NAD SERVICE MANUAL

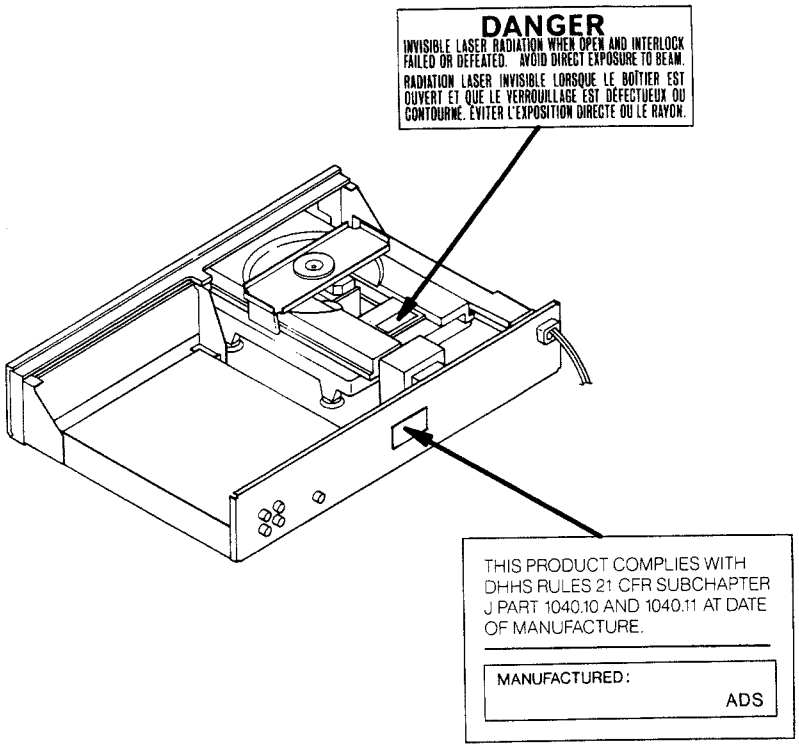
STARTING SERIAL NUMBER A 0X 50000001

MONITOR SERIES

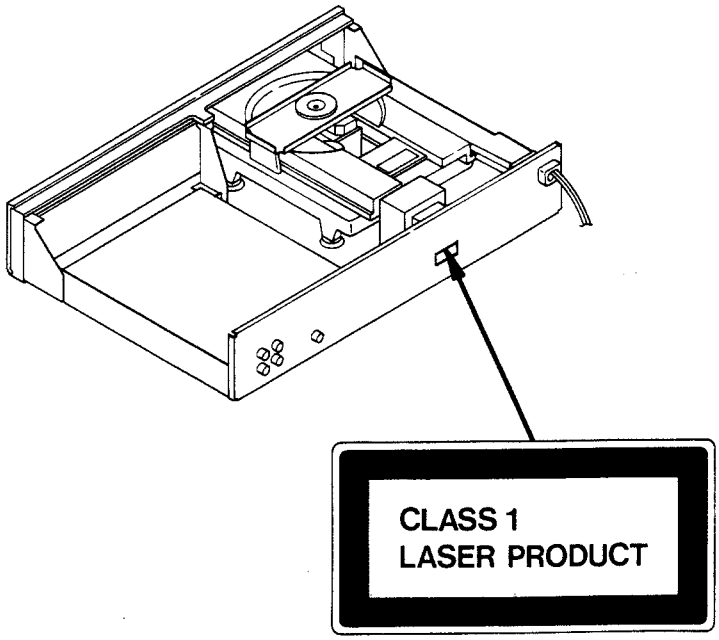
5000

COMPACT DISC PLAYER

SAFETY INFORMATION

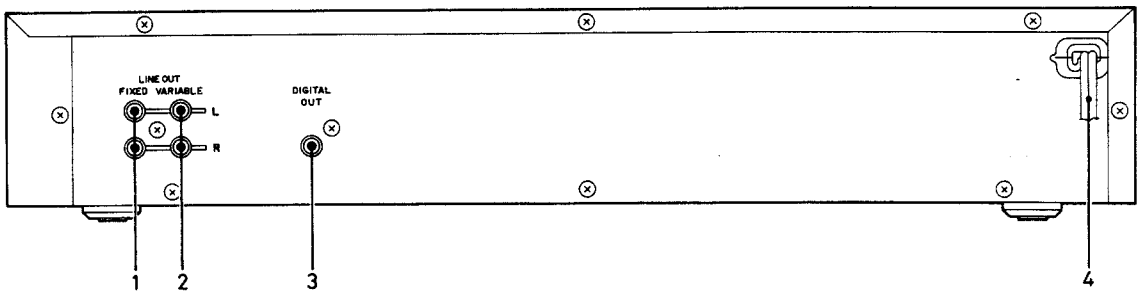


CAUTION



REAR PANEL

1. Fixed-level out put jacks.
2. Variable-level output jacks.
3. Digital output jack.
4. AC line cord.

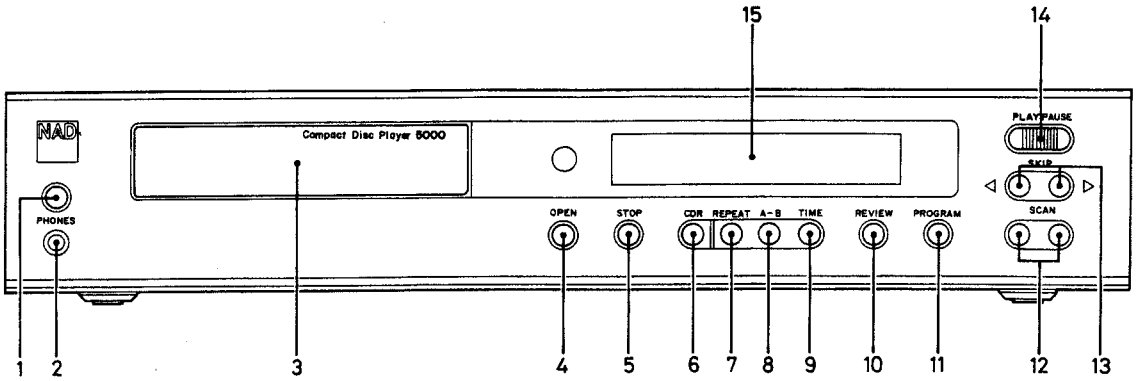


The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FRONT PANEL

1. Power on/off.
2. Headphones.
3. Disc drawer.
4. Open/close.
5. Stop.
6. CDR (controlled dynamic range).
7. Repeat.
8. Repeat A-B.
9. Time display selector.
10. Review.
11. Program mode.
12. Scan forward/back.
13. Skip forward/back.
14. Play/pause.
15. Display.



CONTENTS

SPECIFICATIONS

General

Sampling Frequency	: 44.1 kHz
Quantization Number	: 16 Bit Linear/Channel
Transmission Bit Rate	: 4.3218 MB/sec.
Error Correction	: CIRC C1, C2 Double Correction

Pick-up

System	: Object Lens Drive System Optical Pick-up
Object Lens Drive System	: 2-Dimensional Parallel Drive
Optical Source	: Semiconductor Laser
Wave Lenght	: 780 nm
Tracking System	: 3-Beam Tracking Servo Type

Others

D/A Converter	: MASH (Multi stage noise shaping modulation) Two separate 18 bit DAC built in 4-times over samplingdigital filter
Analog Filter	: 5 poles active

DISASSEMBLY

1. Remove nine screws (A) holding the metal cover.

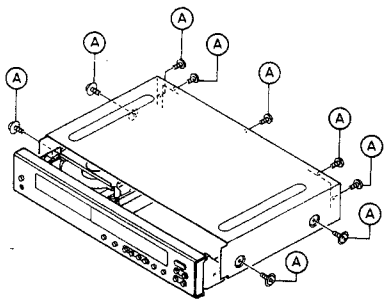


Figure 1

2. Turn power on and open tray.
   Remove tray cover.
   Close tray and turn power off.
3. Remove eight screws (B) holding the front panel.
4. Remove eight screws (C) holding the display switch PCB.

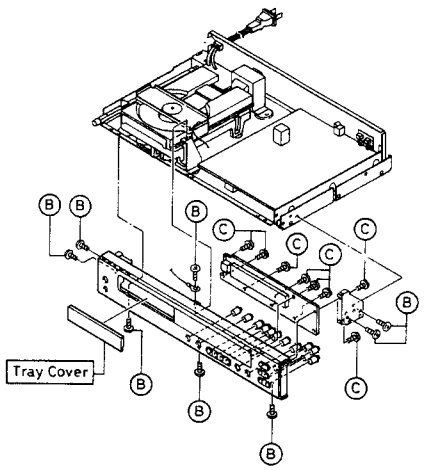


Figure 2

5. Remove five screws (D) holding the rear panel.
6. Remove six screws (E) holding the main PCB.
7. Remove three screws (F) holding the CD mechanism.
8. Remove two screws (G) holding the power supply PCB.

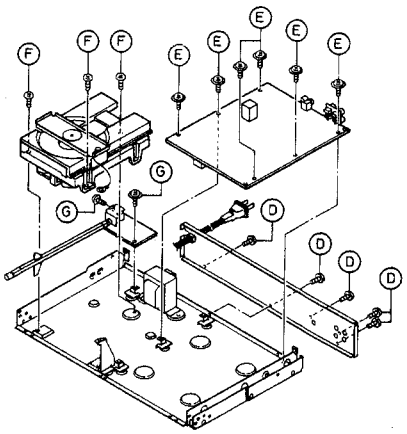


Figure 3

Electrical (at Fixed Output)

Test Item	Unit	Nomiral	Limit
Output Level (1 kHz, 0 dB)	(V)	2	+0.3/−0.1
Distortion and Noise at 1 kHz (with Filter 30 kHz, at 0 dB)	(%)	0.0045	0.006
S/N Ratio with Filter curve A	(dB)	105	95
Frequency Response 20 Hz-20 kHz	(dB)	+0/−0.3	+0/−0.5
Channel Separation 1 kHz-10 kHz	(dB)	110	95
De-emphasis Error 1 kHz-16 kHz	(dB)	±0.2	±0.8

Power Consumption : 16 W
Dimensions : Width 435 mm (17.13 in.)
: Height 83 mm (3.27 in.)
: Depth 298 mm (11.78 in.)
Net Weight : 4.5 kg (10 lb)

Note: Nominal specs represent the design specs: All units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet Limit specs.

SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations, marked "⚠".
2. Return lead dress to original position, and re-install protective covers.
3. Before returning to customer, test for shock hazard; use either method A or B:
   A. Leakage test, "cold" :
      1. Unplug AC cord; turn power switch ON.
      2. Connect one lead of High Voltage Insulation Tester to both prongs of AC plug.
      3. Touch other lead to all exposed metal parts.
      4. Impedance measurement must be 0.3 — 5.0 Megohms.
   B. Leakage test, "live" :
      1. Plug unit directly into AC outlet; do not use isolation transformer.
      2. Connect one lead of Leakage Current Tester to earth ground.
      3. Touch other lead to all exposed metal parts.
      4. Leakage measurement must be less than 0.5 milliamps.

INSTRUCTION FOR HANDLING OPTICAL SYSTEM BLOCK PICK-UP

Electrostatic breakdown of the laser diode in the optical system block may occur due to a potential difference caused by electrostatic charge accumulated on clothing, human body, etc.
A ground must be provided as follows to prevent any electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band (1 Mohm) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Work bench

Be sure to place a conductive sheet (1 Mohm) or copper plate with proper grounding on the work bench or other surface on which the pick-up is to be placed.

3. Because the static electricity charge on the clothing does not discharge through the body grounding band, do not let clothing contact the pick-up unit.

INCORRECT

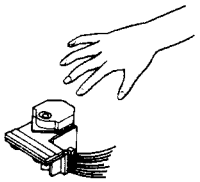


Figure 4

CORRECT

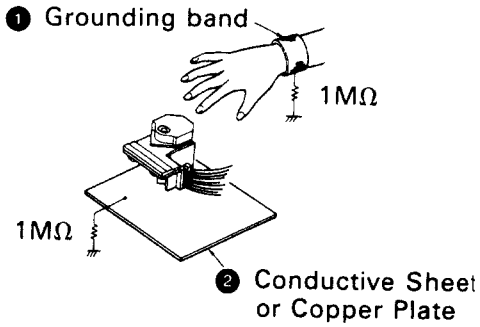


Figure 5

Note: Laser diodes are so susceptible to damage from static electricity that even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly.

PRECAUTIONS FOR CHECKING BEAM EMISSION OF LASER DIODE

The laser beam of this unit is focused on the reflecting surface of the objective lens in the optical system block. Therefore, keep your eyes at least 12 inches (30 cm) away from the objective lens when the laser diode is ON.
[Operation Check Method for Laser Diode and Focus Search Function]
When the POWER switch is turned ON after the chucking arm is removed, observe the objective lens and confirm that the following operations are performed properly.
(The optical system block should be at the lead-in area position when it is checked at this time.)
(1) The laser should be at the innermost position after the chucking arm is removed.
(2) The diffused light of the laser beam can be seen when the POWER switch is turned ON.
(3) Vertical (up and down) movement of the objective lens (2 or 3 times) will take place.

PICK-UP REPLACEMENT

Caution:

Laser diodes are extremely susceptible to damage from static electricity. Even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly. When replacing the pick-up, use a conductive mat, a grounded soldering iron, and so on, to protect the laser diode from static damage.

1. Remove the CD mechanism assembly by referring to Disassembly Instructions.

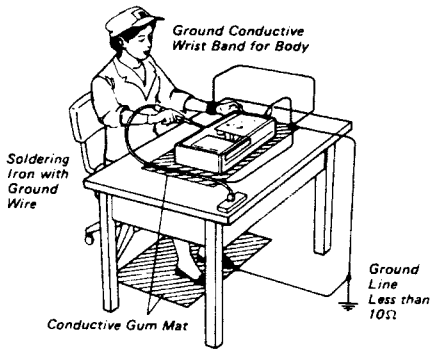


Figure 6

2. Remove two screws (A) holding the clamper base. (See Figure 7)

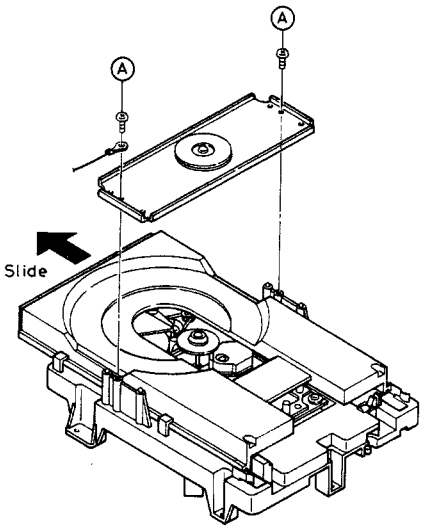


Figure 7

3. Turn loading gear clockwise with a small screwdriver (max. 1/ 2turn) while pulling the tray slightly. (See Figure 8)

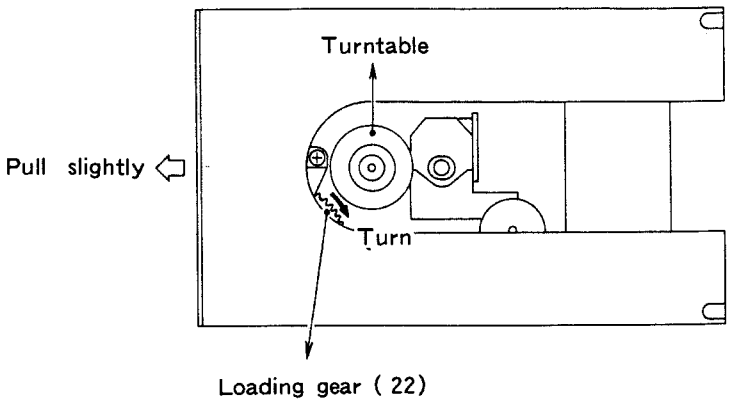


Figure 8

4. Remove washer Ⓓ holding the gear and remove the gear. (See Figure 9)

5. Remove two screws Ⓔ . (See Figure 9)

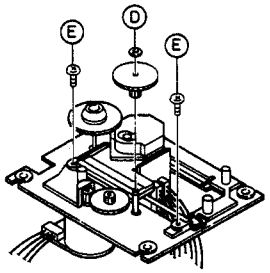


Figure 9

6. Take out the pick-up ①. Than pull out the shaft ②. (See Figure 10)

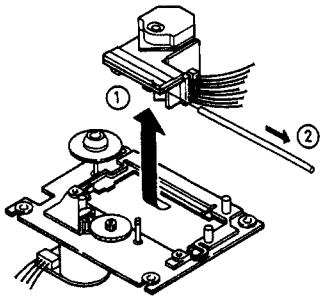


Figure 10

7. Place shorting round as shown in Figure 11 and remove both wire connectors.

8. Unpack new laser.

9. After you connect the wire connectors, desolder and remove the shorting tab. (See Figure 11)

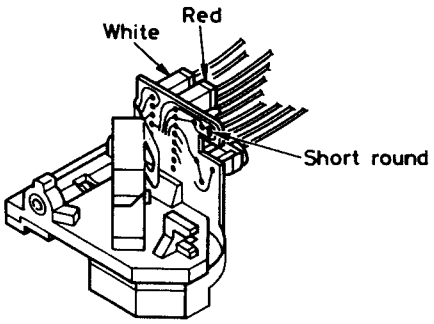


Figure 11

(Serial No. 50000001～50008200)

