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# THE VINYL ENGINE®

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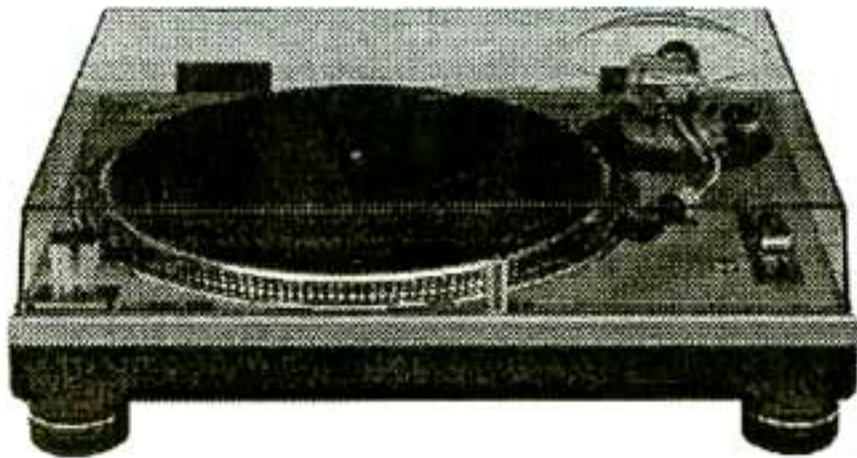


# Service Manual

Direct Drive Turntable System

Turntable System

## SL-1200M3D



### Colour

(S).....Silver Type

### Areas

(P).....U.S.A.

(PC).....Canada.

## ■ Specifications

### ■ General

|                     |  |
|---------------------|--|
| Power supply:       | AC 120V, 60Hz  |
| Power consumption:  | 14W  |
| Dimensions (WxHxD): | 453 x 162 x 353 mm<br>(17-27/32" x 6-12/32" x 13-29/32") |
| Weight:             | 12 kg (26.4 lb.)   |

### ■ Turntable section

|                           |  |
|---------------------------|--|
| Type:                     | Quartz direct drive<br>Manual turntable  |
| Drive method:             | Direct drive   |
| Motor:                    | Brushless DC motor   |
| Turntable platter:        | Aluminum diecast<br>Diameter 332 mm (13-5/64")<br>Weight 1.7 kg (3.74 lb.)       |
| Turntable speeds:         | 33-1/3 rpm and 45 rpm  |
| Starting torque:          | 1.5 kg-cm (1.3 lb-in)  |
| Build-up characteristics: | 0.7s. from standstill to 33-1/3 rpm  |
| Braking system:           | Electronic brake   |
| Wow and flutter:          | 0.01% W.R.M.S.*<br>0.025% W.R.M.S.(JIS C5521)<br>±0.035% peak (IEC 98A Weighted) |
| Rumble:                   | -56 dB (IEC 98A Unweighted)<br>-78 dB (IEC 98A 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.

### ■ Tonearm 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)   |
| Offset angle:                      | 22°  |
| Friction:                          | Less than 7 mg (lateral, vertical)   |
| Tracking error angle:              | Within 2°32' (at the outer groove of 30 cm <12"> record)<br>Within 0°32' (at the inner groove of 30 cm <12"> record) |
| Stylus pressure adjustment range:  | 0 - 4 g  |
| Applicable cartridge weight range: | 11 - 20.5 g (including headshell)  |
| (with auxiliary weight);           | 9.5 - 13 g<br>17 - 20.5 g (including headshell)  |
| (with shell weight);               | 3.5 - 6.5 g<br>11 - 14 g (including headshell)   |
| Headshell weight:                  | 7.5 g  |

### Note:

Specifications are subject to change without notice.  
Weight and dimensions are approximate.

### ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

# Technics®



## ■ Contents

|   |     |
|---|-----|
| • Safety Precaution .....               | 2   |
| • Accessories .....                     | 2   |
| • Features .....                        | 3   |
| • Controls .....                        | 3   |
| • Preparation of the cartridge .....    | 3   |
| • Putting the player together .....     | 4   |
| • Connections and installation .....    | 5   |
| • Preparatory adjustments .....         | 6,7 |
| • Playing records .....                 | 8   |
| • Adjustments while using the unit..... | 9   |
| • Maintenance .....                     | 10  |
| • Product service .....                 | 10  |

Page

|  |       |
|--|-------|
| • Troubleshooting guide .....                                  | 11    |
| • Operation Checks and<br>Component Replacement Procedures ... | 12-16 |
| • Schematic Diagram .....                                      | 17-19 |
| • Printed Circuit Boards .....                                 | 20-22 |
| • Measurements and Adjustments .....                           | 23    |
| • Block Diagram .....  | 24    |
| • Wiring Connection Diagram.....                               | 25    |
| • Repracement Parts List.....                                  | 26,27 |
| • Cabinet Parts Location .....                                 | 28,29 |
| • Packaging .....  | 30    |

Page

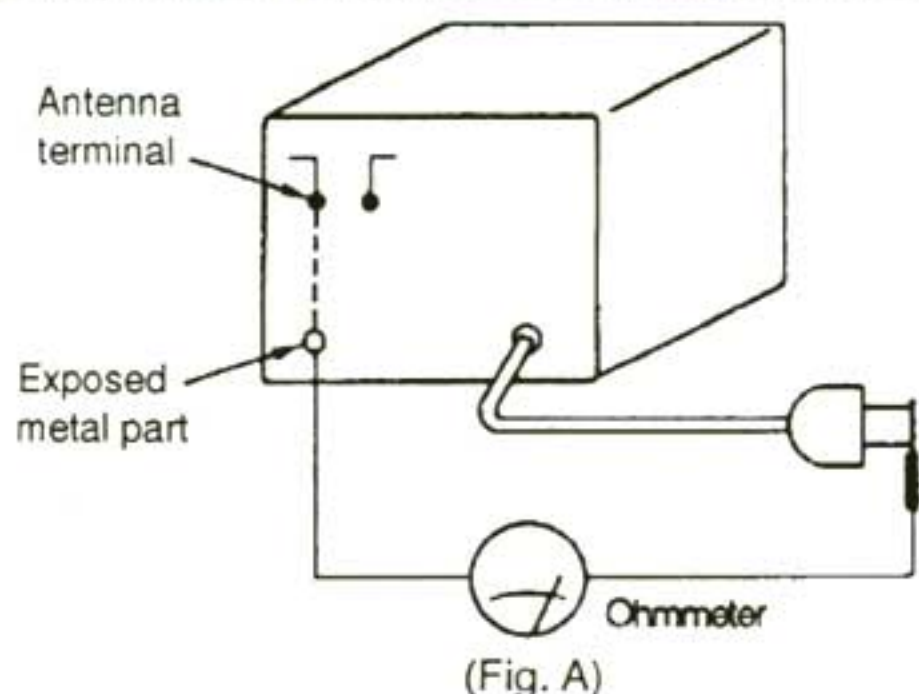
## ■ Safety Precaution (This "Safety Precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

