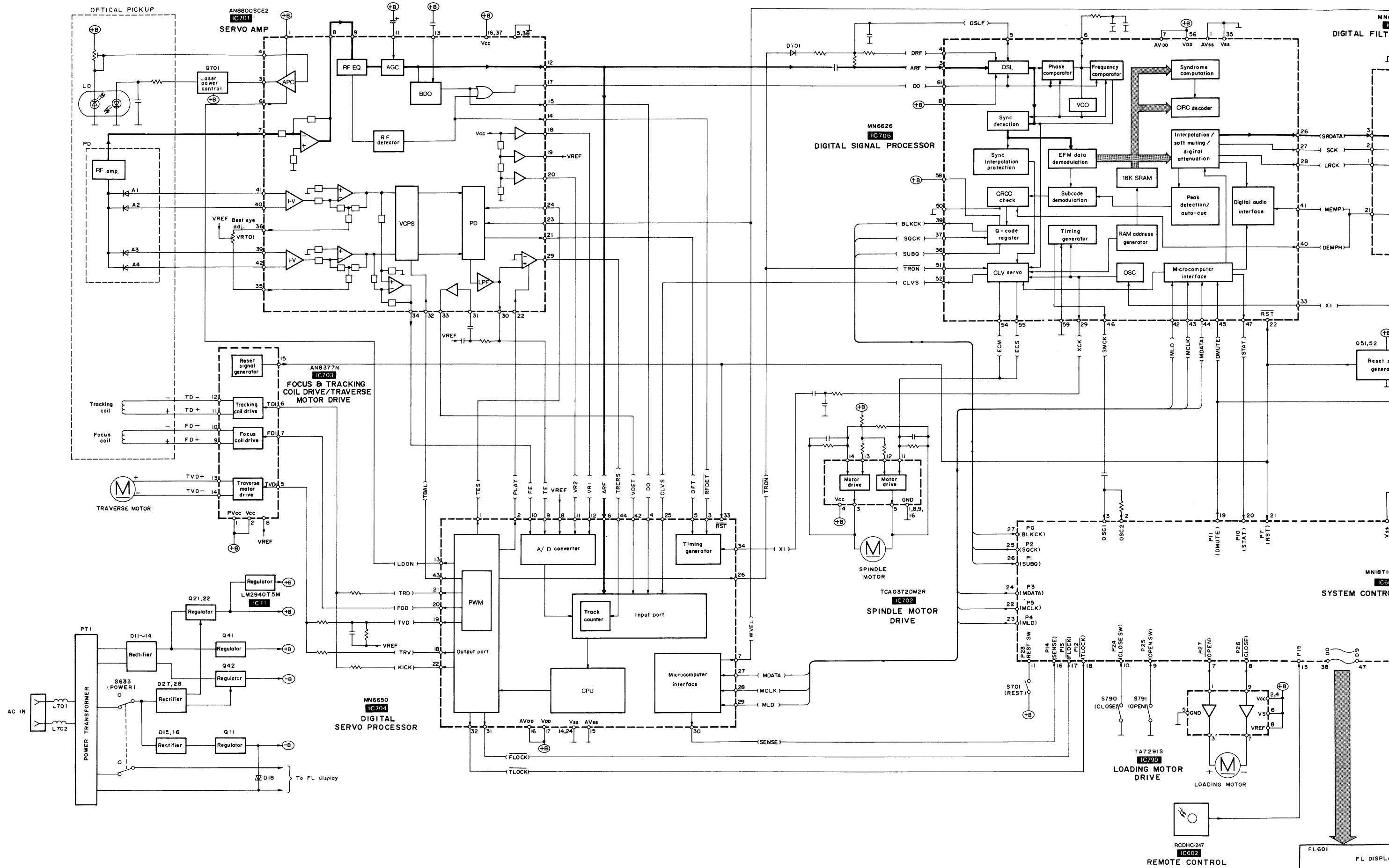
■ TROUBLESHOOTING GUIDE

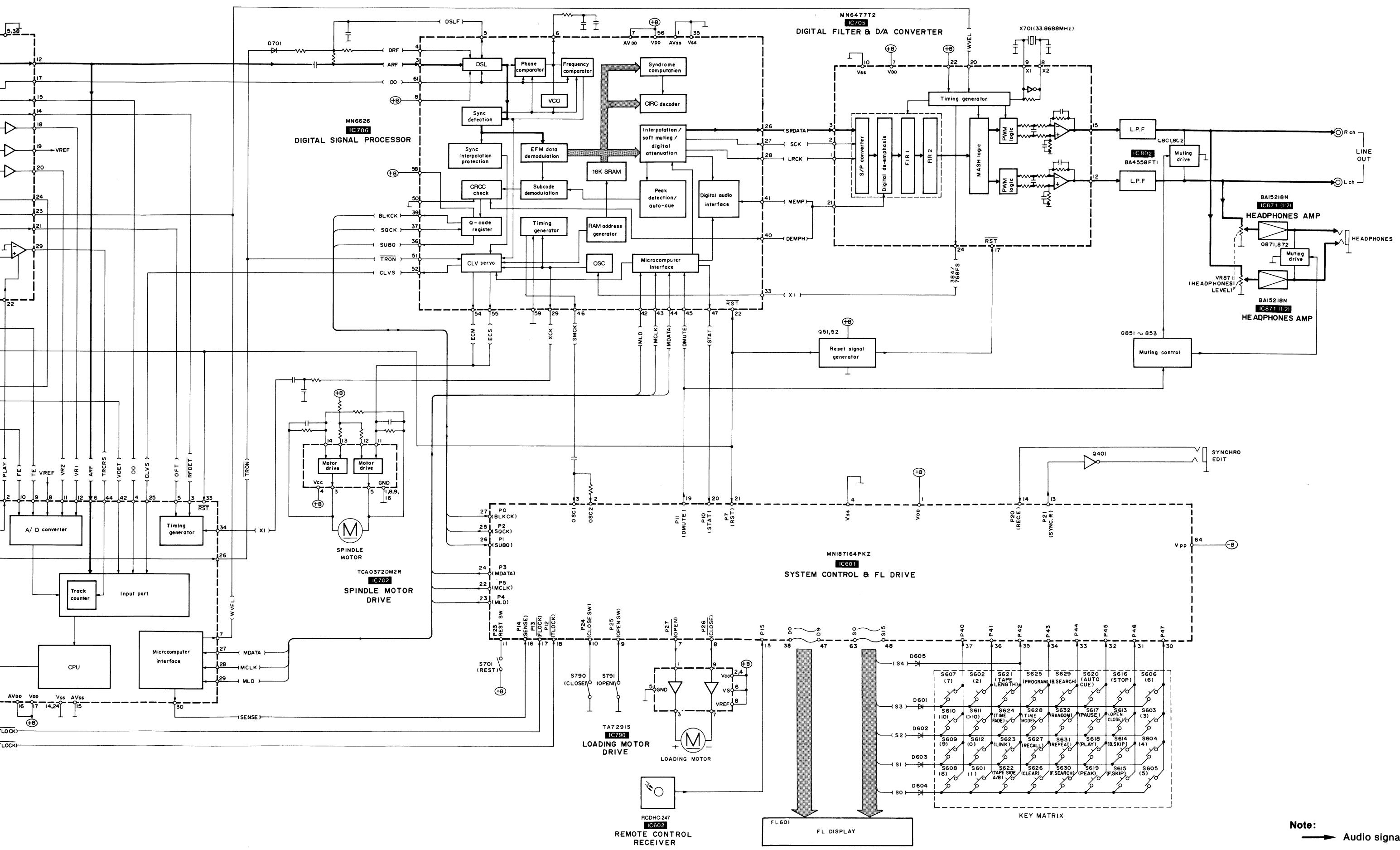


## ■ TROUBLESHOOTING GUIDE



## BLOCK DIAGRAM





## Schematic Diagram (Parts list on pages 40~43.)

(This schematic diagram may be modified at any time with development of new technology.)

**Note:**  
• S601~S610, : Numeric (0~10) switches.

612 [S601: 1, S602: 2, S603: 3,  
S604: 4, S605: 5, S606: 6,  
S607: 7, S608: 8, S609: 9,  
S610: 10, S612: 0]

• S611 : Input mode (>10) switch.  
• S613 : Disc holder open/close ( $\Delta$  OPEN/CLOSE) switch.

• S614, S615 : Skip (SKIP) switches.  
[S614:  $\blacktriangleleft\blacktriangleright$ , S615:  $\blacktriangleright\blacktriangleleft$ ]

• S616 : Stop (■ STOP) switch.  
• S617 : Pause (■ PAUSE) switch.

• S618 : Play (▶ PLAY) switch.  
• S619 : Peak level search (PEAK SEARCH) switch.

• S620 : Auto cue (AUTO CUE) switch.  
• S621 : Edit tape length (TAPE LENGTH) switch.

• S622 : Tape-side select (SIDE A/B) switch.  
• S623 : Disc link (DISC LINK) switch.

• S624 : Time fade (TIME FADE) switch.  
• S625 : Program (PROGRAM) switch.

• S626 : Clear (CLEAR) switch.  
• S627 : Recall (RECALL) switch.

• S628 : Time mode (TIME MODE) switch.  
• S629, S630 : Search (SEARCH) switches.

[S629:  $\blacktriangleleft\blacktriangleright$ , S630:  $\blacktriangleright\blacktriangleleft$ ]

• S631 : Repeat (REPEAT) switch.  
• S632 : Random (RANDOM) switch.

• S633 : Power (POWER) switch.  
• S701 : Voltage adj. switch in "240V" position.  
[For (GC) area only.] (110V  $\leftrightarrow$  127V  $\leftrightarrow$  220V  $\leftrightarrow$  240V)

• S790 : Disc holder "close" detector switch.  
• S791 : Disc holder "open" detector switch.

### Terminal guide of IC's, transistors and diodes

BA4558FT1	TCA0372DM2R	MN6477T2	AN8800SCE2	AN8377N	MN187164PKZ
MN6650	MN6626	TA7291S	BA15218N	LM2940T5M	RCDHC-247
1SS254TA SVD1SR35200V	2SA1309QRSTA 2SC3311QRSTA 2SD1450RSTA UN4112TA UN4212TA	DTA114ESTP	2SB1238QSTV6	2SD2037EFTA	2SB709STW
MA4270MTA	MA110TW	TOTX174-A			

• The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.

Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

\* The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.

• Important safety notice:  
Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

The supply part number is described alone in the replacement parts list.

