

FG SERVO D.D. SEMI-AUTO TURNTABLE SERVICE MANUAL

SER. NO. 4035



**Better Service
Better Reputation
Better Profit**



SPECIFICATIONS

TURNTABLE SPECIFICATIONS NOMINAL VALUE

Drive Motor . . . Coreless, slotless, brushless, 4-phase 8-pole magnet field type flat DC motor.

Speed Control & Drive System FG Servo controlled direct drive.

Platter 310 mm diameter aluminum die-cast weight: 1.1 kgs

Wow & Flutter 0.045% (WARMS)

Signal to Noise Ratio65 dB (DIN-B)

Speed 33-1/3 & 45 RPM 2-speed

Speed Pitch Control Range $\pm 4\%$

ONEARM SPECIFICATIONS

Tonearm Type . . . Statically-balanced S-shaped tubular arm with direct reading tracking force adjustment, oil-damped cueing mechanism and anti-skating device.

Tonearm Effective Length 215 mm pivot to stylus

Overhang 16 mm

Acceptable Cartridge Weight 4 ~ 10 grams

CARTRIDGE PERFORMANCE NOMINAL VALUE

Cartridge Type Moving Magnet Type

Frequency Response 20 ~ 18,000 Hz

Channel Balance Within 1.5 dB at 1 KHz

Crosstalk between Channels 25 dB at 1 KHz

Output Voltage 3.0 mV at 1 KHz 50 mm/sec.

