

# Service Manual

Direct Drive Automatic Turntable System

## SL-1700MK2

(M), (MC)

SL-1700MK2



- The model SL-1700MK2 (M) is available in U.S.A. only.
- The model SL-1700MK2 (MC) is available in Canada only.

### TECHNICAL SPECIFICATIONS

(Specifications are subject to change without notice.)  
(Weights and dimensions shown are approximate.)

#### General

**Power supply:** 120V, 50 or 60Hz  
**Power consumption:** 17.5W  
**Dimensions:** 45.3 x 14.9 x 39.9 cm  
 (W x H x D) (17-27/32" x 5-7/8" x 15-45/64")  
**Weight:** 10 kg (22 lb.)

#### Turntable section

**Type:** Quartz direct drive  
Automatic turntable  
(Auto return)  
(Auto stop)  
**Drive method:** Direct drive  
**Motor:** Brushless DC motor  
**Turntable platter:** Aluminum diecast  
Diameter 33.2 cm (13-5/64 inches)  
Weight 2 kg (4.4 lb.)  
**Turntable speeds:** 33-1/3 rpm and 45 rpm  
**Pitch control:** ±6% range  
**Starting torque:** 1.5 kg·cm (1.3 lb·in)  
**Build-up characteristics:** 0.7 s. (90° rotation) to 33-1/3 rpm  
**Braking system:** Electronic brake  
**Speed change due to load torque:** 0% within 1.0 kg·cm (0.87 lb·in)  
**Wow and flutter:** 0.01% WRMS (\*)  
0.025% WRMS (JIS C5521)  
±0.032% peak (IEC98A Weighted)

\* This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

**Rumble:** -56 dB (IEC 98A Unweighted)  
-78 dB (IEC 98A Weighted)

#### Tone arm section

**Type:** Universal  
**Effective length:** 230 mm (9-1/16")  
**Arm height adjustment range:** 0 - 6 mm  
**Overhang:** 15 mm (19/32")  
**Effective mass:** 12 g (without cartridge)  
**Tracking error angle:** Within 2°32' at the outer groove of 30 cm (12") record  
Within 0°32' at the inner groove of 30 cm (12") record  
**Offset angle:** 22°  
**Friction:** Less than 7 mg (lateral, vertical)  
**Stylus pressure adjustment range:** 0-2.5 g  
**Applicable cartridge weight range:** 6-10 g  
13.5-17.5 g (including headshell)  
**(with auxiliary weight):** 9.5-13 g  
17-20.5g (including headshell)  
**(with shell weight):** 3.5-6.5 g  
11-14 g (including headshell)  
**Headshell weight:** 7.5 g

## Technics

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Division of Matsushita Electric  
Corporation of America  
One Panasonic Way, Secaucus,  
New Jersey 07094

Panasonic Hawaii, Inc.  
320 Waiakamilo Road, Honolulu,  
Hawaii 96817

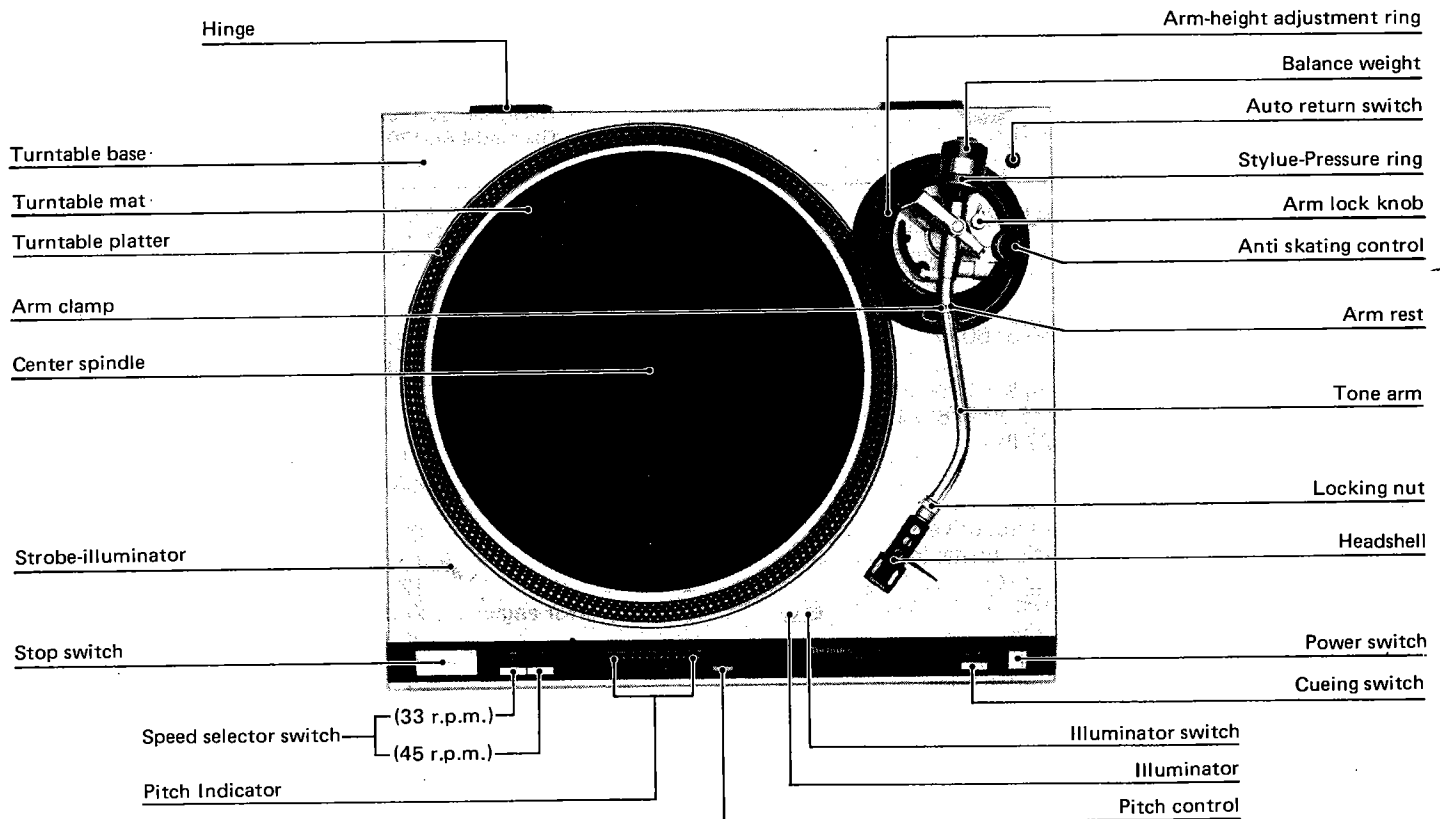
Matsushita Electric of Canada Ltd.  
5770 Ambler Drive,  
Mississauga, Ontario  
L4W 2T3

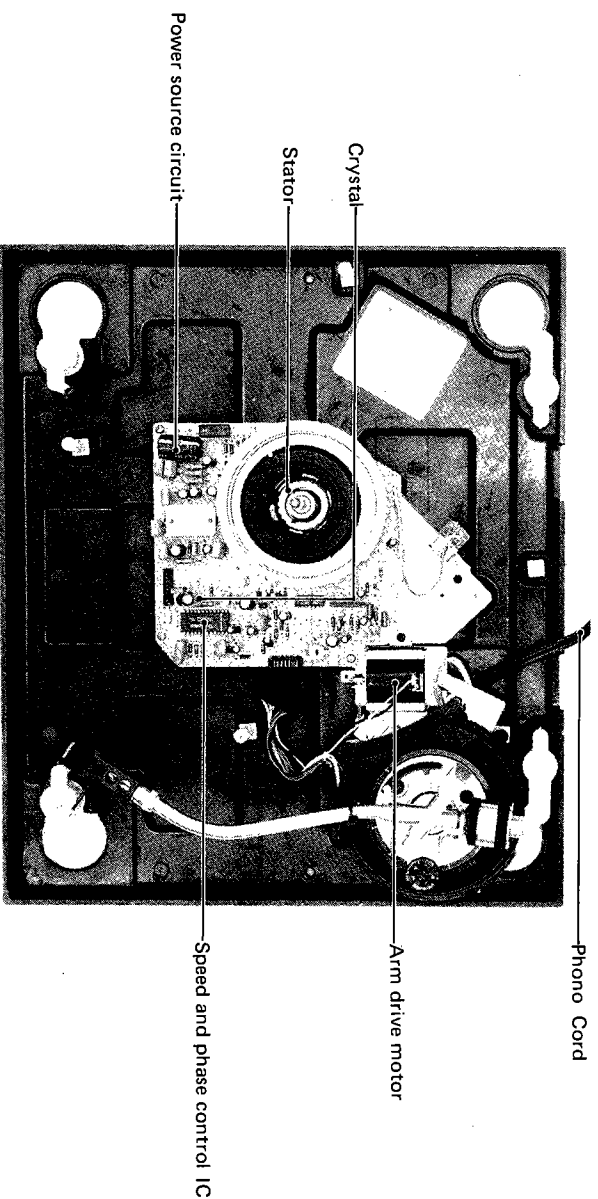
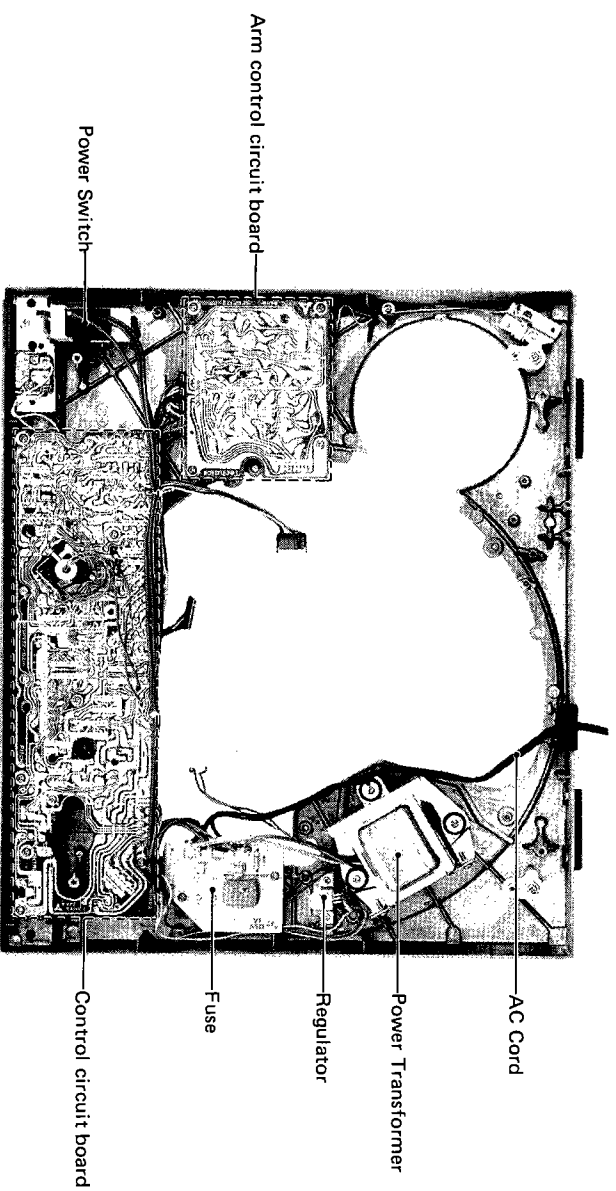
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## ■ LOCATION OF CONTROLS





## TECHNICAL GUIDE

### Arm control circuit

This circuit includes a circuit to control the cueing and returning operation of the arm by using a DC motor, a rest detection circuit which gives a start/stop instruction to the turntable, and a circuit to electrically detect the return position the same as in SL-1300MK2.

