

# D-25/250

## SERVICE MANUAL



*US Model  
Canadian Model*

*D-25*

*AEP Model  
UK Model*

*E Model*

*Australian Model*

*D-250*

# Discman

### SPECIFICATIONS

#### CD section

System

Laser diode properties

Compact disc digital audio system

Material: GaAlAs

Wavelength: 780 nm

Emission duration: Continuous

Laser output: Less than 44.6 μW

\* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

Sony Super Strategy Cross Interleave Reed Solomon Code

16-bit linear, 4 fs digital filter

20–20,000 Hz ±1 dB\*

More than 90 dB\*

More than 85 dB

Below measurable limit\*

Line output (stereo minijack)

Output level 0.7V rms at 50 kilohms

Load impedance over 10 kilohms

Headphones (stereo minijack)

9mW+9mW at 32 ohms

\* Measured by EIAJ CP-307

\* Measured by EIAJ CP-307

#### General

Power requirements

Supplied rechargeable battery pack BP-2 or BP-100 (optional)

DC IN 9V jack accepts:

Supplied AC power adaptor

Sony CPM-100P car mount plate (optional) or Sony

DCC-120A car battery cord (optional) for use on 12V car battery

1.9W DC

Approx. 125.8×20.8×134.6 mm (5×7 $\frac{1}{2}$ ×5 $\frac{1}{8}$  in.) (w/h/d)

not incl. inclined part (depth), projecting parts and controls

Approx. 127.3×24.1×136.2 mm (5 $\frac{1}{8}$ ×3 $\frac{1}{2}$ ×5 $\frac{1}{8}$  in.) (w/h/d)

incl. projecting parts and controls

Approx. 380 g (13.5 oz), not incl. rechargeable battery

Approx. 460 g (1 lb) incl. rechargeable battery

AC power adaptor (1)

Rechargeable battery pack (1)

Carrying case (1)

Connecting cord (1) (stereo miniplug ↔ two phono plugs)

Note: Use only the supplied AC power adaptor or the recommended car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



#### CAUTION

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



MICROFILM

COMPACT DISC COMPACT PLAYER  
**SONY**®

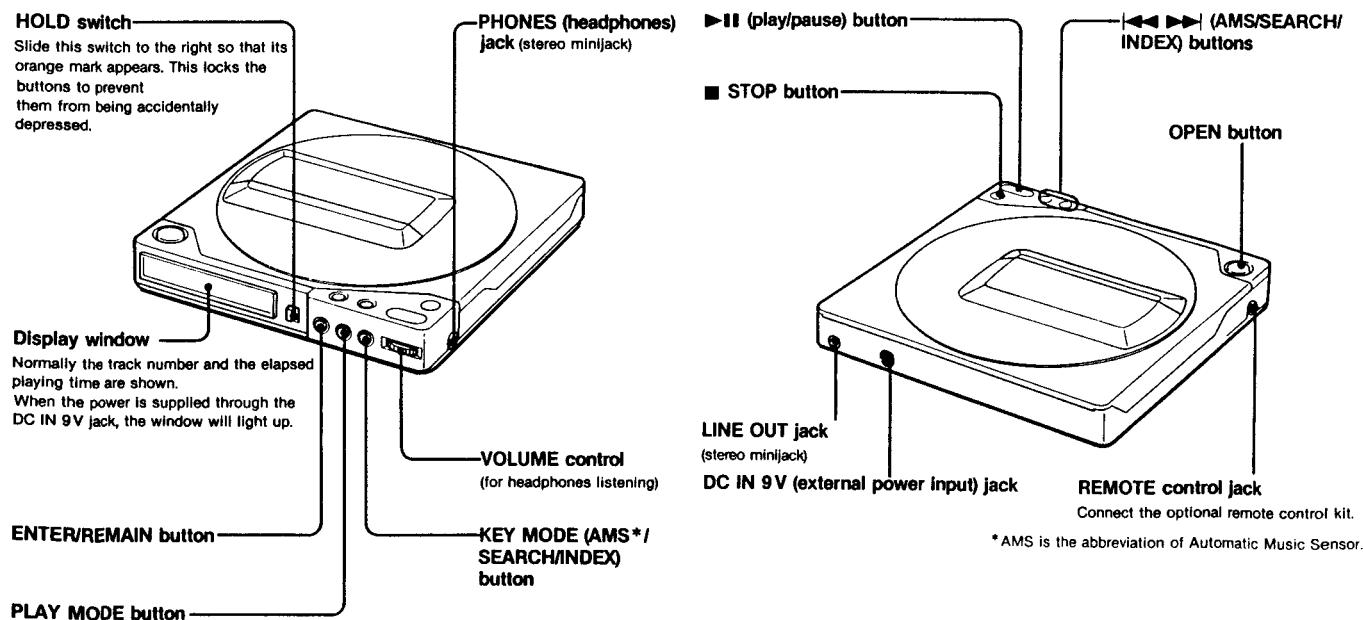
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## SECTION 1

### GENERAL

## Location and Function of Controls



## SECTION 2

### SERVICING NOTES

#### **NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK**

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

#### **Flexible Circuit Board Repairing**

1. Keep the temperature of the soldering iron at  $270^{\circ} \pm 10^{\circ}\text{C}$  during repairing.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

#### **Notes on chip component replacement**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

#### **SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

#### **Before Replacing the Optical Block**

Please be sure to check thoroughly the parameters as per the "Optical Block Checking Procedures" (Part No.: 9-960-027-11) issued separately before replacing the optical block.

Note and specifications required to check are given below.

- FOK output: IC501 (9) pin  
When checking FOK, remove the lead wire to disc motor and unsolder and open IC801 (24) pin.
- S carve P-to-P value: 2.95 Vp-p
- Adjusted part for focus gain adjustment: RV505
- RF signal P-to-P value: 0.75 – 1.4 Vp-p
- Traverse signal P-to-P value: 1.8 Vp-p
- The grating holder can not repair.
- Adjusted part for tracking gain adjustment: RV501

#### **ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.**

### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe, from more than 30 cm away from the objective lens.

### Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S901 (leaf SW type) is turned on. The laser diode will always emit even if focus search is not performed in service mode.

The laser diode is checked using the current value which flows to the laser diode inside the UPF.

### Procedure 1 (service mode or normal operation)

Check the laser diode emission with the eye.

1. Open upper panel.
2. S901 on as Fig. 1.  
(In service mode, this operation is not necessary.)
3. Press the  $\blacktriangleright \blacksquare$  key.  
(In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 10 seconds due to focus search. If it does not, APC circuit or UPF is defective.

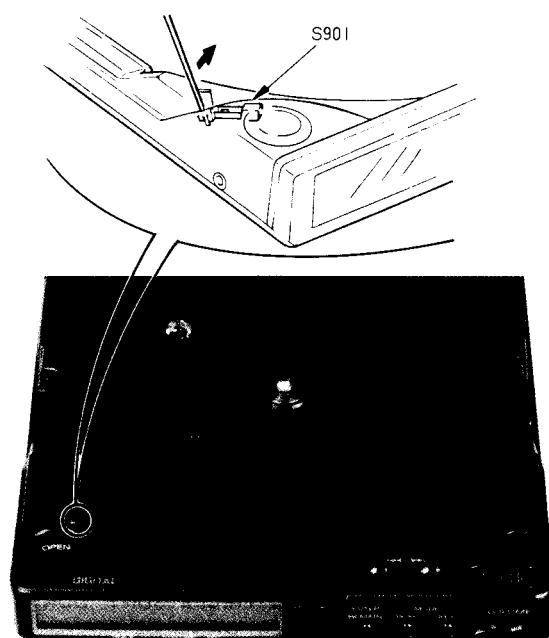
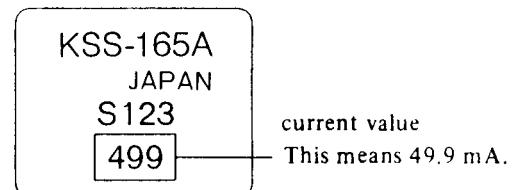


Fig. 1 Turning S901 on

### Procedure 2 (service mode or normal operation)

Check by the current with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the UPF.  
(Label on UPF)



The current value varies with the set.

3. Connect a VOM as shown in Fig. 2.
4. Press the  $\blacktriangleright \blacksquare$  key.
5. Calculate the current by the VOM reading.  
 $VOM\ reading(V) \div 10 = current(A)$   
ex. VOM reading = 0.49 V  
 $0.49 \div 10 = 0.049(A) = 49(mA)$

6. Confirm that the ammeter reading is within the range given below.

value on label  $\pm 5$  mA (25°C)

variation relative to temperature:

0.4 mA/ $^{\circ}$ C

(Current increases when temperature rises and decreases when it drops.)

If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or UPF is defective.

— servo board —

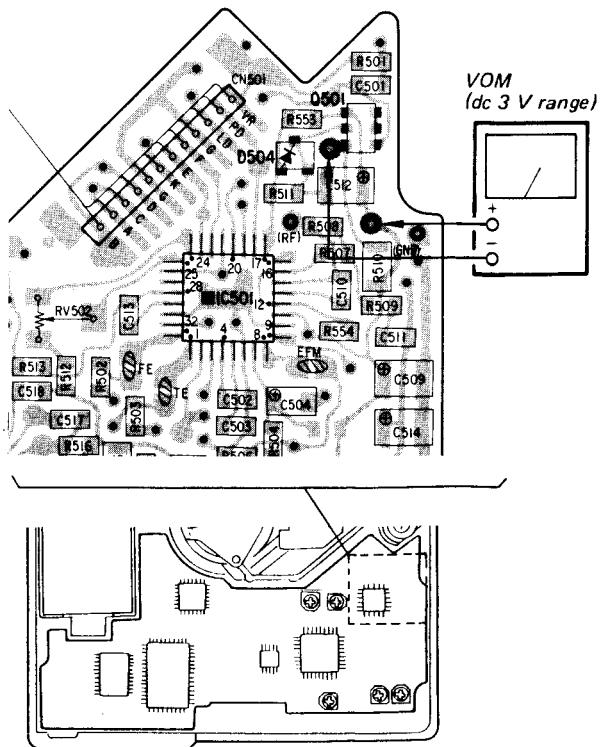


Fig. 2 VOM Connection

## SECTION 3

### ELECTRICAL ADJUSTMENTS

#### SERVICE MODE (service program)

This set has built-in service program in the micro-computer as usual sets.

The operation method of service program is explained below.

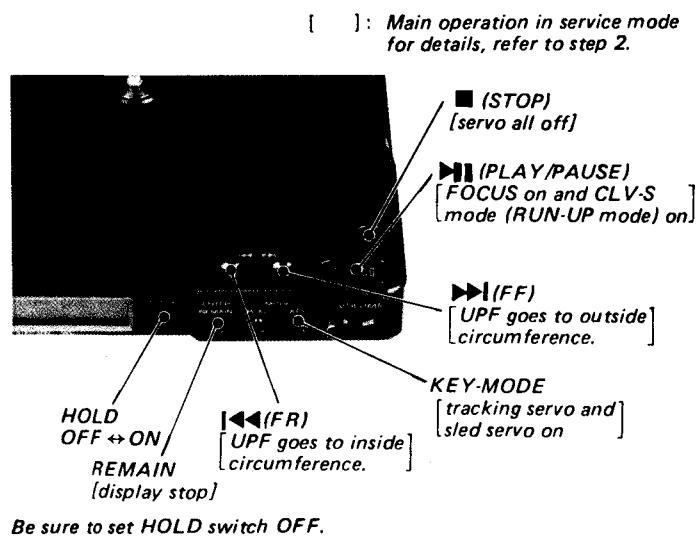


Fig. 3 Key Positions

#### Step 1 (Service Mode setting method)

- Turn the HOLD switch OFF with the external power supply not plugged in (no power applied to set) and press the **PLAY/PAUSE** key.
- Solder jumper TEST point.  
(IC801 pin 9 (BAT-E) pin is grounded.)
- Plug in external power supply.  
This puts the set into service mode.

— main board —

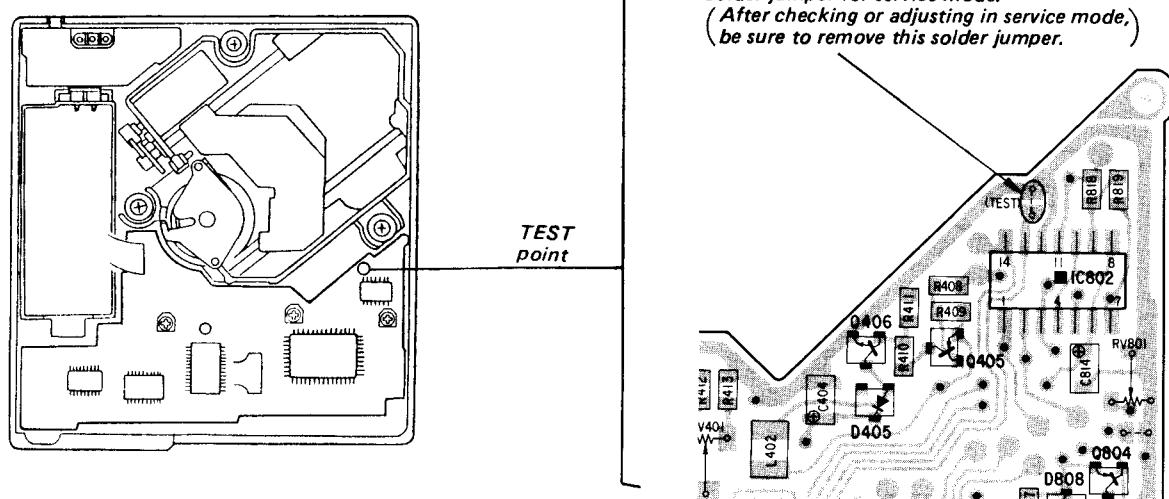


Fig. 4 TEST Point Position

#### Step 2 (Service Mode operation)

- When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over.  
With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
- When **FF** or **BACK** key is pressed, the UPF moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done, so press **KEY-MODE** to turn on the tracking servo if necessary.
- When **REMAIN** is pressed, the display stops. When **REMAIN** is released, the display continues to change. This allows check of each segment.
- When **PLAY/PAUSE** key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated several times while disc motor is rotating.
- When **KEY-MODE** is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
- When 4 and 5 are performed, the disc begins to play. At this time, the top panel should be closed and S901 are to be ON.

#### Step 3 (Service Mode release)

- First be sure to unplug the external power supply, then remove the TEST point solder jumper.
- The set will now operate normally.

#### Notes on Adjustment

1. Perform adjustments except for RECHARGEABLE VOLTAGE ADJUSTMENT and BATTERY DISPLAY ADJUSTMENT in service mode. Be sure to release service mode after completing adjustment.  
(Refer to "Service Mode (service program)" on page 5.)

- Perform adjustments in the order given.
- Use YEDS-18 disc (part No.: 3-702-101-01) unless otherwise indicated.
- Power supply voltage: DC 9 V  
HOLD switch: OFF

#### PREPARATION

Put the set into service mode (see page 5) and perform the following checks. Repair if there are any abnormalities.

##### ● Sled Motor Check

- Press the OPEN button and open the top panel.
- Press the **FF**, **BACK** keys and make sure that the UPF moves smoothly, without catching, from the inmost → outmost → inmost circumference.

