

TOSHIBA

COMPACT DISC DIGITAL AUDIO PLAYER

XR-30/30A/35/35A



XR-30/30A



XR-35/35A

CAUTION:

Two kinds of laser pickups (OPH-21, OPH-23/OPH-41) are used for XR-30/XR-35. Mechanism, cabinet, and certain electrical parts are not interchangeable if the pickup is different. Check your unit and order correct service parts matching to your unit.

* For identification of laser pickup, refer to page 8.

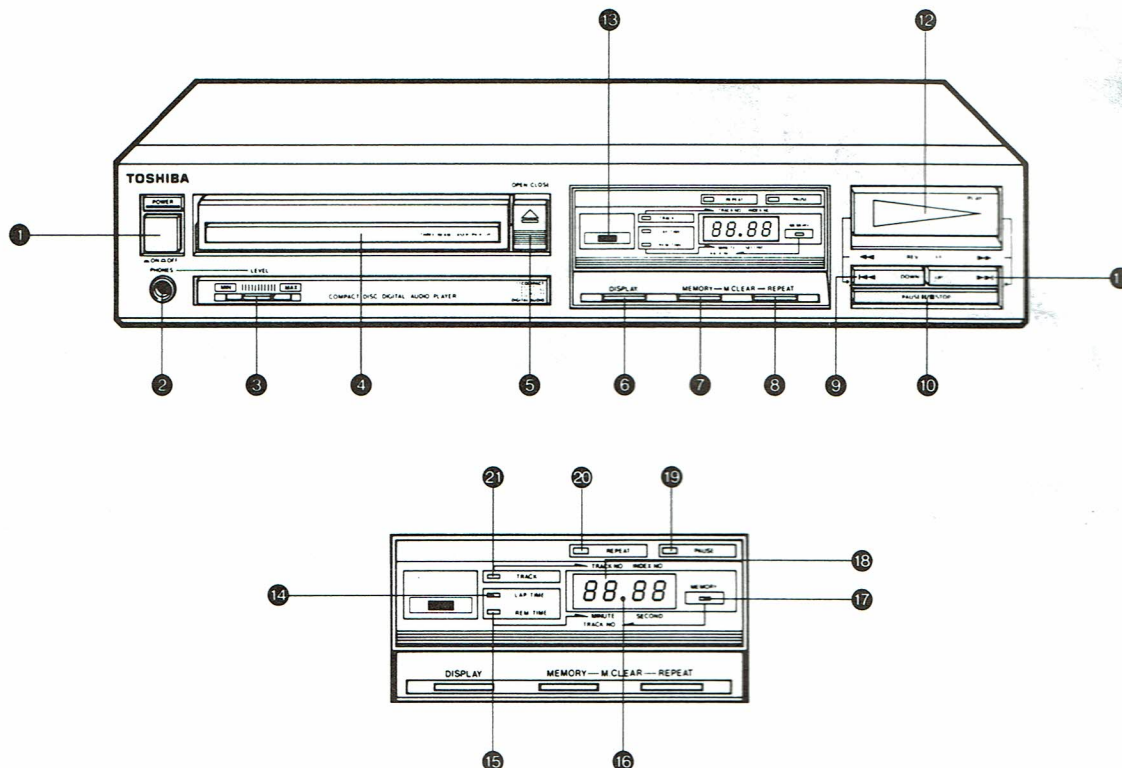
SPECIFICATIONS

Type:	Compact Disc player with optical pickup	Track search:	By track number
Quantization:	16 bit linear	Power supply:	120V, 60 Hz (U.S.A./Canada) 220V, 50 Hz (Europe) 240V, 50 Hz (U.K./Australia) 110 - 127/220 - 240V, 50/60 Hz (Others)
Channels:	2 channels (Stereo)	Power consumption:	13 Watts
Frequency response:	5 Hz - 20 kHz ± 0.5 dB	Dimensions:	420(W) x 80.5(H) x 309(D) mm
Dynamic range:	Over 96 dB	Weight:	4.1 kg
Total harmonic distortion:	0.003% (1 kHz)	Accessories:	Connection cables (Pin plugs) x 1 Remote control unit x 1 (Only XR-35)
Channel separation:	Over 90 dB		
Wow and flutter:	Unmeasurable		
Output:	2.0 Volts		
Pickup:	Semiconductor laser		

Specifications are subject to change without notice.

TA, TC, TE, TU, AY

1. OPERATING CONTROLS



FRONT PANEL CONTROLS

1 Power Switch [POWER]

Press once to switch power on and press again to switch power off.

2 Headphones Jack [PHONES]

For stereo headphones connection.

3 Headphones Volume Level Control [LEVEL]

Adjustment of the headphones output volume level.

4 Disc Tray

5 Open/Close Key [OPEN/CLOSE]

Press once to open the tray and press again to close it.

6 Display Selector Key [DISPLAY]

The following four display modes are selected one at a time each time the DISPLAY key is pressed. (Note that memory mode display cannot be selected until a track number has been stored in memory.)

1. TRACK Display of current track and index numbers.
2. LAP.TIME..... Display of elapsed play time from the beginning of each track.
3. REM.TIME Display of the remaining time to the end of the disc. Note that remaining time is not displayed during memory play mode.
4. MEMORY..... Display of memory contents. Note that this display mode cannot be selected while the memory is still empty.

7 Memory key [MEMORY]

Use this key to store favorite tracks in memory. The memory can be cleared again by pressing the REPEAT key while pressing this MEMORY key.

8 Repeat Key [REPEAT]

Press once to switch to repeat mode, and press again to cancel repeat mode.

9 Down/Reverse Key [DOWN/REV]

Press once during play mode to return to the beginning of the current track, or press in quick succession to return to the beginning of previous tracks. Fast reverse mode is activated by pressing this DOWN/REV key while the PLAY key is pressed.

10 Pause/Stop Key [PAUSE/STOP]

Press once during play mode to temporarily stop the disc (pause mode), and press a second time to switch to stop mode (where disc play is stopped and the display is returned to 00.00).

11 Up/Forward Key [UP/FF]

Press once during play mode to advance to the beginning of the next track, or press in quick succession to advance to the beginning of successive tracks after that. Fast forward mode is activated by pressing this UP/FF key while the PLAY key is pressed.

