

# Service Manual

**COMPACT**  
**disc**  
**DIGITAL AUDIO**

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

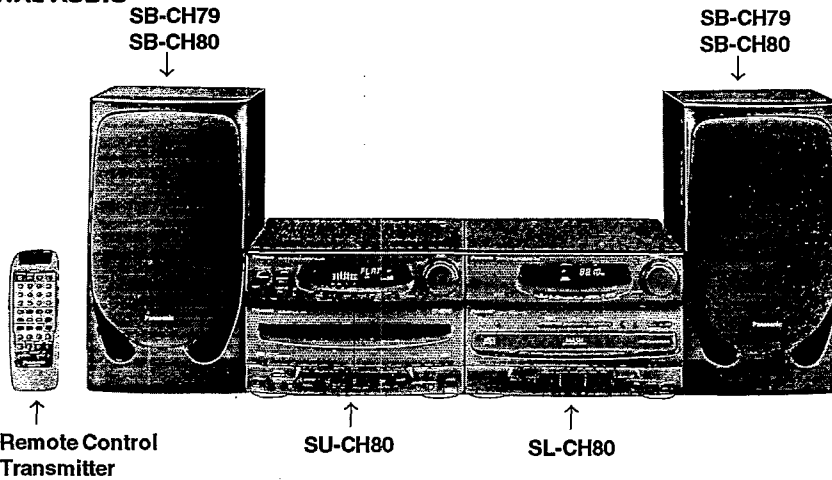
## Tuner/Compact Disc Changer SL-CH80

Colour

(K) . . . Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe and Great Britain	(K)
(EG)	Germany and Italy	
(GN)	Oceania	



(The configuration of the speakers differs according to the area.)

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

\*

MASH is a trademark of NTT

TRAVERSE DECK : RAE0113Z MECHANISM SERIES

### ■ SPECIFICATIONS

#### ■ FM TUNER SECTION

Frequency range	87.50 – 108.00 MHz
Sensitivity	23.3 dBf (4.0 μV, IHF '58)
Total harmonic distortion	
MONO	0.3 %
STEREO	0.5 %
S/N	
MONO	60 dB (65 dB, IHF)
Image rejection at 98.1 MHz	35 dB
Stereo separation	
1 kHz	35 dB
Antenna terminal(s)	75Ω (unbalanced)

#### ■ AM TUNER SECTION

Frequency range	
MW	522 – 1611 kHz
LW	144 – 288 kHz
Sensitivity (for 500mW)	
MW (at 999 kHz)	250 μV/m
LW (at 252 kHz)	500 μV/m

#### ■ CD SECTION

Sampling frequency	44.1 kHz
Decoding	16 bit linear
Beam source/wavelength	Semiconductor laser/780nm
Number of channels	2 ch, stereo
Frequency response	20 Hz – 20 kHz (+1, -2 dB)
S/N	90 dB filter (JIS.A)
Wow and flutter	Below measureable limit
Digital filter	4 times over sampling
D/A converter	MASH (1 bit DAC)

#### ■ GENERAL

Power consumption	130 W
Power supply	AC 50Hz, 230 – 240 V
Dimensions (W x H x D)	270 x 184.4 x 343.9 mm
Weight	4.2 kg

#### Note :

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

System	Tuner/Compact Disc Changer	Cassette Deck/Amplifier	Speakers
SC-CH80 E	SD-CH80 E		* SB-CH80 E
	SL-CH80 E	SU-CH80 E	
SC-CH80 EB	SD-CH80 EB		
	SL-CH80 E	SU-CH80 EB	
SC-CH80 EG	SD-CH80 EG		
	SL-CH80 EG	SU-CH80 EG	
SC-CH80 GN	SL-CH80 GN	SU-CH80 GN	SB-CH79 P

\* Made in PAES

# Panasonic

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### NOTE :

Refer to the service manual for Model No. SU-CH80 (Order No. MD9404036C8) for information on "ACCESSORIES" , "CONNECTIONS" and "PACKAGING".

## ■ PRECAUTION OF LASER DIODE

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

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

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

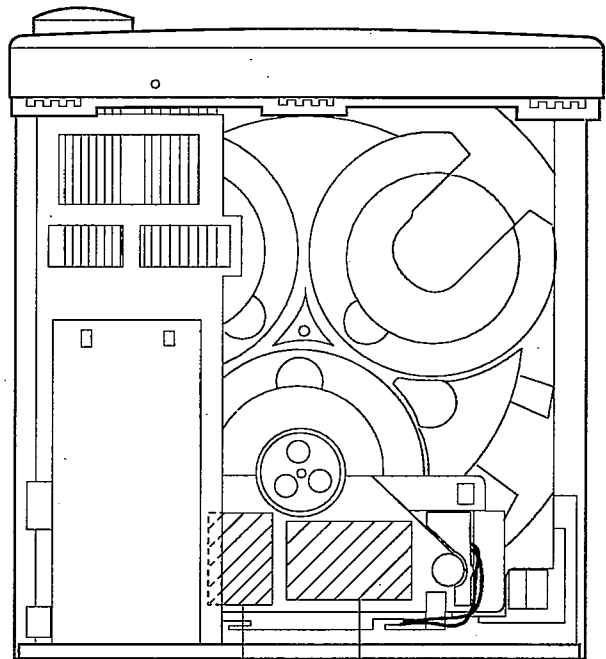
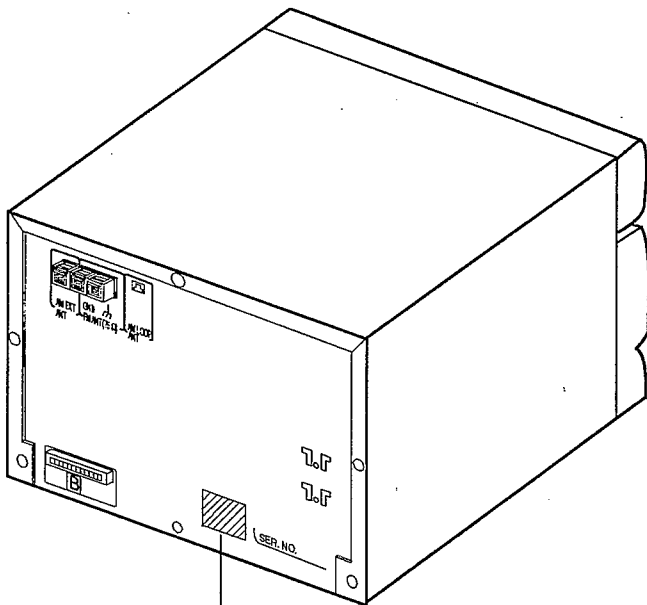
**ADVARSEL:** I dette a apparat anvendes laser.

**THIS MUSIC SYSTEM IS CAPABLE OF RECEIVING THE NEW AM STEREO BROADCASTS FROM THE AM BAND RADIO STATIONS. HOWEVER LIKE MANY MUSIC SYSTEM CURRENTLY AVAILABLE ON THE MARKET IT WILL REPRODUCE THIS AM STEREO SIGNAL ONLY IN AM MONO, WHICH, IN EFFECT, IS OF NO LESSER QUALITY THAN YOUR AM MONO MUSIC SYSTEM.**

**USE OF CAUTION LABELS**

Note : O mark indicate that caution label is used in that area.  
 X mark indicate that caution label is not used in that area.

Area	RQT4389ZAA	RQLS0078	RQLS0021
(E)	O	O	O
(EG)	O	X	O
(GN)	O	X	O



RQT4389ZAA



**LUOKAN 1 LASERLAITE  
 KLASS 1 LASER APPARAT**

**RQLS0078**  
 (for E area only)

**VARO!** Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteeseen.

**VARNING!** Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

**ADVERSELL!** Usynlig laserstrålning när deksel åpnes og sikkerhedsstås brytes. Unngå eksponering for strålen. **RQLS0078**

**RQLS0021**

**ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSÅFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING**

**VORSICHT-Usichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen. RQLS0021**

**DANGER-invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.**

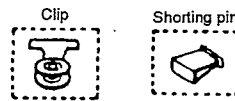
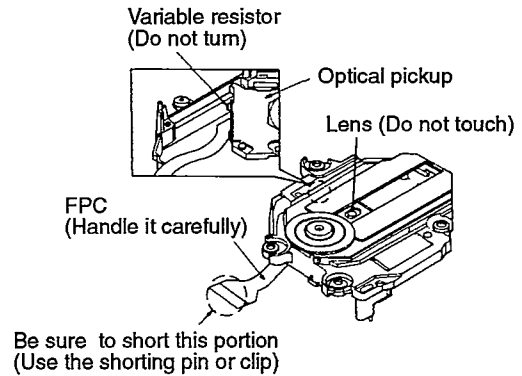
## ■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

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 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.

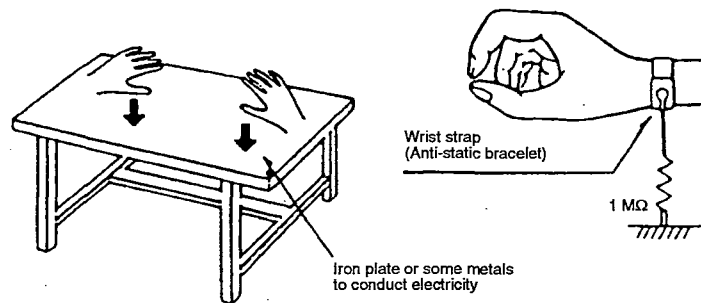


### • Grounding for electrostatic breakdown prevention

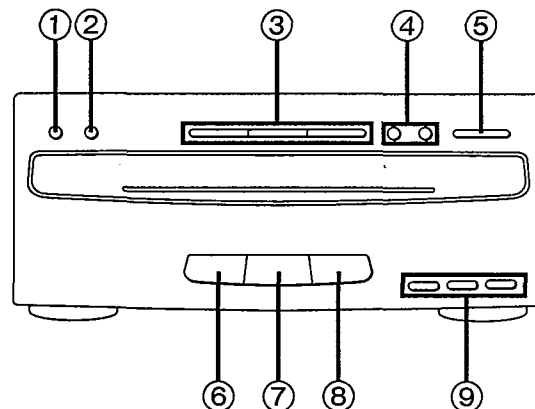
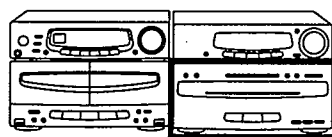
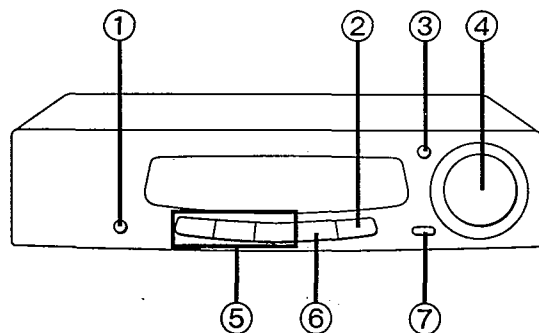
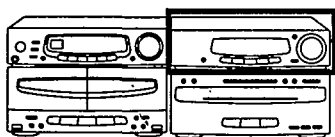
1. Human body grounding  
Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding  
Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

#### 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).



## ■ LOCATION OF CONTROLS



### *Tuner section*

- ① CD display mode select button (CD DISPLAY)
- ② FM mode/beat proof button (FM MODE/BP)
- ③ Setting button (SET)
- ④ Tuning/CD skip dial (TUNING/CD SKIP)
- ⑤ Input select buttons (TAPE, AUX, CD)
- ⑥ Tuner/band select button (TUNER/BAND)
- ⑦ Tuning mode select button (TUNING MODE)

### *Compact disc changer section*

- ① Repeat button (REPEAT)
- ② Random play button (RANDOM)
- ③ Disc buttons (DISC 1, DISC 2, DISC 3)
- ④ Skip/search buttons (  $\lll/\lll$  ,  $\ggg/\ggg$  )
- ⑤ Disc tray open/close button (  $\blacktriangle$  OPEN/CLOSE )
- ⑥ Stop button (  $\square$  )
- ⑦ Pause button (  $\square\square$  )
- ⑧ Play button (  $\blacktriangleright$  )
- ⑨ Compact disc edit recording buttons (J.FIT, ALBUM, LAST FADE)

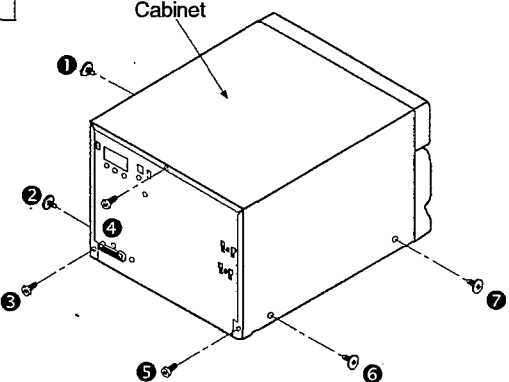
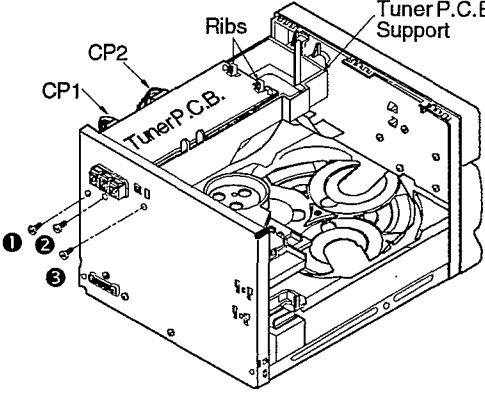
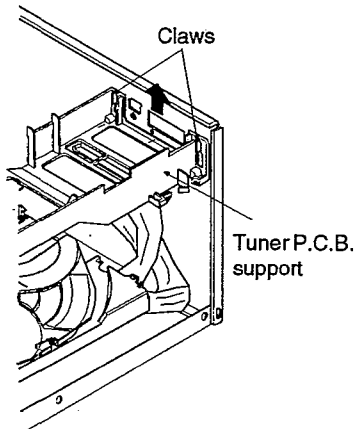
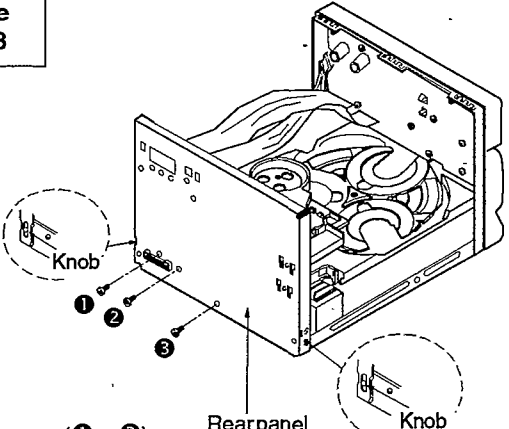
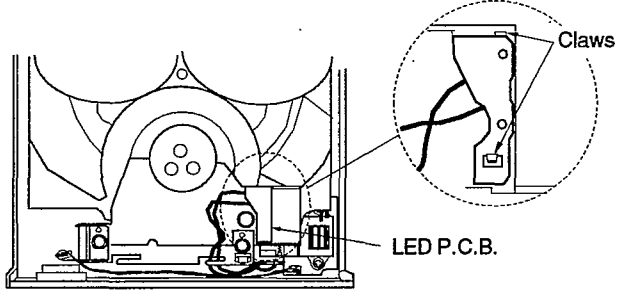
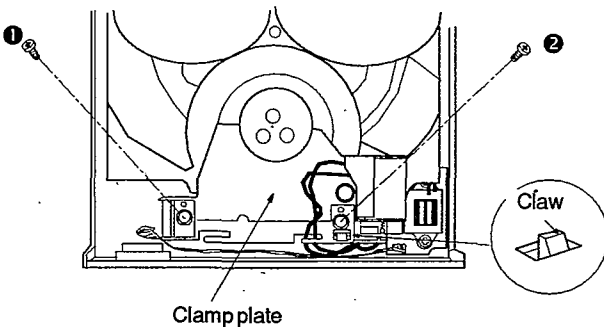
## DISASSEMBLY INSTRUCTIONS

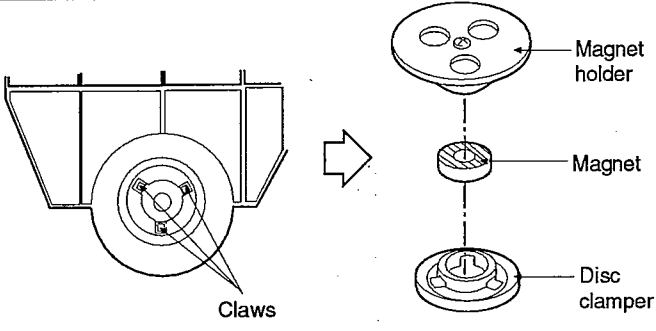
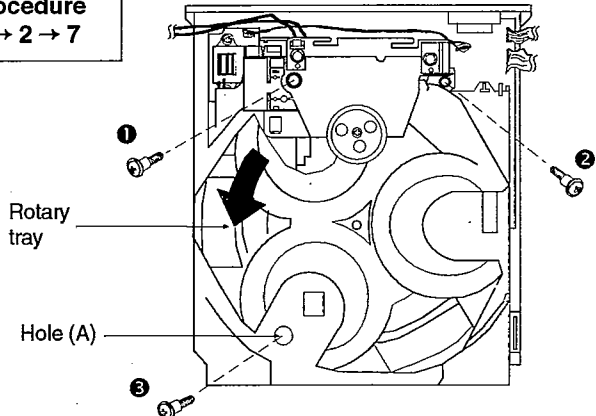
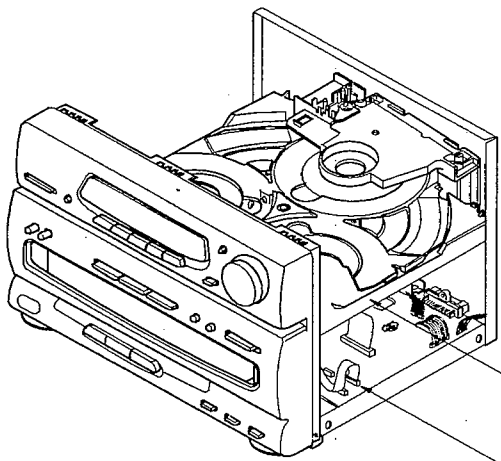
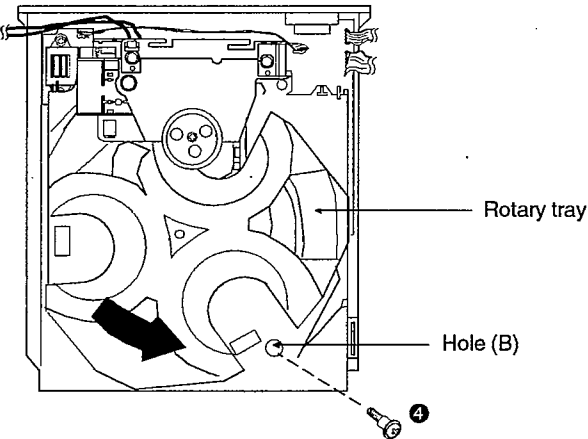
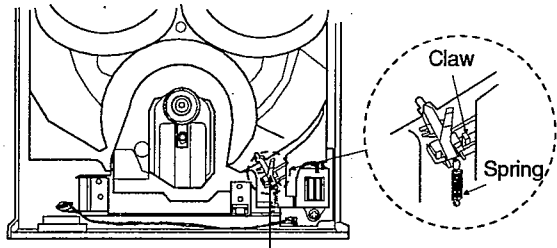
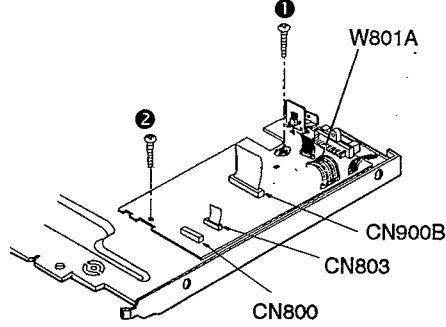
**Warning:** This product uses a laser diode. Refer to caution statements on page 2.

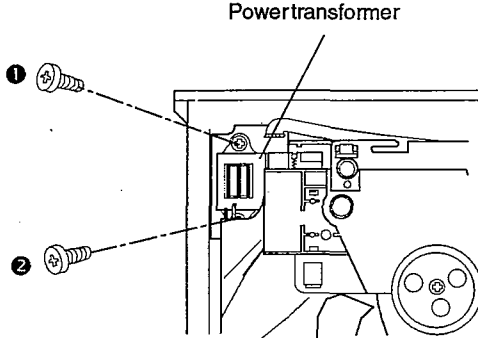
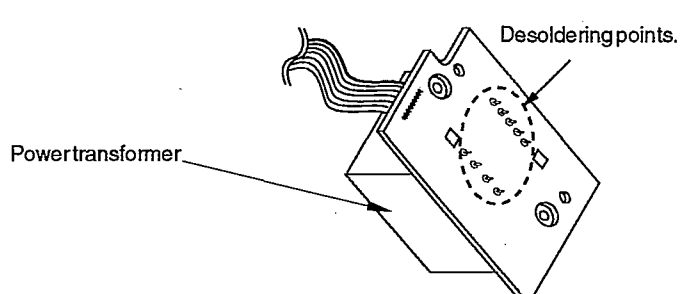
**ACHTUNG:** Die Lasereinheit nicht zerlegen.

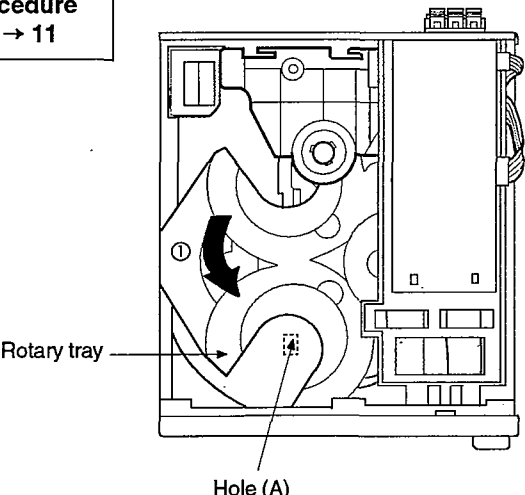
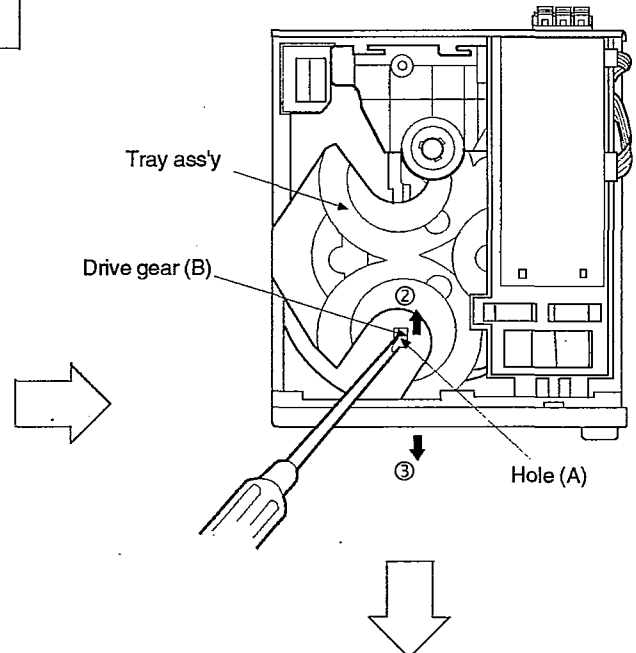
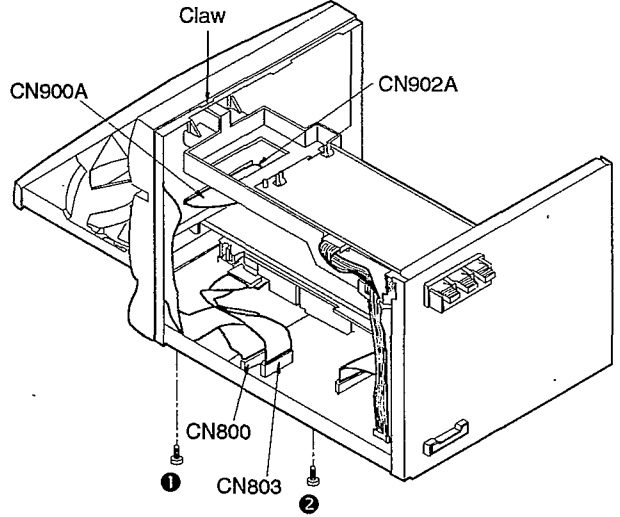
Die Lasereinheit darf nur gegen eine vom Hersteller spezifizierte Einheit ausgetauscht werden.