**FF**: UPF moves outward

**BACK**: UPF moves inward

##### ● Focus Search Check

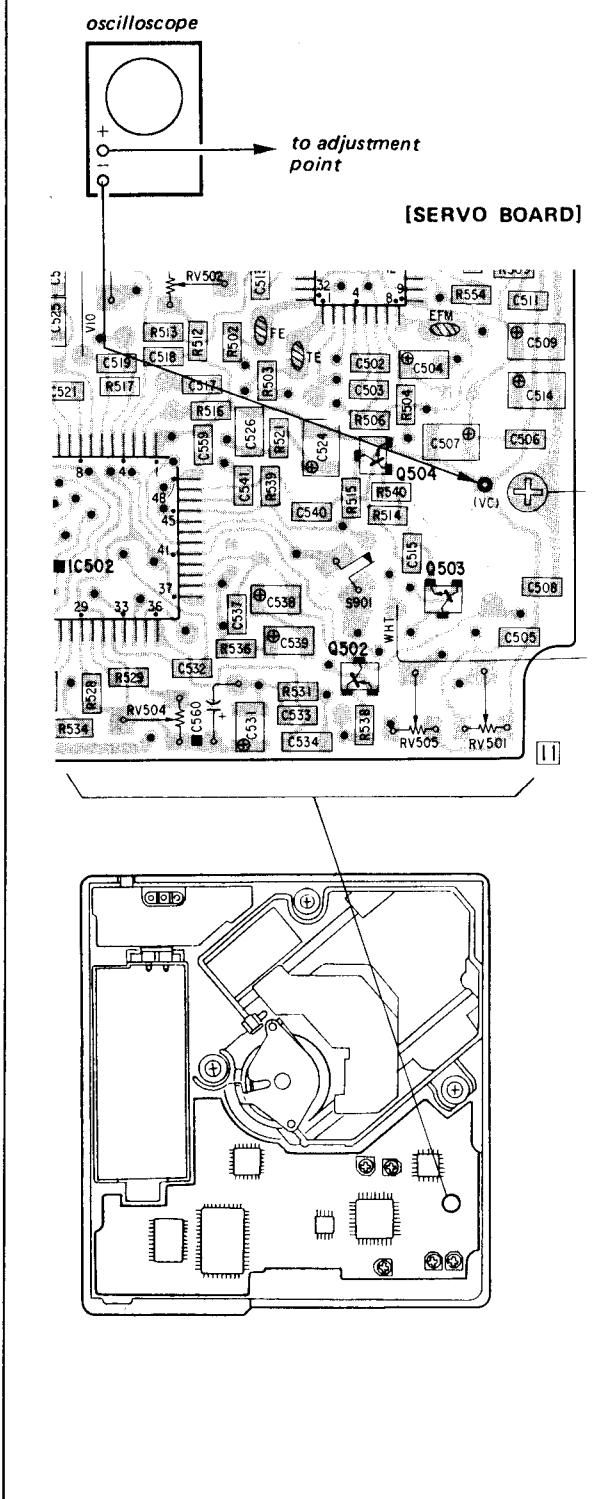
- Press the OPEN button and open the top panel.
- Press the **PLAY/PAUSE** key. (Focus search is performed continuously.)
- Observe the UPF objective lens and check that it moves smoothly up and down with no catching or noises.
- Press the **STOP** key.  
Check that focus search operation stops. If it does not stop, press the **STOP** key again longer than before. But disc motor continues rotating for a while by inertia.

#### VC (1/2 Vcc) Connecting Point

##### FOCUS BIAS ADJUSTMENT

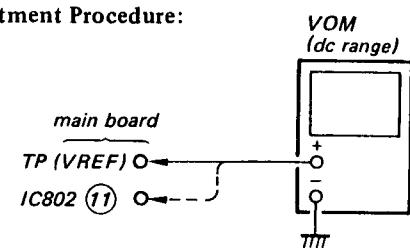
##### TRACKING BALANCE ADJUSTMENT

When the adjustments above are performed, connect the **(-)** side of oscilloscope to the point below.



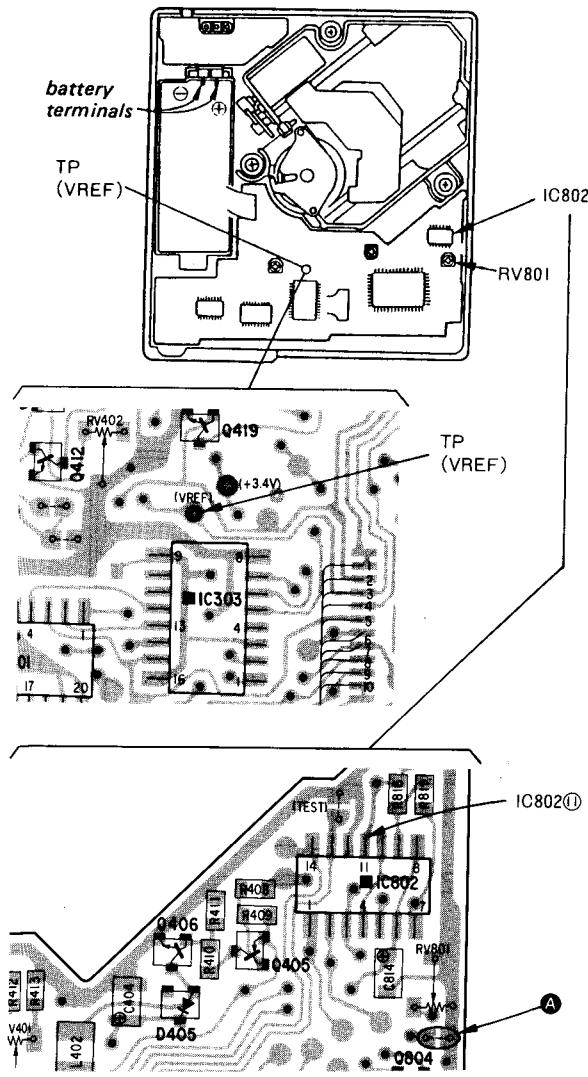
## Battery Display Adjustment

#### **Adjustment Procedure:**



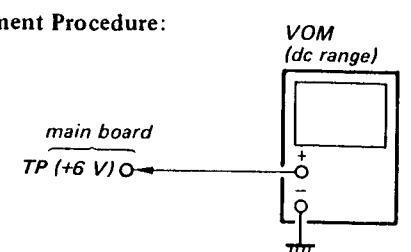
1. Apply dc +3.5 V to terminals for built-in battery (BP-2).
  2. Insert the disc (YEDS-18) and put the set into play mode.
  3. Adjust RV801 so that main board IC802 (11) voltage and TP (VREF) voltage are equal.
  4. If IC802 (11) voltage is higher than TP (VREF) voltage when turning the RV801 fully counter-clockwise, short the jumper point (A) as shown below and adjust RV801.

**Adjustment Location:** main board



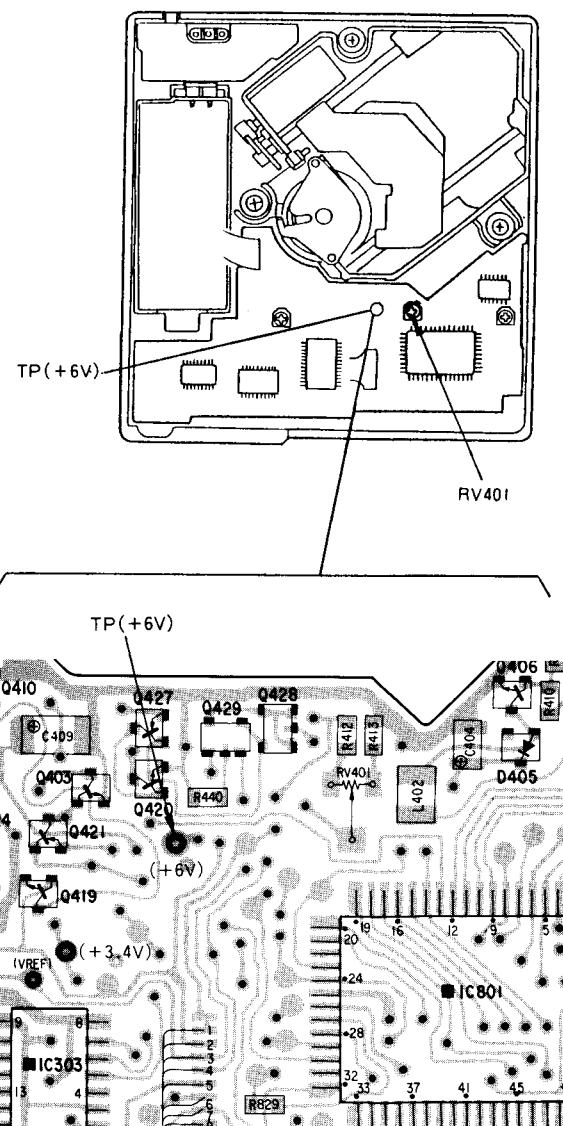
+6 V Adjustment

### **Adjustment Procedure**



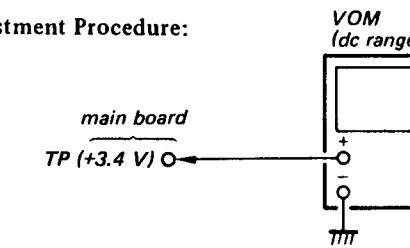
1. Put the set into service mode (see page 5).
  2. Connect the VOM to main board TP (+6 V).
  3. Adjust RV401 for  $+6 \pm 0.1$  V reading on the VOM.
  4. After adjustment, release service mode (see page 5).

**Adjustment Location:** main board



#### +3.4 V Adjustment

### **Adjustment Procedure**

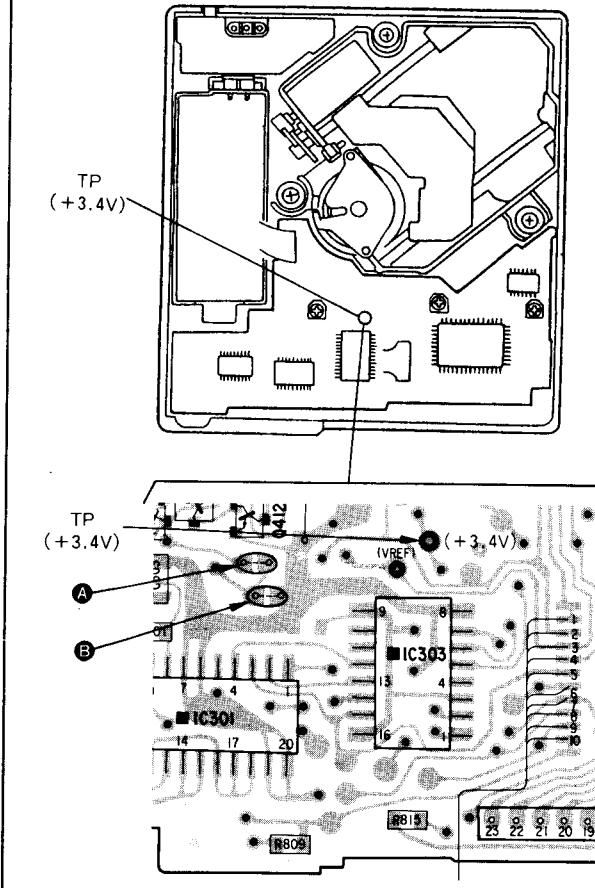


1. Put the set into service mode (see page 5).
  2. Connect the VOM to main board test point TP (+3.4 V).
  3. Adjust the pattern connecting ( A or B ) to obtain 3.4 to 3.55 V reading on the VOM.

pattern connection		VOM reading
A	B	
O	X	
X	X	
X	O	
O	O	

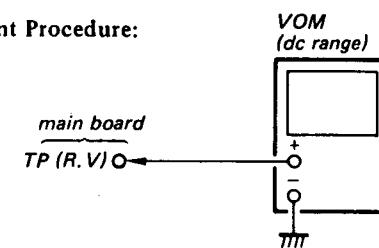
4. After adjustment, release service mode (see page 5).

**Adjustment Location:** main board



#### **Rechargeable Voltage Adjustment**

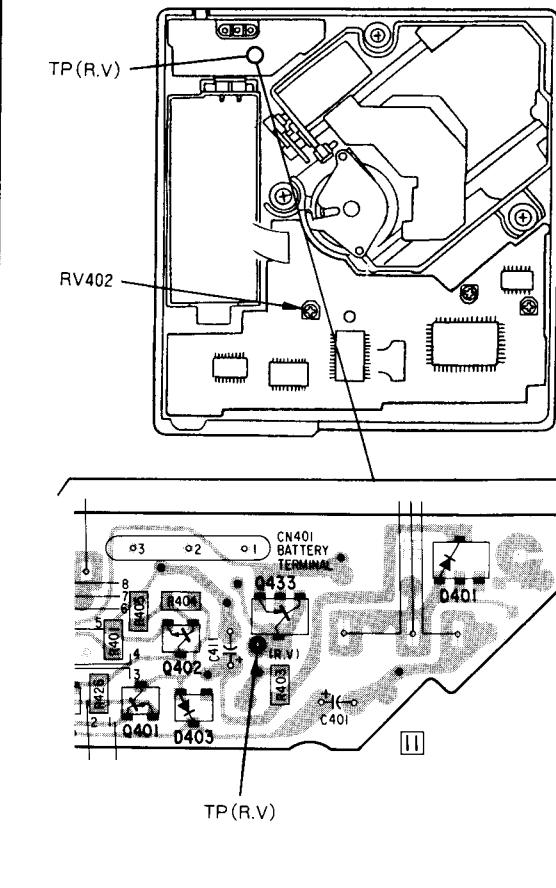
#### **Adjustment Procedure:**



1. Connect the VOM to main board test point TP (R.V).
  2. Apply DC 9 V with required dc power supply from external power jack CN401.
  3. Adjust RV402 for 7.05 - 7.5 V reading on the VOM.

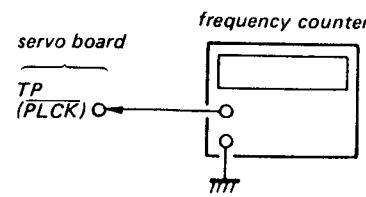
**Note:** Measure after the VOM reading becomes stable.

**Adjustment Location:** main board



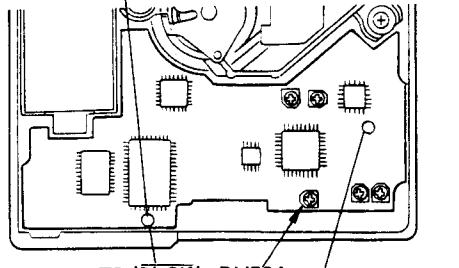
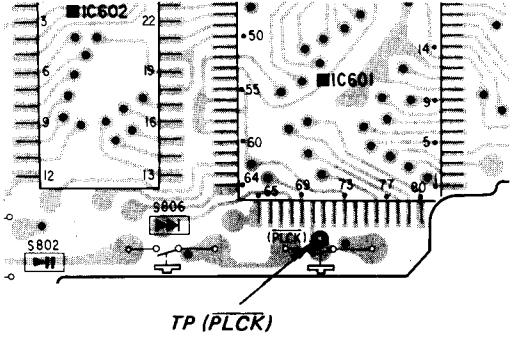
### PLL Free Run Frequency Check and Adjustment

#### Check/Adjustment Procedure:

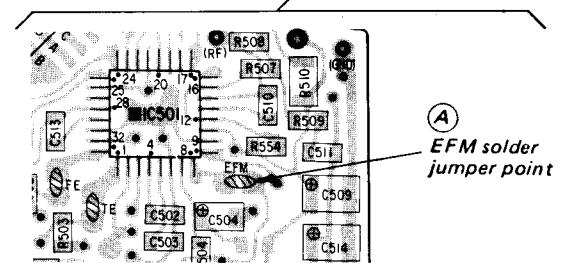


1. Disconnect the jumper point (A) (EFM) in the diagram below.
2. Connect a frequency counter to servo board test point TP (PLCK).
3. Put the set into service mode (see page 5).
4. Check that the frequency counter reading is  $4.3218 \pm 0.01$  MHz. If not, adjust RV504 so that it is  $4.3218 \pm 0.01$  MHz.
5. After adjustment, release service mode (see page 5).
6. Short the jumper point shorted in step 1.

#### Check/Adjustment Location: servo board



(A) EFM solder jumper point  
Disconnect for checking and adjustment. Short after checking and adjustment.

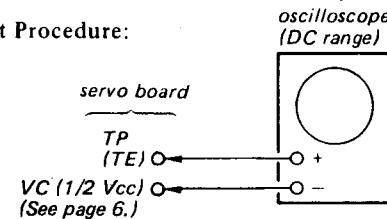


### Tracking Balance Adjustment

#### Conditions:

The set should be placed either horizontally.

