

 PIONEER

Service Manual

REPAIR & ADJUSTMENTS



**ORDER NO.
ART-705-0**

STEREO TURNTABLE

PL-5 PL-420

MODEL PL-5 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

| Type | Voltage | Remarks |
|------|----------------------------------|----------------------------------|
| KUT | 120V only | U.S.A. model (Without cartridge) |
| KCT | 120V only | Canada model (Without cartridge) |
| R | 110V-120V/220V-240V (Switchable) | General export model |
| R/G | 110V-120V/220V-240V (Switchable) | U.S. military model |

MODEL PL-420 (which is minor change in design from PL-5) COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

| Type | Voltage | Remarks |
|------|----------------------------------|---|
| KU | 120V only | U.S.A. model |
| RF | 110V-120V/220V-240V (Switchable) | General export model (Without dust cover) |
| RF/G | 110V-120V/220V-240V (Switchable) | U.S. military model (Without dust cover) |

- This is the service manual for model PL-5/KUT. For servicing of the other types, please refer to the additional service manual.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.
- For the circuit and mechanism descriptions, please refer to the supplement of model PL-7 service manual (ART-768).

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1. SPECIFICATIONS

Motor and Turntable

| | |
|-----------------------------|---------------------------------------|
| Drive System | Direct-drive |
| Motor | DC servo motor |
| Turntable Platter | 310mm diam, aluminum alloy die-cast |
| Speeds | 33-1/3 and 45rpm |
| Wow and Flutter | Less than 0.025% (WRMS) |
| Signal-to-Noise Ratio | More than 78dB (DIN-B) |
| | (with Pioneer cartridge model PC-3MC) |

Tonearm

| | |
|-------------------------------|--|
| Type | Static-balance type, Straight pipe arm |
| Effective Arm Length | 221mm |
| Overhang | 15.5mm |
| Usable Cartridge Weight | 3g (min.) to 8g (max.) |

Subfunctions

Full auto mechanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Miscellaneous

| | |
|--------------------------|--|
| Power Requirements | AC120V, 60Hz |
| Power Consumption | .9W |
| Dimensions | 420(W) X 108(H) X 367(D)mm 16-1/2(W) X 4-1/4(H) X 14-7/16(D)in. |
| Weight | 5.9kg/13 lb |

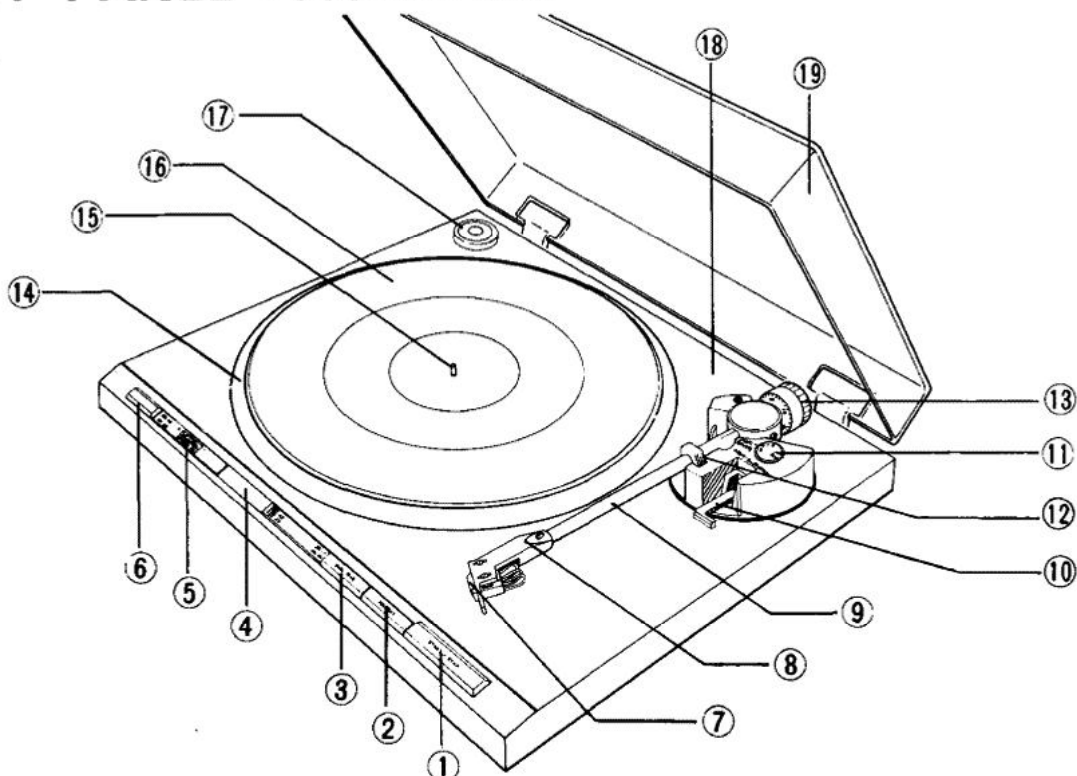
Accessories

| | |
|------------------------------|---|
| EP Adapter | 1 |
| Operating Instructions | 1 |

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

2. FRONT PANEL FACILITIES



① START/STOP switch

Depress this switch when starting auto play or when stopping play.

② REPEAT switch

Set this switch for repeat play.

③ DISC SIZE switch

Set this switch in accordance with the size of the record which is to be played.

[7" 17] (released position): For 17 cm EPs
 [12" 30] (depressed position): For 30 cm LPs

④ Speed check window

Look through this window and observe the movement of the striped pattern when checking the rotational speed or finely adjusting the speed. The position of the striped pattern differs according to the power line frequency (50 Hz or 60 Hz) in the area of use and the speed (33 or 45 rpm) of the platter.

Top pattern: For 45 rpm in 50 Hz area

Second pattern: For 45 rpm in 60 Hz area

Third pattern: For 33 rpm in 50 Hz area

Bottom pattern: For 33 rpm in 60 Hz area

⑤ SPEED ADJ control

Rotate this control in order to finely adjust the speed of the platter.

The speed is reduced when the control is rotated in the [-] direction.

The speed is increased when the control is rotated in the [+] direction.

⑥ SPEED switch

Set this switch in accordance with the speed of the record which is to be played.

[33] (depressed position): For 33-1/3 rpm records

[45] (released position): For 45 rpm records

⑦ Cartridge

⑧ Headshell

⑨ Tonearm

⑩ ARM ELEVATION lever

Operate this lever when starting manual play or when temporarily suspending play.

⑪ ANTI-SKATE control

This is rotated when performing the anti-skating adjustment.

⑫ Arm rest

This serves to hold and clamp the tonearm. When moving the tonearm, release the clamp.

⑬ Tracking force adjustment weight

This is used when adjusting the tracking force.

⑭ Platter

⑮ Platter mounting shaft

⑯ Rubber mat

⑰ EP adapter

This is used when playing records without a "middle."

⑱ Cabinet

⑲ Dust cover

3. DISASSEMBLY

3.1 PANEL AND BASE

In removing the panel, follow the below listed steps in the order given. Using any unnecessary force will result in bending the springs or damaging other parts.

Panel removal steps

1. Remove the headshell and weight assembly, and the weight shaft assembly.
The weight shaft assembly is removed by loosening screw (Hexagone socket screw) and the headshell by loosening screw ①.
2. Lift off the turntable platter.

3. Loosen insulator attachment screws ② and remove the insulator. (Do not mix the color-coded float springs. They must be replaced with their original insulators during reassembly.)
4. Set the record size selector switch to "30cm".
5. Release the arm clamp and move the tonearm as far as it will go toward the center. Then rotate the motor center shaft clockwise returning the tonearm to the arm rest. Stop the center shaft.
6. Remove the rear panel PU cord strain relief.

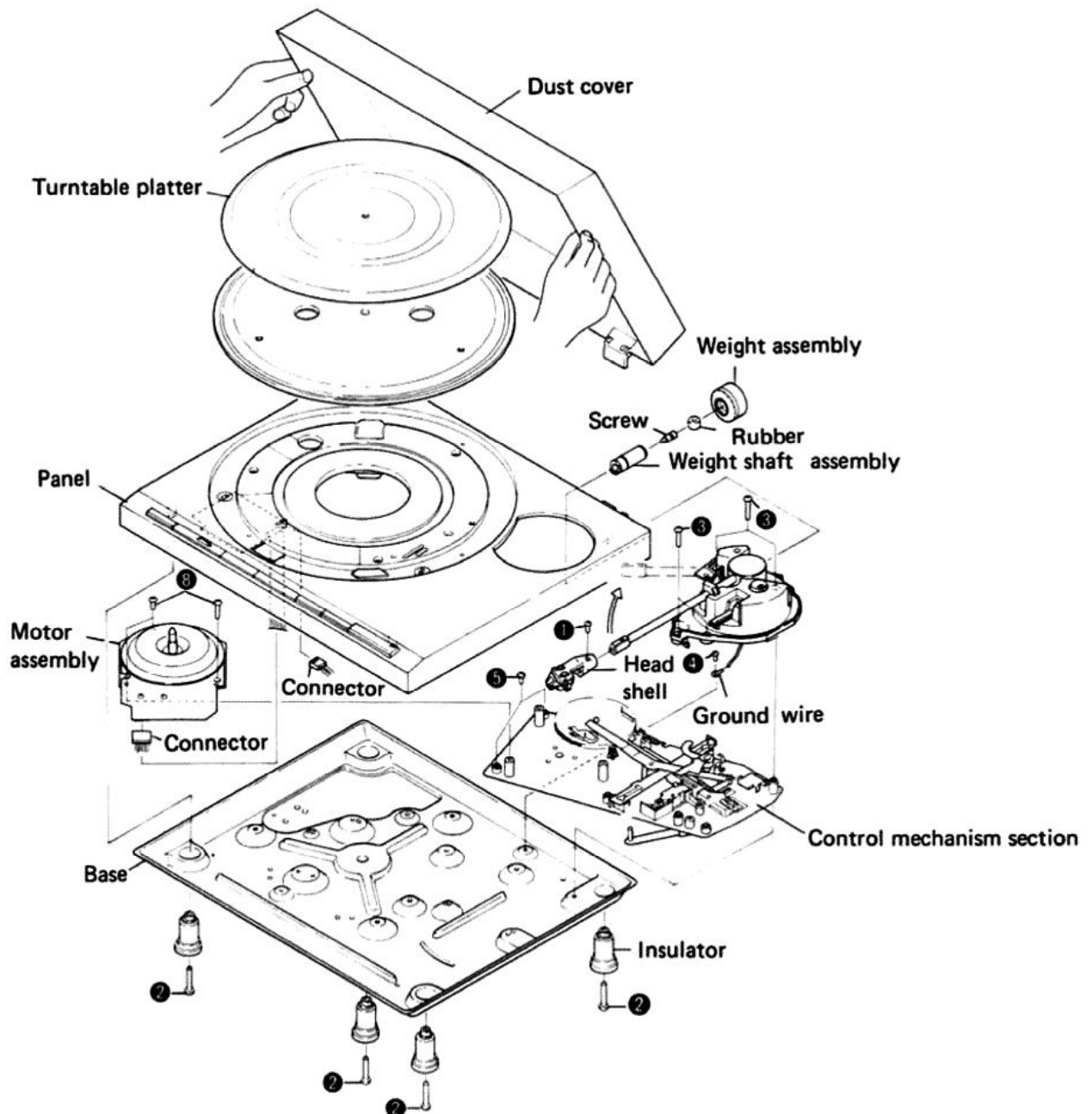


Fig. 3-1 Disassembly

7. Lift the front section of the panel (operating controls) very slightly and make sure the slider and spring is disengaged from the selector lever. If the spring is caught on something, use a long and thin screwdriver and free the spring from the large center opening.
8. Unplug the 2P and 5P connectors.
9. Completely remove the PU cord from the panel.
10. Lift up the headshell end of the tonearm, and taking care not to damage the tonearm, remove it from the panel. (Hold the tonearm steady.)

3.2 D.D MOTOR ASSEMBLY

After the panel has been removed, loosen the three motor attachment screws ⑥ and remove the motor.

3.3 TONEARM SECTION

Remove the tonearm section by taking out the three arm base attachment screws ⑦ and one ground wire securing screw ①.

3.4 CONTROL MECHANISM SECTION

After the tonearm section has been removed, loosen the three control mechanism attachment screws ⑤ and remove the assembly.

3.5 TONEARM

1. Disconnect the tonearm lead wires from the PU board (See Fig. 3-2).
Note that some of the lead wires have been soldered to the PU board, and must be disconnected with care.
2. Loosen the set screw ⑥ with a screwdriver to remove the PU plate under the arm base (See Fig. 3-3).
3. Undo the screw ⑦ securing the tonearm to the arm base (See Fig. 3-3).

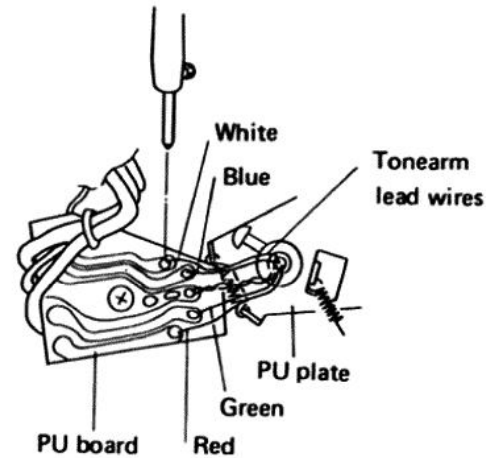


Fig. 3-2 Disconnect the tonearm lead wires

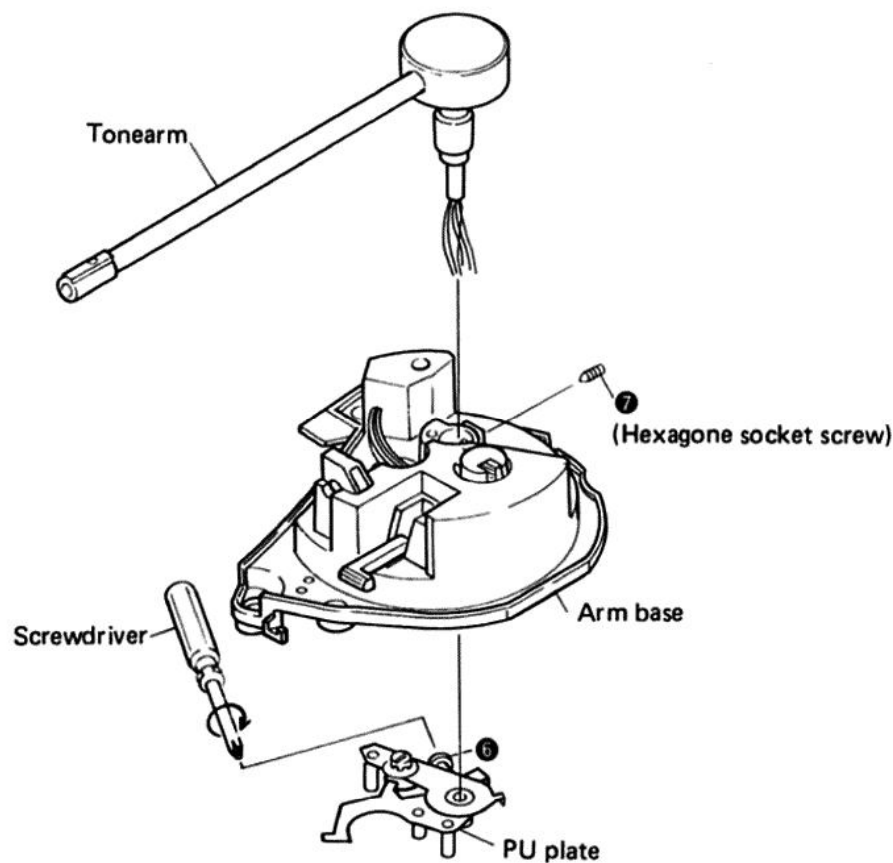


Fig. 3-3 Remove tonearm

3.6 PANEL AND BASE REASSEMBLY

1. Turn the center shaft clockwise so that the mechanism assembly is set to the reset position.
2. Hook the driver lever spring to the panel boss.
3. Lift the forward of the panel and plug in the 2P and 5P connectors.
Clamp the tonearm in the arm rest and push the START/STOP button.