D-77-LMI

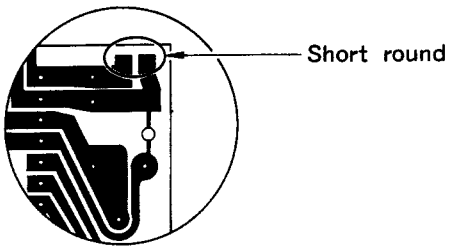


Figure 11－1

(Serial No. 50008201～)

KSS-210A

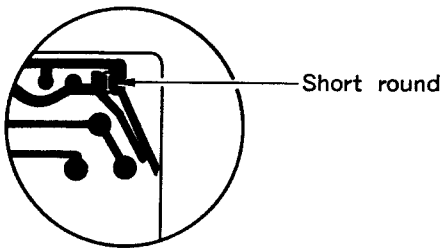


Figure 11－2

10. Replace shaft and pick－up.

11. Replace two screws Ⓔ .

12. Replace gear and washer Ⓓ .

13. Push tray back to the original position.

14. Replace two screws Ⓐ holding the clamper base.

15. Replace the c.d.mechanism.

16. Refer to the drawings of the exploded view of the compact disc mechanism on page 35 for detailed information.

ALIGNMENT PROCEDURES

Measuring instruments

Oscilloscope (Which has a bandwidth of 50 MHz or greater)
Audio frequency oscillator (AF-OSC)
Frequency counter (Counter)
Test disc : SONY YEDS-7
Special circuit

TEST MODE Setting Procedure and Key Operation on TEST MODE

Precedure :

TEST MODE is set after next operation.
After shorting TP115 (TMD) and TP114 (GND), push Power Switch on.

Key Operation on TEST MODE

Key No.

1	" OPEN "	: Open and close the tray.
2	" STOP "	: Reset and initialize.
3	" CDR "	: Set the pick-up to the home position.
4	" REPEAT "	: Emit the power and start focus searching.
5	" A-B "	: Start the disc motor.
6	" TIME "	: Switch the tracking servo on/off.
7	" REVIEW "	: Switch the sled servo on/off.
8	" PROGRAM "	: Move the sled motor forward.
9	" SCAN "	: 10-Track jump forward.
10	" SCAN "	: 10-Track jump backward.
11	" SKIP "	: 100-Track jump forward.
12	" SKIP "	: 100-Track jump backward.

Main PCB Test Points

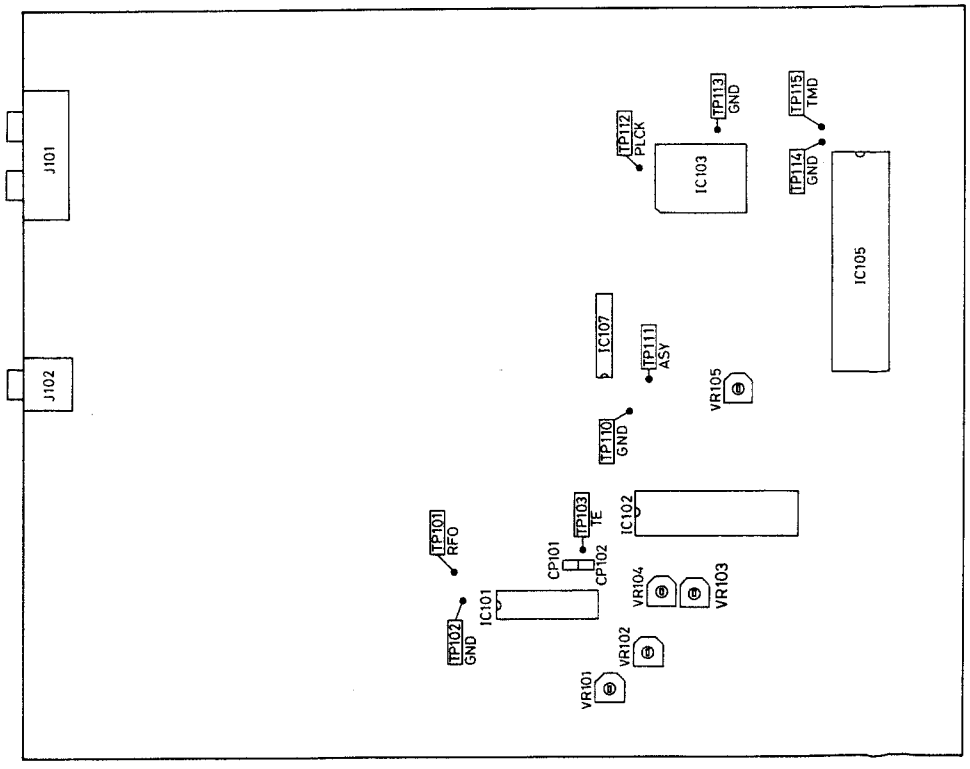


Figure 12

Special Circuit

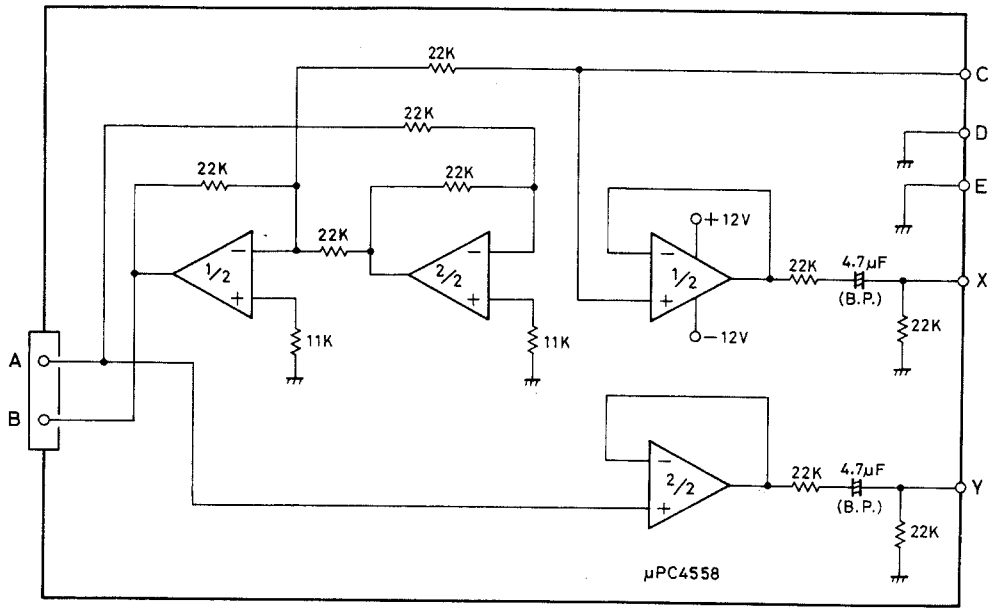


Figure 13

Focus and Tracking Gain Setting

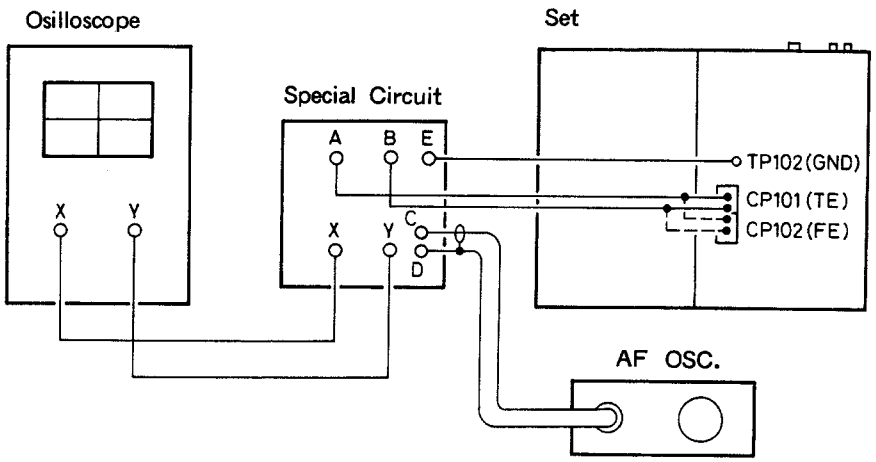


Figure 14

Adjustment of Focus Offset

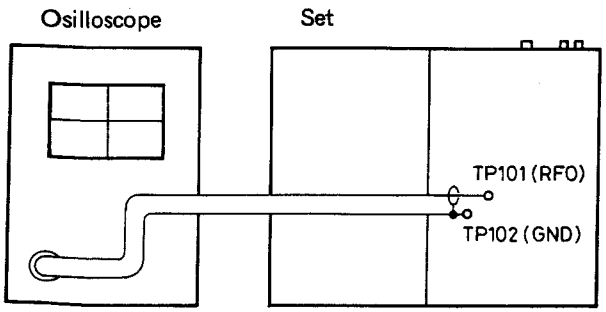


Figure 15

Adjustment of E-F Balance

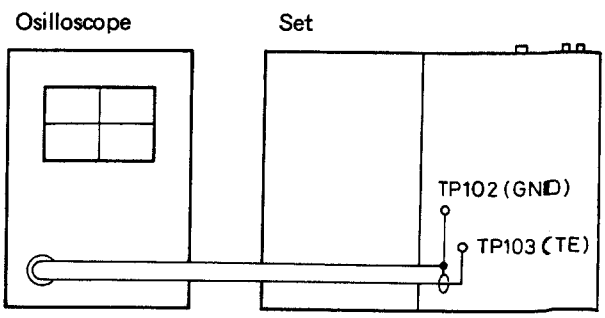


Figure 16

Adjustment of PLL

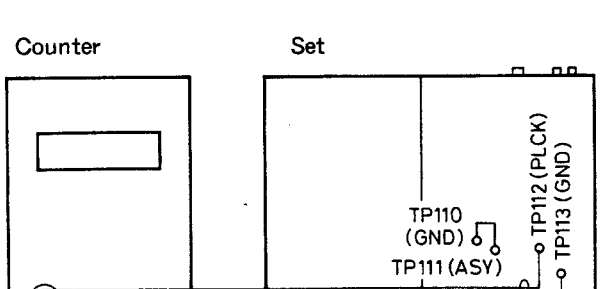


Figure 17

Adjustment of Focus Servo

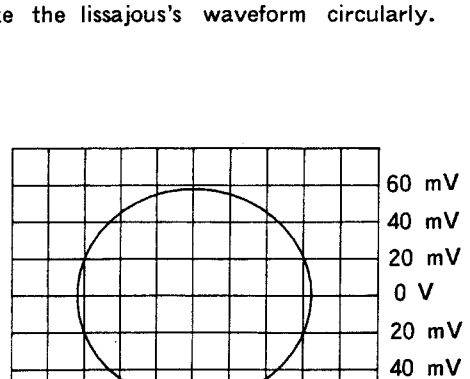
Focus Gain Setting

1. Remove the short ring from CP102 of the set.
2. Connect oscilloscope, special circuit (Figure 13), AF—OSC and the set as shown Figure 14.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE (Ref. TEST MODE setting procedure and Key operation on TEST MODE).

5—1. Apply the sine wave signal of 1.8 kHz, about 150 mVrms from the AF—OSC.
(Audio technica Pick—up : Serial No. 50000001～50008200)

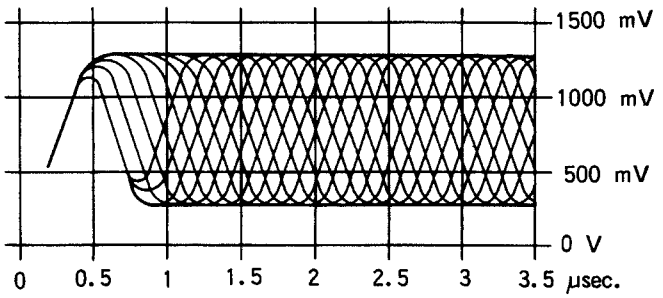
5—2. Apply the sine wave signal of 1.3 kHz, about 100 mVrms from the AF—OSC.
(Sony Pick—up : Serial No. 50008201～)

6. Adjust VR103 to make the lissajous's waveform circularly.



Adjustment of Focus Offset

1. Join CP102 of the set with the shortring.
2. Connect oscilloscope to the set as shown Figure 15.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE.
5. Adjust VR102 to make the eye patterns which has the maximum amplitude and the biggest diamond windows.



The above is an example of good eye pattern.
The diamond windows in the center portion are large and clear.

Adjustment of Tracking Servo

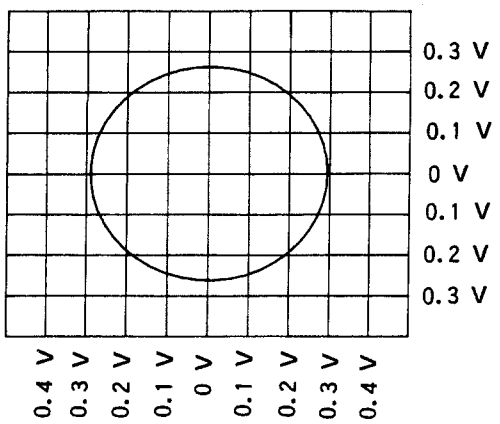
Tracking Gain Setting

1. Remove the shortring from CP101 of the set.
2. Connect oscilloscope, special circuit (Figure 13), AF—OSC and the set as shown Figure 14.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 7 in order of Key No. on TEST MODE.

5—1. Apply the sine wave signal of 1.6 kHz, about 500 mVrms from the AF—OSC.
(Audio technica Pick—up : Serial No. 50000001～50008200)

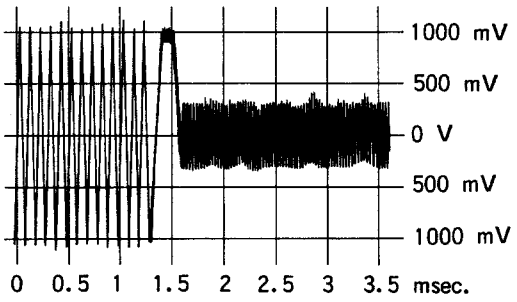
5—2. Apply the sine wave signal of 1.15 kHz, about 400 mVrms from the AF—OSC.
(Sony Pick—up : Serial No. 50008201～)

6. Adjust VR104 to make the lissajous's waveform circularly.



Adjustment of E-F Balance

1. Join the shortring to CP101 of the set.
2. Connect oscilloscope to the set as shown Figure 16.
3. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
4. Press Key from No. 1 to No. 6 in order of Key No. on TEST MODE and Tracking servo off.
5. Adjust VR101 to make the waveform symmetrically on the oscilloscope screen.



Adjustment of PLL (Phase Lock Loop)

1. Short TP110 (GND) and TP111 (ASY) of the set and connect frequency counter to the set as shown Figure 17.
2. Make the set to TEST MODE and load the test disc (SONY YEDS-7 which has no damage) on the tray.
3. Press Key from No. 1 to No. 3 in order of Key No. on TEST MODE.
4. Adjust VR105 to show the counter reading is about 4.32 MHz.
5. Open TP110 and TP111 of the set and press Key from No. 4 to No. 7 in order of Key No. on TEST MODE.
6. Reconfirm the counter reading is within 4.3218 MHz ±0.0025 MHz.