Part No.	Original Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC602	RCDHC-247	RCD0003
IC802	BA4558FT1	SVIBA4558F

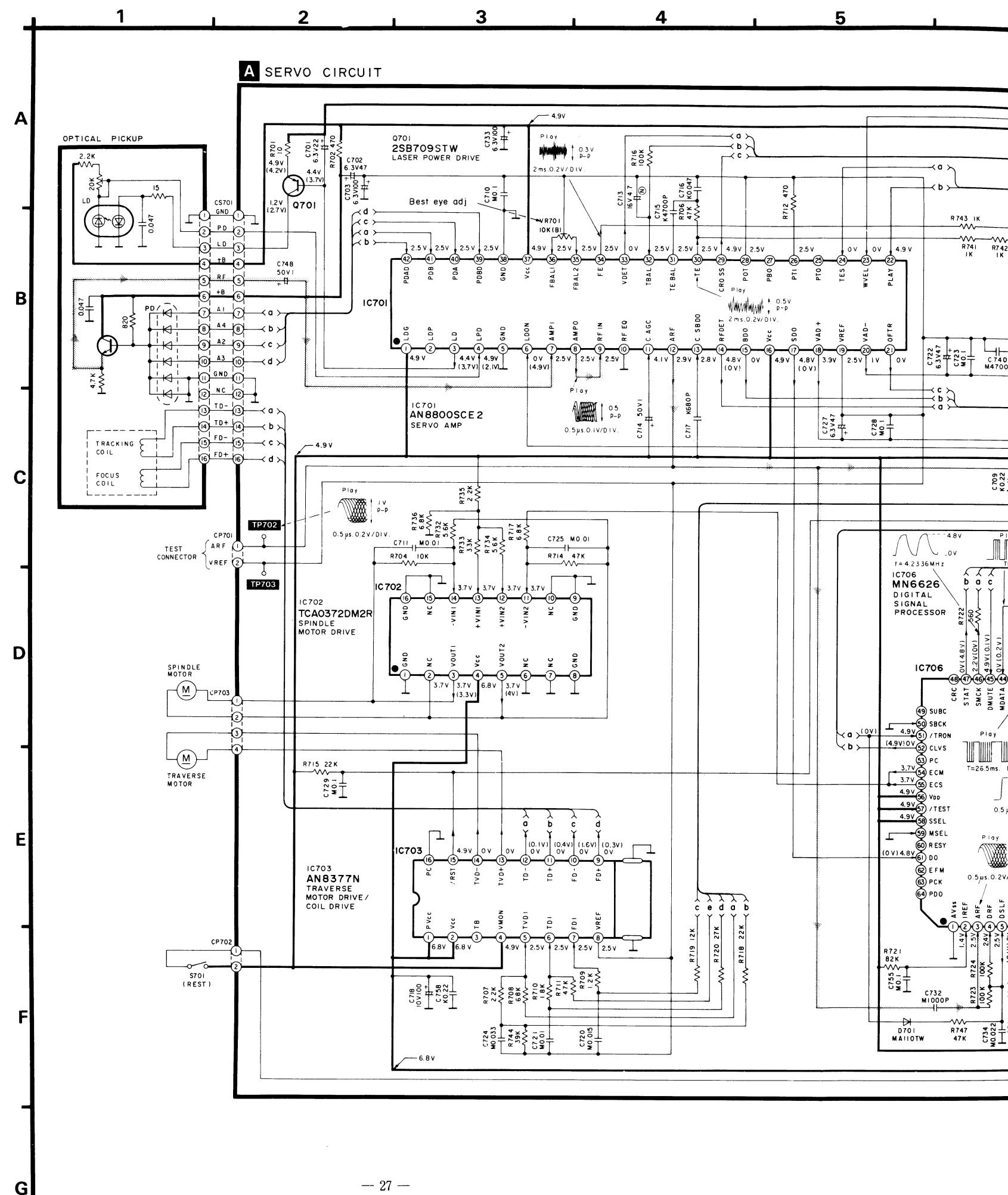
— / — : Positive voltage lines and negative voltage lines.

■■■■■ : audio signal lines.

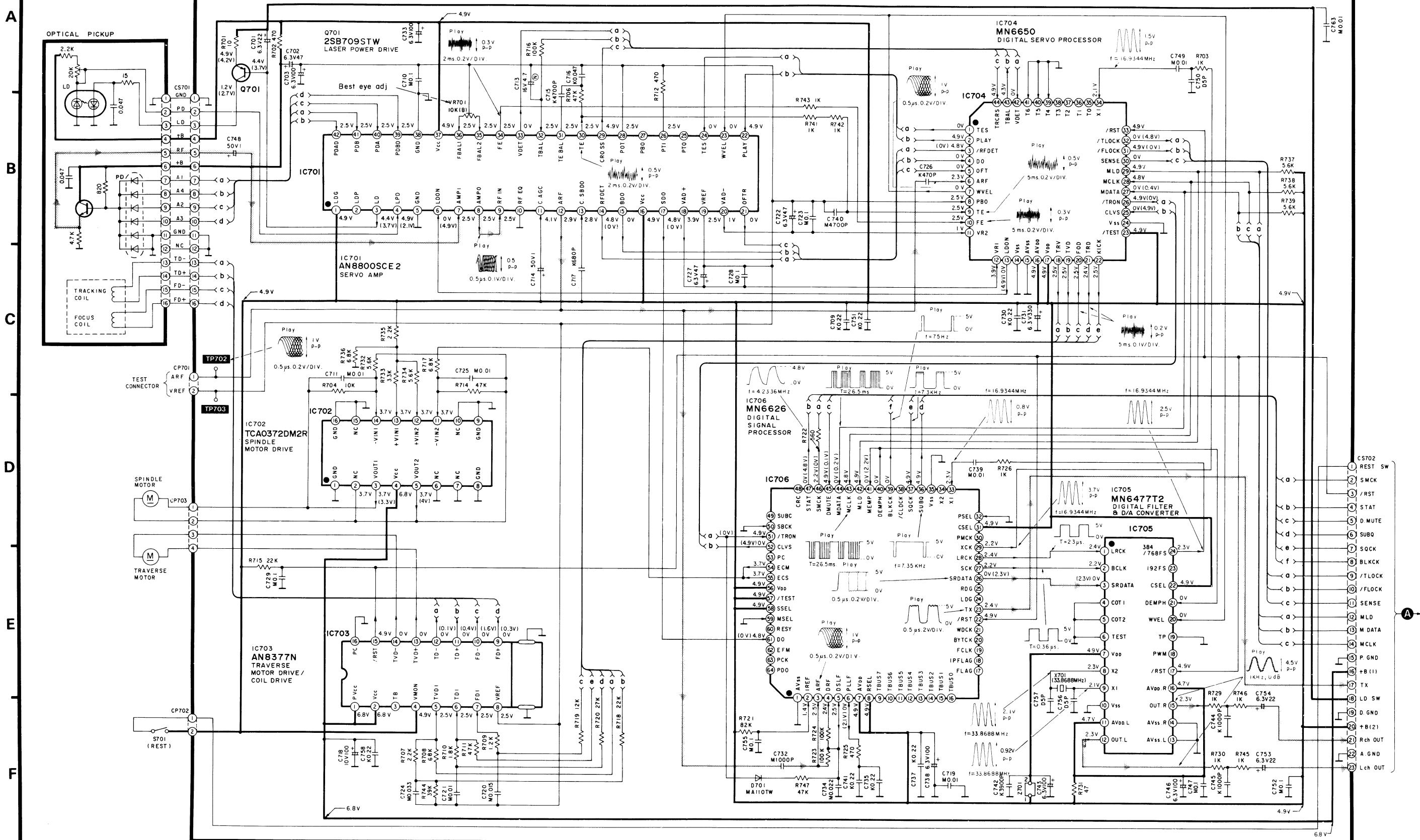
### Caution!

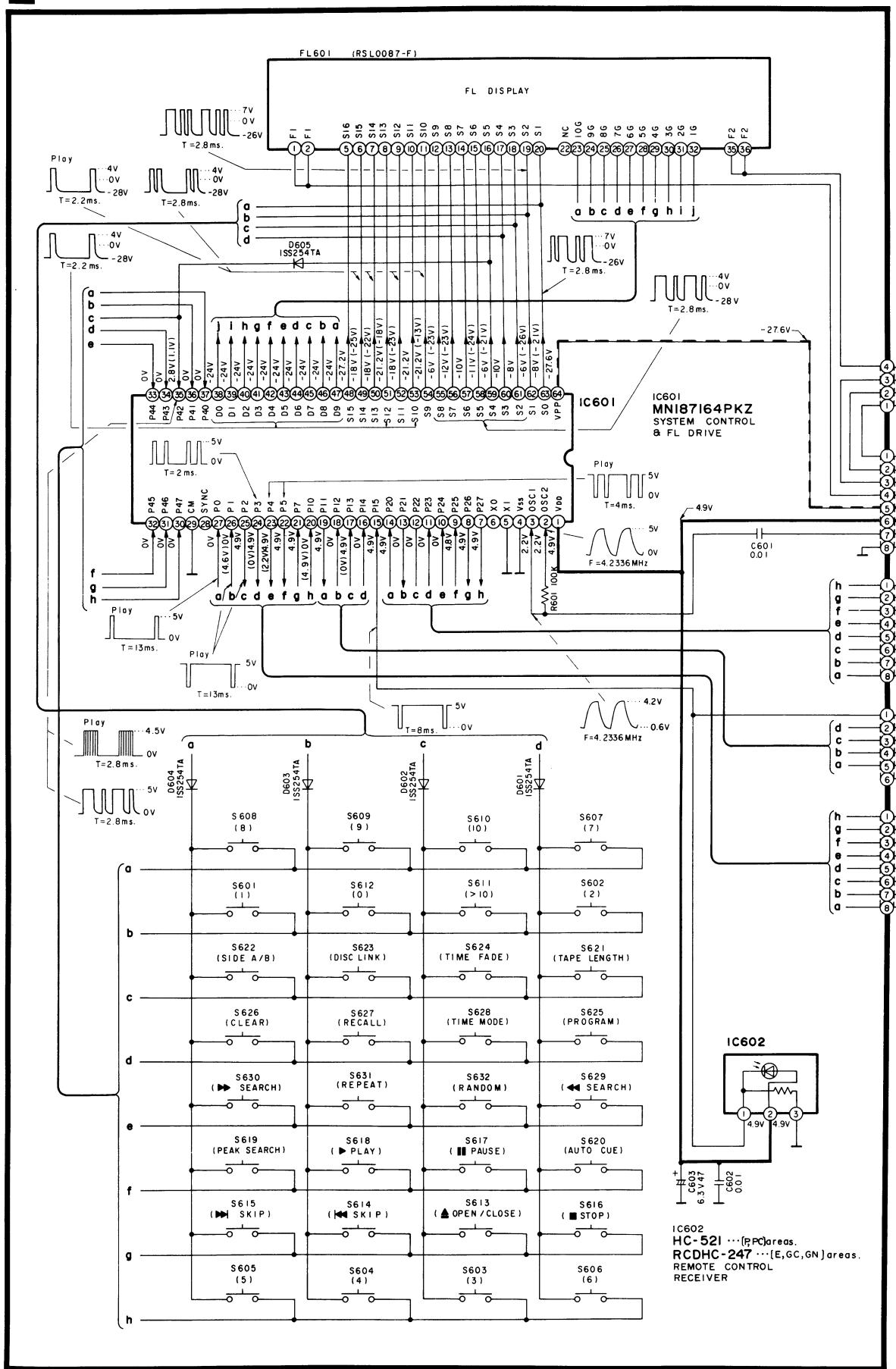
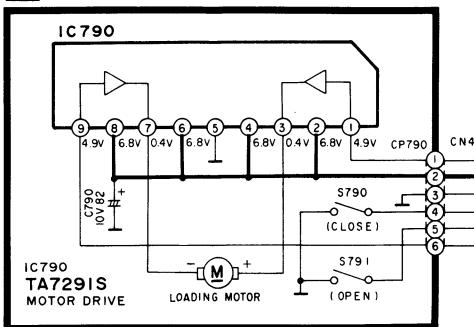
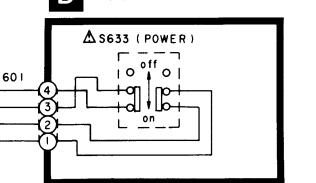
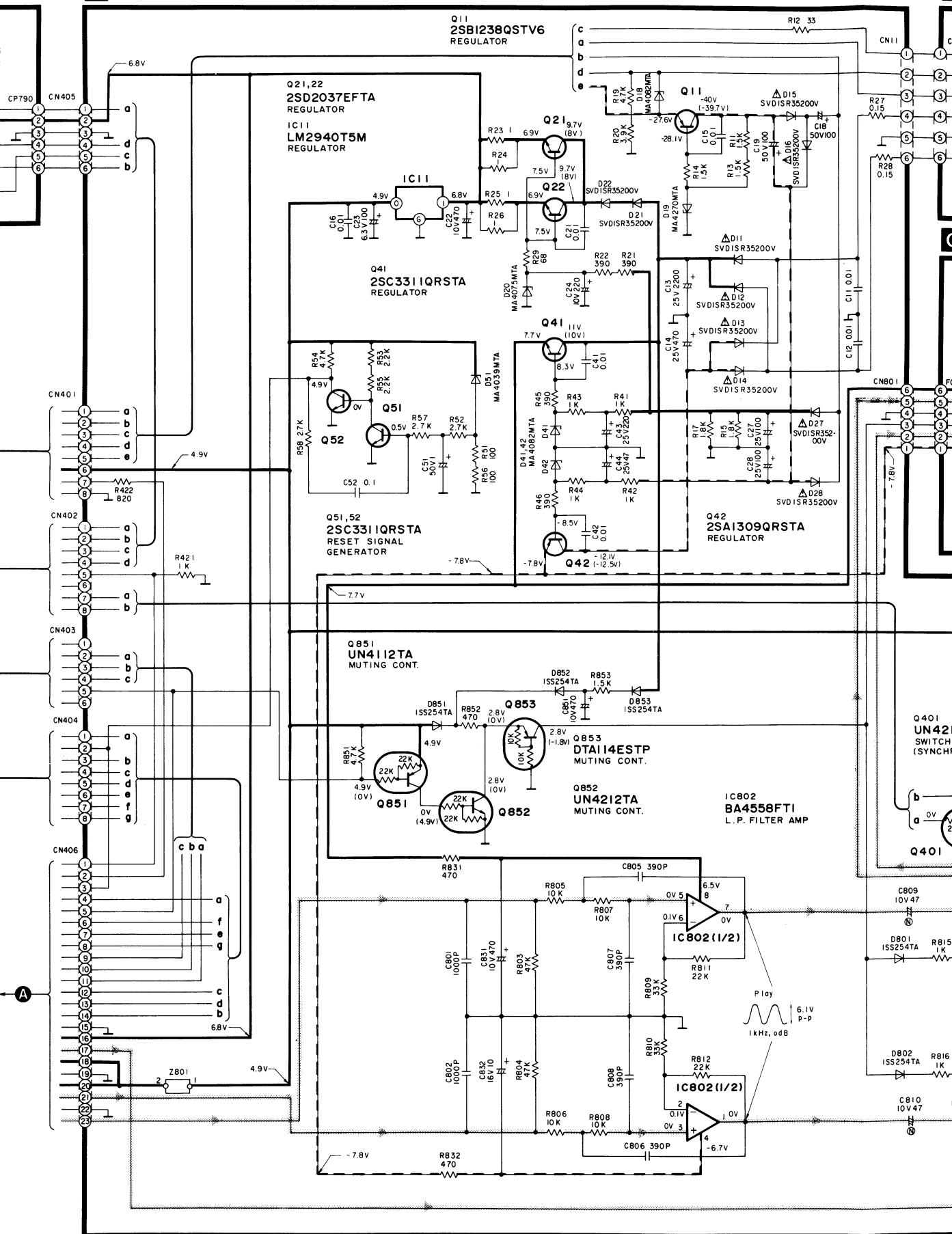
IC and LSI are sensitive to static electricity.  
Secondary trouble can be prevented by taking care during repair.