#### Adjustment Procedure:

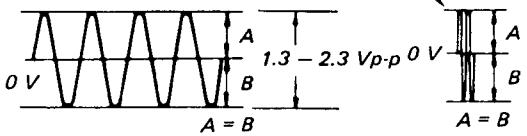


1. Connect the oscilloscope to servo board TP (TE).
2. Put the set into service mode (see page 5).
3. Press the  $\blacktriangleright$  and  $\blacktriangleleft$  keys to move the UPF to the center.
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the  $\blacktriangleright\blacktriangleright$  key.

*(It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)*

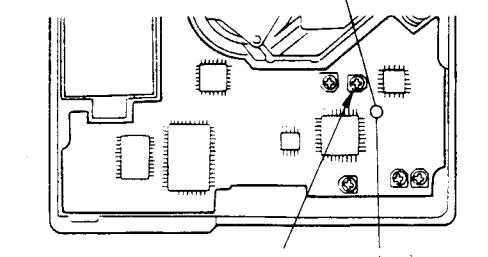
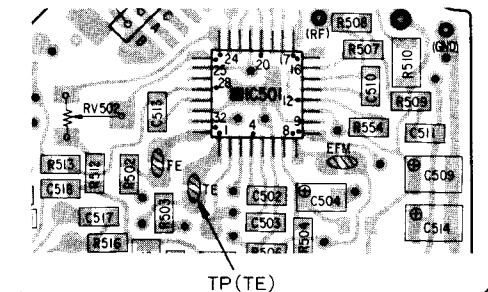
6. Adjust RV502 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.

**Note:** Take sweep time as long as possible to obtain best waveform.



7. Unplug the external power supply to stop spindle motor from rotating.
8. After adjustment, release service mode (see page 5).

#### Adjustment Location: servo board

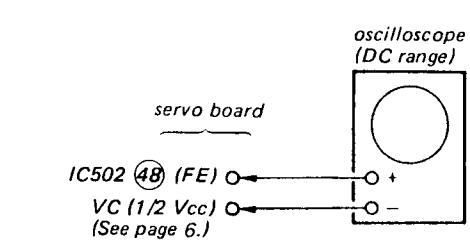
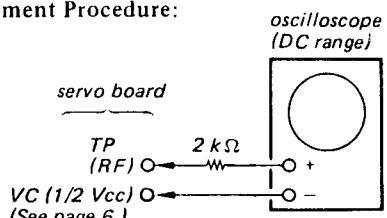


### Focus Bias Adjustment

#### Conditions:

The set should be placed either horizontally.

#### Adjustment Procedure:



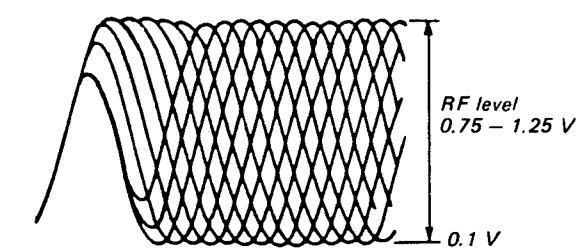
1. Put the set into service mode (see page 5).
2. Connect the oscilloscope to servo board test point TP (RF).
3. Press the  $\blacktriangleright$  and  $\blacktriangleleft$  keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the  $\blacktriangleright\blacktriangleright$  key.

*(It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)*

6. Press the KEY-MODE button. (Tracking and sled go ON.)
7. Adjust RV503 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape ( $\diamond$ ) in the center of the waveform can be clearly distinguished.

#### • RF Signal Reference Waveform (eye pattern)

VOLT/DIV: 200 mV  
TIME/DIV: 500 ns



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Unplug the external power supply to stop spindle motor from rotating and remove the disc.

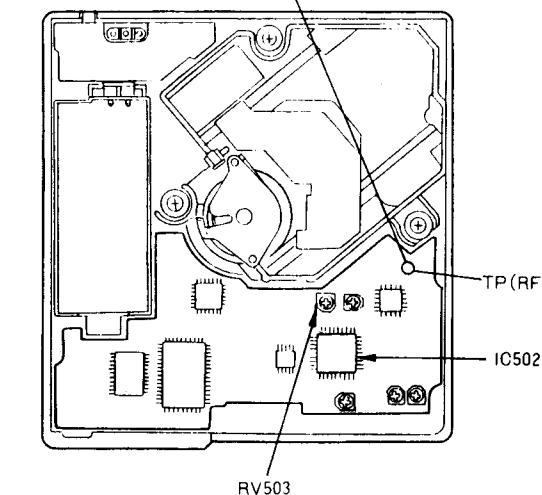
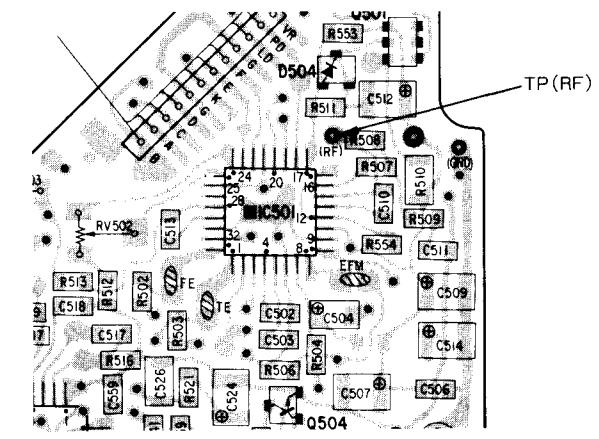
9. Remove the disc and connect the oscilloscope to main board IC502 (FE).

10. Adjust RV503 again referring to the table followed.

oscilloscope reading	adjustment
more than +50 mV	Not adjust again.
+50 mV ~ +20 mV	Adjust RV503 again for +50 mV reading on oscilloscope.
+20 mV ~ -20 mV	Adjust RV503 again for -20 mV reading on oscilloscope.
less than -20 mV	Not adjust again.

11. After adjustment, release service mode (see page 5).

#### Adjustment Location: servo board



**Focus/Tracking Gain Adjustment**

A frequency response analyzer or CD jig is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

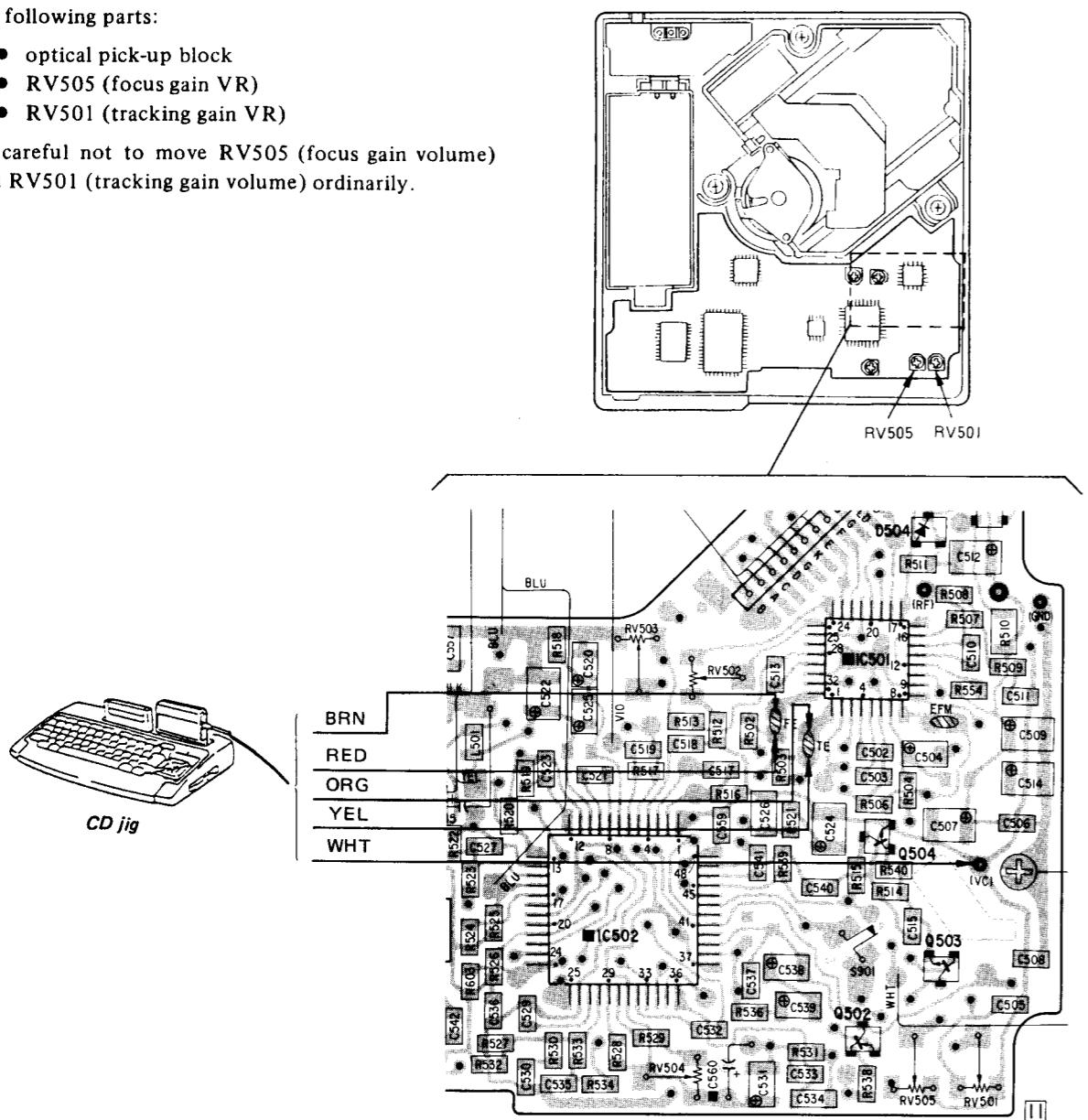
Focus/tracking gain determines the pick-up followup (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

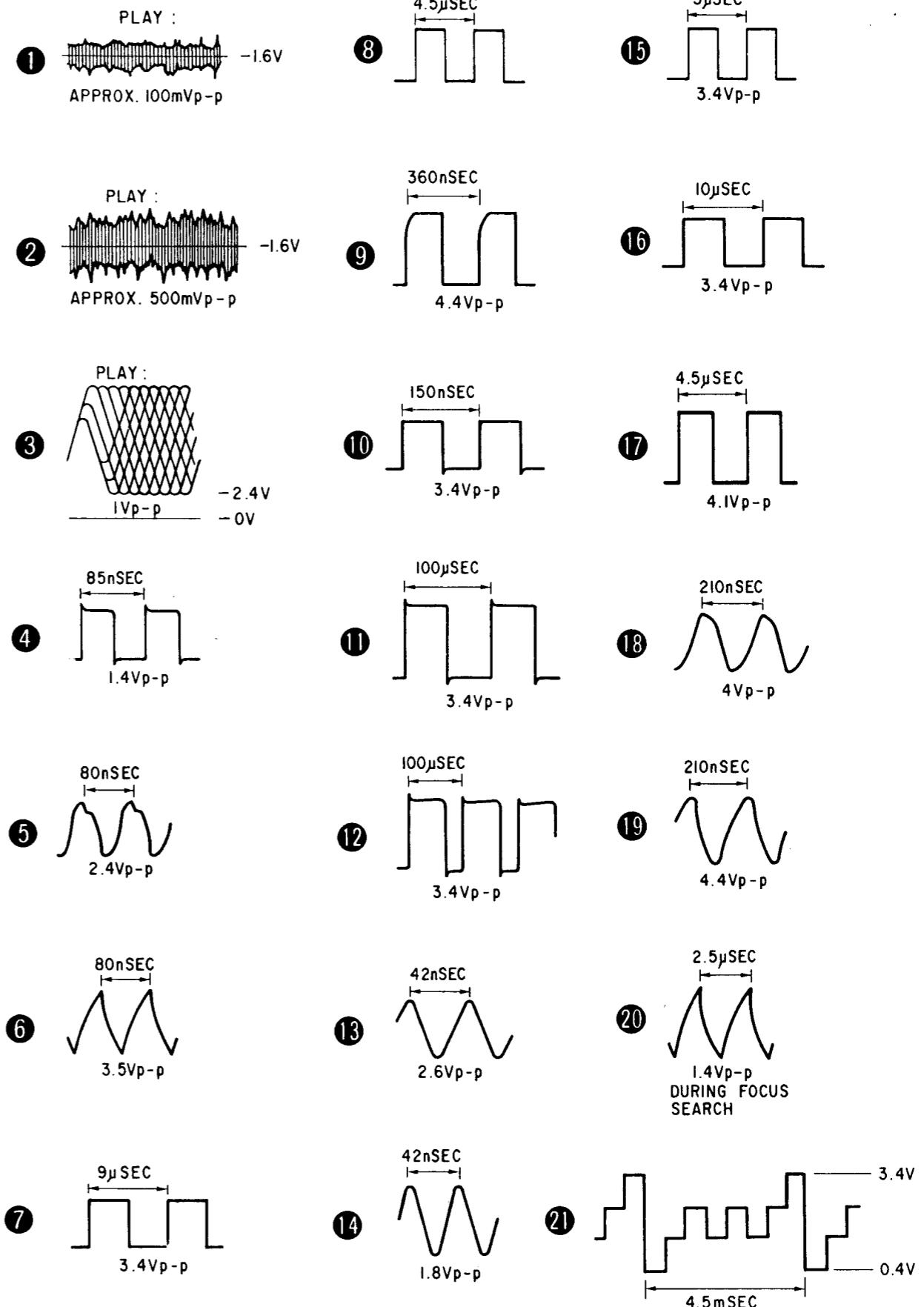
This adjustment is to be performed when replacing the following parts:

- optical pick-up block
- RV505 (focus gain VR)
- RV501 (tracking gain VR)

Be careful not to move RV505 (focus gain volume) and RV501 (tracking gain volume) ordinarily.

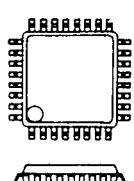


## SECTION 4 DIAGRAMS

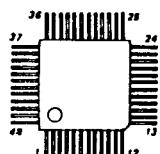
**4-1. WAVEFORMS**

## 4-2. SEMICONDUCTOR LEAD LAYOUTS

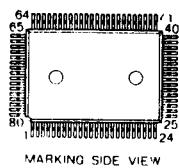
**CXA1271Q**



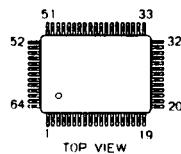
**CXA1272Q-Z**



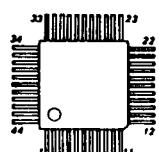
**CXD11250**



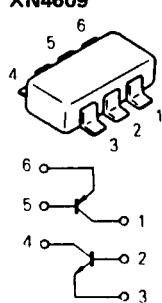
**CXP5086-047Q**



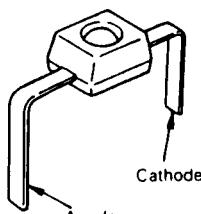
**MPC1715FU**



**IMD2 XN4609**



**SLM125YW**



### Note on Schematic Diagram:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- % : indicates tolerance.
- : B+ Line
- [ ] : adjustment for repair.
- Voltages and waveforms and total current are measured with top panel closed.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground in service mode.  
no mark : stop  
( ) : play
- Voltages are taken with a VOM (input impedance  $1\text{ M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.  
— : CD
- Switch

Ref. No.	Switch	Position
S801	■	OFF
S802	▶/	OFF
S803	PLAY MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY MODE	OFF
S806	▶▶	OFF
S807	◀◀	OFF
S808	HOLD	OFF
S901	DOOR	ON
S902	LIMIT	OFF

See page 5 for setup of service mode.