### Cueing operation

Arm switches A and B are turned ON and OFF by the cam interlocked with the cueing mechanism of the arm.

Whether the arm is cued up or down with the cueing switch depressed depends on the positions of these two switches.

### Cueing down

When the arm switch A is OFF, while B is ON or OFF, depressing the cueing switch results in cueing down.

As the arm switch A is OFF, **Ⓐ** is "H" and **Ⓑ** is "L". The output of **Ⓒ** is applied to D terminals (pin 5 and 9 of IC460) of the D flip-flop circuit\* of IC460. Then, depressing the cueing switch generates clock pulses which are applied to CK terminals (pins 3 and 11) of IC460, thus the outputs X="L" and Y="H" come out of X (pin 1 of IC460) and Y (pin 12 of IC460). The outputs enter the motor driving circuit to operate the DC motor. Outputs X and Y, motor rotating direction, and arm operation are shown in the Fig. 1.

With the above operations completed, the arm is cued down by the drive motor. However, the motor will continue rotating if the conditions are left unchanged. Therefore, the outputs of arm switches A and B pass through the Exclusive-OR circuit\* and generate motor stopping pulses at the next pulse generating circuit in order to apply pulses to S (pin 6 of IC460) and R (pin 10 of IC460) terminals of the flip-flop circuit of IC460 to reset the outputs at X and Y (X="H", Y="L", thus stopping the rotation of the motor).

### Cueing up

When the arm switch A is ON, while B is ON or OFF, depressing the cueing switch results in cueing up. As the arm switch A is ON, **Ⓐ** is "L" and **Ⓑ** is "H".

The output of **Ⓒ** is put into D terminals (pins 5 and 9) of IC460. Then, depressing the cueing switch generates clock pulses as in cueing down operation, causing X and Y to become "H" and "L" respectively. Thus, the motor rotates in the direction of cueing up operation as shown in Table 1. After that, reset pulses are applied to the flip-flop circuit of IC460, then outputs at both X and Y become "H" causing the motor to stop.

### Note:

Cueing up is possible during cueing down, but cueing down is not possible during cueing up.

### 2. Rest position detection

When the arm moves off the arm rest, the turntable rotates. Structurally, a coupler using an LED and photo-transistor is located under the arm base; when the arm is on the rest, the LED and photo-transistor are interrupted by the slit, turning the photo-transistor (PH402) off; when the arm is off the rest, the photo-transistor turns on, causing **Ⓓ** to become "L", then Q455 turns off and a voltage is applied to pin 19 of IC201 to rotate the turntable. Input "L" is applied to pin 9 of IC456 in order to inhibit the operation of the gate so that depressing the stop switch does not cause the arm to operate when the arm is on the rest.

### 3. Stop operation

If desired to stop the performance, push the stop switch, then the arm returns to the arm rest.

Depressing the stop switch generates **Ⓙ** pulse at **Ⓔ**.

**Ⓙ** is "L" when the arm is on the rest, inhibiting the pulse from the stop switch, and it is "H" when the arm is off the rest.

Depressing the stop switch, when **Ⓙ** is "H", generates **Ⓚ** pulse at **Ⓛ**. The pulse causes the R-S flip-flop circuit of IC457 and IC458 to reverse, then **Ⓜ** and **Ⓨ** respectively becomes "H" and "L", while S (pin 8 of IC460) and S (pin 6 of IC460) terminals of D flip-flop circuit of IC460 become "H" resulting in X="H" and Y="L". The output causes the arm to return. Also, about 0.9 sec. after rest position detection to stop the turntable, **Ⓚ** pulse is applied to **Ⓛ** of R-S flip-flop circuit of IC457 and IC458, thus resetting the R-S flip-flop (**Ⓜ**="L", **Ⓨ**="L").

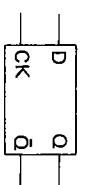
### \* D flip-flop circuit

This circuit includes a D input, a clock input (ck), and two outputs Q and  $\bar{Q}$ . The outputs of this flip-flop remain unchanged even with D input "L" or "H" added.

However, if a clock pulse is applied to this circuit while it is supplied with a D input, the D input is transmitted to output Q. Therefore, output Q causes the circuit operation to delay by clock pulse equivalence.

The flip-flop circuit and the truth table are shown below.

### a) Circuit



### b) Truth table

D	tu	Qu	Qu+1
L	L	L	L
L	H	H	L
H	L	L	H
H	H	H	H

Output X	Output Y	Rotating direction	Arm Operation
H	H	Stop	Stop
H	L	Reverse	Cueing up, return
L	H	Normal	Cueing down

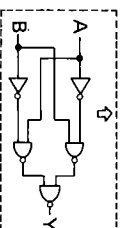
[Fig. 1]

### \* Exclusive-OR circuit

In this circuit, output Y is "H" only when outputs A and B are not equal.



### a) Logic circuit



Actual circuit

Input	Output	
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

b) Truth table

When the **1** is H pressing the stop switch causes the arm to start returning irrespective of its position. When the arm is in return operation, the cueing switch does not work because of priority given to the stop operation.

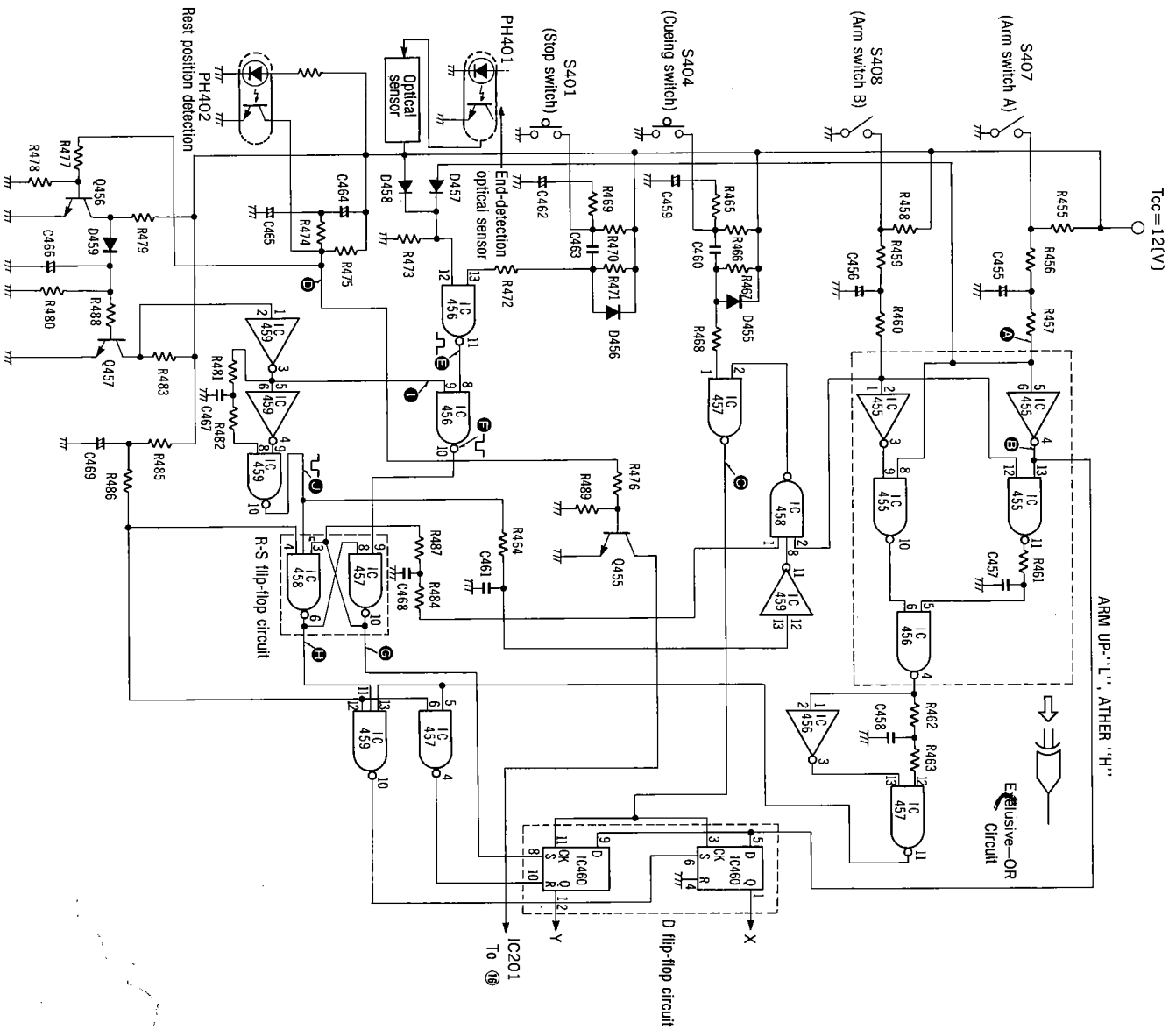
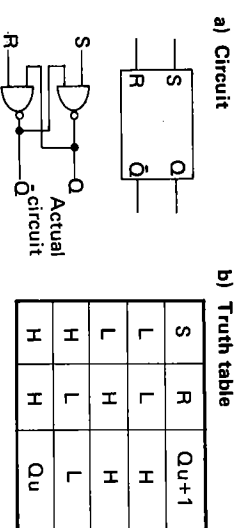
### Return operation

The detection of record end is performed with the optical sensor output, same as in SL-1300MK2; then the arm is returned in the same way as in the above-mentioned stop operation.