- 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 pins of IC or LSI with fingers directly.

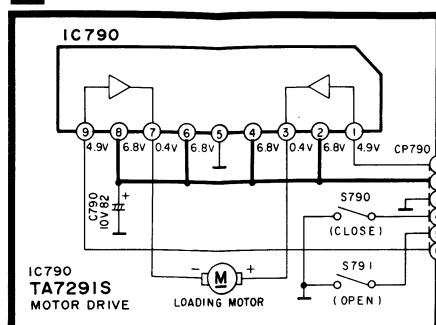


1 2 3 4 5 6 7 8 9 10

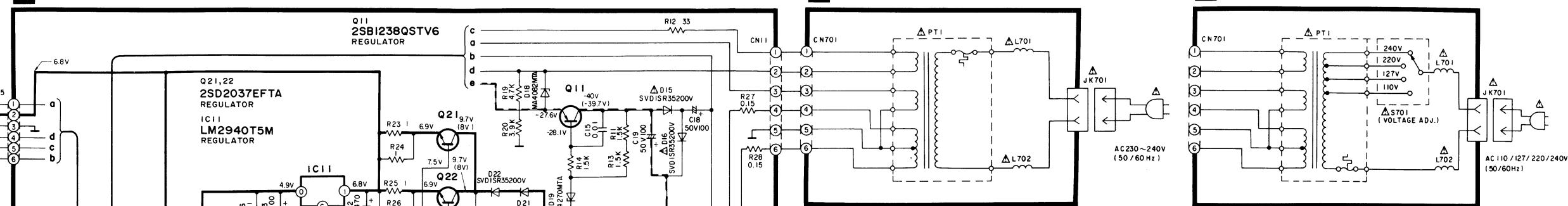
**A SERVO CIRCUIT**

**B OPERATION CIRCUIT****C LOADING MOTOR CIRCUIT****D POWER SWITCH CIRCUIT****E MAIN CIRCUIT**

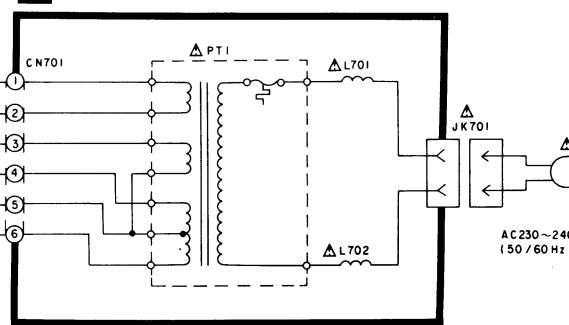
## C LOADING MOTOR CIRCUIT



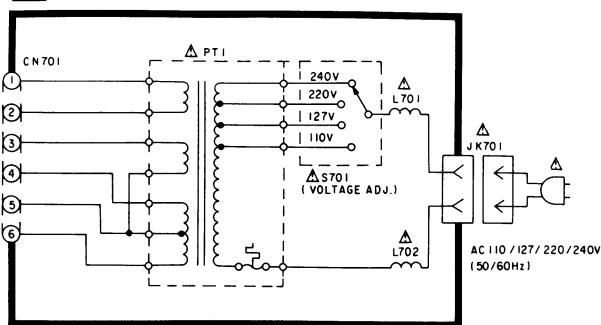
E MAIN CIRCUIT



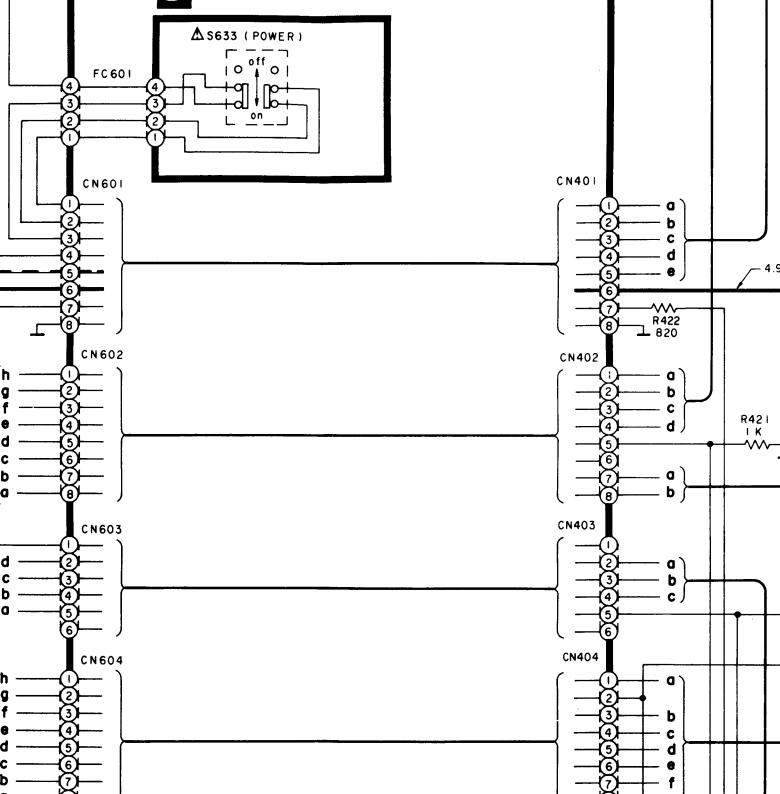
#### **F POWER SUPPLY CIRCUIT FOR [E, GN] AREAS.**



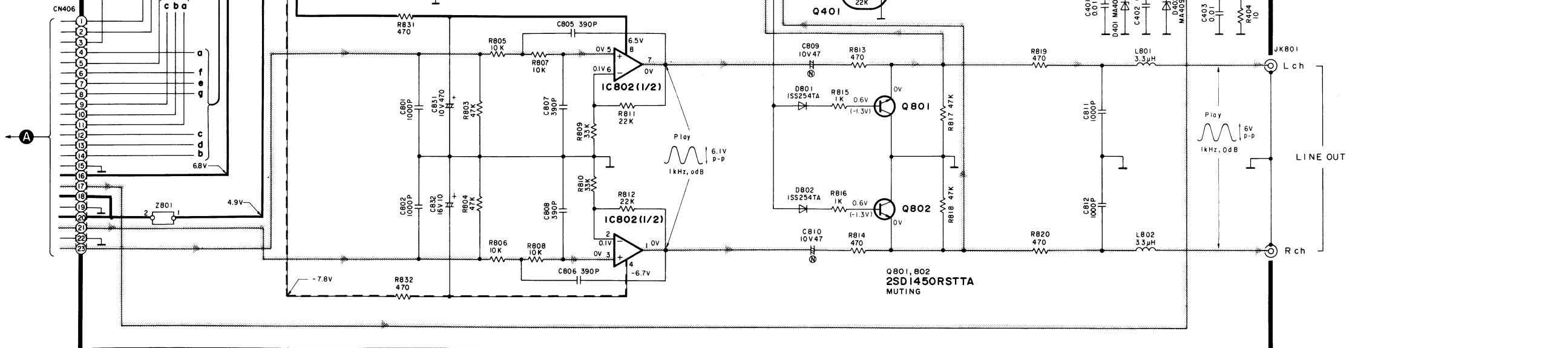
#### **F** POWER SUPPLY CIRCUIT FOR(GC) AREA.