**"ATTENTION SERVICER"** Some chassis components may have sharp edges. Be careful when disassembling and servicing.

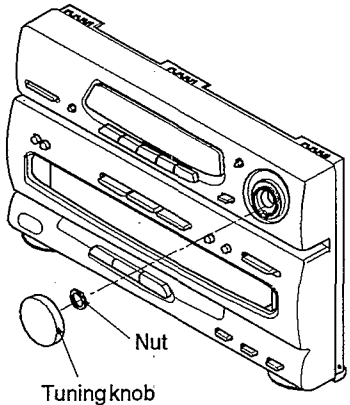
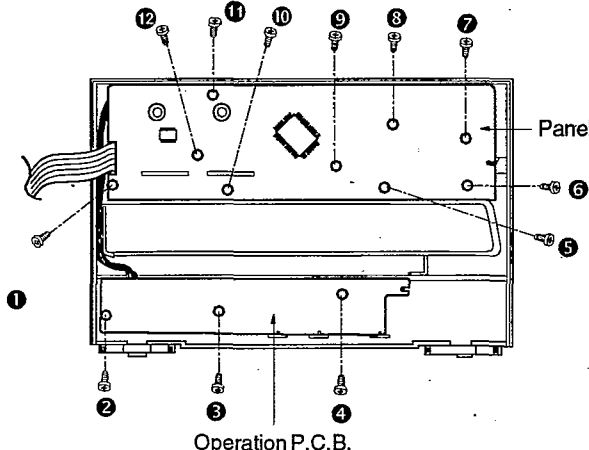
<p>Ref. No. 1</p> <p>Procedure 1</p>	<p><b>Removal of the Cabinet</b></p> <p>• Remove 7 screws (① ~ ⑦).</p>	<p>Ref. No. 2</p> <p>Procedure 1 → 2</p>	<p><b>Removal of the Tuner P.C.B. and Tuner P.C.B. Support</b></p> <p>1. Remove 3 screws (① ~ ③). 2. Remove the wires W1 and W2 from the connectors CP1 and CP2 respectively. 3. Release 2 ribs and take out the tuner P.C.B.</p>
 <p>Cabinet</p>		 <p>CP2</p> <p>Ribs</p> <p>Tuner P.C.B. Support</p> <p>CP1</p> <p>Tuner P.C.B.</p>	
<p>Ref. No. 3</p>	<p><b>Removal of the Rear Panel</b></p>	 <p>Claws</p> <p>Tuner P.C.B. support</p> <p>4. Release the 2 claws from the rear panel by lifting up the rear end of the tuner P.C.B. support.</p>	
<p>Procedure 1 → 2 → 3</p>	 <p>Knob</p> <p>Rear panel</p> <p>Knob</p> <p>1. Remove 3 screws (① ~ ③). 2. Remove the rear panel by releasing it from the knobs of the bottom board.</p>	<p>Ref. No. 4</p> <p>Procedure 1 → 4</p> <p>• Release 2 claws.</p>  <p>Claws</p> <p>LED P.C.B.</p>	
<p>Ref. No. 5</p> <p>Procedure 1 → 2 → 4 → 5</p>	<p><b>Removal of the LED P.C.B.</b></p>	<p>Ref. No. 5</p> <p>Procedure 1 → 2 → 4 → 5</p>	<p><b>Removal of the Clamp Plate</b></p> <p>1. Remove 2 screws (① &amp; ②). 2. Release 1 claw.</p>  <p>Clamp plate</p> <p>Claw</p>

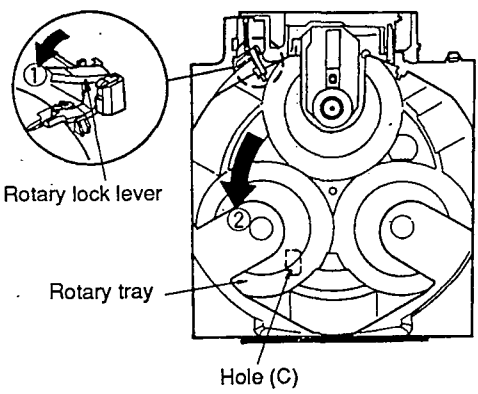
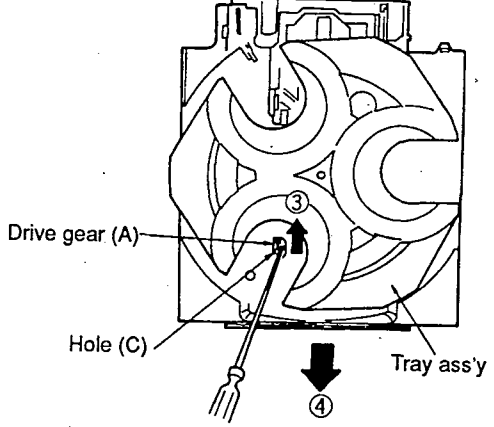
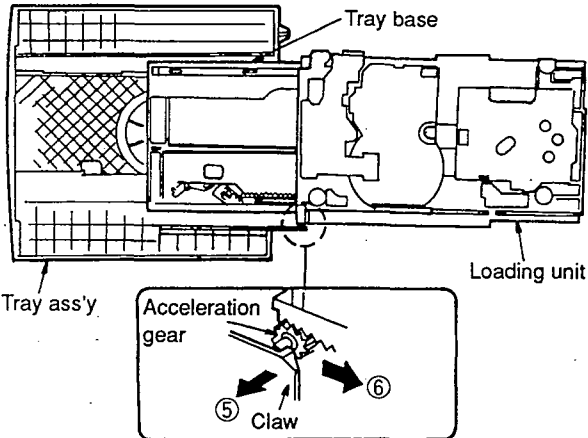
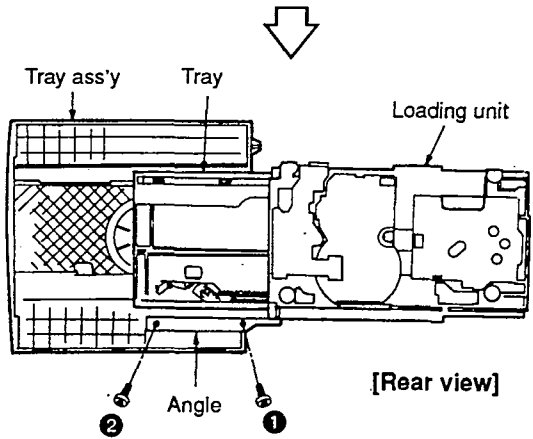
<p><b>Ref. No.</b> 6</p>	<p><b>Removal of the Magnet Holder, magnet and Disc Clamper</b></p>	<p><b>Ref. No.</b> 7</p>	<p><b>Removal of the Tray Ass'y and Loading Unit</b></p>
<p><b>Procedure</b> 1 → 2 → 4 → 5 → 6</p>	 <p>Claws</p> <p>Magnet holder</p> <p>Magnet</p> <p>Disc clamper</p> <ul style="list-style-type: none"> <li>• Release 3 claws</li> </ul>	<p><b>Procedure</b> 1 → 2 → 7</p>	 <p>Rotary tray</p> <p>Hole (A)</p> <ol style="list-style-type: none"> <li>1. Remove 2 screws (①, ②).</li> <li>2. Rotate the rotary tray to the position that can be confirmed the hole (A).</li> <li>3. Remove 1 screw (③).</li> </ol> <p><b>Note:</b> In case that screw ③ cannot be removed due to narrowness of hole (A), refer to the instruction of Ref. No. 13, remove the tray base, and remove screw ③.</p>
 <p>Tray ass'y and loading unit</p> <p>CN803</p> <p>6. Lift up the tray ass'y and the loading unit and then remove 1 wire connector CN803.</p>	 <p>Rotary tray</p> <p>Hole (B)</p> <ol style="list-style-type: none"> <li>4. Rotate the rotary tray to the further position that can be confirmed the hole (B).</li> <li>5. Remove 1 screw (④).</li> </ol>		
<p><b>Ref. No.</b> 8</p>	<p><b>Removal of the Rotary Lock Lever</b></p>	<p><b>Ref. No.</b> 9</p>	<p><b>Removal of the Main P.C.B.</b></p>
<p><b>Procedure</b> 1 → 2 → 4 → 5 → 8</p>	<ol style="list-style-type: none"> <li>1. Remove the spring.</li> <li>2. Release the claw.</li> </ol>	<p><b>Procedure</b> 1 → 2 → 3 → 9</p>	<ol style="list-style-type: none"> <li>1. Remove 3 cables from connectors CN800, CN803 and CN900B.</li> <li>2. Remove 2 screws (① &amp; ②).</li> <li>3. Remove the cable W801A by desoldering it.</li> </ol>
 <p>Rotary lock lever</p> <p>Claw</p> <p>Spring</p>			 <p>W801A</p> <p>CN900B</p> <p>CN803</p> <p>CN800</p>

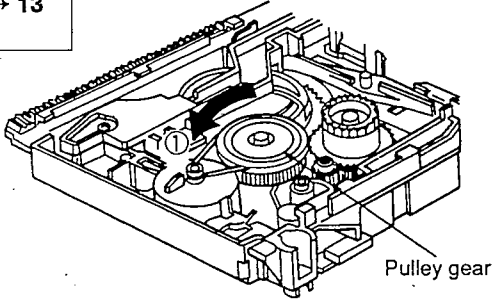
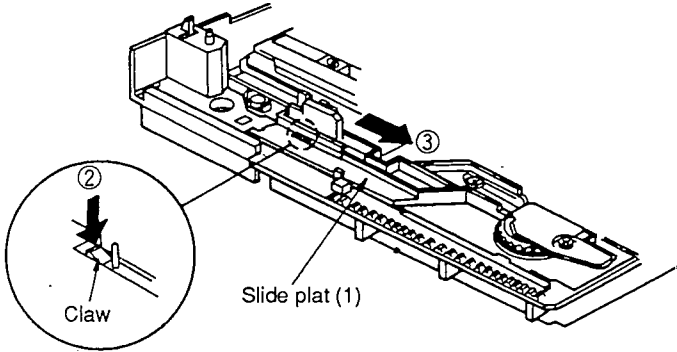
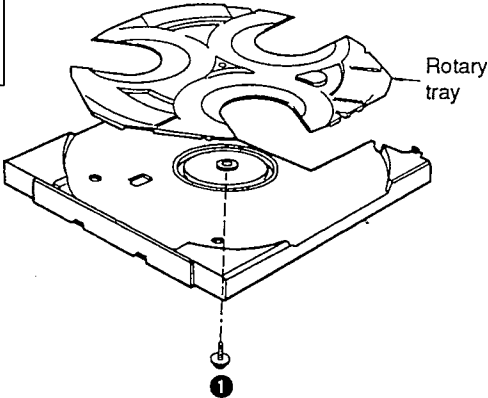
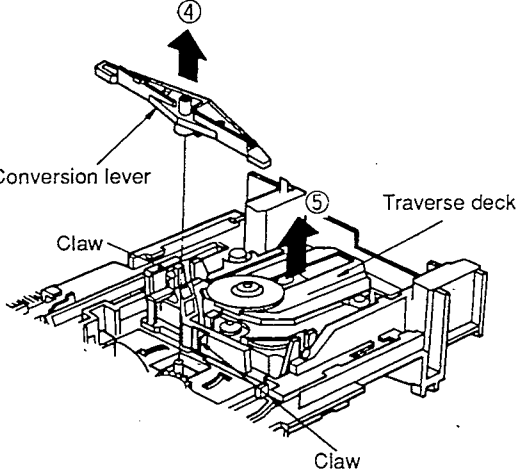
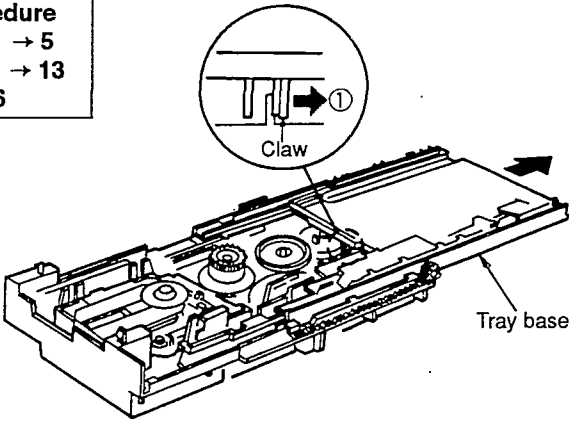
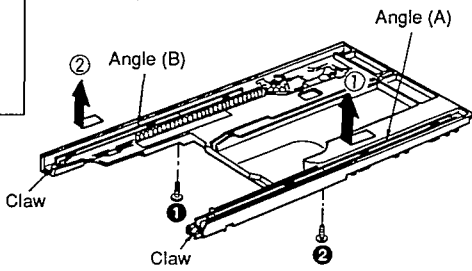
<p><b>Ref. No.</b> 10</p>	<p><b>Removal of the Power Transformer</b></p>
<p><b>Procedure</b> 1 → 10</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Powertransformer</p> </div> <div style="text-align: center;">  <p>Desoldering points.</p> <p>Powertransformer</p> </div> </div> <ol style="list-style-type: none"> <li>1. Remove 2 screws (① &amp; ②).</li> <li>2. Desolder 9 points and take out the Power Transformer.</li> </ol>

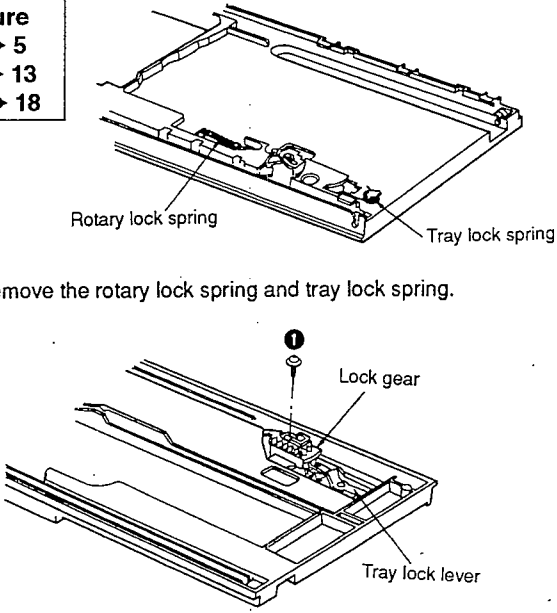
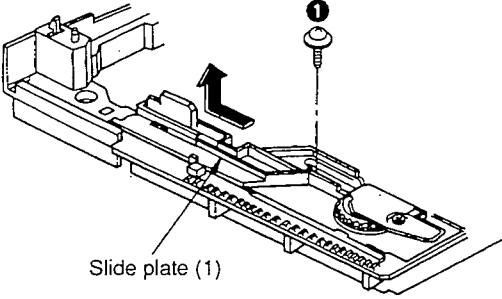
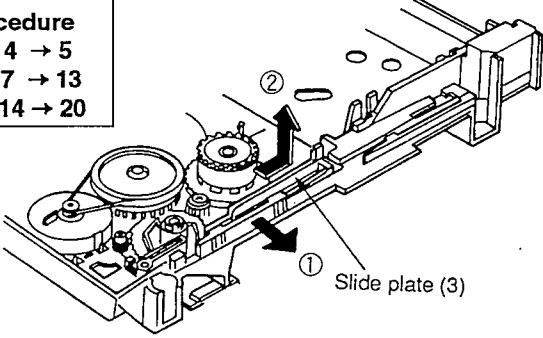
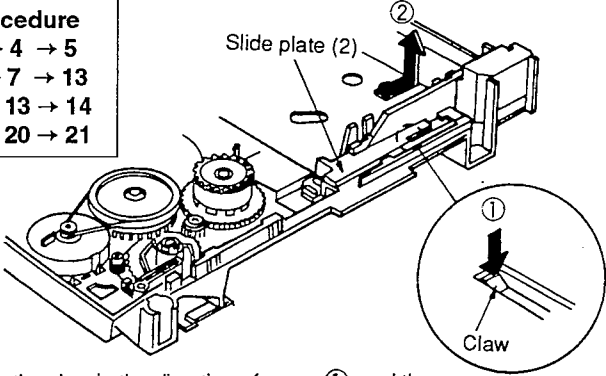
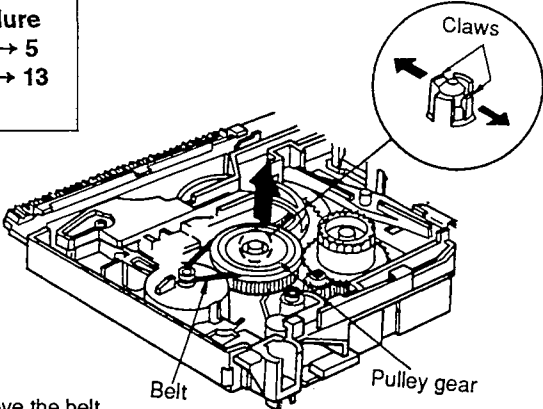
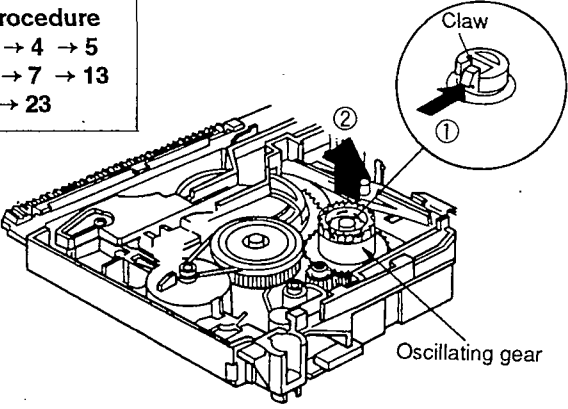
<p><b>Ref. No.</b> 11</p>	<p><b>Removal of the Front Panel</b></p>
<p><b>Procedure</b> 1 → 11</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Rotary tray</p> <p>Hole (A)</p> </div> <div style="text-align: center;">  <p>Tray ass'y</p> <p>Drive gear (B)</p> <p>Hole (A)</p> </div> </div> <ol style="list-style-type: none"> <li>1. Rotate the rotary tray to the position that can be confirmed the hole (A) in the direction of arrow ①.</li> <li>2. Pressing the drive gear (B) in the direction of arrow ② with inserting the (-) screwdriver into the hole (A), the tray ass'y will move slightly in the direction of arrow ③. Then, pull out the tray ass'y in the direction of the arrow ③.</li> <li>3. Remove 4 flat cables from connectors CN900A, CN902A, CN800 and CN803.</li> <li>4. Remove 2 screws (① &amp; ②) from the bottom of the front panel.</li> <li>5. Release 1 claw and pull out the front panel.</li> </ol> <div style="text-align: center; margin-top: 20px;">  <p>Claw</p> <p>CN900A</p> <p>CN902A</p> <p>CN800</p> <p>CN803</p> </div>

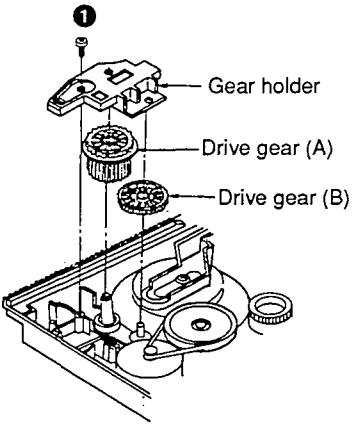
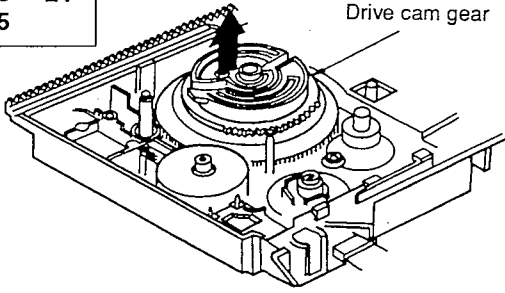
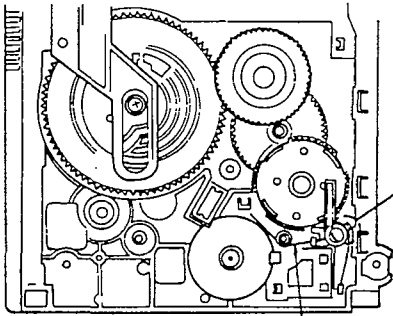
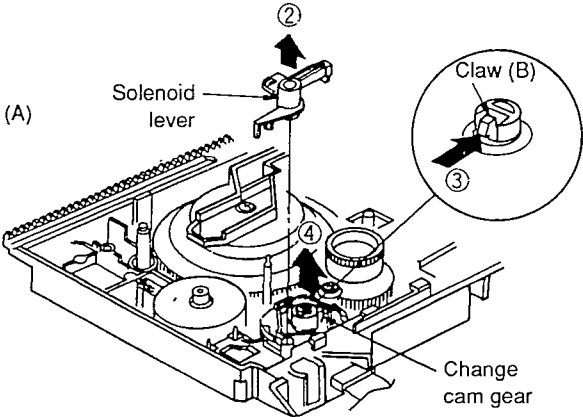
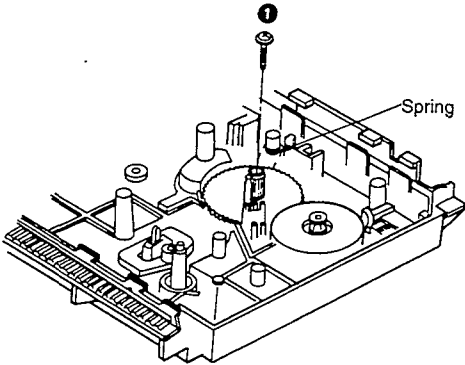
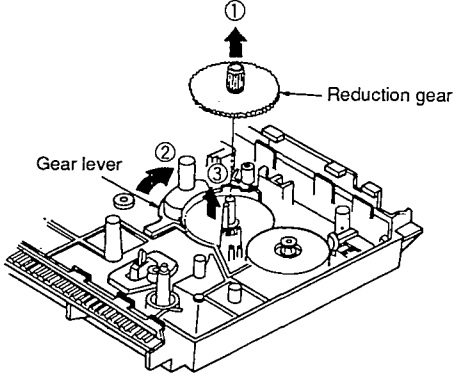


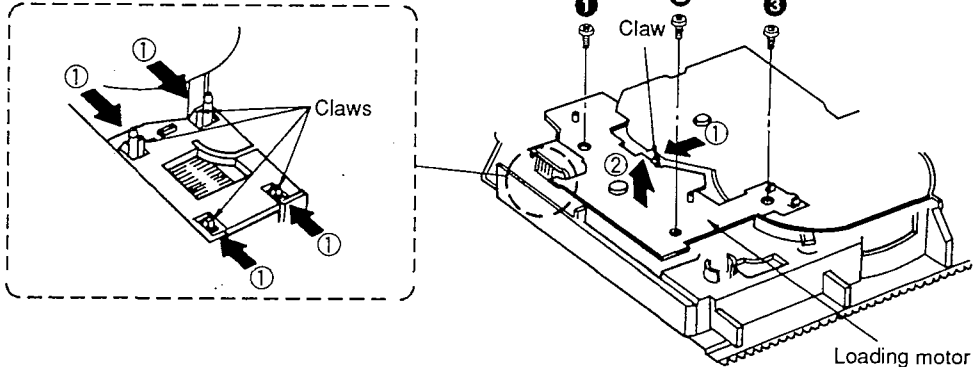
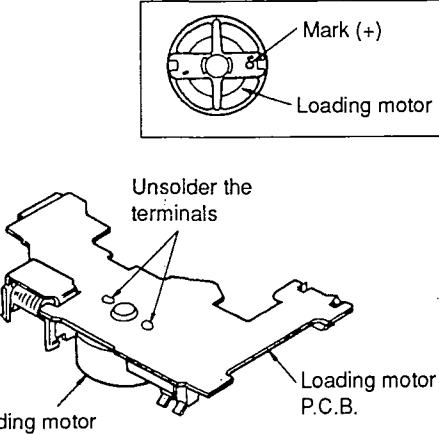
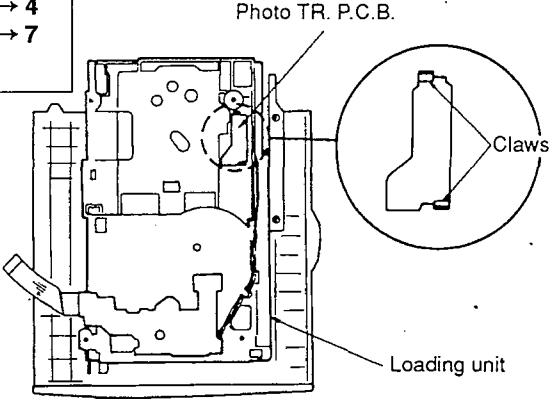
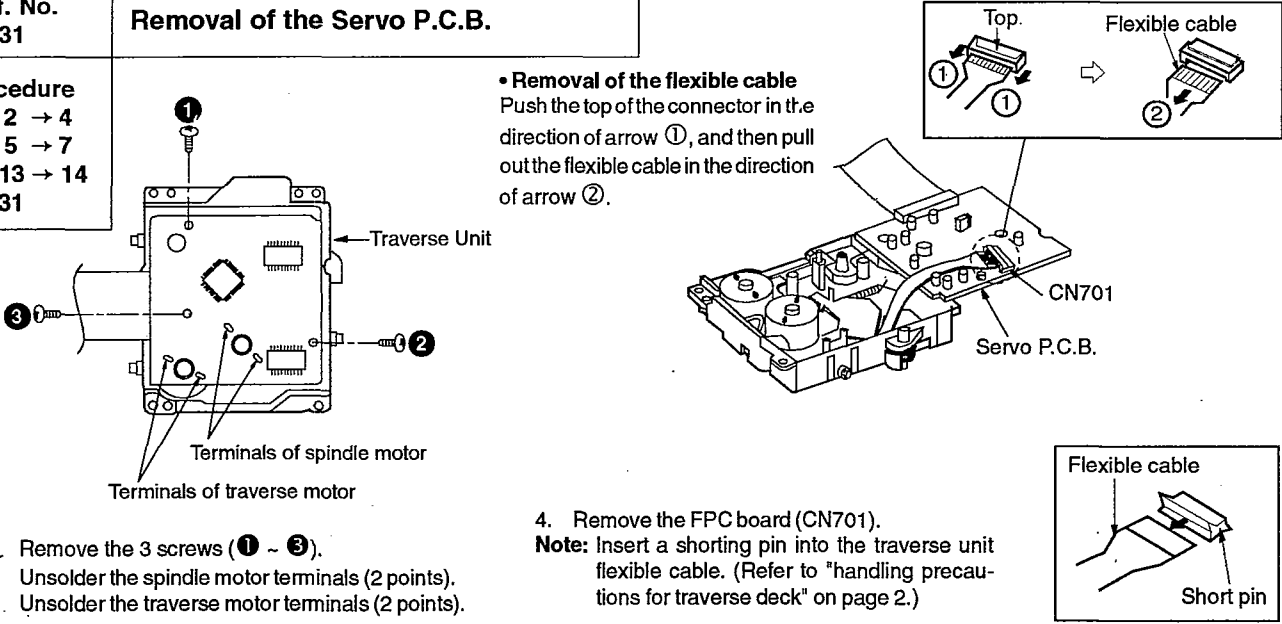
<p><b>Ref. No.</b> 12</p>	<p><b>Removal of the Panel P.C.B. and Operation P.C.B.</b></p>	
<p><b>Procedure</b> 1 → 11 → 12</p>	 <p>Nut Tuning knob</p> <p>1. Remove the tuning knob with a flat head (-) screwdriver. 2. Unscrew the nut.</p>	 <p>Panel P.C.B. Operation P.C.B.</p> <p>3. Remove 12 screws (1 ~ 12).</p>

<p><b>Ref. No.</b> 13</p>	<p><b>Removal of the Loading Unit and Tray base</b></p>	
<p><b>Procedure</b> 1 → 11 → 13</p>	 <p>Rotary lock lever Rotary tray Hole (C)</p> <p>1. While pressing the rotary lock lever in the direction of arrow ① and then rotate the rotary tray to the position that can be confirmed the hole (C) in the direction of arrow ②.</p>	 <p>Drive gear (A) Hole (C) Tray ass'y</p> <p>2. Pressing the drive gear (A) in the direction of arrow ③ with inserting the (-) screwdriver in the hole (C), the tray ass'y moves slightly in the direction of arrow ④. Then, pull the tray ass'y in the direction of arrow ④.</p>
 <p>Tray base Tray ass'y Acceleration gear Claw Loading unit</p> <p>5. Release the claw in the direction of arrow ⑤ and then remove the acceleration gear in the direction of arrow ⑥.</p>	 <p>Tray ass'y Tray Loading unit Angle</p> <p>[Rear view]</p> <p>1. Remove the 2 screws (1, 2). 2. Remove the angle.</p>	

<p>Ref. No. 14</p>	<p><b>Removal of the Traverse Deck and Conversion Lever</b></p>	
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 14</p>	 <p>Pulley gear</p> <p>1. Rotate the pulley gear to full position in the direction of arrow ①.</p>	 <p>Slide plate (1)</p> <p>Claw</p> <p>2. Push the claw in the direction of arrow ②, and then move the slide plate (1) in the direction of arrow ③.</p>
<p>Ref. No. 15</p>	<p><b>Removal of the Rotary Tray</b></p>	
<p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 15</p>	 <p>Rotary tray</p> <p>• Remove the 1 screw (①).</p>	 <p>Conversion lever</p> <p>Traverse deck</p> <p>Claw</p> <p>Claw</p> <p>3. Remove the conversion lever in the direction of arrow ④. 4. Release the claw and then remove the traverse deck in the direction of arrow ⑤.</p>
<p>Ref. No. 16</p>	<p><b>Removal of the Tray Base</b></p>	
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 16</p>	 <p>Claw</p> <p>Tray base</p> <p>• Release the claw in the direction of arrow ① and then remove the tray base in the direction of arrow ②.</p>	<p>Ref. No. 17</p> <p><b>Removal of the Angle (A) and Angle (B)</b></p> <p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 16 → 17</p>  <p>Angle (A)</p> <p>Angle (B)</p> <p>Claw</p> <p>Claw</p> <p>1. Remove the 1 screw (①). 2. Release the claw and then remove the angle (A) in the direction of arrow ①.</p> <p>■ <b>Removal of the angle (B)</b> 1. Remove the 1 screw (②). 2. Release the claw and then remove the angle (B) in the direction of arrow ②.</p>

<p><b>Ref. No.</b> 18</p>	<p><b>Removal of the Tray Lock Lever and Lock Gear</b></p>	<p><b>Ref. No.</b> 19</p>	<p><b>Removal of the Slide Plate (1)</b></p>
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 16 → 18</p>	 <p>Rotary lock spring</p> <p>Tray lock spring</p> <p>1. Remove the rotary lock spring and tray lock spring.</p> <p>Lock gear</p> <p>Tray lock lever</p> <p>2. Remove the 1 screw (1).</p>	<p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 14 → 19</p>	 <p>Slide plate (1)</p> <p>1. Remove the 1 screw (1).</p> <p>2. Remove the slide plate (1) in the direction of arrow.</p>
<p><b>Ref. No.</b> 20</p>	<p><b>Removal of the Slide Plate (3)</b></p>	<p><b>Ref. No.</b> 21</p>	<p><b>Removal of the Slide Plate (2)</b></p>
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 14 → 20</p>	 <p>Slide plate (3)</p> <p>• Push the slide plate (3) in the direction of arrow ①, and then remove it in the direction of arrow ②.</p>	<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 13 → 14 → 20 → 21</p>	 <p>Slide plate (2)</p> <p>Claw</p> <p>• Push the claw in the direction of arrow ①, and then remove the slide plate (2) in the direction of arrow ②.</p>
<p><b>Ref. No.</b> 22</p>	<p><b>Removal of the Pulley Gear</b></p>	<p><b>Ref. No.</b> 23</p>	<p><b>Removal of the Oscillating Gear</b></p>
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 22</p>	 <p>Claws</p> <p>Belt</p> <p>Pulley gear</p> <p>1. Remove the belt.</p> <p>2. Release the 2 claws and then remove the pulley gear in the direction of arrow.</p>	<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 23</p>	 <p>Claw</p> <p>Oscillating gear</p> <p>• Release the claw in the direction of arrow ① and then remove the oscillating gear in the direction of arrow ②.</p>

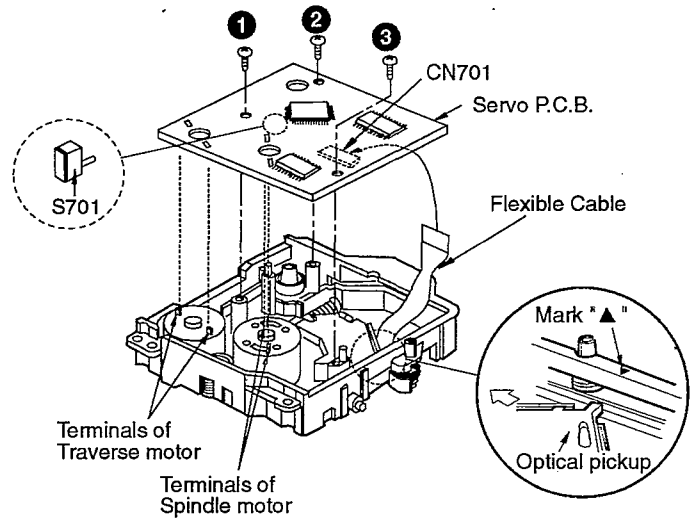
<p><b>Ref. No.</b> 24</p>	<p><b>Removal of the Gear Holder, Drive Gear (A) and Drive Gear (B)</b></p>	<p><b>Ref. No.</b> 25</p>	<p><b>Removal of the Drive Cam Gear</b></p>
<p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 24</p>		<p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 14 → 19 → 22 → 23 → 24 → 25</p>	 <p>• Remove the drive cam gear in the direction of arrow.</p>
<p><b>Ref. No.</b> 26</p>		<p><b>Removal of the Change Cam Gear</b></p>	
<p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 14 → 20 → 22 → 26</p>			
<p><b>Ref. No.</b> 27</p>		<p><b>Removal of the Reduction Gear and Gear Lever</b></p>	
<p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 14 → 19 → 20 → 22 → 23 → 24 → 25 → 26 → 27</p>			
<p>1. Remove the spring. 2. Remove the 1 screw (1).</p>		<p>3. Remove the reduction gear in the direction of arrow 1. 4. Turn the gear lever in the direction of arrow 2, and then remove it in the direction of arrow 3.</p>	

<p><b>Ref. No.</b> 28</p> <p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 14 → 19 → 20 → 21 → 22 → 23 → 24 → 25 → 26 → 28</p>	<p><b>Removal of the Loading Motor P.C.B.</b></p> 	
<p>1. Remove the 3 screws (①~③). 2. Release the 5 claws in the direction of arrow ①. 3. Remove the loading motor P.C.B. in the direction of arrow ②.</p>		
<p><b>Ref. No.</b> 29</p> <p><b>Procedure</b> 1 → 4 → 5 → 7 → 13 → 14 → 19 → 20 → 21 → 22 → 23 → 24 → 25 → 26 → 28 → 29</p>	<p><b>Removal of the Loading Motor</b></p>  <p>• Unsolder the terminals of the loading motor.</p>	<p><b>Ref. No.</b> 30</p> <p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 30</p> <p><b>Removal of the Photo Transistor P.C.B.</b></p>  <p>• Release the 2 claws.</p>
<p><b>Ref. No.</b> 31</p> <p><b>Procedure</b> 1 → 2 → 4 → 5 → 7 → 13 → 14 → 31</p>	<p><b>Removal of the Servo P.C.B.</b></p>  <p>• <b>Removal of the flexible cable</b> Push the top of the connector in the direction of arrow ①, and then pull out the flexible cable in the direction of arrow ②.</p> <p>4. Remove the FPC board (CN701). <b>Note:</b> Insert a shorting pin into the traverse unit flexible cable. (Refer to "handling precautions for traverse deck" on page 2.)</p>	

### ■ INSTALLING THE 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 detect 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 deck unit with the three screws.
4. Solder the two terminals of the traverse motor and the two terminals of the spindle motor.