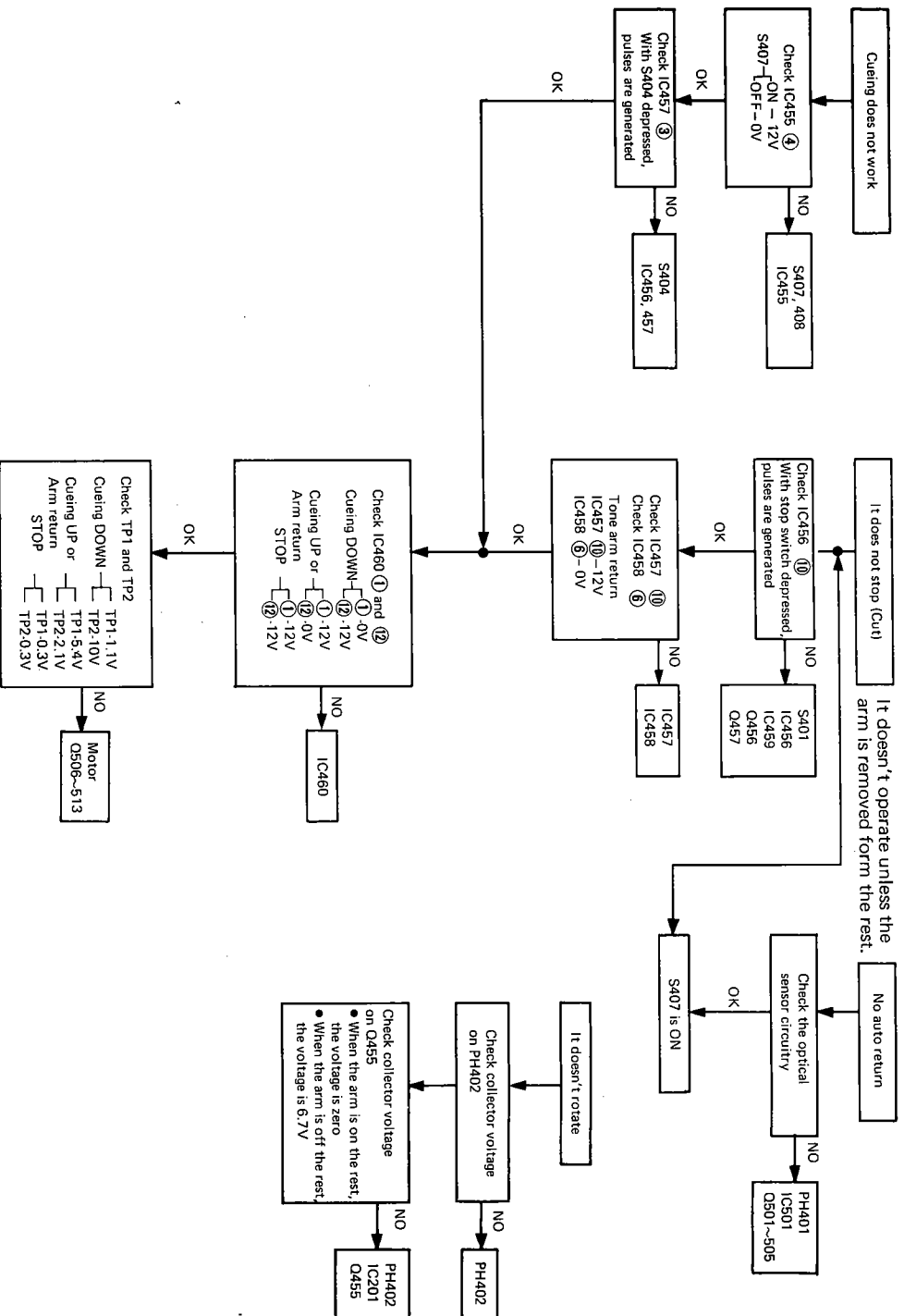
The arm is in up position (arm switch A is OFF), no pulse is generated at **2** for end detection, therefore return operation can not be achieved by shifting the arm.

### \* R-S flip-flop circuit

This circuit includes two inputs S(set), R(Reset), and two outputs Q and  $\bar{Q}$ . If input S="H", R="L", then Q="L". If S="L", R="H", then Q="H". After determination of the output, changing the input to "H" does not cause the output to change.



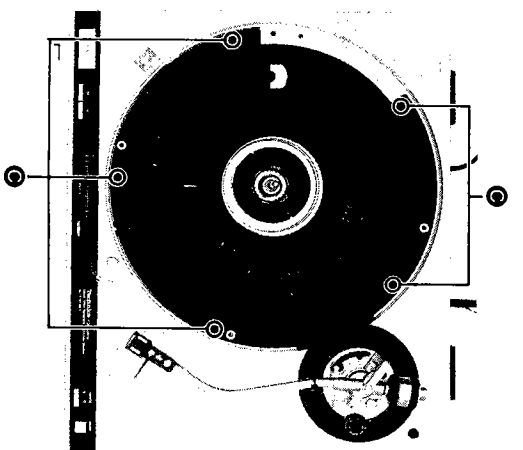
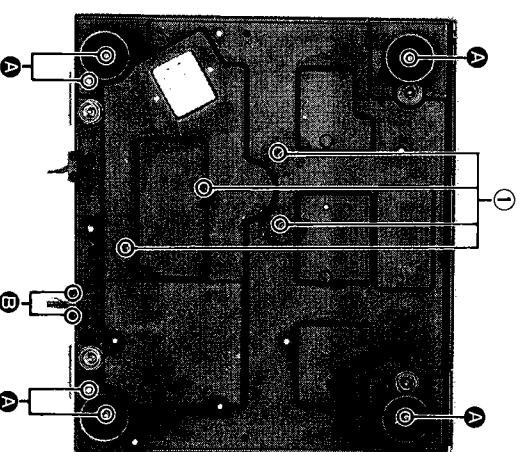
## TROUBLE SHOOTING OF ARM DRIVE CIRCUIT

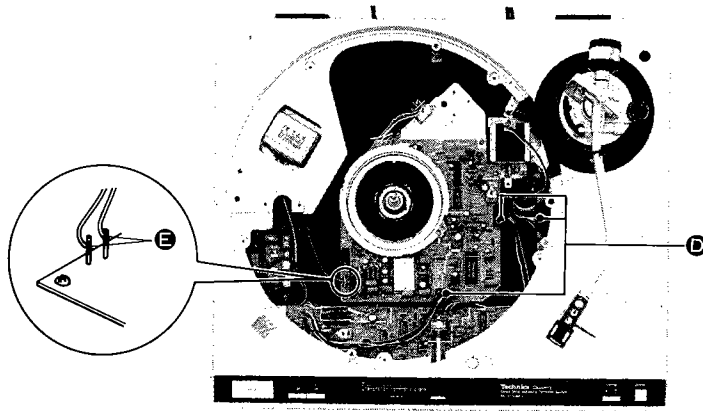


## DISASSEMBLY PROCEDURE

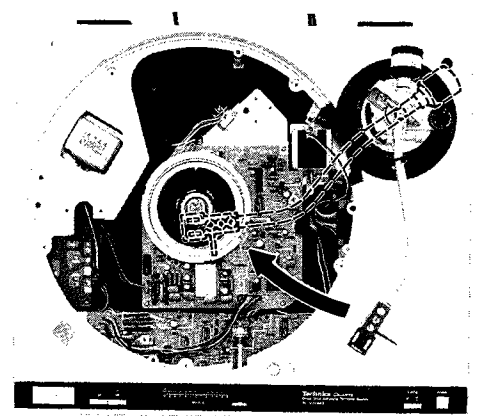
### How to remove main base ass'y and bottom base ass'y

1. Clamp tone arm to the arm rest.
2. Remove head shell and turntable platter.
3. Close dust cover.
4. Turn unit upside down taking special care not to damage or scratch the dust cover.
5. Remove 6 screws **A** of the audio insulator and 2 screws **B** of the phono cord clamped as shown in Photo 1.
6. Holding the player firmly with both hands, to prevent separation of upper section (bottom base ass'y) from lower section (main base ass'y), turn it carefully upwards.
7. Remove dust cover.
8. Remove 5 screws **C** of the panel cover as shown in Photo 2.
9. Remove 3 connectors **D** and 2 read wires **E** from power transformer as shown in Photo 3.
10. To remove the main base ass'y from the bottom base ass'y, turn cueing lever upward and move tone arm towards center of spindle. The main base ass'y can be lifted up easily. (See Photo 4).





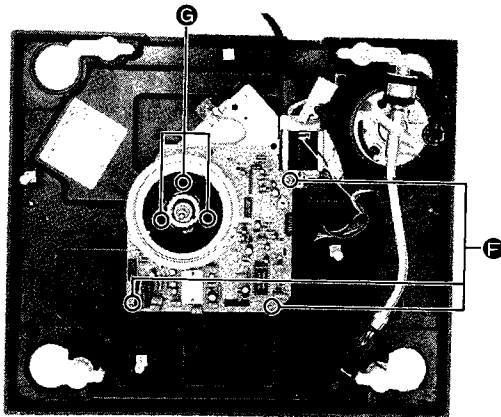
[Photo 3]



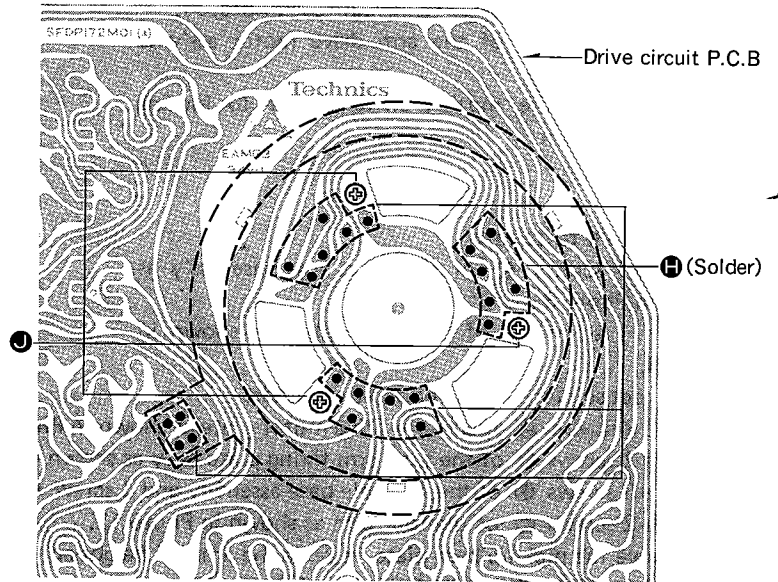
[Photo 4]

**How to remove drive circuit p.c.b. and stator frame coil**

1. Remove main base ass'y and bottom base ass'y.
2. Remove 3 screws **F** of the drive circuit p.c.b. and 3 screws **G** of the stator frame cover as shown in Photo 5.
3. Disconnect 18 soldered parts **H** of the stator frame coil and 4 soldered parts **I** of the F.G detector coil as shown in Fig. 2.
4. Remove 3 screws **J** of the stator frame ass'y as shown in Fig. 2.