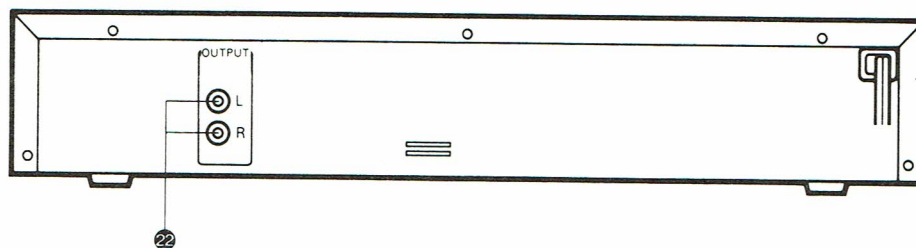
12 Play Key [PLAY]

Press to commence disc play.

13 Remote Control Sensor (XR-35 only)

The remote control unit supplied with the XR-35 must be operated pointed towards this sensor.

CAUTION: Before returning the unit to the customer, check that the resistance between both blades of AC plug and any accessible metal parts is more than $3M\Omega$ after completion of servicing, using the circuit tester. (U.S.A. Model only)



Indicator and Display Section

- ⑭ **Elapsed Time Indicator [LAP.TIME]**
Comes on when elapsed track playing time is displayed.
- ⑮ **Remaining Time Indicator [REM.TIME]**
Comes on when remaining disc playing time is displayed.
- ⑯ **Operation Indicator**
Blinks on and off during disc play in TRACK display mode, and remains on during pause and stop modes.
- ⑰ **Memory Indicator [MEMORY]**
Blinks on and off during memory disc play and remains on when memory contents are being displayed.
- ⑱ **Display Section**
Display of track number, elapsed or remaining time, or memory contents.
- ⑲ **Pause Indicator [PAUSE]**
Comes on when player is switched to pause mode.
- ⑳ **Repeat Indicator [REPEAT]**
Comes on when player is switched to repeat mode.
- ㉑ **Track Number Indicator [TRACK]**
Comes on when track number is displayed.

Rear Panel

- ㉒ **Output Terminals [OUTPUT]**
Connect to the CD or AUX input terminals of a stereo amplifier.

2. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Remove two screws (A) from side boards and four screws (B) from back board, and the top cover will be removed.



Figure 1



Figure 2

(A) 2DTBID
3φ x 8mm, BLK

(B) 2DTBID 3φ x 8mm, BLK



Figure 3

TRAY PANEL REMOVAL

1. Open disc tray.
2. Unhook two locations (C) and the tray panel will be removed.

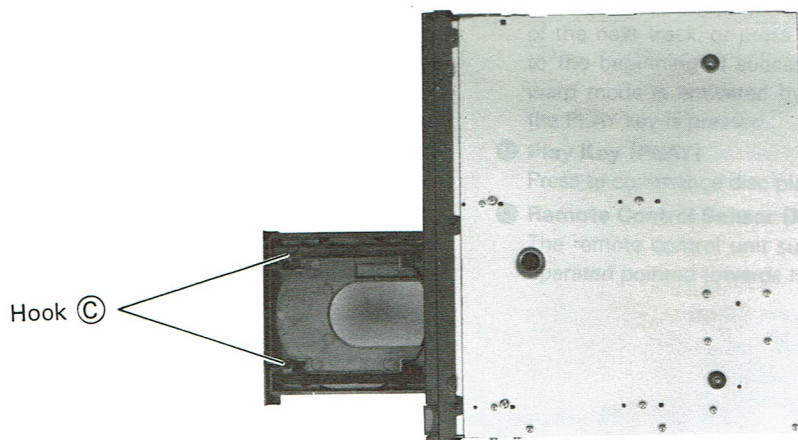


Figure 4

FRONT PANEL REMOVAL

1. Remove tray panel.
 2. Remove three screws (D) from bottom plate and four screws (E) from both side boards, and the front panel will be removed.
- * Pay attention not to disconnect Display P.C. Board leads attached to front panel.

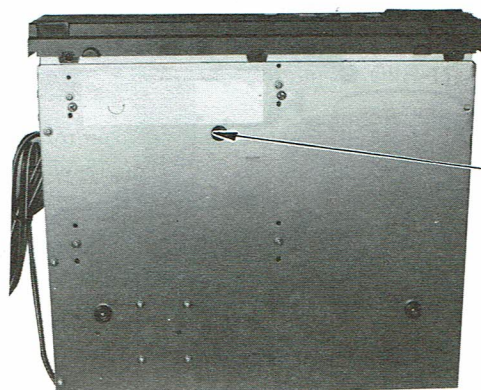


Figure 5 (OPH-21, OPH-23)

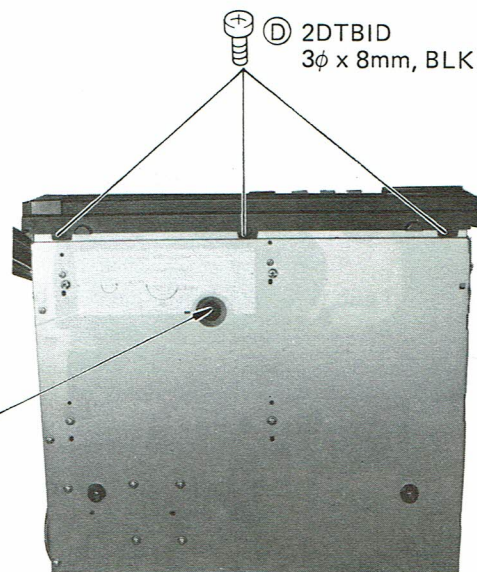


Figure 5 (OPH-41)

Caution: OPH-21, OPH-23 and OPH-41 are different in that the former has no depression at a place indicated by arrow (Z) but the later has depression.