TROUBLE SHOOTING GUIDE

Connect TP 114 and TP 115 with a wire.

Set the power switch to on.

Is the display as Fig. 1?

No

- Check the power supply lines.
- Check the circuit around the μ-com.
- IC 105 is defective.

Yes

This set is in TEST MODE. Each keys work as table 1.

Does the tray operation work correctly?

No

Yes

Load a CD and press " OPEN " key to close the tray.

Push the " CDR " key to set the pick-up at the home position.

Does the " CDR " indication on the FL display disappear soon?

No → B

Yes

Press the " REPEAT " key to make focus seavo on.

Does the " REPEAT " indication light up?

No → C

Yes

(Focus servo on)

Press " A-B " key to make all the servo on.

Is waveform at TP 101 of IC 101 as Fig. 2 ?

No → D

Yes

Are track No., index and time displayed on the FL?

No → E

Yes

Is audio signal present at the output terminals?

No → F

Yes

Press " SKIP ▷/◁ " or " SCAN ▷/◁ " keys.

Can the tracks be sent smoothly ?

No → G

Yes

O K

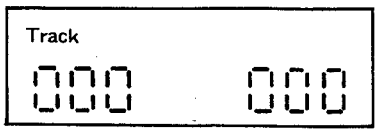


Fig. 1

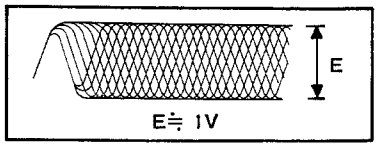


Fig. 2

Test Mode Table 1

KEY	FUNCTION
OPEN	Open and close the tray.
STOP	Reset and initialize.
CDR	Set the pick-up to the home position.
REPEAT	Emit the laser power and start focus searching.
A–B	Start the disc motor.
TIME	Switch the tracking servo on/off.
REVIEW	Switch the sled servo on/off.
PROGRAM	Move the sled motor forward.
SCAN▷ ◁ SCAN	10-Track jump forward/back.
SKIP▷ ◁ SKIP	100-Track jump forward/back.

[Repair Item (A)] Tray operation does not work correctly.

Check the state of IC 105 pin 25 and pin 26.

	Pin 25	Pin 26
Tray in	H	L
Tray out	L	H
Half way	H	H

No → · Check power supply lines.
· Tray limit switches are defective.

Yes ↓

Check the state of IC 105 pin 51 and pin 55.

Push " OPEN " key	Pin 51	Pin 55
Tray close mode	H	L
Tray open mode	L	H

No → · IC 105 is defective.

Yes ↓

Check the voltage of IC 106 pin 2 and pin 10.

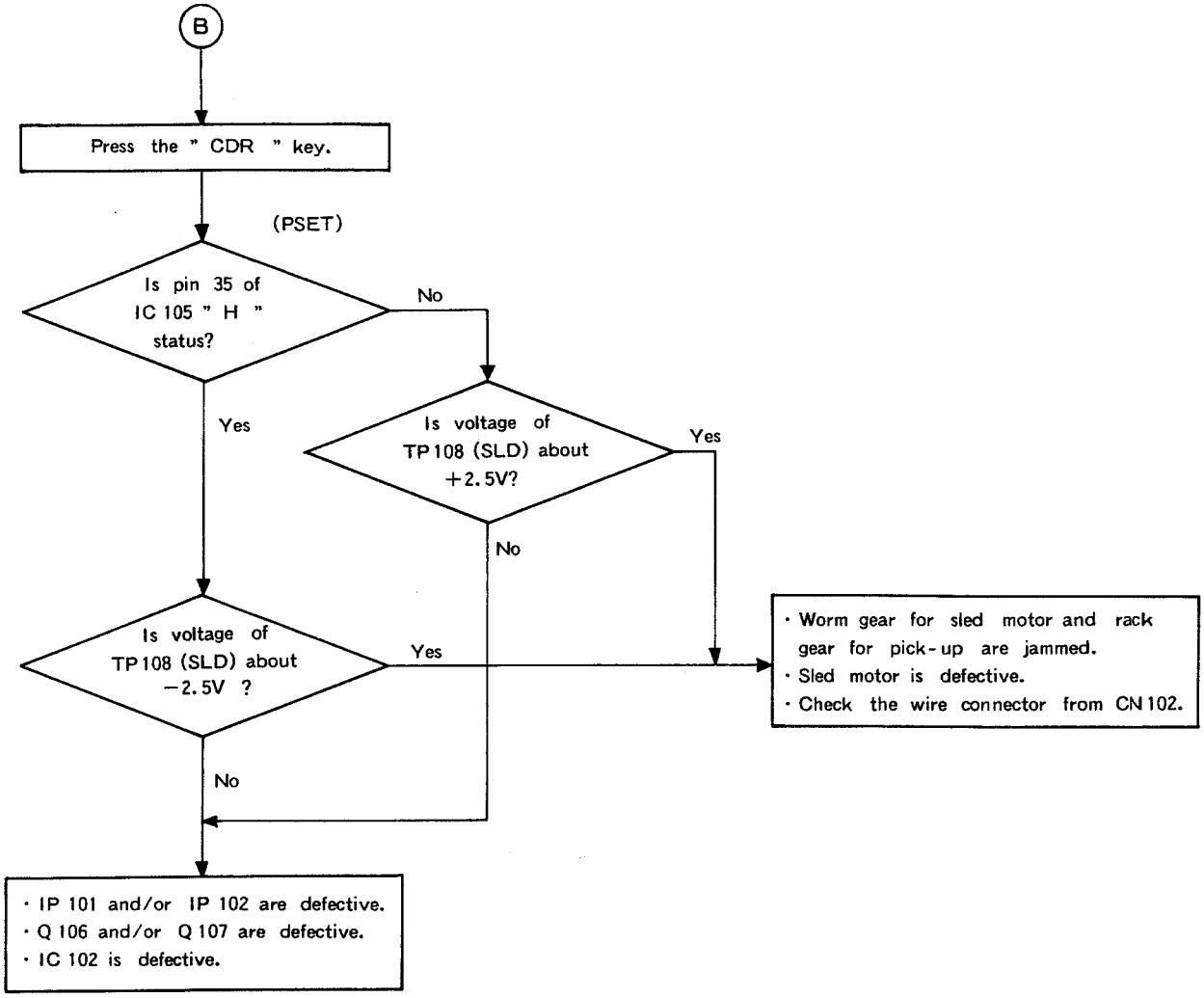
Push " OPEN " key	Pin 2	Pin 10
Tray close mode	6.0V	0V
Tray open mode	0V	6.0V

No → · IC 106 is defective.

Yes ↓

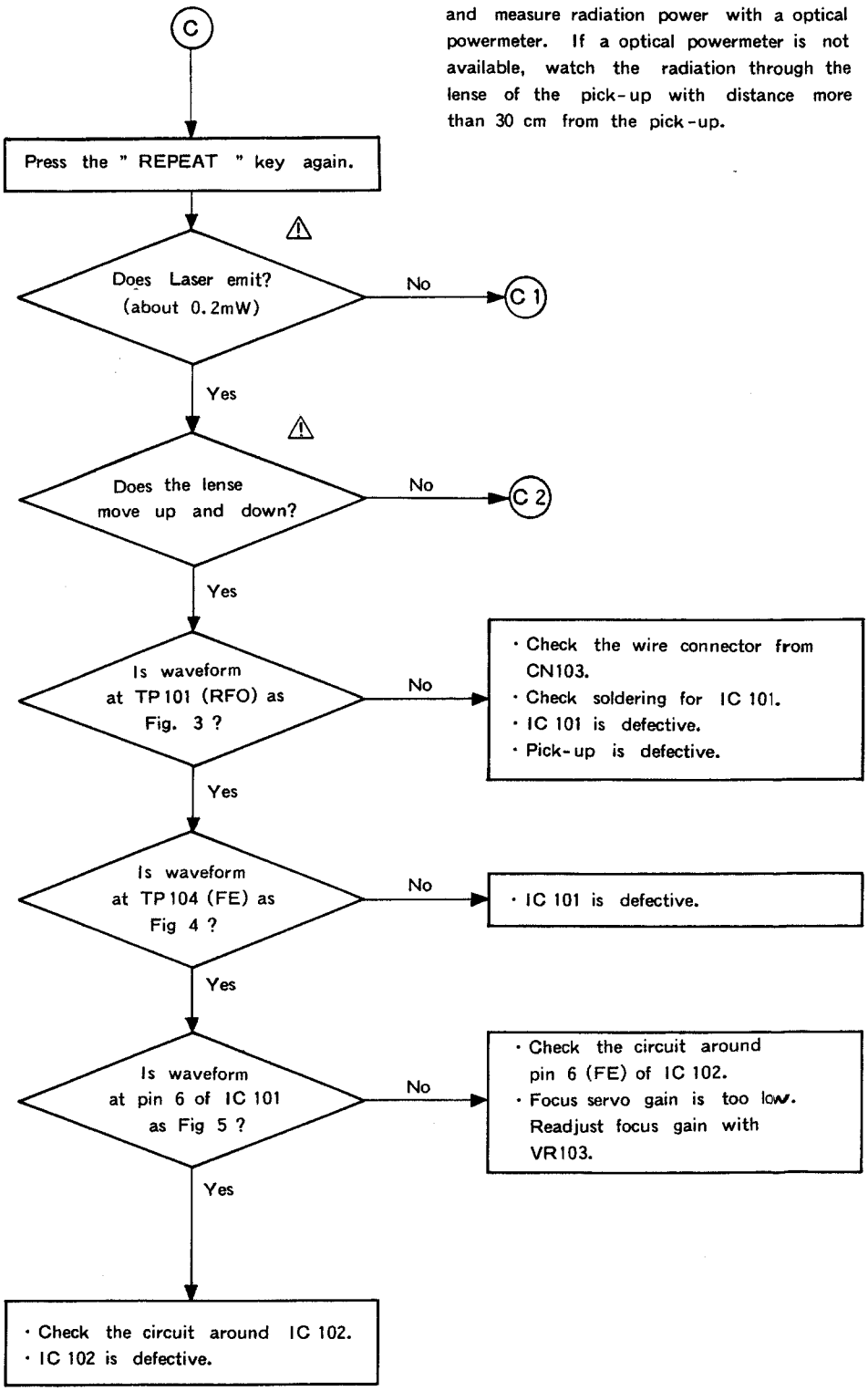
Check the loading motor of the mechanism.

[Repair Item (B)] The pick-up can not be set at the home position.



[Repair Item (C)] The Set can not start focus servo.

⚠Take off the tray and the clamper arm, and measure radiation power with a optical powermeter. If a optical powermeter is not available, watch the radiation through the lense of the pick-up with distance more than 30 cm from the pick-up.



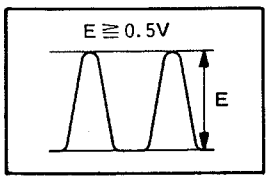


Fig. 3

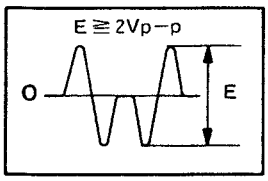


Fig. 4

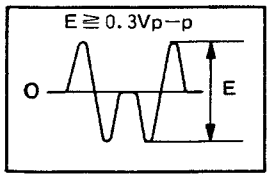
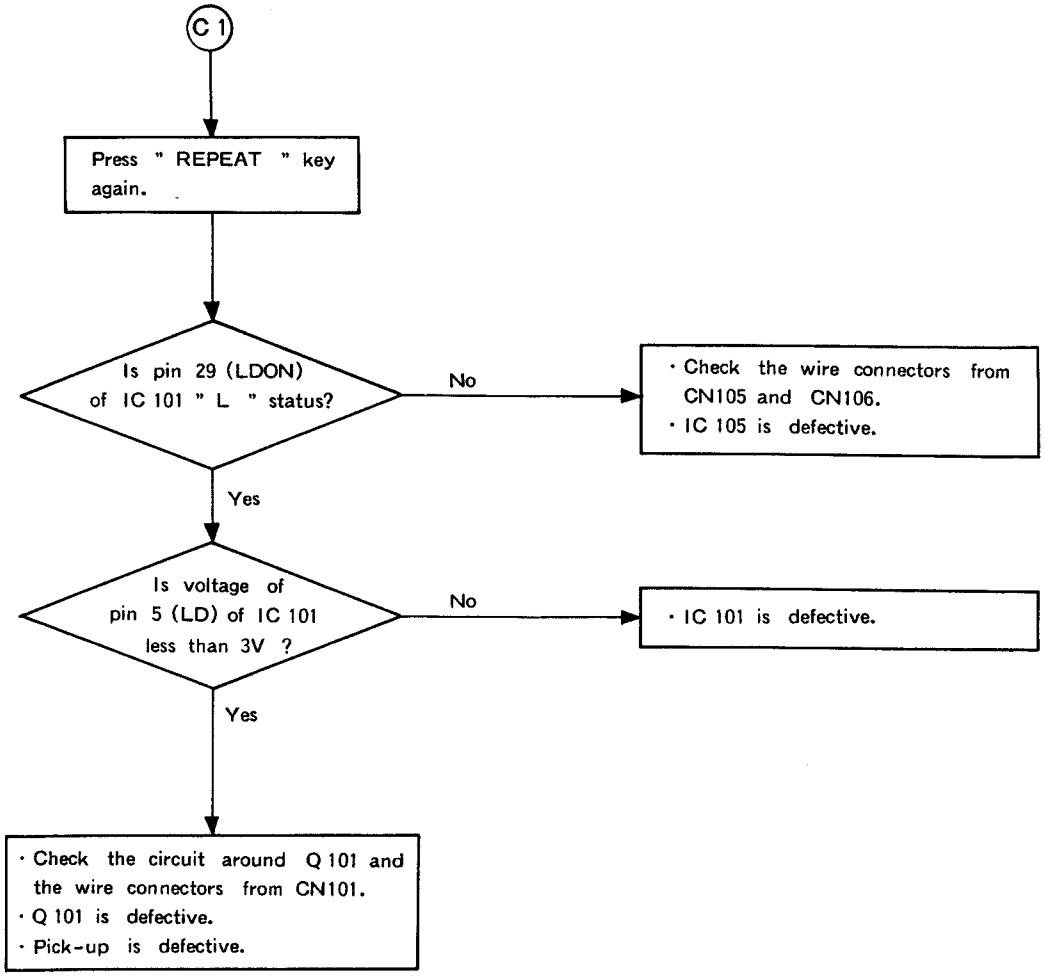
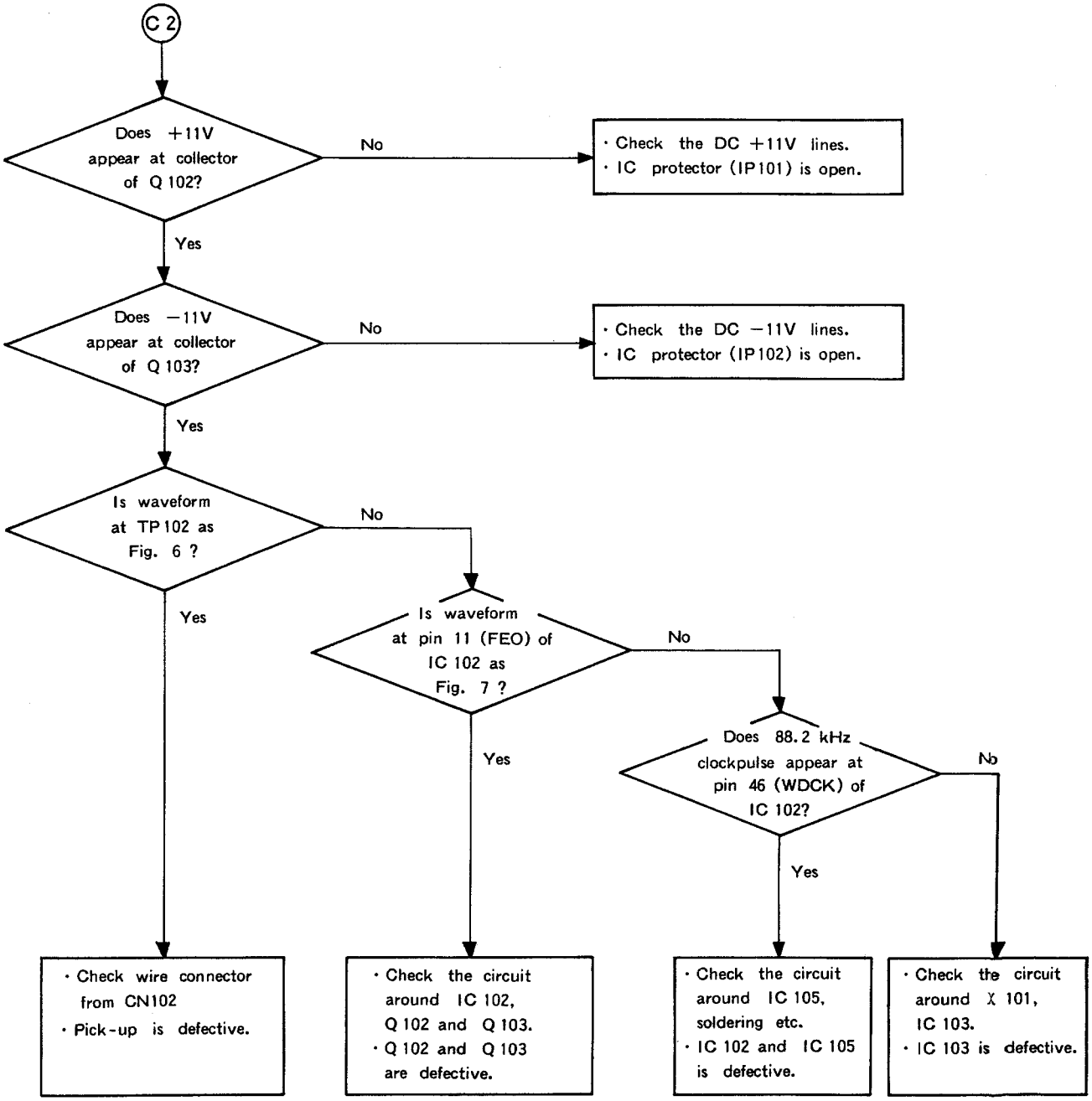


Fig. 5

[Repair Item (C 1)] Laser does not emit.