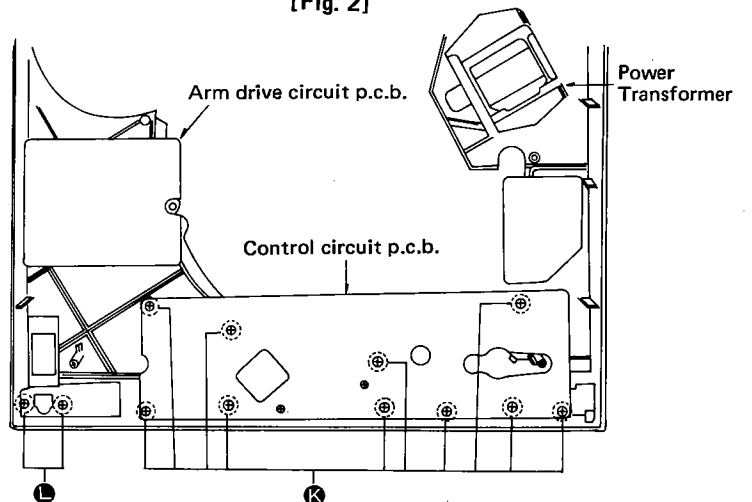
[Photo 5]



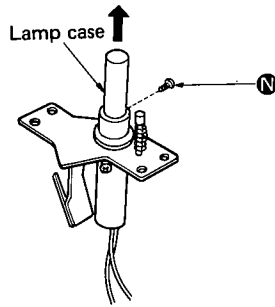
[Fig. 2]

**How to remove control circuit p.c.b. and stylus-illuminator lamp**

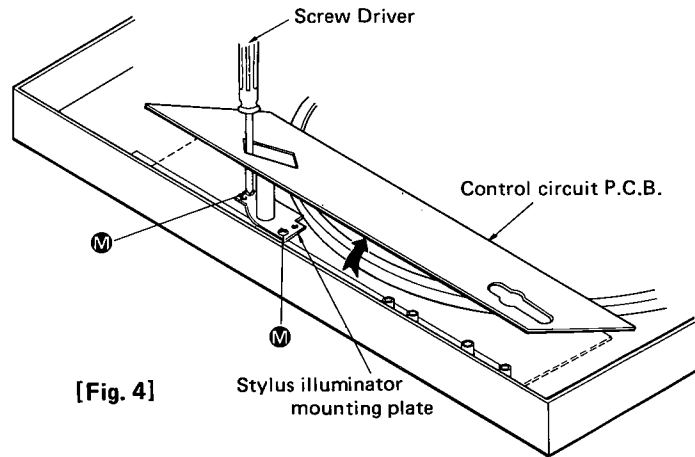
1. Remove main base ass'y and bottom base ass'y.
2. Remove 10 screws **K** of the control circuit p.c.b. as shown in Fig. 3.
3. Remove 2 screws **L** of the power switch bracket as shown in Fig. 3.
4. Set up the control circuit board as shown in Fig. 4. Then remove the 2 screws **M** of the stylus illuminator mounting plate. (Fig. 4).
5. To replace the stylus illuminating lamp, remove the setscrew of the lamp case (Fig. 5) and detach the lamp case, then the stylus illuminating lamp can be replaced.



[Fig. 3]



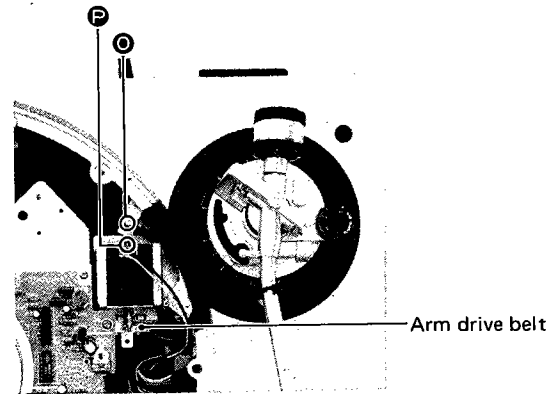
[Fig. 5]



[Fig. 4]

### How to remove arm drive motor

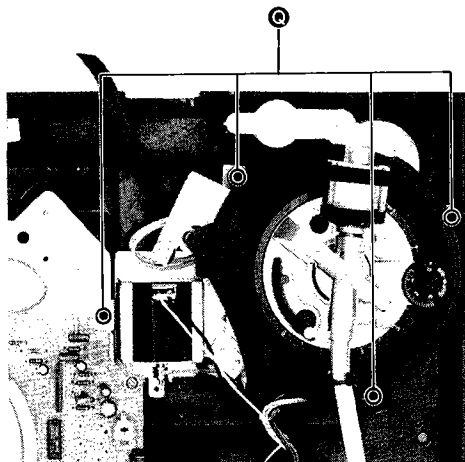
1. Remove head shell and turntable platter.
2. Clamp tone arm to the arm rest.
3. Remove 5 screws **C** of the panel cover as shown in Photo 2.
4. Remove arm drive belt.
5. Turn the muting switch adjusting screw so that the arm drive motor setscrew can be removed. (See Photo. 7).
6. Remove 1 screw **P** of the arm drive motor ass'y as shown in Photo 7.
7. When adjusting the muting switch, refer to Muting Switch Adjustment.



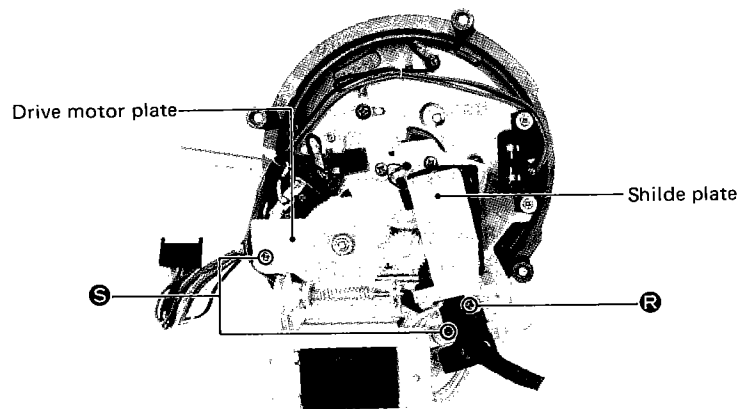
[Photo 7]

### How to remove tone arm

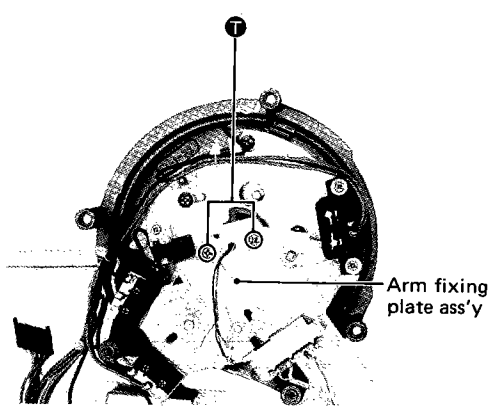
1. Remove 4 screws **C** of the tone arm base ass'y as shown in Photo 8.
2. Remove 1 screw **R** of the shilde plate as shown in Photo 9.
3. Disconnect soldered of the phono cord reads.
4. Remove 2 screws **S** of the arm drive motor plate as shown in Photo 9.
5. Remove 2 screws **T** of the tone arm fixing plate ass'y as shown in Photo 10.
6. Remove 3 screws **U** of the movable base assembly and 1 screw **V** of the ground wire as shown in Photo 11.
7. Remove 2 screws **W** of the tone arm as shown in Photo 12.
8. To remove the pick-up base plate, remove the arm lift height adjusting screw and the arm lift.
9. Remove 1 screws **X** and 1 circlip **Y** of the position fix plate as shown in Photo 12.
10. Remove 2 screws **Z** of the pick-up base plate as shown in Photo 12.



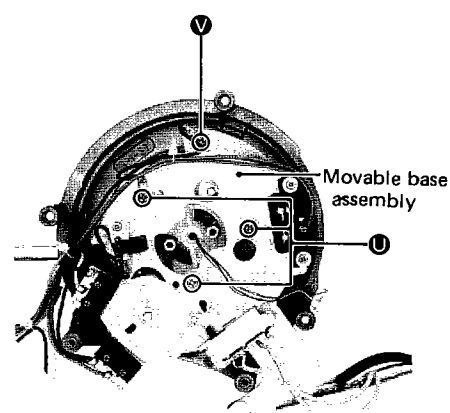
[Photo 8]



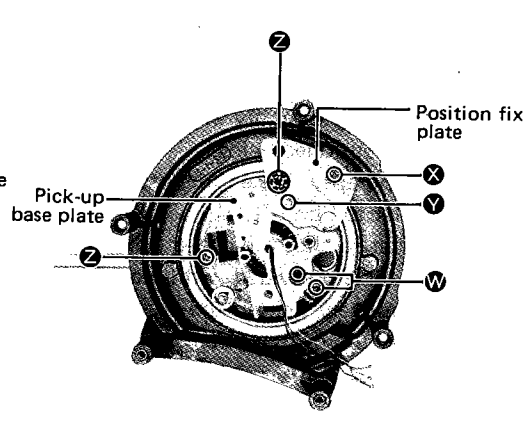
[Photo 9]



[Photo 10]



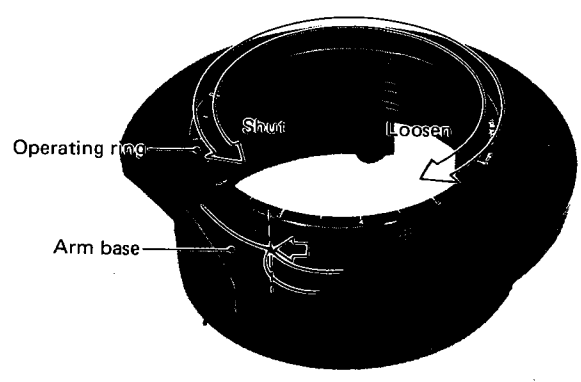
[Photo 11]



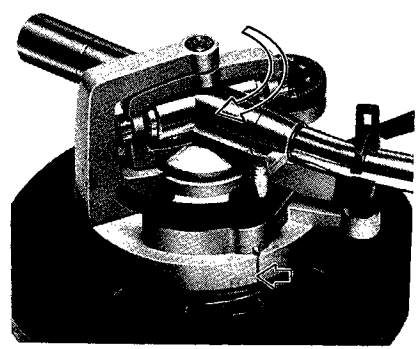
[Photo 12]

**Arm Base Assembling Procedure**

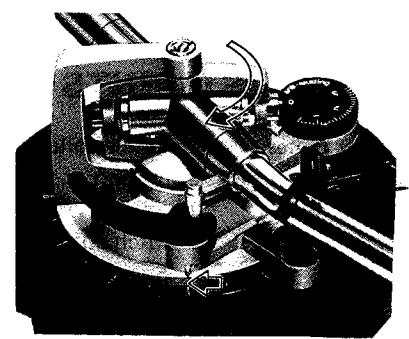
1. Attach the control ring to the arm base seat.  
(The control ring should be rotated counterclockwise.)
  2. Completely tighten the control ring, and then loosen it 1.5 ~ 2.5 turns to set the scale to "3". (See photo 13.)
  3. Hold the arm base and set the red line mark on the arm base to the scale near "2", then turn the arm base clockwise. (See photo 14.)
- Note) Take care not to allow deflection of the predetermined positions of the control ring and arm base seat.



[Photo 13]

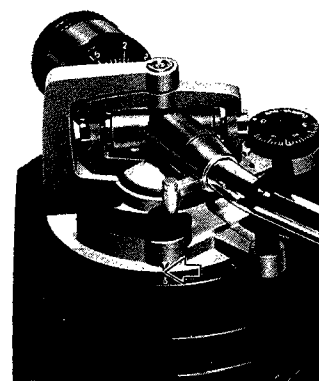


[Photo 14]

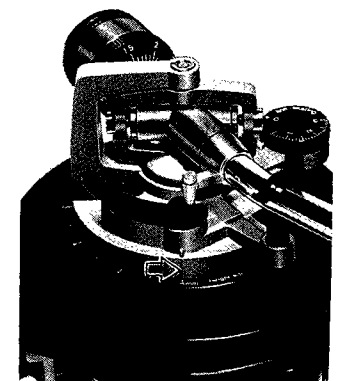


[Photo 15]

4. Adjust the arm base so that the red line mark on the arm base is set to the scale "3" of the control ring. (See photo 15). Next, secure the position fix plate with two setscrews. (See photo 12.)
5. Rotate the control ring and make sure that the arm base shifts within the range of 0 ~ 6mm. (See photo 16 A, B.) If it does not shift within the specified range, the arm base position is deflected. In that case, disassemble the parts and check as specified in step 3.