Figure 6

(E) 2DTBID
3φ x 6mm

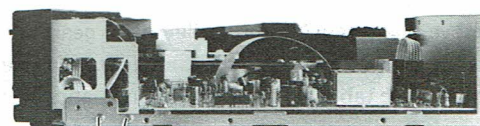
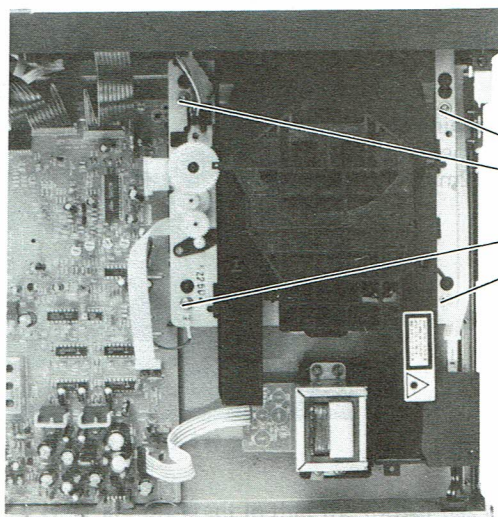


Figure 7

(E) 2DTBID
3φ x 6mm

MECHANISM ASSEMBLY REMOVAL

1. Remove front panel.
2. Remove four screws (F), and the mechanism assembly will be removed.



(F) 2DTPAN with washer
3φ x 10mm

Figure 8

MECHANISM REMOVAL

1. Push clamber lever downward and push hook (G) horizontally, and then the clamber lever will be removed. (Figure 9)
2. Pull disc tray to the direction indicated by arrow (H), and the disc tray will be removed. (Figure 10)

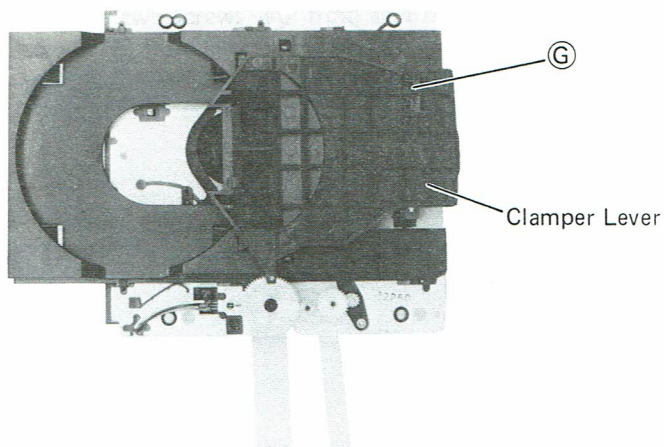


Figure 9

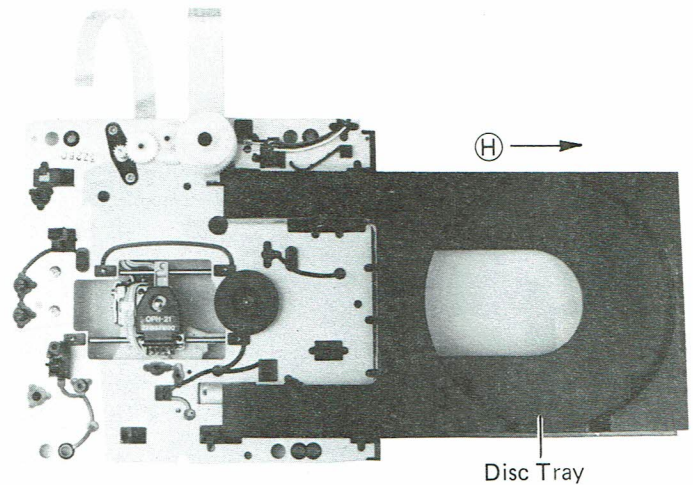


Figure 10

3. Remove two screws (J) (Figure 11) and one screw (K) (Figure 12), and the loading motor P.C. Board will be removed.
4. Remove one screw (L) and pulley drive gear, and the pickup motor assembly will be removed. (Figure 12)
5. Remove four screws (M), and the pickup will be removed. (Figure 12)
6. Remove disc table and two screws (N), and the disc motor assembly will be removed. (Figure 11)

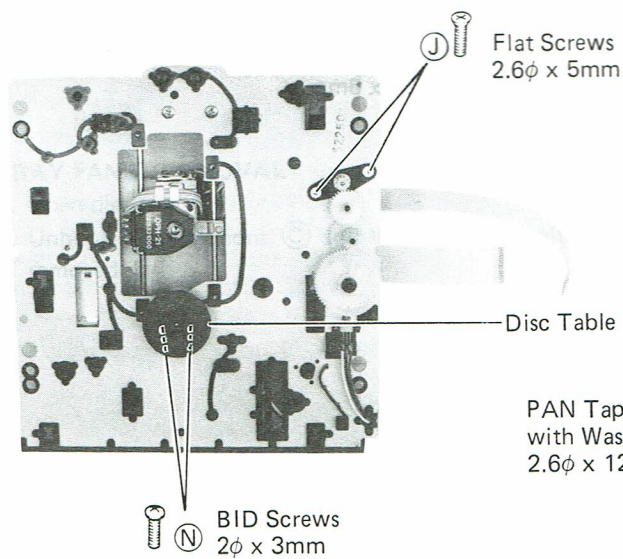


Figure 11

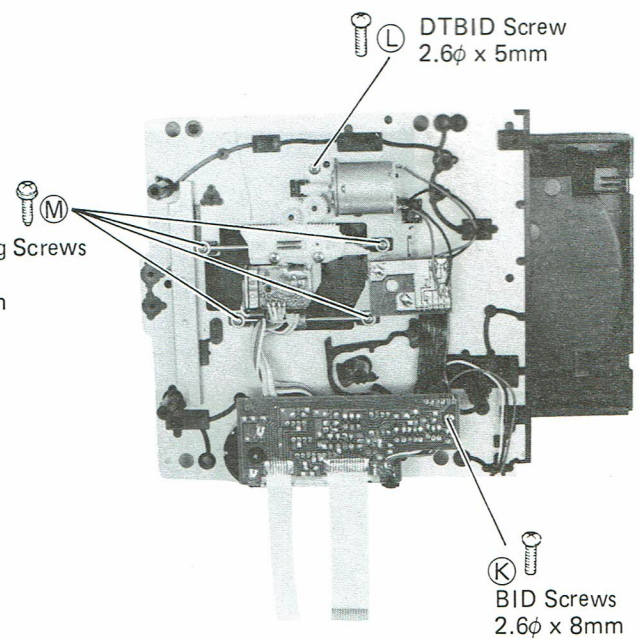
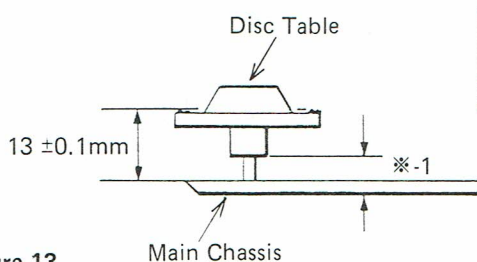
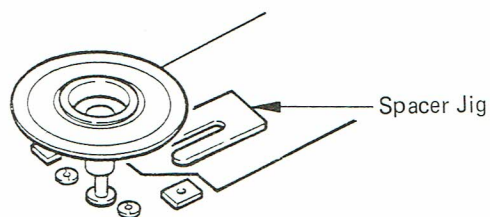