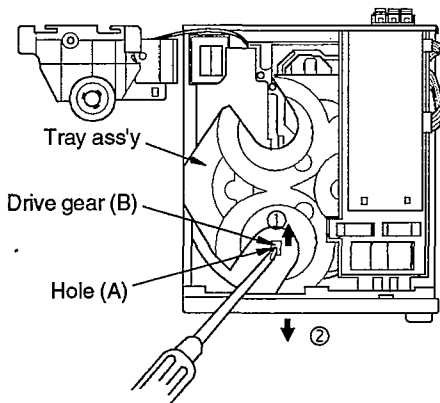
**Note:** Connect the flexible cable to the connector (CN701) firmly.  
Tighten the 3 screws before soldering the terminals.



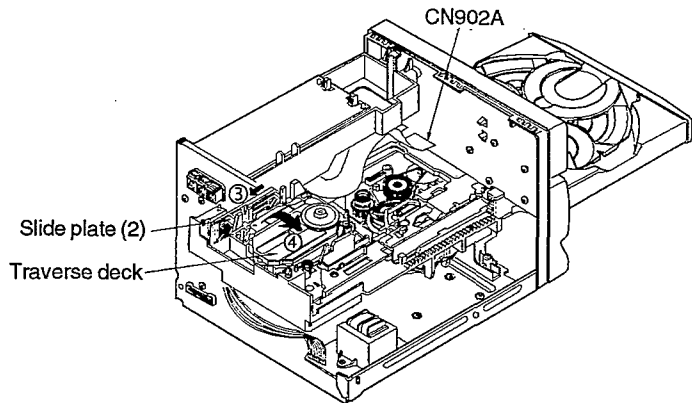
### ■ HOW TO CHECK THE SERVO AND MAIN P.C.B.

#### ■ CHECK THE SERVO P.C.B.

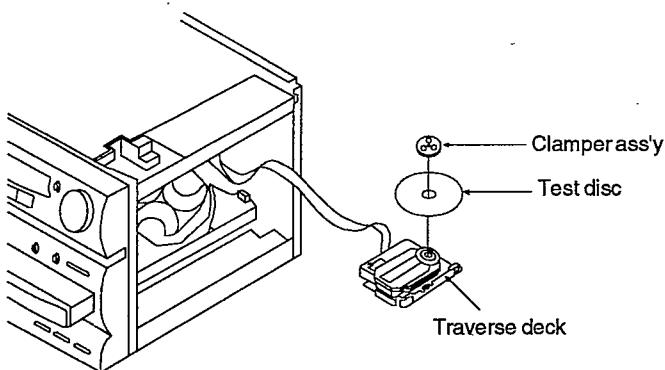
1. Remove the cabinet. (See Ref. No. 1 of the disassembly instructions.)
2. Remove the clamp plate. (See Ref. No. 5 of the disassembly instruction.)
3. Remove the magnet holder, magnet and disc clamber. (See Ref. No. 6 of the disassembly instruction.)



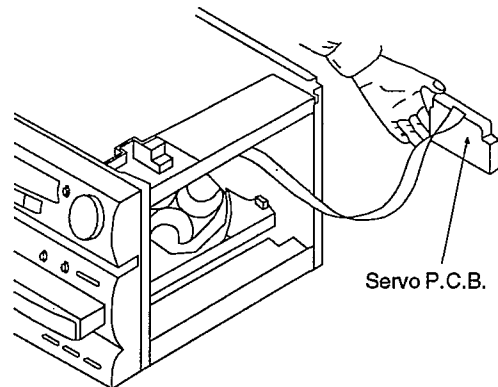
4. Pressing the drive gear (B) in the direction of arrow ① with the inserting the (-) screwdriver in the hole (A), the tray ass'y will move slightly in the direction of arrow ②. Then, pull out the tray ass'y in the direction of arrow ②.



5. Remove the connector CN902A.
6. Pressing the slide plate (2) in the direction of arrow ③, and then remove the traverse deck in the direction of arrow ④.



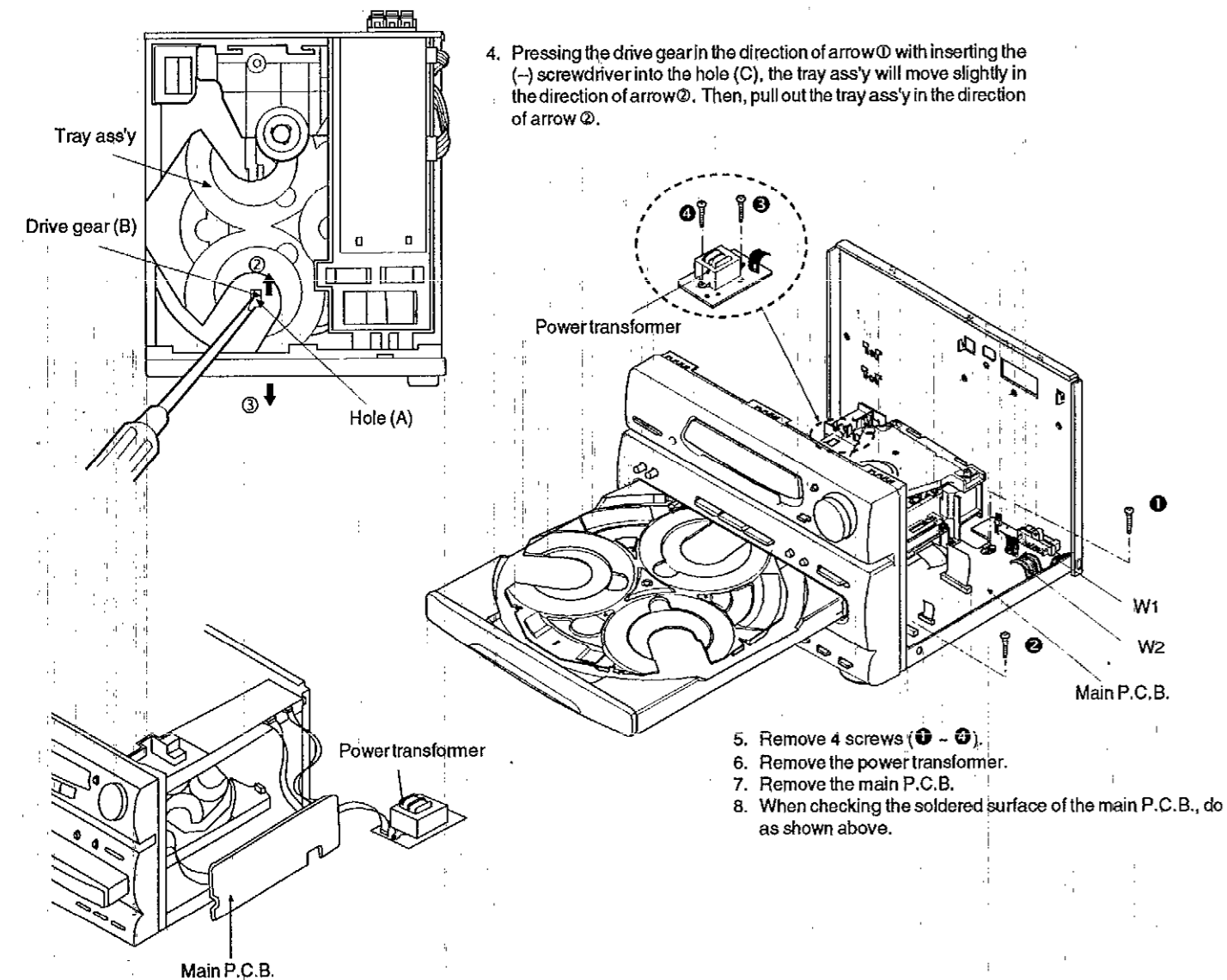
7. Place the test disc and secure it by using the clamber ass'y.
8. Restore the tray ass'y.
9. Reconnect the connector CN902A.



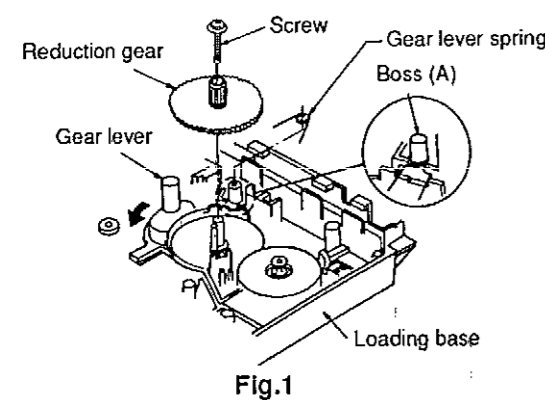
10. When checking the soldered surface of the servo P.C.B., do as shown above.

### ■ CHECK THE MAIN P.C.B.

1. Remove the cabinet. (See Ref. No. 1 of the disassembly instruction.)
2. Remove the tuner P.C.B. and tuner P.C.B. support. (See Ref. No. 2 of the disassembly instruction.)  
**Note:** Do not remove the connectors CP1 and CP2.
3. Remove the rear panel. (See Ref. No. 3 of the disassembly instruction.)



### ■ INSTALLATION OF THE LOADING COMPONENTS



1. Install the gear lever on the loading base and then slide the gear lever in the direction of arrow ①. (See Fig. 1.)
2. Install the reduction gear and secure it with a screw. (See Fig. 1.)
3. Install the gear lever spring to the boss (A). (See Fig. 1.)

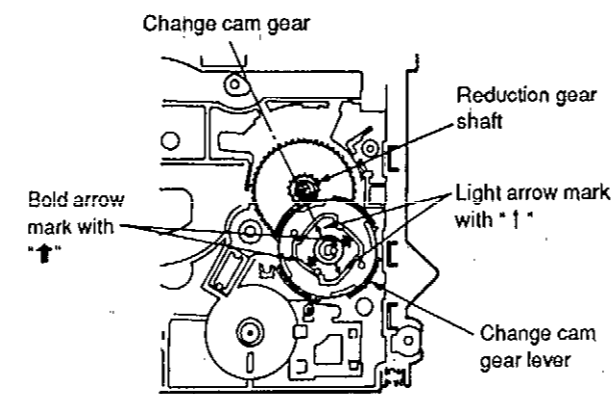


Fig. 2

4. Install the change cam gear. (See Fig. 2.)  
**Note:** Align the tip of the light arrow marked with "↑" on the change cam gear with the axis of the reduction gear shaft.

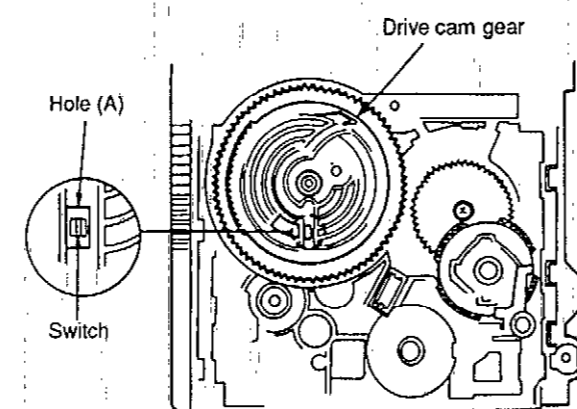


Fig. 4

7. Align the hole (A) of the drive cam gear with the switch, and then insert the drive cam gear. (See Fig. 4)  
**Note:** In case that the drive cam gear is inserted into the holes except the hole (A) of the drive cam gear, the switch may be damaged.

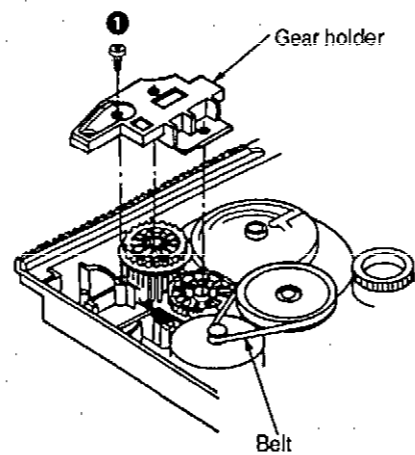


Fig. 6

9. Install the gear holder and secure it with a screw ①. (See Fig. 6.)
10. Install the belt. (See Fig. 6.)

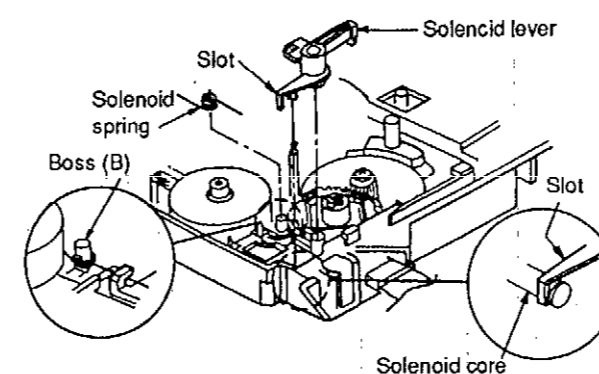


Fig. 3

5. Install the solenoid lever. (See Fig. 3)  
**Note:** Align the slot of the solenoid lever with the solenoid core.
6. Install the solenoid spring to the boss (B). (See Fig. 3.)

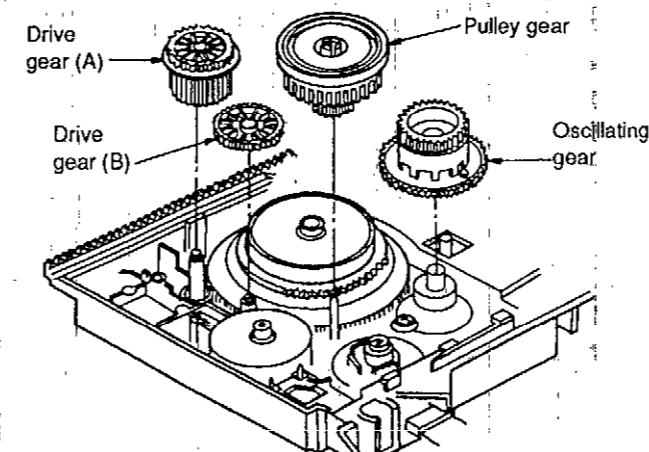


Fig. 5

8. Install the drive gear (B), the drive gear (A), the oscillating gear ass'y and the pulley gear. (See Fig. 5)

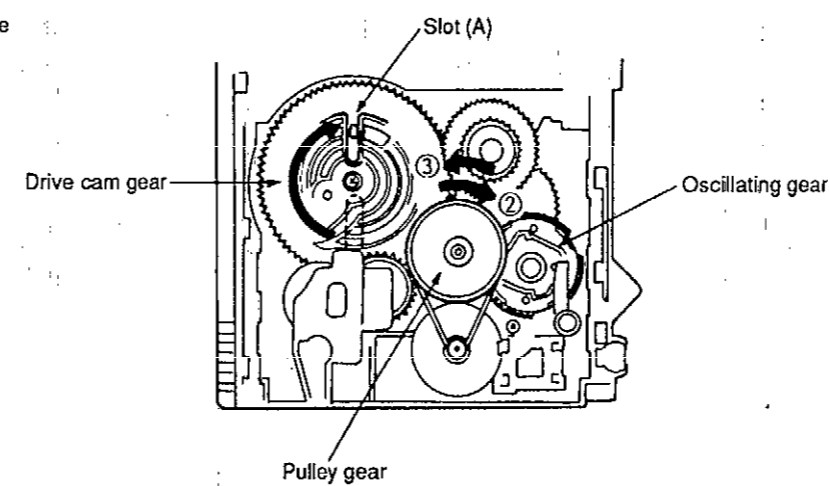


Fig. 7

11. Rotate the pulley gear in the direction of arrow ② and then rotate the pulley gear to full position in the direction of arrow ③ when the oscillating gear stops.
12. Rotate the drive cam gear so that the slot (A) of the drive cam gear is put into a given position as shown in fig. 7.

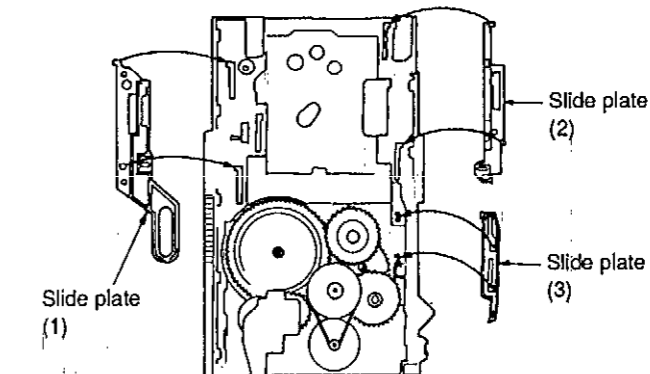


Fig. 8

13. Install slide plate (1), slide plate (2) and slide plate (3).

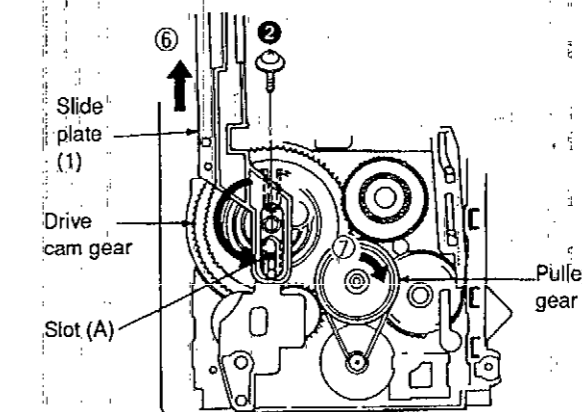


Fig. 10

16. Push slide plate (1) in the direction of arrow ⑥, so that the catch (A) in Fig. 9 engages with slide plate (1).
17. Secure slide plate (1) with a screw ②.
18. Rotate the pulley gear in the direction of arrow ⑦ so that slot (A) of the drive cam gear is in the position shown in Fig. 10.

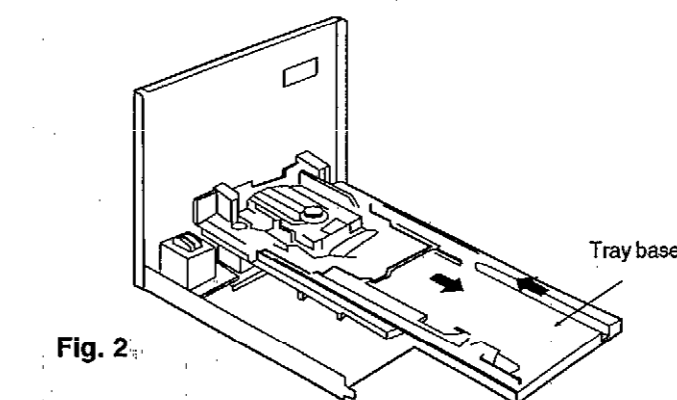


Fig. 2

3. After sliding the tray base in the direction of arrow ①, draw the tray base gradually in the direction of arrow ②. (See Fig. 2.) Slide the tray base until the tray base stops.

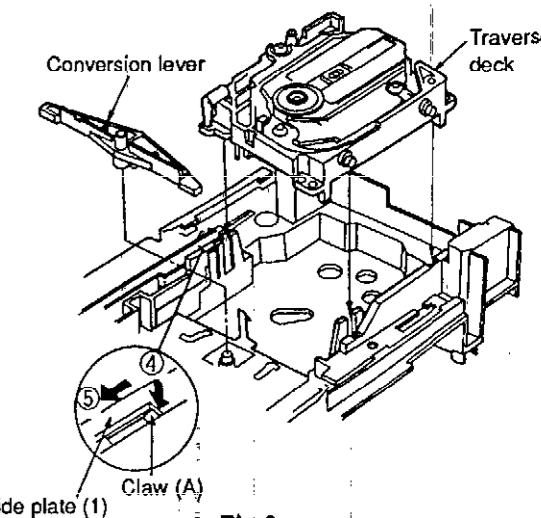


Fig. 9

14. Press catch (A) in the direction of arrow ④ and then push slide (1) of the loading unit in the direction of arrow ⑤. (See Fig. 9)
15. Install the traverse deck and the conversion lever. (See Fig. 9)

### ■ INSTALLATION OF THE TRAY BASE AND TRAY ASS'Y

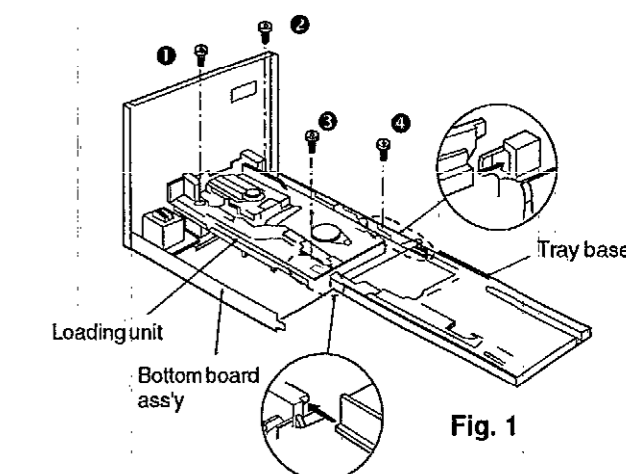


Fig. 1

1. Install the loading unit on the bottom board ass'y and secure it with 4 screws (① - ④). (See fig. 1)
2. Install the tray base on the loading unit. (See fig. 1)

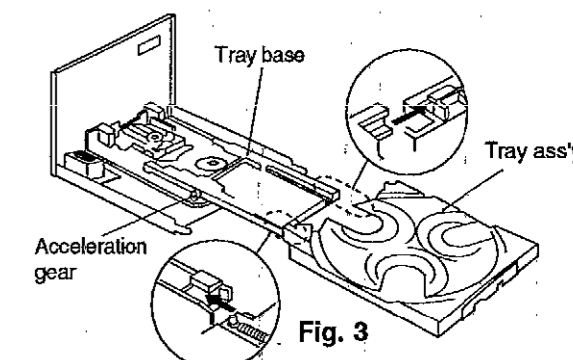


Fig. 3

4. While holding the tray base, install the tray ass'y on the tray base and feed the tray ass'y slowly. (See fig. 3)
5. After engaging the acceleration gear, release the tray base which is held and feed the tray ass'y. (See fig. 3)

NOTES:

< For LOADING MOTOR CIRCUIT >

- S501 : Traverse deck position detect switch.
- S502 : Disc tray full open detect switch.
- S503 : Disc tray half open detect switch.

< For SERVO CIRCUIT >

- S701 : Rest switch.

< For PANEL CIRCUIT >

- S901 : Set switch. (SET)
- S902 : Tuning mode select switch. (TUNING MODE)
- S903 : FM mode/beatproof select switch. (FM MODE/BP)
- S904 : Tuner/band select switch. (TUNER/BAND)
- S905 : CD function select switch. (CD)
- S906 : AUX function select switch. (AUX)
- S907 : TAPE function select switch. (TAPE)
- S908 : CD display switch. (CD DISPLAY)
- S910 : Loading tray open/close switch. (▲ OPEN/CLOSE)
- S911 : CD forward skip switch. (▶▶▶▶)
- S912 : CD reverse skip switch. (◀◀◀◀)
- S913 : CD random play switch. (RANDOM)
- S914 : CD repeat switch. (REPEAT)
- S915 : Disc 1 select switch. (DISC1)
- S916 : Disc 2 select switch. (DISC2)
- S917 : Disc 3 select switch. (DISC3)
- S918 : Last fade edit switch. (LAST FADE)
- S919 : Sequential CD recording switch. (ALBUM)
- S920 : Fit edit switch. (J.FIT)
- S921 : CD Play switch. (▶)
- S922 : CD pause switch. (◻◻)
- S923 : CD stop switch. (◻)

< GENERAL >

• 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.

< For Main circuit >

No Mark ... Tape Playback    { } ... FM/MW/LW    ( ( ) ) ... CD  
 ( ) ... Other

< For Servo circuit >

No mark ... STOP    ( ) ... Playback (Test disc 1kHz, L+R 0 dB)

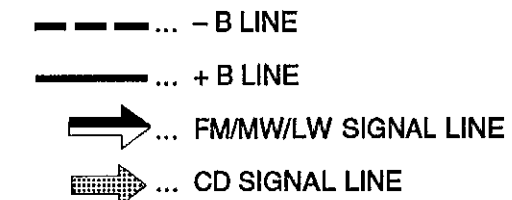
CAUTION!

- 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.