4. Attach the PU cord stopper.
5. Attach the insulators. (Make certain the coded float springs are attached to the correct insulators.)
6. Attach the weight shaft assembly.

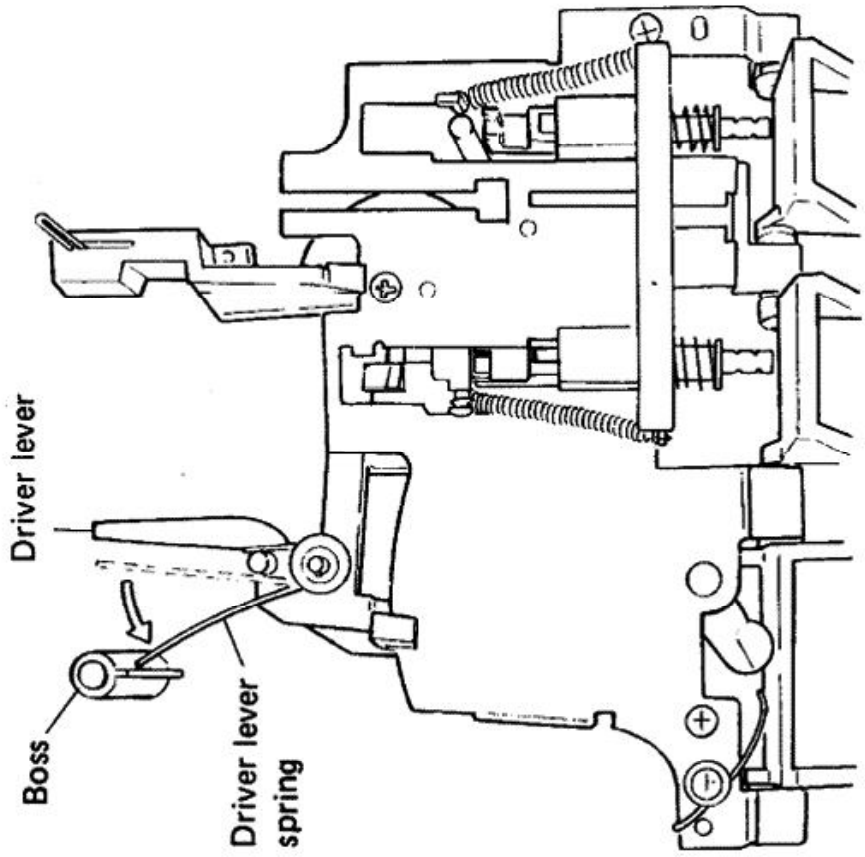


Fig. 3-4 Spring positioning

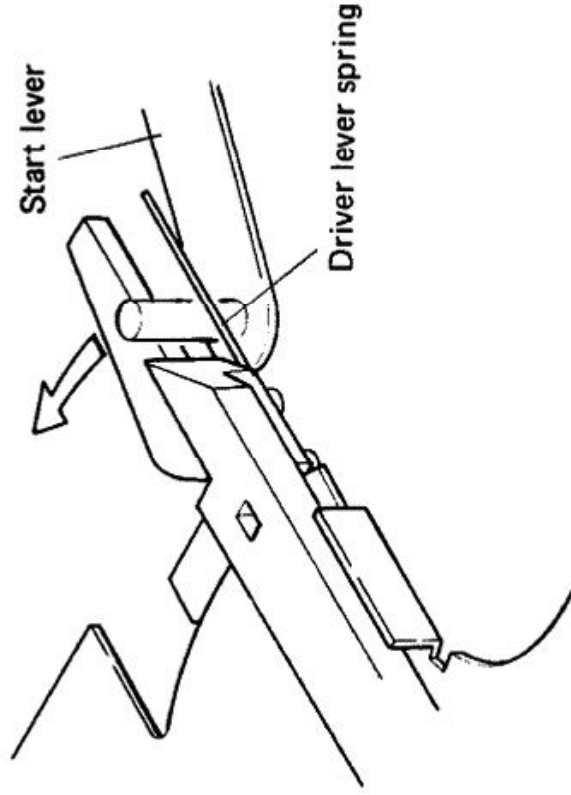
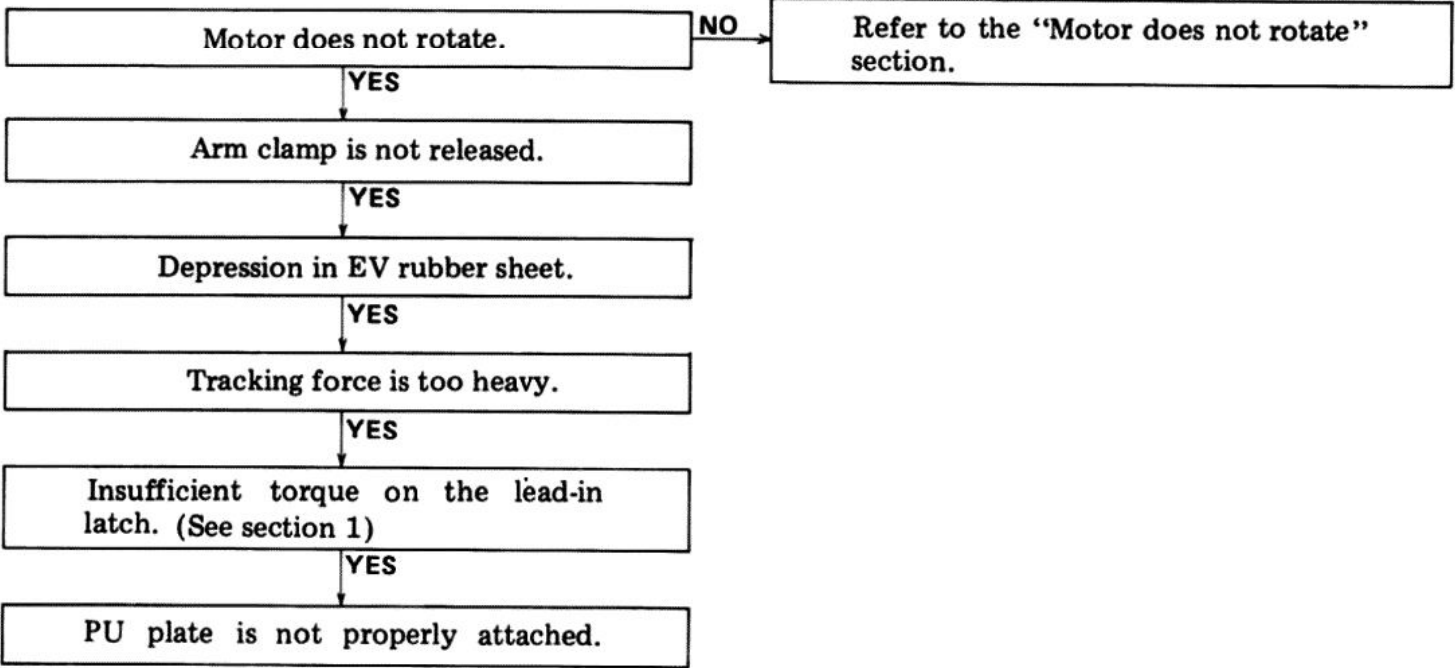


Fig. 3-5 Positioning the spring

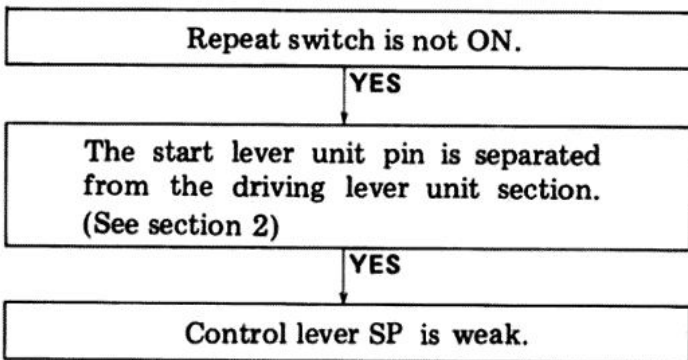
4. TROUBLESHOOTING

Use the following directions to find the cause of each type of breakdown. Improper adjustment units should be completely readjusted.

■ DOES NOT LEAD IN



■ DOES NOT REPEAT



Section 1

As shown in figure 4-1, if the force required to turn over the lead-in latch is less than 180g at a point 13mm from the center, bend the click leaf spring toward until the force is 180 – 320g.

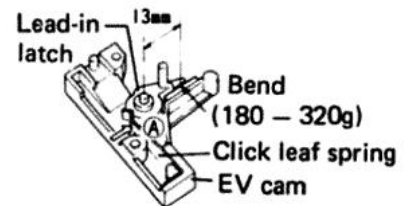


Fig. 4-1 Adjustment of lead-in latch with insufficient torque

Section 2

As shown in figure 4-2, if the start lever unit pin is out of line in the direction of (A), repeat will not operate. If it is too far in the direction of (B), the unit will not start. In these cases, assemble referring to the method of joining the panel and bottom panel (lid).

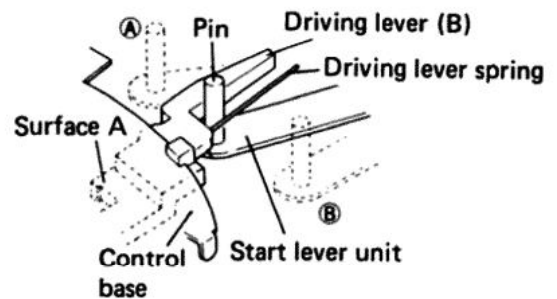


Fig. 4-2 Misaligned pin of start lever unit

REPEAT FUNCTION IS REPEATED

Separate the panel section and bottom panel and, as shown in figure 4-3, apply a tension of 10g to the start lever unit pin in direction (A). If the repeat function operates, the selector and reset plate sections are not moving properly. If the unit stops, the driving lever (B) is not moving properly.

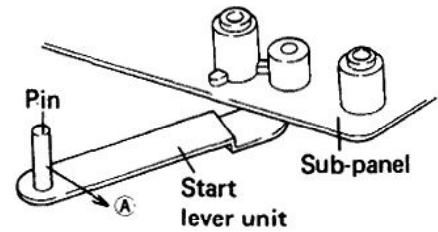
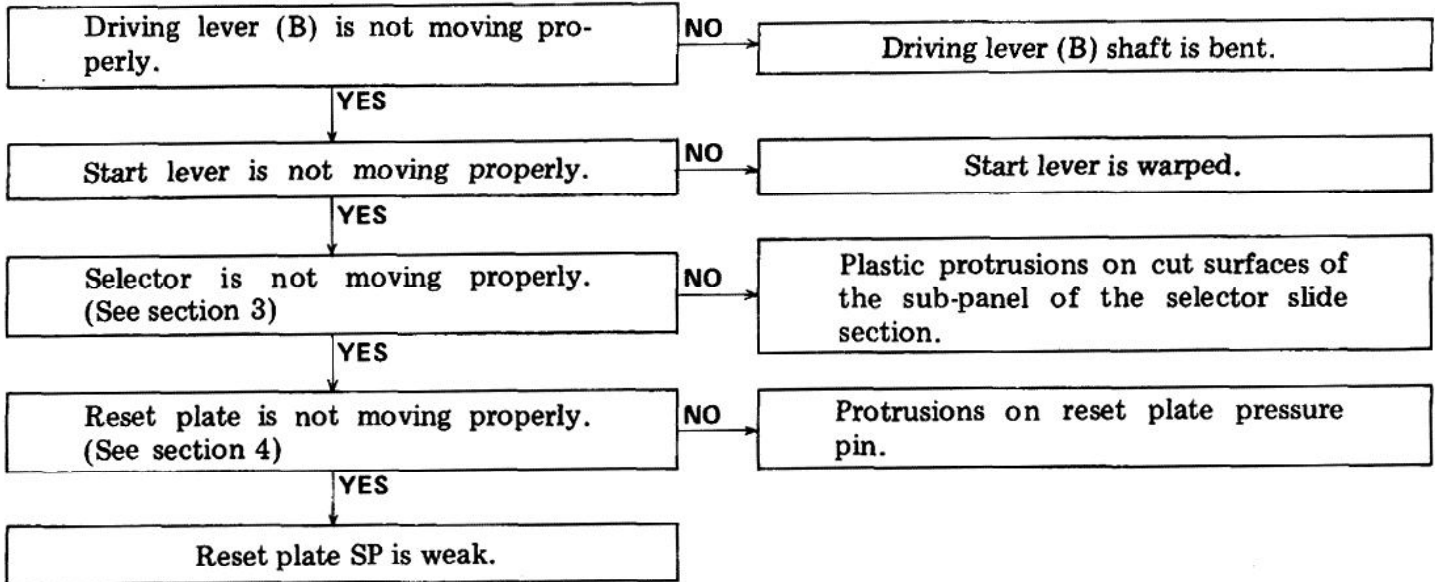


Fig. 4-3 Check of repeat operation.



Section 3

If there are protrusions remaining from the original-pressing process on surfaces (A), (B), and (C) of the sub-panel which slides with the selector, the movement of the selector will be adversely affected. Therefore, these protrusions must be removed (Fig. 4-4).

Section 4

If there are plastic protrusions on the pressure pin section of section (D) of the reset plate, these protrusions will come in contact with the lower surface of the driving panel when the reset plate moves in direction (E) and the movement of the reset plate will be adversely affected. Therefore, these protrusions must be removed (Fig. 4-4).

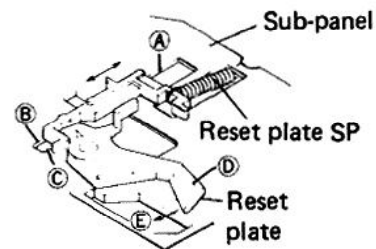


Fig. 4-4 Improper movement of selector

AUTO-RETURN DOES NOT WORK

Section 5

After performing the return operation, if the curved section of the signal plate and curved section of the starting plate are not in contact with surfaces (A) and (B) respectively of the cam, reset will be incomplete and the starting position will be late. As a result, the return function may not operate at times. In this case, bend the signal plate (C) so that dimension A is 0.5mm or larger.