Figure 12

DISC TABLE MOUNTING



※ -1

OPH-21	5mm
OPH-23	
OPH-41	3mm

Figure 13

Insert spacer (※ -1), which was packed with motor, between main chassis and disc table. Push center of disc table until it touches spacer.

※ -1: 5mm for OPH-21, OPH-23, 3mm for OPH-41.

Notes:

1. When mounting disc table, take care of disc table not to touch pickup or disc tray.
2. Mount disc table in parallel with main chassis.
3. There are three kinds of spacer jigs corresponding to the motor assemblies or three kinds of pickups.
Check your pickup and order the motor assembly you want.
Disc motor assembly for OPH-21, OPH-23: 25792092
Disc motor assembly for OPH-41: 25792143

INSERTING DISC TRAY

Turn cam gear counterclockwise fully until leaf switch ① moves to the mount outer position. (Figure 14)

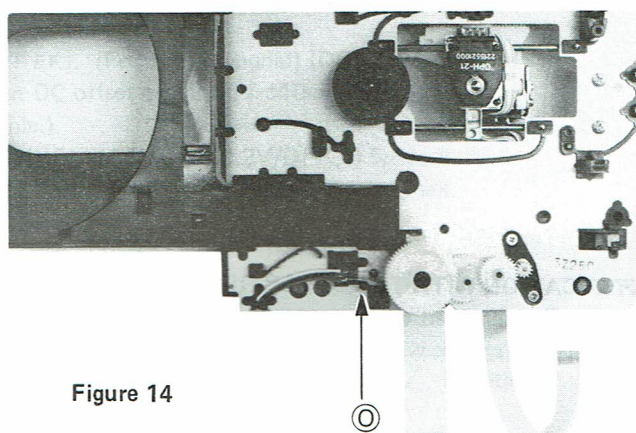
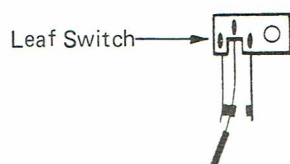


Figure 14

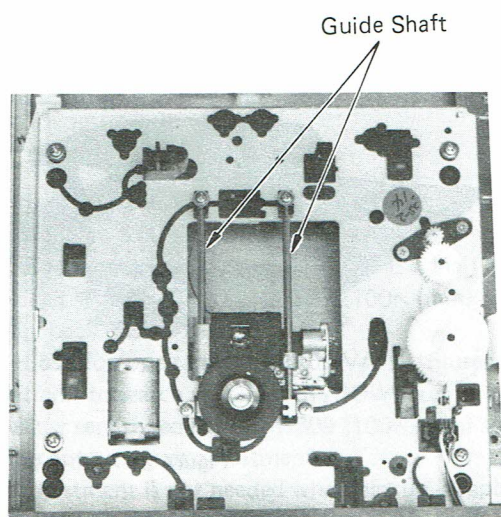


Figure 15 (OPH-41)

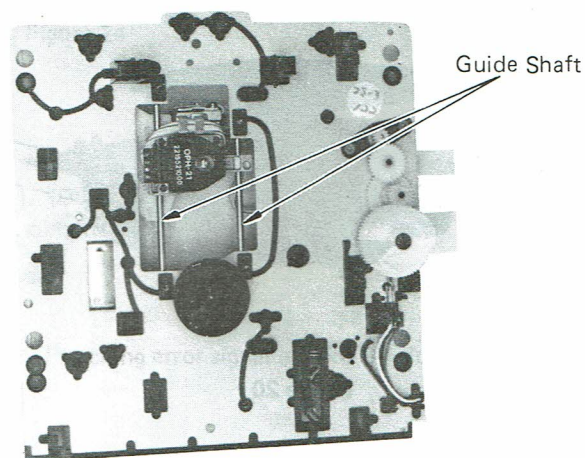


Figure 15 (OPH-21, OPH-23)

CAUTION:

OPH-21, OPH-23 and OPH-41 are different in that the former has the guide shaft mounted on the mechanism, and the later under the mechanism.

3. LASER PICKUP IDENTIFICATION

1. APPEARANCE IDENTIFICATION

- Two kinds of laser pickup (OPH-21, OPH-23/OPH-41) are used for XR-30/XR-35.
- OPH-41 is used for units with mark "Ⓐ" and OPH-21, OPH-23 is used for units without mark "Ⓐ".
The mark "Ⓐ" is put on after model name (XR-30/XR-35) as XR-30A and XR-35A on the front panel. The mark "Ⓐ" is also labeled below the name plate on the jack plate.

FOR OPH-21, OPH-23

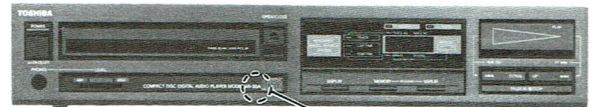


Figure 16



Figure 18

FOR OPH-41



XR-30A
XR-35A

Figure 17



Ⓐ Mark

Figure 19

2. IDENTIFICATION WITH TOP COVER REMOVAL

Pickup can be identified whether mechanism main chassis has a curved end or not. The unit which employs OPH-21, OPH-23 have the chassis with its end not curved, and the unit which employs OPH-41 has curved end.