Optimum Load 47 K Ω

Tracking Force 2.0 \pm 0.5 grams

Stylus0.7 mil diamond

OTHER SPECIFICATIONS

Power Supply 110/120V, 220/240V AC 50/60 Hz

Dimension

Cabinet 450 (W) x 45 (H) x 350 (D) mm

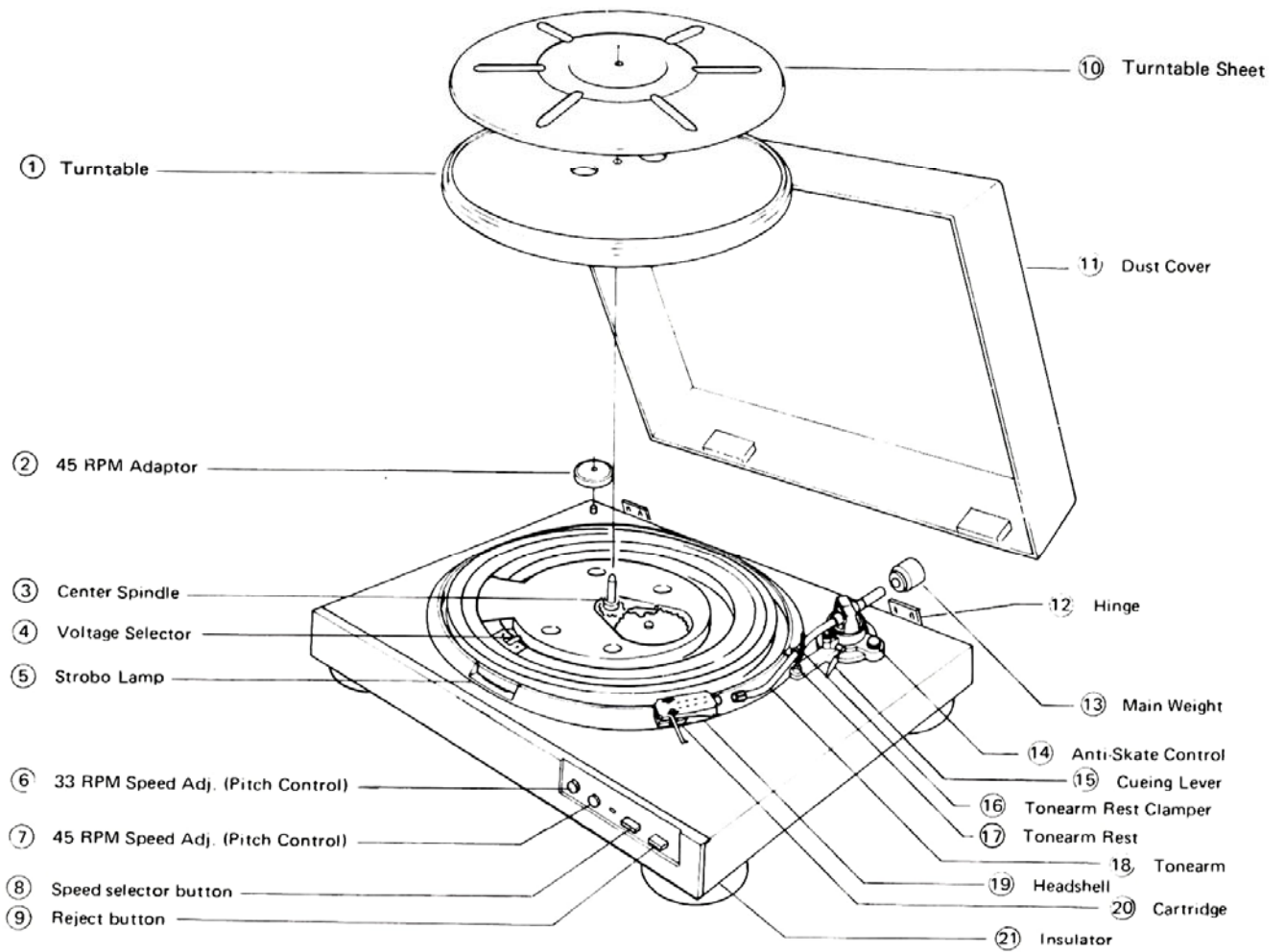
Overall 450 (W) x 130 (H) x 350 (D) mm

Weight Approximately 6 kgs

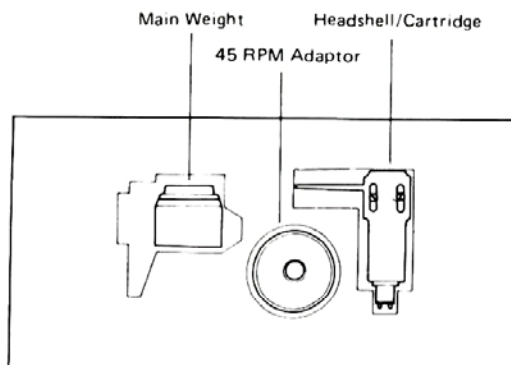
Dust Cover Removable hinged dust cover

NOTE: The above specifications are subject to change without notice for further improvement.

NAMES OF PARTS AND ACCESSORIES



ACCESSORIES



1. ASSEMBLING TONEARM

(1) Attaching Main Weight

Mount the Main Weight onto the rear end of the tonearm shaft, as shown in Fig. 1, and turn it a few times. Leave it the way it is until you adjust the tracking force as instructed later.

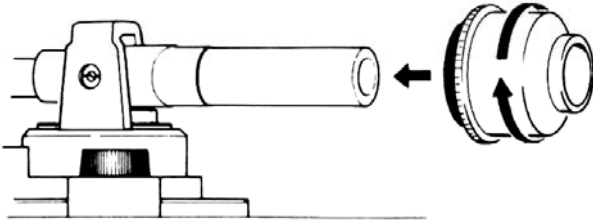


Fig. 1 Attaching the main weight

(2) Connecting Headshell

Insert the connector of the headshell into the front end of the shaft, then fix it by turning the lock nut, as shown in Fig. 2.

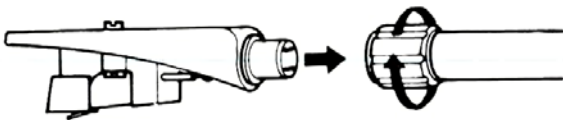


Fig. 2 Connecting the headshell

(3) Adjusting Horizontal Balance

- 1) Set the Anti-Skate Control to "0".
- 2) Pull the Cueing Lever down toward yourself.
- 3) Pull the stylus cover off the cartridge.
- 4) Release the tonearm from the tonearm rest. The tonearm will swing up or down, or sideways, and so care must be taken to avoid damage to the stylus.
- 5) Turn the Main Weight and move it forward or backward to balance the entire tonearm support. Leave the Main Weight where it balances the tonearm horizontally, as shown in Fig. 4.
- 6) When the above adjustment is finished, replace the stylus cover, return the tonearm to the tonearm rest, and lift the Cueing Lever up as before.
- 7) With the tonearm balanced horizontally, it has a tracking force of "0" gram. In preparation for tracking force adjustments, therefore, turn only the Tracking Force Dial to set the dial to read "0" on the reference line of the tonearm shaft. Be sure not to turn the entire Main Weight yet as it will spoil the horizontal balance of the tonearm.

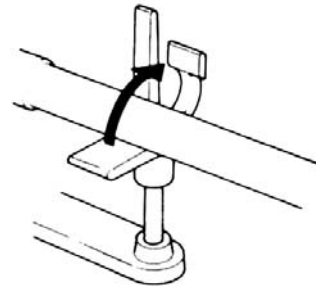


Fig. 3

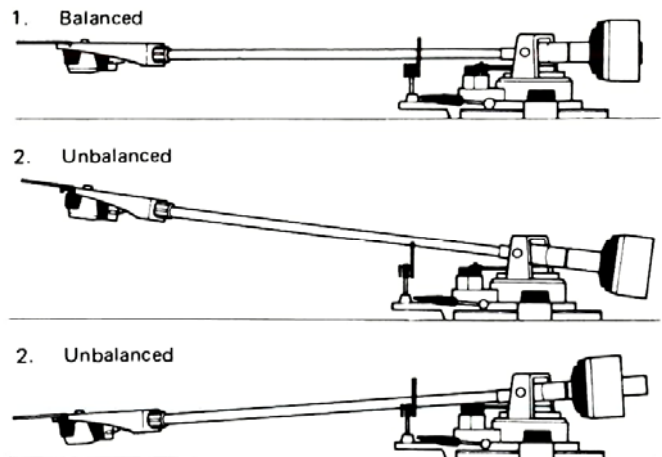


Fig. 4 Adjusting the horizontal balance

(4) Adjusting Tracking Force

Turn the Main Weight until the Tracking Force Dial indicates the appropriate tracking force for your cartridge.

The standard cartridge provided operates best with a tracking force of 2.0 grams, and so if you are using it, adjust the dial to 2.0 grams as shown in Fig. 5.