### Note:

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### Note:

Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

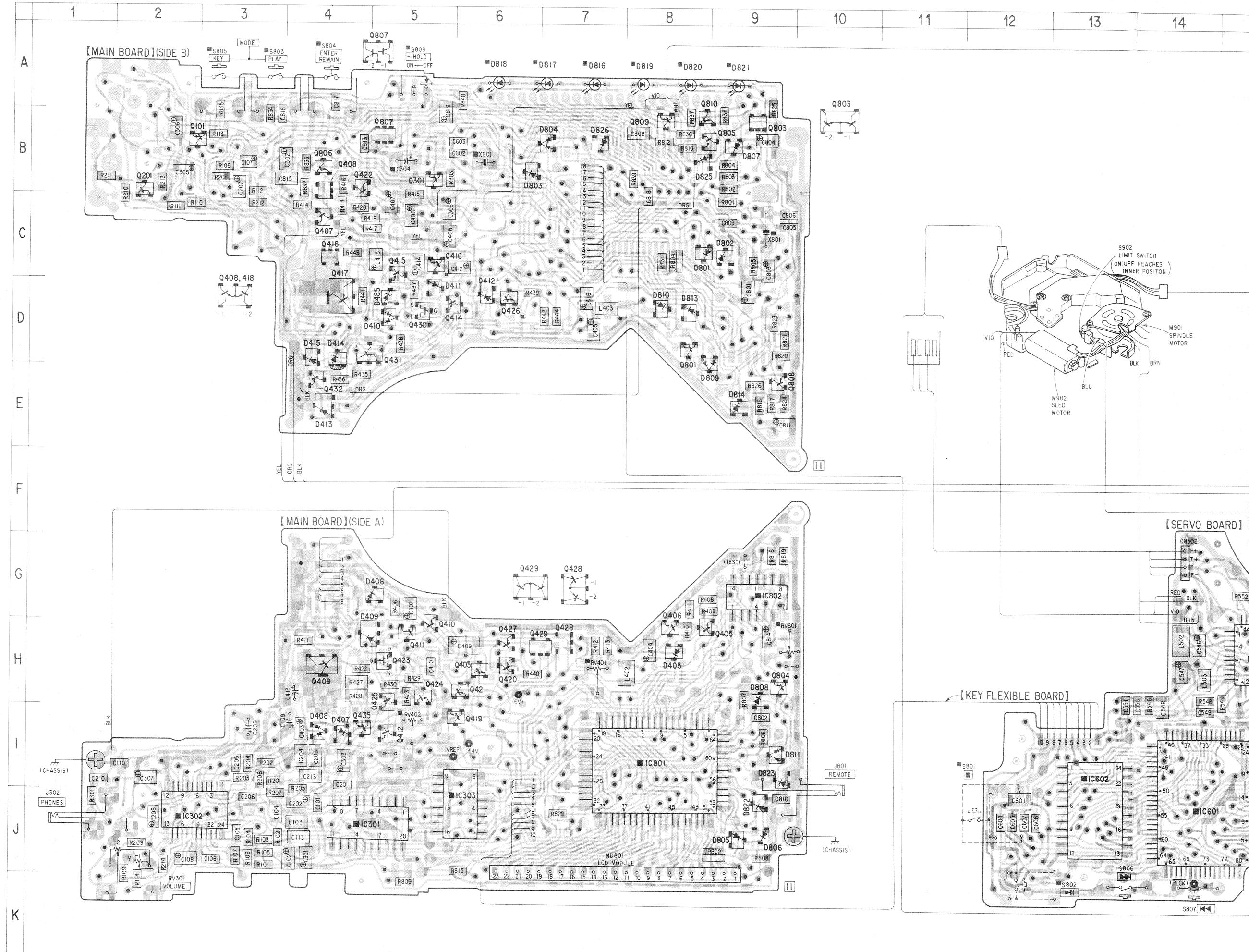
### Note on Mounting Diagram:

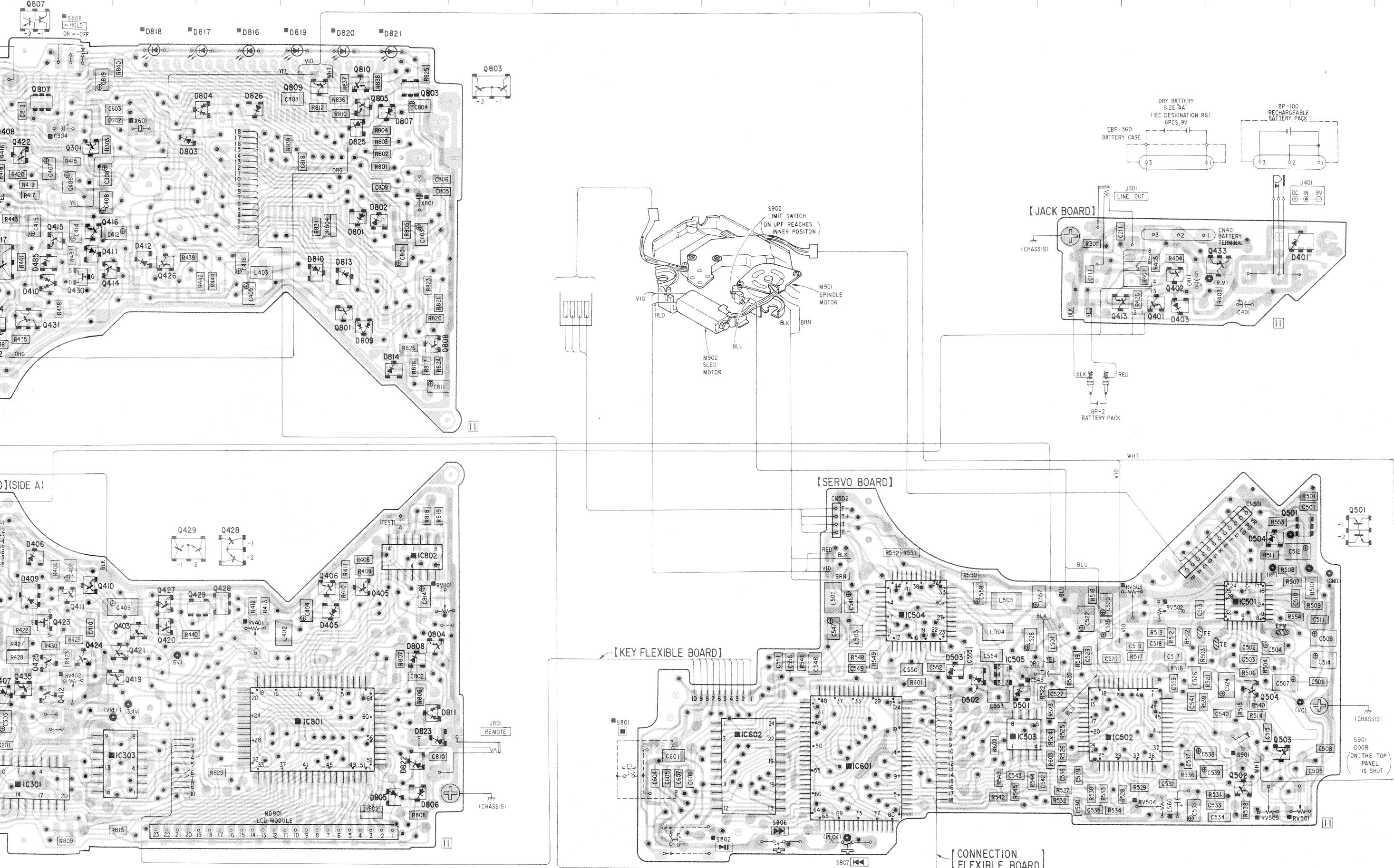
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : parts mounted on the conductor side.
- : Through hole.
- : Pattern on the side which is seen.
- : Pattern of the rear side.
- : Components extracted from the rear side.