[Repair Item (C 2)] The lense of the pick-up does not move up and down.



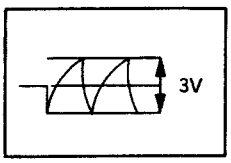


Fig. 6

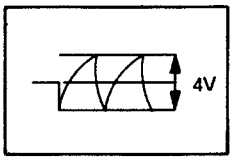


Fig. 7

[Repair Item (D)] RF wave form is wrong.

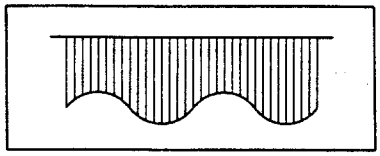


Fig. 8

(D)

Press the keys;
" STOP "→" CDR "→" REPEAT "
→" A−B " again.
Then check the followings.

Is RF level more than 0.8Vp−p ?

No → · Check the circuit around pin 1 and pin 2 of IC 101.
· Check the laser drive circuit.
· Readjust VR103 (Focus-bias).
· Pick-up is defective.

Yes

Is waveform at TP101 of IC 101 as Fig. 8 ?

No → (back to Is RF level)

Yes

Is " TIME " indication of FL displayed ?

No → · Press the " TIME " key to display " TIME " indication.

Yes

Is waveform at TP103 (TE) as Fig. 9 ?

No → · Check the wire connector from CN103.
· IC 101 is defective.

Yes

Is waveform at pin 3 (TE) of IC 102 as Fig. 10 ?

No → · Check the circuit of " TE " lines.
· Tracking gain is too low. Readjust.

Yes

Is waveform at pin 17 (TAO) of IC 102 as Fig. 11 ?

No → Is pin 2 (DEFECT) of IC 102 " H " status ?

No → · IC 102 is defective.

Yes → · Check the circuit around IC 101.
· IC 101 is defective.

Yes

Is waveform at TP105 (TRD) as Fig. 12 ?

No → · Check Q 104, Q 105 and circuit around them.

Yes → · Check the wire connector from CN102 and PCB of pick-up unit.
· Tracking offset adjustment is not good.
· Pick-up is defective.

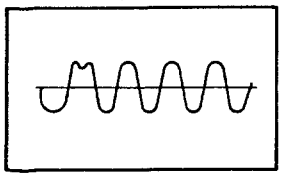


Fig. 9

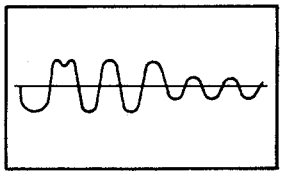


Fig. 10

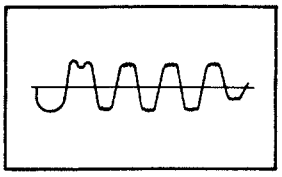


Fig. 11

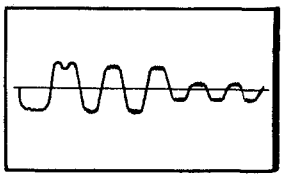


Fig. 12

[Repair Item (E)] Sub code data can not be read and displayed.

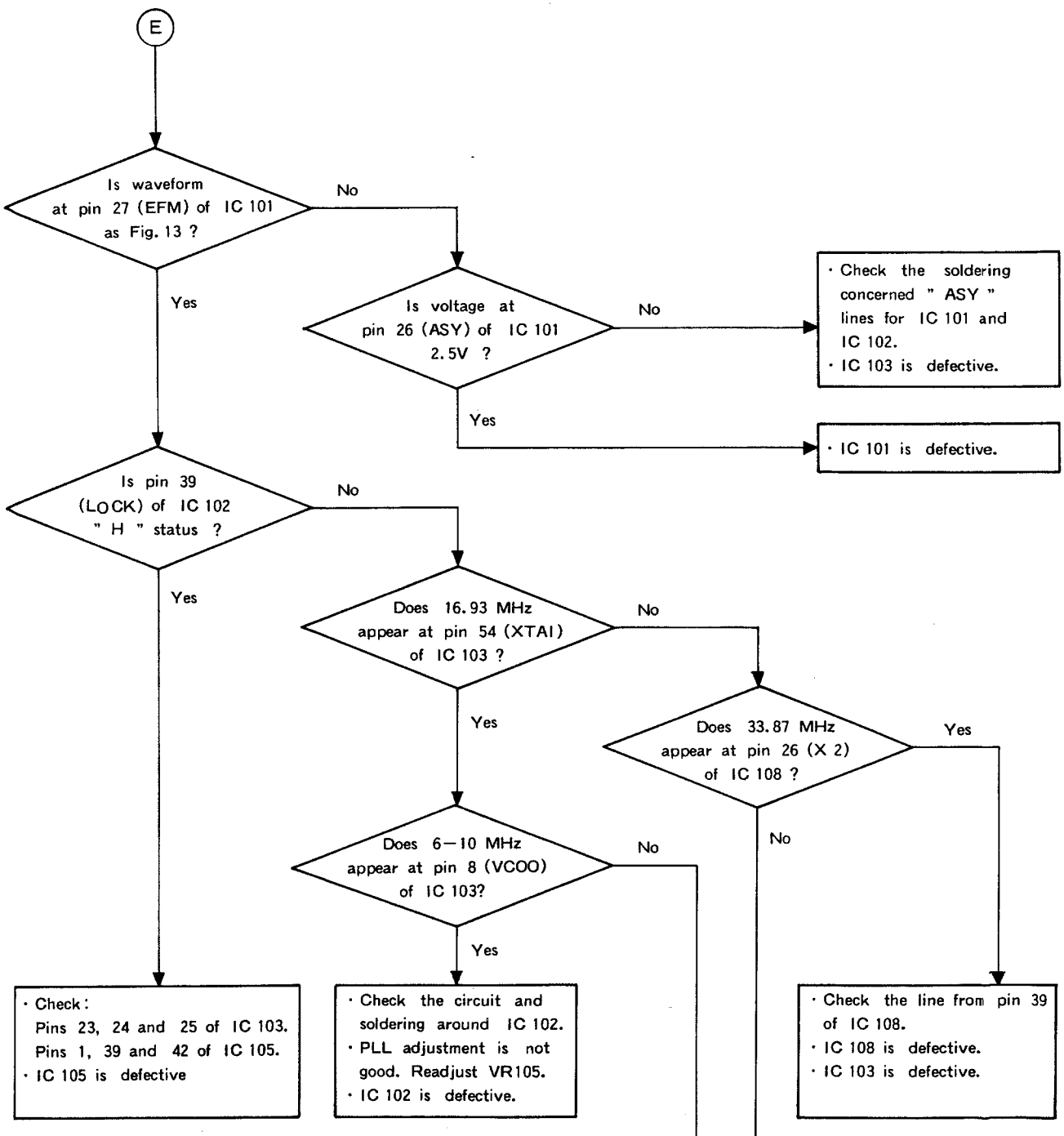
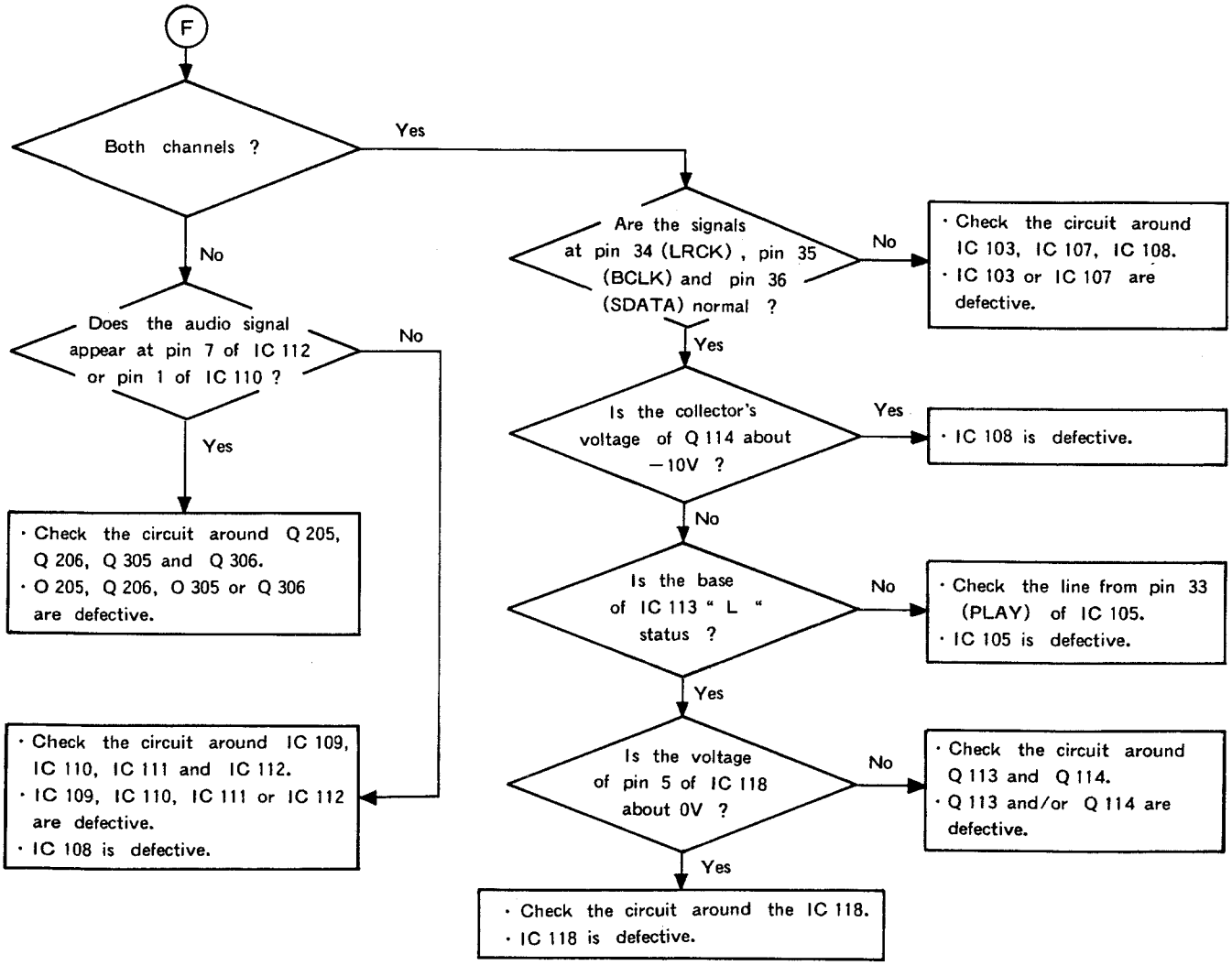


Fig. 13 E≒ 4V

[Repair Item (F)] The audio signal does not appear at the output terminals.



[Repair Item (G)] The tracks can not be sent smoothly.

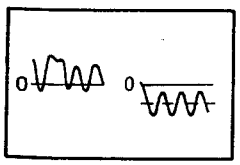


Fig. 14

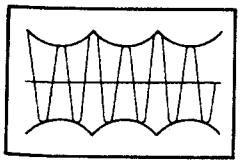
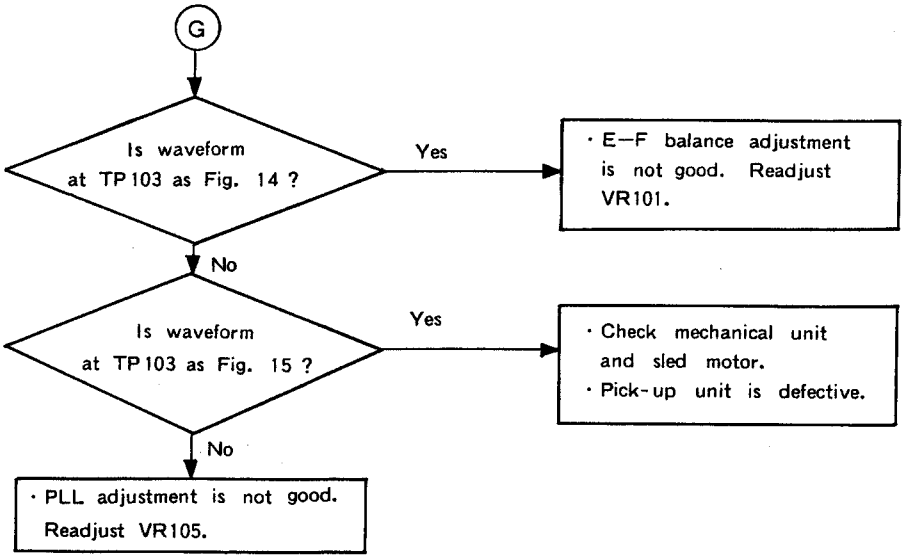
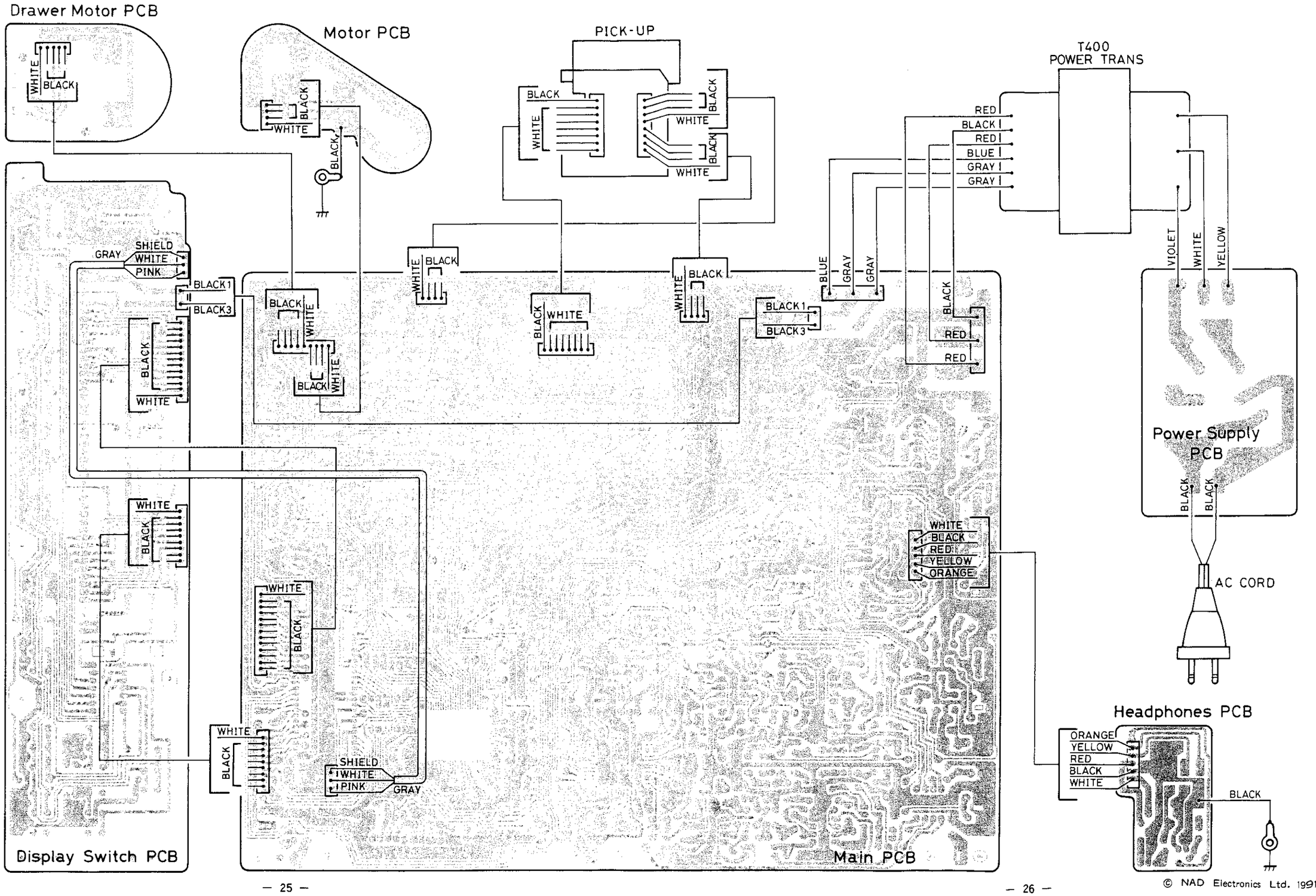