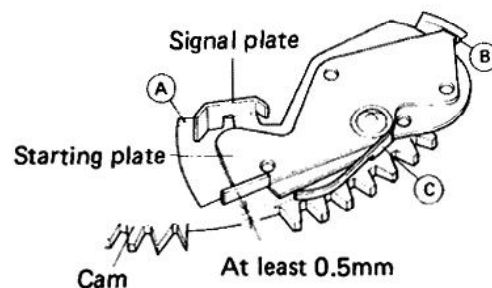
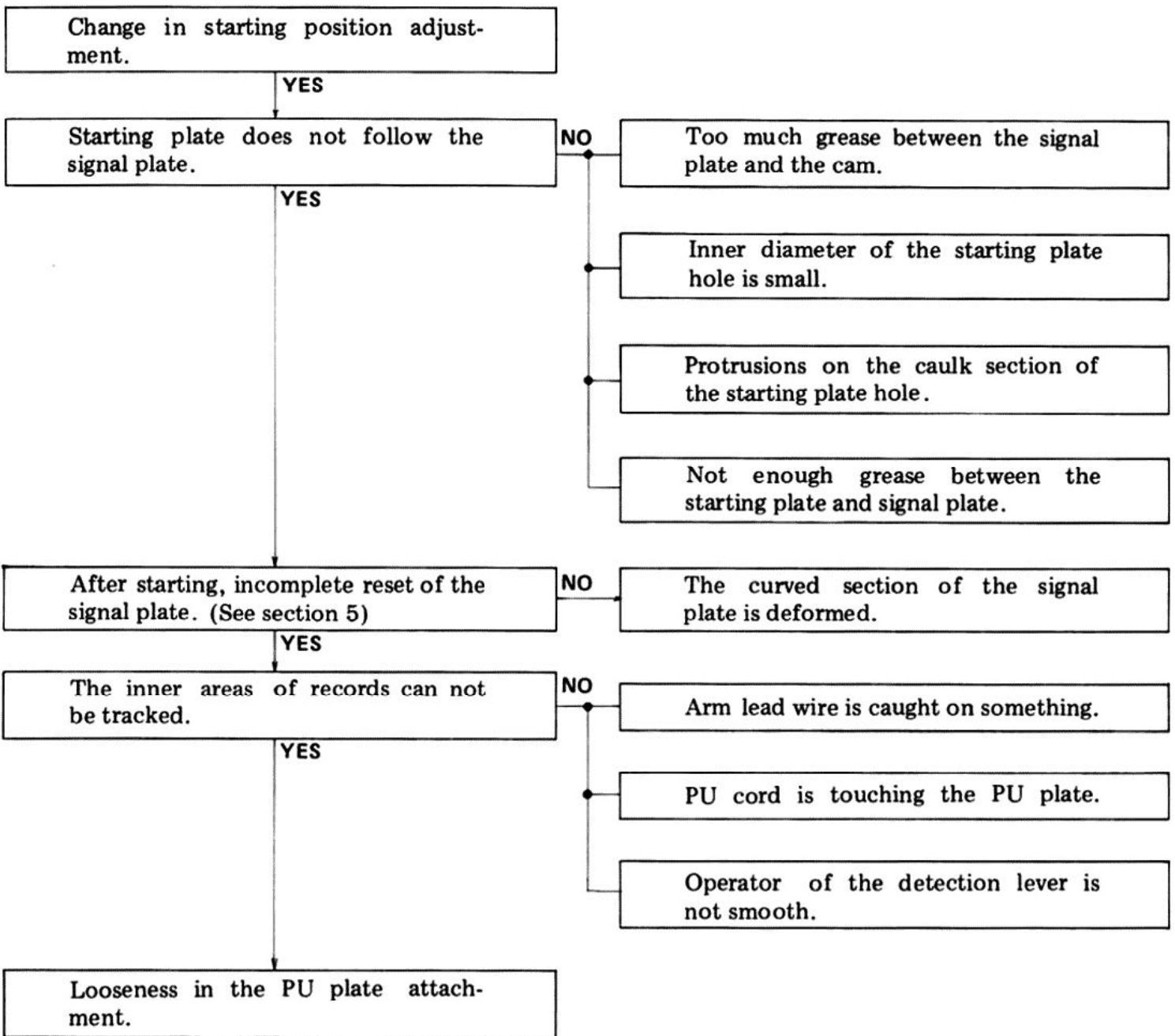


Fig. 4-5 Incomplete reset of starting and signal plates



■ RETURN IS FAST (RETURN AT 1mm PITCH)

Protrusions on the pinion gear section
(See section 6)

Section 6

If there are rough areas of plastic protruding from the (A) section of the protruding section of the pinion gear, the return function may operate at a pitch of only 1mm. In this case, remove the plastic protrusions completely (Fig. 4-6).

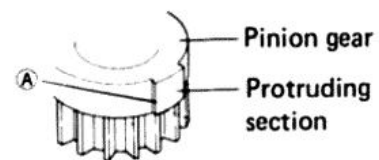
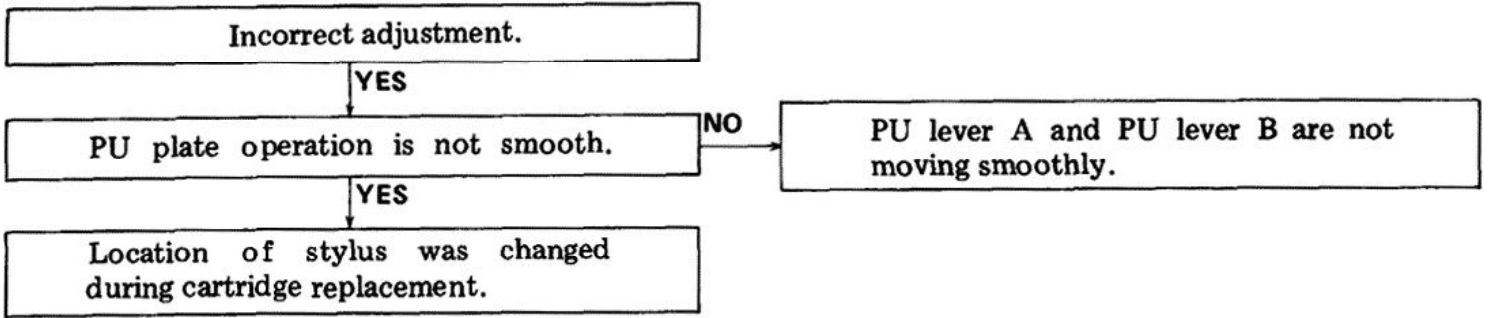


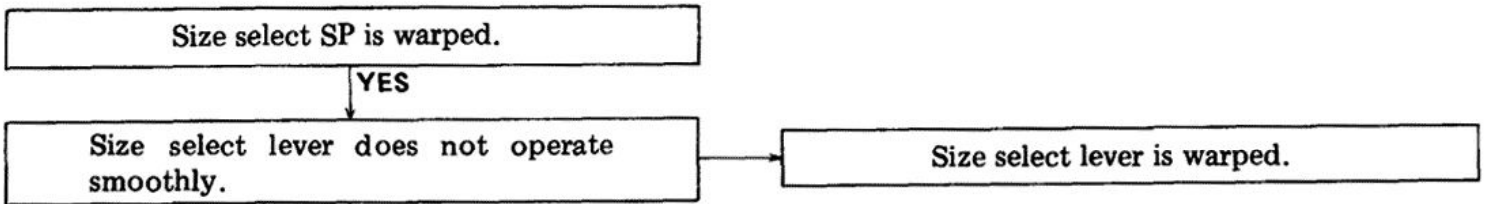
Fig. 4-6 Elimination of pinion gear protrusions

■ **TONEARM DOES NOT LOWER IN CORRECT POSITION**

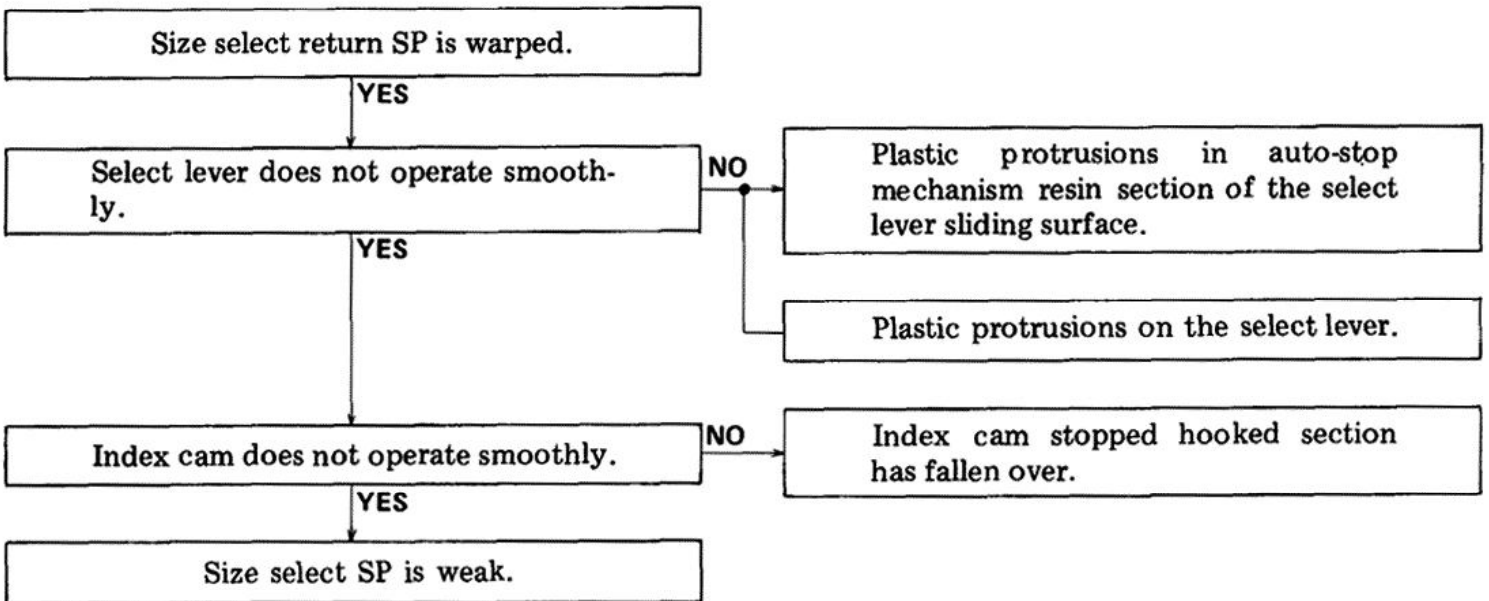


■ **RECORD SIZE SELECTOR DOES NOT WORK**

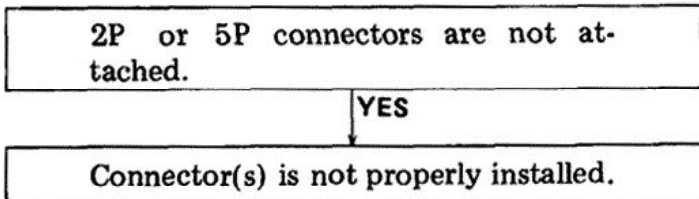
Tonearm descends at 17cm location when record size selector is set at 30cm.



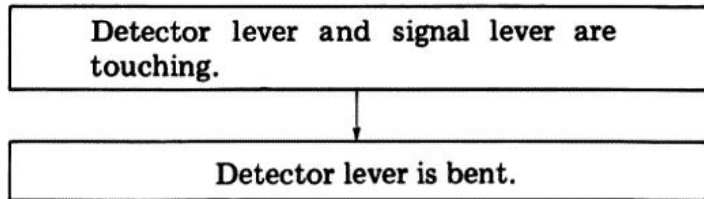
Tonearm descends at 30cm location when record size selector is set at 17cm.



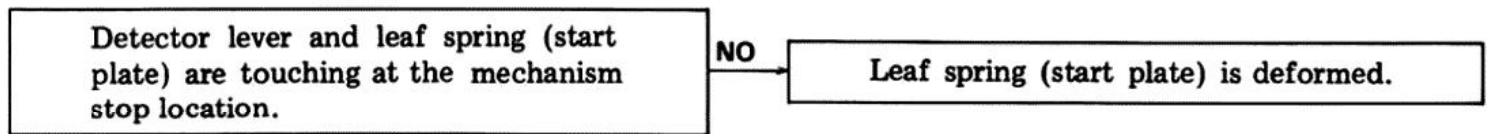
■ **MOTOR DOES NOT ROTATE**



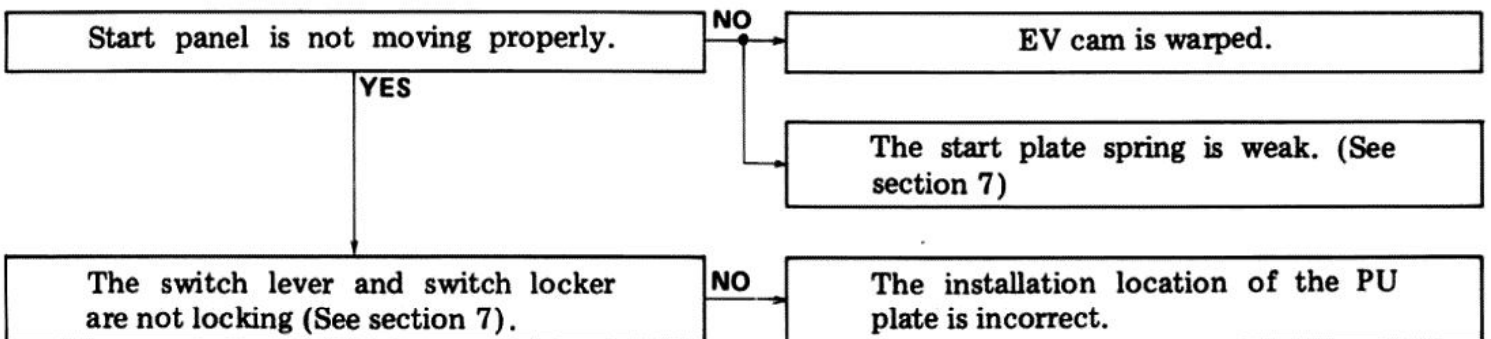
- WITH THE RECORD SIZE SET AT 17cm, THE TONEARM IS RETURNED TO THE ARM REST.



- AUTO OPERATION REPEATS



- MOTOR DOES NOT STOP



Section 7

In order to turn the power OFF, the PU plate shaft touches surface **A** of the switch locker pushing it over so it locks with the switch lever turning the microswitch OFF (Fig. 4-7). If the amount of push on the switch locker is insufficient, it can not lock with the switch lever. With the tonearm locked in the arm rest, as shown in figure 4-8, attach the PU plate precisely midway between the first and second points from the arm base scale mark counting away from you.