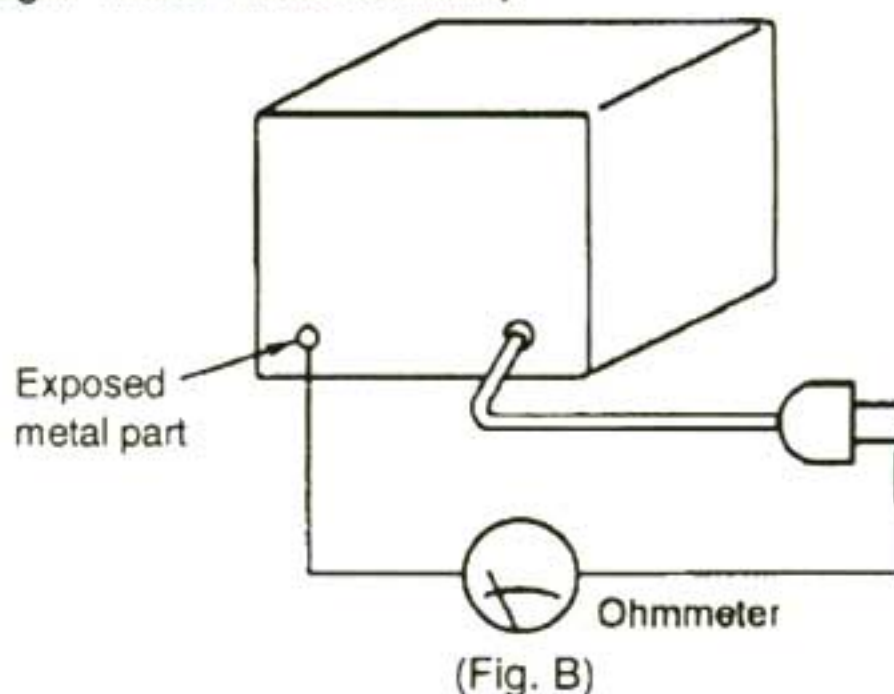
### ● INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3 MΩ and 5.2 MΩ to all exposed parts. (Fig. A)  
Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

**Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.



Resistance = 3 MΩ - 5.2 MΩ



Resistance = Approx. ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

## ■ Accessories

(Only for U.S.A.)

To order accessories contact 1-800-332-5368 or web site (<http://www.panasonic.com>).

Turntable.....1 pc.  
(SFTE172-01Z)



Turntable mat.....1 pc.  
(RGS0008)



Disc slip sheet set.....1 pc.  
(RGS0005Z)  
•Disc slip sheet  
•Transparent sheet



Dust cover.....1 pc.  
(SFAD122-01A)



Shell with stylus weight  
(SFPC31005K).....1 pc.



Balance weight.....1 pc.  
(SFPWG17201K)



Auxiliary weight.....1 pc.  
(SFPWG17202)



EP record adaptor.....1 pc.  
(SFWE010)



Shell weight.....1 pc.  
(SFPZB3501)



Overhang gauge.....1pc.  
(SFK0135-01)