FOR OPH-21, OPH-23

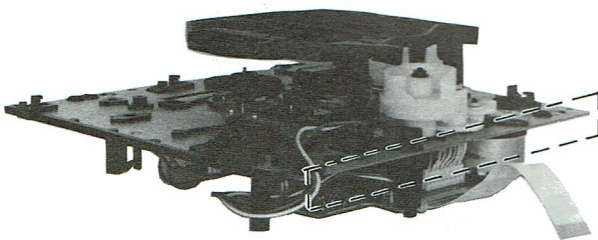


Figure 20

FOR OPH-41

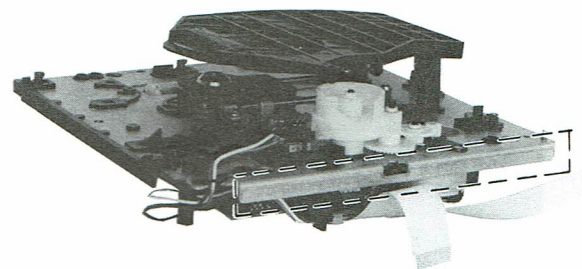


Figure 21

4. ADJUSTMENTS

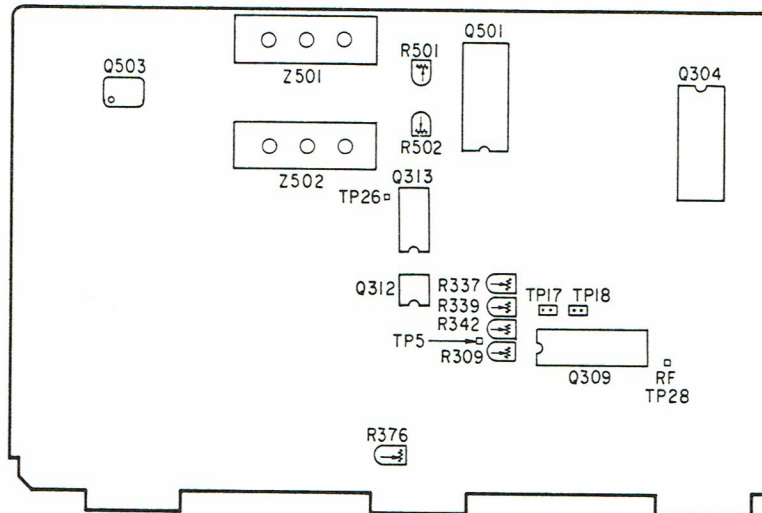


Figure 22

■ ADJUSTMENT PROCEDURES AFTER LASER PICKUP REPLACEMENT

1. Remove tray.
2. Remove clamber.
3. Focus balance and offset adjustment
 - 1) Set unit to STOP mode.
 - 2) Connect oscilloscope across TP17 (FE) and TP5 (VREF). (Focus error signal) (DC range: 5mV/DIV.)
 - 3) Adjust semi-fixed resistor R339 (100K ohm) so that DC offset obtains $0V \pm 10mV$.
 - 4) Play back YEDS-7 DISC. (Any Track No. is available.)
 - 5) Connect oscilloscope across TP5 (VREF) and TP28 (RF). (AC range: 0.2V/DIV., 0.5 μ sec./DIV.)
 - 6) Adjust semi-fixed resistor R342 (20K ohm) so that 3T component of RF signal obtains max.

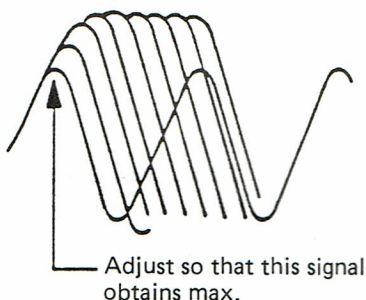


Figure 23

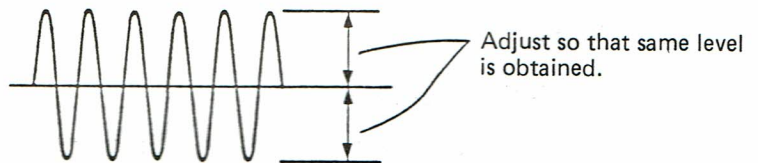


Figure 24

4. Tracking error balance and offset adjustment
 - 1) Set unit to STOP mode.
 - 2) Connect oscilloscope across TP18 (TE signal) and TP5 (VREF). (DC range: 5mV/DIV.)
 - 3) Adjust semi-fixed resistor R337 (100K ohm) so that DC offset obtains $0V \pm 10mV$.
 - 4) Play back YEDS-7 DISC.
 - 5) Set oscilloscope range to DC 0.5V/DIV, 5msec./DIV.
 - 6) Set unit to search mode by UP/DOWN key.
 - 7) Adjust semi-fixed resistor R309 (100K ohm) so that DC offset of tracking error signal obtains 0V during serching.
5. Analog output offset adjustment

This adjustment is not needed when pickup is replaced.

 - 1) Turn power of unit ON.
 - 2) Connect DC voltmeter or oscilloscope to Q503 pin 1 (L ch) and pin 7 (R ch) on Main P.C. Board.
Adjust semi-fixed resistor R502 50K ohm (L ch) and R501 50K ohm (R ch) so that offset (DC range) obtains $0 \pm 10mV$.

DISC MOTOR BRAKE ADJUSTMENT

1. Short-circuit pins 3 and 4 of Q313 (TC40538P).
2. Connect pin 14 (TP26) to VREF (TP5).
3. Turn power on.
4. Connect oscilloscope probe across pin 7 of Q313 and VREF (TP5). (5mV range)
5. Adjust semi-fixed VR R376 (50K ohm) by turning it so that voltage output obtains within $\pm 5\text{mV}$.

■ CAUTIONS ON LASER PICKUP REMOVAL

1. When removing laser pickup, solder and short-circuit patterns or leads to protect laser pickup from damage which may be caused during the removal. (Refer to Figures 25 and 27)
2. Disconnect leads from connector after soldering is completed. Do not touch the pickup terminals with your hand.
3. When mounting laser pickup, connect the leads to connector before unsoldering the solder used to short-circuit.