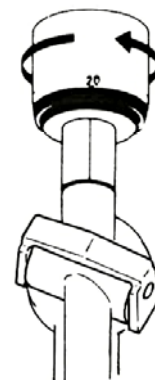


Fig. 5 Adjusting tracking force

2. REPLACING CARTRIDGE

When you wish to replace the cartridge, proceed as follows:

- (1) Loosen the lock nut of the tonearm, and remove the headshell from the tonearm.
- (2) Loosen the screws fastening the cartridge to the headshell, then remove the cartridge from the headshell.
- (3) Remove the four lead wires of the headshell from the cartridge, taking care not to damage the wires.
- (4) Connect the four lead wires to the new cartridge. The four lead wires are colour-coded as shown in Fig. 6 to help identify their polarities. Be sure to match the polarities correctly between the headshell and the new cartridge.
- (5) Secure the cartridge to the headshell tentatively (not too firmly).
- (6) Adjust the overhang. This is accomplished by moving the tonearm all the way to above the center spindle of the platter, sliding the cartridge inside the headshell back and forth, and fixing it so that the distance between the stylus tip and the center of the center spindle is about 16 mm, as shown in Fig. 7.
- (7) When the above adjustment is finished, re-adjust the horizontal balance of the tonearm, the tracking force and Anti-Skate Control following the instructions given on Item 1-(3), (4) above. Be sure to adjust the tracking force to the value specified by the manufacturer of the new cartridge.
 - 1) Any cartridge weighing from 4 to 10 grams may be used with the AUP-6300E.
 - 2) Some cartridges may produce hum noise. If this happens, it may be reduced by disconnecting the grounding lead of the turnable from your stereo amplifier (read the operating manual of the cartridge for more detail).

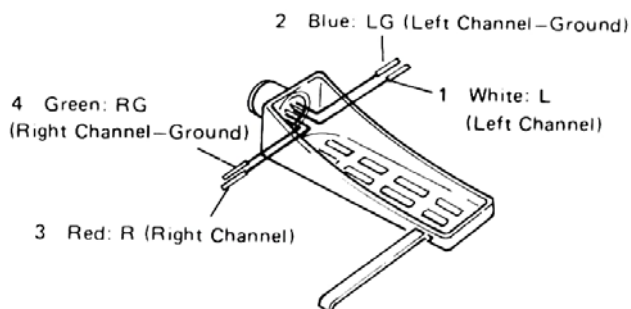


Fig. 6 Replacing cartridge

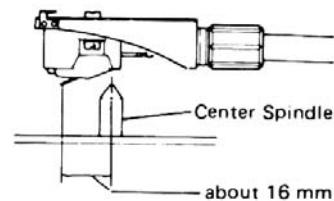


Fig. 7 Adjusting overhang

3. REPLACING STYLUS

To replace the stylus, first loosen the lock nut of the tonearm, and remove the headshell from the tonearm. Then the entire stylus holder may be pulled off the cartridge, as illustrated. To mount a new stylus, simply reverse the procedure, but take care not to damage the stylus tip.

- (1) The life of a diamond stylus is any where from 800 to 1,000 hours, but it is recommended to replace it earlier for best record playing results.
- (2) The replacement stylus for the cartridge provided is designated the NEC LP-6300D, and may be purchased from your NEC dealer.

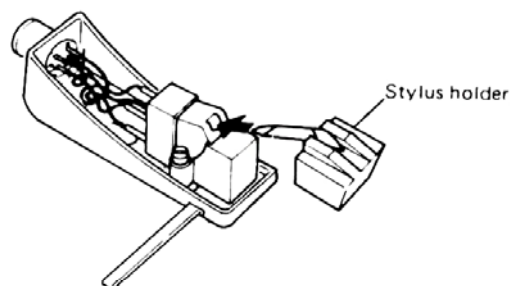


Fig. 8 Replacing stylus

ALIGNMENT PROCEDURE

1. CHECK ON CLEARANCE BETWEEN MICRO SWITCH AND FEED ARM

- (1) Clearance between micro switch and feed arm
(Check the clearance with R gear set at the stop position.)

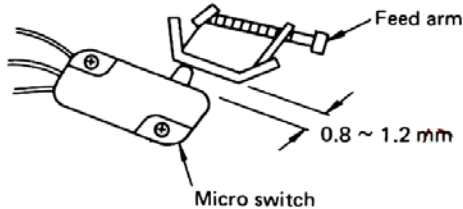


Fig. 9

- When the clearance is larger than specified, loosen two screws on the micro switch and after pushing it toward the feed arm, tighten the screws. (In case the clearance is smaller, pull the micro switch away from the feed arm after loosening the screws and tighten them.)

- (2) Start position

- Make adjustment so as to turn on the micro switch to start turning the turntable when the needle is in a range of 155 ~ 170 mm from the center of the turntable. (The micro switch must be turned on by shifting the pickup toward the center of the turntable. The clearance between the micro switch and the feed arm must remain as specified above.)