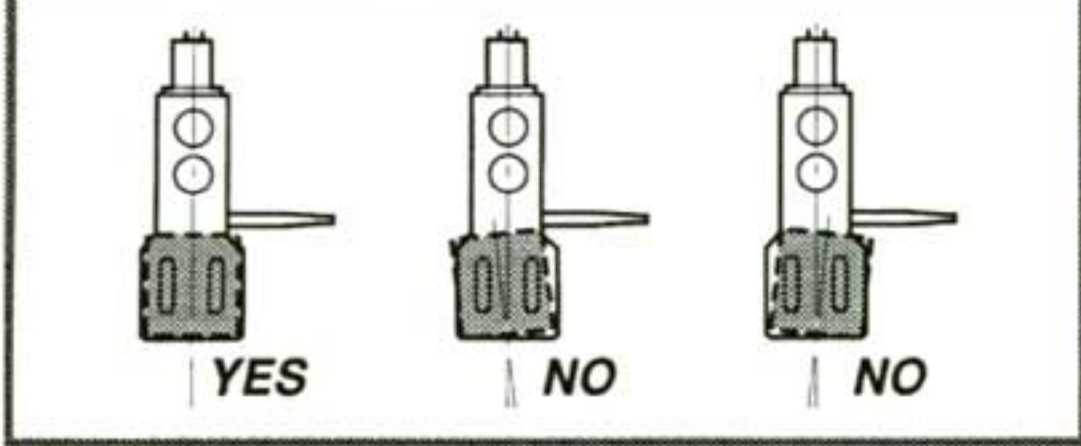
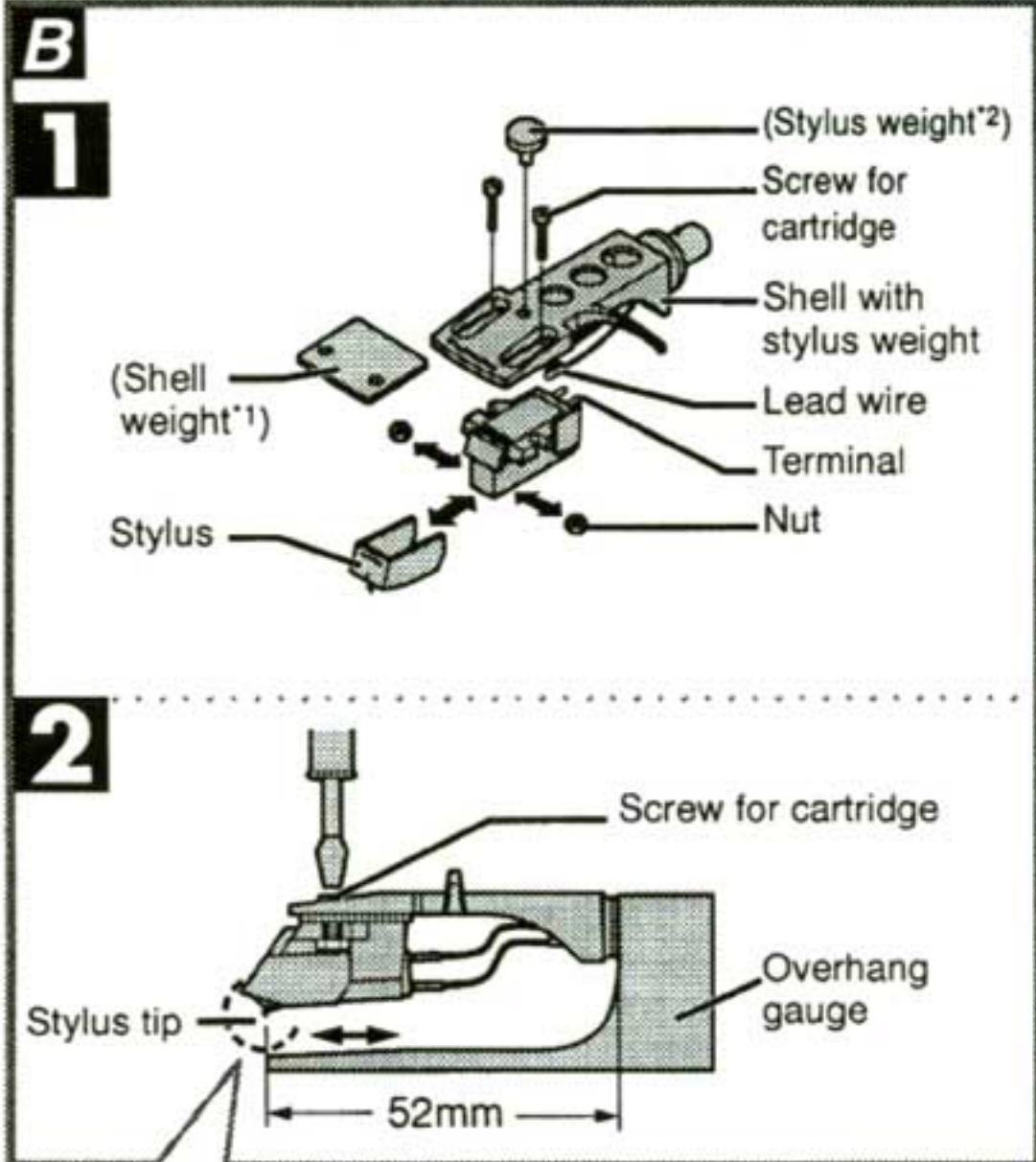