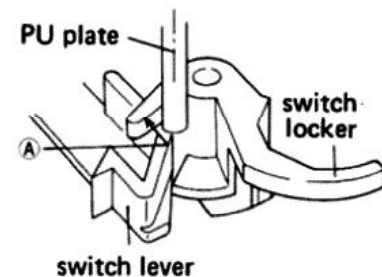


Fig. 4-7 Adjustment of switch locker

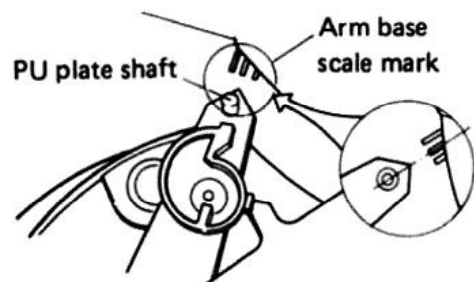


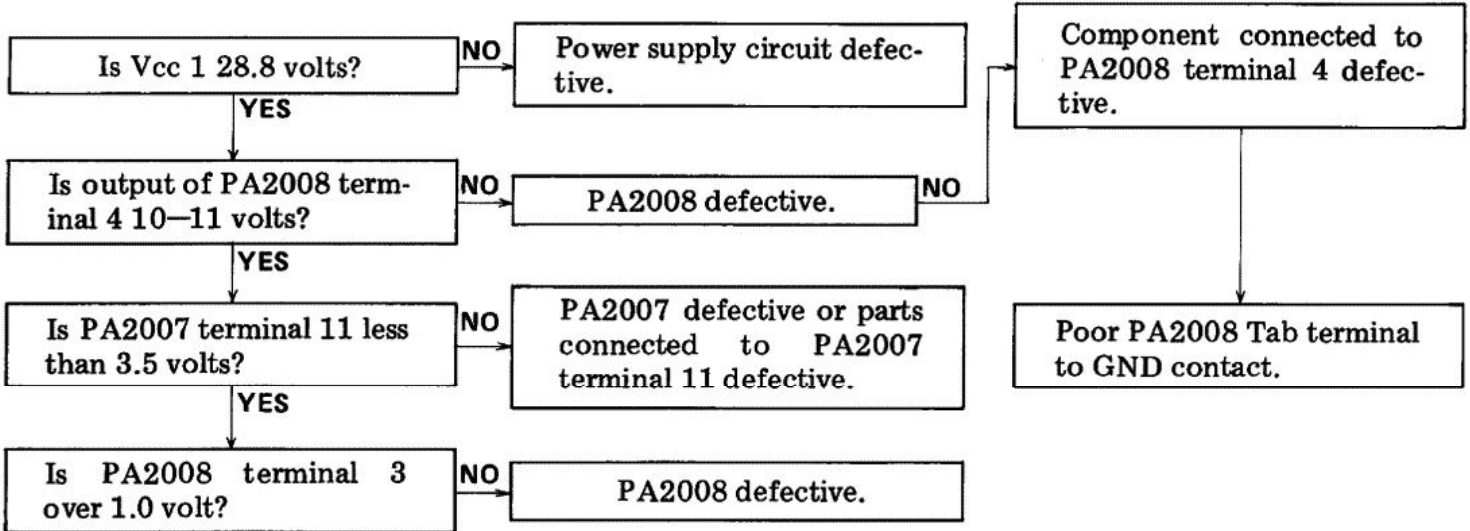
Fig. 4-8 Adjustment of PU plate

■ MOTOR ASSEMBLY

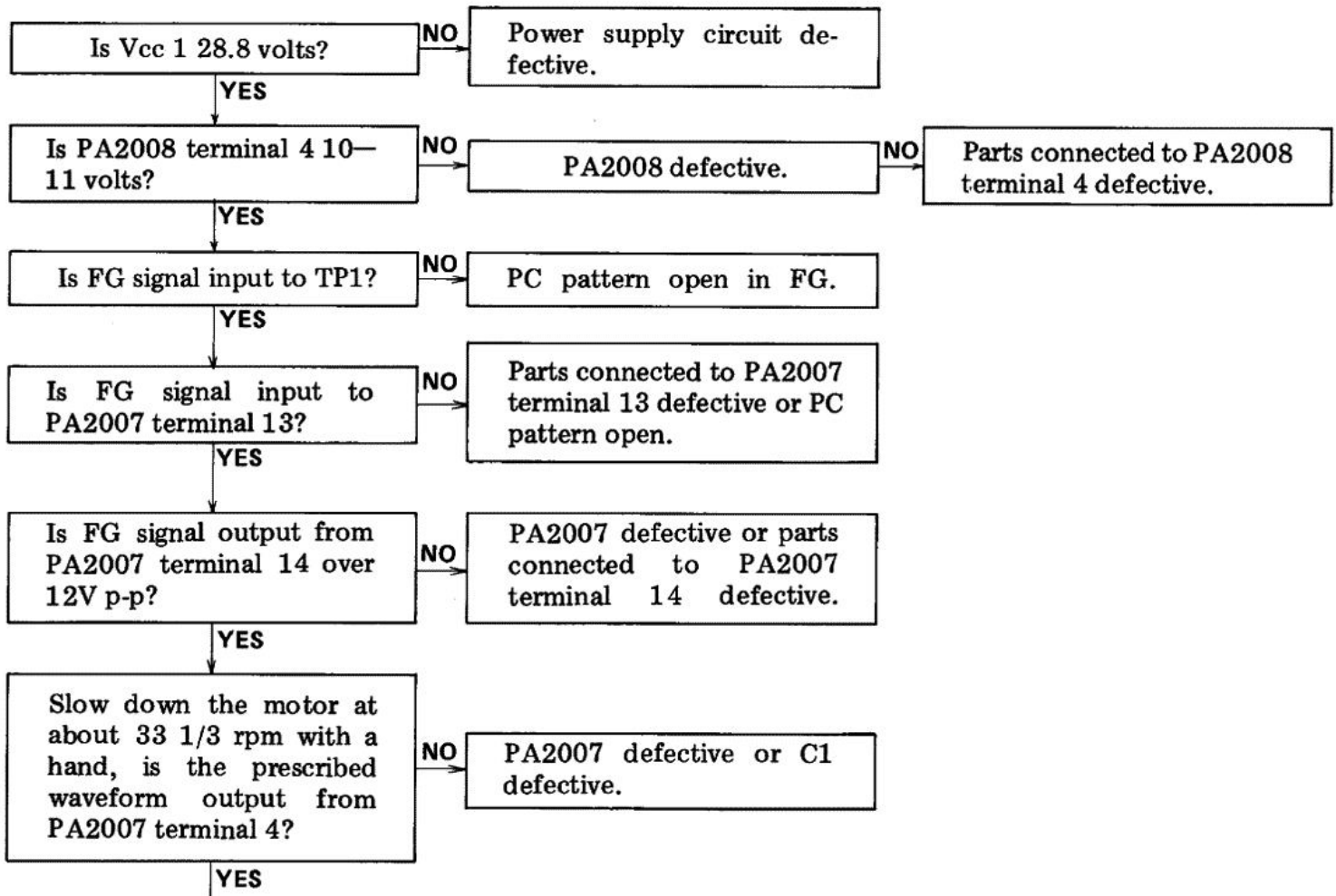
NOTE:

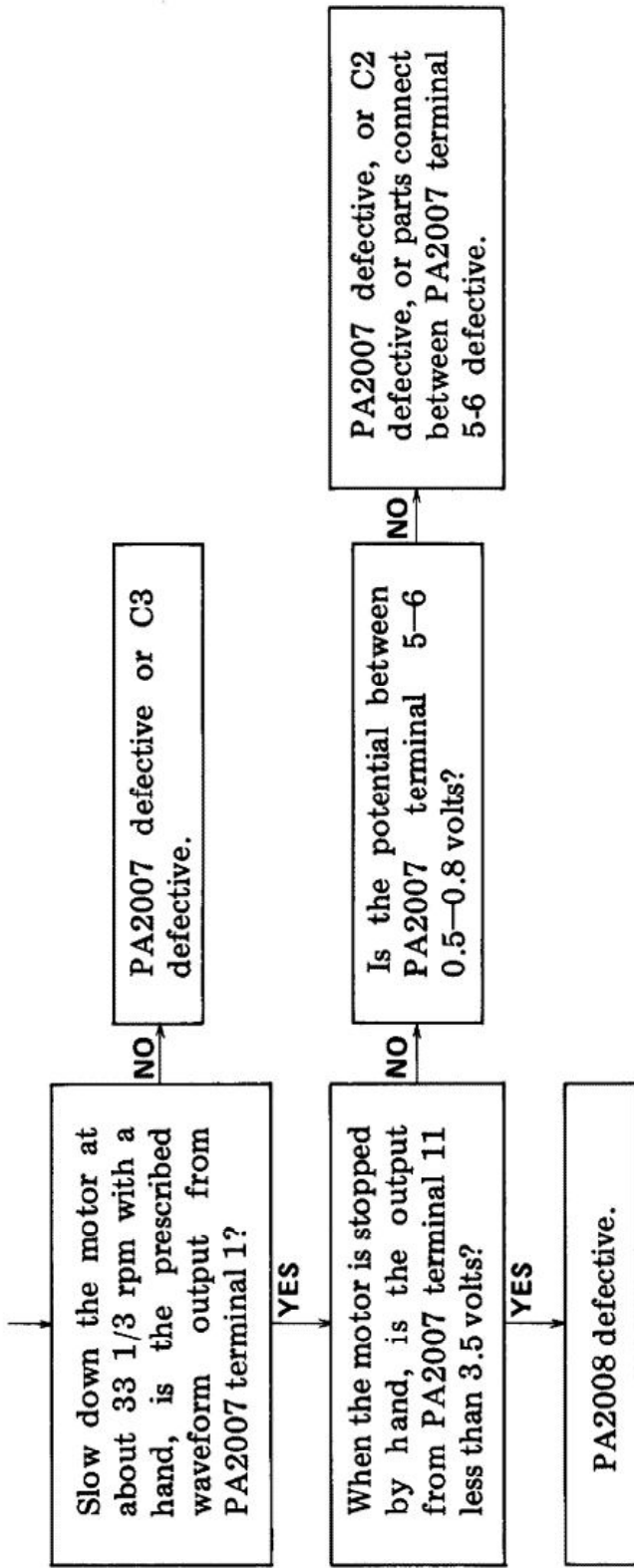
The IC PA2008 used in the PXM-090 does not have a dedicated ground pin for its internal circuitry, but uses the thermal fan ground. When replacing the IC, make sure the securing screws retaining the ground line between the IC and thermal dissipator and between the thermal dissipator and motor base, and base to circuit board is securely tightened.

● Motor Does not Turn

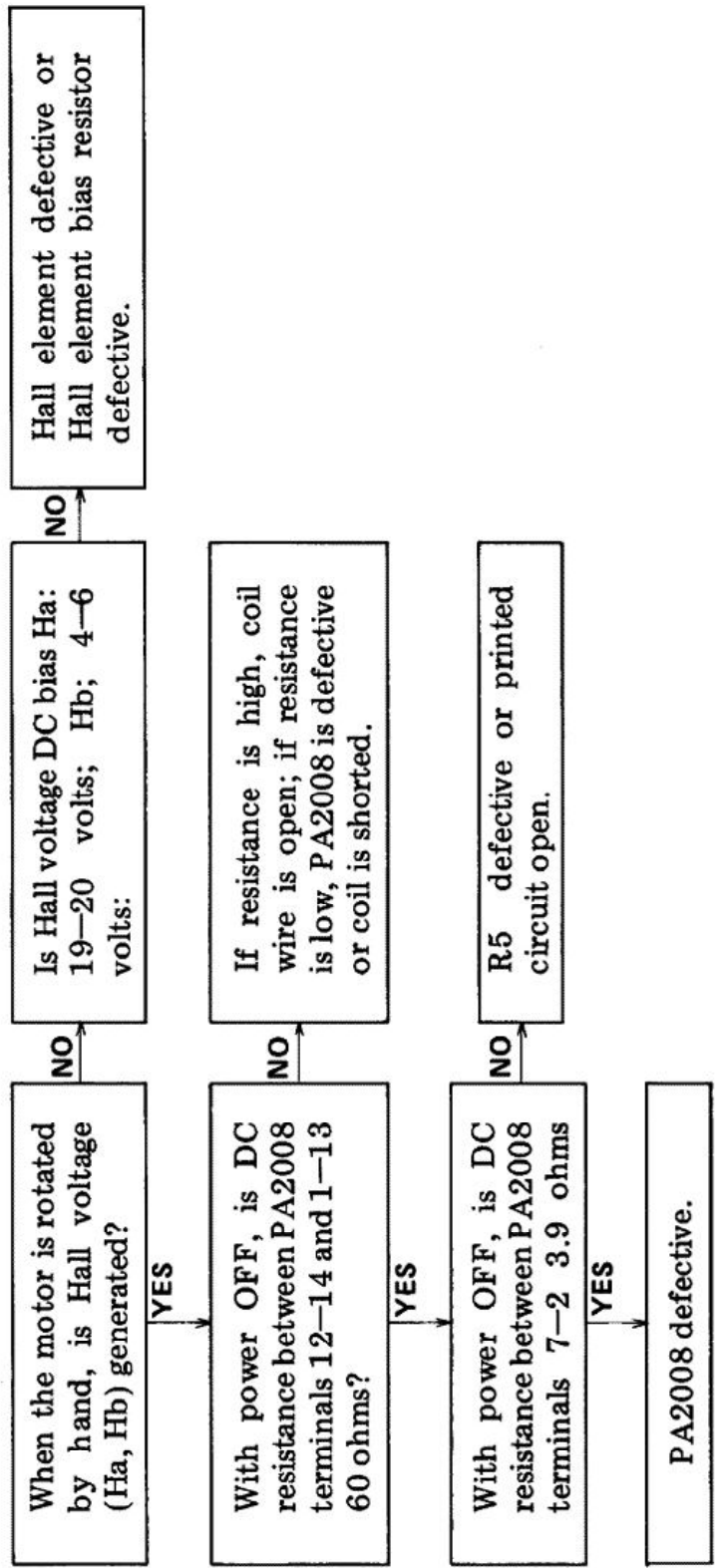


● Motor Runs away





• **Motor Dead Spot**



5. PRECAUTIONS FOR REASSEMBLY

Follow these directions and precautions when reassembling a unit after completing repairs. Be sure to lubricate as required, make no mistakes when attaching parts, and avoid all other careless mistakes that may be the cause of trouble later on.

5.1 AREAS THAT REQUIRE LUBRICATION

NOTE:

Types of lubricants and areas where they are used are listed in table 1.

Table 1

| Type of Oil | Areas used |
|---------------------|-----------------|
| Silicon Oil # 50000 | raising shaft |
| GYA-008 | all other areas |

Lubrication points are specified for oils other than GYA-008. Never use a different type of oil.

- **Cam Section**

Apply oil to the heart-shaped grooved section (rear side of the cam) and lock plate sliding section in order to minimize wear on the sliding section and the burden on the mechanism.

- **Driving Plate Assembly**

Decrease the burden on the mechanism and the wear on the sliding section.

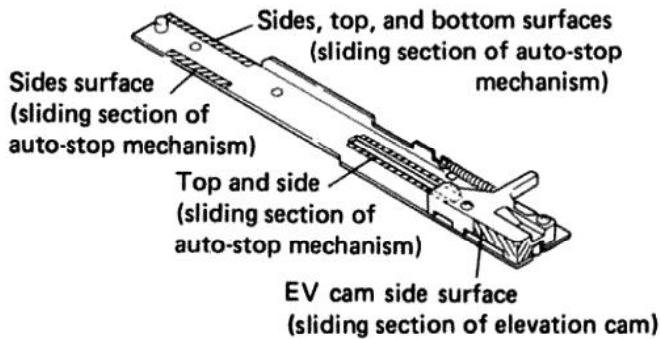


Fig. 5-1 Driving panel assembly section

- **Switch Locker Section**

Apply oil to the switch locker (opening) and sub-panel base sliding section to decrease the burden on the mechanism.

When applying oil to the opening (shaft hole), do not apply any oil 2–3mm from the bottom surface. If oil is applied 2–3mm within the bottom surface, it may come out the bottom and go between the switch lever and sub-panel base causing the switch lever to operate ineffectively.

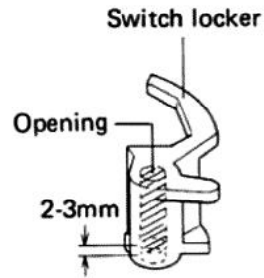


Fig. 5-2 Switch locker section

- **Selector Section**

Apply oil to the surface of the sub-panel base of the selector sliding section to decrease the burden on the mechanism and wear on the sliding section.

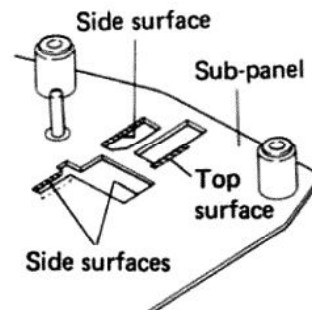


Fig. 5-3 Selector section

- **Reset Plate Section**

Apply oil to the sub-panel base (shaft) and sliding section of the reset plate to decrease the burden on the mechanism.

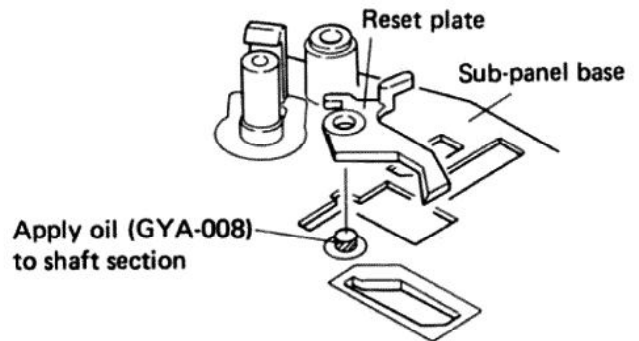


Fig. 5-4 Reset plate section

- **Index Cam Section**

Apply oil to the index cam, sub-panel shaft section, and lower surface of the hooked section to decrease the burden on the mechanism.

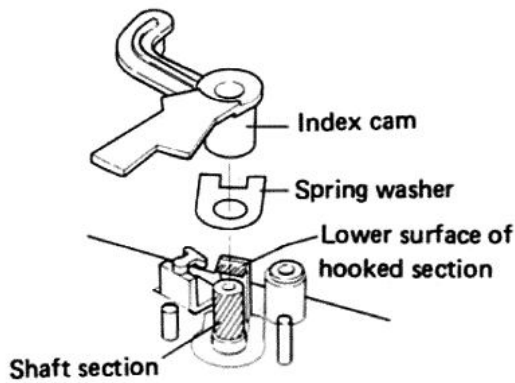


Fig. 5-5 Index cam section

● **EV Lever Unit Section**

Apply oil to the sliding section of leaf spring (A) and EV lever unit to decrease the burden on the mechanism.

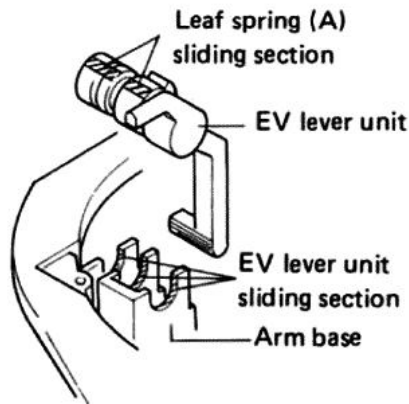


Fig. 5-6 EV lever unit section

● **Elevation Cam Section**

Apply oil to the elevation cam and sliding section of the raising shaft to decrease the burden when operated.

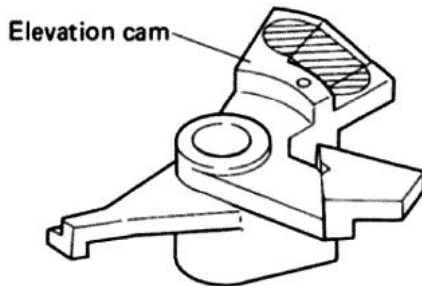


Fig. 5-7 Elevation cam section

● **EV Sheet Section**

Apply oil to the raising shaft and sliding section of the bearing to assure stability in the elevation lowering speed.