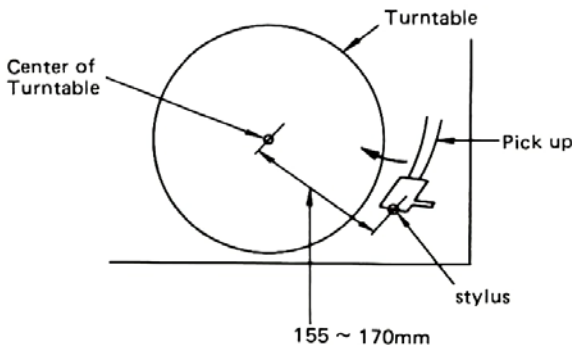


Fig. 10

- Position of feed arm

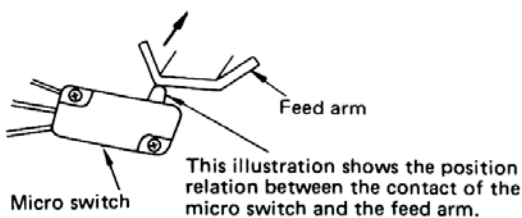


Fig. 11

2. ADJUSTMENT OF RETURN POSITION

- (1) Test record: ES-1008

- (2) Check on start position

- Make sure that the turntable starts turning when the needle comes in a range of 155 ~ 170 mm from the center of the turntable, to turn on the micro switch.
- If the turntable fails to start turning when the needle comes in the range, make adjustment after loosening the screw which fixes the feed arm in place.

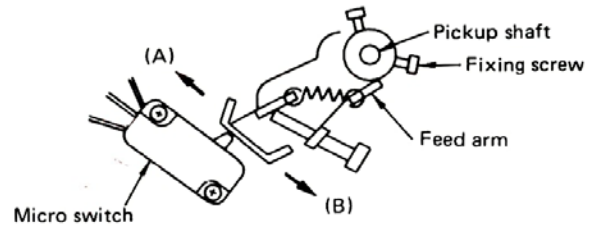


Fig. 12

When the start is too late, move the feed arm in the direction of (B).

When the start is too early, move the feed arm in the direction of (A).

- (3) Return position

- With the grooves with a 3-mm pitch of the test record in use, adjust the feed arm by turning the adjusting screw so as to enable the pickup to return in a range of 65 to 56 mm.
- Range of 65 to 56 mm expressed in terms of the number of counts: 13 ~ 16 counts.
(Standard: 10 ~ 20 counts)
- Make adjustment so as to enable the pickup to return with the counts being 14, 15 or 16.

3. ADJUSTMENT OF ELEVATION OF STYLUS

- (1) Adjust to 4 ~ 14 mm the elevation of the stylus from the surface of a record, by turning the elevation plate adjustment screw.

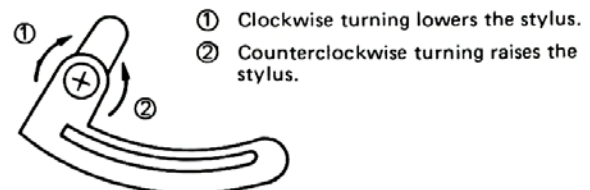


Fig. 13

4. ADJUSTMENT OF START AND RETURN POSITIONS

- (1) Adjustment of start position
 - o Make adjustment by positioning the feed arm so properly as to enable the pickup to start turning when the needle comes in the range of 155 ~ 185 mm from the center of the turntable. See in Fig. 14.
 - (2) Adjustment of return position
 - o The return will be earlier by turning screw A clockwise.
 - o The return will be later by turning screw A counterclockwise.
- With NEC ES-1008 test record in use, adjust the number of counts to 13 ~ 16.
- (3) Apply a screw locking agent to the return adjustment screw.