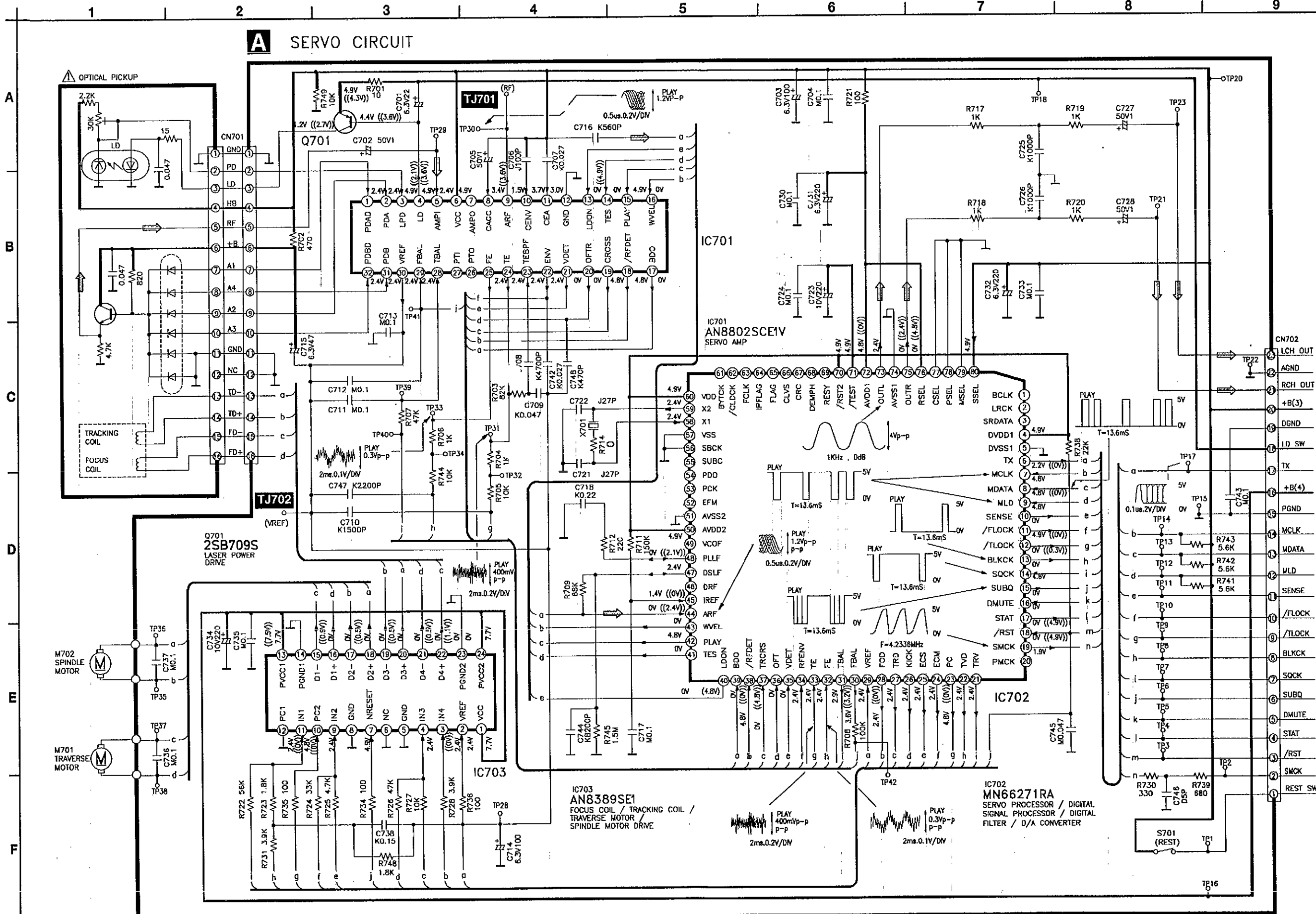
Important safety notice:

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

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



SCHEMATIC DIAGRAM

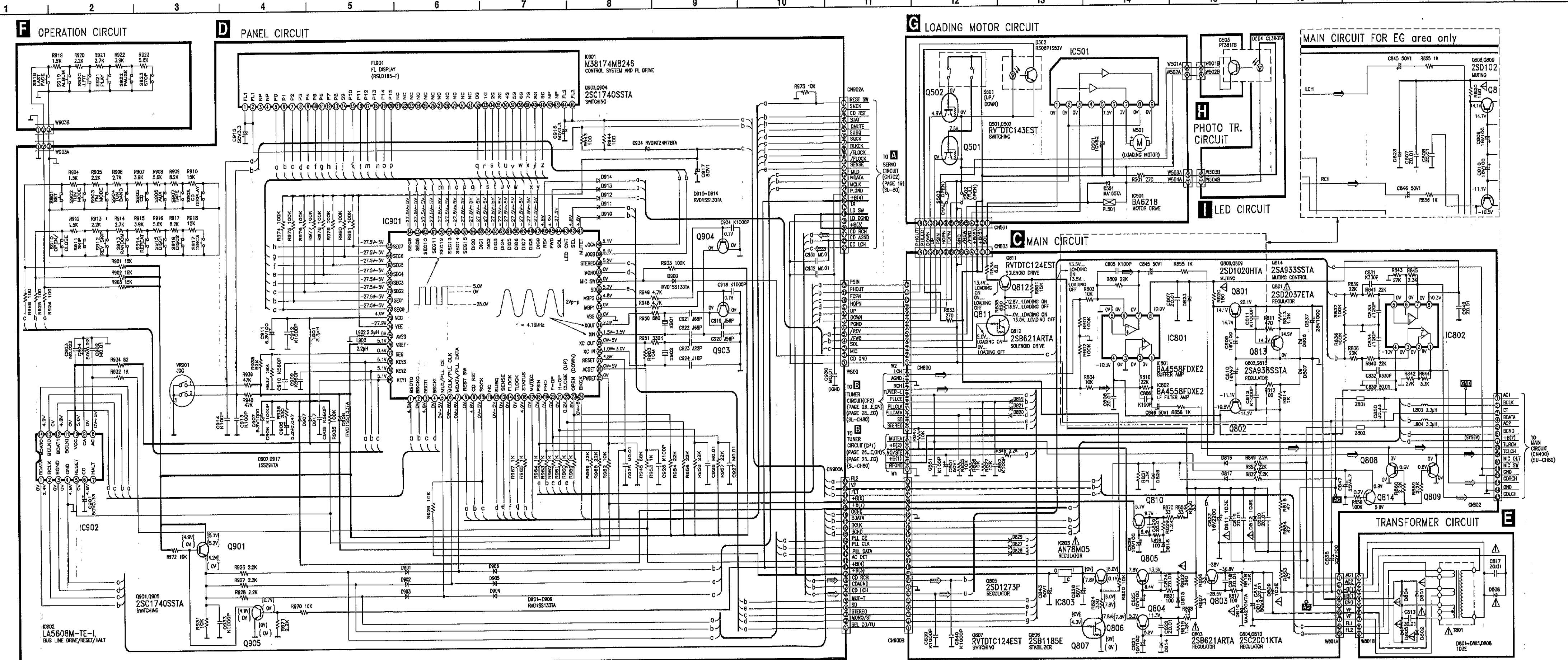


A  
B  
C  
D  
E  
F

A SERVO CIRCUIT

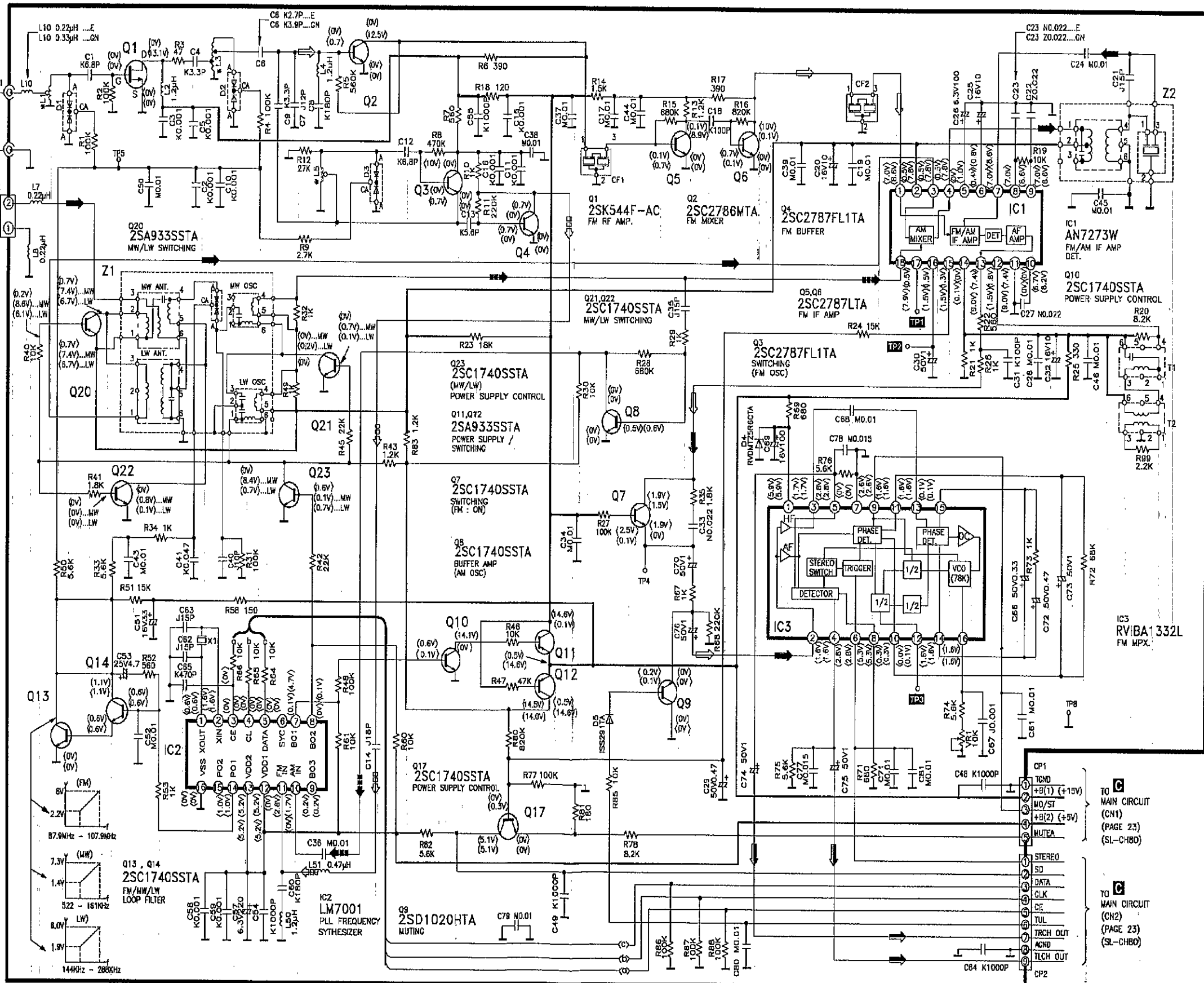


SCHEMATIC DIAGRAM



■ SCHEMATIC DIAGRAM

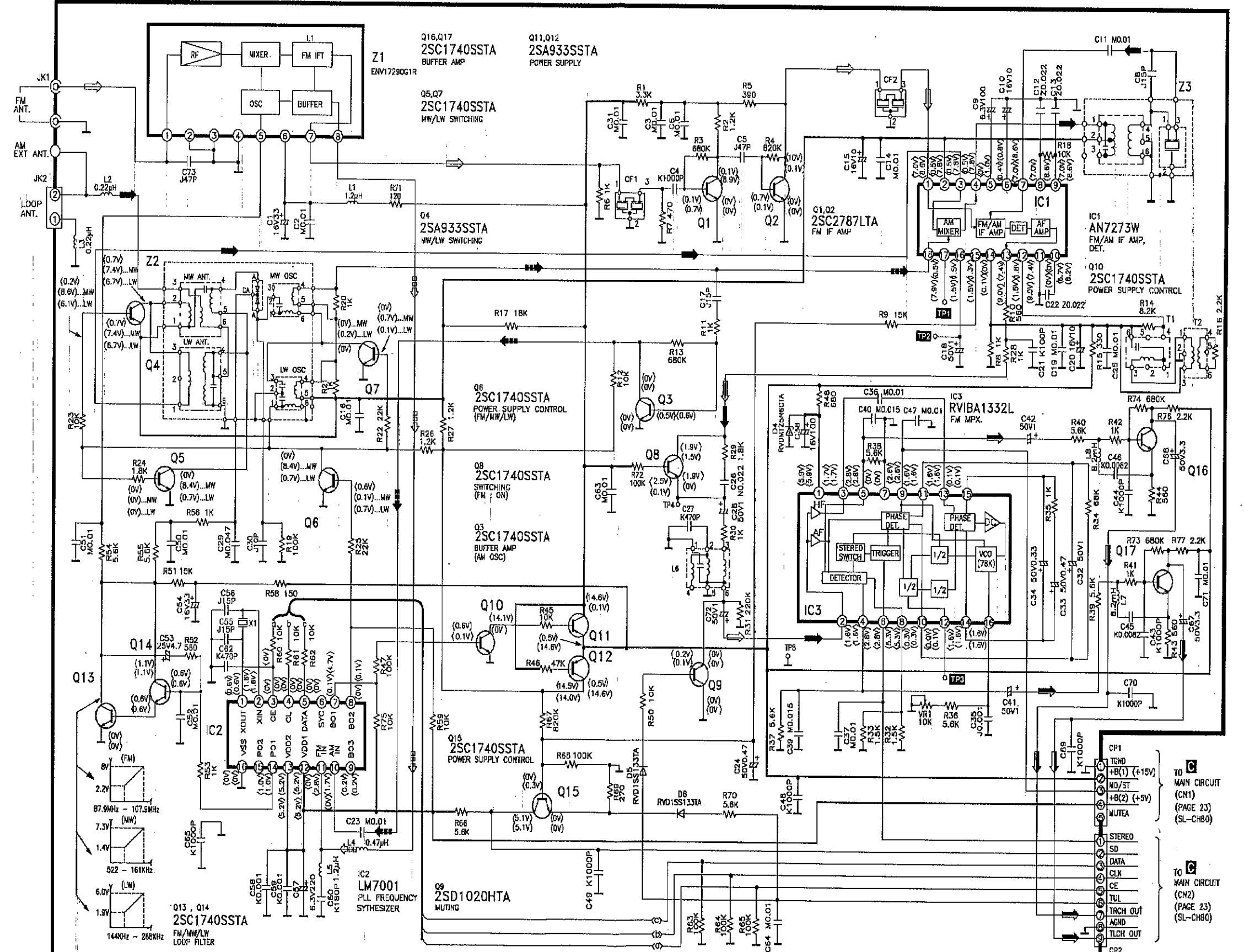
**B** TUNER CIRCUIT FOR E,GN AREAS



TO MAIN CIRCUIT (CN1) (PAGE 23) (SL-CH80)

TO MAIN CIRCUIT (CN2) (PAGE 23) (SL-CH80)

**B** TUNER CIRCUIT FOR EG AREA ONLY



TO MAIN CIRCUIT (CN1) (PAGE 23) (SL-CH80)

TO MAIN CIRCUIT (CN2) (PAGE 23) (SL-CH80)

**NOTES:**

**< For TUNER CIRCUIT >**

- VR1 : FM stereo adjustment
- 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.

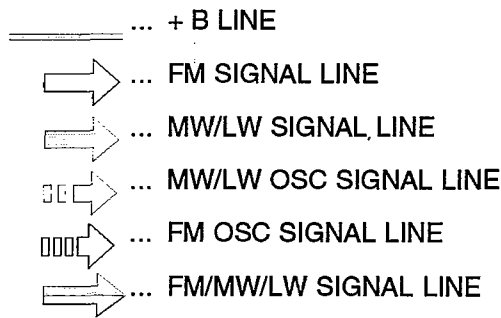
**< For Tuner circuit >**

No mark ... Tape playback      < > ... FM      ( ) ... MW/LW

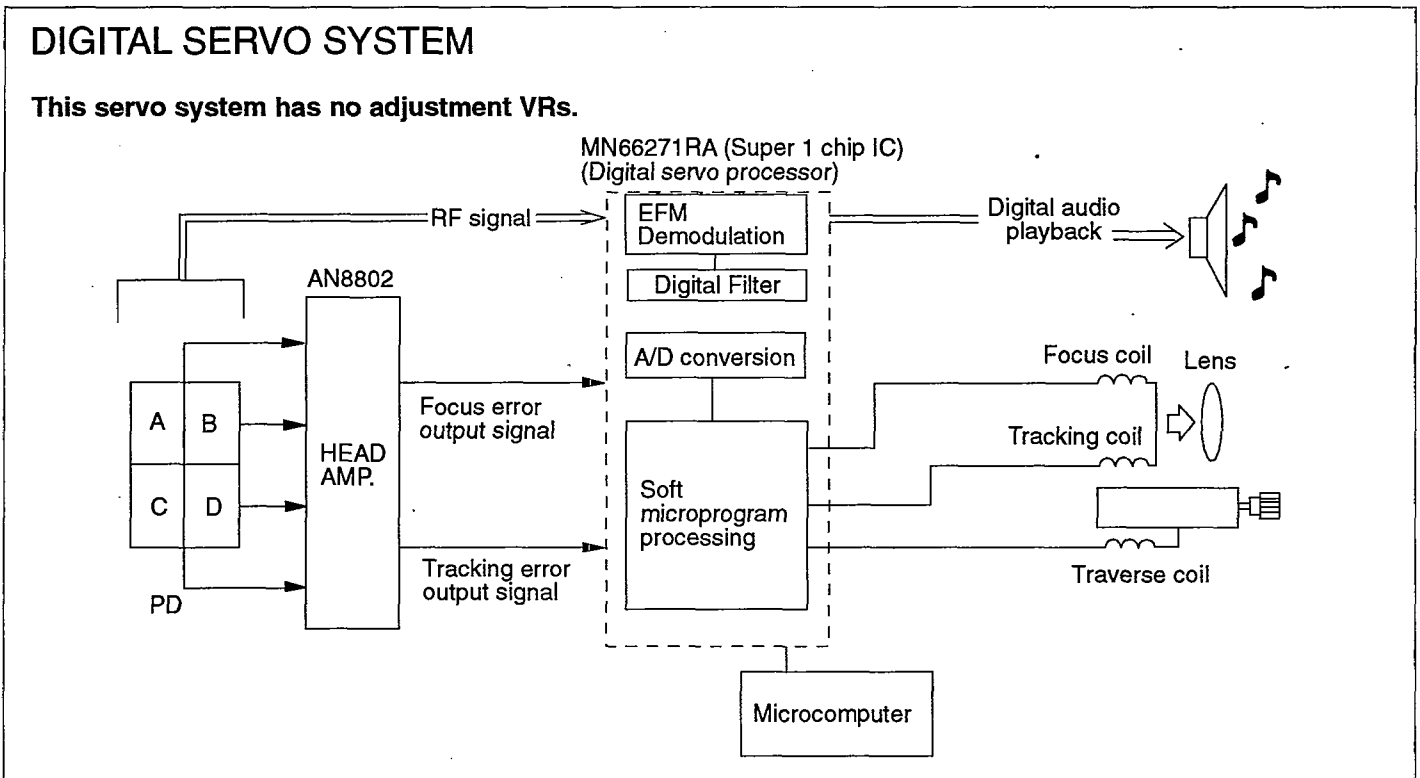
**CAUTION !**

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

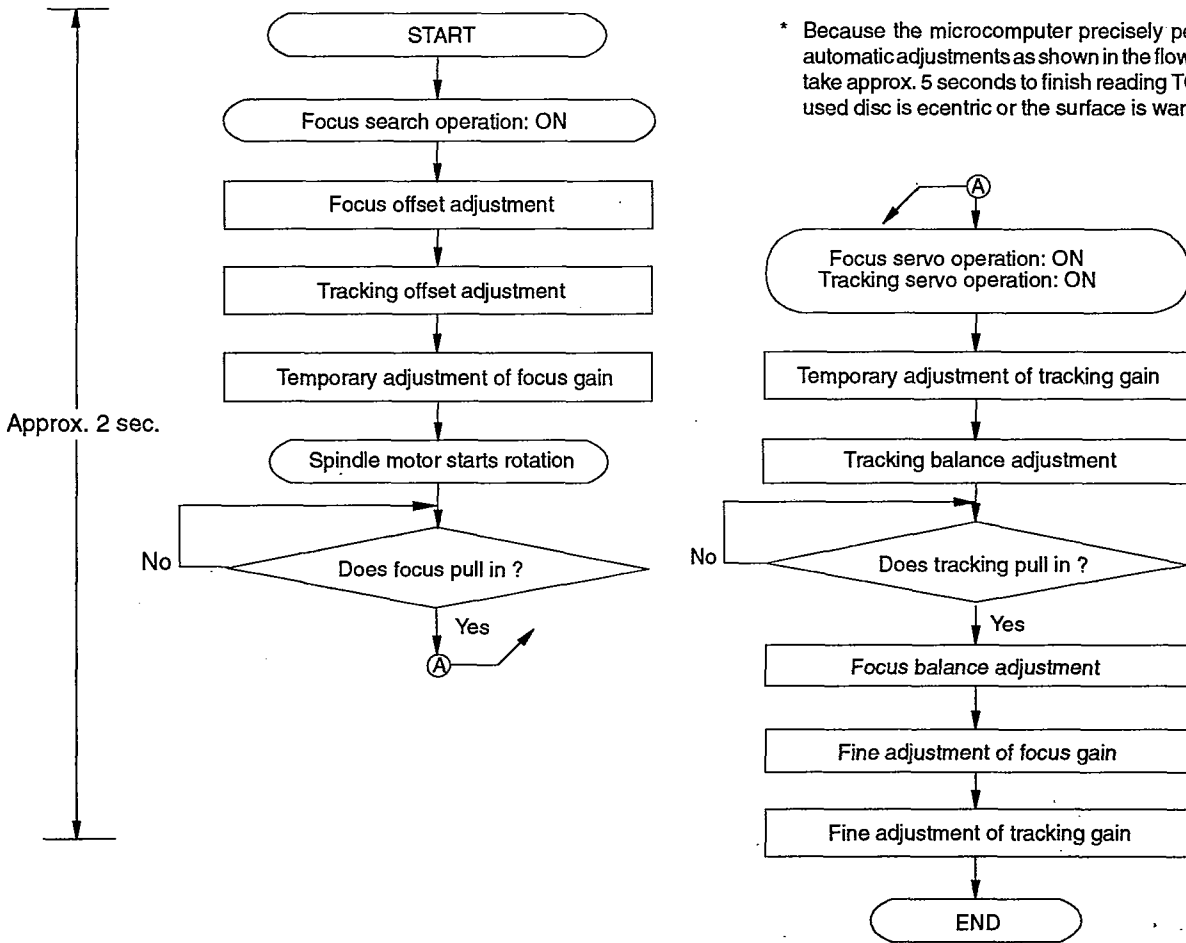


# DIGITAL SERVO SYSTEM



The following flow chart shows the sequence of automatic adjustments.

• **Flow chart on automatic adjustment sequence**

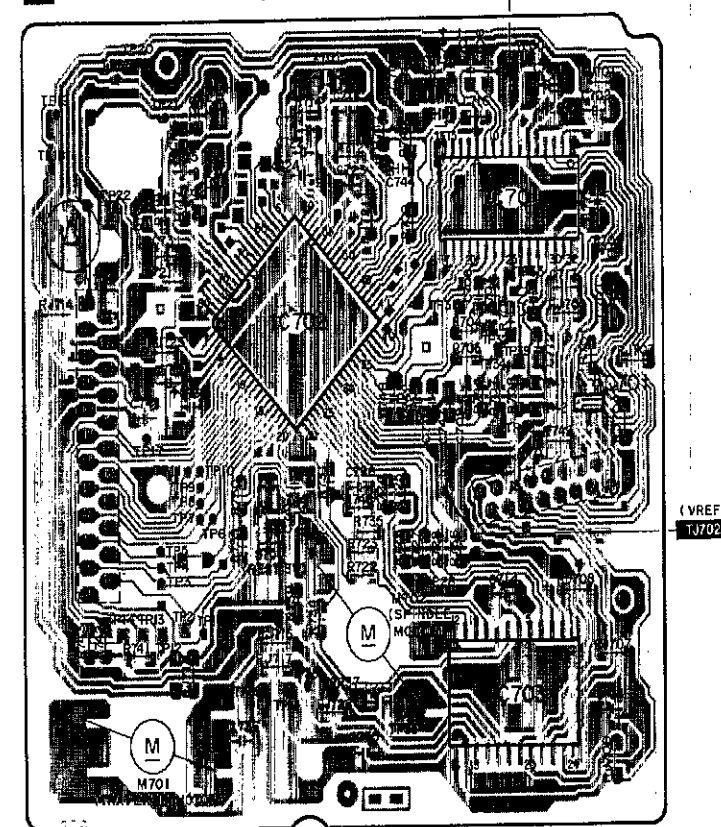


\* Because the microcomputer precisely performs the automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric or the surface is warped.

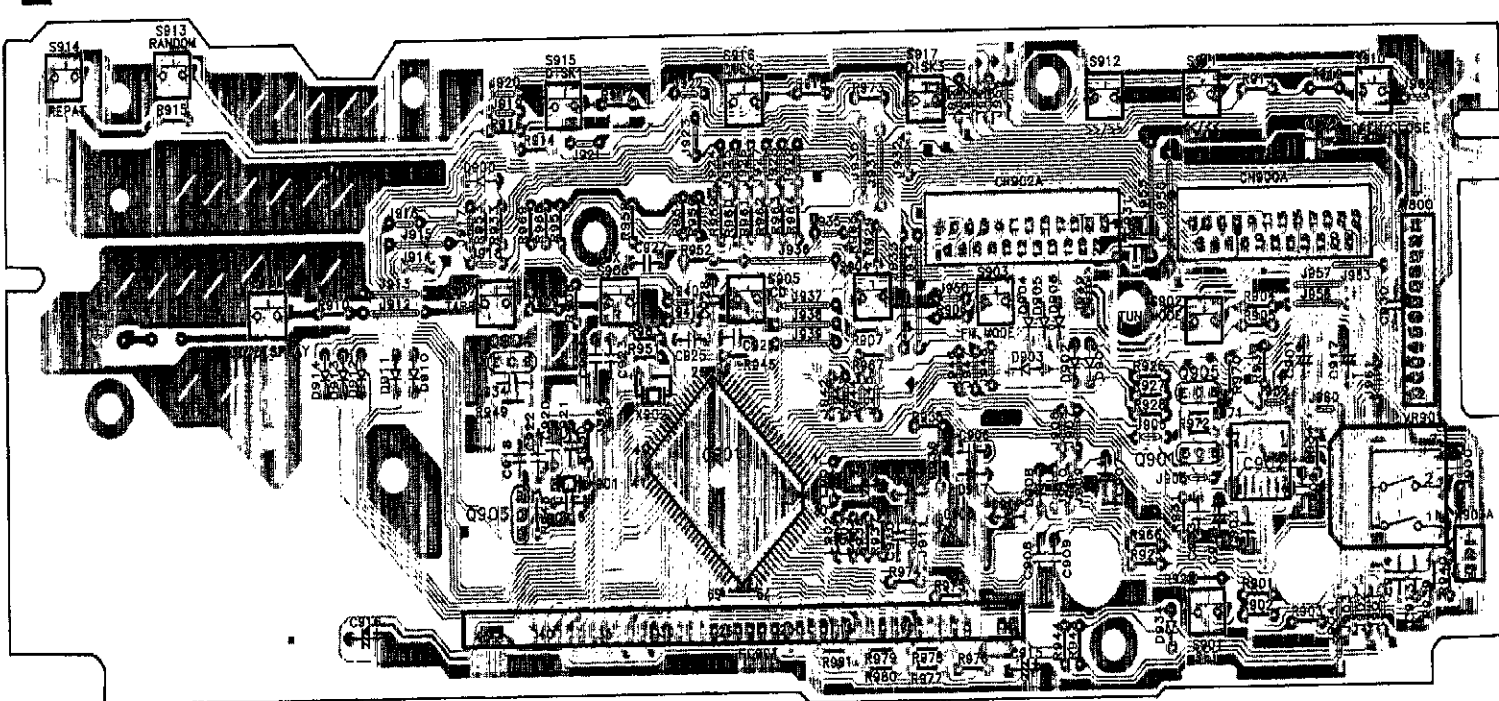
PRINTED CIRCUIT BOARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

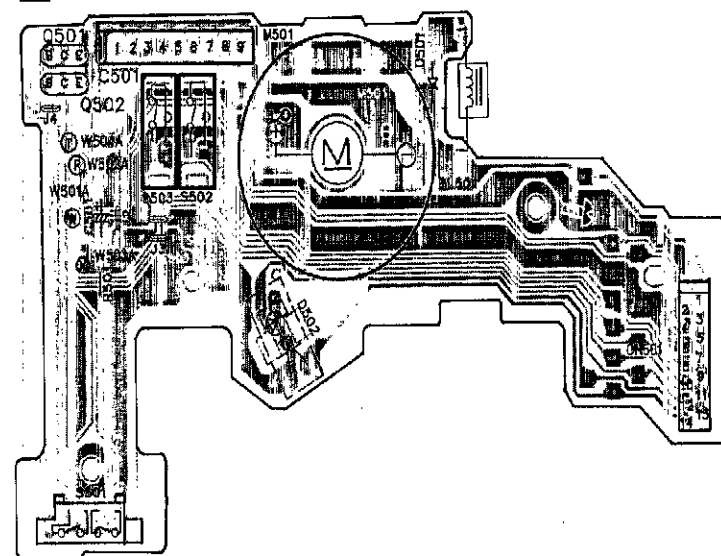
A SERVOP.C.B. (REP1650A-N)



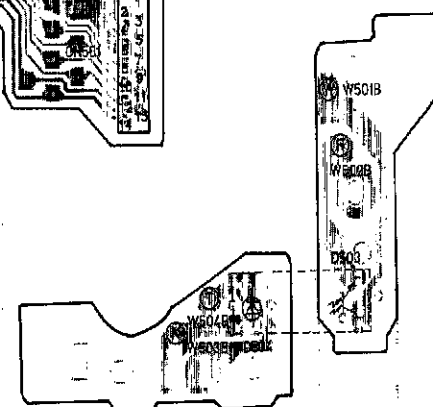
D PANEL P.C.B. (REP1836D)



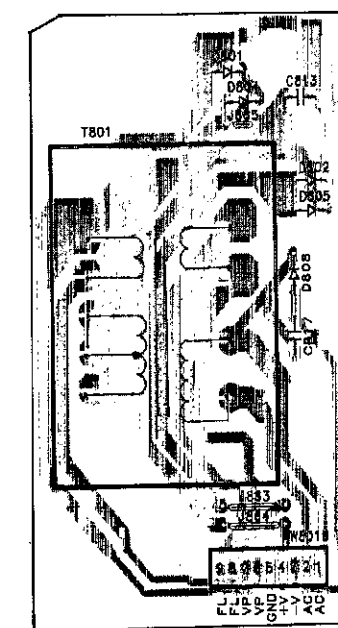
G LOADING MOTOR P.C.B.