■ CAUTIONS ON LASER PICKUP REPLACEMENT

1. When mounting a new laser pickup, first connect the leads to connector and then unsolder the solder used to protect laser diode on P.C. Board. (Refer to Figures 26 and 28)
- * Use a soldering iron grounded (or leakageless iron).
 - * Cover working bench with conductive mat grounded.
 - * Before proceeding job, always touch the conductive mat or ground lead with your both hands to discharge electric charges developed on your body.

< OPH-21 >

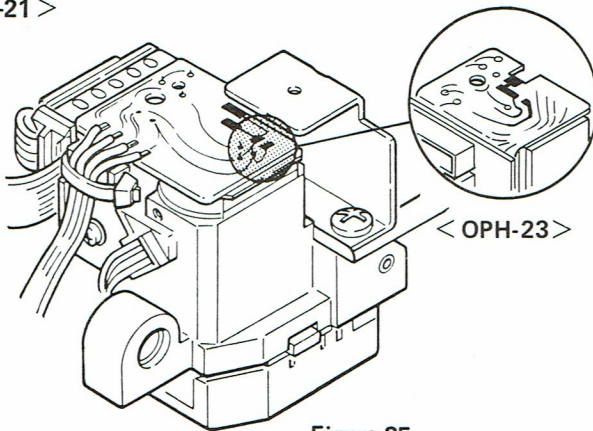


Figure 25

- Solder the patterns shown in illustration before disconnecting connector and leads.

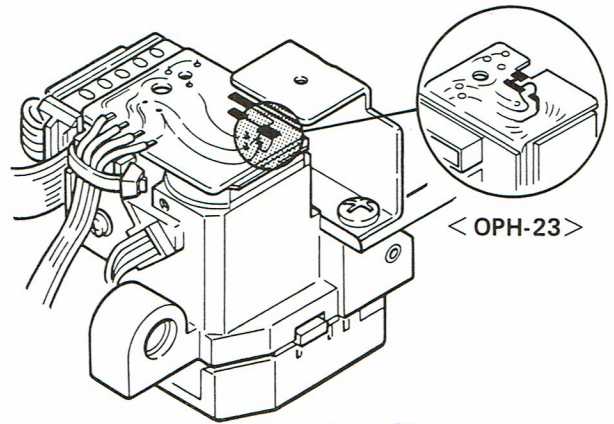


Figure 26

- Soldered condition.

< OPH-41 >

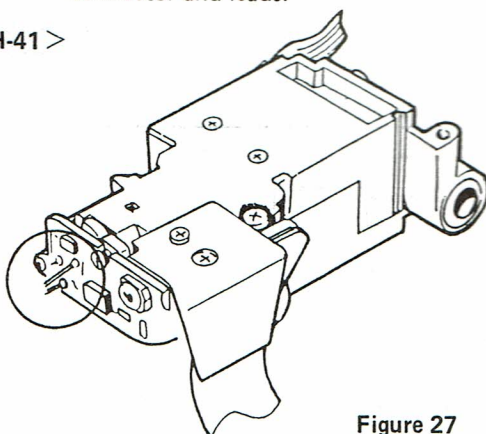


Figure 27

- Solder the leads shown in Figure 26 (indicated by circle) before disconnecting lead connectors.