(A)



(B)

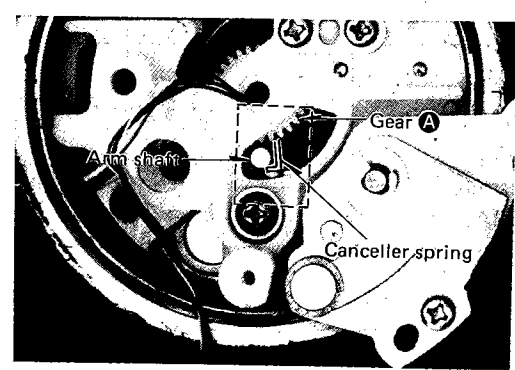
[Photo 16]

**Adjustment of Cancellor Spring Position**

If the arm body or PU base plate is replaced, be sure to set the canceller knob to "0.5" and make sure that the canceller spring is in contact with the arm shaft. (See photo 17.)

If the canceller spring is deflected, adjust it as follows:

1. Clamp the arm on the rest.
2. Set the canceller knob to "0.5".
3. Remove the PU base plate, adjust gear A so that the canceller spring is in the position of photo 17.
4. Mount the PU base plate onto the arm base and check the spring position.

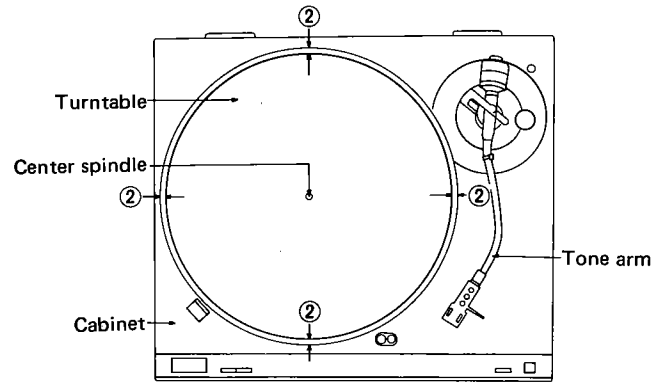


[Photo 17]

## How to install the drive circuit board assembly

The circuit board assembly can be detached by removing the 4 setscrews ① shown in Photo. 1. When installing it onto the bottom base assembly after adjustment and repair, follow the procedure mentioned below.

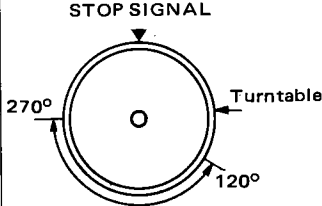
1. Temporarily tighten the 4 setscrews ①.  
(Refer to Photo 1.)
2. Adjust so that the center spindle is aligned to the center of the turntable provided with equal clearances ② as in Fig. 11.
3. Completely tighten the 4 setscrews ①, taking care not to allow deflection of the center spindle.



[Fig. 6]

## ■ ADJUSTMENTS (Electrical)

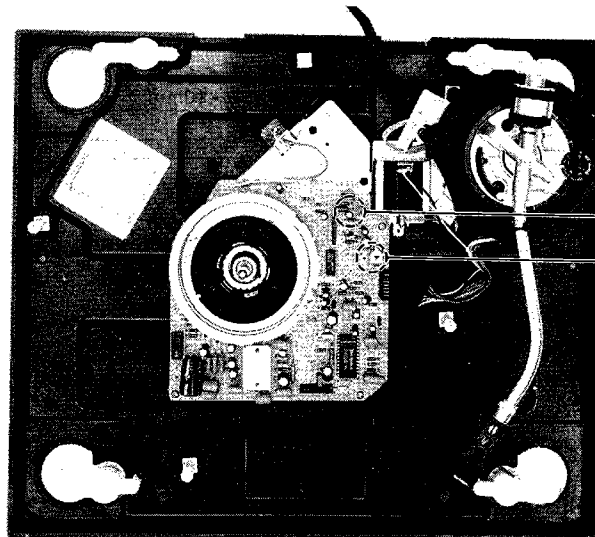
- Notes:
- Make the following adjustments after replacing parts such as IC's, transistors, diodes, etc.
  - Condition of the set
    1. Power switch . . . . .ON
    2. Pitch control . . . . .Center position
    3. Speed selector switch . . . .33 r.p.m.
  - Instruments to be used
    1. Oscilloscope
    2. Frequency counter

	Adjustment	connection Points	Adjustment Points	Adjustment Method
A	Adjustment of pitch control $\pm 0\%$ (PITCH)	Frequency counter + $\rightarrow$ TP27 - $\rightarrow$ GROUND	VR301	<ol style="list-style-type: none"> <li>1. Pitch control switch to center position.</li> <li>2. Adjust VR301 for 262.08 kHz <math>\pm 0.05</math> kHz of frequency.</li> </ol>
B	Adjustment of pitch control LED (GAIN)	Frequency counter + $\rightarrow$ TP27 - $\rightarrow$ GROUND	VR425	<ol style="list-style-type: none"> <li>1. Adjust pitch control switch for 269.94 kHz of frequency.</li> <li>2. Adjust VR425 so that the LED (pitch indicator plus 3%) lights up.</li> </ol>
C	Braking adjustment (BRAKE)	—	VR201	 <p>Adjust VR201 for complete stop within <math>120^\circ \sim 270^\circ</math> after stop signal initiated. (turntable becomes free a few seconds after stop.)</p>



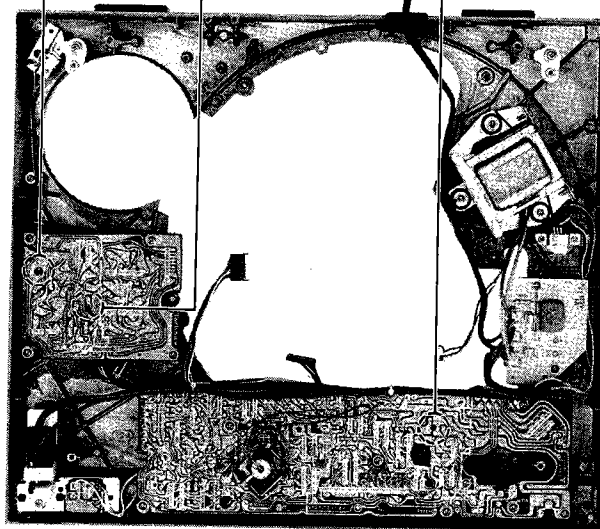
D	Optical sensor gain adjustment (GAIN)	Oscilloscope + → TP32 - → GROUND	VR501	<p><b>TP32 waveform</b></p>	<p>With arm near center spindle, manually move with uniform motion, and adjust VR501 as that the (a) and (b) pitch of the waveform of TP32 is equal.</p>
E	Auto-Return time adjustment (TIME)	Oscilloscope + → TP38 - → GROUND	VR502	<p><b>TP38 waveform</b></p>	<p>Turn power switch on, and adjust VR502 so that the time (T<sub>0</sub>) from power on until the voltage of TP38 inverts is 1.5 second at 33 r.p.m. (1.1 second at 45 r.p.m.)</p>

**■ ADJUSTMENT POINTS**



VR301 Adjustment of pitch control ±0%  
VR201 Braking adjustment

Auto-return time adjustment VR502  
Optical sensor gain adjustment VR501  
Adjustment of pitch control LED VR425



## ■ ADJUSTMENTS (Tone arm)

### ● Adjustment for automatic return position

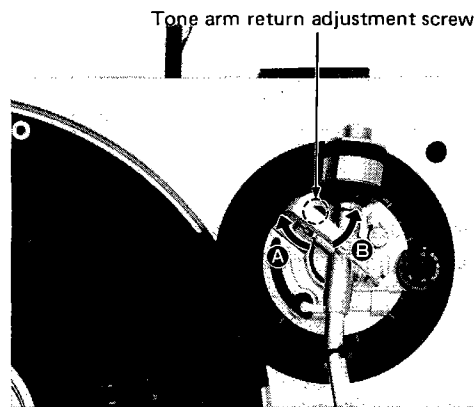
1. Keep the power switch turned OFF to prevent the turntable from rotation.
2. Remove the rubber cap.
3. Move the tone arm toward the center spindle side, and make the adjustment by gradually turning the adjusting screw.

In case where the tone arm tends to return before the playing has finished.

—Move counterclockwise. (See Photo 18 A)

In cases where the tone arm fails to return after the last groove of the record.

—Move clockwise. (See Photo 18 B)



[Phot 18]

### Adjustment of arm-lift height (See Photos 19 and 20.)

The arm-lift height (distance between the stylus tip and record surface when cueing lever is at the up position) has been adjusted at the factory before shipment to approximately 5 to 10 mm.

For using different cartridges available on the market or when further adjustments are particularly necessary, make adjustment as follows:

1. Move the tone arm toward the center spindle.  
Attach the stylus protector, if available, to guard the stylus tip from damage.
2. Turn the adjustment screw clockwise or counterclockwise, while pushing the arm lift down.

#### Clockwise rotation

—distance between the record and stylus tip is reduced.

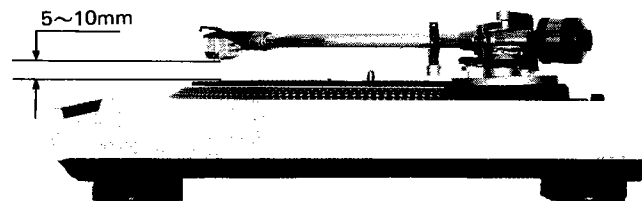
#### Counterclockwise rotation

—distance between the record and stylus tip is increased.

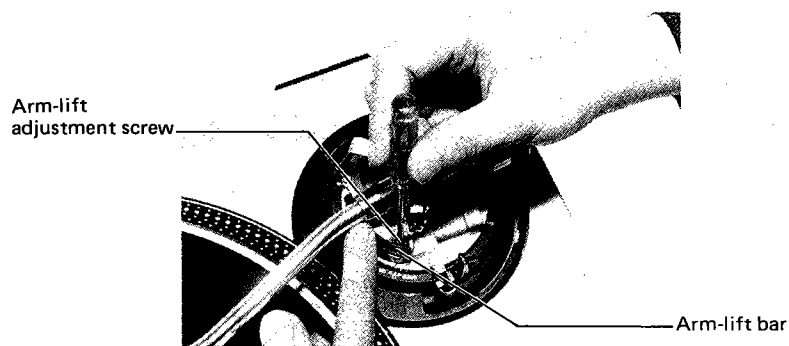
#### Note:

As the adjusting screw has a hexagonal head, be sure to make the adjustment while depressing the arm lift, or the screw will not move freely.