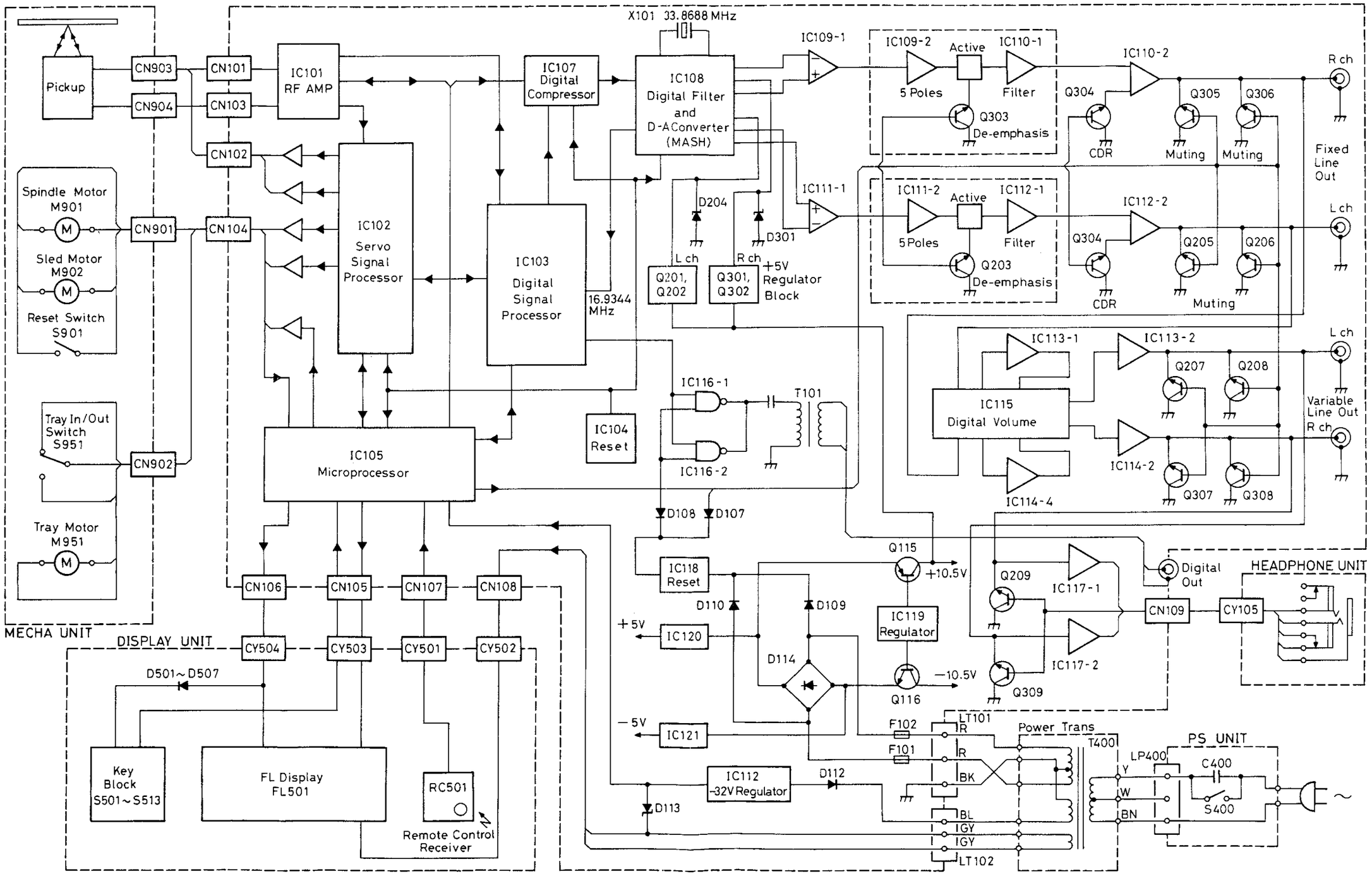
Fig. 15



WIRING DIAGRAM

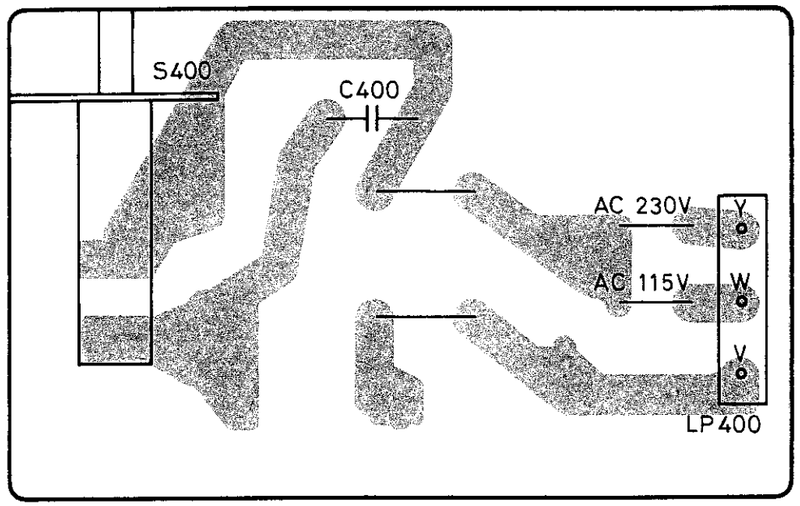


BLOCK DIAGRAM

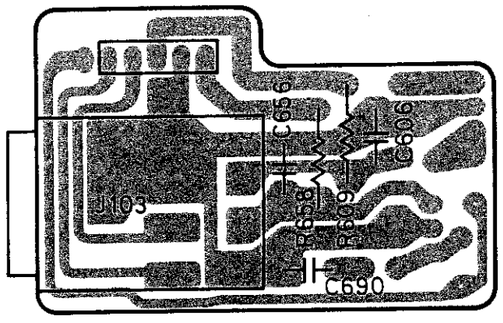


PCB LAYOUT

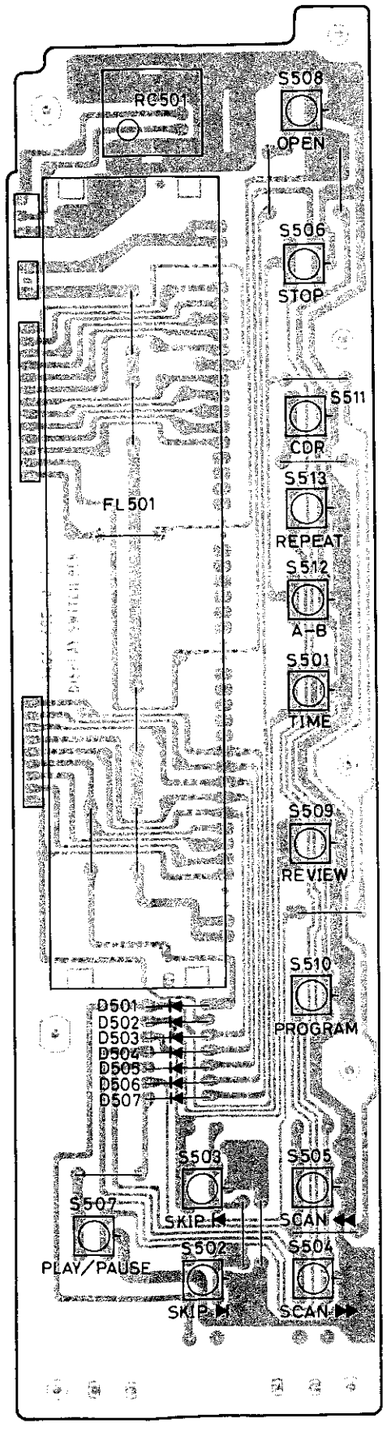
Power Supply PCB



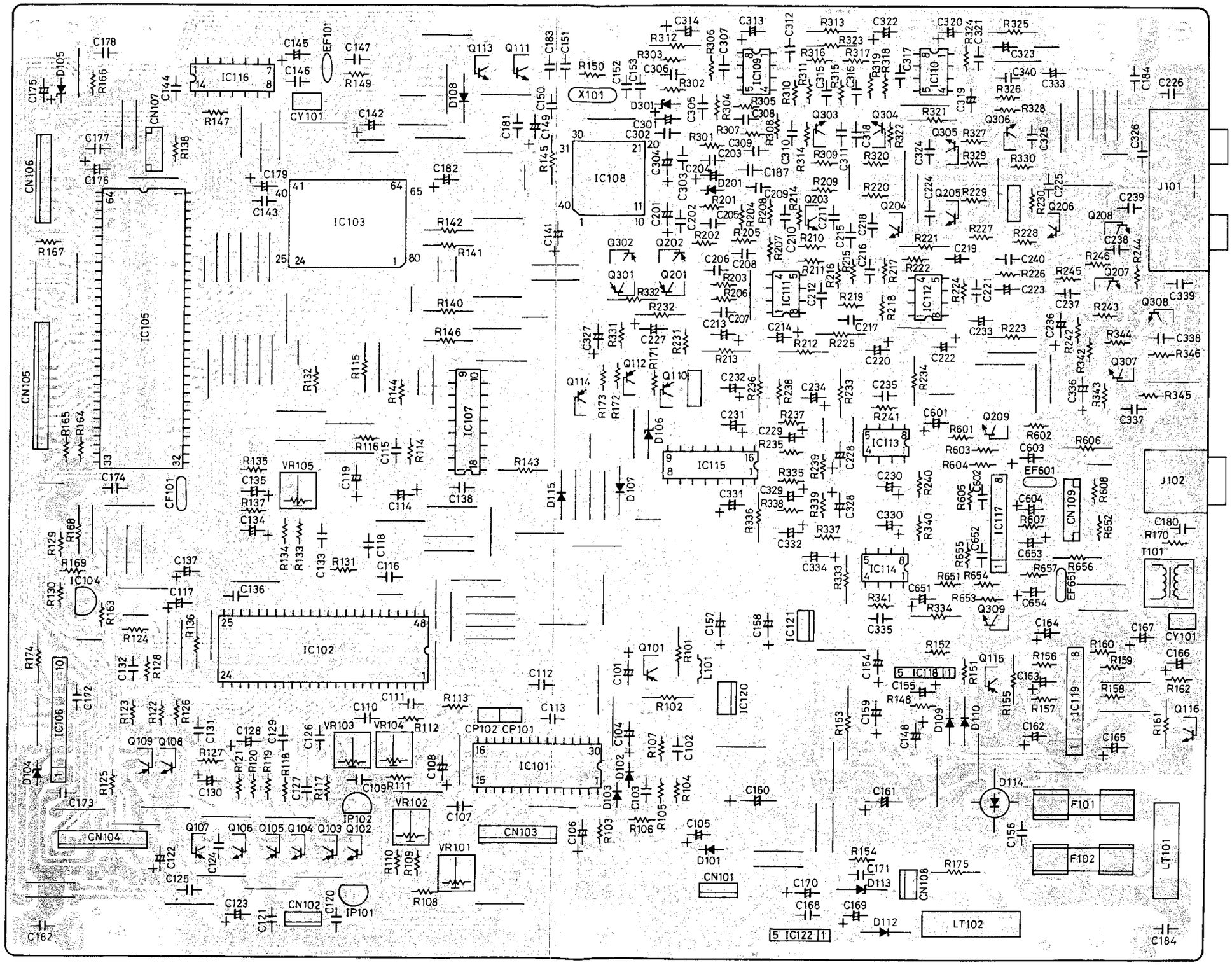
Headphone Jack PCB



Display PCB



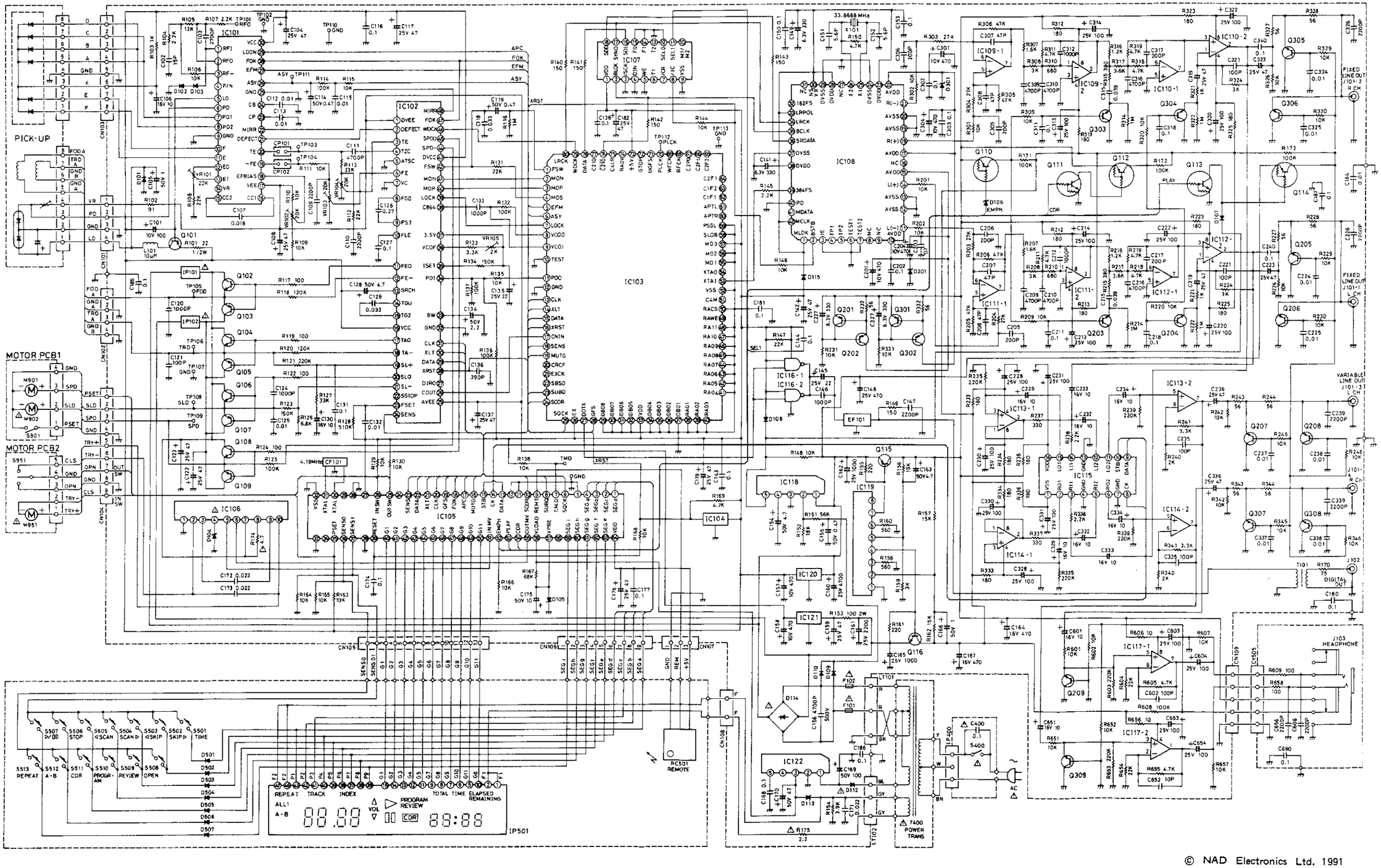
Main PCB



SCHEMATIC DIAGRAM

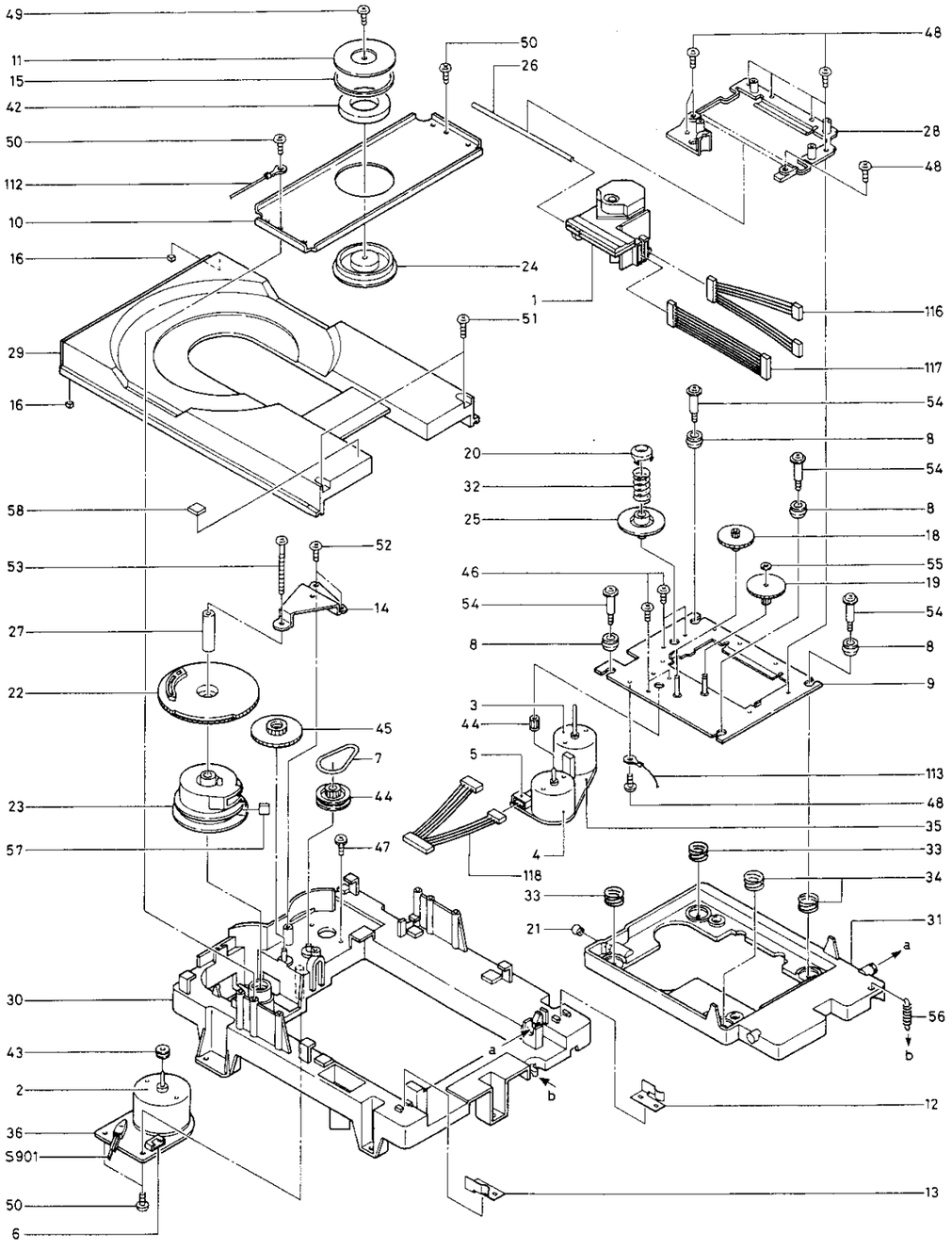
Make leakage current or resistance measurements to determine that exposed metal parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

Leakage current should not exceed 0.5 mA as measured through a 1.5 Kohm resistor paralleled by a 0.15 mfd capacitor to the earth ground.



EXPLODED VIEW AND PARTS LIST

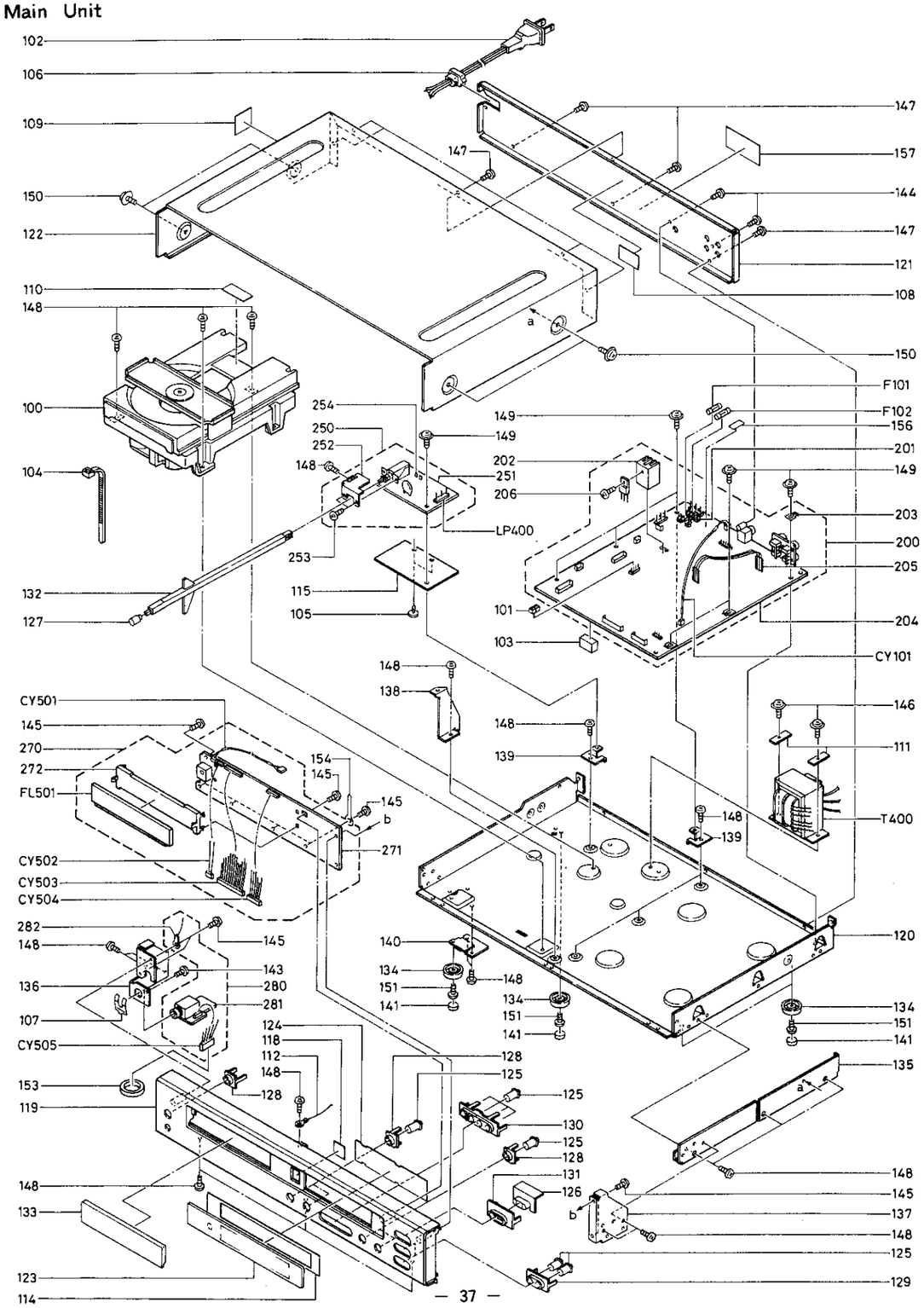
CD Player Mechanism



Parts List

Ref. No.	Part No.	Description	Q'ty
⚠ 1	0020−008−0−00	Laser Pick−up, D−77−LMI (Serial No. 50000001∼50008200)	1
	0020−006−0−00	Laser Pick−up, KSS−210A (Serial No. 50008201∼)	1
⚠ 2	0022−066−0−00	Motor, RF−500TB−12560 32MM	1
⚠ 3	0022−072−0−00	Motor, MDN−4RA3NTAS	1
⚠ 4	0022−322−0−00	Motor, RF−310TA−11400 30MM	1
5	0034−786−0−04	Connector Pin, 4 P	1
6	0034−786−0−05	Connector Pin, 5 P	1
7	0056−197−0−00	Belt	1
8	0062−304−0−00	Rubber Bushing	4
9	1465−100−1−00	Mechanism Chassis Set	1
10	1465−160−2−00	Clamp Base	1
11	1465−161−1−00	Clamp Plate	1
12	1465−162−0−00	T Holder L	1
13	1465−163−0−00	T Holder R	1
14	1465−166−0−00	Gear Supporter	1
15	1465−170−1−00	Clamp Cushion	1
16	1465−171−0−00	Cushion	2
17	1465−200−0−00	Motor Gear	1
18	1465−201−0−00	Gear A	1
19	1465−202−0−00	Gear B	1
20	1465−204−0−00	Disc Guide	1
21	1465−205−0−00	Slide Pulley	1
22	1465−206−0−00	Loading Gear	1
23	1465−207−0−00	Control Cum	1
24	1465−208−0−00	Clamper	1
25	1465−209−0−01	Turn Table Set	1
26	1465−221−0−00	Shaft	1
27	1465−224−1−00	Cum Shaft	1
28	1465−250−1−00	Slide Base	1
29	1465−252−1−01	Tray	1
30	1465−253−1−00	Main Chassis	1
31	1465−254−0−00	Sub Chassis Set	1
32	1465−400−0−00	Com Spring	1
33	1465−401−0−00	Com Spring	2
34	1465−402−0−00	Com Spring	2
35	1465−515−1−00	Motor PCB M	1
36	1465−520−0−00	Motor PCB R	1
37∼41	Not used.		
42	1471−280−0−00	Magnet Ring	1
43	1480−200−0−00	Motor Pulley	1
44	1480−201−0−00	Gear Pulley A	1
45	1480−202−0−00	Gear A	1
46	0971−020−0−31	Screw, P 2 x 3−SN	4
47	0971−826−0−51	Screw, P 2.6 x 5−SN−S	2
48	0972−720−0−65	ST Screw, B 2 x 6−SK	7
49	0973−520−0−45	PT Screw, B 2 x 4−SK	1
50	0973−526−0−85	PT Screw, B 2.6 x 8−SK	4
51	0973−562−1−23	PT Screw, B 2.6 x 12−SBK	2
52	0973−530−0−83	PT Screw, B 3 x 8−SBK	2
53	0972−930−3−53	PT Screw, P 3 x 3.5−SBK	1
54	0979−908−7−00	Special Screw	4