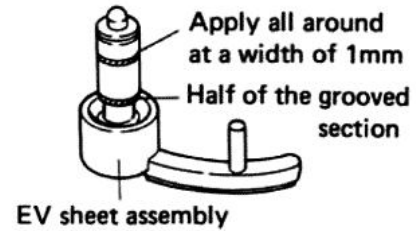


Fig. 5-8 EV sheet section

● **Driving Lever (B) Section**

Apply oil to the driving lever (B), control base, and the sliding section of the driving lever shaft to decrease the burden when operated.

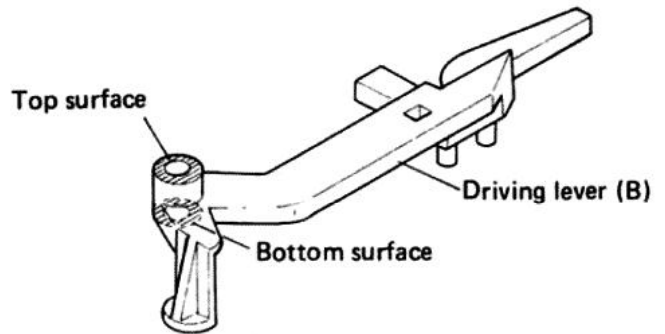


Fig. 5-9 Driving lever (B) section 1

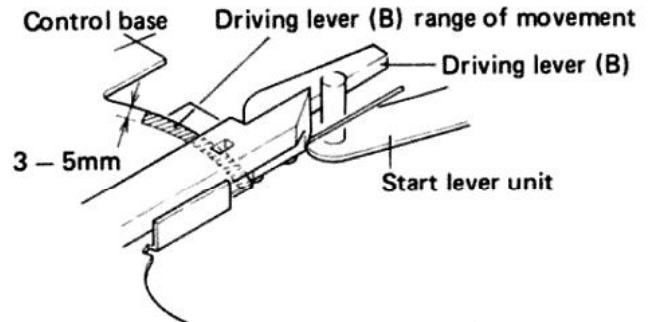


Fig. 5-10 Driving lever (B) section 2

5.2 PRECAUTIONS FOR ATTACHMENT OF PARTS AND REASSEMBLY

● **Reset Plate SP Attachment**

As shown in figure 5-11, the reset plate SP hook is attached by putting the open section on the sub-panel base side.

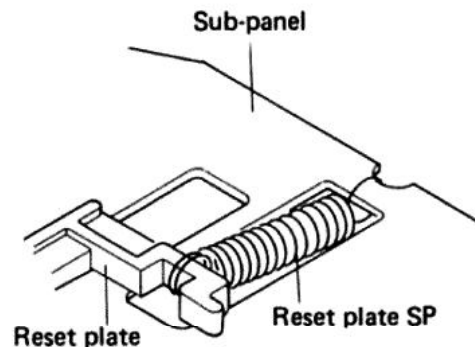


Fig. 5-11 Reset plate SP attachment

- **Cam Assembly Attachment**

The cam assembly is attached by letting the lock plate go in the direction (A) as shown in figure 5-12.

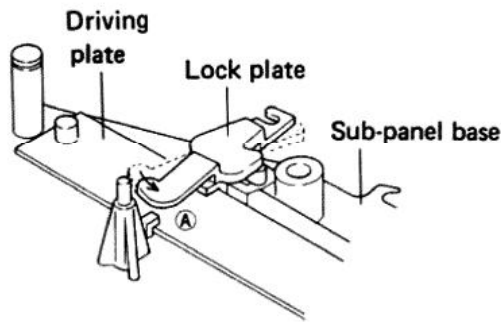


Fig. 5-12 Cam assembly attachment

- **AS Knob Attachment**

When installing the AS knob, put the AS knob rib against the AS knob revolution control stopper (attached to the arm base) and affix with the screw. As the stopper may break, be sure to press the AS knob down firmly when installing it.

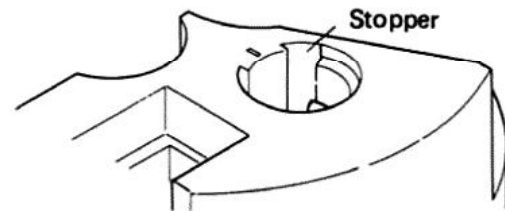


Fig. 5-15 AS knob attachment

- **Motor Attachment**

When installing the motor, set the cam in the mechanism stop location and verify that the starting plate section (B) does not protrude beyond surface (A) of the cam. If the motor is attached with the starting plate section (B) protruding, the starting plate may be deformed, the motor pinion gear may be scratched, and the return function may be damaged.

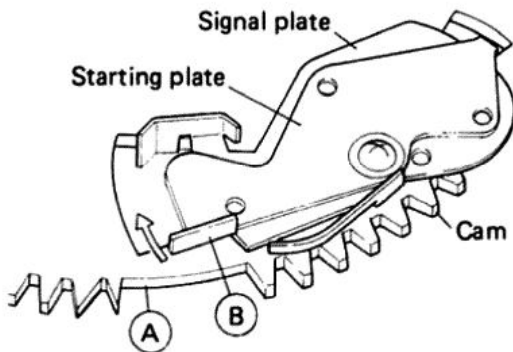


Fig. 5-13 Motor attachment

- **Arm Base Attachment**

When attaching the arm base section to the mechanism section, put the mechanism section switch locker and switch lever in the locked position and verify that the tonearm is in the arm rest location. Also be sure to put the manual elevation lever in the up position and check that the PU plate shaft is in the position shown in figure 5-16.

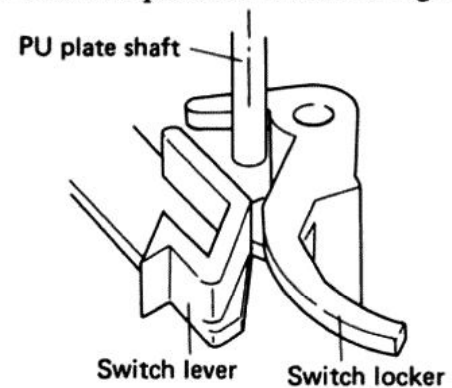


Fig. 5-16 Arm base attachment

- **PU Plate Attachment**

Push the PU plate into place so that the PU plate bearing section touches the revolution shaft attachment nut. Installation direction is as shown in figure 5-14.

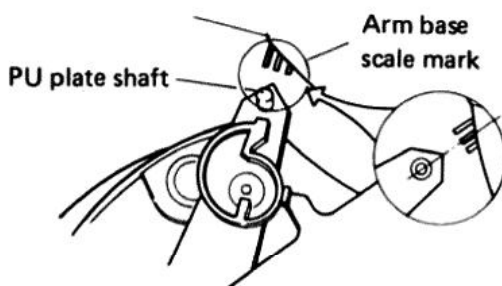


Fig. 5-14 PU plate attachment

- **Start Lever Unit Attachment**

Attach the shaft section of the start lever unit as shown in figure 5-17 so that it comes between the reset plate and start panel.

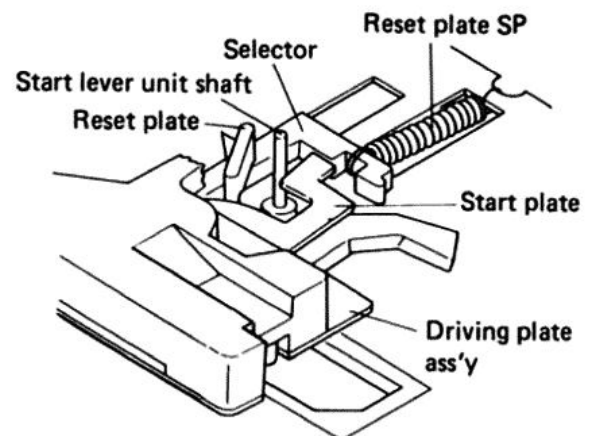
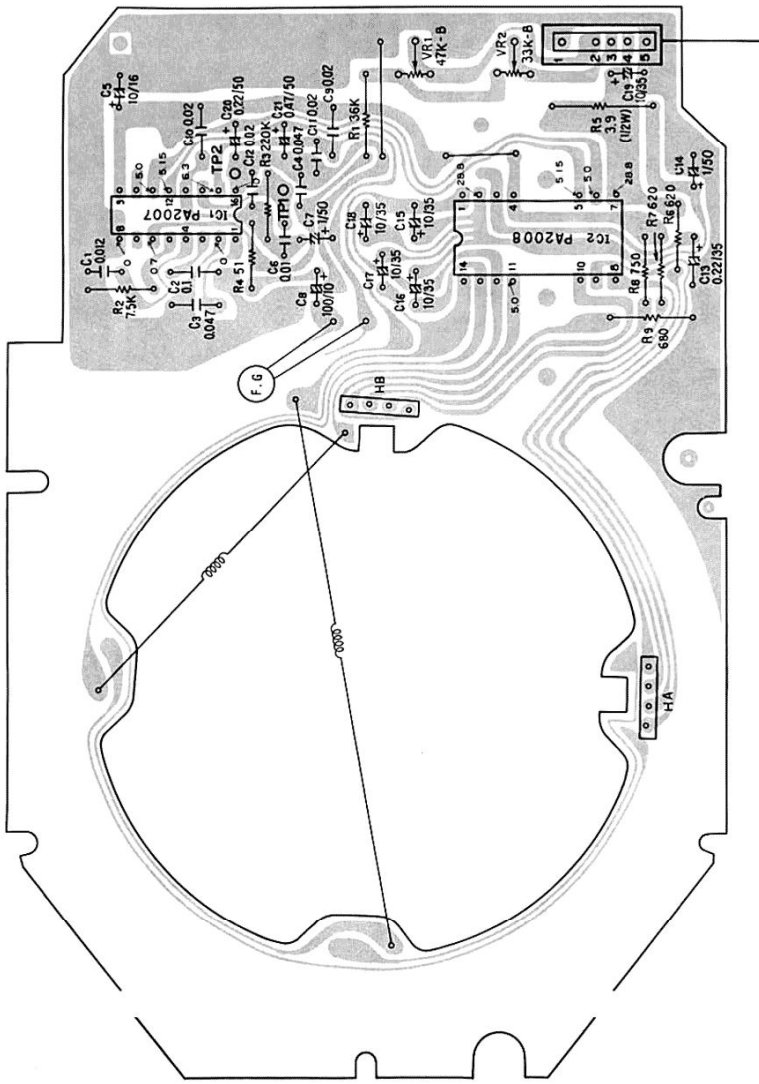


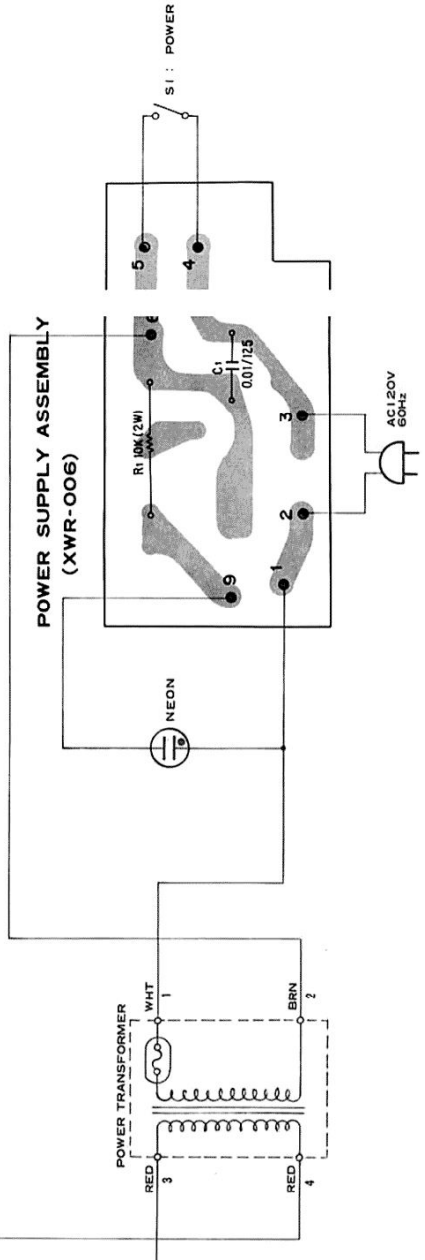
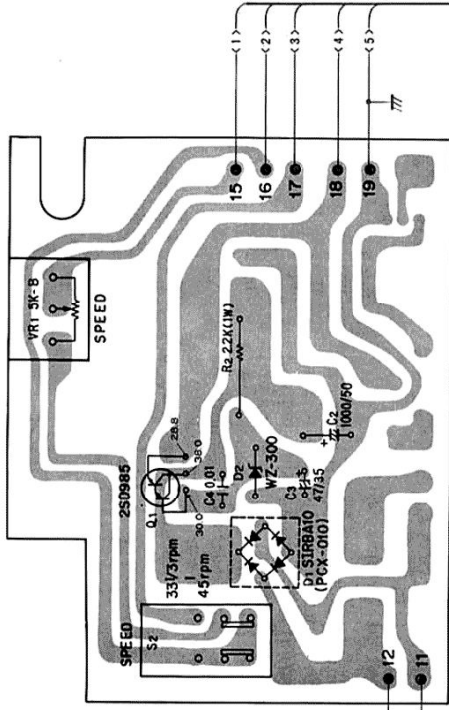
Fig. 5-17 Start lever unit attachment

1. P.C. BOARDS CONNECTION DIAGRAM

MOTOR CONTROL ASSEMBLY (PWM-060)

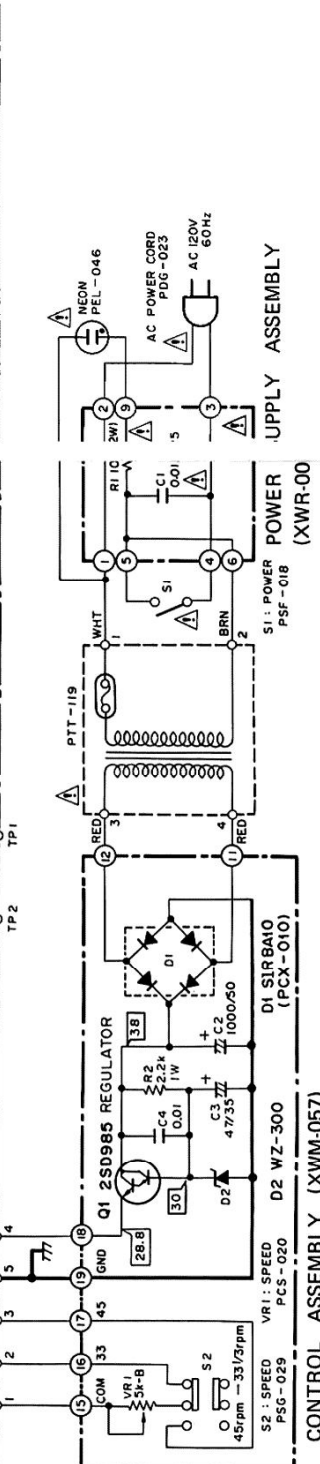
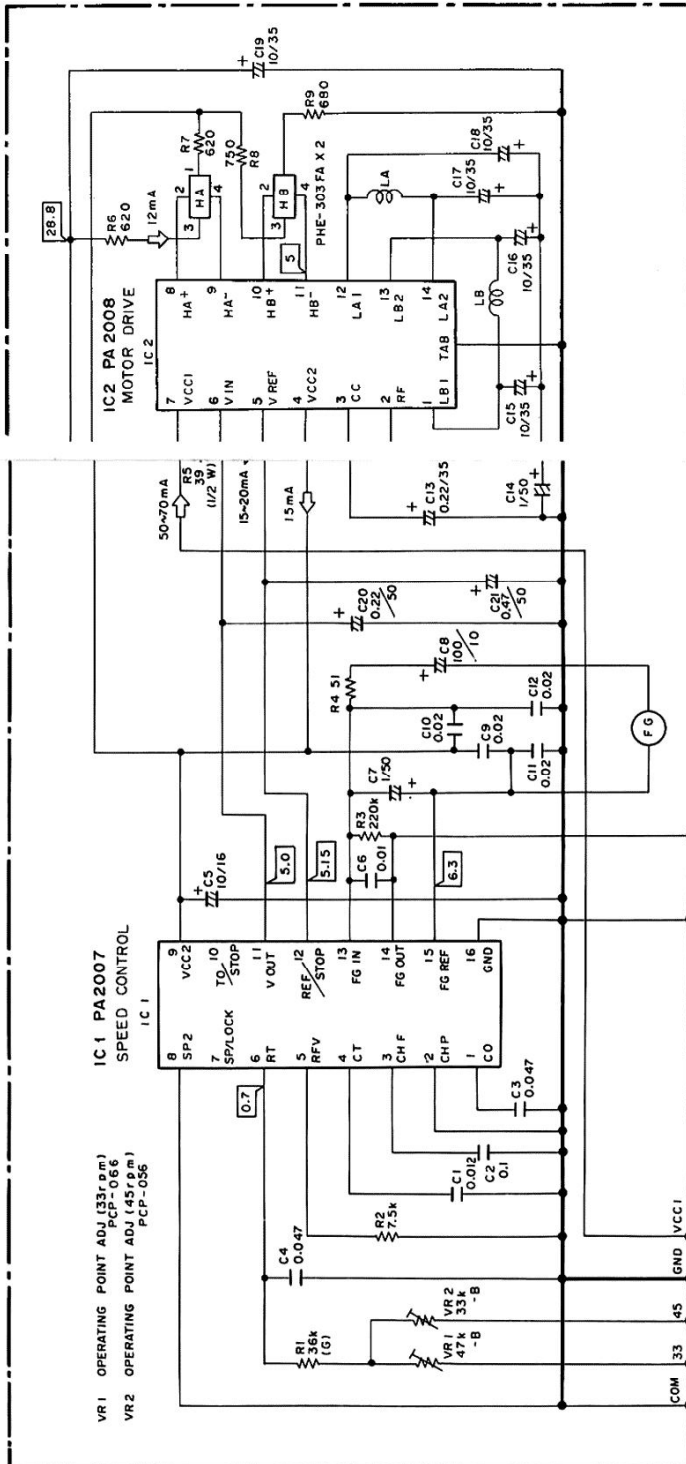