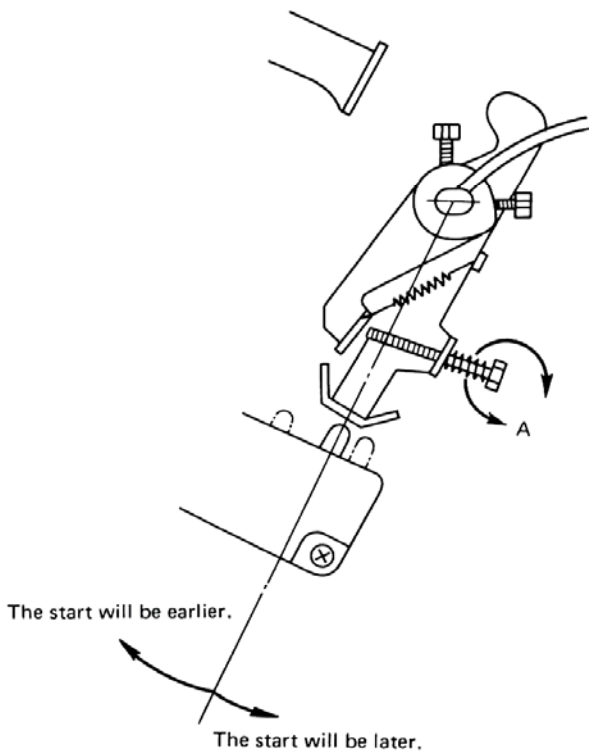


Fig. 14

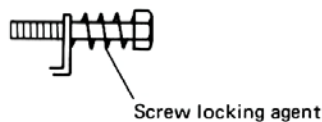





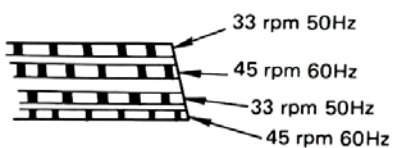


Fig. 15

5. ADJUSTMENT OF REVOLUTION

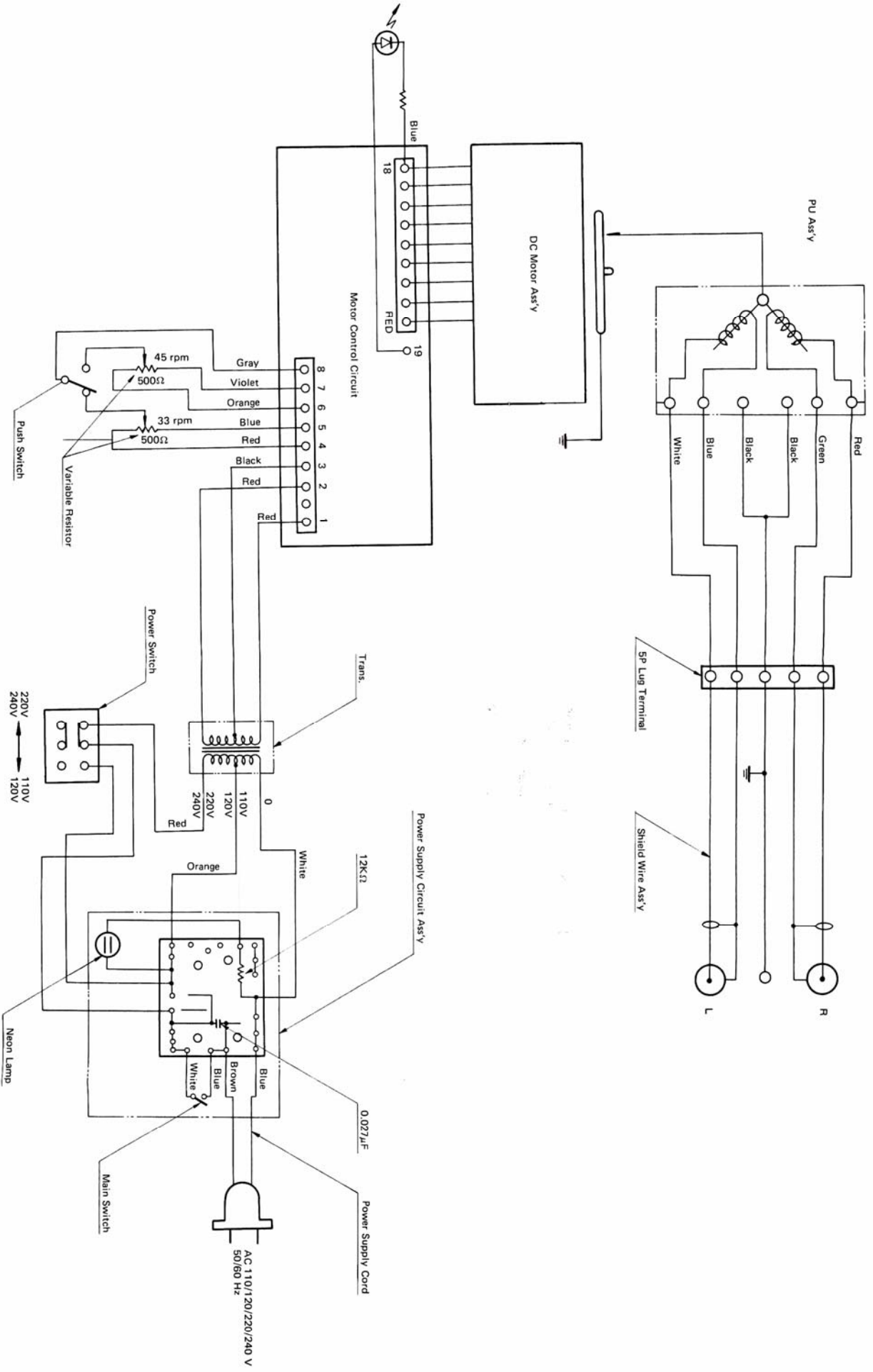
- (1) Turn the VR knob clockwise until it stops. 
- ↓
- (2) Draw a line on the VR knob with a pencil perpendicularly downward from the center of the knob to the circumference. 
- ↓
- (3) Turn the VR knob counterclockwise until it stops. 
- ↓
- (4) Draw a line on the VR knob with a pencil perpendicularly downward from the center of the knob to the circumference. 
- ↓
- (5) Turn the VR knob so as to place the sector formed by drawing the two lines on the knob, at the topmost position. 

Determine the mechanical center of the VR knob for 33 and 45 rpm by following steps (1) to (5) above.