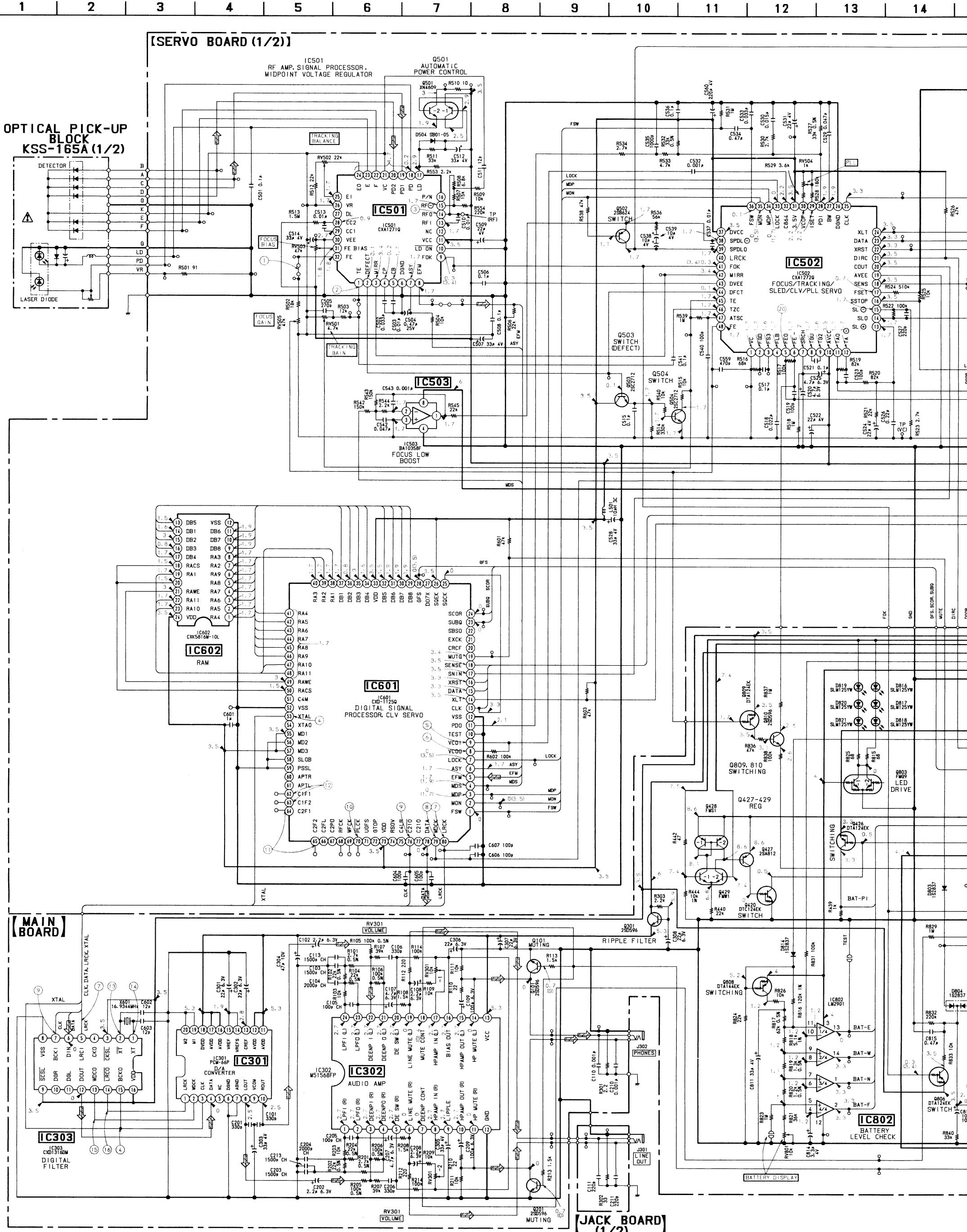
#### 4-3. PRINTED WIRING BOARD

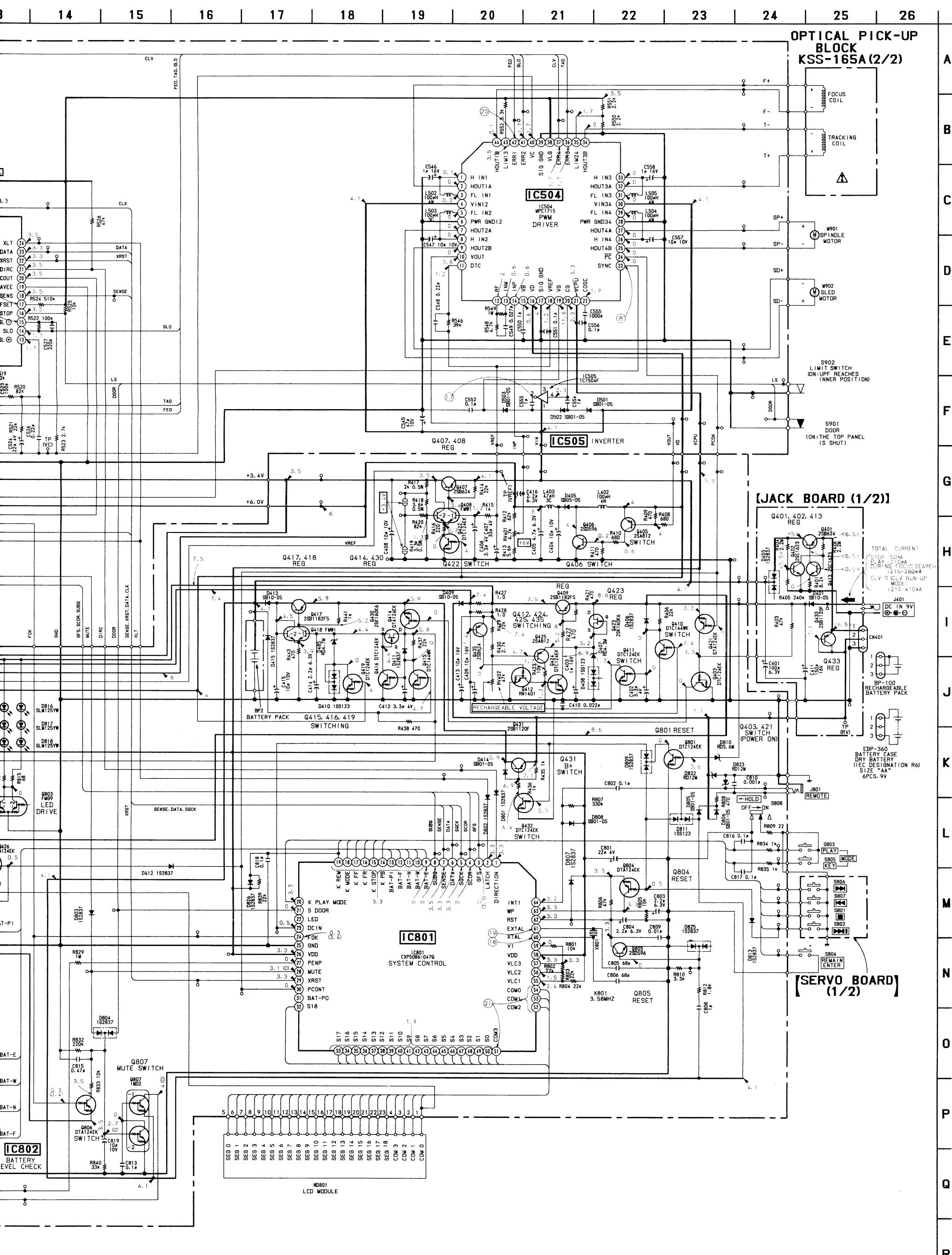
##### • Semiconductor Location

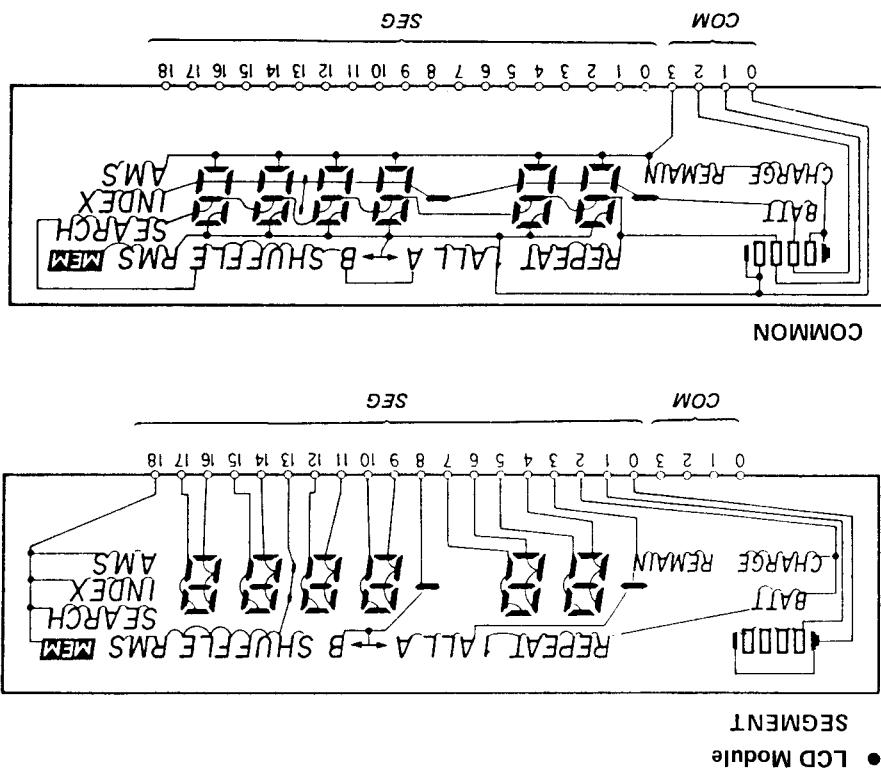
Ref. No.	Location	Ref. No.	Location
D401	D-20	Q101	B-2
D403	D-18	Q201	B-2
D405	H-8	Q301	B-5
D406	G-5	Q401	D-18
D407	I-4	Q402	D-18
D408	I-4	Q403	H-6
D409	G-5	Q405	H-9
D410	D-5	Q406	G-8
D411	D-5	Q407	C-4
D412	D-6	Q408	B-4
D413	E-4	Q409	H-4
D414	D-4	Q410	H-5
D415	D-4	Q411	H-5
D485	D-5	Q412	I-5
D501	I-16	Q413	D-18
D502	I-16	Q414	D-5
D503	H-16	Q415	C-5
D504	G-19	Q416	C-5
D801	C-8	Q417	C-4
D802	C-9	Q418	C-4
D803	B-6	Q419	I-6
D804	B-7	Q420	H-6
D805	J-9	Q421	H-6
D806	J-9	Q422	B-4
D807	B-9	Q423	H-5
D808	H-9	Q424	H-5
D809	E-8	Q425	H-5
D810	D-8	Q426	D-6
D811	I-9	Q427	H-6
D813	D-8	Q428	H-7
D814	E-9	Q429	H-7
D816	A-7	Q430	D-5
D817	A-7	Q431	D-5
D818	A-6	Q432	E-4
D819	A-8	Q433	D-19
D820	A-8	Q435	I-4
D821	A-9	Q501	G-20
D822	J-9	Q502	J-19
D823	I-9	Q503	I-19
D825	B-8	Q504	I-19
D826	B-7	Q801	D-8
IC301	J-5	Q803	B-9
IC302	J-2	Q804	H-9
IC303	J-6	Q805	B-9
IC501	H-19	Q806	B-4
IC502	I-18	Q807	B-5
IC503	I-16	Q808	E-9
IC504	H-15	Q809	B-8
IC505	H-16	Q810	A-8



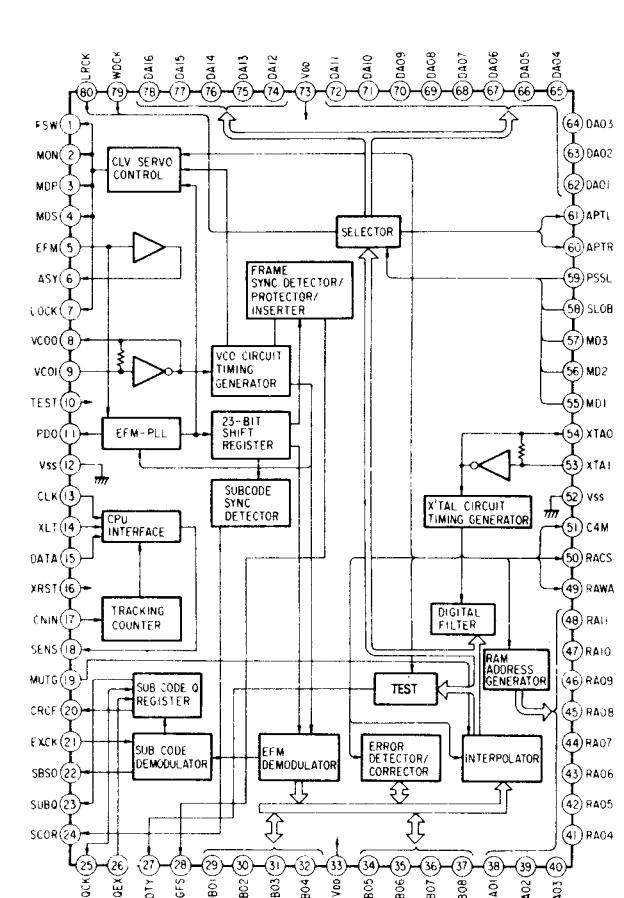
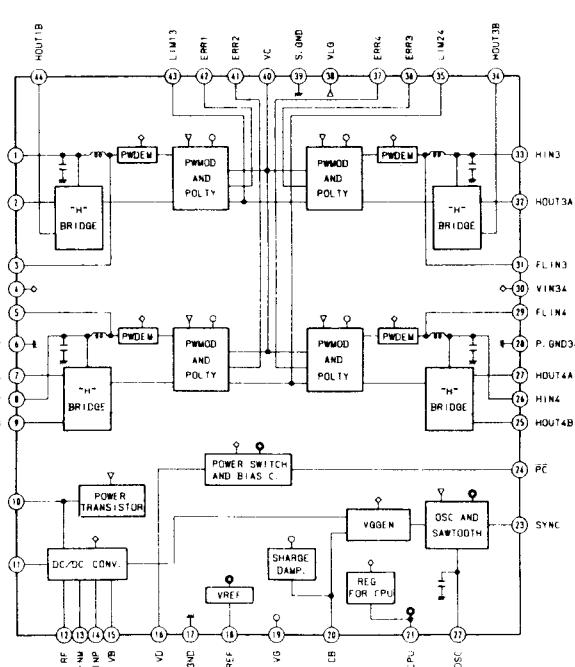
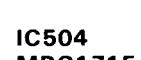
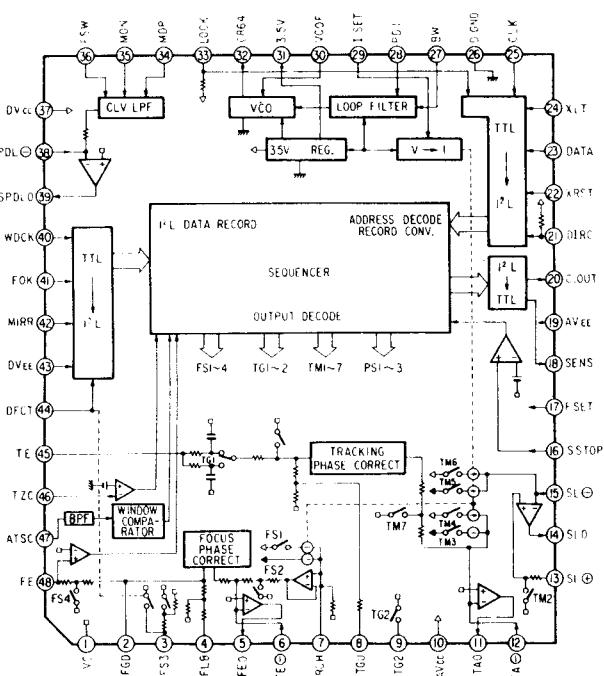
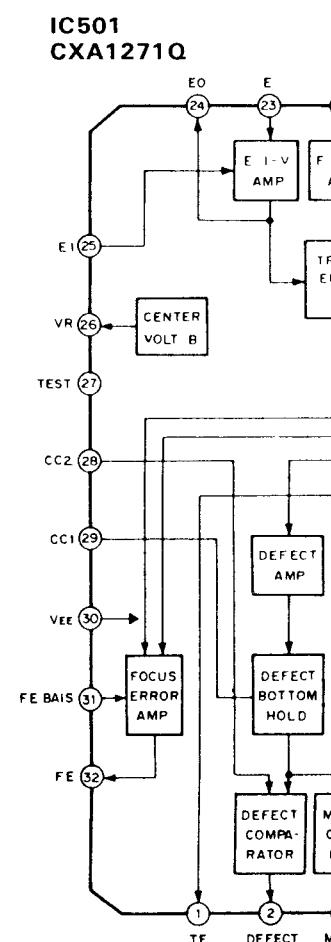
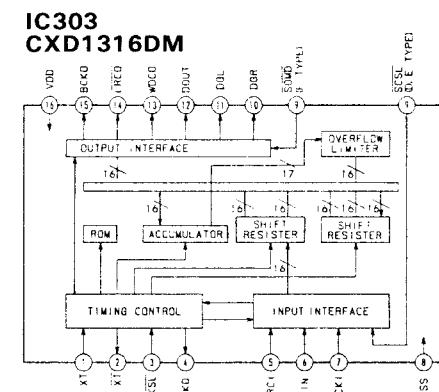
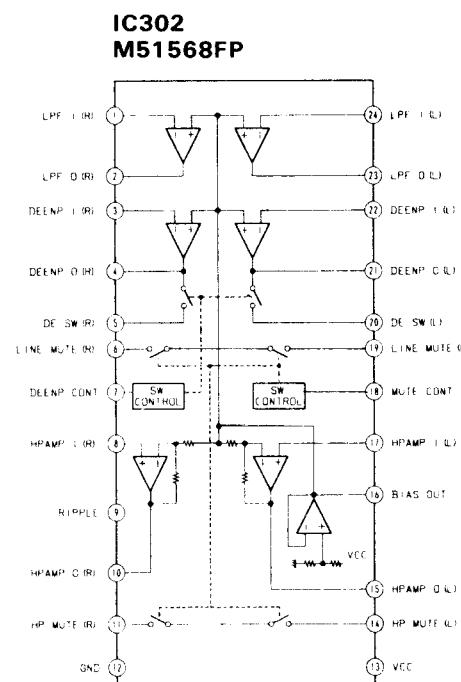
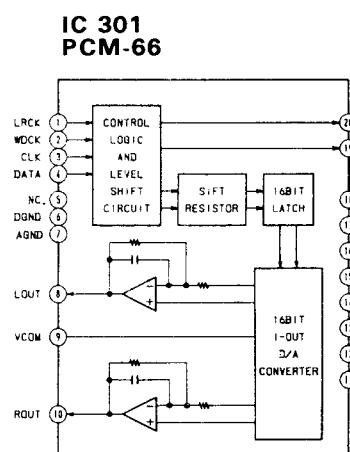