CONTROL ASSEMBLY (XWM-057)

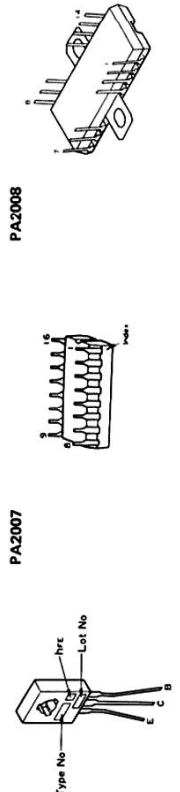


SCHEMATIC DIAGRAM

MOTOR CONTROL ASSEMBLY (PWM-060)



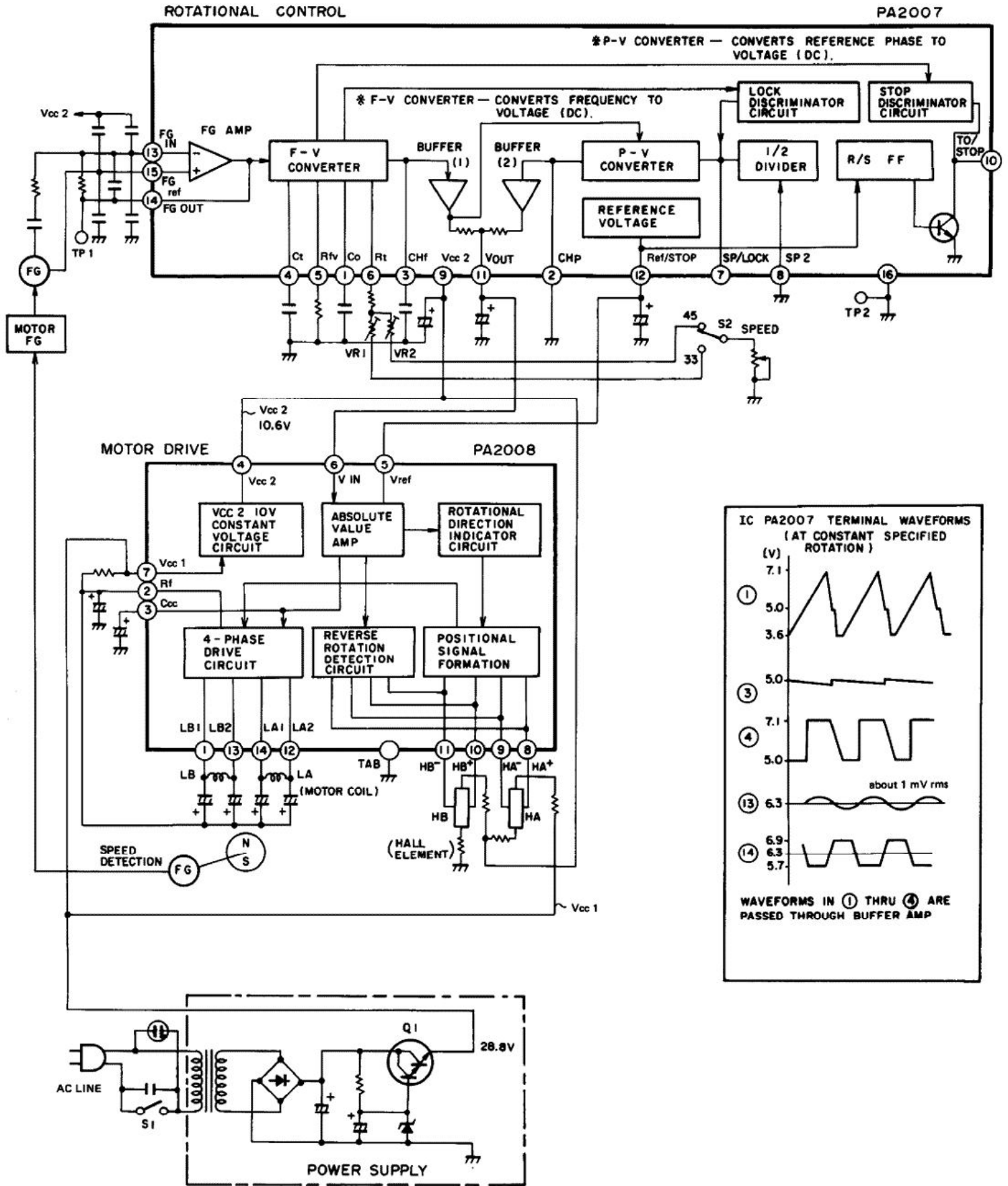
External Appearance of Transistors and ICs



- RESISTORS:**
Indicated in Ω , $\frac{1}{10}\Omega$, $\frac{1}{100}\Omega$, $\pm 5\%$ tolerance unless otherwise noted k : k Ω , M : M Ω , (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ (M) : $\pm 20\%$ tolerance
- CAPACITORS:**
Indicated in capacity (μ F)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE, CURRENT:**
□ : DC voltage (V) at no input signal
◁ : mA : DC current at no input signal
- OTHERS:**
⊙ : Adjusting point.
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

- SWITCHES:**
S1 : POWER ON - OFF
S2 : SPEED 33/3 rpm - 4.5 rpm
- The underlined indicates the switch position.

8. BLOCK DIAGRAM



9. ELECTRICAL PARTS LIST

NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω 56 × 10¹ 561 RD¼PS 561 J
 57kΩ 47 × 10³ 473 RD¼PS 473 J
 0.5Ω 0R5 RN2H 0R5 K
 1Ω 010 RS1P 010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 RN¼SR 5621 F

- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★
 ★★ **GENERALLY MOVES FASTER THAN** ★
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Power Supply Assembly (XWR-006)

| Mark | Part No. | Symbol & Description |
|------|-----------|----------------------|
| ⚠ | PCL-036 | C1 Capacitor |
| ⚠ | RS2PF103J | R1 Resistor |

| Mark | Part No. | Symbol & Description |
|------|---------------|----------------------|
| | CEA 100P 35 | C15-C19 |
| | CEANL R22M 50 | C20 |
| | CEA R47P 50 | C21 |

Control Assembly (XWM-057)

SEMICONDUCTORS

| Mark | Part No. | Symbol & Description |
|------|--------------------|----------------------|
| ★★ | 2SD985-K | Q1 |
| ★ | PCX-010 (WL-02) | D1 |
| ★ | WZ-300 (MZ-300) | D2 |

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Part No. | Symbol & Description |
|------|---------------|----------------------|
| | RD 1/4PM □□□J | R2-R4, R6-R9 |
| | RD 1/2PS 3R9J | R5 |
| | RN 1/4PR 363G | R1 |
| ★ | PCP-066 | VR1 (47k-B) |
| ★ | PCP-056 | VR2 (33k-B) |

SWITCH, CAPACITORS and RESISTORS

| Mark | Part No. | Symbol & Description |
|------|--------------|----------------------|
| ★★ | PSG-029 | S2 |
| | CEA102M 50L | C2 |
| | CEA470M 35L | C3 |
| | CKDYF103Z 50 | C4 |
| ★ | PCS-022 | VR1 |
| | RS1PF222J | R2 |

SEMICONDUCTORS

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
| ★★ | PA2007 | IC1 |
| ★★ | PA2008 | IC2 |

Motor Control Assembly (PWM-060)

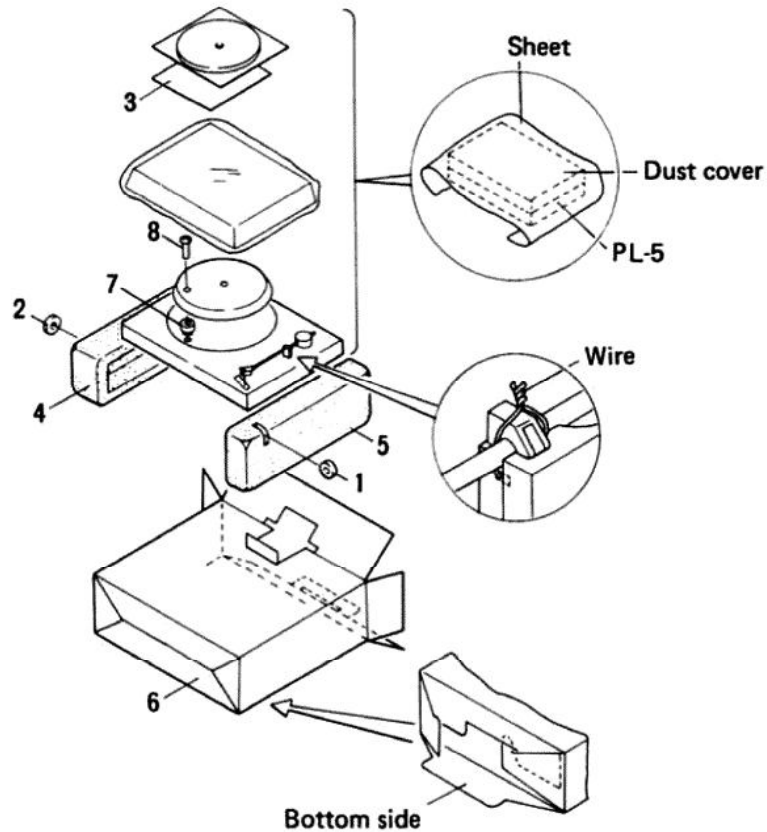
CAPACITORS

| Mark | Part No. | Symbol & Description |
|------|---------------|----------------------|
| | CQMA 123K 50 | C1 |
| | CKDYF 104Z 50 | C2 |
| | CQMA 473K 50 | C3 |
| | CKDYF 473Z 50 | C4 |
| | CEA 100P 16 | C5 |
| | CKDYF 103Z 50 | C6 |
| | CEA 010P 50 | C7, C14 |
| | CEA 101P 10 | C8 |
| | CKDYF 203Z 50 | C9-C12 |
| | CSZA R22M 35 | C13 |

OTHER

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
| ★ | PCX-039 | HA, HB Hall element |

10. PACKING




Parts List

| Mark | No. | Part No. | Description | Mark | No. | Part No. | Description |
|------|-----|----------|------------------------|------|-----|----------|---------------------------|
| | 1. | N93-603 | 45 adaptor | | 6. | PHG-439 | Packing case |
| | 2. | PXB-501 | Weight assembly | | 7. | PNX-294 | Turntable platter packing |
| | 3. | PRB-189 | Operating instructions | | 8. | PBA-100 | Screw |
| | 4. | PHA-127 | Protector (L) | | | | |
| | 5. | PHA-128 | Protector (R) | | | | |



11. EXPLODED VIEWS

11.1 EXTERIOR

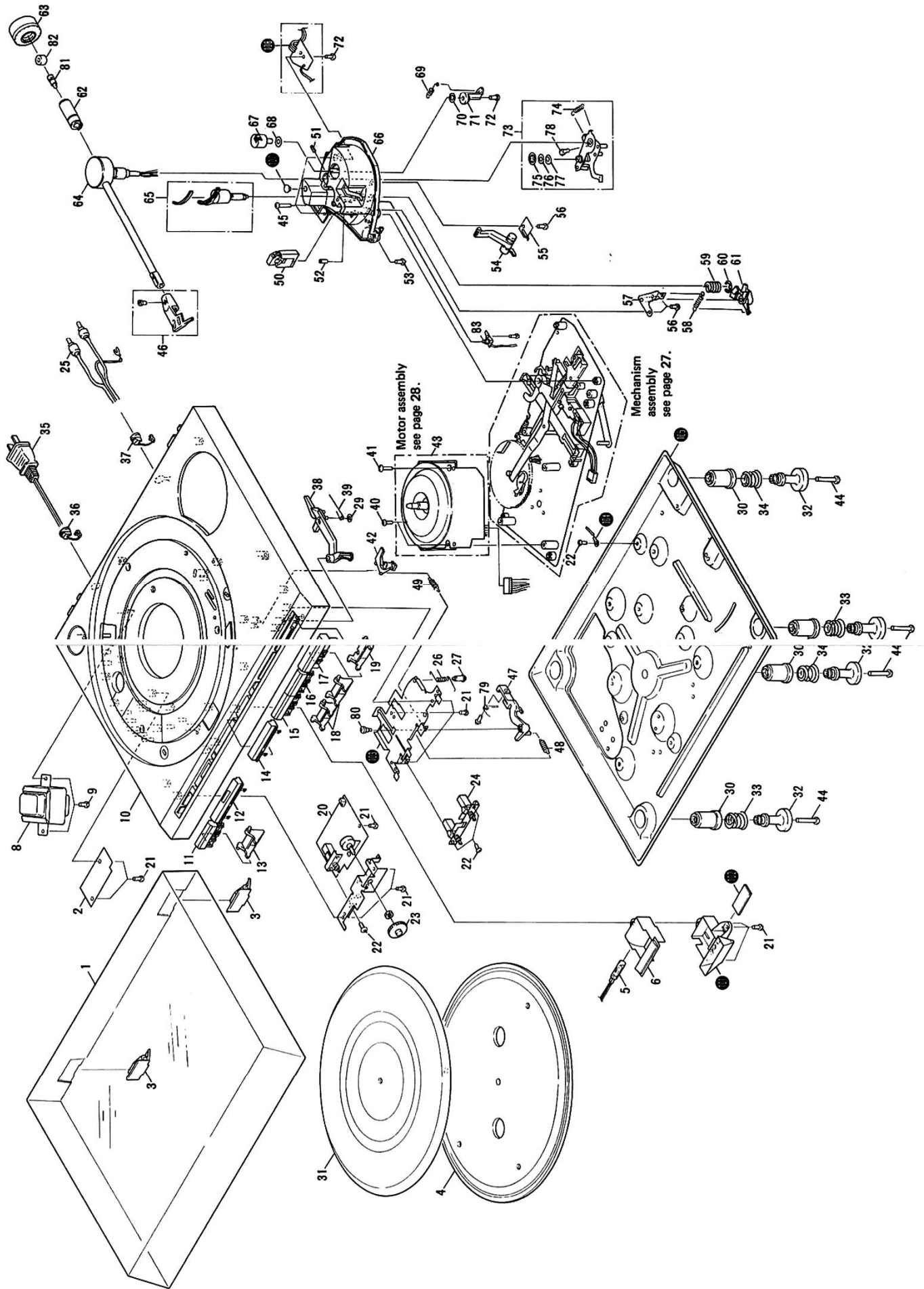
NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
★★ GENERALLY MOVES FASTER THAN ★
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