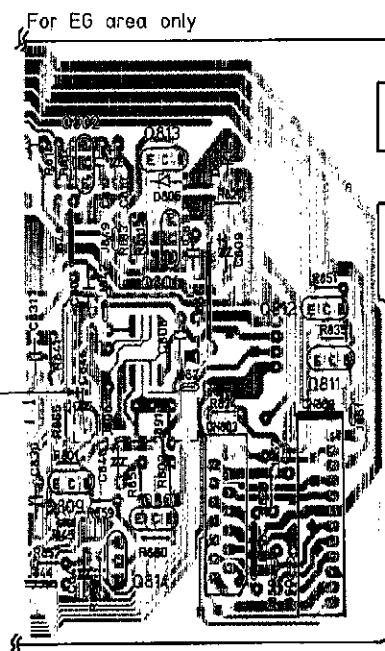
H PHOTOTR. P.C.B.



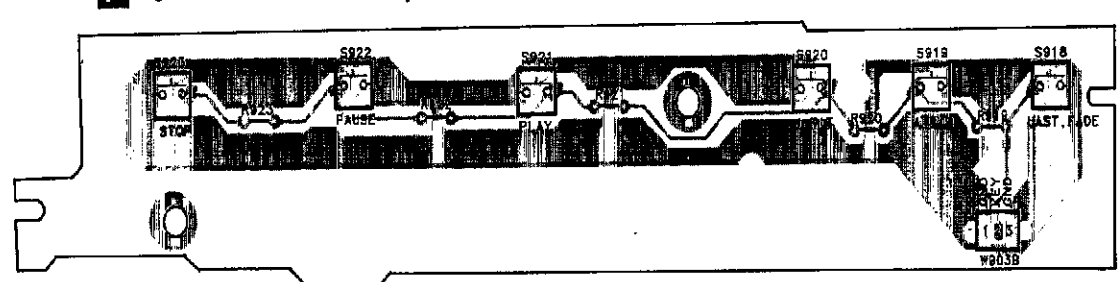
I LED P.C.B.



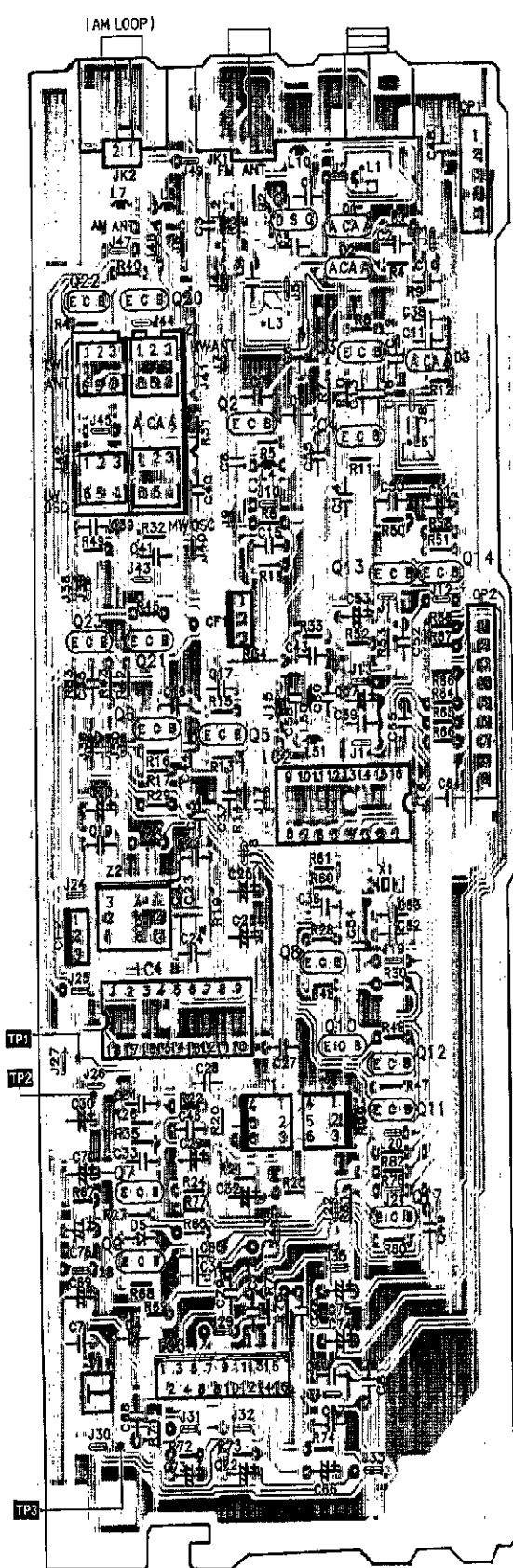
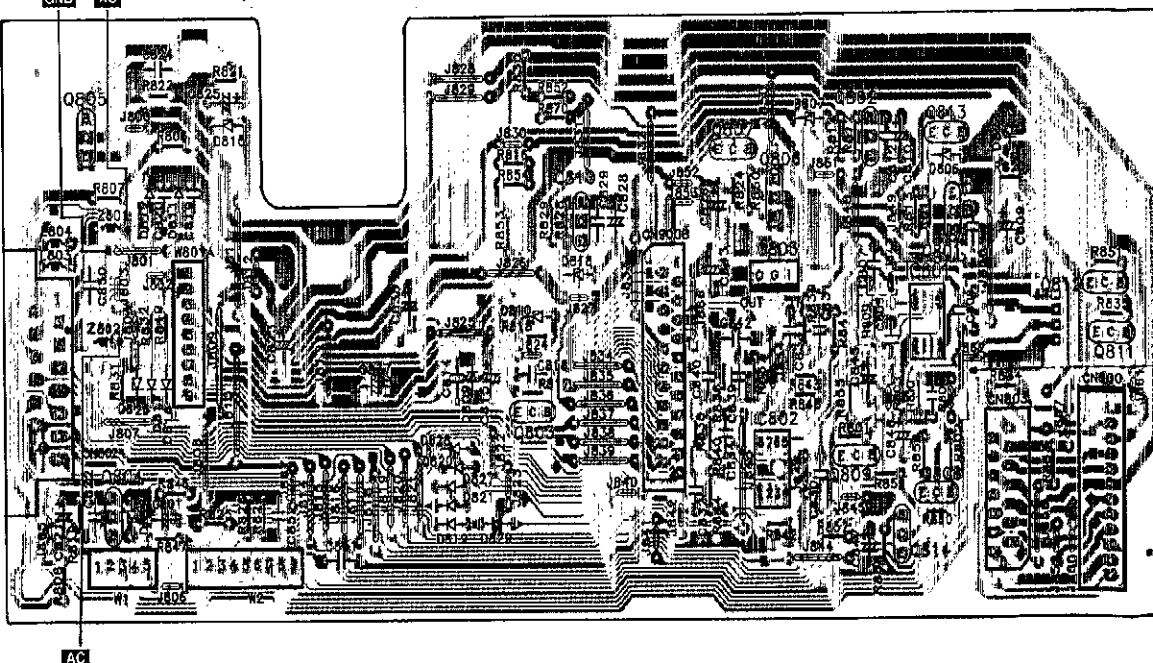
E TRANSFORMER P.C.B. (REP1838B ... E, GN) (REP1838C ... EG)



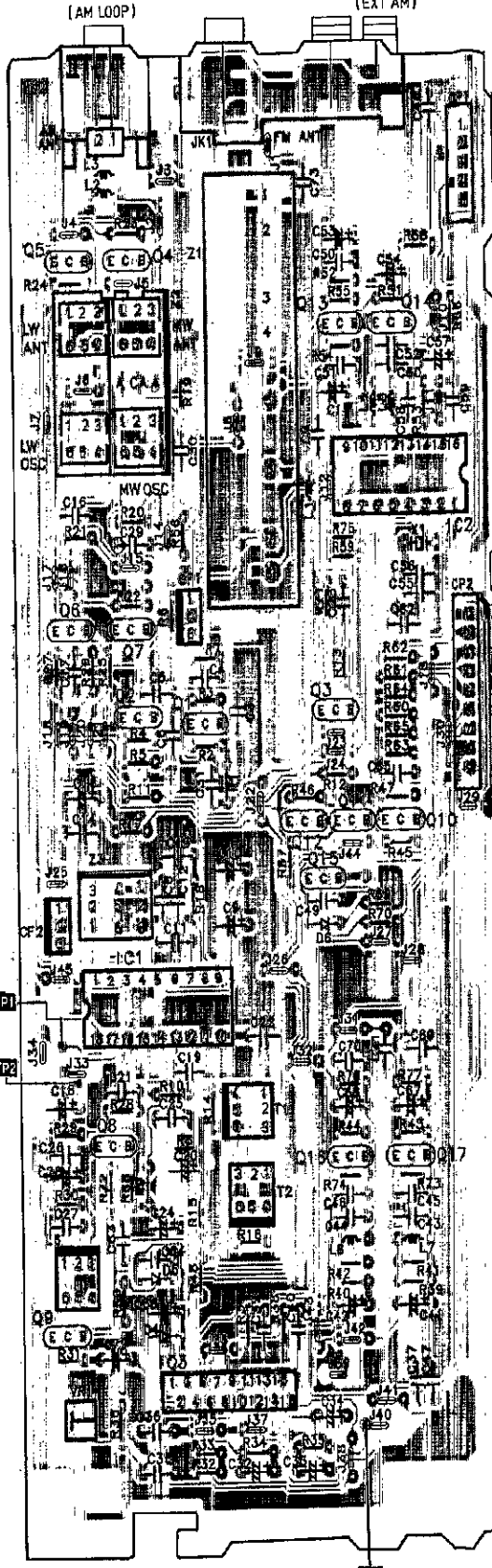
F OPERATION P.C.B. (REP1836D)



C MAIN P.C.B. (REP1838B ... E, GN) (REP1838C ... EG)

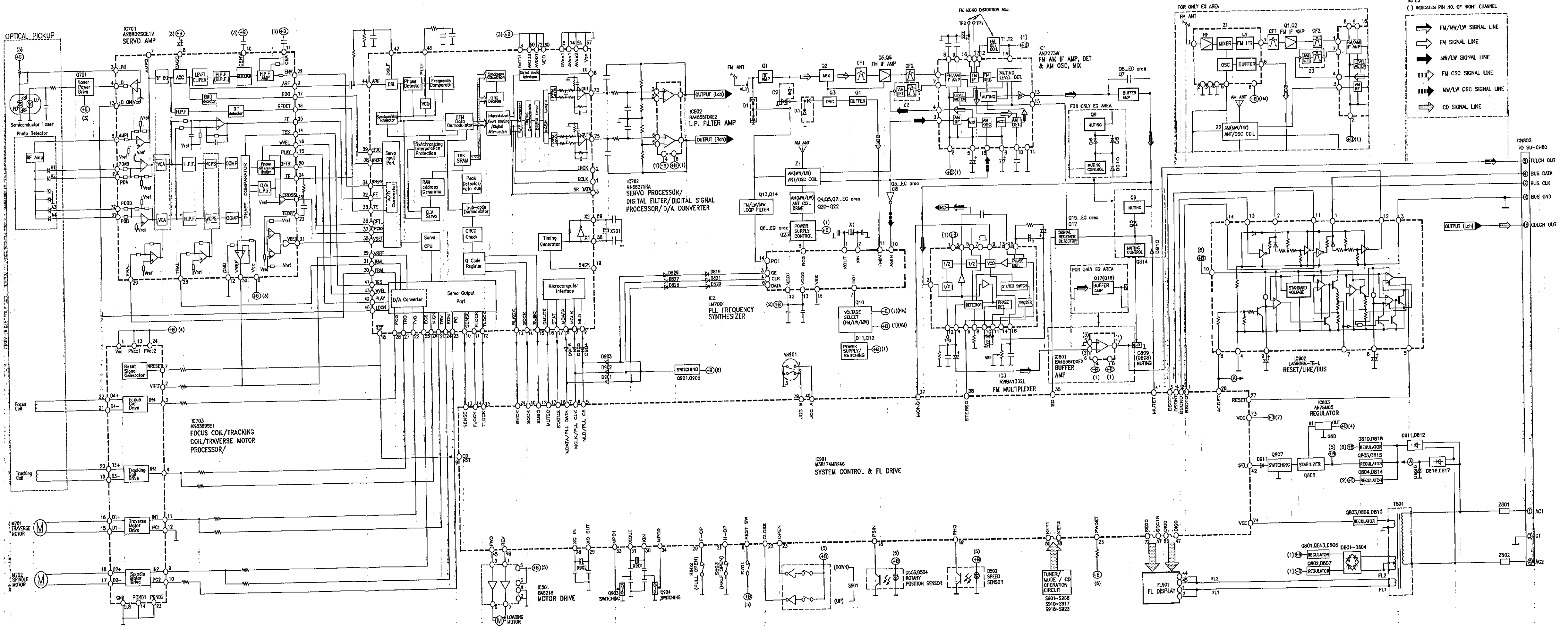


B TUNER P.C.B. (REP1548C ... E) (REP1548D ... GN)



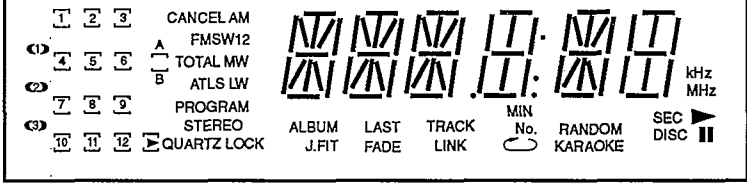
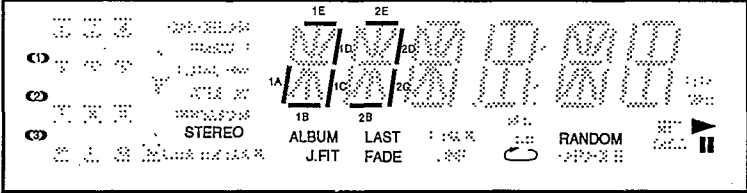
B TUNER P.C.B. (REP1839A ... EG)

■ BLOCK DIAGRAM



- NOTES  
( ) INDICATES PIN NO. OF RIGHT CHANNEL
- FM/MW/LW SIGNAL LINE
  - FM SIGNAL LINE
  - MW/LW SIGNAL LINE
  - FM OSC SIGNAL LINE
  - MW/LW OSC SIGNAL LINE
  - CD SIGNAL LINE

# GENERAL INSPECTION

FUNCTION	CHECKING	REMARKS																																												
<p>1. To enter TEST MODE.</p>	<ul style="list-style-type: none"> <li>• Press the "CD" key to select CD position.</li> <li>• Press the "□" (CD STOP) key on the SL-CH80 unit, then simultaneously press the "REPEAT" key on the SL-CH80 unit for about 2 seconds.</li> </ul> 	<ul style="list-style-type: none"> <li>• All segments of FL display will light up.</li> </ul>																																												
<p>2. To check for all connection and FL Display connection.</p>	<ul style="list-style-type: none"> <li>• Press the "CD DISPLAY" key on the SL-CH80 unit.</li> <li>• Press every key(except "CD DISPLAY" and "SET" keys) on the SL-CH80 unit one by one .</li> <li>• The chart below summarizes the Display segment corresponding to each key pressed.</li> </ul> <table border="1" data-bbox="352 831 1235 1272"> <thead> <tr> <th>Segment Light Up</th> <th>Key Pressed (From SL-CH80 unit)</th> <th>Segment Light Up</th> <th>Key Pressed (From SL-CH80 unit)</th> </tr> </thead> <tbody> <tr> <td></td> <td>REPEAT</td> <td>2C</td> <td></td> </tr> <tr> <td>RANDOM</td> <td>RANDOM</td> <td></td> <td>DISC2</td> </tr> <tr> <td>2B</td> <td></td> <td></td> <td>DISC1</td> </tr> <tr> <td></td> <td></td> <td>1A</td> <td>TAPE</td> </tr> <tr> <td></td> <td></td> <td>1B</td> <td>AUX</td> </tr> <tr> <td>J.FIT</td> <td>J.FIT</td> <td>1C</td> <td>CD</td> </tr> <tr> <td>ALBUM</td> <td>ALBUM</td> <td>1D</td> <td>TUNER/BAND</td> </tr> <tr> <td>LAST FADE</td> <td>LAST FADE</td> <td>STEREO</td> <td>FM MODE/BP</td> </tr> <tr> <td>2E</td> <td> OPEN/CLOSE</td> <td>1E</td> <td>TUNING MODE</td> </tr> <tr> <td>2D</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> 	Segment Light Up	Key Pressed (From SL-CH80 unit)	Segment Light Up	Key Pressed (From SL-CH80 unit)		REPEAT	2C		RANDOM	RANDOM		DISC2	2B			DISC1			1A	TAPE			1B	AUX	J.FIT	J.FIT	1C	CD	ALBUM	ALBUM	1D	TUNER/BAND	LAST FADE	LAST FADE	STEREO	FM MODE/BP	2E	OPEN/CLOSE	1E	TUNING MODE	2D				<ul style="list-style-type: none"> <li>• FL Display will black out.</li> <li>• FL Display will have its segment lighted up one by one.</li> </ul>
Segment Light Up	Key Pressed (From SL-CH80 unit)	Segment Light Up	Key Pressed (From SL-CH80 unit)																																											
	REPEAT	2C																																												
RANDOM	RANDOM		DISC2																																											
2B			DISC1																																											
		1A	TAPE																																											
		1B	AUX																																											
J.FIT	J.FIT	1C	CD																																											
ALBUM	ALBUM	1D	TUNER/BAND																																											
LAST FADE	LAST FADE	STEREO	FM MODE/BP																																											
2E	OPEN/CLOSE	1E	TUNING MODE																																											
2D																																														
<p>3. To check for tuner auto tuning.</p>	<ul style="list-style-type: none"> <li>• Press the "TUNER/BAND" key to select "TUNER" position.</li> <li>• Press the "□" (CD STOP) key on the SL-CH80 unit, then simultaneously press the "TUNER/BAND" key for about 2 seconds.</li> <li>• Press the "◀◀◀" or "▶▶▶" on the remote control transmitter.</li> </ul>	<ul style="list-style-type: none"> <li>• "C-3" will appear on the FL display for about 2 seconds.</li> <li>• Tuner band will set to "FM" and start to auto tuning in each direction.</li> </ul>																																												
<p>4. To exit from TEST MODE.</p>	<ul style="list-style-type: none"> <li>• Press the Power key on the SU-CH80 unit, or press the "□" (CD STOP) on the remote control transmitter, or press the "SET" key on the SL-CH80 unit, or pull out the Power Supply Plug.</li> <li>• Pull out the Power Supply Plug to set the "COLD START" from the above TEST MODE. (The memory will be set to the initial condition on the next AC power on.)</li> </ul>																																													

## MEASUREMENTS AND ADJUSTMENTS

This unit (SL-CH80) is actuated by power supply from the cassette deck/amplifier SU-CH80. If you wish to actuate this unit without using the cassette deck/amplifier SU-CH80 for checking or repairing, follow below procedure

- Apply AC 11 V between **AC** (Z801) – **GND** (J810) – **AC** (Z802).

### To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (Lch) of the resistor R845 and the GND point of the jumper J810 as well as the section between LINE OUT (Rch) of the resistor R844 and the GND point of the jumper J810 and check if the signals are outputting from this unit. (Shown in Fig. 5)

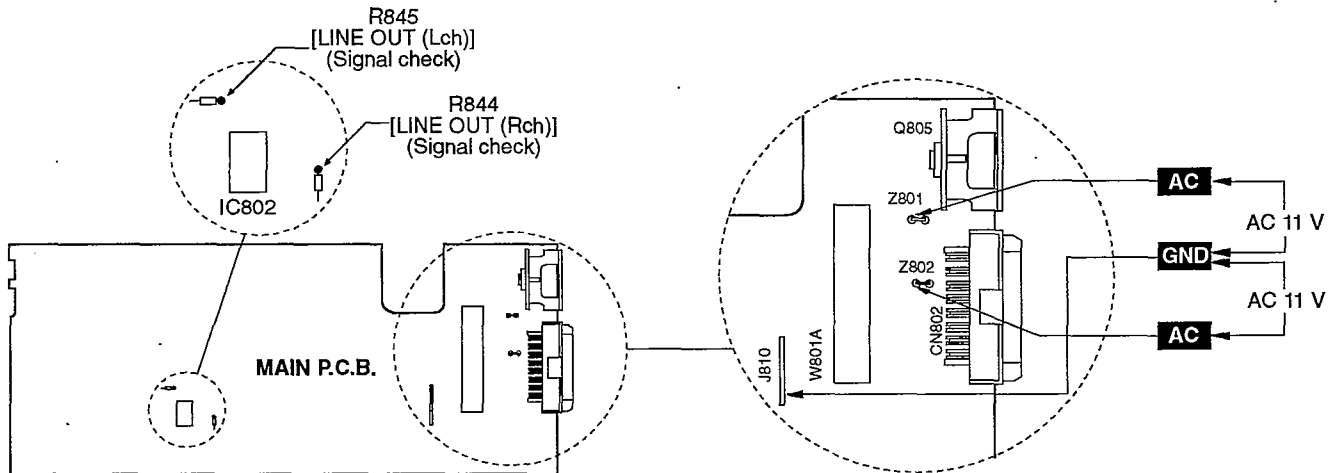


Fig. 5

## ALIGNMENT POINTS

< TUNER SECTION >

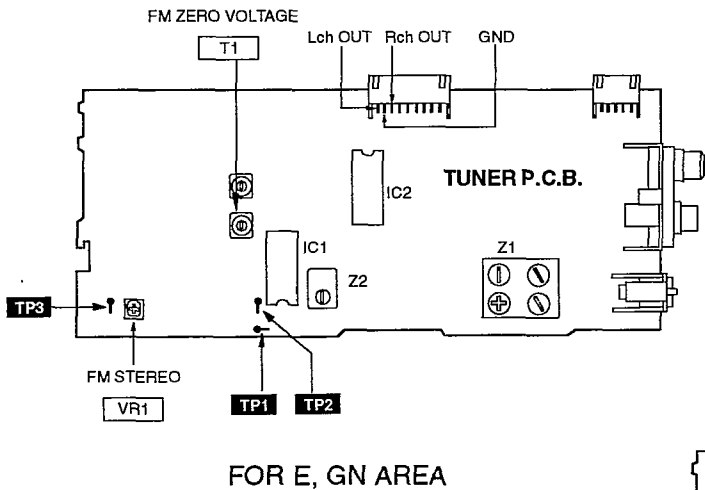
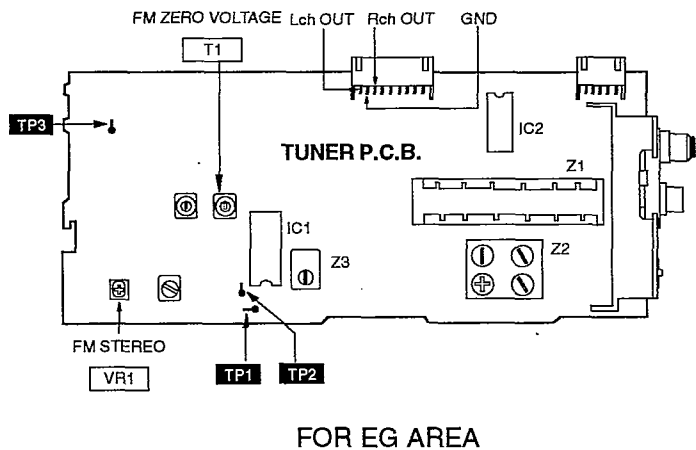


Fig. 1





## TUNER SECTION

### Control positions and equipment used

- FM signal generator (FM-SG)
- Coil (100  $\mu$ H)
- Distortion analyzer
- Dummy antenna (75 $\Omega$  unbalanced)

- DC electronic voltmeter (EVM)
- Digital frequency counter
- Resistor (330 k $\Omega$ )

### Measurement condition

- Volume control. .... maximum
- Equalizer control. .... flat

Please refer to Fig. 1 for the adjustment points.

**Note :** For Z1 (AM ANT and OSC coil) and Z2 (AM-IFT) for E and GN area or Z2(AM ANT and OSC coil) and Z3 (AM-IFT) for EG area, they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM circuit.

### • FM ZERO VOLTAGE ADJUSTMENT

1. Test equipment connection is shown in Fig. 2.
2. Set the unit to "FM MODE".
3. Set the radio frequency display and signal generator to 98.1 MHz.
4. Adjust the core of T1 so that voltage measured in signal mode is 0 mV (0  $\pm$  30 mV) in 300 mV range.
5. Make sure that the distortion factors of L-ch and R-ch are nearly the same and minimum.

**Note :** The adjusting screwdriver used should be made of resin.

**FM SIGNAL GENERATOR CONDITION**  
 Modulation. .... 100%  
 Modulation frequency. .... 1kHz  
 Output level. .... 60dB

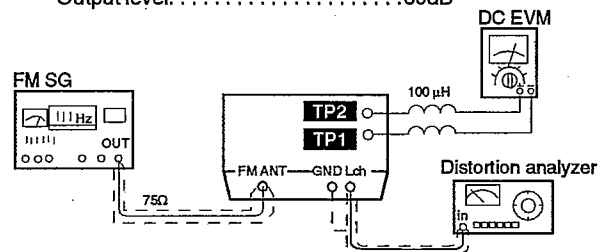


Fig. 2

### • FM STEREO ADJUSTMENT (FREE RUN)

1. Test equipment connection is shown in Fig. 3.
2. Set the unit to "FM AUTO MODE" position.
3. Set the radio frequency display and signal generator to 98.1MHz.
4. Adjust VR1 for 19 kHz  $\pm$  50 Hz on frequency counter reading.
5. Tune a stereo broadcast and confirm the frequency stays at 19 kHz.