## D POWER SWITCH CIRCUIT

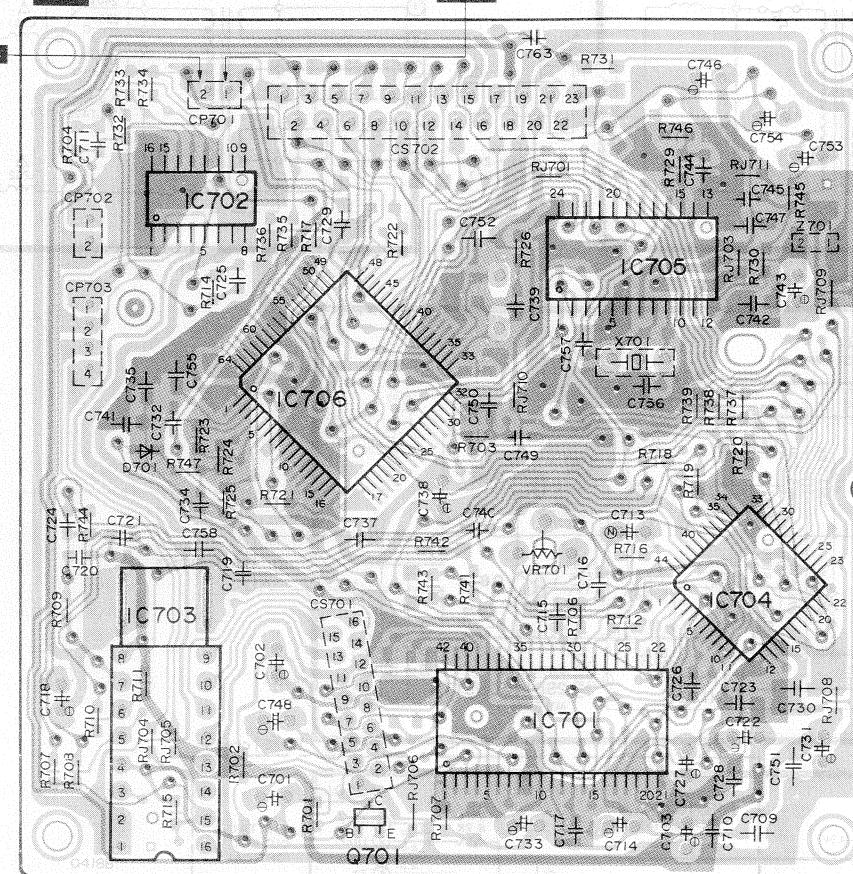


( 8 )

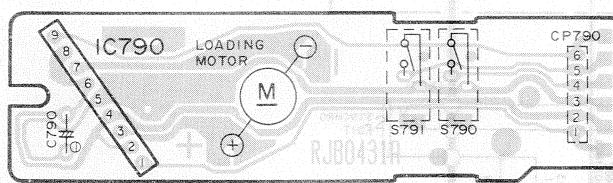


## ■ PRINTED CIRCUIT BOARDS

A SERVO P.C.B.



C LOADING MOTOR P.C.B.



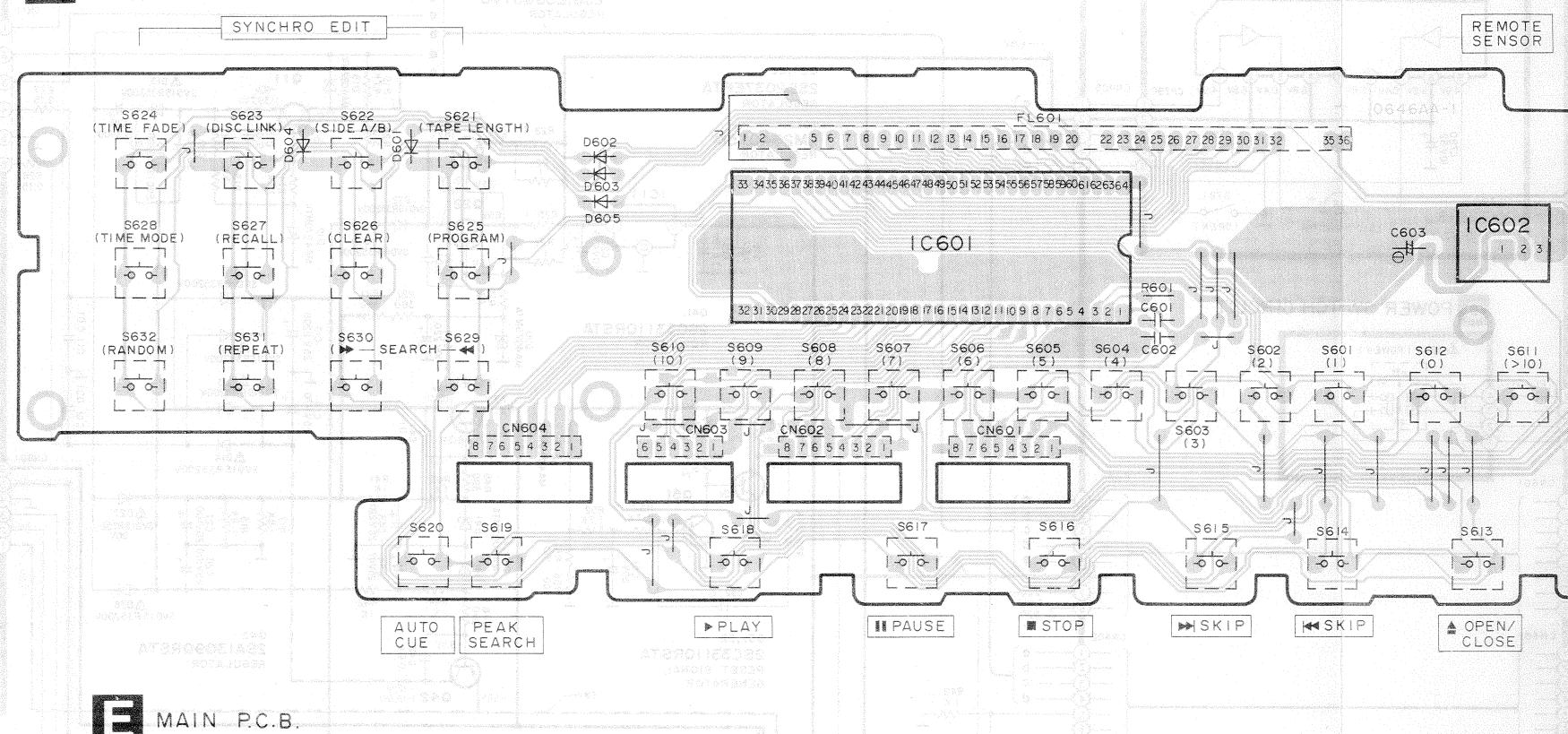
### **Notes:**

This diagram shows a front view of the small outline type IC mounting surface.

1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
  2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
  3. The symbols ( ) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

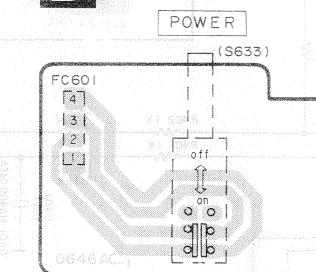
- This circuit board diagram may be modified at any time with the development of new technology.