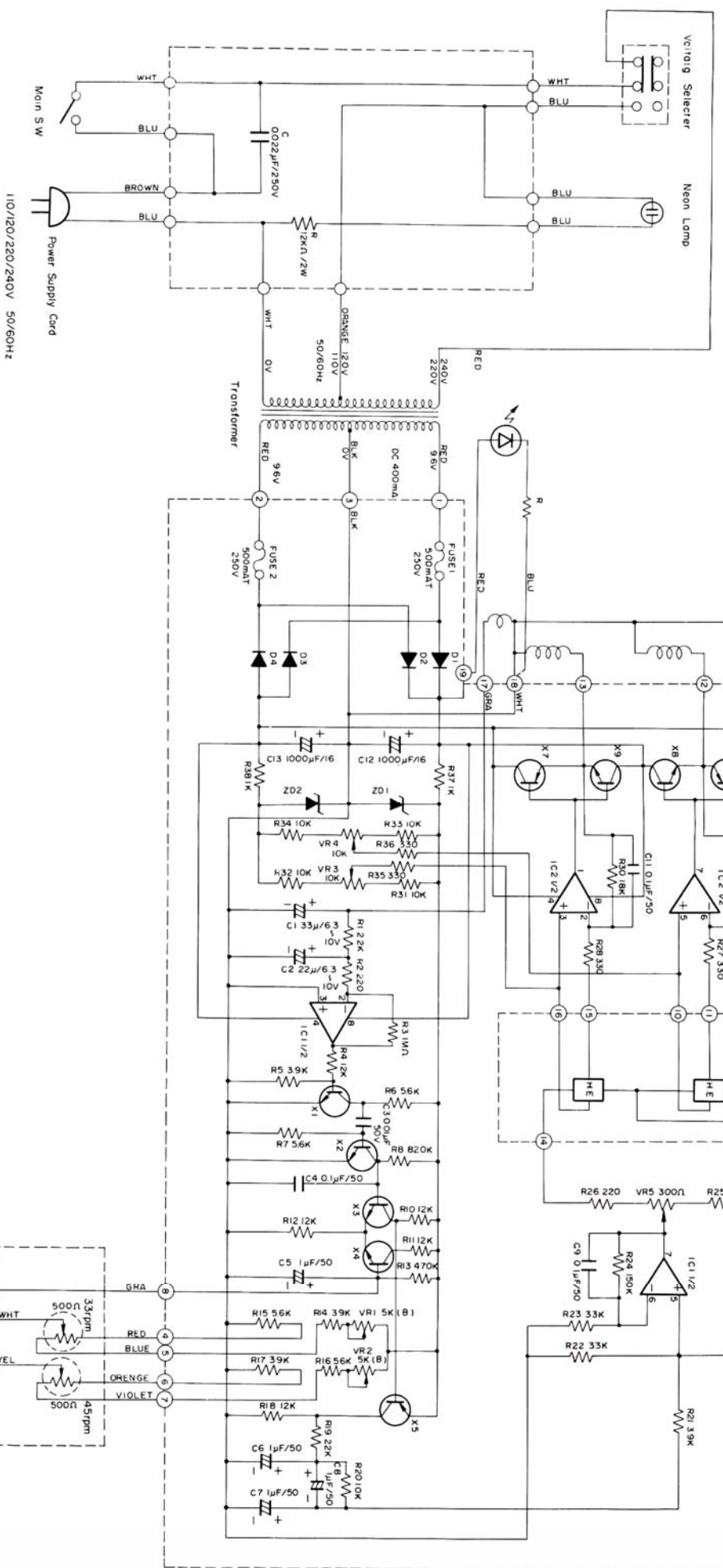
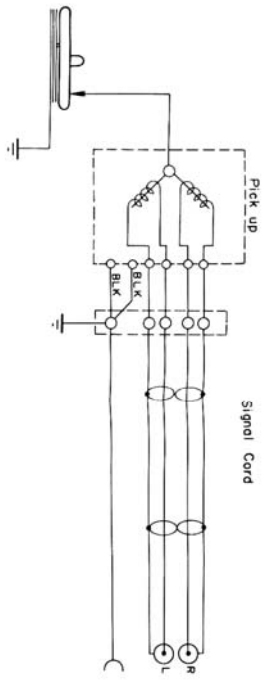
- ↓
- (6) Fix the turntable in place. 
- ↓
- (7) Adjustment
Adjust the turning of 33 rpm and that of 45 rpm so as to enable the strobe of the turntable to be stopped by turning the semi-fixed resistor of the motor circuit.

- (8) Check on the turning
Make sure with the aid of a slow-speed tachometer that, with the revolution speed set at 45 rpm, the turntable rotates at 46.8 rpm maximum and 43.2 rpm minimum and that, with that set at 33 rpm, it rotates at 34.63 rpm maximum and 31.97 minimum.