55	0986−400−7−00	Washer, WPC 1.7 x 4.0 x 0.25	1
56	1465−410−0−00	Ext Spring	1
57	0062−311−0−00	Cushion	1
58	0062−585−0−00	Mat	
112	1465−537−0−00	Terminal Wire	1
113	1465−538−0−00	Terminal Wire	1
116	1493−530−0−00	Wire Connector 8 Pin	1
117	1493−531−0−00	Wire Connector 8 Pin	1
118	1465−532−0−00	Wire Connector 9 Pin	1

Main Unit

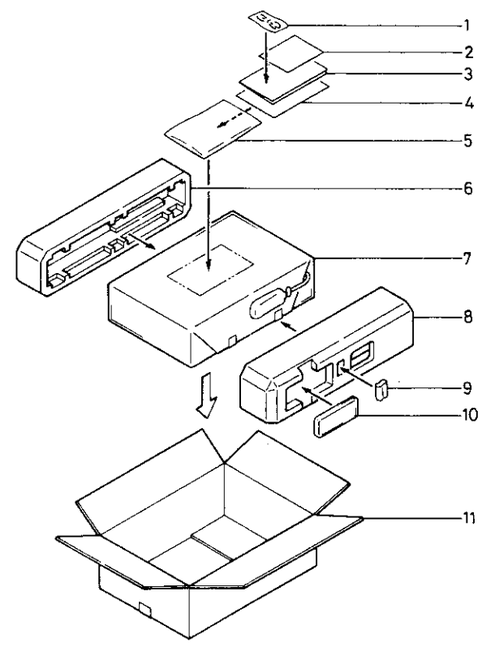


Parts List

Ref. No.	Part No.	Description	Q'ty
100	1493−050−0−01	CD Mechanism Unit	1
101	0034−915−0−00	Short Ring	2
⚠102	0047−159−0−00	AC Cord A, A1	1
or	0047−159−0−30		
	0047−296−0−00	AC Cord B	1
	0047−284−0−00	AC Cord B1	1
	0047−231−1−20	AC Cord C, C1	1
or	0047−231−1−21		
103	0062−308−0−00	Rubber Cushion	2
104	0064−631−0−00	Bar Lock Cable Tie	5
105	0064−648−0−00	Plastic Rivet	2
106	0064−665−0−00	Cord Bushing	1
107	0065−370−0−00	Mount Plate J	1
108	0074−094−0−11	Fuse Caution Label (1A) A, A1	1
109	0074−129−0−00	Caution Label A	1
110	0074−160−0−00	Warning Label	1
111	0797−866−0−00	Trans Supporter	2
112, 113	See Page 36		
114	1465−832−0−00	Remote Control Filter	1
115	1493−355−0−00	Insulation Sheet	1
116~118	See Page 36		
119	1493−811−0−01	Front Panel	1
120	1493−815−0−00	Bottom Case	1
121	1493−816−0−01	Rear Panel A	1
	1493−816−0−02	Rear Panel A1	1
	1493−816−0−03	Rear Panel B, B1, C, C1	1
122	1493−819−0−01	Metal Case	1
123	1493−832−0−01	Display Window Set	1
124	1493−831−0−01	FL Filter	1
125	1493−860−0−01	Function Knob	12
126	1493−861−0−01	Play/Pause Knob	1
127	1493−862−0−01	Power Knob	1
128	1493−863−0−01	Knob Guide A	5
129	1493−864−0−01	Knob Guide B	2
130	1493−865−0−01	Knob Guide C	1
131	1493−866−0−01	Knob Guide D	1
132	1493−867−0−00	Power Switch Joint	1
133	1494−869−0−02	Tray Panel	1
134	1493−870−0−01	Foot	4
135	1493−871−0−00	Sub Chassis	1
136	1493−872−0−00	Support Ungle L	1
137	1493−873−0−00	Support Ungle R	1
138	1493−875−0−00	Panel Holder	1
139	1493−876−0−00	PCB Angle	4
140	1493−877−0−00	Foot Supporter	1
141	1493−883−0−00	Rubber Foot	4
142	0972−720−0−65	ST Screw, B 2 x 6−SK	1
143	0973−230−0−65	BT Screw, B 3 x 6−SK	1
144	0973−230−0−83	BT Screw, B 3 x 8−SBK	2
145	0973−230−0−85	BT Screw, B 3 x 8−SK	10
146	0974−540−0−85	PW Screw, DT4 x 8−SK	2
147	0975−030−0−63	CT Screw, B 3 x 6−SBK	8
148	0975−030−0−65	CT Screw, B 3 x 6−SK	22
149	0975−130−0−65	ST Screw, PF 3 x 6−SK	7
150	0975−140−0−63	ST Screw, PF 4 x 6−SBK	4
151	0977−630−0−65	TT Screw, L 3 x 6−SK	4
152	0973−230−0−65	BT Screw, B 3 x 6−SK	1
153	0011−704−0−00	Ring Core	1
154	0065−319−0−00	Lead Wire Clamper	2
155	0062−967−0−00	Himeron	2
156	0074−005−1−45	Fuse Label B, B1, C, C1	2
157	1493−859−0−00	Data Cord Label A	1
	0074−056−0−00	CSA Label A1	1
	0074−154−0−00	Warning Label B, B1, C, C1	1