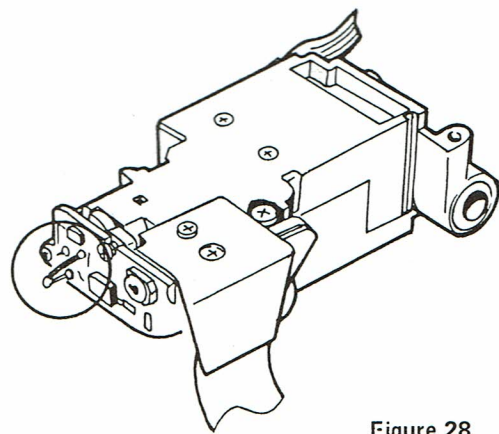


Figure 28

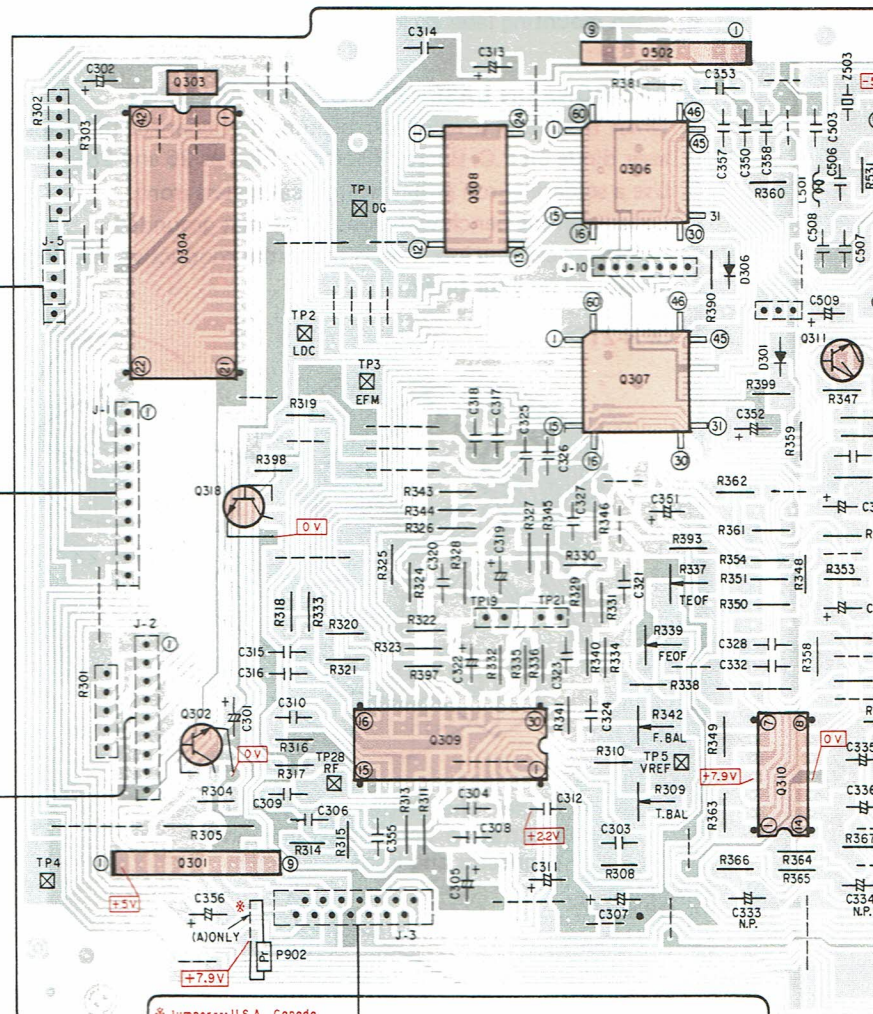
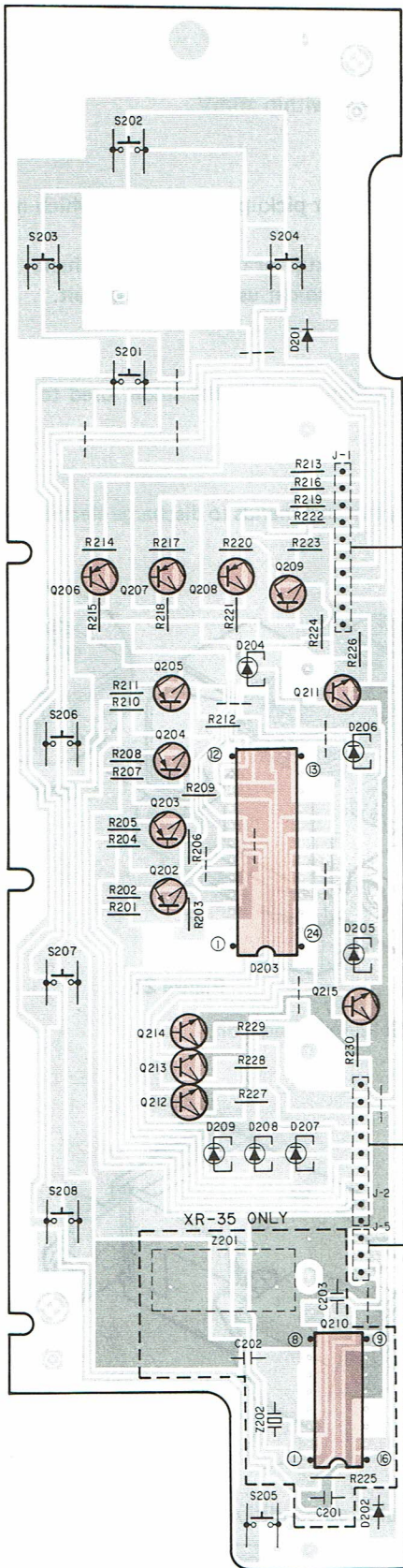
- Soldered condition.

CAUTION: The necessary distance between laser pickup and the viewers eye is only 2mm.

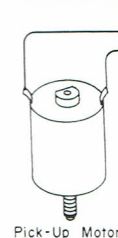
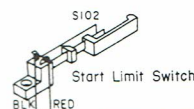
OPH-21 OPH-23	Patterns Figure 25.
OPH-41	Leads Figure 27.

FOR OPH-21, OPH-23

5. ELECTRICAL PARTS



Voltagas at power on with door closed without disc.
Voltagas at PLAY mode with disc loaded.