WIRING DIAGRAM



SCHEMATIC DIAGRAM

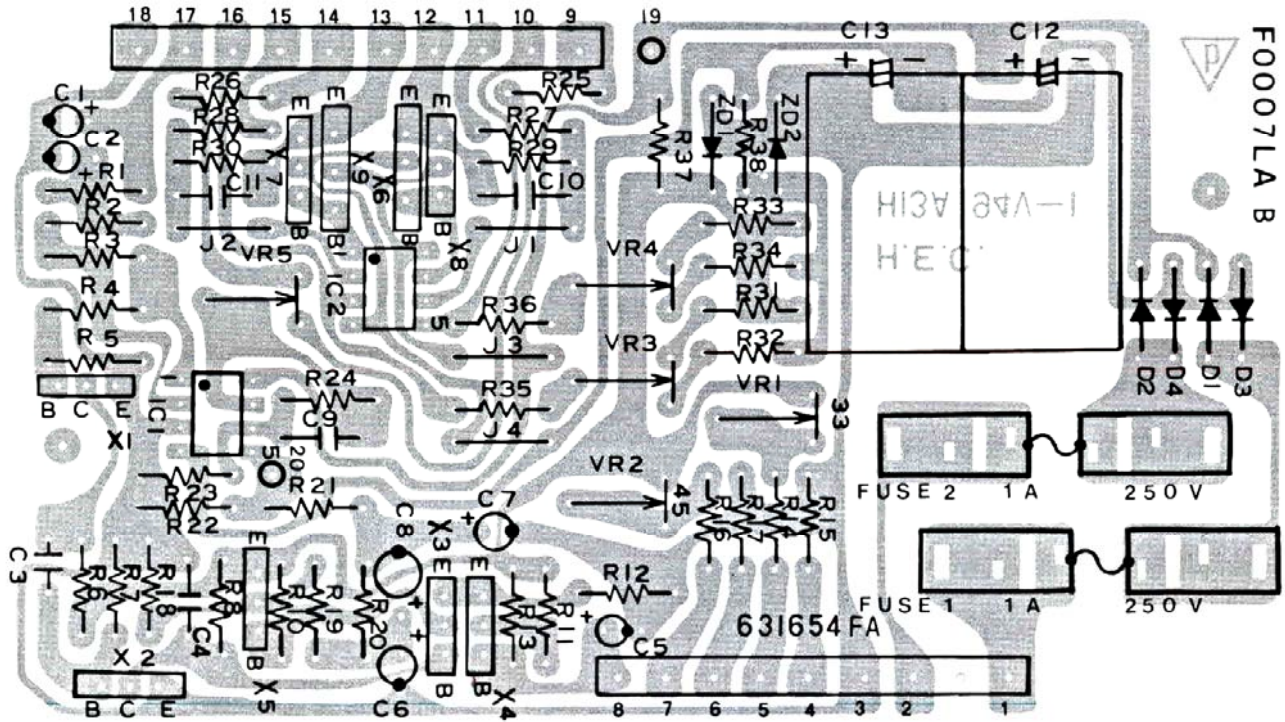


POWER CIRCUIT

MOTOR CONTROL CIRCUIT

D.D. MOTOR CONTROL PWB ASS'Y

Component Side



Solder Side

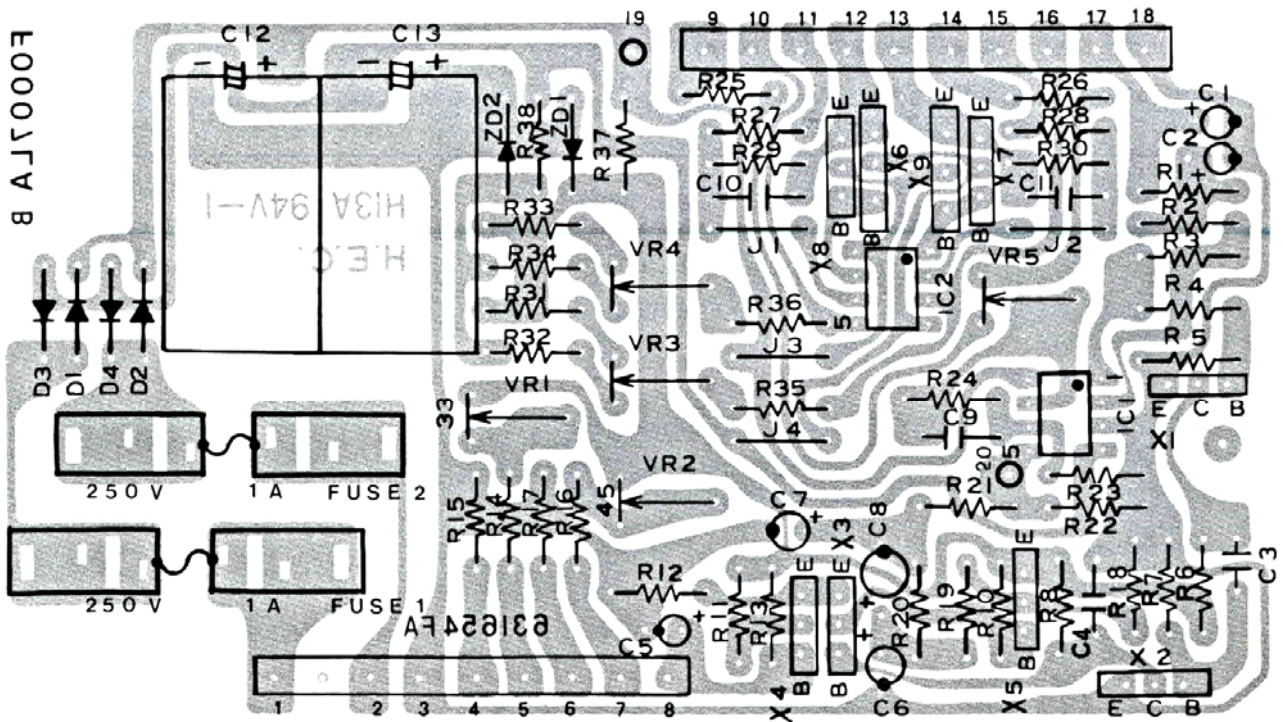


TABLE OF TROUBLESHOOTING INSTRUCTIONS

SYMPTON	CAUSE	REMEDY
Platter does not revolve.	<ul style="list-style-type: none"> ● Power cable is unplugged. 	<ul style="list-style-type: none"> ■ Insert power cable firmly into AC outlet.
No sound.	<ul style="list-style-type: none"> ● Connection cords are unplugged from stereo amplifier. ● Headshell is not connected properly. ● FUNCTION switch of stereo amplifier is set to wrong position. ● TAPE MONITOR switch of stereo amplifier is set to TAPE (or MONITOR). ● Lead wires of cartridge are disconnected. 	<ul style="list-style-type: none"> ■ Connect cords firmly. ■ Tighten lock nut. ■ Set FUNCTION switch to PHONO. ■ Set TAPE MONITOR switch to SOURCE. ■ Connect lead wires firmly to terminal pins of headshell.
Tempo of reproduced music is strange.	<ul style="list-style-type: none"> ● Speed Selector is in wrong position. 	<ul style="list-style-type: none"> ■ Reset Speed Selector to correct speed for record.
Sound is noisy.	<ul style="list-style-type: none"> ● Dust or dirt on record surface. ● Dust or dirt on stylus. ● Tracking force is too light. ● Stylus is worn. ● Grounding lead is not connected to amplifier. 	<ul style="list-style-type: none"> ■ Clean record surface. ■ Clean stylus. ■ Adjust for proper tracking force. ■ Replace stylus. ■ Connect grounding lead to amplifier.
Sound is distorted.	<ul style="list-style-type: none"> ● Stylus is worn. ● Dust or dirt on stylus. ● Tracking force is too light. ● Overhang adjustment is wrong. 	<ul style="list-style-type: none"> ■ Replace stylus. ■ Clean stylus. ■ Adjust for proper tracking force. ■ Re-adjust overhang.
Loud howling noise. Stylus moves irregularly.	<ul style="list-style-type: none"> ● Howling phenomenon. ● Turntable is not placed on horizontal plane. ● Tracking force is too light, and Anti-Skate Control is not adjusted properly. 	<ul style="list-style-type: none"> ■ Move turntable away from speaker systems. ■ Place turntable on horizontal plane. ■ Re-adjust tracking force and Anti-Skate Control.