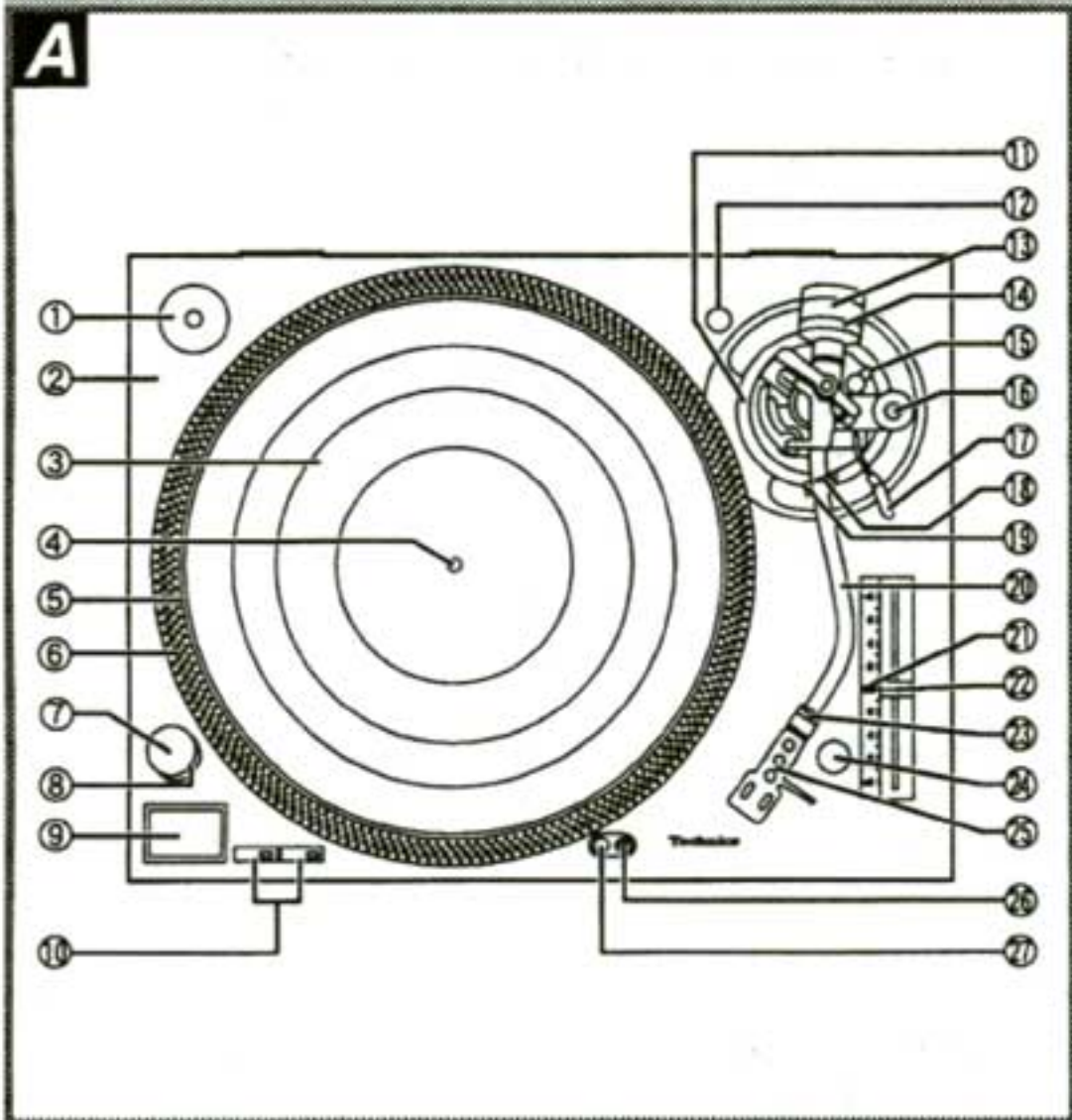