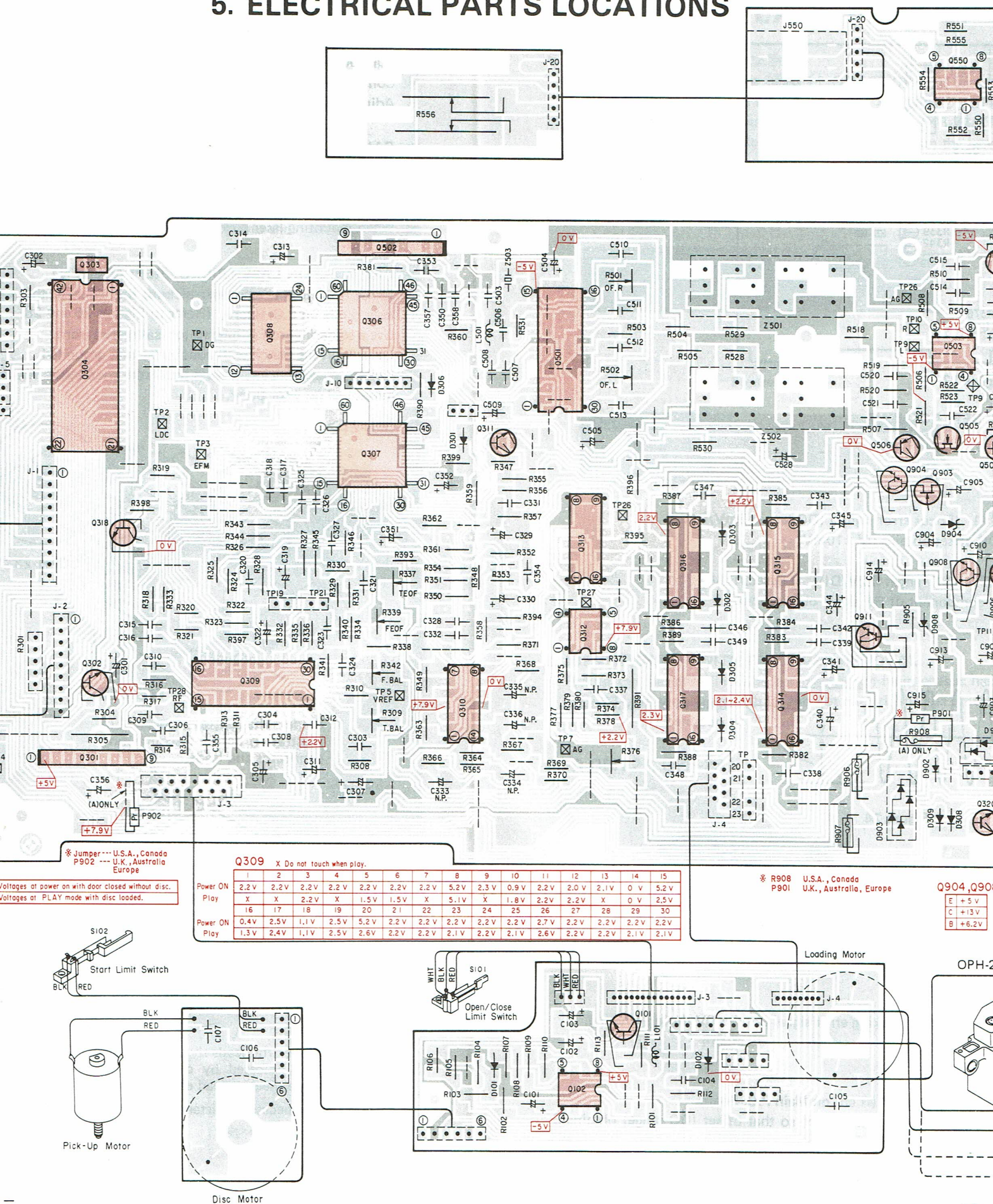


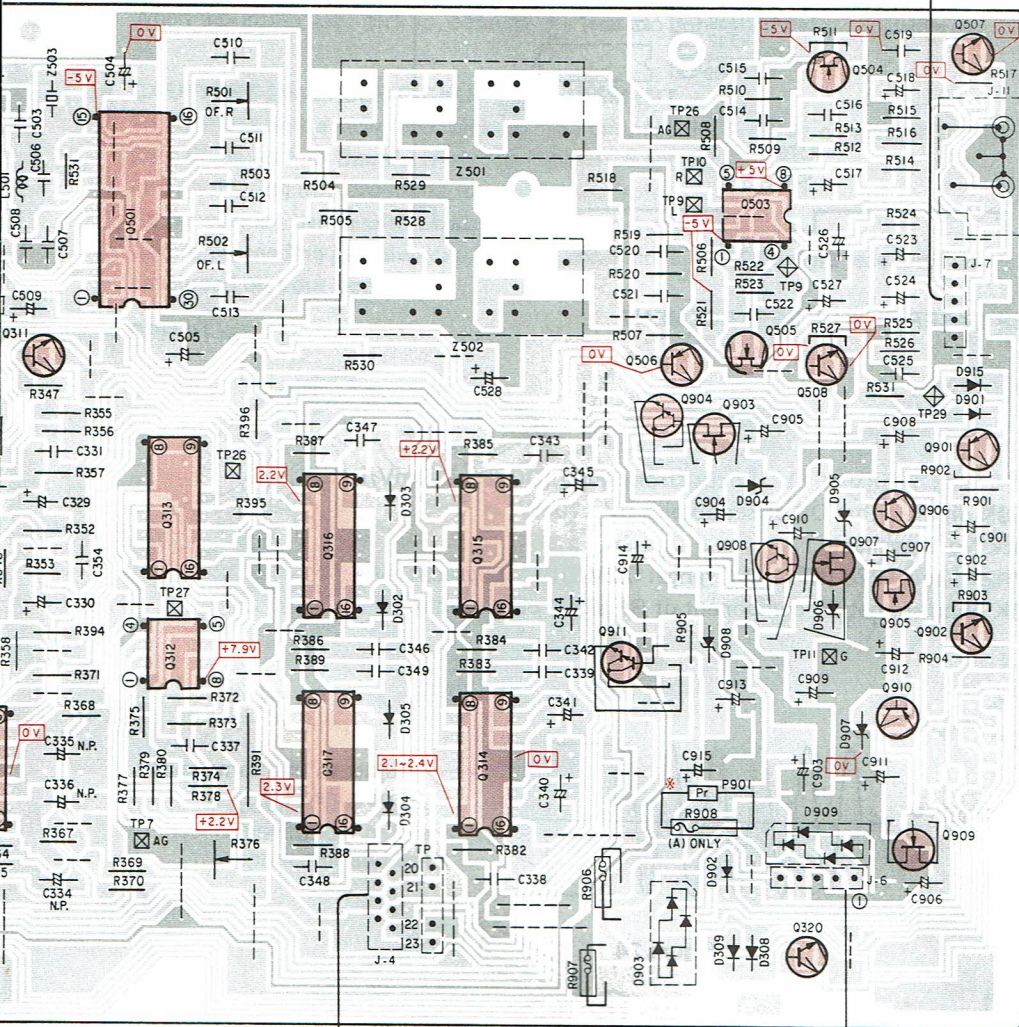
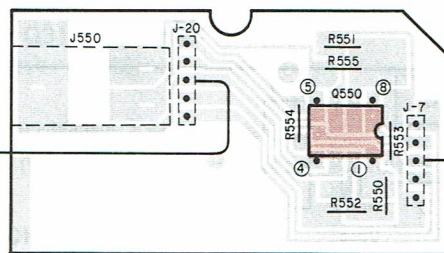
Q309 X Do not touch when play.

	1	2	3	4	5	6	7	8	9	10
Power ON	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	5.2 V	2.3 V	0.9 V
Play	X	X	2.2 V	X	1.5 V	1.5 V	X	5.1 V	X	1.8 V
	16	17	18	19	20	21	22	23	24	25
Power ON	0.4 V	2.5 V	1.1 V	2.5 V	5.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V
Play	1.3 V	2.4 V	1.1 V	2.5 V	2.6 V	2.2 V	2.2 V	2.1 V	2.2 V	2.1 V

Disc Motor

5. ELECTRICAL PARTS LOCATIONS





9	10	11	12	13	14	15
2.3 V	0.9 V	2.2 V	2.0 V	2.1 V	0 V	5.2 V
X	1.8 V	2.2 V	2.2 V	X	0 V	2.5 V
24	25	26	27	28	29	30
2.2 V	2.2 V	2.7 V	2.2 V	2.2 V	2.2 V	2.2 V
2.2 V	2.1 V	2.6 V	2.2 V	2.2 V	2.1 V	2.1 V

* R908 U.S.A., Canada
P901 U.K., Australia, Europe

Q904,Q908

E	+5 V
C	+13 V
B	+6.2 V

Q906,Q910

E	-5 V
C	-15 V
B	-5.6 V

Q911

E	+7.9 V
C	+16 V
B	+9.1 V