## **B** OPERATION P.C.B.

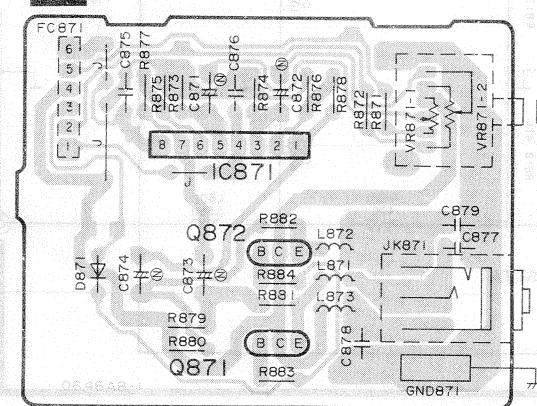


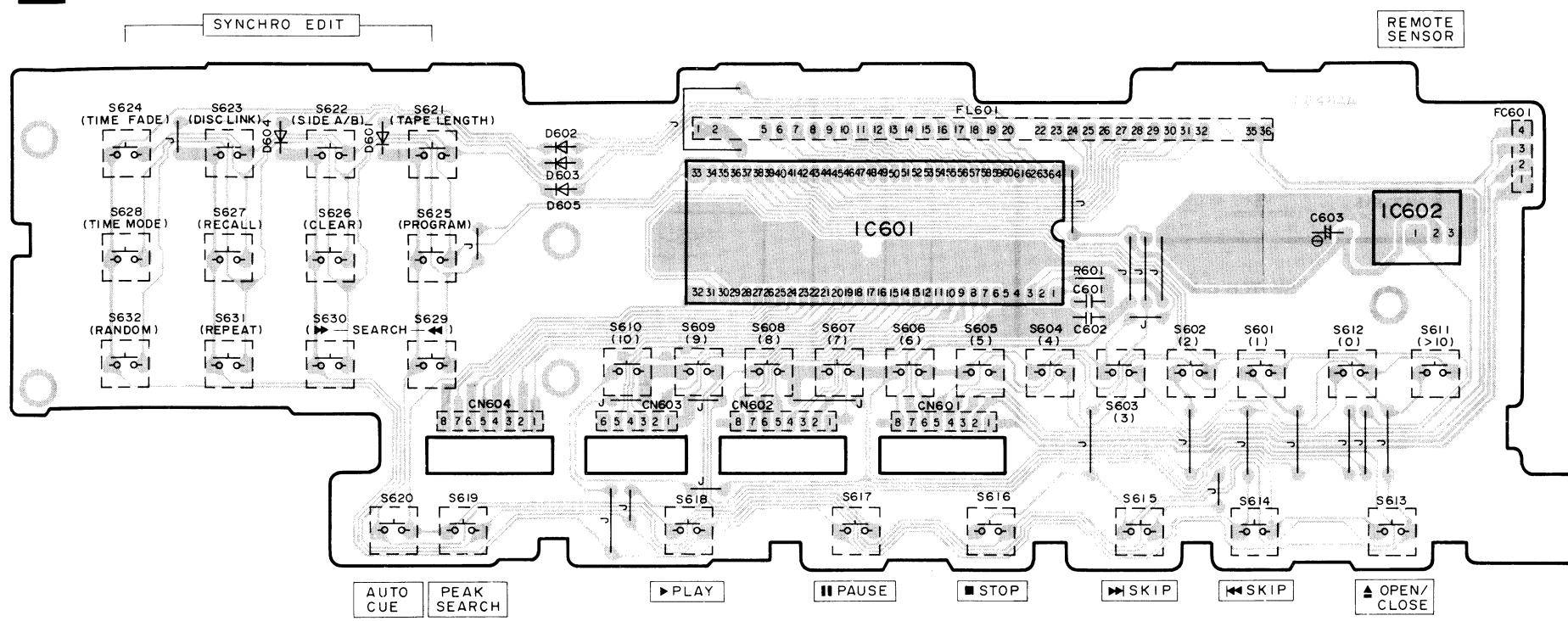
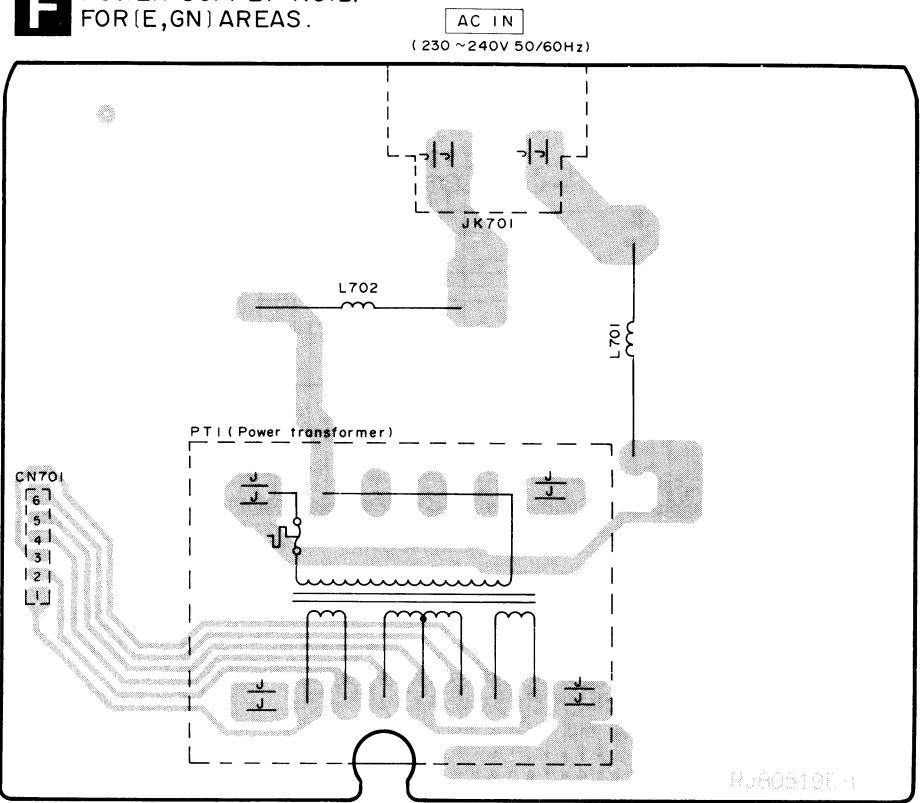
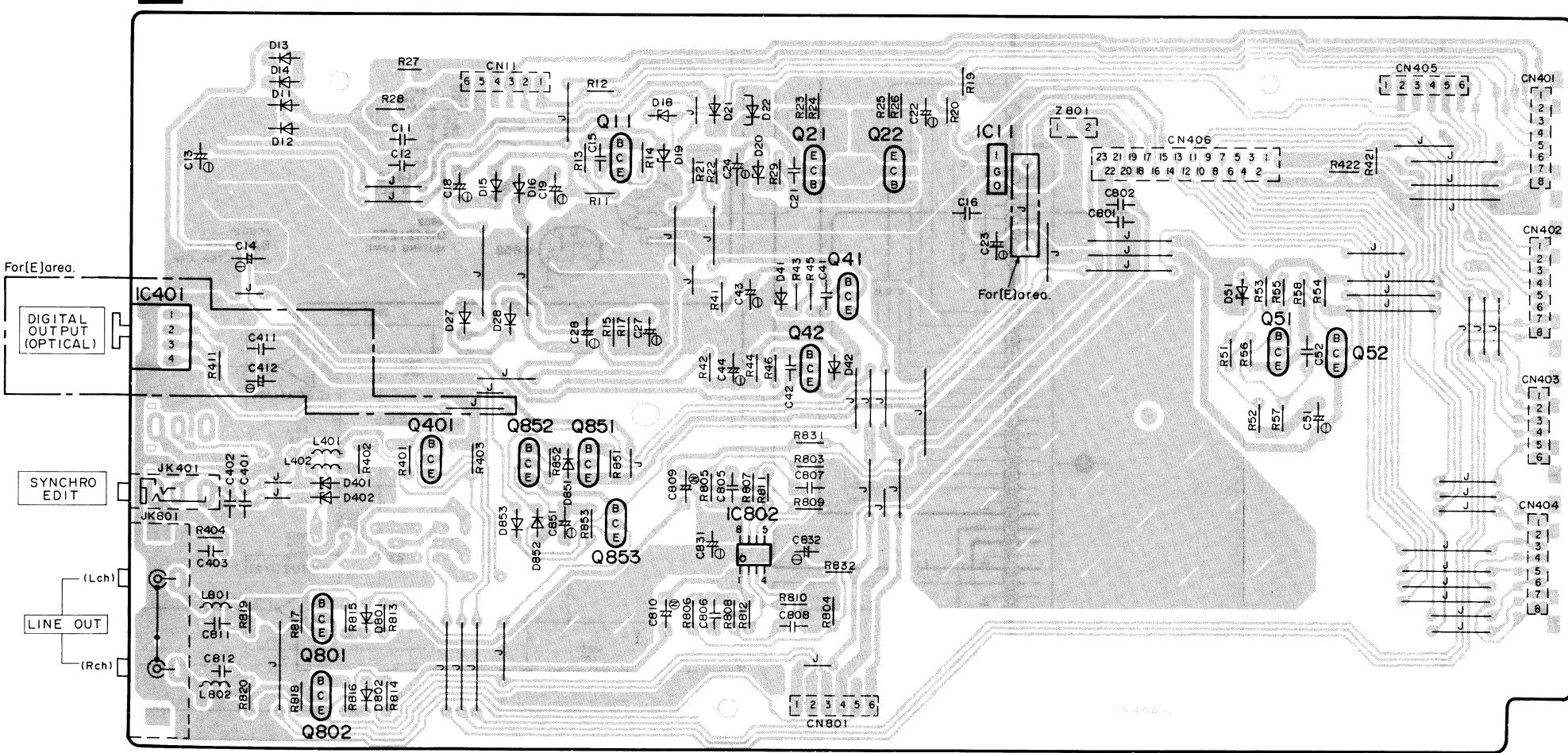
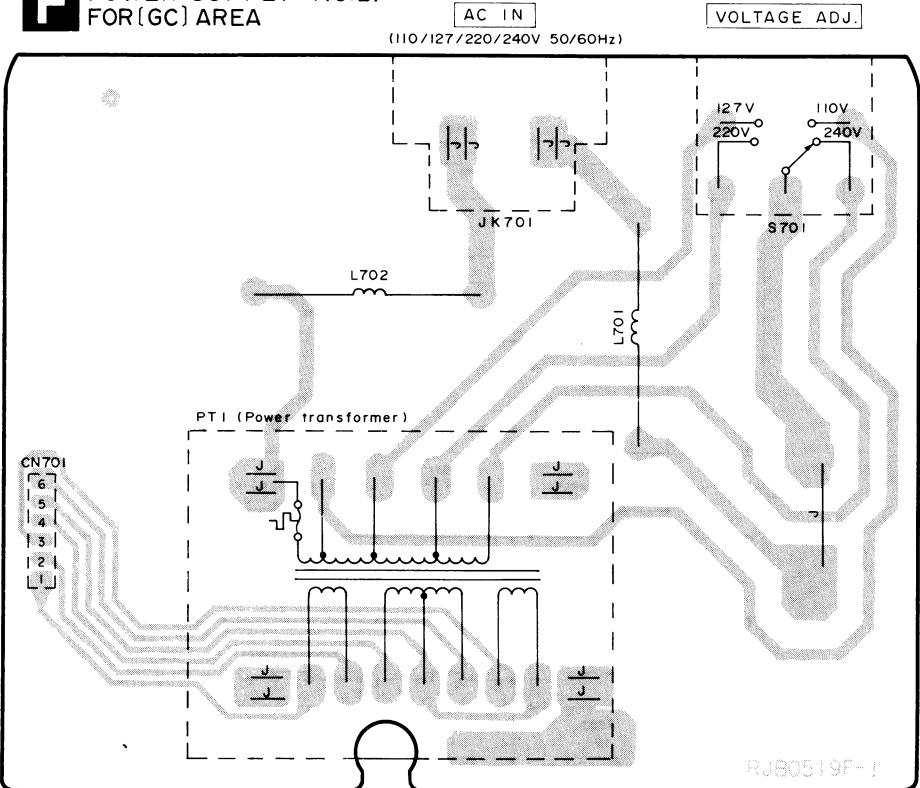
F MAIN P.C.B.

D POWER SWITCH P.C.B

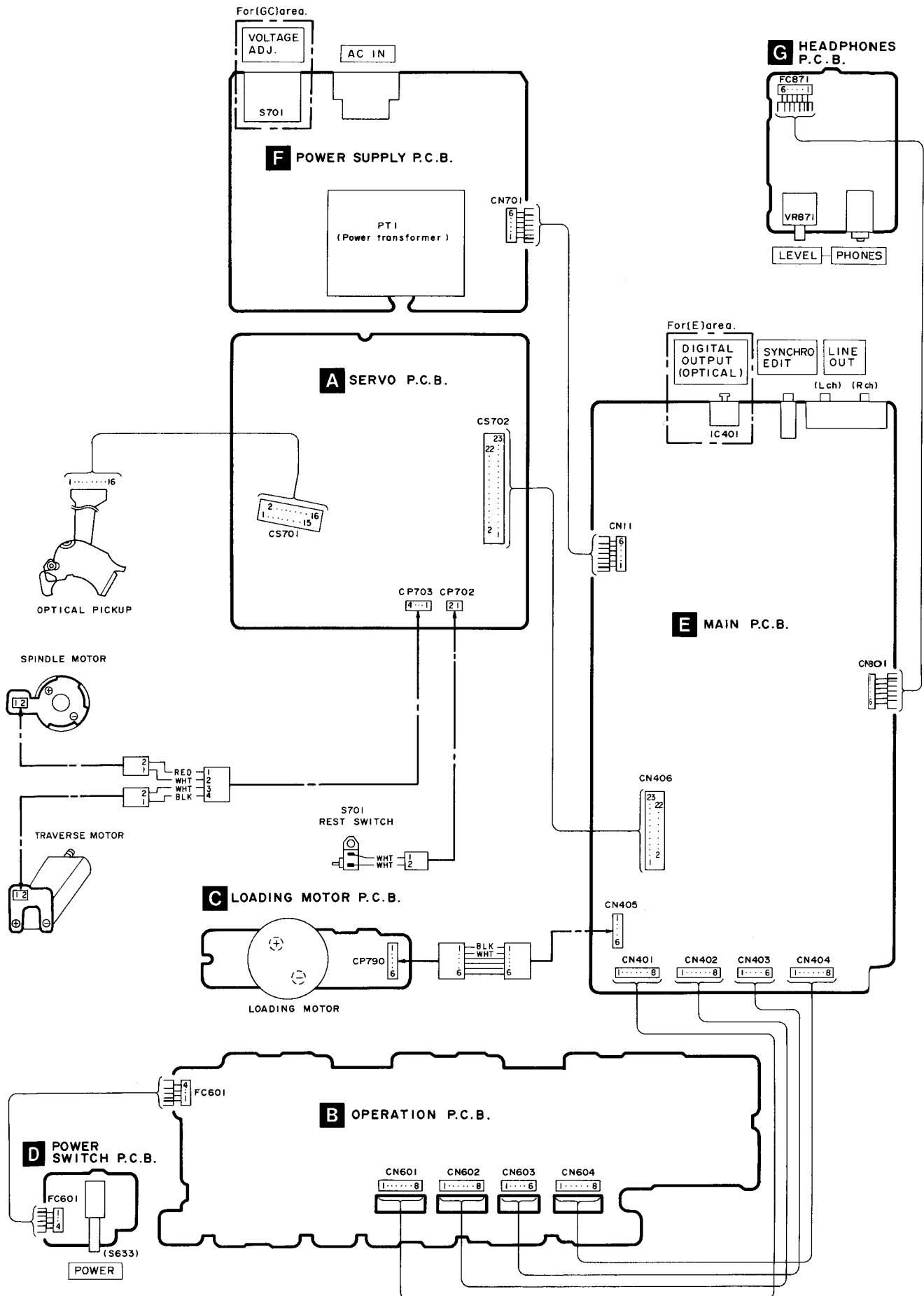


G HEADPHONES P.C.B.