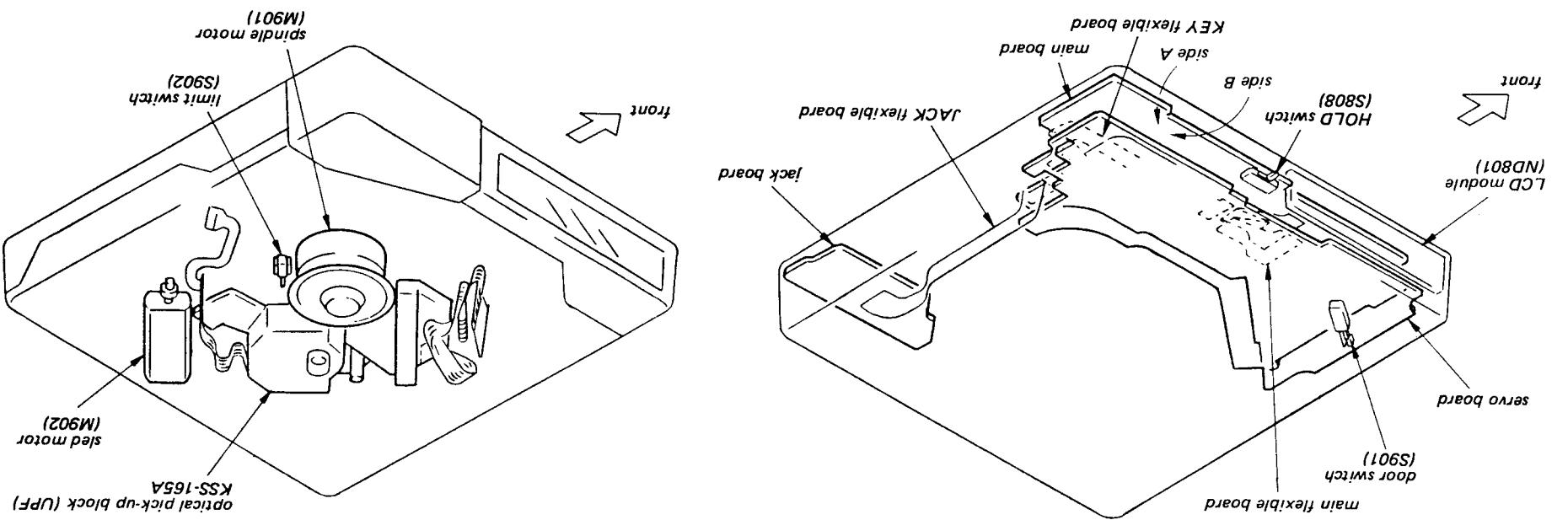




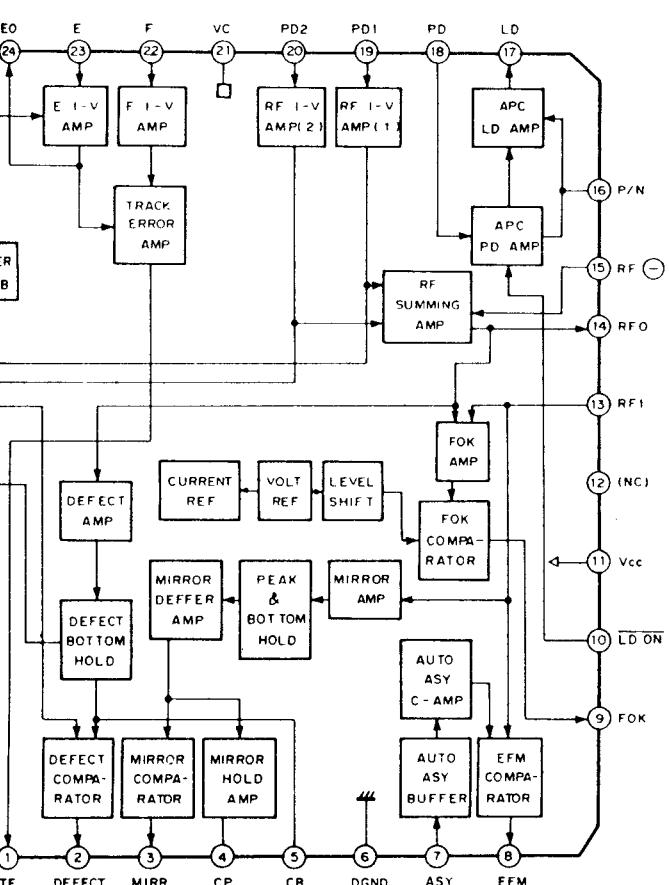


#### 4-5. IC BLOCK DIAGRAM





- PC Board/Switch/Motor Layouts



## **SECTION 5**

# **EXPLODED VIEWS**

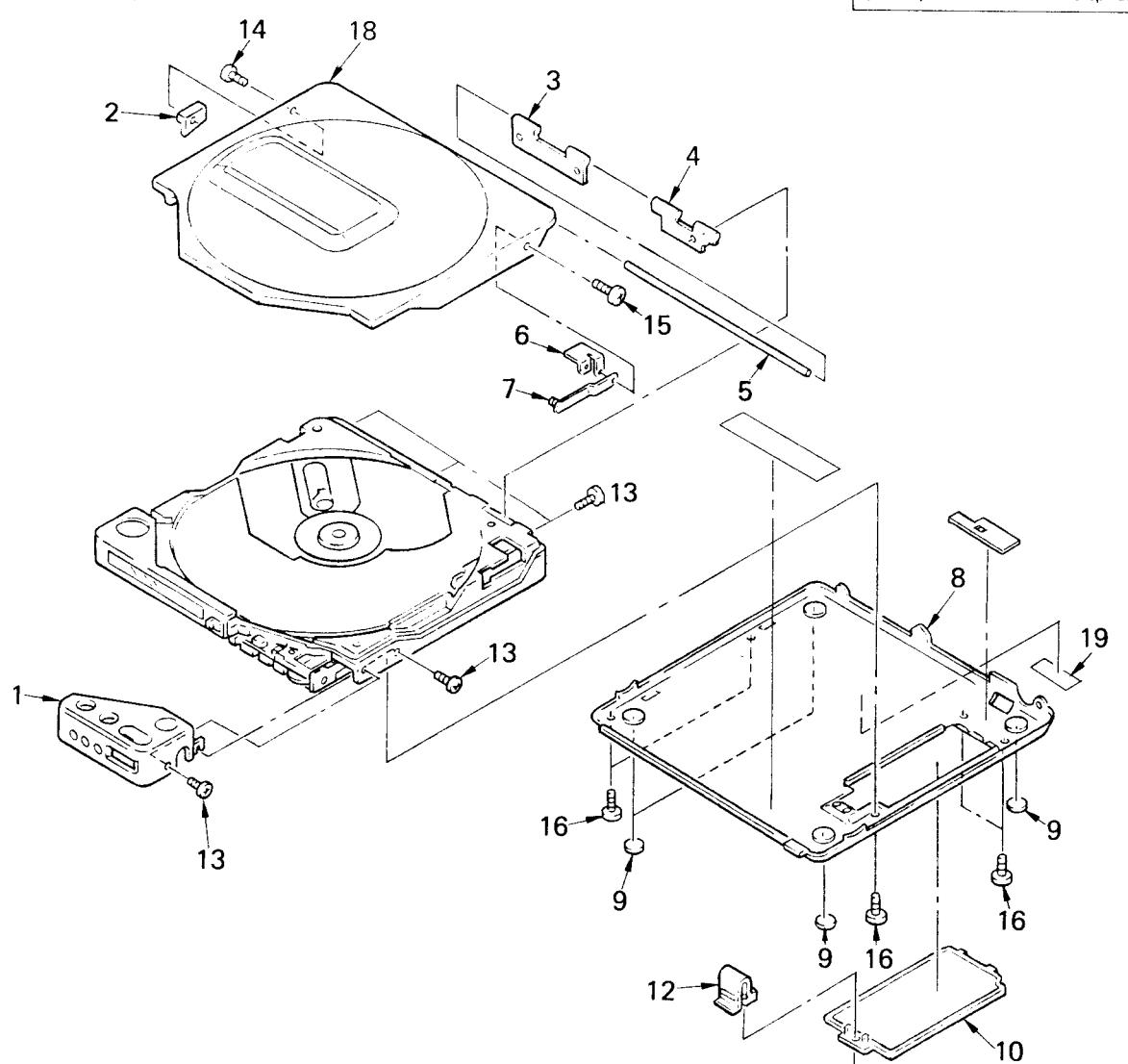
**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
  - The construction parts of an assembled part are indicated with a collation number in the remark column.
  - Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -X and -XX may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:  
 (RED) ... KNOB, BALANCE (WHITE)  
 ↑    ↑  
 Cabinet's Color                              Parts' Color

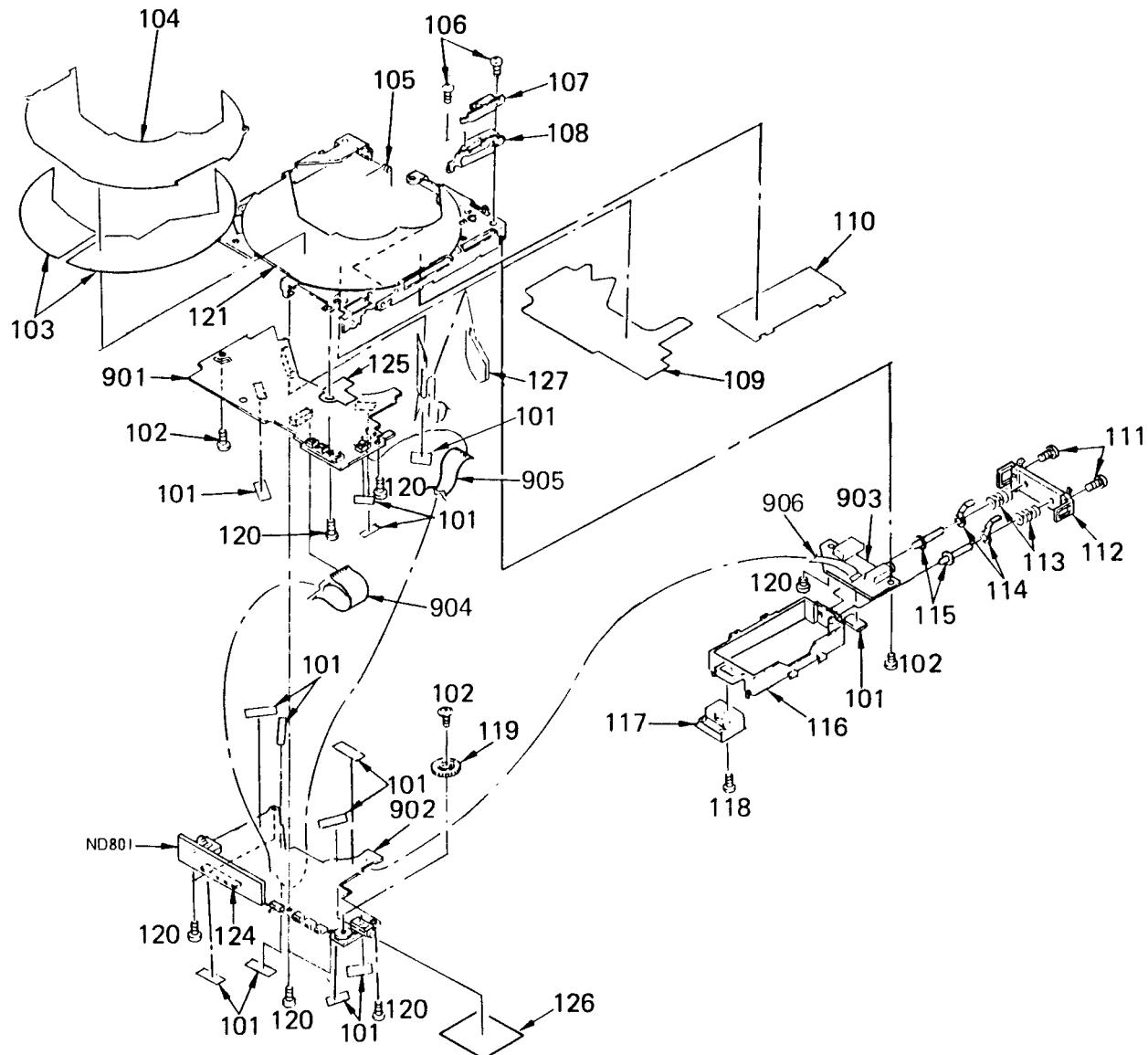
The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.



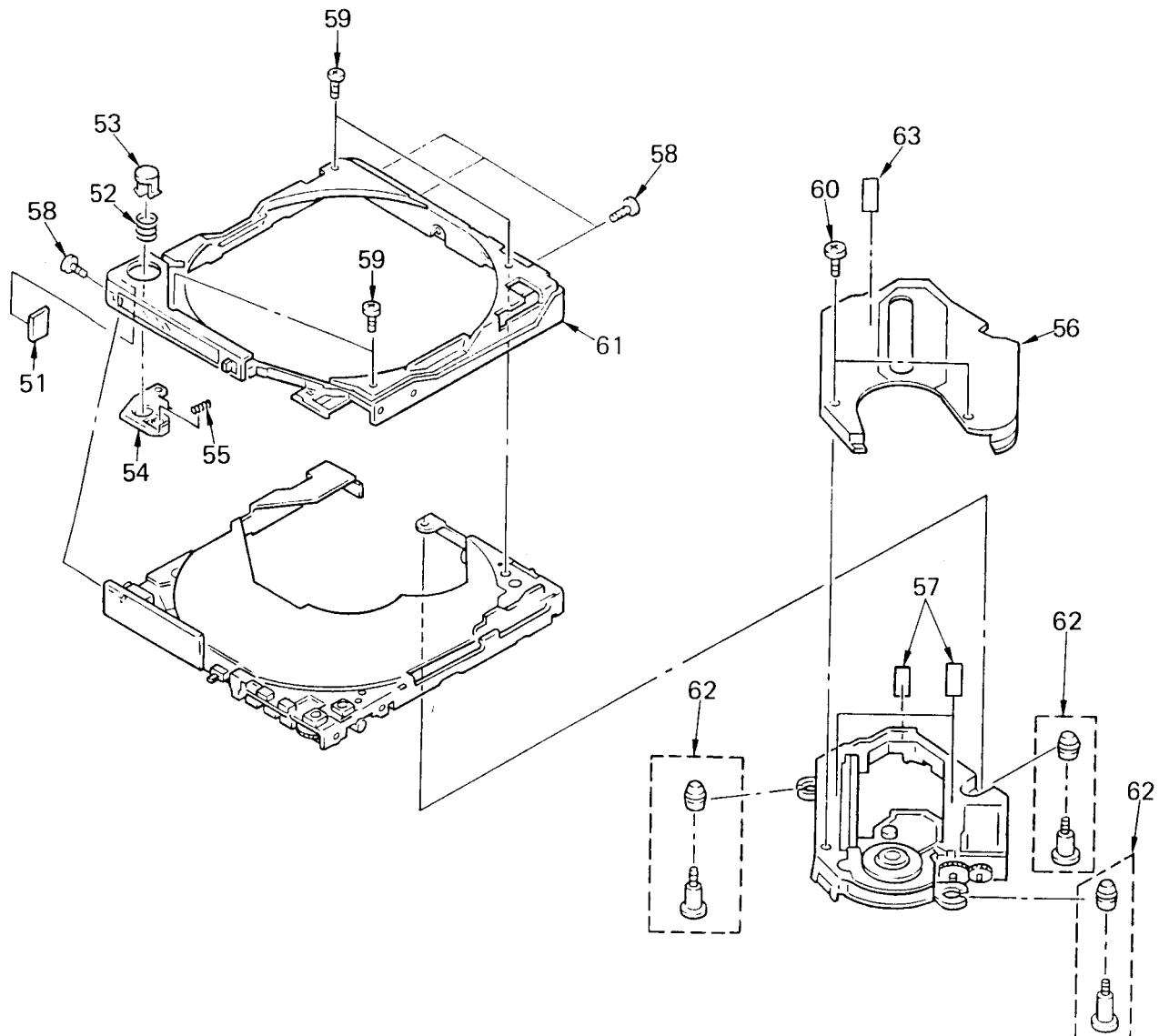
No.	Part No.	Description	Remarks	No.	Part No.	Description	Rem
1	X-4921-211-1	(BLACK)...ORNAMENT ASSY (BLACK), BUTTON		12	4-924-165-01	CHIP, LOCK, BATTERY CASE LID	
	X-4921-235-1	(TITAN)...ORNAMENT ASSY (TITAN), BUTTON		13	3-703-816-71	(TITAN)...SCREW (M1.4X3.0), SPECIAL	
				3-703-816-72	(BLACK)...SCREW (M1.4X3.0), SPECIAL		
2	4-920-272-01	RETAINER, SPRING, SWITCHING					
3	4-924-142-01	(BLACK)...HINGE (LEFT)		14	3-895-823-41	(BLACK)...SCREW (B1.4X4), TAPPING	
	4-924-142-11	(TITAN)...HINGE (LEFT)		3-895-823-51	(TITAN)...SCREW (B1.4X4), TAPPING		
4	4-924-143-01	(BLACK)...HINGE (RIGHT)		15	3-703-816-01	(TITAN)...SCREW (M1.4X2.0), SPECIAL	
	4-924-143-11	(TITAN)...HINGE (RIGHT)		3-703-816-02	(BLACK)...SCREW (M1.4X2.0), SPECIAL		
5	4-924-144-01	SHAFT, FULCRUM		16	3-703-816-41	(TITAN)...SCREW (M1.4X2.5), SPECIAL	
6	X-4917-704-1	BRACKET ASSY, SWITCHING PLATE		3-703-816-42	(BLACK)...SCREW (M1.4X2.5), SPECIAL		
7	X-4921-216-1	PLATE (B) ASSY, SWITCHING		17	3-318-203-71	(BLACK)...SCREW (B1.7X5), TAPPING	
8	X-4921-231-1	(BLACK)...PANEL ASSY, BOTTOM	9	3-318-203-72	(TITAN)...SCREW (B1.7X5), TAPPING		
	X-4921-237-1	(TITAN)...PANEL ASSY (TITAN), BOTTOM	9				
9	4-912-641-01	FOOT, RUBBER		18	A-3043-233-A	(BLACK)...PANEL, UPPER	
	4-924-164-01	(BLACK)...LID, BATTERY CASE		A-3043-238-A	(TITAN)...PANEL, UPPER		
	4-924-164-02	(TITAN)...LID, BATTERY CASE		19	4-885-838-00	(AEP,UK)...LABEL, CLASS 1	

5-3.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	3-831-441-XX	CUSHION, SPEAKER		118	3-703-816-42	SCREW (M1.4X2.5), SPECIAL HEAD	
102	3-335-797-21	SCREW (M1.4X3), TOOTHED LOCK		119	4-924-155-01	KNOB, VOLUME	
103	4-924-139-01	SCHEET, ADHESIVE, CHASSIS COVER		120	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
104	4-924-138-01	COVER, CHASSIS		121	*X-4921-210-1	CHASSIS ASSY, MAIN	
105	4-917-745-01	SPRING		123	3-831-441-11	CUSHION (B)	
106	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD		124	*4-924-182-01	SPACER, LCD	
107	*4-917-753-01	SPRING		125	*4-926-105-01	SCHEET, INSULATING, SERVO PCB	
108	4-917-751-01	PLATE, SLIDE, SWITCHING PLATE		126	*4-926-102-01	COVER (A), FLEXIBLE INSULATING	
109	*4-924-141-01	SCHEET, INSULATING, PC BOARD		127	*A-3039-683-A	PAPER (B) ASSY, SHIELD	
110	*4-924-145-01	SCHEET, CASE (LOWER)		901	*A-3015-732-A	PC BOARD ASSY, SERVO	
111	3-318-203-62	SCREW (B1.7X4), TAPPING		902	*A-3015-733-A	PC BOARD ASSY, MAIN	
112	4-924-134-01	CHIP, HOLDING, TERMINAL		903	*1-629-281-11	PC BOARD, JACK	
113	4-924-136-01	SPRING, COMPRESSION		904	1-625-584-11	PC BOARD, CONNECTION FLEXIBLE	
114	4-924-137-01	PLATE, CONNECTION		905	1-625-585-11	PC BOARD, KEY SWITCH FLEXIBLE	
115	4-924-135-01	PIN, TERMINAL		906	1-625-586-11	PC BOARD, JACK FLEXIBLE	
116	4-924-169-01	CASE, BATTERY		ND801	1-808-290-11	LCD MODULE	
117	4-924-133-01	CHIP, FIXED, BOTTOM PANEL					

5-2.