**FM SIGNAL GENERATOR CONDITION**  
 Modulation. .... 90%, pilot 9%  
 Modulation frequency. .... 1kHz  
 Output level. .... 60dB

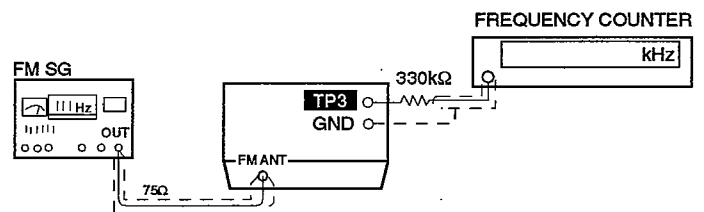
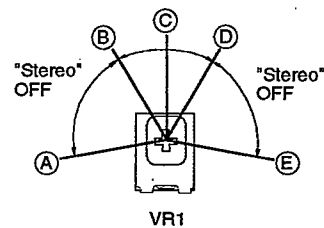


Fig. 3



- (A) - (B), (D) - (E) ... "Stereo" OFF position
- (B) - (D) ... "Stereo" ON position (Indicator lights up)
- (C) ... Adjust point of pilot circuit

Fig. 4

## CD PLAYER SECTION

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

**Caution:** It is very dangerous to look 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.

### Measuring Instruments and Special Tools

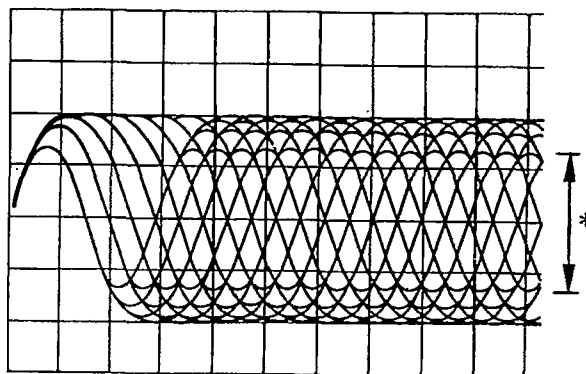
\* Test discs

1. Playability test disc (SZZP1054C).
  2. Uneven test disc (SZZP1056C).
- \* Musical program disc (ordinary).

- \* Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT. trigger and 1 : 1 probe).
- \* Allen wrench (M2.0) (SZZP1101C).
- \* Lock paint (RZZ0L01)

### (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 **TJ701** (RF) (+) and **TJ702** (V-Ref.) (-) on the servo P.C.B.  
**Oscilloscope setting :** VOLT .....200mV.  
 SWEEP.....0.5 $\mu$ s.  
 Input coupling .....AC.
  2. Switch the player power **ON**, and play track 19 on the test disc (SZZ1056C).  
 (Playing any other track will prevent the HEX screws from being accessed.)
  3. Leave the player in play mode.
  4. Alternately adjust the HEX 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 43)
  5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



\* 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.

■ ALIGNMENT POINTS

< CD PLAYER SECTION >

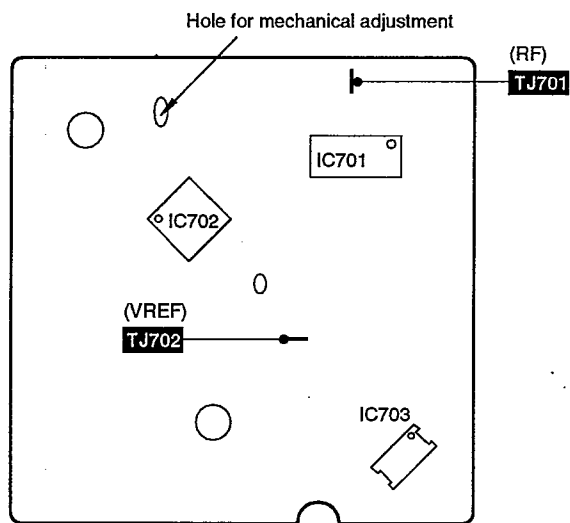


Fig.1

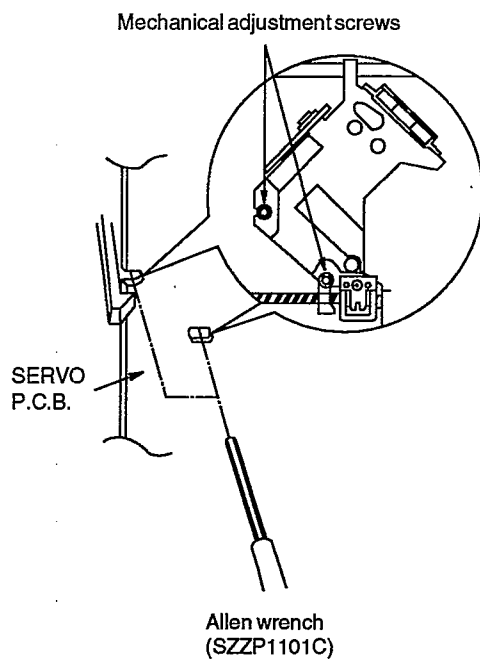


Fig.2

## ■ DISPLAY FUNCTIONS OF AUTOMATICALLY-ADJUSTED RESULTS (SELF-CHECK FUNCTION)

The unit contains a function which displays the result of the automatically adjustment of the servo circuits (tracking, focus servo, etc.) as an error code on the FL display.










The error code display serves as a repair guide showing the automatically adjustment circuit is at fault. The procedures for displaying the error codes are given below.

### ■ Procedures to display the error code

1. Check the servo P.C.B. as shown in the Disassembly Instructions, "How to check the Servo and Main P.C.B."
2. Switch the unit to ON. (See page 40)
3. Press the "CD" key to select CD function.
4. Press the "□" (CD STOP) key on the unit, then simultaneously press "▶▶/▶▶" key for about 2 seconds.
5. The "C - 2" will appear on the FL display for 2 seconds (self-check function mode is activated).
6. The "E-00" will appear on the FL display if no error is found.
7. The error code provides a rough indication of which servo circuit is malfunctioning.

### ■ Error code based troubleshooting

- The unit is satisfactory if the error code is E-00.
- Before testing, make sure that the test disc is free of scratches and dirt and optical pickup is clean.

FL error code display	Symptom	Probable cause	Signal to check		Normal the values of voltage and waveform	
			Signal name	Location	PLAY	STOP
E01	Focus and tracking offset adjustments did not complete in the specified time period.	① Clocks X1 and X2, power supply VDD, and reset/RST, all on IC702. ② MDATA, MCLK, MLD and SENSE signals to/from the mechanism controller.	MDATA	IC702 ⑧ pin		4.8V
			MCLK	IC702 ⑦ pin		4.8V
			MLD	IC702 ⑨ pin		0V
			SENSE	IC702 ⑩ pin	0V	0V
			/RST	IC702 ⑱ pin	4.9V	4.9V
			X1	IC702 ⑤⑧ pin		
			X2	IC702 ⑤⑨ pin		
E03 E05 E07 E09 E0B E0D E0F	Disc play unstable	① Scratches or contaminants on disc surface. ② Focus and tracking servo circuits (check waveforms, voltages, and part constants). ③ Spindle driver circuit. ④ Optical pickup.	FE	IC702 ⑳ pin		2.4V
			TE	IC702 ㉑ pin		2.4V
			FOD	IC702 ㉒ pin	2.4V	2.4V
			TRD	IC702 ㉓ pin	2.4V	2.4V
			KICK	IC702 ㉔ pin	2.4V	2.4V
			/FLOCK	IC702 ①① pin	0V	4.9V
			/RF DET	IC702 ㉕ pin	0V	4.8V
			RF	TJ701		3.4V
			STAT	IC702 ⑰ pin	3.5V	0V

FL error code display	Symptom	Probable cause	Signal to check		Normal the values of voltage and waveform	
			Signal name	Location	PLAY	STOP
E04 E06 E0C E0E	Best Eye (PD Balance) adjustment did not complete in specified time period.	① Scratches or contaminants on disc surface. ② Focus and tracking servo circuits (check waveforms, voltages, and part constants). ③ Optical pickup.	FBAL	IC702 ③⑩ pin	2.5 ± 1.25V	2.5 ± 1.25V
			RF	TJ701		3.4V
			FE	IC702 ③② pin		0V
			/TLOCK	IC702 ①② pin	0V	0V
			OFT	IC702 ③⑥ pin	0V	0V
E08 E0A	Focus or tracking gain adjustment did not complete in the specified time period.	① Scratches or contaminants on disc surface. ② Focus and tracking servo circuits (check waveforms, voltages, and part constants). ③ Optical pickup.	FE	IC702 ③② pin		2.4V
			TE	IC702 ③③ pin		2.4V
			/TLOCK	IC702 ①② pin	0V	0V
			OFT	IC702 ③⑥ pin	0V	0V

## ■ TERMINAL GUIDE OF ICs, TRANSISTORS & DIODES

AN7273W 	AN8389SE1 	AN8802SCE1V 32 Pin LA5608M-TE-L 14 Pin 	RVIBA1332L 	BA4558FDXE2 
BA6218 	AN78M05 	LM7001 	M38174M8246 80 Pin 	MN66271RA 80 Pin 
2SB709S 	2SC2786MTA 2SC2787FL1TA 2SC2787LTA 2SD1020HTA 	2SB1185E 2SD1273P 	2SD2037ETA 	2SK544F-AC 
2SA933SSTA 2SC1740SSTA RVDTC124EST RVDTC143EST 	1SS291TA MA165TA RVD1SS133TA 	SVC211SPA-AL 	GL380TB PT381TB 	
MA4270MTA 	RVDMTZ10BTA RVDMTZ11BTA RVDMTZ15CTA RVDMTZ4R7BTA RVDMTZ5R1BTA RVDMTZ5R6CTA RVDMTZ6R8ATA RVDMTZ8R2CTA 	1D3E 	RSQGP1S53V 	

## ■ TERMINAL FUNCTION OF IC'S

### • IC702 (MN66271RA)

Pin No.	Mark	I/O	Function
1	BCLK	O	Serial bit clock terminal (Not used, open)
2	LRCK	O	L/R discriminating signal (Not used, open)
3	SRDATA	O	Serial data (Not used, open)
4	DVDD1	I	Power supply (digital circuit) terminal
5	DVSS1	—	GND (digital circuit) terminal
6	TX	O	Digital audio interface signal
7	MCLK	I	Microprocessor command clock signal
8	MDATA	I	Microprocessor command data signal
9	MLD	I	Microprocessor command load signal
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Optical servo condition (focus) ("L" : lead-in)
12	/TLOCK	O	Optical servo condition (tracking) ("L" : lead-in)
13	BLKCK	O	Sub-code block clock (f=75Hz)
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=8.4672MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK=4.2336MHz)
20	PMCK	O	1/192-divided clock signal of crystal oscillating (fPMCK=88.2kHz) (Not used, open)
21	TRV	O	Traverse servo control output
22	TVD	O	Traverse drive signal output
23	PC	O	Spindle motor ON signal output ("L" : ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) Reference voltage input.
30	FBAL	O	Focus balance adjustment output (Not used, open)

Pin No.	Mark	I/O	Function
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" : DS)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias (Not used, open)
47	DSL F	I/O	DSL loop filter
48	PLL F	I/O	PLL loop filter
49	VCO F	I/O	VCO loop filter (Not used, open)
50	AVDD2	I	Power supply input (for analog circuit)
51	AVSS2	—	GND (for analog circuit)
52	EFM	O	EFM signal output (Not used, open)
53	PCK	O	PLL extraction clock output (Not used, open) (fPCK=4.321 MHz during normal playback)
54	PDO	O	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	O	Sub-code serial data output (Not used, open)
56	SBCK	I	Clock input for sub-code serial data (Not used, open)
57	VSS	—	GND
58	X1	I	Crystal oscillating circuit input (f=16.9344MHz)
59	X2	O	Crystal oscillating circuit output (f=16.9344MHz)
60	VDD	I	Power supply input (for oscillating circuit)
61	BYTCK	O	Byte clock output (Not used, open)
62	/CLDCK	O	Sub-code frame clock signal output (fCLDCK=7.35kHz during normal playback)

Pin No.	Mark	I/O	Interpolation flag output ("H" : interpolation) (Not used, open) Function
63	FCLK	O	Crystal frame clock signal output (fCLK=7.35kHz, double=14.7kHz)
64	IPFLAG	O	
65	FLAG	O	Flag output (Not used, open)
66	CLVS	O	Spindle servo phase synchronizing signal output ("H" : CLV, "L" : rough servo) (Not used, open)
67	CRC	O	Sub-code CRC checked output ("H" : OK, "L" : NG) (Not used, open)
68	DEMPH	O	De-emphasis ON signal output ("H" : ON) (Not used, open)
69	RESY	O	Frame resynchronizing signal output (Not used, 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)

Pin No.	Mark	I/O	Function
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" : 16.9344MHz "H" : 33.8688MHz
78	PSEL	I	Test input (normally "L") (Not used, open)
79	MSEL	I	Output frequency switching for SMCK terminal "H" : SMCK=8.4672MHz "L" : SMCK=4.2336MHz (Not used, open)
80	SSEL	I	Output mode switching of SUBQ terminal ("H" : Q code buffer mode)

#### • IC701 (AN8802SCE1V)

Pin No.	Mark	I/O	Function
1	PDAD	I	PDA channel signal input with delay
2	PDA	I	PDA channel signal input without delay
3	LPD	I	Laser PD connection
4	LD	O	Power supply for LD driving
5	AMPI	I	RF amplifier input
6	VCC	I	Power supply connection
7	AMPO	O	RF amplifier output (Not used, 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
15	PLAY	I	Play signal input ("H" : PLAY)
16	WVEL	I	Double speed ("H" : double, "L" : single)

Pin No.	Mark	I/O	Function
17	BDO	O	Dropout detection control
18	/RFDET	O	RF detection signal ("L" : detection)
19	CROSS	O	Tracking error zero cross output
20	OFTR	O	Off-track detection ("H" : detection)
21	VDET	O	Vibration detection signal output ("H" : detection)
22	ENV	O	Envelope output terminal
23	TEBPF	I	Vibration detection signal input
24	TE	O	Tracking error signal output
25	FE	O	Focus error signal output
26	PTO	O	Potentiometer inversion input (Not used, open)
27	PTI	I	Potentiometer inversion output (Not used, open)
28	TBAL	I	Tracking balance signal input
29	FBAL	I	Focus balance signal input
30	VREF	O	Reference voltage output
31	PDB	I	Photo detection Bch input without delay
32	PDBD	I	Photo detection Bch input with delay

## • IC901 (M38174M8246)

Pin No.	Mark	I/O	Function
1	BSDTO	O	Bus data output
2	BCKO	O	Bus clock output
3	BSDTI	I	Bus data input
4	BCKI	I	Bus clock input
5	MLD/PLL CE	O	Microprocessor command /PLL tuner load signal output
6	MCLK/PLL CLK	O	Microprocessor command /PLL tuner clock signal output
7	MDATA/PLLDATA	O	Microprocessor command /PLL tuner data signal output
8	REST SW	I	CD Innermost track sense SW(S701) status
9	CD RST	O	CD reset signal output
10	SQCK	O	External clock for CD subcode Q register
11	NC	—	Not used
12	SUBQ	I	CD Subcode Q input
13	SENSE	I	CD sense signal input
14	FLOCK	I	CD focus signal input
15	TLOCK	I	CD tracking signal input
16	STATUS	I	CD status signal input
17	MUTEC	O	Muting signal output (CD)
18	PSIN	I	Photo sensor signal input
19	PHO	I	Photo sensor signal input (speed detect)
20	F-OP	I	Tray full open detect signal input
21	H-OP	I	Tray half open detect signal input
22	CLOSE (UP)	I	Traverse up detect signal input
23	OPEN(DOWN)	I	Traverse down detect signal input
24	BKCK	O	CD subcode block clock signal input
25	PWDET	I	Power on detect signal input
26	ACDET	I	Power down detect signal input
27	RESET	I	Power on reset signal input
28	XC IN	I	Clock input (32.768kHz)
29	XC OUT	O	Clock output (32.768kHz)
30	XIN	I	Clock input (4.19MHz)

Pin No.	Mark	I/O	Function
31	XOUT	O	Clock output (4.19MHz)
32	VSS	—	GND
33	MBP1	O	Microprocessor beatproof 1
34	MBP2	O	Microprocessor beatproof 2
35	SD	I	Signal received detection terminal
36	MIC SW	I	Microphone SW detection terminal (GND)
37	MONO	O	FM mono control signal output
38	STEREO	I	FM stereo signal detection terminal
39	JOGB	I	Jog dial signal input
40	JOGA	I	Jog dial signal input
41	MUTET	O	Muting signal output (TUNER)
42	SEL	O	Function (CD/Tuner) select signal output
43	LED CNT	—	Not used
44	SOL	O	Solenoid drive signal output
45	FWD	O	Motor control (FWD)
46	REV	O	Motor control (REV)
47	DIG9	O	FL digit signal output
56	DIG0		
47	SEG15	O	FL segment drive signal output
72	SEG0		
73	VCC	—	Power supply terminal (+5V)
74	VEE	—	-28V
75	AVSS	—	GND
76	VREF	—	Output reference voltage
77	REG	I	Regulator signal input
78	KEY3	I	Operation switch signal input
80	KEY1		



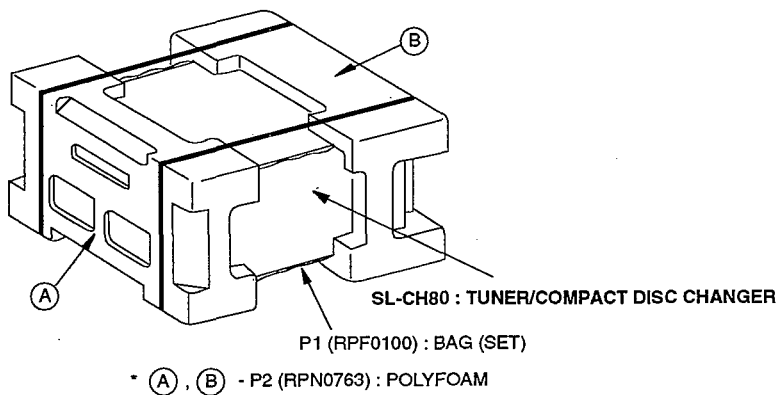
## • IC703 (AN8389SE1)

Pin No.	Mark	I/O	Function
1	VCC	I	Power supply terminal
2	VREF	I	Reference voltage input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	Ground connection
6	NC	—	Ground connection
7	NRESET	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 (Not used, open)

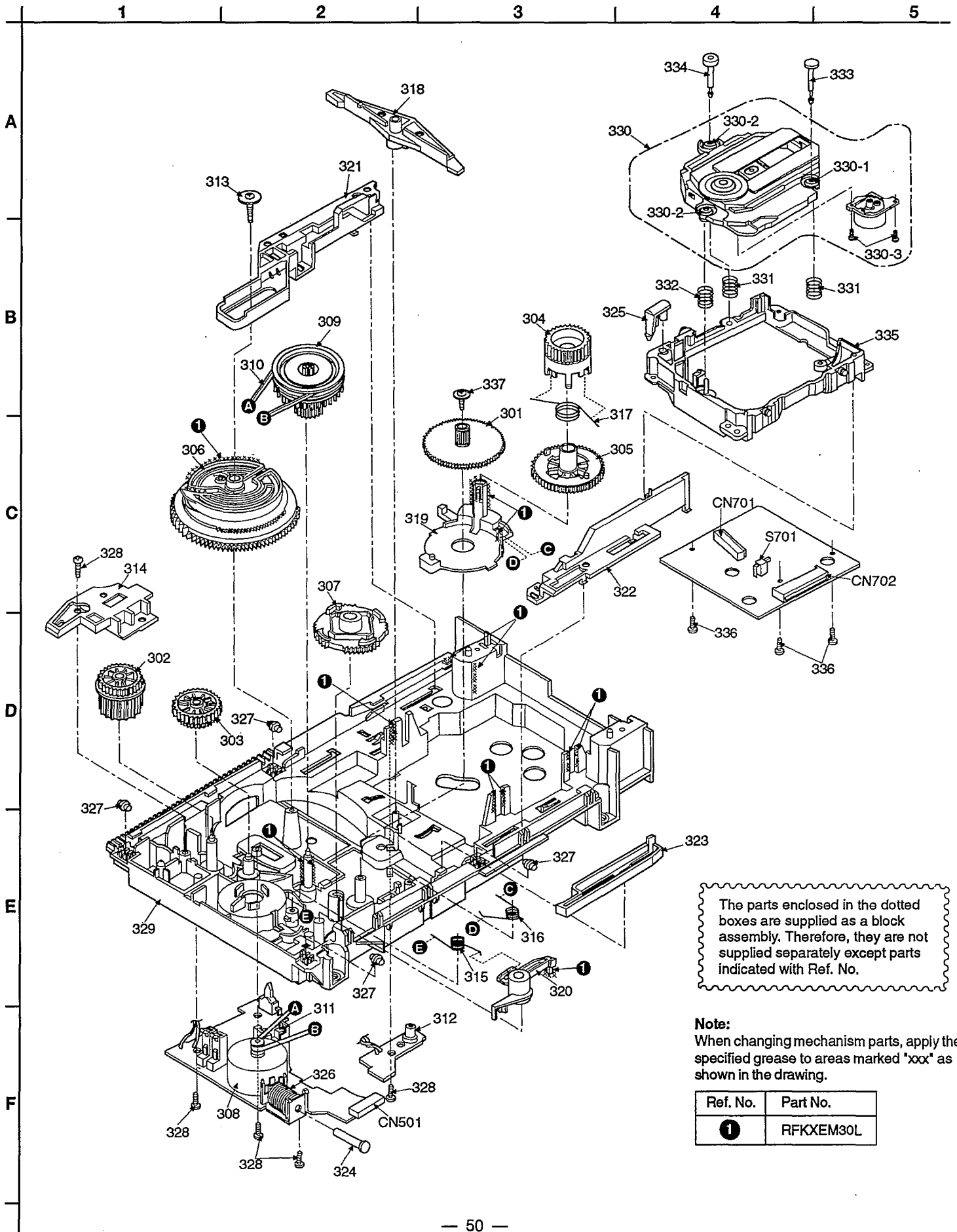
Pin No.	Mark	I/O	Function
17	PVCC1	I	Power supply (1) for driver
18	PGND1	—	Ground connection (1) for driver
19	D1-	O	Motor driver (1) reverse-action output
20	D1+	O	Motor driver (1) forward-action output
21	D2-	O	Motor driver (2) reverse-action output
22	D2+	O	Motor driver (2) forward-action output
23	D3-	O	Motor driver (3) reverse-action output
24	D3+	O	Motor driver (3) forward-action output
25	D4-	O	Motor driver (4) reverse-action output
26	D4+	O	Motor driver (4) forward-action output
27	PGND2	—	Ground connection (2) for driver
28	PVCC2	I	Power supply (2) for driver

## ■ PACKAGING

### ■ SL-CH80 (TUNER/COMPACT DISC CHANGER)



# CD LOADING UNIT PARTS LOCATION



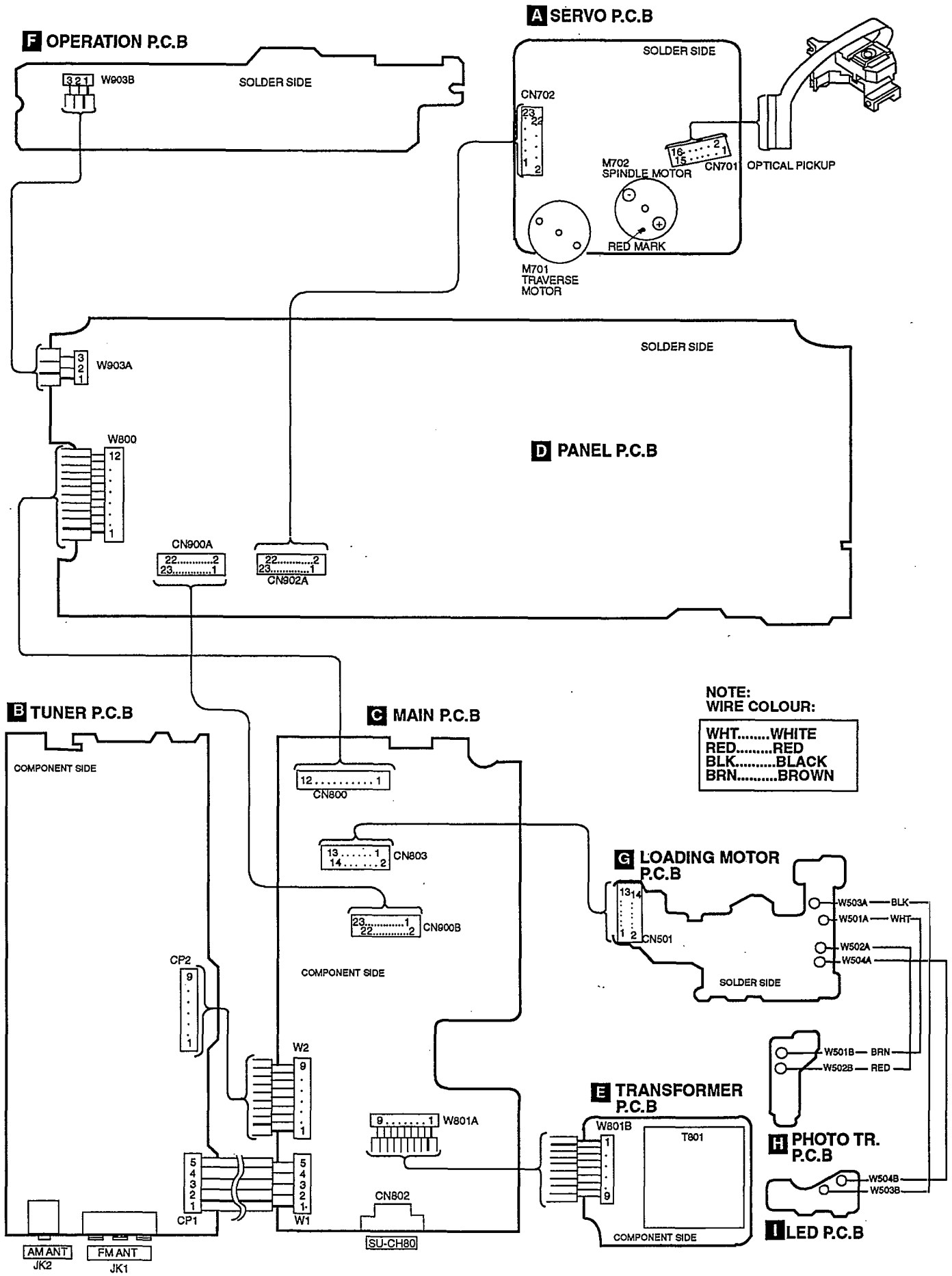
The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.