**B** OPERATION P.C.B.**F** POWER SUPPLY P.C.B.  
FOR(E,GN) AREAS.**E** MAIN P.C.B.**F** POWER SUPPLY P.C.B.  
FOR(GC) AREA

## ■ WIRING CONNECTION DIAGRAM



## REPLACEMENT PARTS LIST

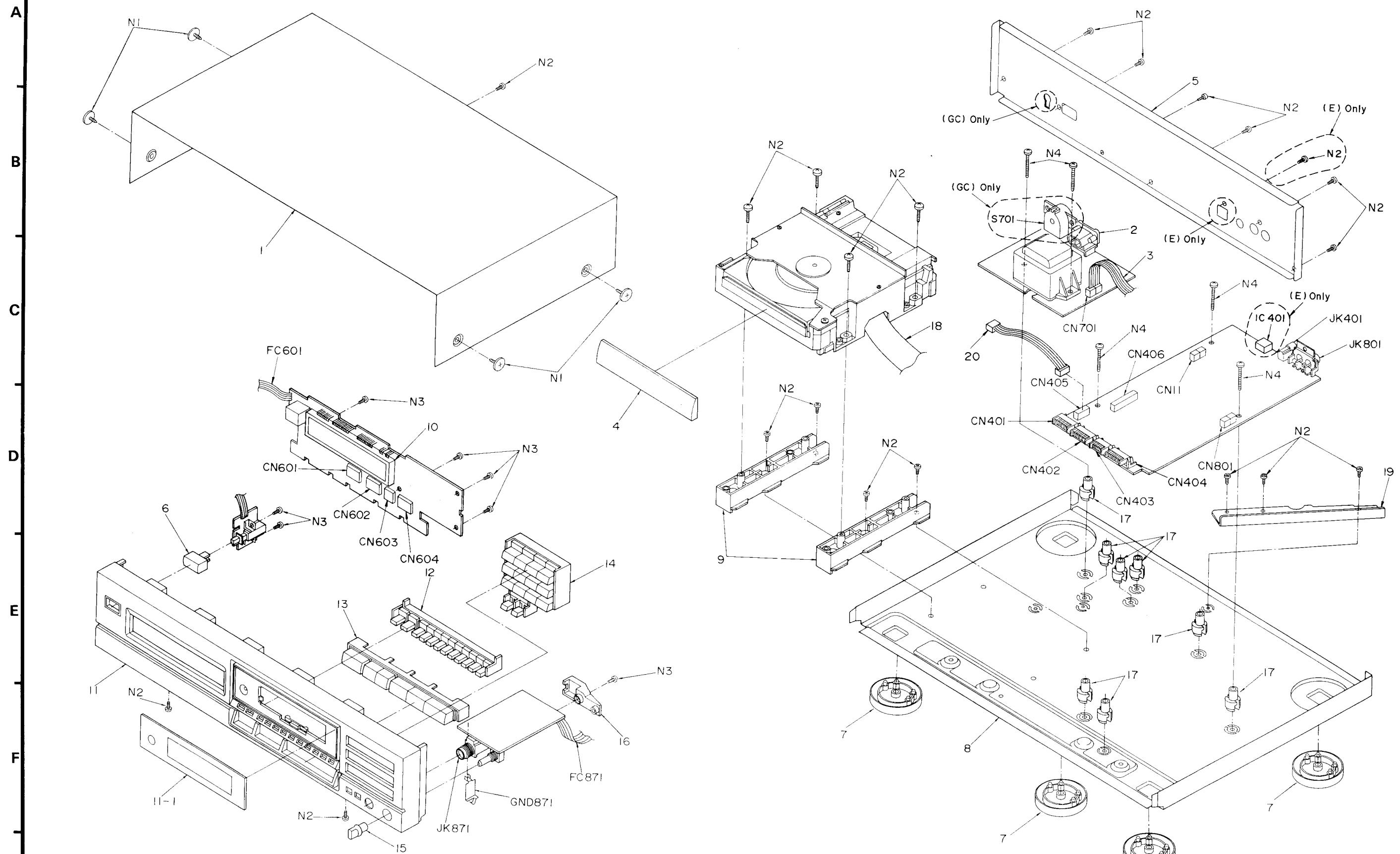
**Notes :**

- \* Important safety notice:  
Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
- \* 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.

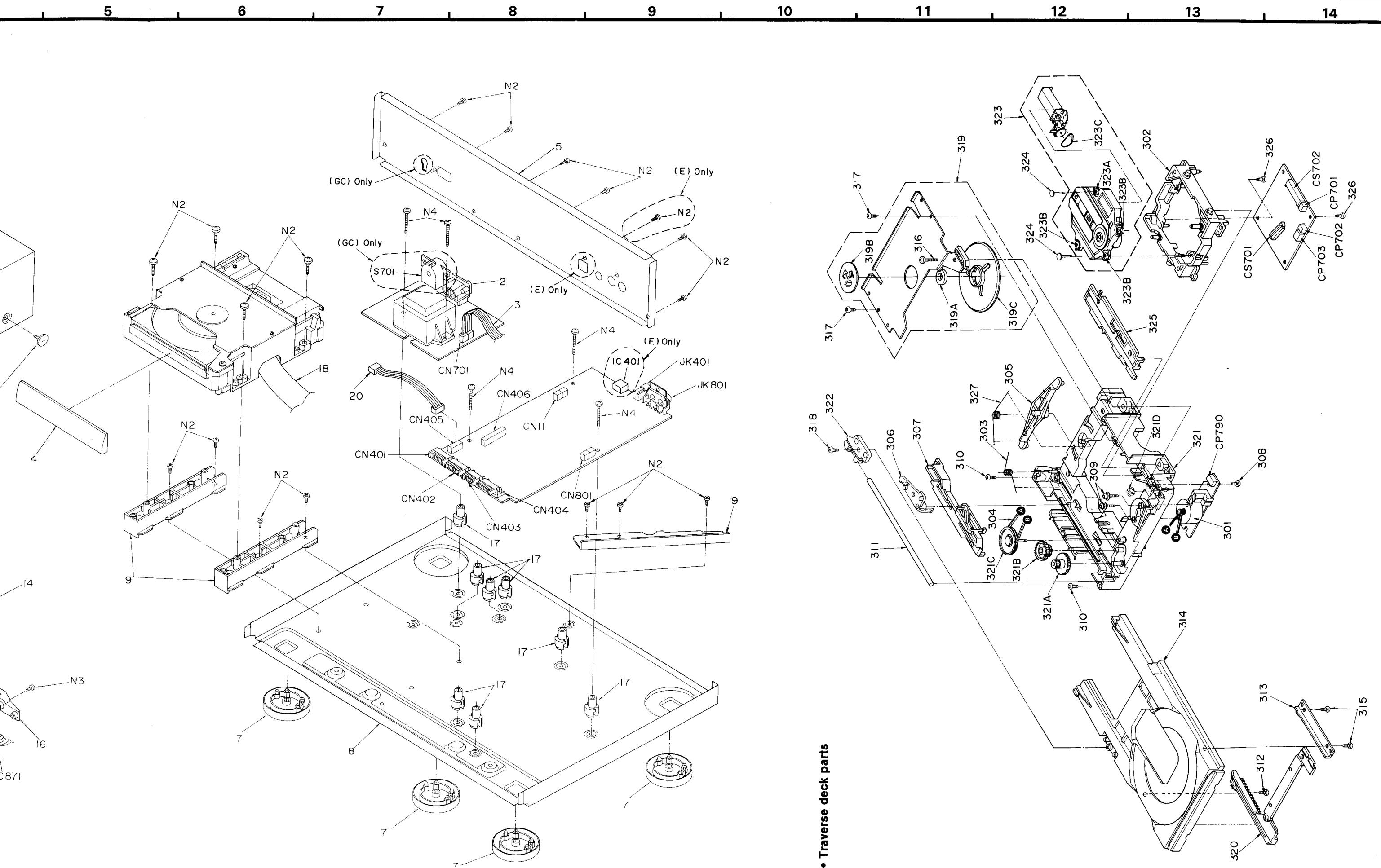
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		313	RMA0328	SHUTTER HOLDER	
1	RK00114-K	CABINET		314	RGQ0066-K	TRAY(B)	
2	SJS9236	AC INLET(JK701)	(E, GC) $\Delta$	315	XTN2+8G	SCREW	
2	SJSD16	AC INLET(JK701)	(GN) $\Delta$	316	XTB3+25GFZ	SCREW	
3	REZ0311	FLAT CABLE(6P)		317	XTN26+6G	SCREW	
4	RGD0313-K	TRAY ORNAMENT		318	XTN3+8JFZ	SCREW	
5	RGR0082D-B2	REAR PANEL	(E)	319	RXQ0122	CLAMPING PLATE ASS'Y	
5	RGR0082F-A1	REAR PANEL	(GC)	319A	RHM245ZA	MAGNET	
5	RGR0082E-B2	REAR PANEL	(GN)	319B	RMR0334	FIXED PLATE	
6	RGU0030	POWER BUTTON		319C	RXQ0123	MAGNET HOLDER ASS'Y	
7	RKA0009-1	FOOT		320	RFKNLDN7N-K	DRIVE GEAR(2) ASS'Y	
8	RMK0026-6	CHASSIS		321	RFKJXDT77-H	MECHANICAL CHASSIS ASS'Y	
9	RMR0359	MECH SPACER		321A	RDG0142	RELAY GEAR	
10	SUWD139-1	FL HOLDER		321B	RDG0143	DRIVE GEAR(1)	
11	RFKGLPG300E	FRONT PANEL ASS'Y		321C	RDP0041	RELAY PULLEY	
11-1	RW0127	METER ORNAMENT PLATE		321D	SDRD14	ROLLER(B)	
12	RGU0278B-K2	10 KEY BUTTON		322	RFKNXDT77C-H	GUIDE HOLDER ASS'Y	
13	RGU0467A-K2	MAIN BUTTON		323	SODD110Z	TRAVERSE DECK UNIT	
14	RGU0468-K2	SUB BUTTON		323A	SHGD112	FLOATING RUBBER(A)	
15	RGW0048	H. P. VOLUME KNOB		323B	SHGD113-1	FLOATING RUBBER(B)	
16	RMR0360	H. P. P. C. B. HOLDER		323C	RDV0014	BELT, RUBBER	
17	SHE187-2	P. C. B. SUPPORT		324	RMS0123-1	FIXED PIN	
18	RWJ5223170EE	FPC(23P)		325	RMM0059	SLIDE PLATE(2)	
19	RMA0496	REINFORCING PLATE		326	XTV26+6G	SCREW	
20	REXD0354	CONNECTOR ASS'Y(6P)		327	RME0087	SPRING, ASSISTANCE	
		SCREWS				PACKING MATERIAL	
N1	SNE2129-1	SCREW		P1	RPG0756	PACKING CASE	
N2	XTBS3+8JFZ1	SCREW		P2	RPN0416	CUSHION	
N3	XTBS26+8J	SCREW		P3	SPSD152	ACCESSORIES BOX	
N4	XTB3+20JFZ	SCREW		P4	XZB60X60A01	PROTECTION BAG(UNIT)	
		LOADING UNIT		P5	XZB26X17C03	PROTECTION BAG(CORD)	
						ACCESSORIES	
301	REM0019	LOADING MOTOR ASS'Y		A1	RFKSLPG300E	INST. MANUAL ASS'Y	(E)
302	RMK0105	CHASSIS		A1	RQT0918-G	INSTRUCTION MANUAL	(GC, GN)
303	RME0063	SPRING, LOCK LEVER		A2	SFDAC05E03	AC POWER SUPPLY CORD	(E) $\Delta$
304	RMG0158	BELT, RUBBER		A2	RJA0004	AC POWER SUPPLY CORD	(GC) $\Delta$
305	RML0177	LEVER, CONVERSION		A2	SJA173	AC POWER SUPPLY CORD	(GN) $\Delta$
306	RML0178	LEVER, LOCK		A3	SJP2249-3	STEREO CONNECTION CABLE	
307	RMM0058	SLIDE PLATE(1)		A4	RQA0013	GUARANTEE CARD	(E)
308	XTN26+6G	SCREW		A4	SQX7186	GUARANTEE CARD	(GN)
309	XYN2-F6FZ	SCREW		A5	RQC0169	SERVICE SHOP LIST	
310	RHD20010	SCREW		A6	RAK-SL304W	REMOTE CONTROL TRANSMITTER	
311	RMU0046	TRAY GUIDE SHAFT		A7	UM-4NE/2S	BATTERY	
312	RHD20009-1	SCREW		A8	SJP9215	AC PLUG ADAPTOR	(GC) $\Delta$