Screw set for cartridge.....1 pc.  
•Nuts(RHN26003)  
•Screws-short(SFCZV8801)  
•Screws-long(SFPEV9801)  
•Washers(SFPEW9601)



A cartridge is not included.





## ■ Features

A masterpiece amongst turntables with a worldwide reputation.

### Pitch control reset button

- Pitch can be instantly reset to the rated speed (33 1/3 or 45 rpm).

### Highly accurate turntable speed maintained continuously with a quartz pitch control

- The pitch can be varied between -8 and +8%, with accuracy maintained throughout the range.

### The direct drive produces high torque

- Wow and flutter below 0.01%. Starting torque of 1.5 kg/cm enabling the turntable to reach 33 1/3 rpm in 0.7 seconds.

- Fully electric braking system.

### Tone arm with gimbal suspension

- The tone arm can be finely adjusted in a range of 6 millimeters with the lockable height control.

### Anti-vibration design with 3 layer cabinet construction and large insulating legs.

### Pop-up stylus light.

## ■ Controls A

| No. | Name                               | Reference page(s) |
|-----|------------------------------------|-------------------|
| ①   | EP record adaptor                  | 8                 |
| ②   | Turntable base                     | 3                 |
| ③   | Turntable mat (Or disc slip sheet) | 4                 |
| ④   | Center spindle                     | 4                 |
| ⑤   | Turntable                          | 4                 |
| ⑥   | Strobe lights                      | 9                 |
| ⑦   | Power switch (power)               | 8                 |
| ⑧   | Strobe illuminator/pilot lamp      | 9                 |
| ⑨   | Start/stop button (start - stop)   | 8                 |
| ⑩   | Speed select buttons (33, 45)      | 8                 |
| ⑪   | Arm-height control                 | 7                 |
| ⑫   | Shell stand                        | 3                 |
| ⑬   | Balance weight                     | 4                 |
| ⑭   | Stylus pressure control            | 6                 |
| ⑮   | Arm lock                           | 7                 |
| ⑯   | Anti-skating control               | 6                 |
| ⑰   | Cue lever                          | 6                 |
| ⑱   | Arm clamp                          | 6                 |
| ⑲   | Arm rest                           | 6                 |
| ⑳   | Tone arm                           | 4                 |
| ㉑   | LED indicator                      | 9                 |
| ㉒   | Pitch control (Pitch adj.)         | 9                 |
| ㉓   | Locking nut                        | 4                 |
| ㉔   | Reset button (reset)               | 9                 |
| ㉕   | Head shell                         | 3                 |
| ㉖   | Stylus light switch                | 8                 |
| ㉗   | Stylus light                       | 8                 |

## ■ Preparation of the cartridge B

### 1 Attach a cartridge (not included).

Follow the cartridge's instructions to correctly attach it to the head shell.

- Use the included shell weight \*1 when using a light cartridge (3.5 to 6.5 grams).
- Use the stylus weight \*2 to increase stylus pressure ( ➡ page 6). Leave it off until stylus pressure has been adjusted.

### 2 Adjust the overhang.

Fit the included overhang gauge to the head shell. Adjust the overhang and facing of the cartridge and tighten the screws.

- Line the point of the stylus up with the end of the gauge.
- The cartridge should be parallel on the shell head.



## ■ Putting the player together

Put the player together in the following order.

- Do not connect the AC power cord until set up is complete.
- Leave the dust cover off until set up and adjustments are complete.

### 1 Fit the turntable (a) and turntable mat (b).

Put the turntable on the center spindle and then lay the mat on top.

- Be very careful when putting the turntable on the main unit. The magnet on the bottom of the turntable is finely adjusted and sharp contact can cause it to move and lead to poor operation. Ensure the magnet remains free from dust and iron particles.
- Do not adjust the screws attaching the magnet to the turntable. The rated performance of the unit cannot be guaranteed if the magnet is moved.

### 2 Attach the head shell (c).

Fit the head shell into the tone arm, keep it horizontal and tighten the locking nut.