**Note:**  
When changing mechanism parts, apply the specified grease to areas marked "xxx" as shown in the drawing.

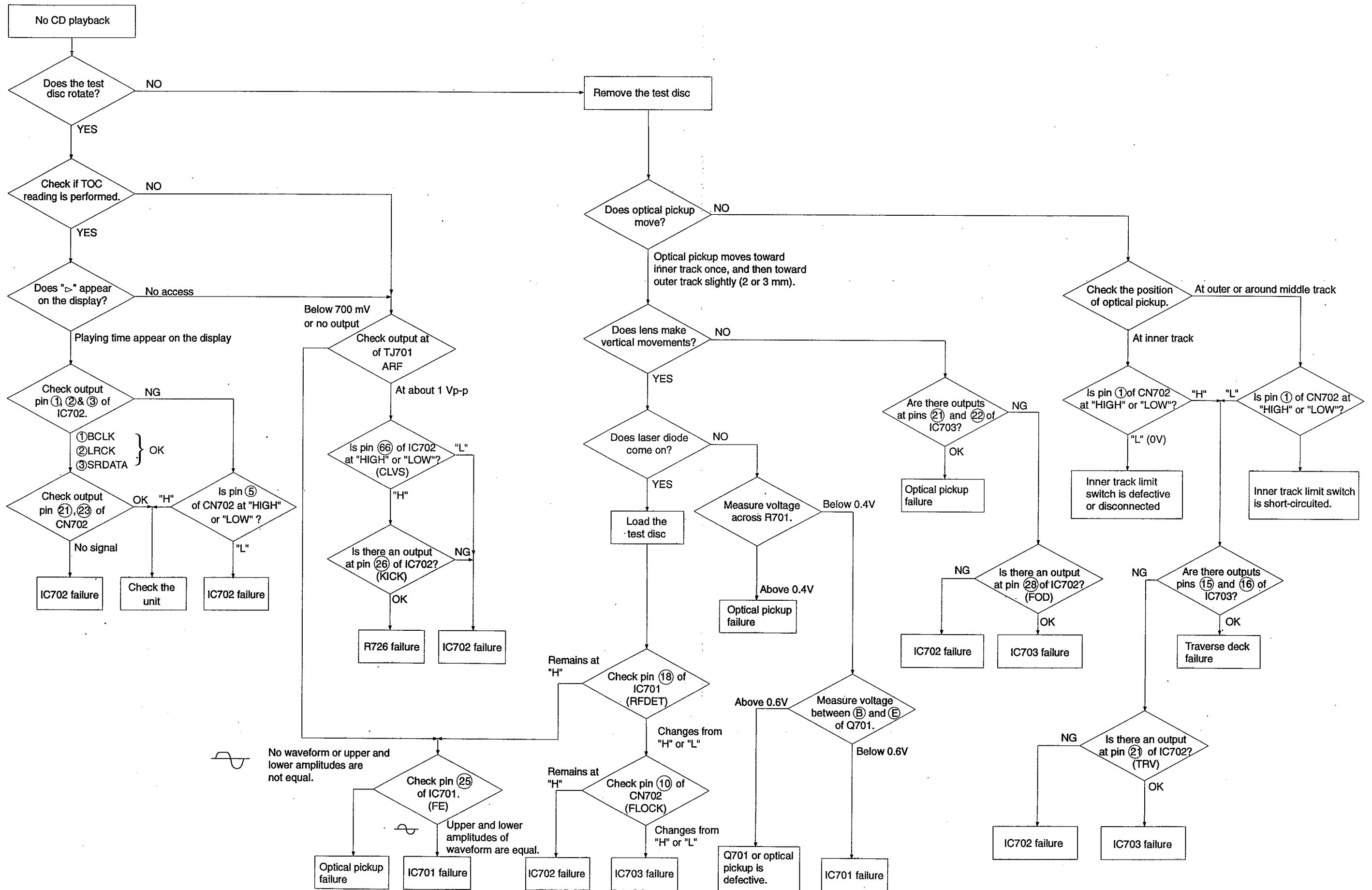
Ref. No.	Part No.
1	RFKXEM30L



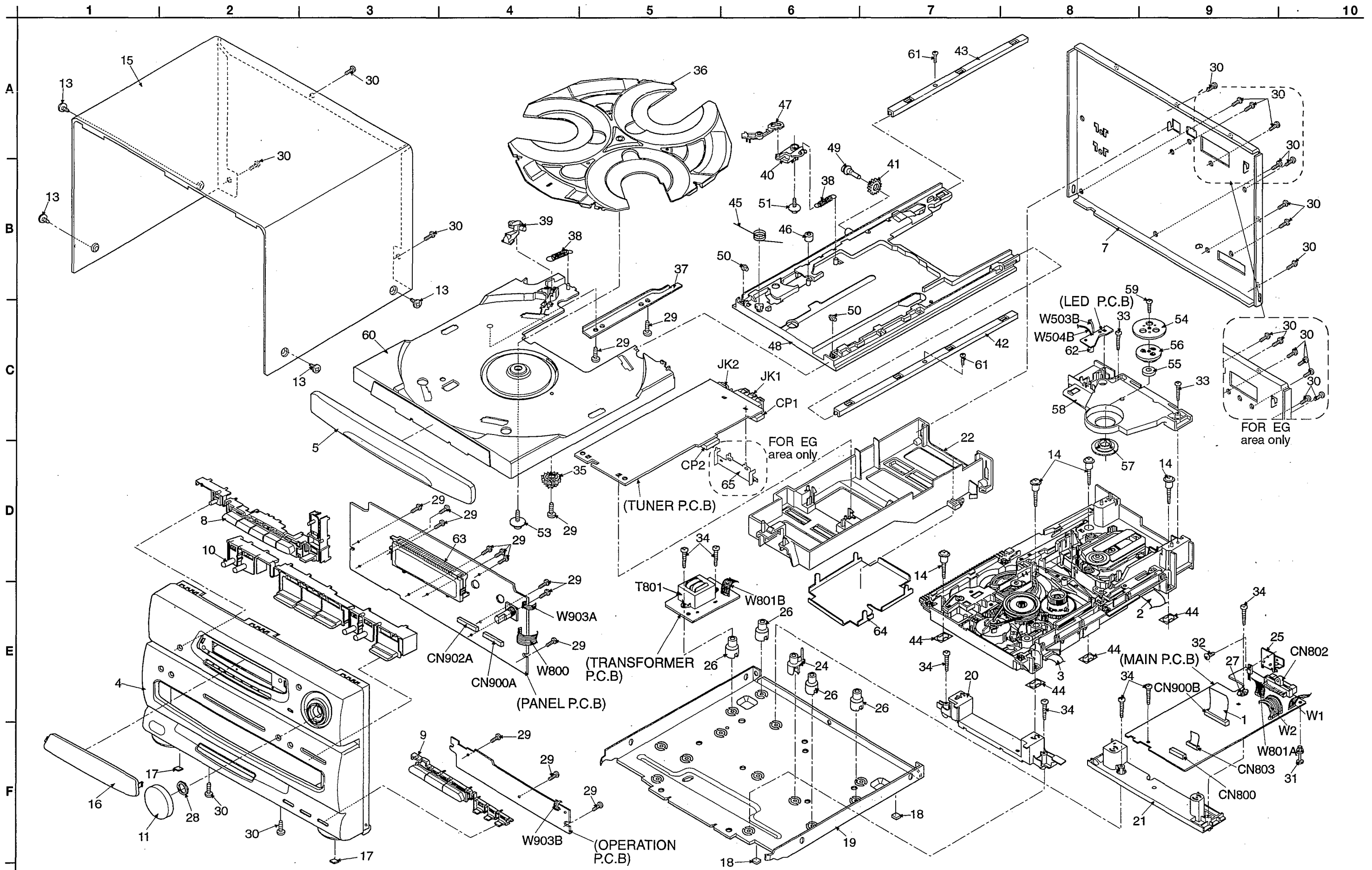
# WIRING CONNECTION DIAGRAM



■ TROUBLESHOOTING GUIDE



CABINET PARTS LOCATION



# REPLACEMENT PARTS LIST

Notes: \* Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety.

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

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

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

Parts without these indications can be used for all areas.

\* 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.

\* [M] Indicates in the Remarks columns indicates parts supplied by MESA.

Ref No.	Part No.	Part Name & Description	Remarks	Ref No.	Part No.	Part Name & Description	Remarks
		<b>CABINET AND CHASSIS</b>					
1	REE0549	FFC (PANEL-MAIN)	[M]	40	RDG0225	GEAR	
2	REE0550	FFC (PANEL-CD)	[M]	41	RDG0227	GEAR	
3	REE0551	FFC (CD-MAIN)	[M]	42	RMA0654	ANGLE(A)	
4	RFKGLCH80PK	FRONT PANEL ASS'Y	[M]	43	RMA0655	ANGLE(B)	
5	RGK0610-K	CHANGER LID	[M]	44	RMG0319-K	RUBBER CUSHION	
7	RGR0183B-D	REAR PANEL	[M] (E)	45	RME0139	SPRING	
7	RGR0183B-E	REAR PANEL	[M] (EG)	46	RMG0293-C	RUBBER	
7	RGR0183B-F	REAR PANEL	[M] (GN)	47	RML0291	LEVER	
8	RGU1009-K	BUTTON, INPUT SELECT	[M]	48	RMR0627-K	TRAY BASE	
9	RGU1012-K	BUTTON, CD OPERATION	[M]	49	RMS0382	SHAFT	
10	RGU1013-K	BUTTON, DISK SELECT	[M]	50	SDRD14	ROLLER	
11	RGW0194-K	KNOB, AI JOG	[M]	51	XTW3+6S	SCREW	
13	RHD30007	SCREW		53	XTWS3+10T	SCREW	
14	RHD30048	SCREW	[M]	54	RDF0033	MAGNET HOLDER(A)	
15	RKM0248Z-K	CABINET	[M]	55	RHM245ZA	MAGNET	
16	RKW0323A-Q	FL WINDOW	[M]	56	RMR0334	MAGNET HOLDER(B)	
17	SHS3276	LEG FELT	[M]	57	RMR0624-W	DISC HOLDER	
18	RKA0059-K	LEG RUBBER	[M]	58	RMR0625-W	DISC CLAMPER	
19	RMK0236	BOTTOM CHASSIS	[M]	59	XTB3+6JFZ	SCREW	
20	RMR0734-X	CHANGER SUPPORT (F)	[M]	60	RFKNLCH555PK	DISC TRAY ASS'Y	
21	RMR0735-X	CHANGER SUPPORT (R)	[M]	61	XTN2+6F	SCREW	
22	RMR0738-X	TU PCB SUPPORT	[M]	62	RMN0222	LED HOLDER	
24	RMR0741-X	PCB SUPPORT (PIN)	[M]	63	RMN0253	FL HOLDER	[M]
25	RMY0132	HEAT SINK	[M]	64	RSC0373	FIZ SHIELD PLATE	[M]
26	SHE187-3	PCB SUPPORT		65	RSC0363	FIZ EARTH TERMINAL	[M] (EG)
27	SNE1004-1	EARTH TERMINAL				<b>INTEGRATED CIRCUITS</b>	
28	XNS9D	NUT		IC1	AN7273W	IC, FM/AM IF	
29	XTBS26+10J	SCREW		IC2	LM7001	IC, PLL	
30	XTBS3+8JFZ1	SCREW		IC3	RVIBA1332L	IC, MPX	
31	RMR0406	MAIN PCB SUPPORT	[M]	IC501	BA6218	IC, MOTOR DRIVER	
32	XTB3+12CFN	SCREW		IC801	BA4558FDXE2	IC, OP AMP	[M] (E, GN)
33	XTB3+16JFZ	SCREW		IC802	BA4558FDXE2	IC, OP AMP	[M]
34	XTB3+20J	SCREW		IC803	AN78M05	IC, REGULATOR	$\Delta$
35	RDG0228	GEAR		IC901	M38174M8246	IC, MICON	[M]
36	RGT0014	ROTARY TRAY		IC902	LA5608M-TE-L	IC, RESET IC	
37	RMA0681	ANGLE					
38	RME0123	SPRING					
39	RML0312	LEVER					

Ref No.	Part No.	Part Name & Description	Remarks
		<b>TRANSISTORS</b>	
Q1	2SK544F-AC	TRANSISTOR	(E, GN)
Q1	2SC2787LTA	TRANSISTOR	(EG)
Q2	2SC2786MTA	TRANSISTOR	(E, GN)
Q2	2SC2787LTA	TRANSISTOR	(EG)
Q3	2SC2787FL1TA	TRANSISTOR	(E, GN)
Q3	2SC1740SSTA	TRANSISTOR	(EG)
Q4	2SC2787FL1TA	TRANSISTOR	(E, GN)
Q4	2SA933SSTA	TRANSISTOR	(EG)
Q5	2SC2787LTA	TRANSISTOR	(E, GN)
Q5	2SC1740SSTA	TRANSISTOR	(EG)
Q6	2SC2787LTA	TRANSISTOR	(E, GN)
Q6	2SC1740SSTA	TRANSISTOR	(EG)
Q7	2SC1740SSTA	TRANSISTOR	
Q8	2SC1740SSTA	TRANSISTOR	
Q9	2SD1020HTA	TRANSISTOR	[M]
Q10	2SC1740SSTA	TRANSISTOR	
Q11	2SA933SSTA	TRANSISTOR	
Q12	2SA933SSTA	TRANSISTOR	
Q13	2SC1740SSTA	TRANSISTOR	
Q14	2SC1740SSTA	TRANSISTOR	
Q15	2SC1740SSTA	TRANSISTOR	(EG)
Q16	2SC1740SSTA	TRANSISTOR	(EG)
Q17	2SC1740SSTA	TRANSISTOR	
Q20	2SA933SSTA	TRANSISTOR	(E, GN)
Q21	2SC1740SSTA	TRANSISTOR	(E, GN)
Q22	2SC1740SSTA	TRANSISTOR	(E, GN)
Q23	2SC1740SSTA	TRANSISTOR	(E, GN)
Q501	RVDTC143EST	TRANSISTOR	
Q502	RVDTC143EST	TRANSISTOR	
Q801	2SD2037ETA	TRANSISTOR	[M] ▲
Q802	2SA933SSTA	TRANSISTOR	
Q803	2SB621ARTA	TRANSISTOR	▲
Q804	2SC2001KTA	TRANSISTOR	
Q805	2SD1273P	TRANSISTOR	
Q806	2SB1185E	TRANSISTOR	
Q807	RVDTC124EST	TRANSISTOR	[M]
Q808	2SD1020HTA	TRANSISTOR	[M]
Q809	2SD1020HTA	TRANSISTOR	[M]
Q810	2SC2001KTA	TRANSISTOR	
Q811	RVDTC124EST	TRANSISTOR	[M]
Q812	2SB621ARTA	TRANSISTOR	
Q813	2SA933SSTA	TRANSISTOR	
Q814	2SA933SSTA	TRANSISTOR	
Q901	2SC1740SSTA	TRANSISTOR	
Q903	2SC1740SSTA	TRANSISTOR	
Q904	2SC1740SSTA	TRANSISTOR	

Ref No.	Part No.	Part Name & Description	Remarks
Q905	2SC1740SSTA	TRANSISTOR	
		<b>DIODES</b>	
D1	SVC211SPA-AL	DIODE	(E, GN)
D2	SVC211SPA-AL	DIODE	(E, GN)
D3	SVC211SPA-AL	DIODE	(E, GN)
D4	RVDMTZ5R6CTA	DIODE	[M]
D5	1SS291TA	DIODE	(E, GN)
D5	RVD1SS133TA	DIODE	(EG)
D6	RVD1SS133TA	DIODE	(EG)
D501	MA165TA	DIODE	
D502	RSQGP1S53V	PHOTO INTERRUPTOR	
D503	PT381TB	PHOTO TRANSISTOR	
D504	GL380TB	LED	
D801	1D3E	DIODE	[M] ▲
D802	1D3E	DIODE	[M] ▲
D804	1D3E	DIODE	[M] ▲
D805	1D3E	DIODE	[M] ▲
D806	RVDMTZ15CTA	DIODE	
D807	RVDMTZ11BTA	DIODE	
D808	1D3E	DIODE	[M] ▲
D809	1D3E	DIODE	[M] ▲
D810	MA4270MTA	DIODE	▲
D811	1D3E	DIODE	[M] ▲
D812	1D3E	DIODE	[M] ▲
D814	RVDMTZ5R6CTA	DIODE	[M]
D815	RVDMTZ8R2CTA	DIODE	[M]
D816	RVD1SS133TA	DIODE	
D817	RVD1SS133TA	DIODE	
D818	RVDMTZ6R8ATA	DIODE	[M]
D819	RVD1SS133TA	DIODE	
D820	RVD1SS133TA	DIODE	
D821	RVD1SS133TA	DIODE	
D823	RVDMTZ10BTA	DIODE	
D826	RVDMTZ5R1BTA	DIODE	
D827	RVD1SS133TA	DIODE	
D828	RVD1SS133TA	DIODE	
D829	RVD1SS133TA	DIODE	
D900	RVD1SS133TA	DIODE	
D901	RVD1SS133TA	DIODE	
D902	RVD1SS133TA	DIODE	
D903	RVD1SS133TA	DIODE	
D904	RVD1SS133TA	DIODE	
D905	RVD1SS133TA	DIODE	
D906	RVD1SS133TA	DIODE	
D907	1SS291TA	DIODE	
D908	RVD1SS133TA	DIODE	



Ref No.	Part No.	Part Name & Description	Remarks
D910	RVD1SS133TA	DIODE	
D911	RVD1SS133TA	DIODE	
D912	RVD1SS133TA	DIODE	
D913	RVD1SS133TA	DIODE	
D914	RVD1SS133TA	DIODE	
D917	1SS291TA	DIODE	
D934	RVDMTZ4R7BTA	DIODE	
		<b>VARIABLE RESISTORS</b>	
VR1	EVNDXAA00B14	VR, VOLUME	
VR901	RRV16B24204A	VR, JOG	[M]
		<b>SWITCHES</b>	
S501	RSH2A001-2	SW, UP/DOWN	
S502	RSH1A005	SW, FULL OPEN	
S503	RSH1A005	SW, HALF OPEN	
S901	EVQ21405R	SW, SET	
S902	EVQ21405R	SW, TUNING MODE	
S903	EVQ21405R	SW, FM MODE/BP	
S904	EVQ21405R	SW, TUNER/BAND	
S905	EVQ21405R	SW, CD	
S906	EVQ21405R	SW, AUX	
S907	EVQ21405R	SW, TAPE	
S908	EVQ21405R	SW, CD DISPLAY	
S910	EVQ21405R	SW, OPEN/CLOSE	
S911	EVQ21405R	SW, SKIP	
S912	EVQ21405R	SW, REV SKIP	
S913	EVQ21405R	SW, RANDOM	
S914	EVQ21405R	SW, REPEAT	
S915	EVQ21405R	SW, DISC 1	
S916	EVQ21405R	SW, DISC 2	
S917	EVQ21405R	SW, DISC 3	
S918	EVQ21405R	SW, LAST FADE	
S919	EVQ21405R	SW, ALBUM	
S920	EVQ21405R	SW, J.FIT	
S921	EVQ21405R	SW, PLAY	
S922	EVQ21405R	SW, PAUSE	
S923	EVQ21405R	SW, STOP	
		<b>CONNECTORS</b>	
CN501	RJS1A6714	CONNECTOR (14P)	
CN800	RJS1A5212	CONNECTOR (12P)	[M]
CN802	RJT065K15	CONNECTOR (15P)	
CN803	RJS1A6814	CONNECTOR (14P)	
CN900A	RJS1A6223-1	CONNECTOR (23P)	

Ref No.	Part No.	Part Name & Description	Remarks
CN900B	RJS1A6823	CONNECTOR (23P)	
CN902A	RJS1A6223-1	CONNECTOR (23P)	
CP1	RJP5G9YA	CONNECTOR (05P)	
CP2	RJP9G9YA	CONNECTOR (09P)	
		<b>COILS &amp; TRANSFORMERS</b>	
L1	RLQZP1R2JT-Y	AXIAL COIL	[M] (EG)
L2	RLQZP1R2JT-Y	AXIAL COIL	[M] (E, GN)
L2	RLQZPR22KT-Y	COIL	(EG)
L3	RLQZPR22KT-Y	COIL	(EG)
L4	RLQZP1R2JT-Y	AXIAL COIL	[M] (E, GN)
L4	RLQZPR47KT-Y	AXIAL COIL	(EG)
L5	RLQZP1R2JT-Y	AXIAL COIL	[M] (EG)
L6	SLM1B10-1M	A.B. FILTER	(EG)
L7	RLQZPR22KT-Y	AXIAL COIL	(E, GN)
L7	ELELN822KL	RF CHOKE COIL	(EG)
L8	RLQZPR22KT-Y	AXIAL COIL	(E, GN)
L8	ELELN822KL	RF CHOKE COIL	(EG)
L10	RLQZPR22KT-Y	AXIAL COIL	(E)
L10	RLQZPR33KT-Y	AXIAL COIL	(GN)
L50	RLQZP1R2JT-Y	AXIAL COIL	[M] (E, GN)
L51	RLQZPR47KT-Y	AXIAL COIL	(E, GN)
L803	RLQZP3R3KT-Y	AXIAL COIL	
L804	RLQZP3R3KT-Y	AXIAL COIL	
L901	RLQZP3R3KT-Y	AXIAL COIL	
L902	RLQZP2R2KT-Y	AXIAL COIL	
L903	RLQZP2R2KT-Y	AXIAL COIL	
T1	RLI4B016-Z	FM IFT	[M]
T2	RLI4B015-Z	FM IFT	[M]
T801	RTP1J4G003	FL TRANSFORMER	[M] $\Delta$
		<b>COMPONENT COMBINATIONS</b>	
Z1	RLA6Z002-T	AM COIL BLOCK	(E, GN)
Z1	ENV17290G1R	FM TUNER PACK	(EG)
Z2	RLI2Z003-T	AM IFT	[M] (E, GN)
Z2	RLA6Z002-T	AM COIL BLOCK	(EG)
Z3	RLI2Z003-T	AM IFT	[M] (EG)
Z801	BL02RN2R65T2	BEAD CORE	
Z802	BL02RN2R65T2	BEAD CORE	
		<b>CERAMIC FILTERS</b>	
CF1	RLFFETWNA01L	FM CF	(E, GN)
CF1	RLFFETNGA01L	FM CF	(EG)
CF2	RLFFETWNA01L	FM CF	(E, GN)
CF2	RLFFETNGA02L	FM CF	(EG)

RefNo.	Part No.	Part Name & Description	Remarks
		<b>OSCILLATORS</b>	
X1	SVQ49U722T-S	7.2 MHZ X'TAL	
X901	RSXZ4M19M01T	4.19MHZ X'TAL	
X902	RSXD32K7S02	32.768KHZ X'TAL	[M]
		<b>DISPLAY TUBE</b>	
FL901	RSL0165-F	FL	[M]
		<b>JACKS</b>	
JK1	RJH8201	JK, ANT TERMINAL	[M] (E, EG)
JK1	RJH5302	JK, ANT TERMINAL	[M] (GN)
JK2	SJS208	JK, AM LOOP ANT TERMINAL	
		<b>WIRES</b>	
W1	REX0586	WIRE ASS'Y (5P)	[M]
W2	REX0587	WIRE ASS'Y (9P)	[M]
		<b>PACKING MATERIALS</b>	
P1	RPF0100	BAG (SET)	[M]
P2	RPN0763	POLYFOAM	[M]
		<b>&lt; SERVO &gt;</b>	
		<b>INTEGRATED CIRCUITS</b>	
IC701	AN8802SCE1V	IC, HEAD AMP	
IC702	MN66271RA	IC, DIGITAL LSI	
IC703	AN8389SE1	IC, 4-CH DRIVER	
		<b>TRANSISTOR</b>	
Q701	2SB709S	TRANSISTOR	
		<b>SWITCH</b>	
S701	RSM0006-P	SW, RESET	
		<b>CONNECTORS</b>	
CN701	RJU035T016-1	CONNECTOR (16P)	
CN702	RJS1A6723-1Q	CONNECTOR (23P)	

RefNo.	Part No.	Part Name & Description	Remarks
		<b>OSCILLATOR</b>	
X701	RSXZ16M9M02T	CERAMIC OSC	
		<b>CHIP JUMPERS</b>	
RJ701	ERJ8GEY0R00A	0 1/10W	
RJ702	ERJ8GEY0R00A	0 1/10W	
RJ703	ERJ8GEY0R00A	0 1/10W	
RJ704	ERJ8GEY0R00A	0 1/10W	
RJ707	ERJ8GEY0R00A	0 1/10W	
RJ708	ERJ8GEY0R00A	0 1/10W	
RJ709	ERJ8GEY0R00A	0 1/10W	
RJ714	ERJ8GEY0R00A	0 1/10W	
RJ715	ERJ8GEY0R00A	0 1/10W	
RJ716	ERJ8GEY0R00A	0 1/10W	
RJ717	ERJ8GEY0R00A	0 1/10W	
RJ721	ERJ6GEY0R00A	0 1/10W	
RJ724	ERJ6GEY0R00A	0 1/10W	
RJ725	ERJ6GEY0R00A	0 1/10W	
RJ726	ERJ6GEY0R00A	0 1/10W	
RJ799	ERJ6GEY0R00A	0 1/10W	
		<b>TEST JUMPERS</b>	
TJ701	EYF8CU	TEST JUMPER	
TJ702	EYF8CU	TEST JUMPER	

# RESISTORS & CAPACITORS

**Notes :**

- \* Capacitor values are in microfarads ( $\mu$ F) unless specified otherwise, P=Pico-farads (pF), F=Farads.
- \* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM).
- \* Bracketed indications in Ref. No. columns specify the area (Refer to the first page for area).  
Parts without these indications can be used for all areas.
- \* [M] Indicates in the values & remarks column indicates parts supplied by MESA