Also be sure that the hexagonal head retracts correctly into the arm lift when the latter is released.



[Photo 19]

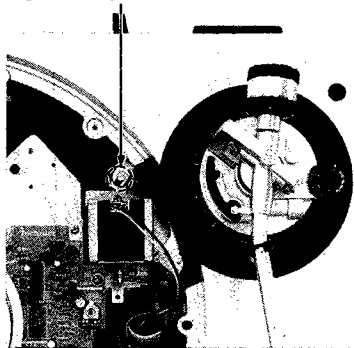


[Photo 20]

### ● Muting adjustment

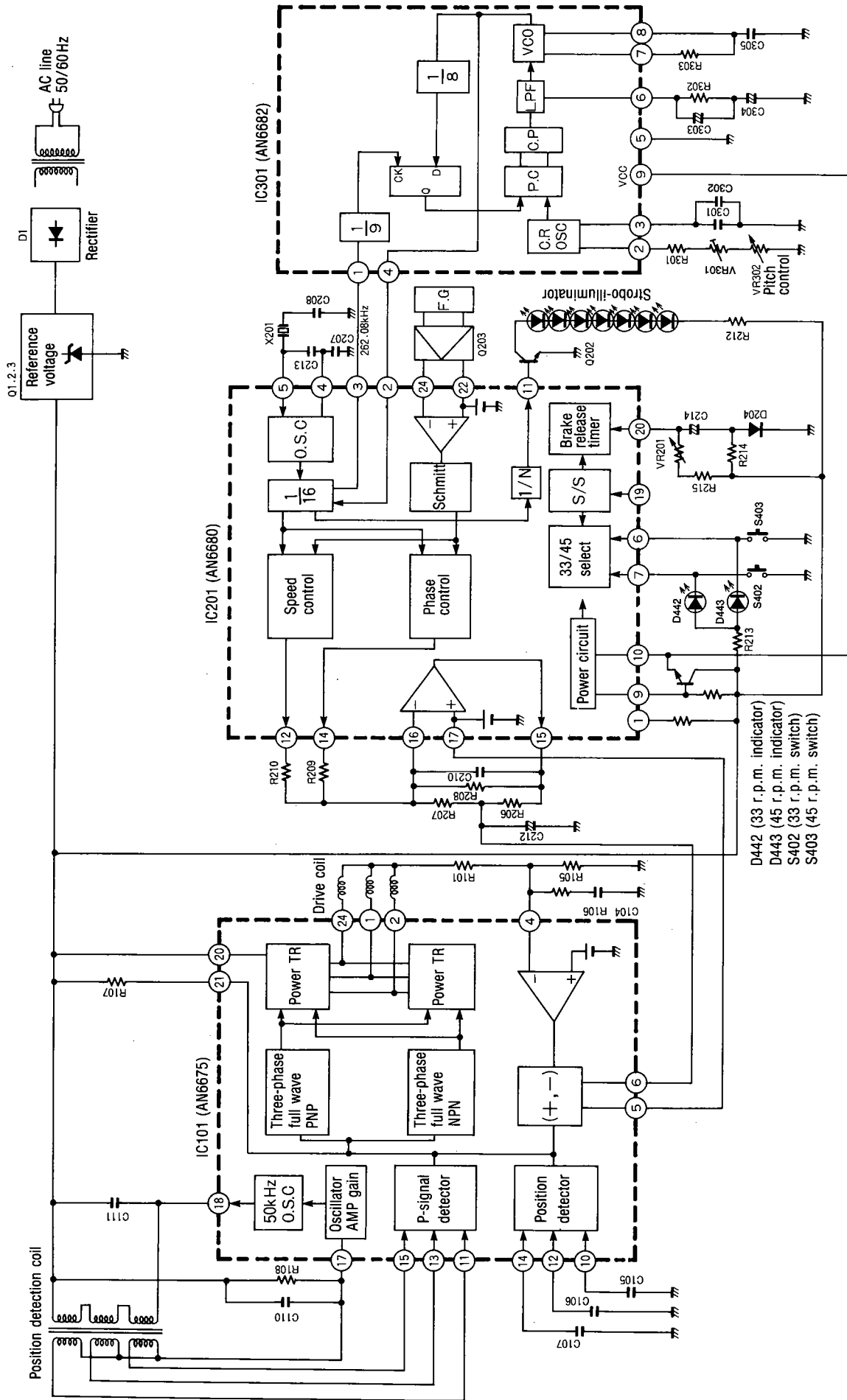
This unit employs a muting switch to eliminate noise created when the stylus is placed on or moved off the record disk. If the sound is not heard immediately or noise is created when the stylus is shifted down onto the disk, adjust it by turning the muting adjust screw. (Photo 21).

Muting time adjustment screw

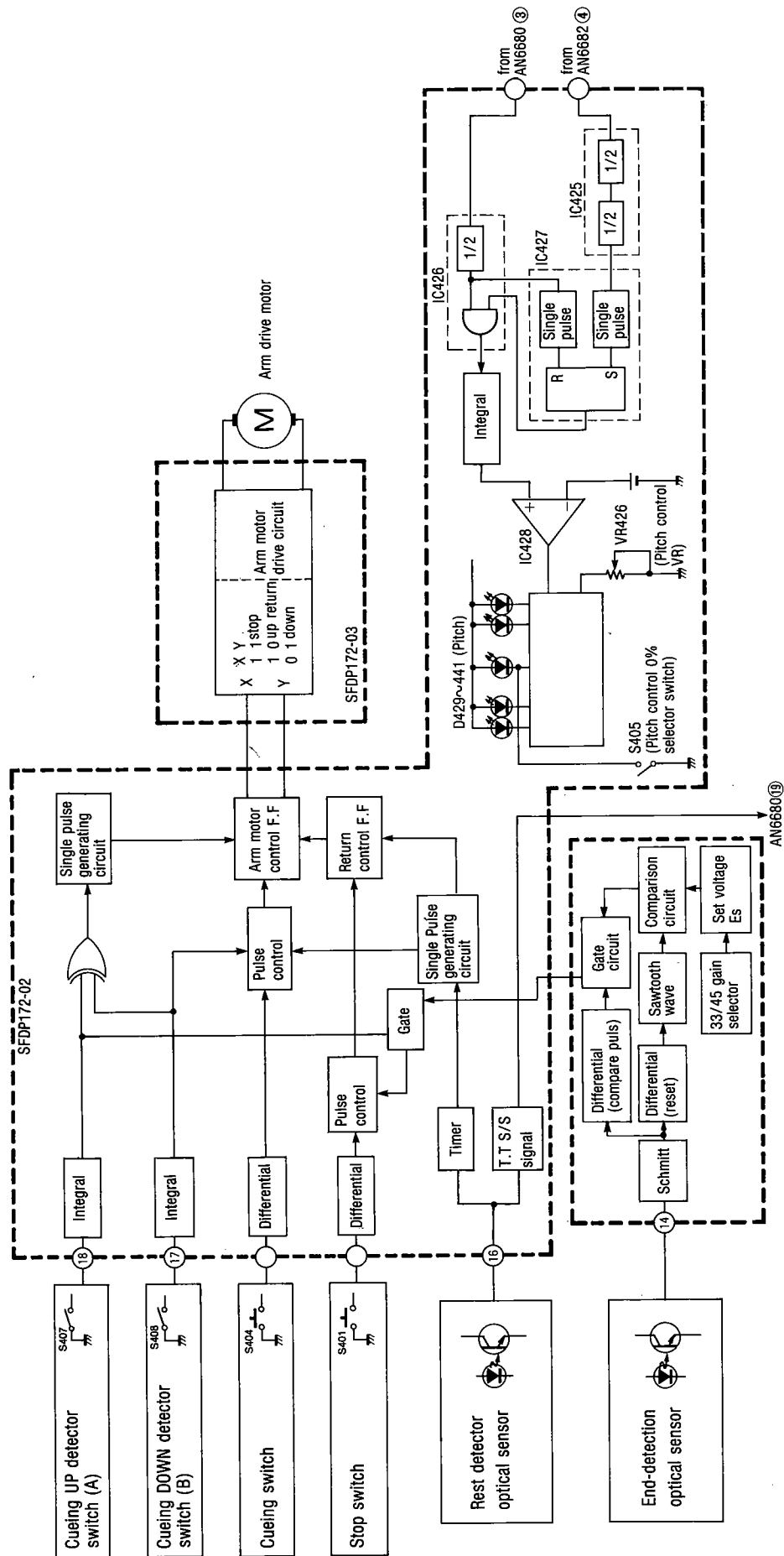


[Photo 21]

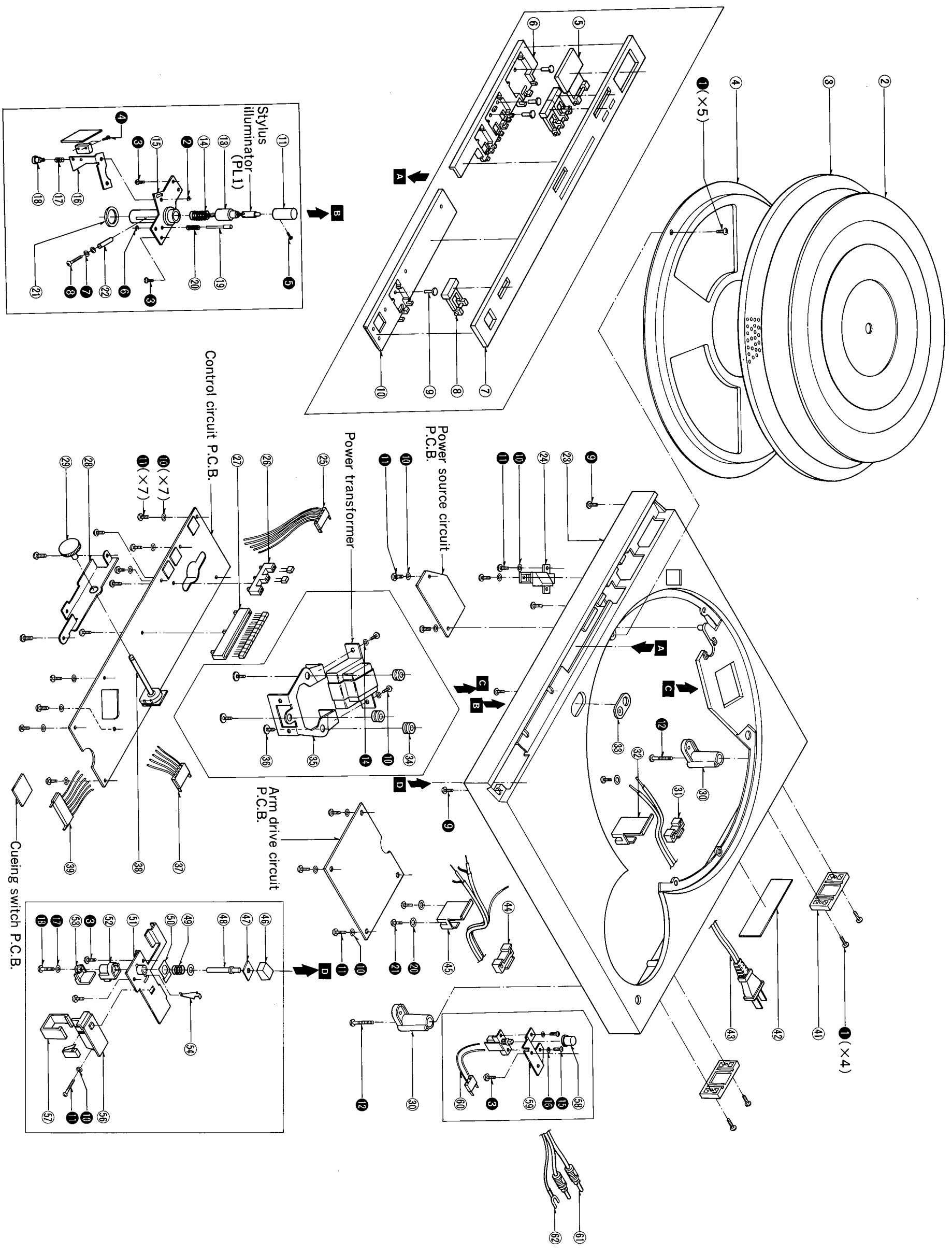
■ BLOCK DIAGRAM (Drive Circuit)