## ■ EXPLODED VIEWS

- Cabinet and chassis parts



- Traverse deck parts



- Traverse deck parts

## REPLACEMENT PARTS LIST

Notes : \* Important safety notice:  
 Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* 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.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
				Z801	EXCELDR35V	COMBINATION PART	
		INTEGRATED CIRCUIT(S)				COIL(S)	
IC11	LM2940T5	IC, REGULATOR		L401, 402	RLQZP3R3KT-Y	COIL	
IC401	TUTX174-A	IC, DIGITAL OUTPUT	(E)	L701, 702	SLQX400-D	COIL	
IC601	MN187164PKZ	IC, SYSTEM CONTROL&FL DRIVE		H801, 802	RLQZP3R3KT-Y	COIL	
IC602	RCD0003	IC, REMOTE CONTROL RECEIVER		L871-873	RLQZP2R2KT-Y	COIL	
IC790	TA7291S	IC, LOADING MOTOR DRIVE				DISPLAY TUBE	
IC802	SVIBA4558F	IC, L. P. F.		FL601	RSL0087-F	DISPLAY TUBE	
IC871	BA15218N	IC, HEADPHONES AMP				SWITCH(ES)	
		TRANSISTOR(S)					
Q11	2SB1238QSTV6	TRANSISTOR		FL601	RSL0087-F	DISPLAY TUBE	
Q21, 22	2SD2037EFTA	TRANSISTOR				SWITCH(ES)	
Q41	2SC3311A-Q	TRANSISTOR		S601	EVQ21405R	SW, NUMERIC 1	
Q42	2SA1309A-R	TRANSISTOR		S602	EVQ21405R	SW, NUMERIC 2	
Q51, 52	2SC3311A-Q	TRANSISTOR		S603	EVQ21405R	SW, NUMERIC 3	
Q401	UN4212TA	TRANSISTOR		S604	EVQ21405R	SW, NUMERIC 4	
Q801, 802	2SD1450RTA	TRANSISTOR		S605	EVQ21405R	SW, NUMERIC 5	
Q851	UN4112	TRANSISTOR		S606	EVQ21405R	SW, NUMERIC 6	
Q852	UN4212TA	TRANSISTOR		S607	EVQ21405R	SW, NUMERIC 7	
Q853	DTA114ESTP	TRANSISTOR		S608	EVQ21405R	SW, NUMERIC 8	
Q871, 872	2SD1450RTA	TRANSISTOR		S609	EVQ21405R	SW, NUMERIC 9	
		DIODE(S)		S610	EVQ21405R	SW, NUMERIC 10	
D11-16	SVD1SR35200A	DIODE		S611	EVQ21405R	SW, NUMERIC >10	
D18	MA4082MTA	DIODE		S612	EVQ21405R	SW, NUMERIC 0	
D19	MA4270	DIODE		S613	EVQ21405R	SW, OPEN/CLOSE	
D20	MA4075MTA	DIODE		S614	EVQ21405R	SW, B. SKIP	
D21, 22	SVD1SR35200A	DIODE		S615	EVQ21405R	SW, F. SKIP	
D27, 28	SVD1SR35200A	DIODE		S616	EVQ21405R	SW, STOP	
D41, 42	MA4082MTA	DIODE		S617	EVQ21405R	SW, PAUSE	
D51	MA4039MTA	DIODE		S618	EVQ21405R	SW, PLAY	
D401, 402	MA4091-M	DIODE		S619	EVQ21405R	SW, PEAK	
D601-605	ISS254TA	DIODE		S620	EVQ21405R	SW, AUTO CUE	
D801, 802	ISS254TA	DIODE		S621	EVQ21405R	SW, TAPE LENGTH	
D851-853	ISS254TA	DIODE		S622	EVQ21405R	SW, SIDE A/B	
D871	ISS254TA	DIODE		S623	EVQ21405R	SW, LINK	
	VARIABLE RESISTOR(S)			S624	EVQ21405R	SW, TIME FADE	
VR871	EVJCBOFO2A14	V. R, HEADPHONES LEVEL		S625	EVQ21405R	SW, PROGRAM	
	COMPONENT COMBINATION(S)			S626	EVQ21405R	SW, CLEAR	
				S627	EVQ21405R	SW, RECALL	
				S628	EVQ21405R	SW, TIME MODE	
				S629	EVQ21405R	SW, B. SEARCH	
				S630	EVQ21405R	SW, F. SEARCH	
				S631	EVQ21405R	SW, REPEAT	
				S632	EVQ21405R	SW, RANDOM	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
S633	RSP2B010	SW, POWER					
S701	SSR187-1	SW, VOLTAGE ADJ.	(GC) $\Delta$	Q701	2SB709STW	TRANSISTOR	
S790	RSH1A005	SW, CLOSE DETECTOR				DIODE (S)	
S791	RSH1A005	SW, OPEN DETECTOR		D701	MA110TW	DIODE	
		CONNECTOR(S) & SOCKET(S)				VARIABLE RESISTOR(S)	
CN11	RJS1A6606	CONNECTOR (6P)		VR701	EVNDXAA00B14	V. R, BEST EYE ADJ.	
CN401, 402	RJU003K008M1	SOCKET (8P)				OSCILLATOR (S)	
CN403	RJU003K006M1	SOCKET (6P)		X701	RSXZ33M8M01T	OSCILLATOR (33.868MHz)	
CN404	RJU003K008M1	SOCKET (8P)				SWITCH(ES)	
CN405	RJT029W06VT	CONNECTOR (6P)		S701	SSH05	SW, REST DETECTOR	
CN406	RJS1A6823	CONNECTOR (23P)				PLUG (S) & SOCKET(S)	
CN601, 602	RJT003K008M1	CONNECTOR (8P)		CP701	RJP2G17ZA	PLUG (2P)	
CN603	RJT003K006M1	CONNECTOR (6P)		CP702	RJP2G17ZA	PLUG (2P)	
CN604	RJT003K008M1	CONNECTOR (8P)		CP703	RJP4G17ZA	PLUG (4P)	
CN701	SJT30643-V	CONNECTOR (6P)		CS701	RJU035T016-1	SOCKET (16P)	
CN801	RJS1A6606	CONNECTOR (6P)		CS702	RJS1A6723-1Q	SOCKET (23P)	
CP790	RJP6G17ZA	CONNECTOR (6P)					
		JACK (S)					
JK401	RJJ33T01	SYNCHRO EDIT					
JK801	RJH3201N	LINE OUT					
JK871	QJA0455ZC	HEADPHONES					
		FLAT CABLE (S)					
FC601	REZ0310	FLAT CABLE (4P)					
FC871	REZ0312	FLAT CABLE (6P)					
		EARTH TERMINAL					
GND871	RMC0063	EARTH TERMINAL					
		POWER TRANSFORMER					
PT1	RTP1K4B012	POWER TRANSFORMER	(E, GN) $\Delta$				
PT1	RTP1K4E020	POWER TRANSFORMER	(GC) $\Delta$				
		<SERVO P. C. B. >					
		INTEGRATED CIRCUIT(S)					
IC701	AN8800SCE2	IC, SERVO AMP					
IC702	TCA0372DM2R	IC, SPINDLE MOTOR DRIVE					
IC703	AN8377N	IC, TRAVERSE MOTOR DRIVE					
IC704	MN6650	IC, DIGITAL SERVO PROCESSOR					
IC705	MN6477T2	IC, DIGITAL FILTER&D/A CONV.					
IC706	MN6626	IC, DIGITAL SIGNAL PROCESSOR					
		TRANSISTOR(S)					

RESISTOR	
Notes : * Capacitor * Resistor	
Ref. No.	Part No.
R11	ERDS2TJ152
R12	ERDS2TJ330
R13, 14	ERDS2TJ152
R15	ERDS2TJ182
R17	ERDS2TJ182
R19	ERDS2TJ472
R20	ERDS2TJ392T
R21, 22	ERDS2TJ391
R23-26	ERDS2TJ1R0
R27, 28	ERQ16NKWR151
R29	ERDS2TJ680T
R41-44	ERDS2TJ102
R45, 46	ERDS2TJ391
R51	ERDS2TJ101
R52	ERDS2TJ272T
R53	ERDS2TJ222
R54	ERDS2TJ472
R55	ERDS2TJ222
R56	ERDS2TJ101
R57, 58	ERDS2TJ272T
R401, 402	ERDS2TJ102
R403	ERDS2TJ273
R404	ERDS2TJ100
R411	ERDS2TJ822
R421	ERDS2TJ102
R422	ERDS2TJ821
R601	ERDS2TJ104
R803, 804	ERDS2TJ473
R805-808	ERDS2TJ103
R809, 810	ERDS2TJ333
R811, 812	ERDS2TJ223
R813, 814	ERDS2TJ471
R815, 816	ERDS2TJ102
R817, 818	ERDS2TJ473
R819, 820	ERDS2TJ471
R831, 832	ERDS2TJ471
R851	ERDS2TJ472
R852	ERDS2TJ471
R853	ERDS2TJ152
R871, 872	ERDS2TJ122
R873-876	ERDS2TJ183T
R877, 878	ERDS2TJ124T
R879, 880	ERDS2TJ473
R881, 882	ERDS2TJ101
R883, 884	ERDS2TJ222

of these  
area.)