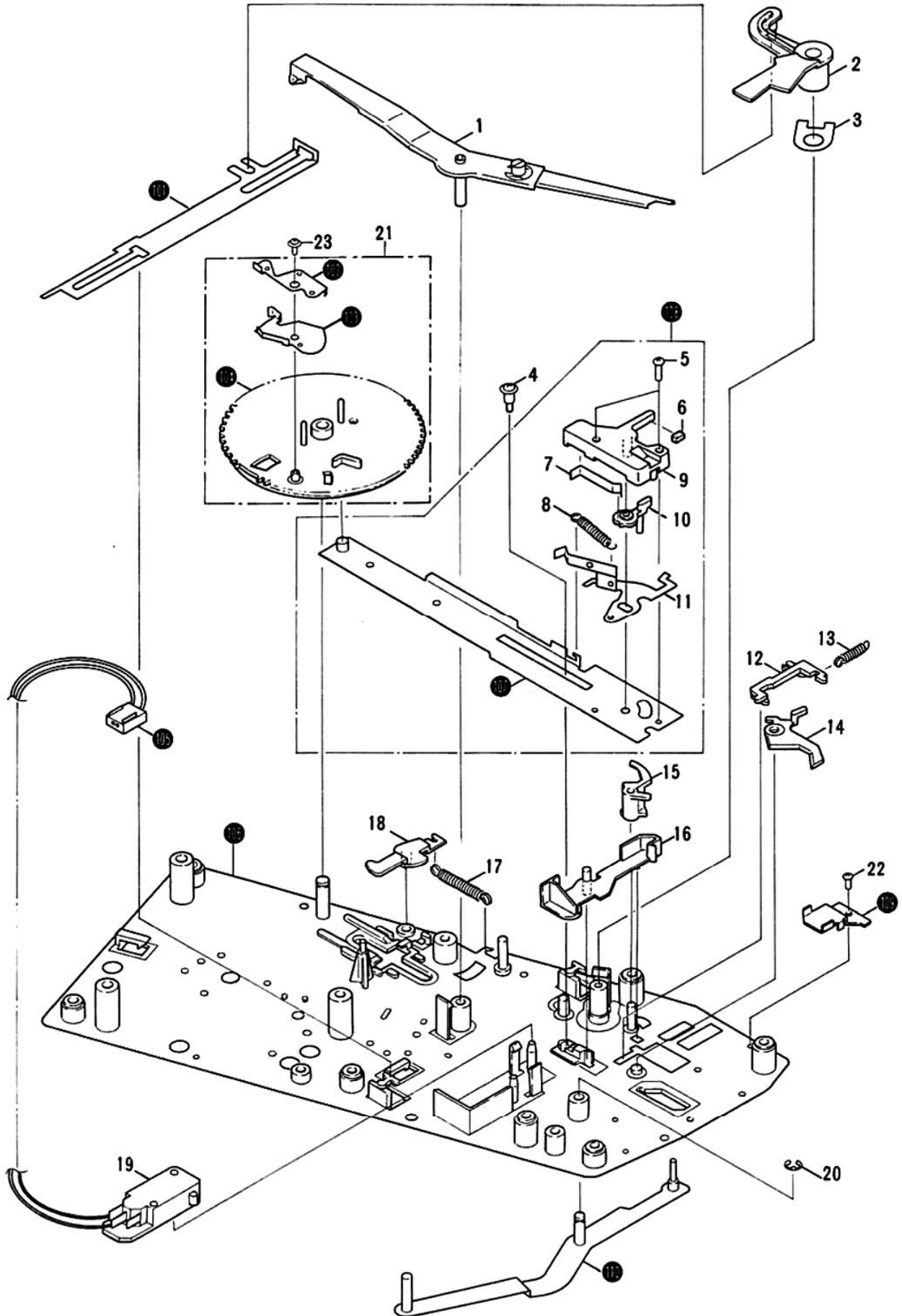
Parts List

| Mark | No. | Part No. | Description | Mark | No. | Part No. | Description | |
|---|-----|----------|-----------------------|---|-----|--------------|-------------|--------------------------|
| ★★ | 1. | PNV-034 | Dust cover | | 6. | PNX-298 | Lens holder | |
| | 2. | XWR-006 | Power supply assembly | | 7. | | | |
| ★ | 3. | PXB-155 | Hinge assembly |  | ★ | 8. | PTT-119 | Power transformer (120V) |
| | 4. | PNR-164 | Turntable platter | | 9. | PLZ40P120FMC | Screw | |
|  | ★★ | 5. | PEL-046 | Neon lamp | | 10. | PNX-347 | Panel |

| Mark | No. | Part No. | Description | Mark | No. | Part No. | Description |
|------|-----|--------------|--------------------------|------|------|--------------|--------------------------|
| | 11. | PAD-088 | SP knob (A) unit | | 66. | PNX-341 | Tonearm base |
| | 12. | PAM-075 | Front name plate (B) | | 67. | PAC-100 | AS knob |
| | 13. | PNX-292 | Switch lever (B) | | 68. | PBF-017 | Washer |
| | 14. | PAM-076 | Front name plate (C) | | 69. | PBH-292 | Spring |
| | 15. | PAD-087 | SE knob (A) unit | | 70. | PBE-012 | AS spring washer |
| | 16. | PAD-086 | R knob (A) unit | | 71. | PNX-335 | AS plate |
| | 17. | PAD-085 | S/S knob (A) unit | | 72. | VBZ30P150FMC | Screw |
| | 18. | PNX-291 | Switch lever (A) | | 73. | PXB-228 | PU plate assembly |
| | 19. | PNX-303 | Switch lever (C) | | 74. | PBH-244 | PU plate spring |
| | 20. | XWM-057 | Control Assembly | | 75. | YS40FBT | Fixed washer |
| | 21. | PPZ30P080FMC | Screw | | 76. | WC40FMC | Plate washer |
| | 22. | PDZ30P050FMC | Screw | | 77. | PNC-227 | PU spring washer |
| | 23. | PAC-086 | Adjustment knob | | 78. | PMD40P060FMC | Screw |
| ★ ★ | 24. | PSG-033 | Push switch | | 79. | PBH-320 | Spring |
| | 25. | PDE-064 | PU cord | | 80. | PBA-128 | Screw |
| | 26. | PBH-307 | Switch lever (C) spring | | 81. | PBA-535 | Screw |
| | 27. | PBA-086 | Screw | | 82. | PNT-554 | Rubber bush |
| | 28. | | | | 83. | GL-2PR1 | D5 diode |
| | 29. | YP30S | Wahser | | | | |
| | 30. | PEB-194 | Damper cushion | | | | |
| | 31. | PEA-057 | Rubber mat assembly | | 101. | | Holder |
| | 32. | PNX-293 | Holder | | 102. | | Mirror |
| | 33. | PBH-295 | Spring | | 103. | | Controller base |
| | 34. | PBH-294 | Spring | | 104. | | Lead unit (GND) |
| ⚠ | 35. | PDG-023 | Power cord | | 105. | | Base |
| | 36. | PEC-058 | Strain relief | | 106. | | |
| | 37. | PEC-056 | Strain relief | | 107. | | Rubber bush |
| | 38. | PNX-289 | Driving lever | | 108. | | Terminal board (PU cord) |
| | 39. | PBH-247 | Driving lever (A) spring | | 109. | | |
| | 40. | PBA-124 | Screw | | 110. | | |
| | 41. | PBA-108 | Screw | | | | |
| | 42. | PNX-290 | Control lever | | | | |
| ★ ★ | 43. | PXM-090 | Motor | | | | |
| | 44. | PBA-118 | Screw | | | | |
| | 45. | PBA-108 | Screw | | | | |
| | 46. | PXA-882 | Headshell assembly | | | | |
| | 47. | PNX-340 | Slider | | | | |
| | 48. | PBH-322 | Spring | | | | |
| | 49. | PBH-321 | Spring | | | | |
| ★ | 50. | PXB-247 | Tonearm rest assembly | | | | |
| | 51. | ZMD40H080FBT | Screw | | | | |
| | 52. | ZMR30H140FZK | Screw | | | | |
| | 53. | IPZ30P100FMC | Screw | | | | |
| | 54. | PNX-336 | EV lever unit | | | | |
| | 55. | PBK-053 | EV plate spring (A) | | | | |
| | 56. | VBZ30P080FMC | Screw | | | | |
| | 57. | PXT-462 | EV plate spring (B) unit | | | | |
| | 58. | PBH-238 | EV cam spring | | | | |
| | 59. | PBH-293 | EV spring | | | | |
| | 60. | YE50S | E-type washer | | | | |
| | 61. | PNX-339 | EV cam | | | | |
| | 62. | PXT-596 | Weight shaft assembly | | | | |
| ★ | 63. | PXB-501 | Weight assembly | | | | |
| ★ | 64. | PPD-624 | Tonearm assembly | | | | |
| ★ | 65. | PXB-227 | EV sheet assembly | | | | |



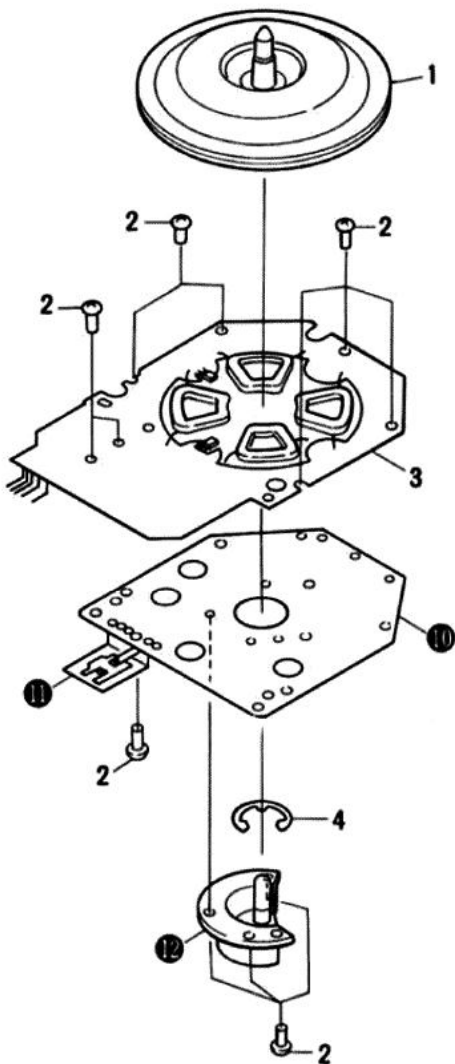
11.2 MECHANISM ASSEMBLY



Parts List

| Mark | No. | Part No. | Description | Mark | No. | Part No. | Description |
|------|-----|--------------|---------------------|------|------|--------------|------------------------|
| | 1. | PXT-355 | Detector lever unit | | 21. | PYY-100 | Cam assembly |
| | 2. | PNX-305 | Index cam | | 22. | PDZ30P050FMC | Screw |
| | 3. | PBK-039 | Spring washer | | 23. | PBA-126 | Screw |
| | 4. | PBA-123 | Screw | | | | |
| | 5. | PMZ26P100FMC | Screw | | | | |
| | 6. | PEC-065 | EV cam buffer | | 101. | | Select lever |
| | 7. | PBK-038 | Plate spring | | 102. | | Signal plate |
| | 8. | PBH-224 | Start plate spring | | 103. | | Starting plate |
| | 9. | PNX-304 | EV cam | | 104. | | Cam |
| | 10. | PNX-032 | Lead ratch | ⚠ | 105. | | Connector assembly |
| | 11. | PXT-454 | Start plate unit | | 106. | | Sub-panel unit |
| | 12. | PNX-028 | Reset plate | | 107. | | Driving plate unit |
| | 13. | PBH-223 | Reset plate spring | | 108. | | Driving plate assembly |
| | 14. | PNX-029 | Selector | | 109. | | Protection plate |
| | 15. | PNX-031 | Switch lock | | 110. | | Start lever unit |
| | 16. | PNX-030 | Switch lever | | | | |
| | 17. | PBH-225 | Lock plate spring | | | | |
| | 18. | PNX-035 | Lock plate | | | | |
| ⚠ ★★ | 19. | PSF-018 | Microswitch | | | | |
| | 20. | YE30S | E-type washer | | | | |

11.3 MOTOR ASSEMBLY



Parts List

| Mark | No. | Part No. | Description |
|------|-----|--------------|------------------------|
| | 1. | PXT-458 | Rotor unit |
| | 2. | PSZ30P050FMC | Screw |
| | 3. | PWM-060 | Motor control assembly |
| | 4. | | E ring (ETW-12) |
| | 10. | | Base |
| | 11. | | Heat sink |
| | 12. | | Shaft holder |

12. ADJUSTMENTS

12.1 AUTO-RETURN ADJUSTMENT

1. Turn the auto return adjustment screw full around counter-clockwise.
2. when the auto return adjustment screw is turned back a little at a time clockwise, the tonearm will commence to return to the outer circumference.
3. Stop turning the adjustment screw once the stylus tip is 33mm away from the center shaft.
4. Once the above adjustment procedure has been completed, check that the tonearm returns automatically as designed.

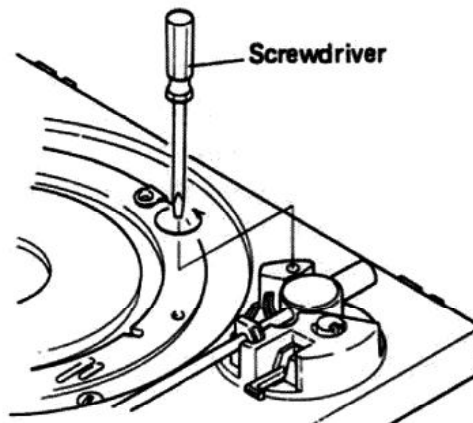


Fig. 12-1 Auto-return adjustment

12.2 ARM-ELEVATION ADJUSTMENT

To proceed with the elevation sheet height adjustment, insert the hexagonal wrench (for 3mm) into the hole at the front of the EV sheet and rotate it clockwise to reduce the height and counter-clockwise to increase the height. The height of the stylus tip from the record surface is $7 \pm 2\text{mm}$.

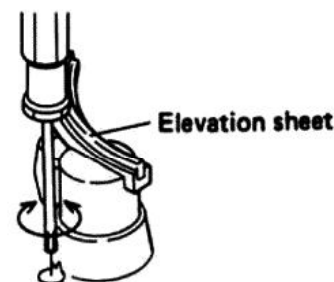


Fig. 12-2 Arm-elevation adjustment

12.3 STYLUS LANDING POSITION ADJUSTMENT

1. Place a 30 cm record on the platter.
2. Depress the START/STOP button and start auto play.
Check the direction and amount of stylus deviation (how many millimeters toward the inside or outside of the record's lead-in groove).
3. Depress the START/STOP button and return the tonearm to the arm clamp.
4. After the platter has stopped rotating, check the screw in the adjustment hole.
5. Rotate the screw with a small screwdriver in accordance to the direction of the deviation observed in step 2.
 - Every semi-turn of the screw corrects the stylus descent position by about 18 mm.
 - Rotate the screw clockwise if the stylus descends on the outside of the proper position.
 - Rotate the screw counterclockwise if the stylus descends on the inside of the proper position.
6. Depress the START/STOP button and check that the adjustment has been performed properly.
Repeats steps 3 through 6 if the stylus still deviates.

Proceed as follows when the stylus does not descend in the proper position on the record during auto play. While performing the adjustment, take care not to scratch the record with the stylus.