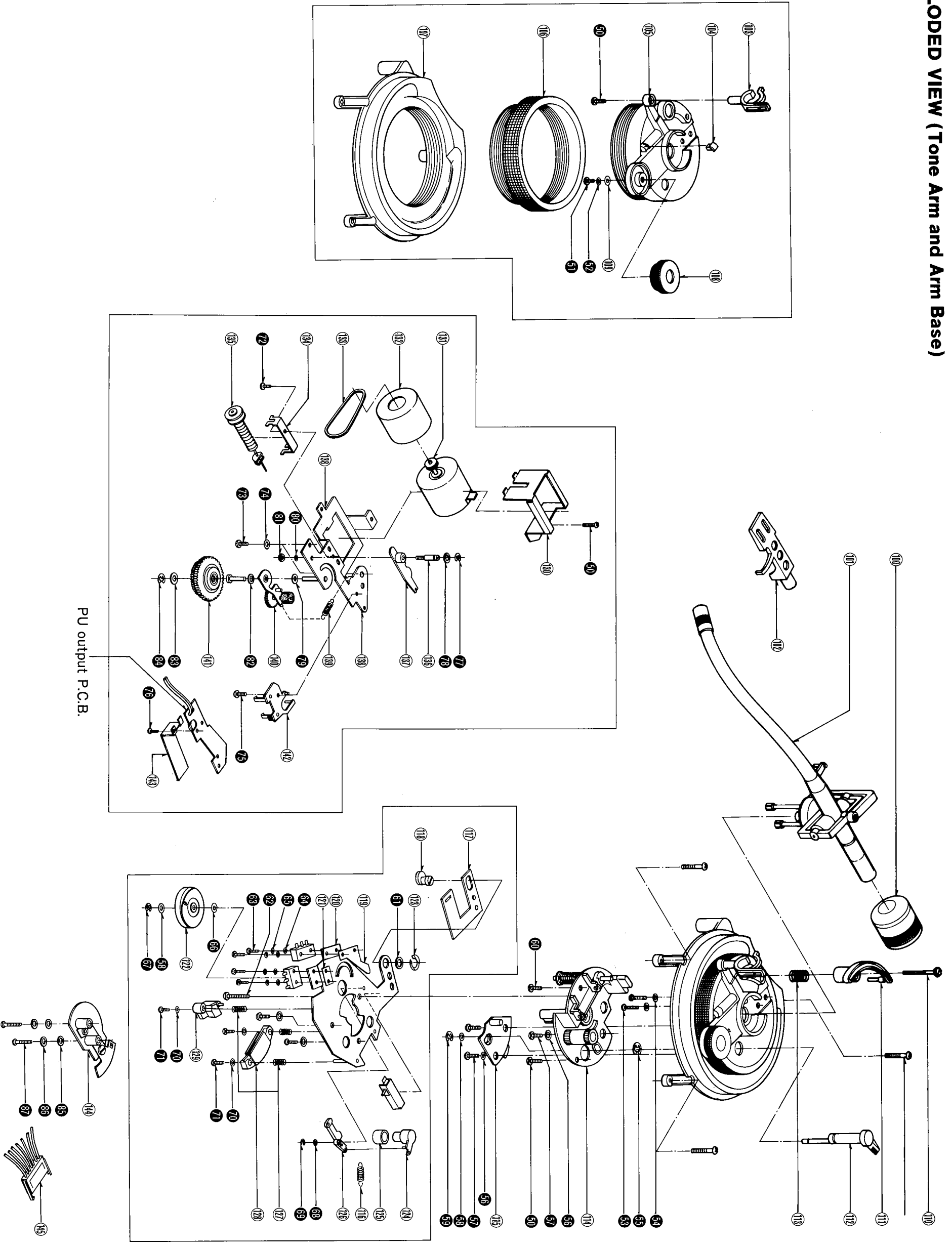
■ BLOCK DIAGRAM (Control Circuit, Arm Control Circuit and Pitch Control Circuit)



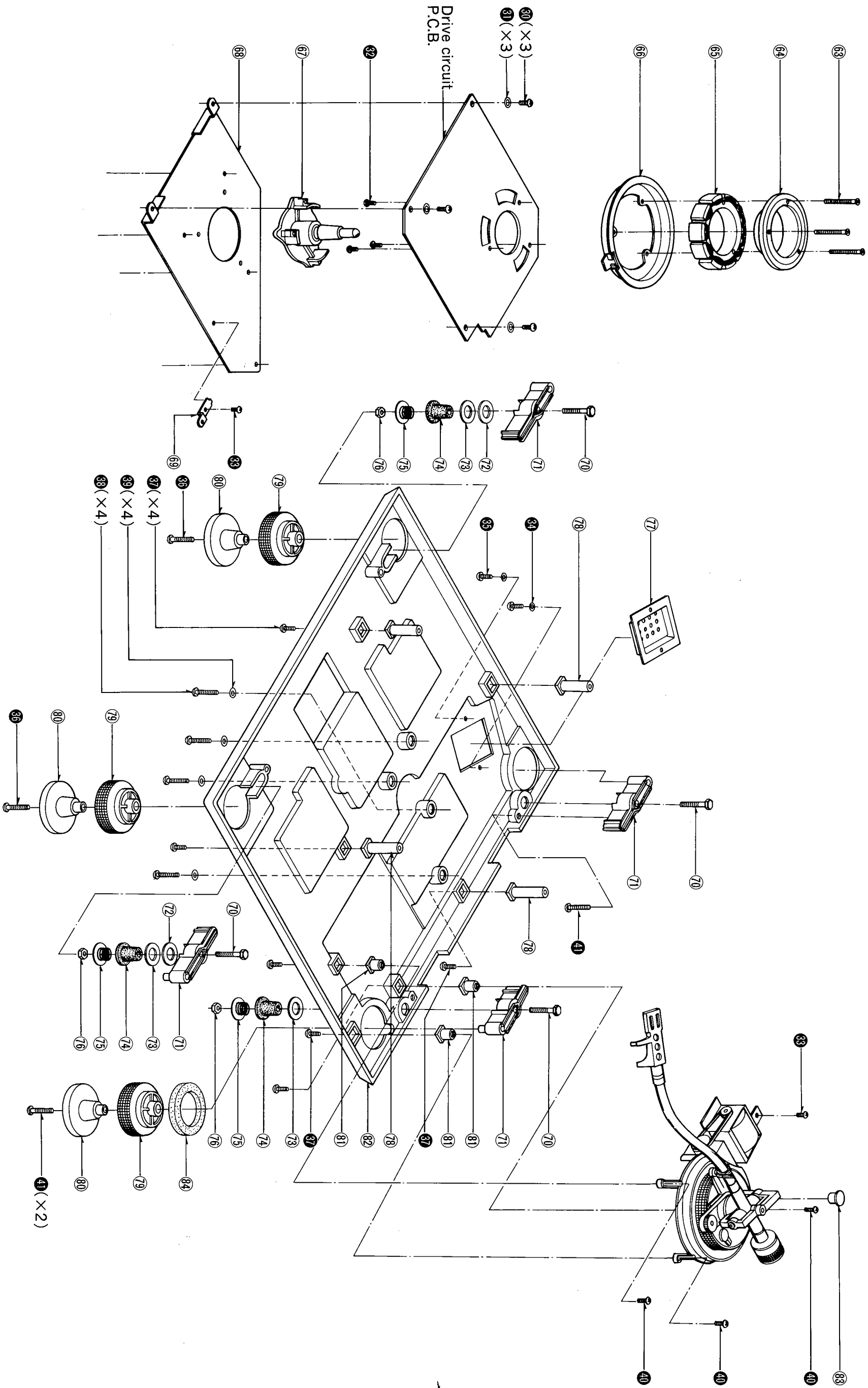




EXPLODED VIEW (Tone Arm and Arm Base)



■ EXPLODED VIEW (Bottom Base)





# REPLACEMENT PARTS LIST (Main Base and Bottom Base Parts)

- Notes:** 1. Part numbers are indicated on most mechanical parts.  
Please use this part number for parts orders.  
2. **△** indicates that only parts specified by the manufacture be used for safety.

Ref. No.	Part No.	Part Name & Description
<b>CABINET and CHASSIS PARTS</b>		
1	SFAD172-01E	Dust Cover
2	SFTG172-01	Turntable Mat
3	SFTE172-01Z	Turntable
4	SFUM172-05	Cover, Turntable
5	SFKT172-02	Button, Start/Stop Switch
6	SFUM172-02	Bracket (A), Operation Panel
7	SFUM172-01	Panel, Operation
8	SFKT172-03	Button, Speed Selector, Cueing Switch
9	SFUM172-11	Pin, Switch
10	SFUM172-03	Bracket (B), Operation Panel
11	SFKK172-01	Cover, Lamp
13	SFXB172-02	Boss, Drive
14	SFOA172-01	Spring, Drive Boss
15	SFUP172-01E	Plate Assembly, Stylus Illuminating Lamp
16	SFUP172-03	Plate, Lock Operation
17	SFOA001-02	Spring, Lock Operation Plate Pin
18	SFXJ172-05	Pin, Lock Operation Plate M'tg
19	SFXJ172-01	Pin, Lock Canceler
20	SFOA520-01	Spring, Lock Canceler Pin
21	SFUZ172-02	Rubber
22	SFXO172-01	Pin, Guide
23	SFAC172-01	Cabinet
24	SFUM130-01	Cover, Neon
25	SFDJ172-02E	Connector, 7 Pin
26	SFUM170-10	Spacer (A), Speed Selector LED
27	SFUM172-09	Spacer (B), Speed Selector LED
28	SFUP172-06	Bracket, Pitch Control Knob Plate
29	SFKT172-04	Knob, Pitch Control
30	SFAZ172-01	Supporter, Insulator
31	SFUM170-06	Spacer, AC Cord
32	SFUM170-05	Clamper, AC Cord
33	SFUM172-04	Ornament, Stylus Illuminating Lamp
34	SFGC132-01	Spacer (Rubber), Power Transformer Bracket
35	SFUP132-03	Bracket, Power Transformer
36	SFXG132-02	Screw, Power Transformer Bracket M'tg
37	SFDJ172-01E	Connector, 6 Pin
38	SFUP172-09	Bracket, Volume Shaft
39	SFDJ172-03E	Connector, 9 Pin
40	SFAT172-01A	Hinge Ass'y
41	SFUM170-07	Case, Hinge Ass'y
42 [M]	SFNN172M01	Name Plate
42 [MC]	SFNN172C01	Name Plate
43	<b>△</b> RJA9YA	AC Cord
44	SFUM170-06	Spacer, Phono Cord
45	SFUM170-11	Clamper Phono Cord
46	SFKT172-01	Button, Power Switch
47	SFUZ172-03	Spacer, Power Switch Button
48	SFXJ172-03	Shaft, Power Switch Button
49	SFOA172-02	Spring, Power Switch
50	SFUP172-04	Supporter, Power Switch Plate
51	SFUP172-02E	Bracket, Power Switch M'tg Plate Assembly
52	SFUM001-11	Cam, Power Switch
53	SFUM132-07	Cam, Power Switch
54	SFUP001-03	Bracket, Power Switch
56	SFUM132-05	Holder, Power Switch
57	SFUM132-06	Holder, Power Switch
58	SFKT132-07	Knob, Auto Return Switch