Ref. No.	Part No.	Description	Q'ty
200	1493−001−0−00	Main PCB Unit	1
201	0045−501−0−00	Fuse Holder	4
or	0045−507−0−00		
202	0049−038−0−00	Heat Sink, OSH−1625−SPL	1
203	0061−263−0−00	Earth Plate	5
204	1493−500−0−00	Main PCB	1
205	1493−539−0−00	Flat Cable 3 P	1
206	0973−230−0−65	BT Screw, B 3 x 6−SK	1
250	1493−010−0−00	Power Supply PCB Unit, A, A1	1
	1493−011−0−00	Power Supply PCB Unit, B, B1 C, C1	1
251	1493−510−0−00	PS PCB	1
252	1493−874−0−00	Power Switch Holder	1
253	0975−030−0−65	CT Screw, B 3 x 6−SK	2
254	0034−326−0−00	Pin Terminal B, B1, C, C1	2
270	1493−020−0−00	Display Switch PCB Unit	1
271	1493−505−0−91	Display Switch PCB	1
272	1493−868−0−00	FL Holder	1
280	1493−030−0−00	Headphone PCB Unit	1
281	1493−515−0−00	Headphone PCB	1
282	1493−540−0−00	Lug Washer W/Wire, L 60	1

PACKINGDIAGRAM



Ref. No.	Part No.	Description	Q'ty
1	0047−311−0−01	Pin Cord	1
2	1402−921−0−03	Guarantee Card A	1
3	1493−920−0−02	Instruction	1
4	0074−163−0−00	Safety Instruction A, A1	1
5	0998−000−8−00	Poly Bag, PB− 24 x 28	1
6	1493−900−0−00	Styrofoam Front	1
7	1493−915−0−00	Mirror Mat	1
8	1493−901−0−00	Styrofoam Rear	1
9	0074−163−0−00	Battery, " UM−4 "," R− 3 " (x 2)	1
10	0088−010−0−01	Remote Controller (Serial No. 50000001∼ 50004300)	1
	0088−011−0−01	Remote Controller (Serial No. 50004301∼)	1
11	1493−910−0−02	Gift Box	1

Electorical Parts List

Ref. No.	Part No.	Description
Diodes		
D 101∼103	0915−003−3−00	1SS 176
	or 0915−003−6−00	1SS 270
	or 0915−003−9−00	1SS 133
D 104	0915−010−0−02	RD6.8ESB2
D 105	0915−009−8−02	RD4.7ESB2
D 106	0915−010−1−02	RD7.5ESB2
D 107	0915−003−3−00	1SS 176
	or 0915−003−6−00	1SS 270
	or 0915−003−9−00	1SS 133
D 108	0915−003−3−00	1SS 176
	or 0915−003−6−00	1SS 270
	or 0915−003−9−00	1SS 133
D 109, 110	0915−005−2−00	MPG 06B
	or 0915−005−4−00	S 5688B
D 111	Not used.	
⚠ D 112	0915−003−3−00	1SS 176
	or 0915−003−6−00	1SS 270
	or 0915−003−9−00	1SS 133
D 113	0915−010−1−02	RD7.5ESB2
⚠ D 114	0913−011−0−00	WO 2G
	or 0913−008−1−00	WO 2M
D 115	0915−011−9−00	RB100A
D 201	0915−009−9−01	RD5.1ESB1
D 301	0915−009−9−01	RD5.1ESB1
D 501∼507	0915−003−3−00	1SS 176
	or 0915−003−6−00	1SS 270
	or 0915−003−9−00	1SS 133
IC's		
IC 101	0911−081−2−00	CXA 1081S
IC 102	0911−091−4−00	CXA 1082BS
IC 103	0911−113−2−00	CXD 1167Q
IC 104	0911−115−5−04	PST520D
IC 105	0037−113−0−00	UPD 75208CW−A 81, Microprocessor (Serial No. 50000001∼50004300)
	0037−113−1−00	UPD 75208CW−A 91, Microprocessor (Serial No. 50004301∼)
⚠ IC 106	0911−029−6−00	BA6109
IC 107	0911−126−8−00	YM 3412B
IC 108	0911−126−7−00	MN 6471M
IC 109∼112	0911−096−0−00	NE5532N
IC 113, 114	0911−111−3−00	NJM 2068D
IC 115	0911−126−6−00	TC9176P
IC 116	0911−043−3−00	TC74HC00AP
IC 117	0911−104−7−01	M5218AL
IC 118	0911−065−7−00	M51957BL
IC 119	0911−109−5−00	M5230L
IC 120	0911−020−1−00	UPC 78M05H
IC 121	0911−086−2−00	UPC 79M05H
IC 122	0911−106−9−00	M5293L
Transistors		
Q 101	0906−220−9−18	2SB1237R−TV6
Q 102	0906−221−0−18	2SD1858R−TV6
Q 103	0906−220−9−18	2SB1237R−TV6
Q 104	0906−221−0−18	2SD1858R−TV6
Q 105	0906−220−9−18	2SB1237R−TV6
Q 106	0906−221−0−18	2SD1858R−TV6
Q 107	0906−220−9−18	2SB1237R−TV6
Q 108	0906−221−0−18	2SD1858R−TV6
Q 109	0906−220−9−18	2SB1237R−TV6
Q 110	0906−208−7−00	DTA 114ES
	or 0906−208−3−00	BN1A 4M

Ref. No.	Part No.	Description
Q 111	0906−206−2−05	DTC 114ESTP
	or 0906−208−4−00	BA1A 4M
Q 112	0906−208−7−00	DTA 114ES
	or 0906−208−3−00	BN1A 4M
Q 113	0906−206−2−05	DTC 114ESTP
	or 0906−208−4−00	BA1A 4M
Q 114	0906−208−7−00	DTA 114ES
	or 0906−208−3−00	BN1A 4M
Q 115	0901−002−9−06	2SB1185−F
Q 116	0903−005−0−06	2SD1762−F
Q 201, 202	0906−200−2−55	2SA1015−GR
Q 203∼209	0906−203−5−02	2SC 2878−B
Q 301, 302	0906−200−2−55	2SA1015−GR
Q 303∼309	0906−203−5−02	2SC 2878−B
Jacks		
J101	0033−246−0−00	Pin, 4P, YKC 21−0482, Line Out
J102	0033−247−0−00	Pin, 1P, YKC 21−3117, Digital Out
J103	0033−852−0−00	6.3 mm, Headphone
Filters		
CF 101	0038−938−0−00	Ceramic Resonator, 4.19 MHz
	or 0038−918−0−00	
EF 101	0011−600−2−71	EMI Filter, DST 310−55B 271M
EF 601	0011−608−2−71	EMI Filter, MTB 271KB
EF 651	0011−608−2−71	EMI Filter, MTB 271KB
FLD Panel		
FL 501	0040−601−0−00	FLD Panel, FV 467G
Indicator		
L 101	0991−401−0−05	LHL06TB100K, 10uH
	or 0991−902−1−00	EL0606RA100KP, 10uH
Transformers		
T 101	0015−901−0−00	Digital Audio Output
⚠ T 400	0019−897−0−00	Power
Variable Resistors		
VR101∼104	0031−835−2−03	SF Volume, 20k
	or 0031−837−2−03	
VR105	0031−835−2−02	SF Volume, 2k
	or 0031−837−2−02	
Crystal		
X 101	0038−098−0−00	Crystal, 33.8688 MHz
Switches		
⚠ S 400	0036−299−0−00	Push Switch, Power
S 501∼513	0028−840−0−00	Tact Switch
	or 0028−813−0−00	
S 901	0028−505−0−00	Leaf Switch, Preset
S 951	1465−590−0−00	Leaf Switch, Tray Open/Close
Remote Receiver		
RC501	0039−620−0−00	Remote Receiver, SBX1610−52

Ref. No.	Part No.	Description
	Fuses	
⚠ F 101	0045−047−0−00	1A, 250V A, A 1
	or 0045−047−0−41	
	0045−002−1−40	T. 500mA, 250V B, B 1, C, C 1
	or 0045−002−1−41	
⚠ F 102	0045−047−0−00	1A, 250V A, A 1
	or 0045−047−0−41	
	0045−002−1−40	T. 500mA, 250V B, B 1, C, C 1
	or 0045−002−1−41	
⚠ IP 101	0045−800−0−00	ICP−N10
⚠ IP 102	0045−800−0−00	ICP−N10
	Capacitors	
		CC, CK, CG: Ceramic Capacitor
		CF: Metallized Film Capacitor
		EL: Electrolytic Capacitor
		CQ: Plastic Film Capacitor
C 101	0937−811−0−16	EL, 100 mfd, 10V, ±20%
C 102	9300−251−5−04	CC, 15 pfd, 50V, ±5%
C 103	9336−752−7−24	CQ, 2700 pfd, 50V, ±5%
C 104	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 105	0937−850−1−06	EL, 1 mfd, 50V, ±50%
C 106	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 107	9336−751−8−34	CQ, 0.018 mfd, 50V, ±5%
C 108	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 109	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 110	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 111	9336−754−7−24	CQ, 4700 pfd, 50V, ±5%
C 112	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 113	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 114	0937−854−7−96	EL, 0.47 mfd, 50V, ±20%
C 115	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 116	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 117	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 118	9336−753−3−34	CQ, 0.033 mfd, 50V, ±5%
C 119	0937−854−7−96	EL, 0.47 mfd, 50V, ±20%
C 120	9301−451−0−25	CK, 1000 pfd, 50V, ±10%
C 121	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 122	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 123	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 124	9301−451−0−25	CK, 1000 pfd, 50V, ±10%
C 125	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 126	0933−452−7−44	CF, 0.27 mfd, 50V, ±5% (Serial No. 50000001～50008200)
	0933−451−0−44	CF, 0.1 mfd, 50V, ±5% (Serial No. 50008201～)
C 127	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
C 128	0937−854−7−86	EL, 4.7 mfd, 50V, ±20%
C 129	9336−758−2−34	CQ, 0.082 mfd, 50V, ±5% (Serial No. 50000001～50008200)
	9336−753−3−34	CQ, 0.033 mfd, 50V, ±5% (Serial No. 50008201～)
C 130	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 131	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
C 132	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 133	9301−451−0−25	CK, 1000 pfd, 50V, ±10%
C 134	0937−852−2−86	EL, 2.2 mfd, 50V, ±20%
C 135	0937−832−2−06	EL, 22 mfd, 25V, ±20%
C 136	9301−453−9−15	CK, 390 pfd, 50V, ±10%
C 137	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 138	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
C 139	Not used.	
C 140	Not used.	
C 141	0937−803−3−16	EL, 330 mfd, 6.3V, ±20%
C 142	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 143	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 144	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%

Ref. No.	Part No.	Description
C 145	0937−832−2−06	EL, 22 mfd, 25V, ±20%
C 146	9301−451−0−25	CK, 1000 pfd, 50V, ±10%
C 147	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 148	0937−734−7−16	EL, 470 mfd, 25V, ±20%
C 149	0937−803−3−16	EL, 330 mfd, 6.3V, ±20%
C 150	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 151	9300−255−6−85	CC, 5.6 pfd, 50V, ±10%
C 152	9300−255−6−85	CC, 5.6 pfd, 50V, ±10%
C 153	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 154	0937−854−7−86	EL, 4.7 mfd, 50V, ±20%
C 155	0937−854−7−96	EL, 0.47 mfd, 50V, ±20%
C 156	0930−794−7−28	CK, 4700 pfd, 500V, +100%, −0%
C 157	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 158	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 159	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 160	0937−734−7−26	EL, 4700mfd, 25V, ±20%
C 161	0937−732−2−26	EL, 2200 mfd, 25V, ±20%
C 162	0937−731−0−26	EL, 1000 mfd, 25V, ±20%
C 163	0937−854−7−86	EL, 4.7 mfd 50V, ±20%
C 164	0937−824−7−16	EL, 470 mfd, 16V, ±20%
C 165	0937−731−0−26	EL, 1000 mfd, 25V, ±20%
C 166	0937−850−1−06	EL, 1 mfd, 50V, ±20%
C 167	0937−824−7−16	EL, 470 mfd, 16V, ±20%
C 168	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 169	0937−851−0−16	EL, 100 mfd, 50V, ±20%
C 170	0937−854−7−06	EL, 47 mfd, 50V, ±20%
C 171	9302−332−2−39	CG, 0.022 mfd, 25V, +80%, −20%
C 172	9302−332−2−39	CG, 0.022 mfd, 25V, +80%, −20%
C 173	9302−332−2−39	CG, 0.022 mfd, 25V, +80%, −20%
C 174	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 175	0937−851−0−06	EL, 10 mfd, 50V, ±20%
C 176	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 177	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 178	Not used.	
C 179	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 180	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 181	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 182	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 183	Not used.	
C 184	9336−751−0−34	CQ, 0.01 mfd, 50V, ±5%
C 185	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 186	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 187	0932−851−0−44	CQ, 0.1 mfd, 50V, ±5%
C 201	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 202	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 203	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 204	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 205	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 206	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 207	9301−154−7−04	CC, 47 pfd, 50V, ±5%
C 208	9301−154−7−04	CC, 47 pfd, 50V, ±5%
C 209	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 210	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 211	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 212	9330−671−0−24	CQ, 1000 pfd, 100V, ±5%
C 213	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 214	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 215	9336−753−9−34	CQ, 0.039 mfd, 50V, ±5%
C 216	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 217	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 218	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 219	9363−234−7−06	EL, 47 mfd, 25V, ±20%
C 220	0937−831−0−16	EL, 100mfd, 25V, ±20%
C 221	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 222	0937−831−0−16	EL, 100mfd, 25V, ±20%
C 223	9363−234−7−06	EL, 47 mfd, 25V, ±20%
C 224	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 225	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 226	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 227	0937−803−3−16	EL, 330 mfd, 6.3V, ±20%

Ref. No.	Part No.	Description
C 228	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 229	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 230	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 231	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 232	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 233	9363−221−0−06	EL, 10 mfd, 16V, ±20%
C 234	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 235	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 236	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 237	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 238	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 239	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 240	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
C 301	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 302	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 303	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 304	0937−814−7−16	EL, 470 mfd, 10V, ±20%
C 305	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 306	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 307	9301−154−7−04	CC, 47 pfd, 50V, ±5%
C 308	9301−154−7−04	CC, 47 pfd, 50V, ±5%
C 309	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 310	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 311	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 312	9330−671−0−24	CQ, 1000 pfd, 100V, ±5%
C 313	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 314	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 315	9336−753−9−34	CQ, 0.039 mfd, 50V, ±5%
C 316	9330−674−7−24	CQ, 4700 pfd, 100V, ±5%
C 317	9330−672−0−14	CQ, 200 pfd, 100V, ±5%
C 318	9302−351−0−49	CG, 0.1 mfd, 50V, +80%, −20%
C 319	9363−234−7−06	EL, 47 mfd, 25V, ±20%
C 320	0937−831−0−16	EL, 100mfd, 25V, ±20%
C 321	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 322	0937−831−0−16	EL, 100mfd, 25V, ±20%
C 323	9363−234−7−06	EL, 47 mfd, 25V, ±20%
C 324	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 325	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 326	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 327	0937−803−3−16	EL, 330 mfd, 6.3V, ±20%
C 328	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 329	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 330	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 331	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 332	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 333	9363−221−0−06	EL, 10 mfd, 16V, ±20%
C 334	0937−821−0−06	EL, 10 mfd, 16V, ±20%
C 335	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 336	0937−834−7−06	EL, 47 mfd, 25V, ±20%
C 337	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 338	9302−021−0−35	CG, 0.01 mfd, 16V, ±10%
C 339	9336−752−2−24	CQ, 2200 pfd, 50V, ±5%
C 340	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
⚠ C 400	0039−914−0−00	Spark Killer, 0.01 mfd, 250V
	or 0039−918−0−00	
C 601	0937−821−0−06	EL, 10mfd, 16V, ±20%
C 602	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 603	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 604	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 651	0937−821−0−06	EL, 10mfd, 16V, ±20%
C 652	9301−451−0−15	CK, 100 pfd, 50V, ±10%
C 653	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 654	0937−831−0−16	EL, 100 mfd, 25V, ±20%
C 655	Not used.	
C 656	9335−352−2−24	CQ, 2200 pfd, 50V, ±5%
C 657	9335−352−2−24	CQ, 2200 pfd, 50V, ±5%
C 690	9302−251−0−49	CG, 0.1 mfd, 50V, +80%, −20%