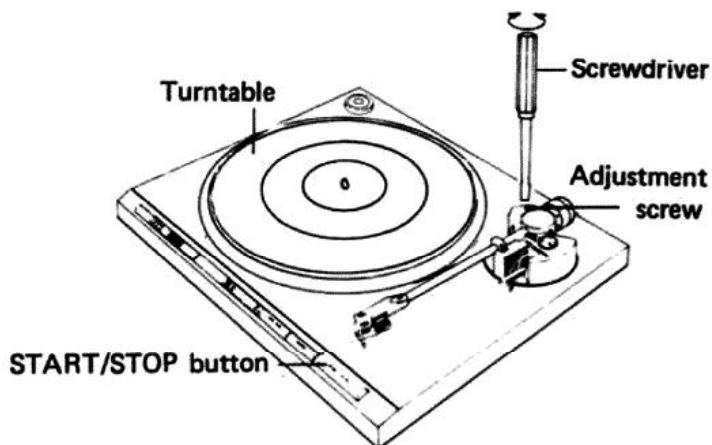


Fig. 12-3 Stylus landing point adjustment

12.4 MOTOR OPERATING POINT ADJUSTMENT

1. Press the START/STOP button to start the turntable.
2. Set the player speed adjustment knob to the mechanical center.
3. Adjust the semi-fixed resistor on the circuit board assembly so that the strobo stops. (Fig. 12-4)

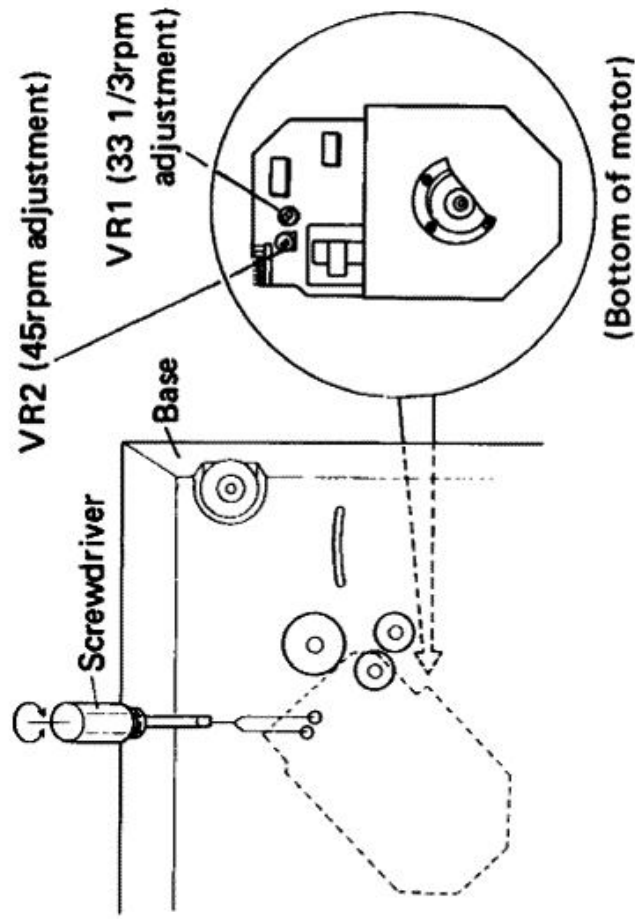


Fig. 12-4 Motor adjustment

12. RÉGLAGE

12.1 RÉGLAGE DU RETOUR AUTOMATIQUE DU BRAS

1. Tourner la vis de réglage du retour automatique du bras à fond dans le sens contraire des aiguilles d'une montre.
2. Lorsque la vis de réglage du retour automatique du bras est tournée d'une petite quantité dans le sens des aiguilles d'une montre, le bras de lecture commence à retourner vers la périphérie du plateau.
3. Arrêter de tourner la vis de réglage lorsque l'extrémité de la pointe de lecture se trouve à 33mm de l'axe central.
4. Lorsque le réglage décrit ci-dessus est terminé, vérifier que le bras de lecture retourne automatiquement de la manière désirée.

12.2 RÉGLAGE DE LA MONTÉE DU BRAS

Pour régler la hauteur de la plaque de montée, introduire une clé hexagonale (de 3mm) dans le trou situé devant la plaque "EV" et la tourner dans le sens des aiguilles d'une montre pour réduire la hauteur, ou dans le sens contraire des aiguilles d'une montre pour augmenter la hauteur. La hauteur de l'extrémité de la pointe de lecture au-dessus de la surface du disque est de $7 \pm 2\text{mm}$.

12.3 RÉGLAGE DE LA POSITION DE DESCENTE DE LA POINTE DE LECTURE

1. Placer un disque de 30cm sur le plateau.
2. Appuyer sur la touche START/STOP et débiter la lecture automatique.
Contrôler la direction et la quantité de déplacement de la pointe de lecture (nombre de millimètres vers l'intérieur ou vers l'extérieur par rapport à l'amorce de sillon du disque).
3. Appuyer sur la touche START/STOP et faire retourner le bras de lecture sur son support.
4. Lorsque le plateau a cessé de tourner, contrôler la vis dans le trou de réglage.
5. Faire tourner la vis à l'aide d'un petit tournevis, en fonction du sens de l'écart observé à l'étape 2.
 - Chaque demi-tour de la vis corrige la position de descente de la pointe d'environ 18mm.
 - Tourner la vis dans le sens des aiguilles d'une montre si la pointe de lecture descend vers l'extérieur par rapport à la position correcte.
 - Tourner la vis dans le sens contraire des aiguilles d'une montre si la pointe de lecture descend vers l'intérieur par rapport à la position correcte.

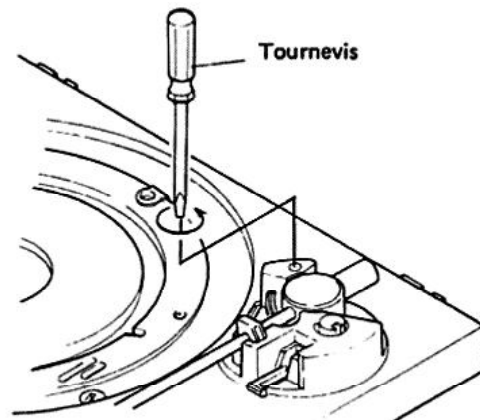


Fig. 12-1 Réglage du retour automatique du bras

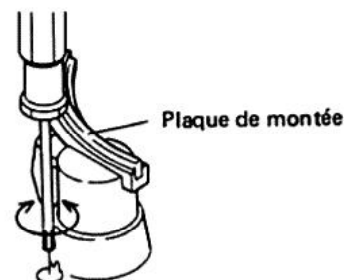


Fig. 12-2 Réglage de la montée du bras

Si la pointe de lecture ne descend pas sur la position correcte lors de la lecture, procéder comme suit. Lors du réglage, prendre soin de ne pas rayer le disque avec la pointe de lecture.

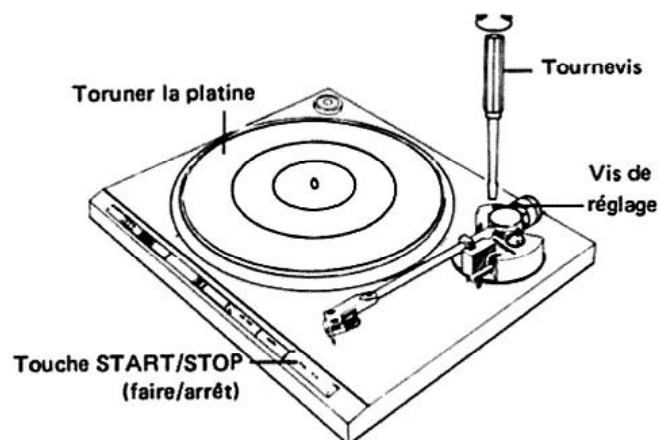


Fig. 12-3 Réglage de la position de descente du bras de lecture

6. Appuyer sur la touche START/STOP et vérifier que le réglage a été réalisé correctement. Si la pointe de lecture s'écarte de la position correcte, répéter les étapes 3 à 6.

12.4 RÉGLAGE DU POINT DE FONCTIONNEMENT DU MOTEUR

1. Appuyer sur la touche START/STOP pour faire démarrer le tourne-disque.
2. Régler le bouton de réglage de vitesse de la platine sur la position mécanique centrale.
3. Régler la résistance ajustable de l'assemblée contrôle de moteur à ce que le motif stroboscopique s'arrête. (Fig. 12-4)

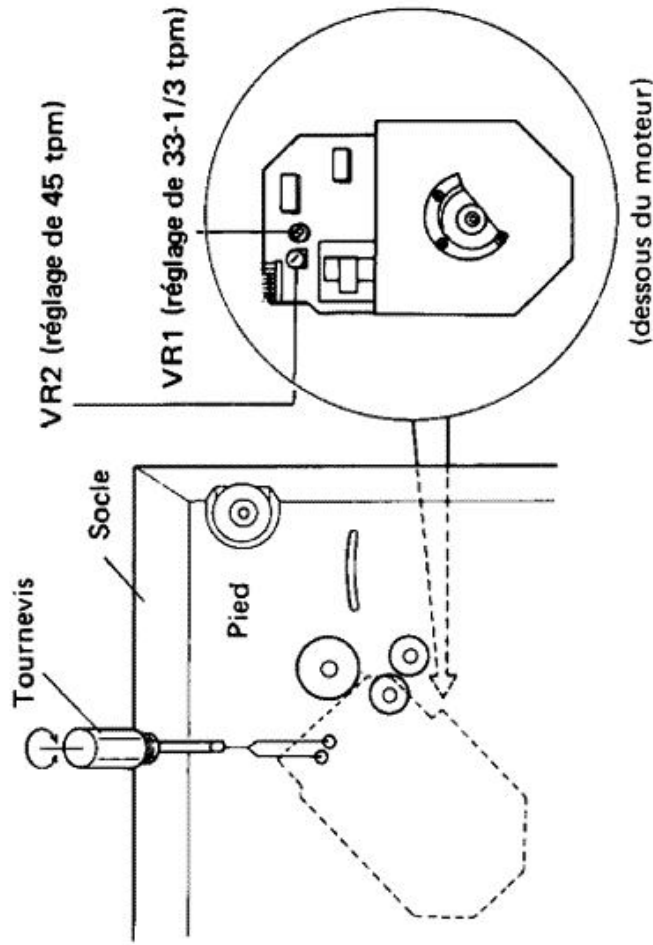


Fig. 12-4 Réglage de la vitesse du moteur

12. AJUSTE

12.1 AJUSTE PARA EL RETORNO AUTOMÁTICO

1. Girar el tornillo de ajuste del retorno automático completamente hacia la izquierda.
2. Cuando el tornillo de ajuste del retorno automático se gira un poco hacia la derecha, el brazo fonocaptor empezará a volver hacia la circunferencia exterior.
3. Dejar de girar el tornillo de ajuste cuando la punta de la aguja esté a 33mm del eje central.
4. Una vez realizado el ajuste arriba mencionado, comprobar que el brazo fonocaptor retorna automáticamente como se ha designado.

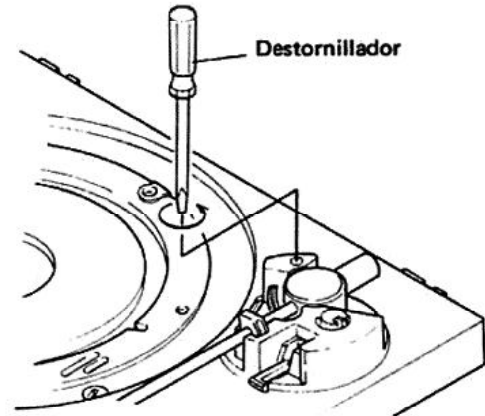


Fig. 12-1 Ajuste del retorno automático

12.2 AJUSTE DE LA ELEVACIÓN DEL BRAZO

Para proceder con el ajuste de la altura del dispositivo de elevación, insertar la llave de apriete hexagonal (de 3mm) en el orificio de la parte frontal del dispositivo de elevación y girarla hacia la derecha para reducir la altura y hacia la izquierda para aumentarla. La altura de la punta de la aguja desde la superficie del disco deberá ser de 7 ± 2 mm.



Fig. 12-2 Ajuste de la elevación del brazo

12.3 AJUSTE DE LA POSICIÓN DE DESCENSO DE LA AGUJA

1. Poner un disco de 30cm en el plato.
2. Presionar el botón de inicio/parada (START/STOP) y iniciar la reproducción automática.
Comprobar la dirección y cantidad de desviación de la aguja (los milímetros hacia el interior o exterior del surco inicial del disco).
3. Presionar el botón de inicio/parada (START/STOP) y llevar el brazo a su posición de retén.
4. Una vez el plato ha dejado de girar, comprobar el tornillo del orificio de ajuste.
5. Girar el tornillo con un destornillador pequeño de acuerdo con la dirección de la desviación observada en el paso 2.
 - Cada media vuelta del tornillo corrige la posición de descenso de la aguja en unos 18mm.
 - Girar el tornillo hacia la derecha si la aguja desciende en el exterior de la posición correcta.
 - Girar el tornillo hacia la izquierda si la aguja desciende en el interior de la posición correcta.
6. Presionar el botón de inicio/parada (START/STOP) y comprobar que el ajuste se ha realizado correctamente.
Repetir los pasos 3 al 6 si la aguja todavía se desvía.

Proceder como se indica a continuación cuando la aguja no desciende en la posición correcta sobre el disco durante la reproducción automática. Mientras se realiza el ajuste, tener cuidado de no rayar el disco con la aguja.

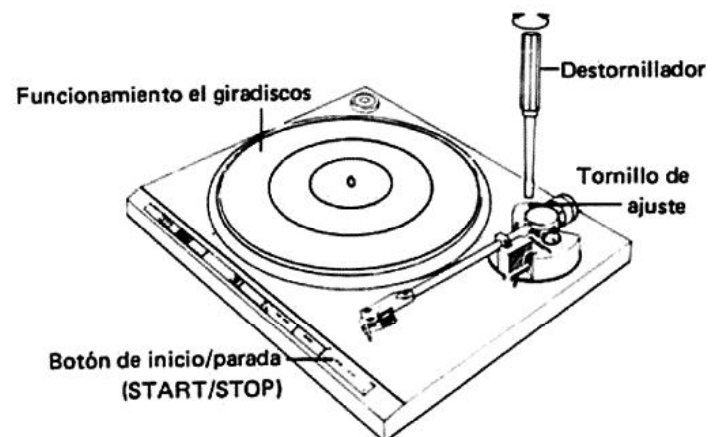


Fig. 12-3 Ajuste del punto de descenso de la aguja

12.4 AJUSTE DEL PUNTO DE OPERACIÓN DEL MOTOR

1. Presionar el botón de inicio/parada (START/STOP) para poner en funcionamiento el giradiscos.
2. Ajustar el mando de ajuste de la velocidad del giradiscos en el centro mecánicamente.
3. Ajustar el resistor semifijo del conjunto de la control del motor de modo que se detenga el estroboscopio. (Fig. 12-4).

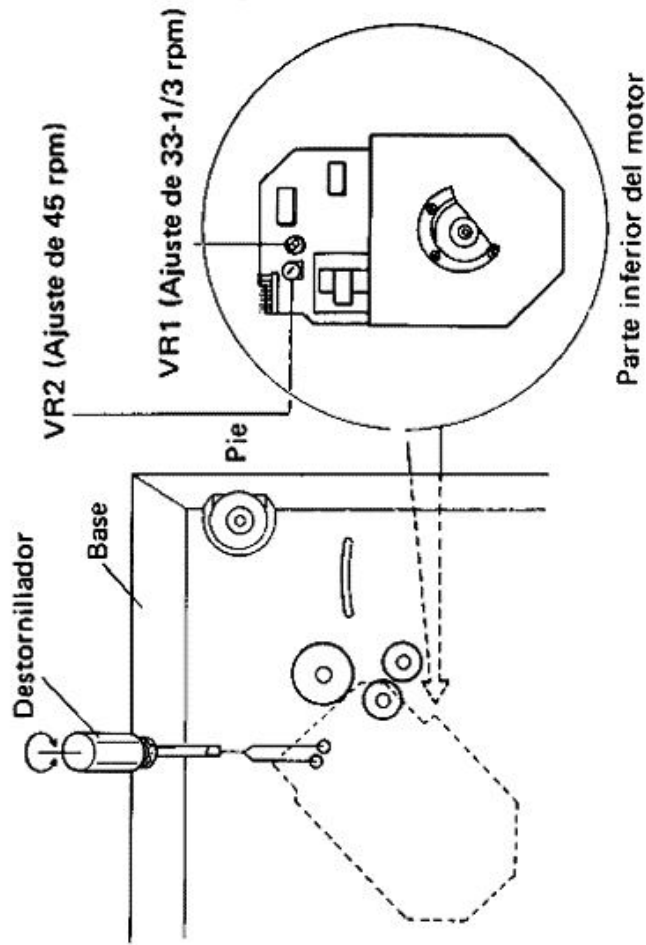


Fig. 12-4 Ajuste de la rotación del motor