Auto-return and auto-cut do not work.	<ul style="list-style-type: none"> ● Cueing Lever is not down. 	<ul style="list-style-type: none"> ■ Pull Cueing Lever down.

REPLACEMENT PARTS LIST

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
2	18988191	R-Gear Ass'y (2)	1	
4	18984261	Actuating Arm	1	
6	18988281	Actuating Base	1	
8	18988301	Kick Lever	1	
9	18991111	Actuating Plate Ass'y	1	
12	18988361	Spring (1)	1	
13	18991551	E-Stop Ring 6φ	1	
14	18988341	Eccentric Pin 2	1	
17	18991541	Cabinet	1	
18	18991531	Name Plate Instruction	1	
19	18991521	Power Supply PWB Ass'y	1	
19-2	18991511	Neon Lamp	1	
19-3	18991501	Micro Switch	1	
19-4	18991341	2P Cord Ass'y	1	
19-5	18991331	Selector Switch	1	
24	18991491	Transformer	1	
26	18991481	Lamp Holder	1	
27	18991471	Lamp Cover (2)	1	
28	18991461	Lamp Cover (1)	1	
29	18991431	Control PWB Ass'y	1	
29-2	18991451	Variable Resistor	2	
29-5	18991441	Push Switch	1	
31	18992071	Knob, Volume	2	
33	18988581	Rest Base Ass'y	1	
34	18991421	Nut 2.6φ	1	
35	18991411	LED Ass'y	1	
35-1	18988471	Luminous Diode	1	
38	18991391	Pick Up Ass'y	1	
39	18988791	Elevation Shaft	1	
40	18988801	Elevation Spring	1	
41	18988811	Elevation Plate	1	

SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
44	18988841	Cueing Arm	1	
45	18988851	Cueing Lever	1	
46	18988861	Pick Up Base Plate	1	
47	18988871	Knob, Return Lever	1	
48	18988631	Forward Arm Ass'y (2)	1	
49	18989161	Forward Arm Cover	1	
50	18988881	IFC Knob Ass'y	1	
53	18988911	IFC Cam	1	
57	18991381	Motor Ass'y	1	
65	18991371	Bottom Cover	1	
66	18989181	Foot	4	
70	18989211	Dust Cover	1	
71	18989221	Hinge Ass'y	2	
72	18989991	Turntable	1	
73	18989251	Turntable Sheet	1	
74	70599039	AC Adaptor	1	
75	18989261	45 rpm Adaptor	1	
76	18991361	Model Name Instruction	1	
77	18989291	Serial No. Label	3	
78	18991281	Voltage Instruction	1	
80	18988761	Reject Lever	1	
81	18988731	Cut Lever	1	
83	18992081	Knob, Push	2	
90	18991131	Switch Cover	1	
19-7	18991351	Capacitor 0.022 μ F 250V	1	
19-8	40352699	Resistor 12K Ω 2W	1	
93	18753101	Passed Label	1	
94	18991311	Caution Label	1	
95	18991211	Cartridge	1	
96	18991221	Headshell	1	
97	18991231	Main Weight	1	
98		Stylus, LP-6100/6300DE	1	