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		<b>RESISTORS</b>						
R1	ERDS2TJ104T	100K 1/4W(E, GN)	R24	ERDS2TJ153T	15K 1/4W(E, GN)	R50	ERDS2TJ103T	10K 1/4W(EG)
R1	ERDS2TJ332T	3.3K 1/4W(EG)	R24	ERDS2TJ182T	1.8K 1/4W(EG)	R51	ERDS2TJ153T	15K 1/4W
R2	ERDS2TJ104T	100K 1/4W(E, GN)	R25	ERDS2TJ331T	330 1/4W(E, GN)	R52	ERDS2TJ561T	560 1/4W
R2	ERDS2TJ122T	1.2K 1/4W(EG)	R25	ERDS2TJ223T	22K 1/4W(EG)	R53	ERDS2TJ102T	1K 1/4W
R3	ERDS2TJ470T	47 1/4W(E, GN)	R26	ERDS2TJ102T	1K 1/4W(E, GN)	R54	ERDS2TJ562T	5.6K 1/4W(EG)
R3	ERDS2TJ684T	680K 1/4W(EG)	R26	ERDS2TJ122T	1.2K 1/4W(EG)	R55	ERDS2TJ562T	5.6K 1/4W(EG)
R4	ERDS2TJ104T	100K 1/4W(E, GN)	R27	ERDS2TJ104T	100K 1/4W(E, GN)	R56	ERDS2TJ102T	1K 1/4W(EG)
R4	ERDS2TJ824T	820K 1/4W(EG)	R27	ERDS2TJ122T	1.2K 1/4W(EG)	R58	ERDS2TJ151T	150 1/4W
R5	ERDS2TJ564T	560K 1/4W(E, GN)	R28	ERDS2TJ684T	680K 1/4W(E, GN)	R59	ERDS2TJ103T	10K 1/4W(EG)
R5	ERDS2TJ391T	390 1/4W(EG)	R28	ERDS2TJ102T	1K 1/4W(EG)	R60	ERDS2TJ103T	10K 1/4W
R6	ERDS2TJ391T	390 1/4W(E, GN)	R29	ERDS2TJ102T	1K 1/4W(E, GN)	R61	ERDS2TJ103T	10K 1/4W
R6	ERDS2TJ102T	1K 1/4W(EG)	R29	ERDS2TJ182T	1.8K 1/4W(EG)	R62	ERDS2TJ103T	10K 1/4W(EG)
R7	ERDS2TJ561T	560 1/4W(E, GN)	R30	ERDS2TJ103T	10K 1/4W(E, GN)	R63	ERDS2TJ104T	100K 1/4W(EG)
R7	ERDS2TJ471T	470 1/4W(EG)	R30	ERDS2TJ102T	1K 1/4W(EG)	R64	ERDS2TJ103T	10K 1/4W(E, GN)
R8	ERDS2TJ474T	470K 1/4W(E, GN)	R31	ERDS2TJ104T	100K 1/4W(E, GN)	R64	ERDS2TJ104T	100K 1/4W(EG)
R8	ERDS2TJ102T	1K 1/4W(EG)	R31	ERDS2TJ224T	220K 1/4W(EG)	R65	ERDS2TJ103T	10K 1/4W(E, GN)
R9	ERDS2TJ272T	2.7K 1/4W(E, GN)	R32	ERDS2TJ102T	1K 1/4W(E, GN)	R65	ERDS2TJ104T	100K 1/4W(EG)
R9	ERDS2TJ153T	15K 1/4W(EG)	R32	ERDS2TJ152T	1.5K 1/4W(EG)	R66	ERDS2TJ103T	10K 1/4W(E, GN)
R10	ERDS2TJ102T	1K 1/4W(E, GN)	R33	ERDS2TJ562T	5.6K 1/4W(E, GN)	R66	ERDS2TJ562T	5.6K 1/4W(EG)
R10	ERDS2TJ561T	560 1/4W(EG)	R33	ERDS2TJ152T	1.5K 1/4W(EG)	R67	ERDS2TJ102T	1K 1/4W(E, GN)
R11	ERDS2TJ224T	220K 1/4W(E, GN)	R34	ERD25TJ102T	1K 1/4W(E, GN)	R67	ERDS2TJ824T	820K 1/4W(EG)
R11	ERDS2TJ102T	1K 1/4W(EG)	R34	ERDS2TJ683T	68K 1/4W(EG)	R68	ERDS2TJ224T	220K 1/4W(E, GN)
R12	ERDS2TJ273T	27K 1/4W(E, GN)	R35	ERDS2TJ182T	1.8K 1/4W(E, EG)	R68	ERDS2TJ104T	100K 1/4W(EG)
R12	ERDS2TJ103T	10K 1/4W(EG)	R35	ERDS2TJ102T	1K 1/4W(EG)	R69	ERDS2TJ681T	680 1/4W(E, GN)
R13	ERDS2TJ122T	1.2K 1/4W(E, GN)	R36	ERDS2TJ562T	5.6K 1/4W(EG)	R69	ERDS2TJ271T	270 1/4W(EG)
R13	ERDS2TJ684T	680K 1/4W(EG)	R37	ERDS2TJ562T	5.6K 1/4W(EG)	R70	ERDS2TJ562T	5.6K 1/4W(EG)
R14	ERDS2TJ152T	1.5K 1/4W(E, GN)	R38	ERDS2TJ562T	5.6K 1/4W(EG)	R71	ERDS2TJ681T	680 1/4W(E, GN)
R14	ERDS2TJ822T	8.2K 1/4W(EG)	R39	ERDS2TJ562T	5.6K 1/4W(EG)	R71	ERDS2TJ121T	120 1/4W(EG)
R15	ERDS2TJ684T	680K 1/4W(E, GN)	R40	ERDS2TJ103T	10K 1/4W(E, GN)	R72	ERDS2TJ683T	68K 1/4W(E, GN)
R15	ERDS2TJ331T	330 1/4W(EG)	R40	ERDS2TJ562T	5.6K 1/4W(EG)	R72	ERDS2TJ104T	100K 1/4W(EG)
R16	ERDS2TJ824T	820K 1/4W(E, GN)	R41	ERDS2TJ182T	1.8K 1/4W(E, GN)	R73	ERDS2TJ102T	1K 1/4W(E, GN)
R16	ERDS2TJ222T	2.2K 1/4W(EG)	R41	ERDS2TJ102T	1K 1/4W(EG)	R73	ERDS2TJ684T	680K 1/4W(EG)
R17	ERDS2TJ391T	390 1/4W(E, GN)	R42	ERDS2TJ223T	22K 1/4W(E, GN)	R74	ERDS2TJ562T	5.6K 1/4W(E, GN)
R17	ERDS2TJ183T	18K 1/4W(EG)	R42	ERDS2TJ102T	1K 1/4W(EG)	R74	ERDS2TJ684T	680K 1/4W(EG)
R18	ERDS2TJ121T	120 1/4W(E, GN)	R43	ERDS2TJ122T	1.2K 1/4W(E, GN)	R75	ERDS2TJ562T	5.6K 1/4W(E, GN)
R18	ERDS2TJ103T	10K 1/4W(EG)	R43	ERDS2TJ561T	560 1/4W(EG)	R75	ERDS2TJ103T	10K 1/4W(EG)
R19	ERDS2TJ103T	10K 1/4W(E, GN)	R44	ERDS2TJ561T	560 1/4W(EG)	R76	ERDS2TJ562T	5.6K 1/4W(E, GN)
R19	ERDS2TJ104T	100K 1/4W(EG)	R45	ERDS2TJ223T	22K 1/4W(E, GN)	R76	ERDS2TJ222T	2.2K 1/4W(EG)
R20	ERDS2TJ822T	8.2K 1/4W(E, GN)	R45	ERDS2TJ103T	10K 1/4W(EG)	R77	ERDS2TJ104T	100K 1/4W(E, GN)
R20	ERDS2TJ102T	1K 1/4W(EG)	R46	ERDS2TJ103T	10K 1/4W(E, GN)	R77	ERDS2TJ222T	2.2K 1/4W(EG)
R21	ERDS2TJ102T	1K 1/4W	R46	ERDS2TJ473T	47K 1/4W(EG)	R78	ERDS2TJ822T	8.2K 1/4W(E, GN)
R22	ERDS2TJ561T	560 1/4W(E, GN)	R47	ERDS2TJ473T	47K 1/4W(E, GN)	R80	ERDS2TJ824T	820K 1/4W(E, GN)
R22	ERDS2TJ223T	22K 1/4W(EG)	R47	ERDS2TJ104T	100K 1/4W(EG)	R81	ERDS2TJ181T	180 1/4W(E, GN)
R23	ERDS2TJ183T	18K 1/4W(E, GN)	R48	ERDS2TJ104T	100K 1/4W(E, GN)	R82	ERDS2TJ562T	5.6K 1/4W(E, GN)
R23	ERDS2TJ103T	10K 1/4W(EG)	R48	ERDS2TJ681T	680 1/4W(EG)	R83	ERDS2TJ122T	1.2K 1/4W(E, GN)
			R49	ERDS2TJ102T	1K 1/4W(E, GN)	R85	ERDS2TJ103T	10K 1/4W(E, GN)
			R50	ERDS2TJ562T	5.6K 1/4W(E, GN)	R86	ERDS2TJ104T	100K 1/4W(E, GN)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R87	ERDS2TJ104T	100K 1/4W(E, GN)	R855	ERDS2TJ102T	1K 1/4W	R954	ERDS2TJ223T	22K 1/4W
R88	ERDS2TJ104T	100K 1/4W(E, GN)	R856	ERDS2TJ102T	1K 1/4W	R956	ERDS2TJ223T	22K 1/4W
R99	ERDS2TJ222T	2.2K 1/4W(E, GN)	R857	ERDS2TJ223T	22K 1/4W	R957	ERDS2TJ223T	22K 1/4W
R501	ERDS2TJ271	270 1/4W	R858	ERDS2TJ103T	10K 1/4W	R958	ERDS2TJ223T	22K 1/4W
R801	ERDS2TJ104T	100K 1/4W	R859	ERDS2TJ222T	2.2K 1/4W	R959	ERDS2TJ102T	1K 1/4W
R802	ERDS2TJ104T	100K 1/4W	R860	ERDS2TJ222T	2.2K 1/4W	R960	ERDS2TJ102T	1K 1/4W
R803	ERDS2TJ103T	10K 1/4W(E, GN)	R870	ERDS2TJ330T	33 1/4W	R961	ERDS2TJ102T	1K 1/4W
R804	ERDS2TJ103T	10K 1/4W(E, GN)	R901	ERDS2TJ153T	15K 1/4W	R962	ERDS2TJ102T	1K 1/4W
R806	ERDS2TJ330T	33 1/4W	R902	ERDS2TJ153T	15K 1/4W	R963	ERDS2TJ102T	1K 1/4W
R807	ERDS2TJ330T	33 1/4W	R903	ERDS2TJ153T	15K 1/4W	R964	ERDS2TJ102T	1K 1/4W
R808	ERDS2TJ330T	33 1/4W	R904	ERDS2TJ152T	1.5K 1/4W	R965	ERDS2TJ102T	1K 1/4W
R809	ERDS2TJ223T	22K 1/4W(E, GN)	R905	ERDS2TJ222T	2.2K 1/4W	R966	ERDS2TJ101T	100 1/4W
R810	ERDS2TJ223T	22K 1/4W(E, GN)	R906	ERDS2TJ272T	2.7K 1/4W	R967	ERDS2TJ102T	1K 1/4W
R811	ERDS2TJ471T	470 1/4W	R907	ERDS2TJ392T	3.9K 1/4W	R968	ERDS2TJ223T	22K 1/4W
R812	ERDS2TJ101T	100 1/4W	R908	ERDS2TJ562T	5.6K 1/4W	R969	ERDS2TJ223T	22K 1/4W
R813	ERDS2TJ122T	1.2K 1/4W	R909	ERDS2TJ822T	8.2K 1/4W	R970	ERDS2TJ103T	10K 1/4W
R814	ERDS2TJ102T	1K 1/4W	R910	ERDS2TJ153T	15K 1/4W	R971	ERDS2TJ222T	2.2K 1/4W
R816	ERDS2TJ470T	47 1/4W	R912	ERDS2TJ152T	1.5K 1/4W	R972	ERDS2TJ103T	10K 1/4W
R817	ERDS2TJ101T	100 1/4W	R913	ERDS2TJ222T	2.2K 1/4W	R973	ERDS2TJ103T	10K 1/4W
R818	ERDS2TJ152T	1.5K 1/4W	R914	ERDS2TJ272T	2.7K 1/4W	R974	ERDS2TJ104T	100K 1/4W
R819	ERDS2TJ122T	1.2K 1/4W	R915	ERDS2TJ392T	3.9K 1/4W	R975	ERDS2TJ104T	100K 1/4W
R820	ERDS1FVJ181T	180 1/2W $\Delta$	R916	ERDS2TJ562T	5.6K 1/4W	R976	ERDS2TJ104T	100K 1/4W
R821	ERDS2TJ101T	100 1/4W	R917	ERDS2TJ822T	8.2K 1/4W	R977	ERDS2TJ104T	100K 1/4W
R822	ERDS1FVJ391T	390 1/2W $\Delta$	R918	ERDS2TJ153T	15K 1/4W	R978	ERDS2TJ104T	100K 1/4W
R824	ERDS2TJ331T	330 1/4W	R919	ERDS2TJ152T	1.5K 1/4W	R979	ERDS2TJ104T	100K 1/4W
R825	ERDS2TJ103T	10K 1/4W	R920	ERDS2TJ222T	2.2K 1/4W	R980	ERDS2TJ104T	100K 1/4W
R826	ERDS2TJ103T	10K 1/4W	R921	ERDS2TJ272T	2.7K 1/4W	R981	ERDS2TJ104T	100K 1/4W
R827	ERDS2TJ103T	10K 1/4W	R922	ERDS2TJ392T	3.9K 1/4W	R983	ERDS2TJ106T	10M 1/4W
R828	ERDS2TJ101T	100 1/4W	R923	ERDS2TJ562T	5.6K 1/4W			
R829	ERDS2TJ122T	1.2K 1/4W	R924	ERDS2TJ101T	100 1/4W			<b>CAPACITORS</b>
R830	ERDS2TJ330T	33 1/4W	R925	ERDS2TJ101T	100 1/4W			
R831	ERDS2TJ332T	3.3K 1/4W	R926	ERDS2TJ222T	2.2K 1/4W	C1	ECBT1H6R8KC5	6.8P 50V(E, GN)
R832	ERDS2TJ222T	2.2K 1/4W	R927	ERDS2TJ222T	2.2K 1/4W	C1	ECEA1CU330B	33 16V(EG)
R833	ERDS2TJ271T	270 1/4W	R928	ERDS2TJ222T	2.2K 1/4W	C2	ECBT1H102KB5	1000P 50V(E, GN)
R834	ERD25FVJ6R8T	6.8 1/4W	R929	ERDS2TJ103T	10K 1/4W	C2	ECBT1C103MS5	0.01 16V(EG)
R835	ERDS2TJ821T	820 1/4W	R931	ERDS2TJ103T	10K 1/4W	C3	ECBT1H102KB5	1000P 50V(E, GN)
R836	ERDS2TJ104T	100K 1/4W	R932	ERDS2TJ102T	1K 1/4W	C3	ECBT1C103MS5	0.01 16V(EG)
R837	ERDS2TJ104T	100K 1/4W	R933	ERDS2TJ104T	100K 1/4W	C4	ECBT1H3R3KC5	3.3P 50V(E, GN)
R838	ERDS2TJ223T	22K 1/4W	R934	ERDS2TJ820T	82 1/4W	C4	ECBT1H102KB5	1000P 50V(EG)
R839	ERDS2TJ223T	22K 1/4W	R935	ERDS2TJ104T	100K 1/4W	C5	ECBT1H102KB5	1000P 50V(E, GN)
R840	ERDS2TJ223T	22K 1/4W	R936	ERDS2TJ331T	330 1/4W	C5	ECBT1H470J5	47P 50V(EG)
R841	ERDS2TJ223T	22K 1/4W	R937	ERDS2TJ183T	18K 1/4W	C6	ECBT1H2R7KC5	2.7P 50V(E)
R842	ERDS2TJ273T	27K 1/4W	R938	ERDS2TJ823T	82K 1/4W	C6	ECBT1C103MS5	0.01 16V(EG)
R843	ERDS2TJ273T	27K 1/4W	R939	ERDS2TJ473T	47K 1/4W	C6	ECBT1H3R9KC5	3.9P 50V(GN)
R844	ERDS2TJ332T	3.3K 1/4W	R940	ERDS2TJ473T	47K 1/4W	C7	ECBT1H120JC5	12P 50V(E, GN)
R845	ERDS2TJ332T	3.3K 1/4W	R943	ERDS2TJ101T	100 1/4W	C8	ECBT1H181KB5	180P 50V(E, GN)
R846	ERDS2TJ222T	2.2K 1/4W	R944	ERDS2TJ101T	100 1/4W	C8	ECBT1H150JC5	15P 50V(EG)
R847	ERDS2TJ103T	10K 1/4W	R945	ERDS2TJ683T	68K 1/4W	C9	ECBT1H3R3KC5	3.3P 50V(E, GN)
R849	ERDS2TJ222T	2.2K 1/4W	R948	ERDS2TJ472T	4.7K 1/4W	C9	ECEA0JU101B	100 6.3V(EG)
R850	ERDS2TJ103T	10K 1/4W	R949	ERDS2TJ472T	4.7K 1/4W	C10	ECBT1H102KB5	1000P 50V(E, GN)
R851	ERDS2TJ153T	15K 1/4W	R950	ERDS2TJ681T	680 1/4W	C10	ECEA1CKA100B	10 16V(EG)
R852	ERDS2TJ330T	33 1/4W	R951	ERDS2TJ334T	330K 1/4W	C11	ECBT1H102KB5	1000P 50V(E, GN)
R853	ERDS2TJ470T	47 1/4W	R952	ERDS2TJ103T	10K 1/4W	C11	ECBT1C103MS5	0.01 16V(EG)
R854	ERDS2TJ470T	47 1/4W	R953	ERDS2TJ102T	1K 1/4W	C12	ECBT1H6R8KC5	6.8P 50V(E, GN)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C12	ECKR1H223ZF5	0.022 50V(EG)	C40	ECBT0J153MS5	0.015 6.3V(EG)	C76	ECEA1HKA010B	1 50V(E, GN)
C13	ECBT1H5R6KC5	5.6P 50V(E, GN)	C41	ECFR1C473KR	0.047 16V(E, GN)	C77	ECBT0J153MS5	0.015 6.3V(E, GN)
C13	ECKR1H223ZF5	0.022 50V(EG)	C41	ECEA1HKA010B	1 50V(EG)	C78	ECBT0J153MS5	0.015 6.3V(E, GN)
C14	ECBT1H180JC5	18P 50V(E, GN)	C42	ECEA1HKA010B	1 50V(EG)	C79	ECBT1C103MS5	0.01 16V(E, GN)
C14	ECBT1C103MS5	0.01 16V(EG)	C43	ECBT1C103MS5	0.01 16V(E, GN)	C80	ECBT1C103MS5	0.01 16V(E, GN)
C15	ECBT1H102KB5	1000P 50V(E, GN)	C43	ECBT1H102KB5	1000P 50V(EG)	C81	ECBT1C103MS5	0.01 16V(E, GN)
C15	ECEA1CKA100B	10 16V(EG)	C44	ECBT1C103MS5	0.01 16V(E, GN)	C501	ECA1AKF820E	82 10V
C16	ECBT1H102KB5	1000P 50V(E, GN)	C44	ECBT1H102KB5	1000P 50V(EG)	C801	ECEA1HU010B	1 50V
C16	ECBT1C103MS5	0.01 16V(EG)	C45	ECBT1C103MS5	0.01 16V(E, GN)	C805	ECBT1H101KB5	100P 50V(E, GN)
C17	ECBT1C103MS5	0.01 16V(E, GN)	C45	ECBT1C822KS5	8200P 16V(EG)	C806	ECBT1H101KB5	100P 50V(E, GN)
C17	ECBT1H150JC5	15P 50V(EG)	C46	ECBT1C103MS5	0.01 16V(E, GN)	C807	ECBT1E103ZF5	0.01 25V
C18	ECBT1H101KB5	100P 50V(E, GN)	C46	ECBT1C822KS5	8200P 16V(EG)	C808	ECBT1E103ZF5	0.01 25V
C18	ECEA1HKA010B	1 50V(EG)	C47	ECBT1C103MS5	0.01 16V(EG)	C809	ECEA1CU101B	100 16V
C19	ECBT1C103MS5	0.01 16V	C48	ECBT1H102KB5	1000P 50V	C810	ECEA1CU470B	47 16V
C20	ECEA1CKA100B	10 16V	C49	ECBT1H102KB5	1000P 50V	C811	ECBT1H102KB5	1000P 50V
C21	ECBT1H150JC5	15P 50V(E, GN)	C50	ECBT1C103MS5	0.01 16V	C812	ECBT1H102KB5	1000P 50V
C21	ECBT1H101KB5	100P 50V(EG)	C51	ECEA1CU330B	33 16V(E, GN)	C813	ECKR1H103ZF5	0.01 50V $\Delta$
C22	ECBT0J223NS5	0.022 6.3V(E, GN)	C51	ECBT1C103MS5	0.01 16V(EG)	C814	ECKR1H103ZF5	0.01 50V
C22	ECBT1E223ZF5	0.022 25V(EG)	C52	ECBT1C103MS5	0.01 16V	C815	ECEA1HU470B	47 50V
C23	ECBT0J223NS5	0.022 6.3V(E)	C53	ECEA25M4R7RB	4.7 25V	C817	ECKR1H103ZF5	0.01 50V $\Delta$
C23	ECBT1C103MS5	0.01 16V(EG)	C54	ECBT1H102KB5	1000P 50V(E, GN)	C818	ECKR1H103ZF5	0.01 50V
C23	ECBT1E223ZF5	0.022 25V(GN)	C54	ECEA1CU330B	33 16V(EG)	C819	ECKR1H103ZF5	0.01 50V
C24	ECBT1C103MS5	0.01 16V(E, GN)	C55	ECBT1H102KB5	1000P 50V(E, GN)	C820	ECKR1H103ZF5	0.01 50V
C24	ECEA1HKAR47B	0.47 50V(EG)	C55	ECBT1H150JC5	15P 50V(EG)	C821	ECEA1AU101B	100 10V
C25	ECEA1CKA100B	10 16V(E, GN)	C56	ECBT1H150JC5	15P 50V(EG)	C822	ECBT1E103ZF5	0.01 25V
C25	ECBT1C103MS5	0.01 16V(EG)	C57	ECEA0JU221B	220 6.3V	C823	ECEA1CU222E	2200 16V
C26	ECEA0JU101B	100 6.3V(E, GN)	C58	ECBT1H102KB5	1000P 50V	C824	ECKR1H103ZF5	0.01 50V
C26	ECBT0J223NS5	0.022 6.3V(EG)	C59	ECBT1H102KB5	1000P 50V	C825	ECEA1AU101B	100 10V
C27	ECBT0J223NS5	0.022 6.3V(E, GN)	C60	ECBT1H181KB5	180P 50V	C826	ECEA1HU010B	1 50V
C27	ECBT1H471KB5	470P 50V(EG)	C61	ECBT1C103MS5	0.01 16V(E, GN)	C828	ECEA1AU101B	100 10V
C28	ECBT1C103MS5	0.01 16V(E, GN)	C62	ECBT1H150JC5	15P 50V(E, GN)	C829	ECBT1E103ZF5	0.01 25V
C28	ECEA1HKA010B	1 50V(EG)	C62	ECBT1H471KB5	470P 50V(EG)	C830	ECBT1E103ZF5	0.01 25V
C29	ECEA1HKAR47B	0.47 50V(E, GN)	C63	ECBT1H150JC5	15P 50V(E, GN)	C831	ECBT1H331KB5	330P 50V
C29	ECFR1C473MR	0.047 16V(EG)	C63	ECBT1C103MS5	0.01 16V(EG)	C832	ECBT1H331KB5	330P 50V
C30	ECEA1HKA010B	1 50V(E, GN)	C64	ECBT1H102KB5	1000P 50V(E, GN)	C833	ECBT1H121KB5	120P 50V
C30	ECBT1H100JC5	10P 50V(EG)	C64	ECBT1C103MS5	0.01 16V(EG)	C834	ECBT1H121KB5	120P 50V
C31	ECBT1H101KB5	100P 50V(E, GN)	C65	ECBT1H471KB5	470P 50V(E, GN)	C837	ECEA1EU102E	1000 25V
C31	ECBT1C103MS5	0.01 16V(EG)	C65	ECBT1H102KB5	1000P 50V(EG)	C838	ECEA1EU101B	100 25V
C32	ECEA1CU100B	10 16V(E, GN)	C66	ECEA1HKAR33B	0.33 50V(E, GN)	C839	ECBT1H102KB5	1000P 50V
C32	ECEA1HU010B	1 50V(EG)	C67	ECQP1102JZT	1000P 100V(E, GN)	C840	ECBT1H102KB5	1000P 50V
C33	ECBT0J223NS5	0.022 6.3V(E, GN)	C67	ECEA1HKA3R3B	3.3 50V(EG)	C842	ECBT1E103ZF5	0.01 25V
C33	ECEA1HKAR47B	0.47 50V(EG)	C68	ECFR1C103MR	0.01 16V(E, GN)	C843	ECEA1HKA010B	1 50V
C34	ECBT1C103MS5	0.01 16V(E, GN)	C68	ECEA1HKA3R3B	3.3 50V(EG)	C845	ECEA1HU010B	1 50V
C34	ECEA1HKAR33B	0.33 50V(EG)	C69	ECEA1CU101B	100 16V(E, GN)	C846	ECEA1HKA010B	1 50V
C35	ECBT1H150JC5	15P 50V(E, GN)	C69	ECBT1H102KB5	1000P 50V(EG)	C847	ECEA1EKA4R7B	4.7 25V
C35	ECQP1102JZT	1000P 100V(EG)	C70	ECEA1HKA010B	1 50V(E, GN)	C850	ECQV1H334JZ3	0.33 50V
C36	ECBT1C103MS5	0.01 16V(E, GN)	C70	ECBT1H102KB5	1000P 50V(EG)	C851	ECBT1H101KB5	100P 50V
C36	ECFR1C103MR	0.01 16V(EG)	C71	ECBT1C103MS5	0.01 16V	C852	ECBT1H101KB5	100P 50V
C37	ECBT1C103MS5	0.01 16V	C72	ECEA1HUR47B	0.47 50V(E, GN)	C901	ECEA1HKAR33B	0.33 50V
C38	ECFR1C103MR	0.01 16V(E, GN)	C72	ECEA1HKA010B	1 50V(EG)	C902	ECBT1C103MS5	0.01 16V
C38	ECEA1CU101B	100 16V(EG)	C73	ECEA1HU010B	1 50V(E, GN)	C903	ECBT0J223NS5	0.022 6.3V
C39	ECBT1C103MS5	0.01 16V(E, GN)	C73	ECBT1H470J5	47P 50V(EG)	C904	ECEA1HKAR22B	0.22 50V
C39	ECBT0J153MS5	0.015 6.3V(EG)	C74	ECEA1HKA010B	1 50V(E, GN)	C905	BECS5R5H473	0.047 5.5V
C40	ECBT1H100JC5	10P 50V(E, GN)	C75	ECEA1HKA010B	1 50V(E, GN)	C906	ECBT1H102KB5	1000P 50V

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C907	ECEA0JU102B	1000 6.3V	R728	ERJ6GEYJ392V	3.9K 1/10W	C743	ECUZNE104MBN	0.1 25V
C908	ECBT1H561KB5	560P 50V	R730	ERJ6GEYJ331V	330 1/10W	C744	ECUE1E822KBN	8200P 25V
C909	ECBT1H561KB5	560P 50V	R731	ERJ6GEYJ392V	3.9K 1/10W	C745	ECUE1C473MBN	0.047 16V
C910	ECBT1H561KB5	560P 50V	R734	ERJ6GEYJ101V	100 1/10W	C746	ECUE1H050DCN	5P 50V
C911	ECEA0JKA101B	100 6.3V	R735	ERJ6GEYJ101V	100 1/10W	C747	ECUE1H222KBN	2200P 50V
C912	ECBT1H102KB5	1000P 50V	R736	ERJ6GEYJ101V	100 1/10W	C748	ECUV1H471KBM	470P 50V
C913	ECBT1H101KB5	100P 50V	R738	ERJ6GEYJ223V	22K 1/10W			
C914	ECBT1H101KB5	100P 50V	R739	ERJ6GEYJ681V	680 1/10W			
C915	ECEA1HKA3R3B	3.3 50V	R741	ERJ6GEYJ562V	5.6K 1/10W			
C916	ECEA1HKA3R3B	3.3 50V	R742	ERJ6GEYJ562V	5.6K 1/10W			
C917	ECEA1HKA010B	1 50V	R743	ERJ6GEYJ562V	5.6K 1/10W			
C918	ECBT1H102KB5	1000P 50V	R744	ERJ6GEYJ103V	10K 1/10W			
C919	ECBT1H560J5	56P 50V	R745	ERJ6GEYJ155V	1.5M 1/10W			
C920	ECBT1H560J5	56P 50V	R748	ERJ6GEYJ182V	1.8K 1/10W			
C921	ECBT1H680J5	68P 50V	R749	ERJ8GEYJ103V	10K 1/8W			
C922	ECBT1H680J5	68P 50V						
C923	ECBT1H220JC5	22P 50V						
C924	ECBT1H180JC5	18P 50V						
C925	ECBT1C103MS5	0.01 16V						
C926	ECBT1H101KB5	100P 50V						
C927	ECBT1C103MS5	0.01 16V						
C928	ECBT1C103MS5	0.01 16V						
C930	ECBT1C103MS5	0.01 16V						
C931	ECBT1C103MS5	0.01 16V						
C932	ECBT1C103MS5	0.01 16V						
C933	ECBT1H102KB5	1000P 50V						
C934	ECBT1H102KB5	1000P 50V						
		< SERVO >						
		RESISTORS						
R701	ERJ6GEYJ100	10 1/10W	C701	ECEA0JKA220	22 6.3V			
R702	ERJ6GEYJ471V	470 1/10W	C702	ECEA1HKA010I	1 50V			
R703	ERJ6GEYJ823	82K 1/10W	C703	ECEA0JKA101I	100 6.3V			
R704	ERJ6GEYJ102A	1K 1/10W	C704	ECUZ1E104MBN	0.1 25V			
R705	ERJ6GEYJ103V	10K 1/10W	C705	ECEA1HKA010I	1 50V			
R706	ERJ6GEYJ102A	1K 1/10W	C706	ECUE1H101JCN	100P 50V			
R707	ERJ6GEYJ473V	47K 1/10W	C707	ECUV1E273KBN	0.027 25V			
R708	ERJ6GEYJ104V	100K 1/10W	C708	ECUE1H472KBN	4700P 50V			
R709	ERJ6GEYJ683V	68K 1/10W	C709	ECUE1C473KBN	0.047 16V			
R711	ERJ6GEYJ154V	150K 1/10W	C710	ECUE1H152KBN	1500P 50V			
R712	ERJ6GEYJ221V	220 1/10W	C711	ECUZ1E104MBN	0.1 25V			
R714	ERJ6GEY0R00A	0 1/10W	C712	ECUZ1E104MBN	0.1 25V			
R717	ERJ6GEYJ102A	1K 1/10W	C713	ECUV1C104MBM	0.1 16V			
R718	ERJ6GEYJ102A	1K 1/10W	C714	ECEA0JKA101I	100 6.3V			
R719	ERJ6GEYJ102A	1K 1/10W	C715	ECEA0JKA470I	47 6.3V			
R720	ERJ6GEYJ102A	1K 1/10W	C716	ECUE1H561KBN	560P 50V			
R721	ERJ6GEYJ101V	100 1/10W	C717	ECUZ1E104MBN	0.1 25V			
R722	ERJ6GEYJ563V	56K 1/10W	C718	ECUV1C224KBM	0.22 16V			
R723	ERJ6GEYJ182V	1.8K 1/10W	C721	ECUE1H270JCN	27P 50V			
R724	ERJ6GEYJ333V	33K 1/10W	C722	ECUE1H270JCN	27P 50V			
R725	ERJ6GEYJ472V	4.7K 1/10W	C723	ECEA1AKA22II	220 10V			
R726	ERJ6GEYJ473V	47K 1/10W	C724	ECUV1C104MBM	0.1 16V			
R727	ERJ6GEYJ103V	10K 1/10W	C725	ECUE1H102KBN	1000P 50V			
			C726	ECUE1H102KBN	1000P 50V			
			C727	ECEA1HPK010I	1 50V			
			C728	ECEA1HPK010I	1 50V			
			C730	ECUZ1E104MBN	0.1 25V			
			C731	ECEA0JK22II	220 6.3V			
			C732	ECEA0JK22II	220 6.3V			
			C733	ECUZ1E104MBN	0.1 25V			
			C734	ECEA1AKA22II	220 10V			
			C735	ECUZNE104MBN	0.1 25V			
			C736	ECUZNE104MBN	0.1 25V			
			C737	ECUZNE104MBN	0.1 25V			
			C738	ECUV1C154KBN	0.15 16V			
			C742	ECUV1E273KBN	0.027 25V			