Ref. No.	Part No.	Part Name & Description	Remarks
S633	RSP2B010	SW, POWER	
S701	SSR187-1	SW, VOLTAGE ADJ.	(GC) △
S790	RSH1A005	SW, CLOSE DETECTOR	
S791	RSH1A005	SW, OPEN DETECTOR	
		CONNECTOR(S) & SOCKET(S)	
CN11	RJS1A6606	CONNECTOR(6P)	
CN401, 402	RJU003K008M1	SOCKET(8P)	
CN403	RJU003K006M1	SOCKET(6P)	
CN404	RJU003K008M1	SOCKET(8P)	
CN405	RJT029W06VT	CONNECTOR(6P)	
CN406	RJS1A6823	CONNECTOR(23P)	
CN601, 602	RJT003K008M1	CONNECTOR(8P)	
CN603	RJT003K006M1	CONNECTOR(6P)	
CN604	RJT003K008M1	CONNECTOR(8P)	
CN701	SJT30643-V	CONNECTOR(6P)	
CN801	RJS1A6606	CONNECTOR(6P)	
CP790	RJP6G17ZA	CONNECTOR(6P)	
		JACK(S)	
JK401	RJJ33T01	SYNCHRO EDIT	
JK801	RJH3201N	LINE OUT	
JK871	QJA0455ZC	HEADPHONES	
		FLAT CABLE(S)	
FC601	REZ0310	FLAT CABLE(4P)	
FC871	REZ0312	FLAT CABLE(6P)	
		EARTH TERMINAL	
GND871	RMC0063	EARTH TERMINAL	
		POWER TRANSFORMER	
PT1	RTP1K4B012	POWER TRANSFORMER	(E, GN) △
PT1	RTP1K4E020	POWER TRANSFORMER	(GC) △
		⟨SERVO P. C. B.⟩	
		INTEGRATED CIRCUIT(S)	
IC701	AN8800SCE2	IC, SERVO AMP	
IC702	TCA0372DM2R	IC, SPINDLE MOTOR DRIVE	
IC703	AN8377N	IC, TRAVERSE MOTOR DRIVE	
IC704	MN6650	IC, DIGITAL SERVO PROCESSOR	
IC705	MN6477T2	IC, DIGITAL FILTER&D/A CONV.	
IC706	MN6626	IC, DIGITAL SIGNAL PROCESSOR	
		TRANSISTOR(S)	

## ■ RESISTORS &amp; CAPACITORS

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

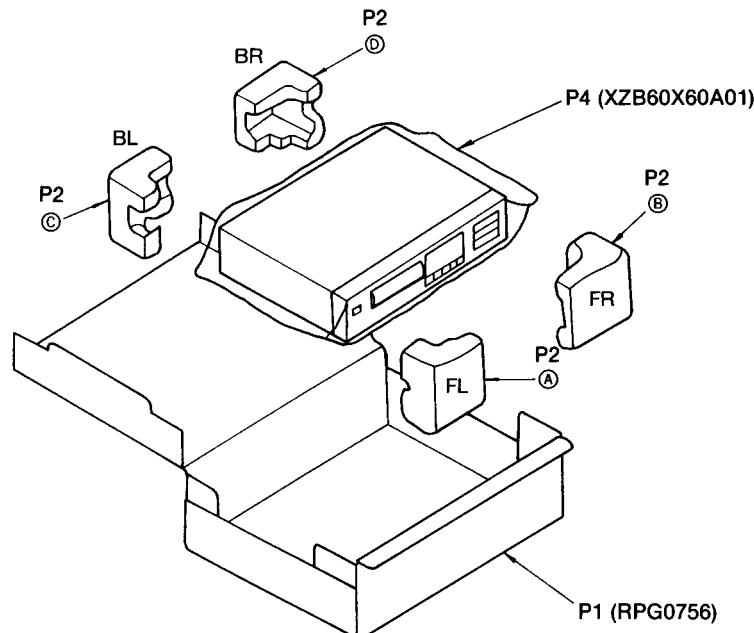
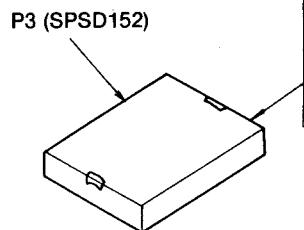
Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		CAPACITORS				R714	ERJ6GEYJ473V	1/10W 47K
		RESISTORS				R715	ERJ6GEYJ223V	1/10W 22K
			C11, 12	ERDS2TJ152	1/4W 1.5K	R716	ERJ6GEYJ104V	1/10W 100K
			C13	ECEA1EU222B	25V 2200U	R717	ERJ6GEYJ682V	1/10W 6.8K
			C14	ECEA1EU471	25V 470U	R718	ERJ6GEYJ223V	1/10W 22K
			C15, 16	ECBT1E103ZF	25V 0.01U	R719	ERJ6GEYJ123V	1/10W 12K
			C18, 19	ECEA1HU101	50V 100U	R720	ERJ6GEYJ273V	1/10W 27K
			C21	ECBT1E103ZF	25V 0.01U	R721	ERJ6GEYJ823V	1/10W 82K
			C22	ECEA1AU471	10V 470U	R722	ERJ6GEYJ561V	1/10W 560
			C23	ECEA0JK101	6.3V 100U	R723	ERJ6GEYJ104V	1/10W 100K
			C24	ECEA1AU221	10V 220U	R724	ERJ6GEYJ104V	1/10W 100K
			C27, 28	ECEA1EU101	25V 100U	R725	ERJ6GEYJ471V	1/10W 470
			C41, 42	ECBT1E103ZF	25V 0.01U	R726	ERJ6GEYJ102V	1/10W 1K
			C43	ECEA1EU221	25V 220U	R729	ERJ6GEYJ102V	1/10W 1K
			C44	ECEA1FK470B	25V 47U	R730	ERJ6GEYJ102V	1/10W 1K
			C51	ECEA1HU010	50V 1U	R731	ERJ6GEYJ470V	1/8W 47
			C52	ECFR1E104ZF5	25V 0.1U	R732	ERJ6GEYJ562V	1/10W 5.6K
			C401-403	ECBT1E103ZF	25V 0.01U	R733	ERJ6GEYJ332V	1/10W 3.3K
			C411	ECFR1E104ZF5	25V 0.1U (E)	R734	ERJ6GEYJ562V	1/10W 5.6K
			C412	ECEA0JK101	6.3V 100U (E)	R735	ERJ6GEYJ222V	1/10W 2.2K
			C601, 602	ECBT1E103ZF	25V 0.01U	R736	ERJ6GEYJ682V	1/10W 6.8K
			C603	ECEA0JK470	6.3V 47U	R737	ERJ6GEYJ562V	1/10W 5.6K
			R57, 58	ERDS2TJ272T	1/4W 2.7K	C790	ECA1AKF820E	10V 82U
			R401, 402	ERDS2TJ102	1/4W 1K	C801, 802	ECBT1H102KB5	50V 1000P
			R403	ERDS2TJ273	1/4W 27K	C805-808	ECCR1H391J5	50V 390P
			R404	ERDS2TJ100	1/4W 10	C809, 810	ECEA1AN470S	10V 47U
			R411	ERDS2TJ822	1/4W 8.2K (E)	C811, 812	ECBT1H102KB5	50V 1000P
			R421	ERDS2TJ102	1/4W 1K	C831	ECEA1AU471	10V 470U
			R422	ERDS2TJ821	1/4W 820	C832	ECEA1CK100B	16V 10U
			R601	ERDS2TJ104	1/4W 100K	C851	ECEA1AU471	10V 470U
			R803, 804	ERDS2TJ473	1/4W 47K	C871, 872	ECEA1AKN100B	10V 10U
			R805-808	ERDS2TJ103	1/4W 10K	C873, 874	ECEA1AKN470B	10V 47U
			R809, 810	ERDS2TJ333	1/4W 33K	C875-879	ECBT1E103ZF	25V 0.01U
			R811, 812	ERDS2TJ223	1/4W 22K			JUMPER(S)
			R813, 814	ERDS2TJ471	1/4W 470			
			R815, 816	ERDS2TJ102	1/4W 1K			⟨SERVO P. C. B.⟩
			R817, 818	ERDS2TJ473	1/4W 47K			
			R819, 820	ERDS2TJ471	1/4W 470			RESISTOR(S)
			R831, 832	ERDS2TJ471	1/4W 470	R701	ERJ6GEYJ100V	1/10W 10
			R851	ERDS2TJ472	1/4W 4.7K	R702	ERJ6GEYJ471V	1/10W 470
			R852	ERDS2TJ471	1/4W 470	R703	ERJ6GEYJ102V	1/10W 1K
			R853	ERDS2TJ152	1/4W 1.5K	R704	ERJ6GEYJ103V	1/10W 10K
			R871, 872	ERDS2TJ122	1/4W 1.2K	R706	ERJ6GEYJ473V	1/10W 47K
			R873-876	ERDS2TJ183T	1/4W 18K	R707	ERJ6GEYJ222V	1/10W 2.2K
			R877, 878	ERDS2TJ124T	1/4W 120K	R708	ERJ6GEYJ683V	1/10W 68K
			R879, 880	ERDS2TJ473	1/4W 47K	R709	ERJ6GEYJ122V	1/10W 1.2K
			R881, 882	ERDS2TJ101	1/4W 100	R710	ERJ6GEYJ182V	1/10W 1.8K
			R883, 884	ERDS2TJ222	1/4W 2.2K	R711	ERJ6GEYJ473V	1/10W 47K
						R712	ERJ6GEYJ471V	1/10W 470
						C701	ECEA0JKS220I	6.3V 22U
						C702	ECEA0JKS470I	6.3V 47U
						C703	ECEA0JKS101I	6.3V 100U

Ref. No.	Part No.	Values & Remarks					
C709	ECUV1C224KBM	16V 0.22U					
C710	ECUV1C104MBM	16V 0.1U					
C711	ECUV1E103MBN	25V 0.01U					
C713	ECEA1CSN4R7I	16V 4.7U					
C714	ECEA1HKS010I	50V 1U					
C715	ECUV1H472KBN	50V 4700P					
C716	ECUV1C473KBN	16V 0.047U					
C717	ECUV1H681KBN	50V 680P					
C718	ECEA1AKS101I	10V 100U					
C719	ECUV1E103MBN	25V 0.01U					
C720	ECUV1E153MBN	25V 0.015U					
C721	ECUV1E103MBN	25V 0.01U					
C722	ECEAOJKS470I	6.3V 47U					
C723	ECUV1C104MBM	16V 0.1U					
C724	ECUV1E333MBN	25V 0.033U					
C725	ECUV1E103MBN	25V 0.01U					
C726	ECUV1H471KBN	50V 470P					
C727	ECEAOJKS470I	6.3V 47U					
C728	ECUV1C104MBM	16V 0.1U					
C729	ECUV1C104MBM	16V 0.1U					
C730	ECUV1C224KBM	16V 0.22U					
C731	ECEAOJKS331I	6.3V 330U					
C732	ECUV1H102MBN	50V 1000P					
C733	ECEAOJKS101I	6.3V 100U					
C734	ECUV1E223MBN	25V 0.022U					
C735	ECUV1C224KBM	16V 0.22U					
C737	ECUV1C224KBM	16V 0.22U					
C738	ECEAOJKS101I	6.3V 100U					
C739	ECUV1E103MBN	25V 0.01U					
C740	ECUV1H472MBN	50V 4700P					
C741	ECUV1C224KBM	16V 0.22U					
C742	ECUV1H392KBN	50V 3900P					
C743	ECEAOJKS101I	6.3V 100U					
C744	ECUV1H102KBN	50V 1000P					
C745	ECUV1H102KBN	50V 1000P					
C746	ECEAOJKS101I	6.3V 100P					
C747	ECUV1C104MBM	16V 0.1U					
C748	ECEA1HKS010I	50V 1U					
C749	ECUV1E103MBN	25V 0.01U					
C750	ECUV1H050DCN	50V 5P					
C751	ECUV1C224KBM	16V 0.22U					
C752	ECUV1C104MBM	16V 0.1U					
C753	ECEAOJKS220I	6.3V 22U					
C754	ECEAOJKS220I	6.3V 22U					
C755	ECUV1C104MBM	16V 0.1U					
C756	ECUV1H050DCN	50V 5P					
C757	ECUV1H050DCN	50V 5P					
C758	ECUV1C224KBM	16V 0.22U					
C763	ECUV1E103MBN	25V 0.01U					

## ■ PACKING

### ACCESSORIES

- A1 (RFKSLPG300E): (E)
- A1 (RQT0918-G): (GC, GN)
- A2 (SFDAC05E03): (E)
- A2 (RJA0004): (GC)
- A2 (SJA173): (GN)
- A3 (SJP2249-3)
- A4 (RQA0013): (E)
- A4 (SQX7186): (GN)
- A5 (RQCB0169)
- A6 (RAK-SL304W)
- A7 (UM-4NE/2S)
- A8 (SJP9125): (GC)
- P5 (XZB26X17C03)



(P2 (A) (B) (C) (D): Part No. RPN0416)