Ref. No.	Part No.	Description
Resistors		
		RD: Cabon Film RDF: Fusible (Carbon Film) RN: Metal Film RNF: Fusible (Metal Film) RS: Oxide Metal Film
R 101	0921−522−2−04	RD, 22 ohm, 1/ 2W, ±5%
R 102	0920−811−0−14	RD, 100 ohm, 1/ 4W, ±5% (Serial No. 50000001～50008200)
	0920−819−1−04	RD, 91 ohm, 1/ 4W, ±5% (Serial No. 50008201～)
R 103	0920−861−0−24	RD, 1k ohm, 1/ 6W, ±5%
R 104	0920−862−2−24	RD, 2.2k ohm, 1/ 6W, ±5%
R 105	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−861−2−34	RD, 12k ohm, 1/ 6W, ±5% (Serial No. 50008201～)
R 106	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 107	0920−862−2−24	RD, 2.2k ohm, 1/ 6W, ±5%
R 108	0920−862−2−34	RD, 22k ohm, 1/ 6W, ±5%
R 109	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 110	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 111	0920−861−5−34	RD, 15k ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5% (Serial No. 50008201～)
R 112	0920−862−2−34	RD, 22k ohm, 1/ 6W, ±5%
R 113	0920−864−7−34	RD, 47k ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−863−3−34	RD, 33k ohm, 1/ 6W, ±5% (Serial No. 50008201～)
R 114	0920−861−0−44	RD, 100k ohm, 1/ 6W, ±5%
R 115	0920−811−0−34	RD, 10k ohm, 1/ 4W, ±5%
R 116	0920−861−0−54	RD, 1M ohm, 1/ 6W, ±5%
R 117	0920−861−0−14	RD, 100 ohm, 1/ 6W, ±5%
R 118	0920−861−2−44	RD, 120k ohm, 1/ 6W, ±5%
R 119	0920−861−0−04	RD, 10 ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−861−0−14	RD, 100 ohm, 1/ 6W, ±5% (Serial No. 50008201～)
R 120	0920−861−5−44	RD, 150k ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−861−2−44	RD, 120k ohm, 1/ 6W, ±5% (Serial No. 50008201～)
R 121	0920−862−2−44	RD, 220k ohm, 1/ 6W, ±5%
R 122	0920−861−0−14	RD, 100 ohm, 1/ 6W, ±5%
R 123	0920−861−2−44	RD, 120k ohm, 1/ 6W, ±5% (Serial No. 50000001～50008200)
	0920−861−5−44	RD, 15k ohm, 1/ 6W, ±5% (Serial No. 50008201～5)
R 124	0920−861−0−14	RD, 100 ohm, 1/ 6W, ±5%
R 125	0920−861−0−44	RD, 100k ohm, 1/ 6W, ±5%
R 126	0920−866−8−24	RD, 6.8k ohm, 1/ 6W, ±5%
R 127	0920−863−3−34	RD, 33k ohm, 1/ 6W, ±5%
R 128	0920−865−1−44	RD, 510k ohm, 1/ 6W, ±5%
R 129	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 130	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 131	0920−862−2−34	RD, 22k ohm, 1/ 6W, ±5%
R 132	0920−861−0−44	RD, 100k ohm, 1/ 6W, ±5%
R 133	0920−863−3−24	RD, 3.3k ohm, 1/ 6W, ±5%
R 134	0920−861−5−44	RD, 150k ohm, 1/ 6W, ±5%
R 135	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 136	Not used.	
R 137	0920−861−0−44	RD, 100k ohm, 1/ 6W, ±5%
R 138	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 139	Not used.	
R 140	0920−811−5−14	RD, 150 ohm, 1/ 4W, ±5%
R 141	0920−811−5−14	RD, 150 ohm, 1/ 4W, ±5%
R 142	0920−811−5−14	RD, 150 ohm, 1/ 4W, ±5%
R 143	0920−811−5−14	RD, 150 ohm, 1/ 4W, ±5%
R 144	0920−861−0−34	RD, 10k ohm, 1/ 6W, ±5%
R 145	0920−812−2−24	RD, 2.2k ohm, 1/ 4W, ±5%

Ref. No.	Part No.	Description
R 146	0920-811-0-34	RD, 10k ohm, 1/ 4W, ±5%
R 147	0920-862-2-34	RD, 22k ohm, 1/ 6W, ±5%
R 148	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 149	0920-861-5-14	RD, 150 ohm, 1/ 6W, ±5%
R 150	0920-864-7-24	RD, 4.7k ohm, 1/ 6W, ±5%
R 151	0920-865-6-34	RD, 56k ohm, 1/ 6W, ±5%
R 152	0920-861-8-34	RD, 18k ohm, 1/ 6W, ±5%
⚠ R 153	0925-341-0-14	RS, 100 ohm, 2W, ±5%
R 154	0920-863-9-24	RD, 3.9k ohm, 1/ 6W, ±5%
R 155	0920-812-2-14	RD, 220 ohm, 1/ 6W, ±5%
R 156	0920-861-5-34	RD, 15k ohm, 1/ 6W, ±5%
R 157	0920-861-5-34	RD, 15k ohm, 1/ 6W, ±5%
R 158	0920-865-6-14	RD, 560 ohm, 1/ 6W, ±5%
R 159	0920-863-0-24	RD, 3k ohm, 1/ 6W, ±5%
R 160	0920-865-6-14	RD, 560 ohm, 1/ 6W, ±5%
R 161	0920-812-2-14	RD, 220 ohm, 1/ 4W, ±5%
R 162	0920-861-5-34	RD, 15k ohm, 1/ 6W, ±5%
R 163	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 164	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 165	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 166	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 167	0920-866-8-34	RD, 68k ohm, 1/ 6W, ±5%
R 168	0920-811-0-34	RD, 10k ohm, 1/ 4W, ±5%
R 169	0920-864-7-24	RD, 4.7k ohm, 1/ 6W, ±5%
R 170	0920-867-5-04	RD, 75 ohm, 1/ 6W, ±5%
R 171	0920-861-0-44	RD, 100k ohm, 1/ 6W, ±5%
R 172	0920-861-0-44	RD, 100k ohm, 1/ 6W, ±5%
R 173	0920-861-0-44	RD, 100k ohm, 1/ 6W, ±5%
⚠ R 174	0923-114-7-84	RNF, 4.7 ohm, 1/ 4W, ±5%
⚠ R 175	0923-112-2-84	RNF, 2.2 ohm, 1/ 4W, ±5%
R 201	0926-511-0-32	RN, 10k ohm, 1/ 4W, ±1%
R 202	0926-511-0-32	RN, 10k ohm, 1/ 4W, ±1%
R 203	0926-512-7-32	RN, 27k ohm, 1/ 4W, ±1%
R 204	0926-512-7-32	RN, 27k ohm, 1/ 4W, ±1%
R 205	0926-514-7-32	RN, 47k ohm, 1/ 4W, ±1%
R 206	0926-514-7-32	RN, 47k ohm, 1/ 4W, ±1%
R 207	0926-511-6-22	RN, 1.6k ohm, 1/ 4W, ±1%
R 208	0926-513-0-22	RN, 3k ohm, 1/ 4W, ±1%
R 209	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 210	0926-516-8-12	RN, 680 ohm, 1/ 4W, ±1%
R 211	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 212	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 213	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 214	0920-861-0-54	RD, 1M ohm, 1/ 6W, ±5%
R 215	0926-513-9-12	RN, 390 ohm, 1/ 4W, ±1%
R 216	0926-511-2-22	RN, 1.2k ohm, 1/ 4W, ±1%
R 217	0926-513-6-22	RN, 3.6k ohm, 1/ 4W, ±1%
R 218	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 219	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 220	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 221	0926-511-0-22	RN, 1k ohm, 1/ 4W, ±1%
R 222	0920-861-0-54	RD, 1M ohm, 1/ 6W, ±5%
R 223	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 224	0926-513-0-22	RN, 3k ohm, 1/ 4W, ±1%
R 225	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 226	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 227	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 228	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 229	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 230	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 231	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 232	0920-815-6-04	RD, 56 ohm, 1/ 4W, ±5%
R 233	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 234	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 235	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 236	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 237	0920-863-3-14	RD, 330 ohm, 1/ 6W, ±5%
R 238	0920-862-2-24	RD, 2.2k ohm, 1/ 6W, ±5%
R 239	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 240	0926-512-0-22	RN, 2k ohm, 1/ 4W, ±1%

Ref. No.	Part No.	Description
R 241	0926-513-3-22	RN, 3.3k ohm, 1/ 4W, ±1%
R 242	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 243	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 244	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 245	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 246	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 301	0926-511-0-32	RN, 10k ohm, 1/ 4W, ±1%
R 302	0926-511-0-32	RN, 10k ohm, 1/ 4W, ±1%
R 303	0926-512-7-32	RN, 27k ohm, 1/ 4W, ±1%
R 304	0926-512-7-32	RN, 27k ohm, 1/ 4W, ±1%
R 305	0926-514-7-32	RN, 47k ohm, 1/ 4W, ±1%
R 306	0926-514-7-32	RN, 47k ohm, 1/ 4W, ±1%
R 307	0926-511-6-22	RN, 1.6k ohm, 1/ 4W, ±1%
R 308	0926-513-0-22	RN, 3k ohm, 1/ 4W, ±1%
R 309	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 310	0926-516-8-12	RN, 680 ohm, 1/ 4W, ±1%
R 311	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 312	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 313	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 314	0920-861-0-54	RD, 1M ohm, 1/ 6W, ±5%
R 315	0926-513-9-12	RN, 390 ohm, 1/ 4W, ±1%
R 316	0926-511-2-22	RN, 1.2k ohm, 1/ 4W, ±1%
R 317	0926-513-6-22	RN, 3.6k ohm, 1/ 4W, ±1%
R 318	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 319	0926-514-7-22	RN, 4.7k ohm, 1/ 4W, ±1%
R 320	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 321	0926-511-0-22	RN, 1k ohm, 1/ 4W, ±1%
R 322	0920-861-0-54	RD, 1M ohm, 1/ 6W, ±5%
R 323	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 324	0926-513-0-22	RN, 3k ohm, 1/ 4W, ±1%
R 325	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 326	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 327	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 328	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 329	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 330	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 331	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 332	0920-815-6-04	RD, 56 ohm, 1/ 4W, ±5%
R 333	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 334	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 335	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 336	0920-811-8-14	RD, 180 ohm, 1/ 4W, ±5%
R 337	0920-863-3-14	RD, 330 ohm, 1/ 6W, ±5%
R 338	0920-862-2-24	RD, 2.2k ohm, 1/ 6W, ±5%
R 339	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 340	0926-512-0-22	RN, 2k ohm, 1/ 4W, ±1%
R 341	0926-513-3-22	RN, 3.3k ohm, 1/ 4W, ±1%
R 342	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 343	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 344	0920-865-6-04	RD, 56 ohm, 1/ 6W, ±5%
R 345	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 346	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 601	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 602	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 603	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 604	0920-862-2-34	RD, 22k ohm, 1/ 6W, ±5%
R 605	0920-864-7-24	RD, 4.7k ohm, 1/ 6W, ±5%
⚠ R 606	0923-111-0-04	RNF, 10 ohm, 1/ 4W, ±5%
R 607	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 608	0920-861-0-44	RD, 100k ohm, 1/ 6W, ±5%
R 609	0920-511-0-14	RD, 100 ohm, 1/ 4W, ±5%
R 651	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 652	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 653	0920-862-2-44	RD, 220k ohm, 1/ 6W, ±5%
R 654	0920-862-2-34	RD, 22k ohm, 1/ 6W, ±5%
R 655	0920-864-7-24	RD, 4.7k ohm, 1/ 6W, ±5%
⚠ R 656	0923-111-0-04	RNF, 10 ohm, 1/ 4W, ±5%
R 657	0920-861-0-34	RD, 10k ohm, 1/ 6W, ±5%
R 658	0920-511-0-14	RD, 100 ohm, 1/ 6W, ±5%

Ref. No.	Part No.	Description	Q'ty
Athers			
CN101, 102	0034−750−0−04	Connector Pin, 4Pin	2
CN103	0034−750−0−08	Connector Pin, 8Pin	1
CN104	0034−750−0−09	Connector Pin, 9Pin	1
CN105	0034−750−0−13	Connector Pin, 13Pin	1
CN106	0034−750−0−09	Connector Pin, 9Pin	1
CN107	0034−740−0−03	Connector Pin, 3Pin	1
CN108	0034−750−0−03	Connector Pin, 3Pin	1
CN109	0034−740−0−05	Connector Pin, 5Pin	1
CP101	0034−785−0−04	Connector Pin, 4Pin	1
LP400	0034−739−0−03	Connector Pin, 3Pin	1
LT101, 102	0034−739−0−03	Connector Pin, 3Pin	2
TP101∼115	0034−476−0−00	Check Pin	15
CY101	1493−538−0−00	Wire Connector, 2Pin	1
CY501	1493−536−0−00	Wire Connector, 3Pin	1
CY502	1493−535−0−00	Wire Connector, 3Pin	1
CY503	1493−534−0−00	Wire Connector, 13Pin	1
CY504	1493−533−0−00	Wire Connector, 9Pin	1
CY505	1493−537−0−00	Wire Connector, 5Pin	1

DIFFERENT MODELS OF THE PICK-UP HEAD.

This model uses a pick-up head with either Part No. 0020−008−0−00 (D-77-LM1) or 0020−006−0−00 (KSS-210A). When you replace the pick-up head, please use KSS-210A instead of D-77-LM1. With this replacement, the values of some electrical parts will have to be changed.

Please read Cautions of replacement of pick-up on pages 7∼10 before exchanging the pick-up head.

1. Please exchange the parts, referring to the below table.

A: Serial No. 50000001∼50008200
B: Serial No. 50008201∼

Ref. No.	A		B	
	Part No.	Description	Part No.	Description
1	0020−008−0−00	Laser Pick-up, D-77-LM1 (Audio Technica)	0020−006−0−00	Laser Pick-up, KSS-210A (Sony)
	Capacitors			
C126	0933−452−7−44	CF, 0.27 mfd, 50V, ±5%	0933−451−0−44	CF, 0.1 mfd, 50V, ±5%
C129	9336−758−2−34	CQ, 0.082 mfd, 50V, ±5%	9336−753−3−34	CF, 0.033 mfd, 50V, ±5%
	Resistors			
R102	0920−811−0−14	RD, 100 ohm, 1/4W, ±5%	0920−819−1−04	RD, 91 ohm, 1/4W, ±5%
R105	0920−861−0−34	RD, 10k ohm, 1/6W, ±5%	0920−861−2−34	RD, 12k ohm, 1/6W, ±5%
R111	0920−861−5−34	RD, 15k ohm, 1/6W, ±5%	0920−861−0−34	RD, 10k ohm, 1/6W, ±5%
R113	0920−864−7−34	RD, 47k ohm, 1/6W, ±5%	0920−863−3−34	RD, 33k ohm, 1/6W, ±5%
R119	0920−861−0−04	RD, 10 ohm, 1/6W, ±5%	0920−861−0−14	RD, 100 ohm, 1/6W, ±5%
R120	0920−861−5−44	RD, 150k ohm, 1/6W, ±5%	0920−861−2−44	RD, 120k ohm, 1/6W, ±5%
R123	0920−861−2−44	RD, 120k ohm, 1/6W, ±5%	0920−861−5−44	RD, 150k ohm, 1/6W, ±5%