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	9-911-840-XX	CUSHION, LID		58	3-703-816-71	(TITAN)...SCREW (M1.4X3.0), SPECIAL HEAD	
52	4-917-727-01	SPRING, COMPRESSION		59	3-703-816-72	(BLACK)...SCREW (M1.4X3.0), SPECIAL HEAD	
53	4-924-130-01	(BLACK)...BUTTON, OPEN		60	3-895-823-11	SCREW (B1.4X3), TAPPING	
	4-924-130-21	(TITAN)...BUTTON, OPEN		61	X-4921-217-1	(BLACK)...CABINET ASSY	
54	4-924-131-01	LEVER, LOCK			X-4921-238-1	(TITAN)...CABINET ASSY	
55	4-924-140-01	SPRING, COMPRESSION		62	X-4917-723-1	INSULATOR ASSY	
56	4-926-141-01	COVER, MD			4-908-711-01	LABEL, CAUTION, LENS	
57	3-831-441-XX	CUSHION		63			

## SECTION 6

### ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**  
MF:  $\mu$ F, PF:  $\mu\mu$ F.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**

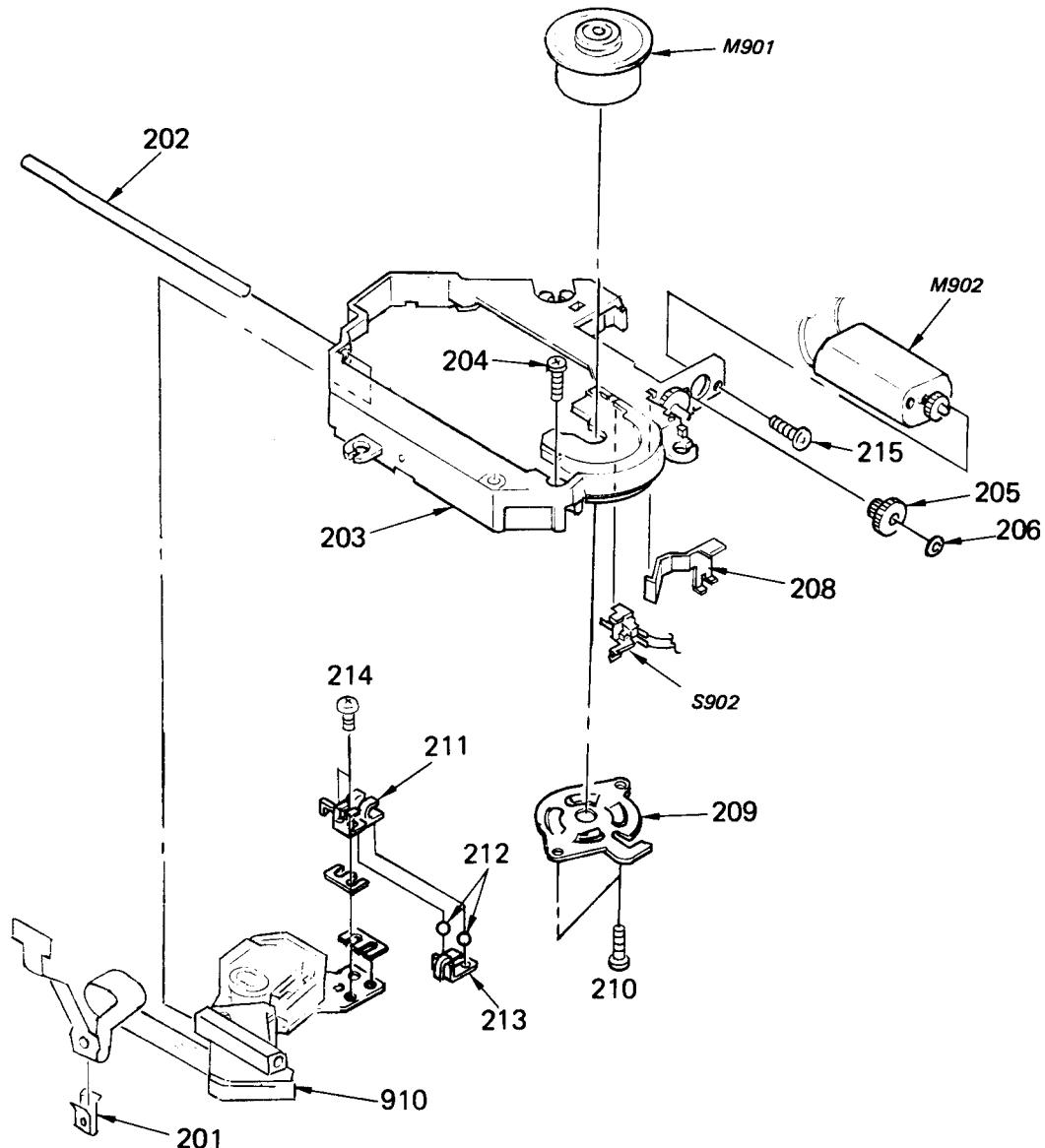
In each case, U:  $\mu$ , for example:  
UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,  
UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by mark or dotted line with mark are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description			
901	*A-3015-732-A	PC BOARD ASSY, SERVO	C408	1-135-174-11	TANTAL. CHIP 10MF			
902	*A-3015-733-A	PC BOARD ASSY, MAIN	C409	1-135-159-21	TANTAL. CHIP 10MF			
903	*1-629-281-11	PC BOARD, JACK	C410	1-163-037-11	CERAMIC CHIP 0.022MF			
904	1-625-584-11	PC BOARD, CONNECTION FLEXIBLE	C411	1-126-357-11	ELECT 150MF			
905	1-625-585-11	PC BOARD, KEY SWITCH FLEXIBLE	C412	1-135-103-00	TANTAL. CHIP 3.3MF			
906	1-625-586-11	PC BOARD, JACK FLEXIBLE	C413	1-131-365-00	TANTALUM 10MF			
910	▲.8-848-096-11	DEVICE, OPTICAL KSS-165A	C414	1-135-149-21	TANTAL. CHIP 2.2MF			
C101	1-163-129-00	CERAMIC CHIP 330PF	5%	50V	C415	1-135-174-11	TANTAL. CHIP 10MF	
C102	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	C416	1-135-149-21	TANTAL. CHIP 2.2MF	
C103	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V	C501	1-163-038-00	CERAMIC CHIP 0.1MF	
C104	1-163-212-00	CERAMIC CHIP 0.002MF	50V		C502	1-163-989-11	CERAMIC CHIP 0.033MF	
C105	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	C503	1-163-021-00	CERAMIC CHIP 0.01MF	
C106	1-163-129-00	CERAMIC CHIP 330PF	5%	50V	C504	1-135-145-11	TANTAL. CHIP 0.47MF	
C107	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V	C505	1-163-127-00	CERAMIC CHIP 270PF	
C108	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	C506	1-163-038-00	CERAMIC CHIP 0.1MF	
C109	1-124-225-00	ELECT 100MF	20%	6.3V	C507	1-135-162-21	TANTAL. CHIP 33MF	
C110	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	C508	1-163-038-00	CERAMIC CHIP 0.1MF	
C111	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	C509	1-135-157-21	TANTAL. CHIP 22MF	
C113	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V	C510	1-163-021-00	CERAMIC CHIP 0.01MF	
C201	1-163-129-00	CERAMIC CHIP 330PF	5%	50V	C511	1-163-095-00	CERAMIC CHIP 12PF	
C202	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	C512	1-135-162-21	TANTAL. CHIP 33MF	
C203	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V	C513	1-163-021-00	CERAMIC CHIP 0.01MF	
C204	1-163-212-00	CERAMIC CHIP 0.002MF	50V		C514	1-135-162-21	TANTAL. CHIP 33MF	
C205	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	C515	1-163-038-00	CERAMIC CHIP 0.1MF	
C206	1-163-129-00	CERAMIC CHIP 330PF	5%	50V	C517	1-163-038-00	CERAMIC CHIP 0.1MF	
C207	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V	C518	1-163-037-11	CERAMIC CHIP 0.022MF	
C208	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	C519	1-163-117-00	CERAMIC CHIP 100PF	
C209	1-124-225-00	ELECT 100MF	20%	6.3V	C520	1-135-130-11	TANTAL. CHIP 4.7MF	
C210	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	C521	1-163-038-00	CERAMIC CHIP 0.1MF	
C211	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	C522	1-135-157-21	TANTAL. CHIP 22MF	
C213	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V	C523	1-163-117-00	CERAMIC CHIP 100PF	
C301	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V	C524	1-135-157-21	TANTAL. CHIP 22MF	
C302	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V	C525	1-135-130-11	TANTAL. CHIP 4.7MF	
C303	1-135-162-21	TANTAL. CHIP 33MF	20%	4V	C526	1-163-081-00	CERAMIC CHIP 0.22MF	
C304	1-131-381-00	TANTALUM 47MF	10%	10V	C527	1-163-125-00	CERAMIC CHIP 220PF	
C305	1-135-162-21	TANTAL. CHIP 33MF	20%	4V	C528	1-135-162-21	TANTAL. CHIP 33MF	
C306	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V	C529	1-163-809-11	CERAMIC CHIP 0.047MF	
C307	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V	C530	1-163-023-00	CERAMIC CHIP 0.015MF	
C308	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V	C531	1-135-157-21	TANTAL. CHIP 22MF	
C401	1-124-225-00	ELECT 100MF	20%	6.3V	C532	1-163-009-11	CERAMIC CHIP 0.001MF	
C402	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	C533	1-163-989-11	CERAMIC CHIP 0.033MF	
C403	1-135-091-00	TANTAL. CHIP 1MF	20%	16V	C534	1-162-637-11	CERAMIC CHIP 0.47MF	
C404	1-135-174-11	TANTAL. CHIP 10MF	20%	10V	C535	1-163-009-11	CERAMIC CHIP 0.001MF	
C405	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V	C536	1-163-038-00	CERAMIC CHIP 0.1MF	
C406	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	C537	1-163-021-00	CERAMIC CHIP 0.01MF	
C407	1-135-162-21	TANTAL. CHIP 33MF	20%	4V			10%	50V

#### 5-4. MECHANISM SECTION (CDM-150)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	4-917-622-01	RETAINER, FLEXIBLE		211	4-921-294-01	RACK (A)	
202	4-917-611-01	SHAFT (A)		212	7-671-111-11	STEEL, BOUL 1.5MM	
203	X-4917-725-1	CHASSIS ASSY, MD		213	4-921-296-01	SPRING	
204	4-921-299-01	SCREW (1.7X8), SPECIAL		214	7-627-552-38	SCREW, PRECISION +P 1.7X3	
205	4-921-292-01	GEAR (B)		215	7-627-553-38	SCREW, PRECISION +P 2X3	
206	3-315-384-11	WASHER, STOPPER		910	A-8-848-096-11	DEVICE, OPTICAL KSS-165A	
208	4-921-290-01	SPRING		M901	A-3133-335-A	MOTOR ASSY, CLV (SPINDLE MOTOR)	
209	4-921-287-01	BRACKET, MOTOR		M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)	
210	4-912-432-01	SCREW (B1.4X5), TAPPING		S902	1-571-099-11	SWITCH (LIMIT)	

**Note:**  
The components identified by mark or dotted line with mark are critical for safety.  
Replace only with part number specified.

**Note:**  
Les composants identifiés par une marque  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			Ref.No.	Part No.	Description
C538	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	D412	8-719-100-05	DIODE 1S2837
C539	1-135-157-21	TANTAL. CHIP 10MF	20%	4V	D413	8-719-938-78	DIODE SB10-05PCP
C540	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D414	8-719-938-72	DIODE SB01-05CP
C541	1-163-038-00	CERAMIC CHIP 0.1MF		25V	D415	8-719-100-05	DIODE 1S2837
C542	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	D485	8-719-105-73	DIODE RD4.7M-B2
C543	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	D501	8-719-938-72	DIODE SB01-05CP
C545	1-131-381-00	TANTALUM CHIP 47MF	10%	10V	D502	8-719-938-72	DIODE SB01-05CP
C546	1-135-091-00	TANTAL. CHIP 1MF	20%	16V	D503	8-719-938-72	DIODE SB01-05CP
C547	1-135-174-11	TANTAL. CHIP 10MF	20%	10V	D504	8-719-938-72	DIODE SB01-05CP
C548	1-163-081-00	CERAMIC CHIP 0.22MF		25V	D801	8-719-100-05	DIODE 1S2837
C549	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V	D802	8-719-100-05	DIODE 1S2837
C550	1-162-638-11	CERAMIC CHIP 1MF		16V	D803	8-719-100-05	DIODE 1S2837
C551	1-163-038-00	CERAMIC CHIP 0.1MF		25V	D804	8-719-100-05	DIODE 1S2837
C552	1-163-038-00	CERAMIC CHIP 0.1MF		25V	D805	8-719-938-72	DIODE SB01-05CP
C553	1-162-638-11	CERAMIC CHIP 1MF		16V	D806	8-719-938-72	DIODE SB01-05CP
C554	1-162-638-11	CERAMIC CHIP 1MF		16V	D807	8-719-100-05	DIODE 1S2837
C555	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	D808	8-719-938-72	DIODE SB01-05CP
C556	1-163-038-00	CERAMIC CHIP 0.1MF		25V	D809	8-719-100-05	DIODE 1S2837
C557	1-135-174-11	TANTAL. CHIP 10MF	20%	10V	D810	8-719-105-91	DIODE RD5.6M-B2
C558	1-135-091-00	TANTAL. CHIP 1MF	20%	16V	D811	8-719-800-76	DIODE 1SS226
C559	1-163-133-00	CERAMIC CHIP 470PF	5%	50V	D813	8-719-100-03	DIODE 1S2835
C560	1-124-576-11	ELECT. CHIP 220MF	20%	4V	D814	8-719-100-05	DIODE 1S2837
C601	1-162-638-11	CERAMIC CHIP 1MF		16V	D816	8-719-970-11	DIODE SLM-125YW
C602	1-163-095-00	CERAMIC CHIP 12PF	5%	50V	D817	8-719-970-11	DIODE SLM-125YW
C603	1-163-095-00	CERAMIC CHIP 12PF	5%	50V	D818	8-719-970-11	DIODE SLM-125YW
C604	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D819	8-719-970-11	DIODE SLM-125YW
C605	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D820	8-719-970-11	DIODE SLM-125YW
C606	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D821	8-719-970-11	DIODE SLM-125YW
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	D822	8-719-106-70	DIODE RD12M-B1
C801	1-135-157-21	TANTAL. CHIP 22MF	20%	4V	D823	8-719-106-70	DIODE RD12M-B1
C802	1-163-038-00	CERAMIC CHIP 0.1MF		25V	D825	8-719-100-05	DIODE 1S2837
C803	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V	D826	8-719-100-05	DIODE 1S2837
C804	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V			
C805	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	IC301	8-759-983-79	IC PCM-66P
C806	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	IC302	8-759-630-75	IC M51568FP
C808	1-162-638-11	CERAMIC CHIP 1MF		16V	IC303	8-759-946-27	IC CXD1316DM
C809	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	IC501	8-752-033-55	IC CXA1271Q
C810	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	IC502	8-752-033-54	IC CXA1272Q-Z
C811	1-135-162-21	TANTAL. CHIP 33MF	20%	4V	IC503	8-759-970-89	IC BA10358F
C813	1-163-038-00	CERAMIC CHIP 0.1MF		25V	IC504	8-759-030-17	IC MPC1715FU
C814	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V	IC505	8-759-230-43	IC TC7S04F
C815	1-162-637-11	CERAMIC CHIP 0.47MF		16V	IC601	8-759-947-02	IC CXD1125Q
C816	1-163-038-00	CERAMIC CHIP 0.1MF		25V	IC602	8-752-323-65	IC CXK5816M-15L
C817	1-163-038-00	CERAMIC CHIP 0.1MF		25V	IC801	8-752-808-85	IC CXP5086-047Q
C818	1-163-038-00	CERAMIC CHIP 0.1MF		25V	IC802	8-759-700-90	IC NJM2901M
C819	1-135-174-11	TANTAL. CHIP 10MF	20%	10V	J301	1-563-280-21	JACK (LINE OUT)
CN401	1-535-608-21	TERMINAL, BATTERY			J302	1-563-280-11	JACK (PHONES)
CN501	1-563-546-11	HOUSING, CONNECTOR 12P			J401	1-562-961-11	JACK (DC IN 9V)
CN502	1-563-552-11	SOCKET, CONNECTOR 4P			J801	1-563-280-31	JACK (REMOTE)
D401	8-719-938-78	DIODE SB10-05PCP			JR802	1-216-296-00	METAL GLAZE 0 5% 1/8W
D403	8-719-100-05	DIODE 1S2837			JR804	1-216-296-00	METAL GLAZE 0 5% 1/8W
D405	8-719-938-75	DIODE SB05-05CP			L402	1-412-142-11	INDUCTOR CHIP 100UH
D406	8-719-100-05	DIODE 1S2837			L403	1-412-031-11	INDUCTOR CHIP 47UH
D407	8-719-105-63	DIODE RD4.3M-B1			L501	1-412-029-11	INDUCTOR CHIP 10UH
D408	8-719-800-76	DIODE 1SS226			L502	1-412-142-11	INDUCTOR CHIP 100UH
D409	8-719-938-78	DIODE SB10-05PCP			L503	1-412-032-21	INDUCTOR CHIP 100UH
D410	8-719-800-76	DIODE 1SS226			L504	1-412-142-11	INDUCTOR CHIP 100UH
D411	8-719-100-05	DIODE 1S2837			L505	1-412-142-11	INDUCTOR CHIP 100UH