Ref. No.	Part No.	Part Name & Description
59	SFUP172-10	Bracket, Auto Return Switch
60	SFDJ172-04E	Connector, 3 Pin
61 [M]	SFDH360M01	Phono Cord
61 [MC]	SFDH028-01	Phono Cord
62	SFEL028-01E	Ground Wire
63	SFXGQ20-03	Screw, Stater Frame M'tg
64	SFMGQ20-01	Cover, Stater Frame Ass'y
65	SFMG520-31A	Stater Frame
66	SFMZ172-01E	FG Detector Coil Ass'y
67	SFMZQ20-01A	Shaft, Stater Frame Ass'y
68	SFUP172-05	Bracket, Stater Frame M'tg Plate
69	SFUP172-08	Bracket, Drive P.C.B. Ass'y
70	XVG4C30	Screw, Insulator (A) M'tg
71	SFUM172-06	Insulator (A)
72	SFXW172-01	Washer, Insulator (A)
73	SFXW172-02	Washer, Insulator
74	SFGA170-01	Rubber, Insulator
75	SFQC170-01	Spring, Unsulator
76	SFXG170-02E	Nut, Insulator (A) M'tg
77	SFUP132-01	Cover, Power Transformer
78	SFUM172-12	Spacer, Clamper
79	SFUM172-07	Insulator Cup
80	SFGA172-01	Insulator Rubber
81	SFUM172-13	Spacer, Tone Arm
82	SFAU172-02	Bottom Board
83	SFGK132-01	Cap, Rubber
84	SFUZ172-04	Rubber Cushion, Insulator
<b>SCREWS, WASHERS and CIRCLIPS</b>		
<b>1</b>	<b>XTN3+8BFZ</b>	Screw
<b>2</b>	<b>XUC2FT</b>	Circlip
<b>3</b>	<b>XTN3+8B</b>	Screw
<b>4</b>	<b>XSN2+8</b>	Screw
<b>5</b>	<b>XSN17+3FY</b>	Screw
<b>6</b>	<b>XUC25FT</b>	Circlip
<b>7</b>	<b>XWA3B</b>	Washer
<b>8</b>	<b>XSN3+14S</b>	Screw
<b>9</b>	<b>XTV3+8GF</b>	Screw
<b>10</b>	<b>XWG3</b>	Washer
<b>11</b>	<b>XTB3+8BFN</b>	Screw
<b>12</b>	<b>XTN4+20J</b>	Screw
<b>13</b>	<b>XTN4+10B</b>	Screw
<b>14</b>	<b>XWA4B</b>	Washer
<b>15</b>	<b>XSN3+8S</b>	Screw
<b>16</b>	<b>XWA3B</b>	Washer
<b>17</b>	<b>XWA3B</b>	Washer
<b>18</b>	<b>XSN3+10S</b>	Screw
<b>19</b>	<b>XWE3F8</b>	Washer
<b>20</b>	<b>XTN3+12BFZ</b>	Screw
<b>21</b>	<b>XTB3+8BFZ</b>	Screw
<b>22</b>	<b>XWG3</b>	Washer
<b>23</b>	<b>XTN3+8H</b>	Screw
<b>24</b>	<b>XTN3+8B</b>	Screw
<b>25</b>	<b>XWA3B</b>	Washer
<b>26</b>	<b>XSN3+10S</b>	Screw
<b>27</b>	<b>XTN4+45B</b>	Screw
<b>28</b>	<b>XTN4+14GFZ</b>	Screw
<b>29</b>	<b>XTB3+25BFN</b>	Screw
<b>30</b>	<b>XWG3</b>	Washer
<b>31</b>	<b>XTN3+8GFZ</b>	Screw
<b>32</b>	<b>XTN4+25B</b>	Screw

## REPLACEMENT PARTS LIST (Tone Arm and Arm Base Parts)

**Notes:** Part numbers are indicated on most mechanical parts.  
Please use this part number for parts orders.

Ref. No.	Part No.	Part Name & Description
<b>TONE ARM and ARM BASE PARTS</b>		
100	SFPWG17201K	Balance Weight Ass'y
101	SFPAM17201K	Tone Arm Ass'y
102	SFPCC31001K	Head Shell
103	SFPRT17201K	Arm Rest
104	SFPZB17205	Rubber, Lift Cap
105	SFPKD17203	Arm Base
106	SFPKB17201S	Ring, Operation
107	SFPKD17201	Bracket, Arm Base
108	SFPAB17206	Knob, Anti-skate Force Control
109	SFPEW17201	Washer, Anti-skate Force Control Knob
110	SFXG829-1	Screw, Tone Arm Lift Adjustment
111	SFPRT17202K	Lift Ass'y
112	SFPZB17202	Knob, Arm Base Lock
113	SFQA829-03	Spring, Lift Ass'y
114	SFPAB17201K	Rift Ass'y
115	SFPZB17203K	Plate, Position Fix
117	SFUM172-58	Base, Muting Switch
118	SFXJ172-60	Shaft, Operation
119	SFUP172-60	Bracket, Switch Adjustment Plate
120	SFUK172-52E	Movable Base Assembly
121	SFUP172-59	Bracket, Switch Adjustment Plate
122	SFUM172-55	Cam, Lift
123	SFXW130-01	Clip, Muting Switch Base
124	SFUM172-57	Lever, Brake
125	SFGT172-51	Tube, Rubber
126	SFUM172-56	Lever, Muting
127	SFQA172-52	Spring, Base Supporter Assembly
128	SFPZB17251E	Base, Supporter Assembly
129	SFUM172-59	Rest, Sensor Assembly
130	SFUP172-55	Bracket, Motor Assembly
131	SFMH172-51E	Motor Assembly
132	SFGZ172-52	Cover, Motor
133	SFGB172-51	Belt
134	SFUP172-58	Bracket, Worm Assembly
135	SFUG172-53E	Worm Assembly
136	SFXJ172-52	Shaft
137	SFUP172-52E	Bracket
138	SFUK172-51E	Bracket, Arm
139	SFQH172-51	Spring
140	SFUP172-51A	Bracket
141	SFUG172-52E	Base, Operating Gera Ass'y
142	SFUM172-61	Bracket, PU Output Cord
143	SFUP172-56	Shield Case
144	SFUM172-60A	Tone Arm Fixing Plate Ass'y
145	SFDJ172-05E	Socket, 9 Pin
<b>SCREWS, WASHERS and CIRCLIPS</b>		
①	<b>XTN3+8B</b>	Screw
②	<b>XTN26+6B</b>	Screw
③	<b>XWG26</b>	Washer
④	<b>XSN3+8S</b>	Screw
⑤	<b>XWA3B</b>	Washer
⑥	<b>XUC5FT</b>	Circlip
⑦	<b>XWG3</b>	Washer

Ref. No.	Part No.	Part Name & Description
⑧	<b>XTV3+6BFN</b>	Screw
⑨	<b>XWE4A10EW</b>	Washer
⑩	<b>XUC25FT</b>	Circlip
⑪	<b>XTV3+6BFN</b>	Screw
⑫	<b>XWG5E12BW</b>	Washer
⑬	<b>XTN3+25B</b>	Screw
⑭	<b>XSN23+12</b>	Screw
⑮	<b>XWE26BW</b>	Washer
⑯	<b>XWA26B</b>	Washer
⑰	<b>SFXW910-08</b>	Washer
⑱	<b>XUC3FT</b>	Circlip
⑲	<b>XWE3A6BC</b>	Washer
⑳	<b>XUC2FT</b>	Circlip
㉑	<b>XWE26BW</b>	Washer
㉒	<b>XSN26+6</b>	Screw
㉓	<b>XTN3+6B</b>	Screw
㉔	<b>XTV3+8BFN</b>	Screw
㉕	<b>XWG3</b>	Washer
㉖	<b>XTN3+8B</b>	Screw
㉗	<b>XTN3+12B</b>	Screw
㉘	<b>XUC3FT</b>	Circlip
㉙	<b>XWE4A10BW</b>	Washer
㉚	<b>XWE4A10EW</b>	Washer
㉛	<b>XWA3B</b>	Washer
㉜	<b>XNG3ES</b>	Nut
㉝	<b>SFXW172-55</b>	Washer
㉞	<b>XWE3A6BC</b>	Washer
㉟	<b>XUC2FT</b>	Circlip
㊱	<b>XWG3FZ</b>	Washer
㊲	<b>XWA3BFZ</b>	Washer
㊳	<b>XSN3+23BVS</b>	Screw
<b>ACCESSORIES</b>		
A1	SFWE212-01	Adaptor, 45 r.p.m.
A2	SFPEN3302	Nut, Cartridge
A3	SFPEW9601	Washer, Head Shell
A4	SFCZV8801	Screw, Cartridge
A5	SFPEV9801	Screw, Cartridge
A6	SFKO135-01	Overhang Gauge
A7	SFPZB3501	Shell Weight
<b>PACKINGS</b>		
P1 [M]	SFHP172M01	Carton
P2 [MC]	SFHP172C01	Carton
P3	SFHH172-01	Pad, Front
P4	SFHH172-02	Pad, Rear
P5	SFHD172-01	Pad, Top
P6	SFHD172-02	Pad, Turntable
P7	SFYH60X60	Polyethylene Cover, Turntable Unit
P8	SFYH60X60	Polyethylene Cover, Dust Cover
P9	SFYH40X45	Polyethylene Cover, Turntable
P10 [M]	SFNU172M01	Instruction Book, Printed Matter
P10 [MC]	SFNU172C01	Instruction Book, Printed Matter

Notes: \* (M) is available in U.S.A. only.  
\* (MC) is available in Canada only.