Ref. No.	Part No.	Description					
Ref. No.	Part No.	Description					
M901	A-3133-335-A	MOTOR ASSY. CLV (SPINDLE MOTOR)					
M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)					
ND801	1-808-290-11	LCD MODULE					
Q101	8-729-159-64	TRANSISTOR 2SD596					
Q201	8-729-159-64	TRANSISTOR 2SD596					
Q301	8-729-159-64	TRANSISTOR 2SD596					
Q401	8-729-162-43	TRANSISTOR 2SB624-BV3					
Q402	8-729-100-66	TRANSISTOR 2SC1623					
Q403	8-729-901-00	TRANSISTOR DTC124EK					
Q405	8-729-100-75	TRANSISTOR 2SA812-M5					
Q406	8-729-159-64	TRANSISTOR 2SD596					
Q407	8-729-162-43	TRANSISTOR 2SB624-BV3					
Q408	8-729-903-10	TRANSISTOR FMWI					
Q409	8-729-101-07	TRANSISTOR 2SB798					
Q410	8-729-901-03	TRANSISTOR DTC144WK					
Q411	8-729-901-00	TRANSISTOR DTC124EK					
Q412	8-729-207-55	TRANSISTOR RNI401					
Q413	8-729-100-66	TRANSISTOR 2SC1623					
Q414	8-729-901-05	TRANSISTOR DTA124EK					
Q415	8-729-901-03	TRANSISTOR DTC144WK					
Q416	8-729-901-00	TRANSISTOR DTC124EK					
Q417	8-729-101-07	TRANSISTOR 2SB798					
Q418	8-729-903-10	TRANSISTOR FMWI					
Q419	8-729-901-00	TRANSISTOR DTC124EK					
Q420	8-729-901-00	TRANSISTOR DTC124EK					
Q421	8-729-901-05	TRANSISTOR DTA124EK					
Q422	8-729-901-00	TRANSISTOR DTC124EK					
Q423	8-729-116-06	TRANSISTOR 2SK160-K6					
Q424	8-729-901-00	TRANSISTOR DTC124EK					
Q425	8-729-100-05	TRANSISTOR 2SA812-M5					
Q426	8-729-901-05	TRANSISTOR DTA124EK					
Q427	8-729-100-05	TRANSISTOR 2SA812-M5					
Q428	8-729-902-96	TRANSISTOR FMWI					
Q429	8-729-903-10	TRANSISTOR FMWI					
Q430	8-729-116-06	TRANSISTOR 2SK160-K6					
Q431	8-729-101-07	TRANSISTOR 2SB798					
Q432	8-729-901-00	TRANSISTOR DTC124EK					
Q433	8-729-101-07	TRANSISTOR 2SB798					
Q435	8-729-162-43	TRANSISTOR 2SB624-BV3					
Q501	8-729-402-90	TRANSISTOR XN4609					
Q502	8-729-162-44	TRANSISTOR 2SB624-BV4					
Q503	8-729-271-23	TRANSISTOR 2SC2712					
Q504	8-729-271-23	TRANSISTOR 2SC2712					
Q801	8-729-901-00	TRANSISTOR DTC124EK					
Q803	8-729-920-28	TRANSISTOR FMG9					
Q804	8-729-901-05	TRANSISTOR DTA124EK					
Q805	8-729-159-64	TRANSISTOR 2SD596					
Q806	8-729-901-05	TRANSISTOR DTA124EK					
Q807	8-729-907-39	TRANSISTOR IMD2					
Q808	8-729-901-06	TRANSISTOR DTA144EK					
Q809	8-729-901-05	TRANSISTOR DTA124EK					
Q810	8-729-159-64	TRANSISTOR 2SD596					
R101	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W		
R102	1-216-683-11	METAL CHIP	22K	0.50%	1/10W		
R103	1-216-833-11	METAL GLAZE	10K	5%	1/16W		
R104	1-216-683-11	METAL CHIP	22K	0.50%	1/10W		
R105	1-216-699-11	METAL CHIP	100K	0.50%	1/10W		
R106	1-216-699-11	METAL CHIP	100K	0.50%	1/10W		
R107	1-216-748-11	METAL GLAZE	39K	5%	1/10W		
R108	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W		
R109	1-216-833-11	METAL GLAZE	10K	5%	1/16W		
R110	1-216-009-00	METAL GLAZE	22	5%	1/10W		
R111	1-216-073-00	METAL GLAZE	10K	5%	1/10W		
R112	1-216-033-00	METAL GLAZE	220	5%	1/10W		
R113	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W		
R114	1-216-097-00	METAL GLAZE	100K	5%	1/10W		
R201	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W		
R202	1-216-683-11	METAL CHIP	22K	0.50%	1/10W		
R203	1-216-833-11	METAL GLAZE	10K	5%	1/16W		
R204	1-216-683-11	METAL CHIP	22K	0.50%	1/10W		
R205	1-216-699-11	METAL CHIP	100K	0.50%	1/10W		
R206	1-216-699-11	METAL CHIP	100K	0.50%	1/10W		
R207	1-216-748-11	METAL GLAZE	39K	5%	1/10W		
R208	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W		
R209	1-216-833-11	METAL GLAZE	10K	5%	1/16W		
R210	1-216-009-00	METAL GLAZE	22	5%	1/10W		
R211	1-216-073-00	METAL GLAZE	10K	5%	1/10W		
R212	1-216-033-00	METAL GLAZE	220	5%	1/10W		
R213	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W		
R214	1-216-845-11	METAL GLAZE	100K	5%	1/16W		
R301	1-216-298-00	METAL GLAZE	2.2	5%	1/10W		
R302	1-216-013-00	METAL GLAZE	33	5%	1/10W		
R303	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W		
R401	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W		
R403	1-216-089-00	METAL GLAZE	47K	5%	1/10W		
R404	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W		
R405	1-216-106-00	METAL GLAZE	240K	5%	1/10W		
R406	1-216-081-00	METAL GLAZE	22K	5%	1/10W		
R408	1-216-045-00	METAL GLAZE	680	5%	1/10W		
R409	1-216-041-00	METAL GLAZE	470	5%	1/10W		
R410	1-216-045-00	METAL GLAZE	680	5%	1/10W		
R411	1-216-041-00	METAL GLAZE	470	5%	1/10W		
R412	1-216-092-00	METAL GLAZE	62K	5%	1/10W		
R413	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W		
R414	1-216-081-00	METAL GLAZE	22K	5%	1/10W		
R415	1-216-049-00	METAL GLAZE	1K	5%	1/10W		
R416	1-216-033-00	METAL GLAZE	220	5%	1/10W		
R417	1-216-658-11	METAL CHIP	2K	0.50%	1/10W		
R418	1-216-664-11	METAL CHIP	3.6K	0.50%	1/10W		
R419	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W		
R420	1-216-095-00	METAL GLAZE	82K	5%	1/10W		
R421	1-216-041-00	METAL GLAZE	470	5%	1/10W		
R422	1-216-041-00	METAL GLAZE	470	5%	1/10W		
R423	1-216-073-00	METAL GLAZE	10K	5%	1/10W		
R426	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W		
R427	1-217-806-11	METAL GLAZE	1	5%	1/8W		
R428	1-217-806-11	METAL GLAZE	1	5%	1/8W		
R429	1-216-075-00	METAL GLAZE	12K	5%	1/10W		
R430	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		
R435	1-216-049-00	METAL GLAZE	1K	5%	1/10W		
R436	1-216-049-00	METAL GLAZE	1K	5%	1/10W		
R437	1-216-081-00	METAL GLAZE	22K	5%	1/10W		
R438	1-216-041-00	METAL GLAZE	470	5%	1/10W		
R439	1-216-049-00	METAL GLAZE	1K	5%	1/10W		
R440	1-216-081-00	METAL GLAZE	22K	5%	1/10W		

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description				
R441	1-216-049-00	METAL GLAZE	1K	5%	1/10W		R802	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R442	1-216-017-00	METAL GLAZE	47	5%	1/10W		R803	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R443	1-216-041-00	METAL GLAZE	470	5%	1/10W		R804	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R444	1-216-324-11	METAL GLAZE	10K	1%	1/10W		R805	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R501	1-216-024-00	METAL GLAZE	91	5%	1/10W		R806	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R502	1-216-079-00	METAL GLAZE	18K	5%	1/10W		R807	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R503	1-216-075-00	METAL GLAZE	12K	5%	1/10W		R808	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R504	1-216-073-00	METAL GLAZE	10K	5%	1/10W		R809	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R506	1-216-081-00	METAL GLAZE	22K	5%	1/10W		R810	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W		R812	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R508	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W		R815	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W		R816	1-218-163-11	METAL GLAZE	120K	1%	1/10W	
R510	1-216-150-00	METAL GLAZE	10	5%	1/8W		R817	1-216-694-11	METAL CHIP	62K	0.50%	1/10W	
R511	1-216-085-00	METAL GLAZE	33K	5%	1/10W		R818	1-216-329-11	METAL GLAZE	5.1K	1%	1/10W	
R512	1-216-081-00	METAL GLAZE	22K	5%	1/10W		R819	1-216-654-11	METAL CHIP	1.3K	0.50%	1/10W	
R513	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W		R820	1-216-653-11	METAL CHIP	1.2K	0.50%	1/10W	
R514	1-216-109-00	METAL GLAZE	330K	5%	1/10W		R821	1-216-086-00	METAL GLAZE	36K	5%	1/10W	
R515	1-216-073-00	METAL GLAZE	10K	5%	1/10W		R823	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R516	1-216-093-00	METAL GLAZE	68K	5%	1/10W		R824	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R517	1-216-845-11	METAL GLAZE	100K	5%	1/16W		R825	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R518	1-216-121-00	METAL GLAZE	1M	5%	1/10W		R826	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R519	1-216-844-11	METAL GLAZE	82K	5%	1/16W		R829	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R520	1-216-844-11	METAL GLAZE	82K	5%	1/16W		R831	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R521	1-216-081-00	METAL GLAZE	22K	5%	1/10W		R832	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R522	1-216-845-11	METAL GLAZE	100K	5%	1/16W		R833	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R523	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		R834	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R524	1-216-114-00	METAL GLAZE	510K	5%	1/10W		R835	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R525	1-216-073-00	METAL GLAZE	10K	5%	1/10W		R836	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R526	1-216-089-00	METAL GLAZE	47K	5%	1/10W		R837	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R527	1-216-687-11	METAL CHIP	33K	0.50%	1/10W		R838	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R528	1-216-103-00	METAL GLAZE	180K	5%	1/10W		R839	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R529	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W		R840	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R530	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		RV301	1-237-092-11	RES. VAR. CARBON 10K/10K (VOLUME)				
R531	1-216-121-00	METAL GLAZE	1M	5%	1/10W		RV401	1-237-325-11	RES. ADJ. METAL GLAZE 4.7K				
R532	1-216-687-11	METAL CHIP	33K	0.50%	1/10W		RV402	1-237-328-11	RES. ADJ. METAL GLAZE 47K				
R533	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W		RV501	1-230-869-11	RES. ADJ. METAL GLAZE 4.7K				
R534	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W		RV502	1-230-871-11	RES. ADJ. METAL GLAZE 22K				
R536	1-216-091-00	METAL GLAZE	56K	5%	1/10W		RV503	1-230-873-11	RES. ADJ. METAL GLAZE 47K				
R538	1-216-089-00	METAL GLAZE	47K	5%	1/10W		RV504	1-237-575-11	RES. ADJ. METAL GLAZE 1.0K				
R539	1-216-121-00	METAL GLAZE	1M	5%	1/10W		RV505	1-230-873-11	RES. ADJ. METAL GLAZE 47K				
R540	1-216-833-11	METAL GLAZE	10K	5%	1/16W		RV801	1-237-143-11	RES. ADJ. METAL GLAZE 10K				
R542	1-216-101-00	METAL GLAZE	150K	5%	1/10W		S801	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(■)				
R543	1-216-101-00	METAL GLAZE	150K	5%	1/10W		S802	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(▶/◀)				
R544	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W		S803	1-570-204-11	SWITCH, KEY BOARD (PLAY MODE)				
R545	1-216-081-00	METAL GLAZE	22K	5%	1/10W		S804	1-570-204-11	SWITCH, KEY BOARD (ENTER REMAIN)				
R546	1-216-748-11	METAL GLAZE	39K	5%	1/10W		S805	1-570-204-11	SWITCH, KEY BOARD (KEY MODE)				
R548	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W		S806	1-570-204-11	SWITCH, KEY BOARD (▶)				
R549	1-216-121-00	METAL GLAZE	1M	5%	1/10W		S807	1-570-204-11	SWITCH, KEY BOARD (◀)				
R550	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W		S808	1-570-397-11	SWITCH, SLIDE (◀ HOLD)				
R551	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W		S901	1-554-911-11	SWITCH, LEAF (DOOR)				
R552	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W		S902	1-571-099-11	SWITCH (LIMIT)				
R553	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W		X601	1-567-737-11	VIBRATOR, CRYSTAL (16.934MHz)				
R554	1-216-105-00	METAL GLAZE	220K	5%	1/10W		X801	1-577-064-11	VIBRATOR, CHIP CERAMIC (3.58MHz)				
R601	1-216-089-00	METAL GLAZE	47K	5%	1/10W								
R602	1-216-845-11	METAL GLAZE	100K	5%	1/16W								
R603	1-216-089-00	METAL GLAZE	47K	5%	1/10W								
R801	1-216-073-00	METAL GLAZE	10K	5%	1/10W								

ACCESSORY & PACKING MATERIAL

1-463-694-11 (Canadian)....ADAPTOR, AC (AC-930A)  
1-463-700-11 (UK).....ADAPTOR, AC (AC-930A)  
1-463-701-11 (Australian)...ADAPTOR, AC (AC-930A)  
1-463-702-11 (E).....ADAPTOR, AC (AC-950W)  
1-463-705-11 (AEP,Franch)...ADAPTOR, AC (AC-930AEP)  
1-463-968-11 (US).....ADAPTOR, AC (AC-940)  
  
1-526-565-00 (E)...AC PLUG ADAPTOR  
1-528-255-21 BATTERY PAC (BP-2)  
1-555-658-21 CORD, CONNECTION  
2-397-316-01 (EXCEPT for E)...SHEET, PROTECTION  
  
3-786-975-11 (AEP,UK,E,Australian,Franch)  
...MANUAL, INSTRUCTION  
3-786-975-21 (US,Canadian)...MANUAL, INSTRUCTION  
3-786-975-31 (Canadian).....MANUAL, INSTRUCTION  
3-786-975-41 (AEP).....MANUAL, INSTRUCTION  
  
\*4-926-125-01 CUSHION (UPPER)  
\*4-926-126-01 (US,Canadian,E)....CUSHION (LOWER)  
\*4-926-146-01 (AEP,UK,Australian,Franch)  
...CUSHION (LOWER)  
  
\*4-926-130-01 (US).....INDIVIDUAL CARTON  
\*4-926-132-01 (Canadian)....INDIVIDUAL CARTON  
\*4-926-134-01 (UK).....INDIVIDUAL CARTON  
\*4-926-137-01 (AEP,Australian,Franch)...INDIVIDUAL CARTON  
\*4-926-138-01 (E).....INDIVIDUAL CARTON  
  
4-926-143-01 CASE, CARRYING  
8-952-266-89 (US,UK,Franch)...HEADPHONE MDR-A1 OL/A SET