### 3 Attach the balance weight (d) to the rear of the tone arm.

If the cartridge weighs between 10 and 13 grams, attach the included auxiliary weight (e) to the main balance weight.

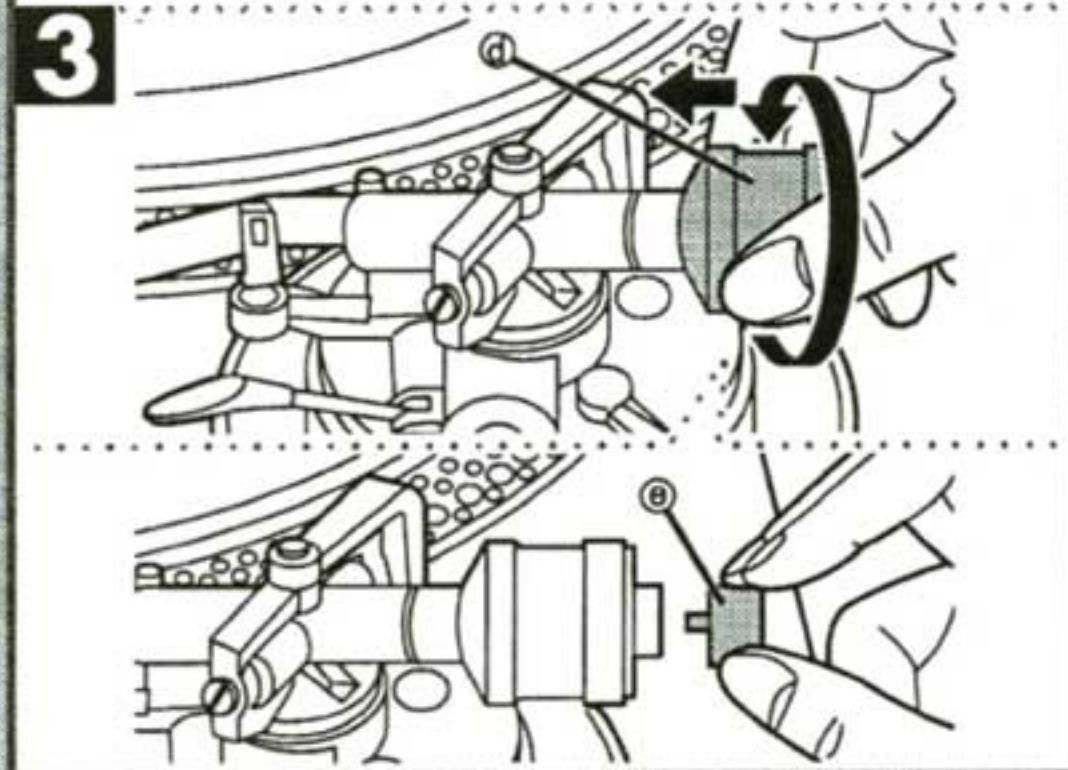
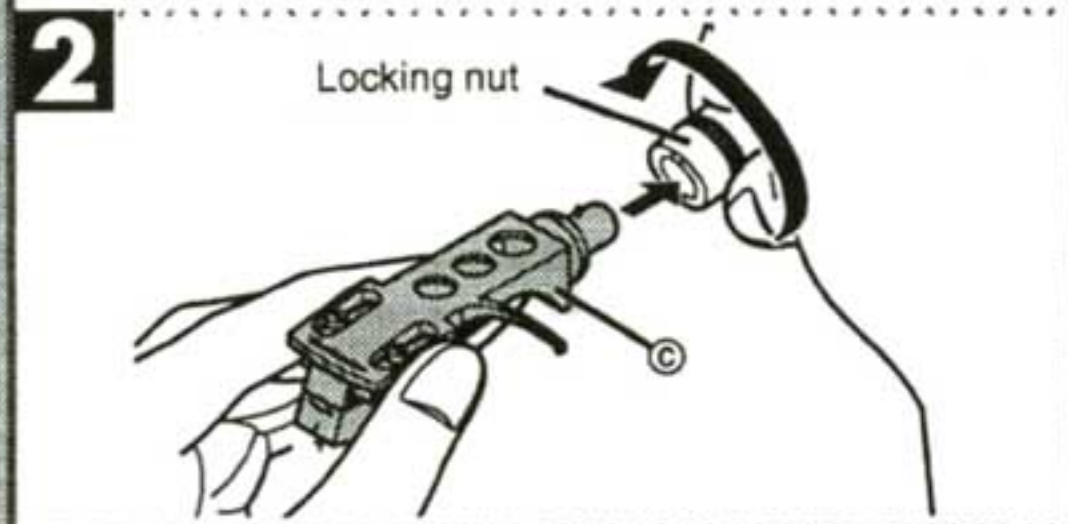
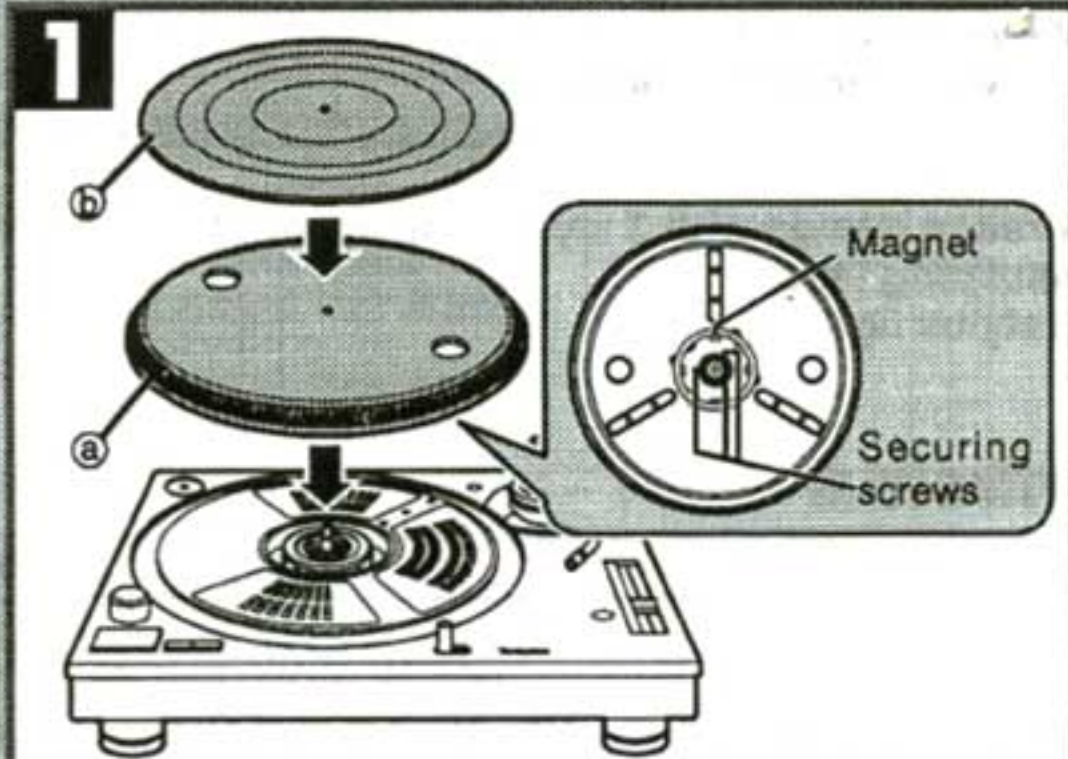
### When the player is to be used for scratch play A

Use the disc slip sheet (f) instead of the turntable mat. This enables the record to be easily moved during play.

- Top (printed side): Lay the record on this side.
- Bottom: Slippery side.

### For a different kind of slip

Put the transparent sheet (g) under the disc slip sheet.





## ■ Connections and installation

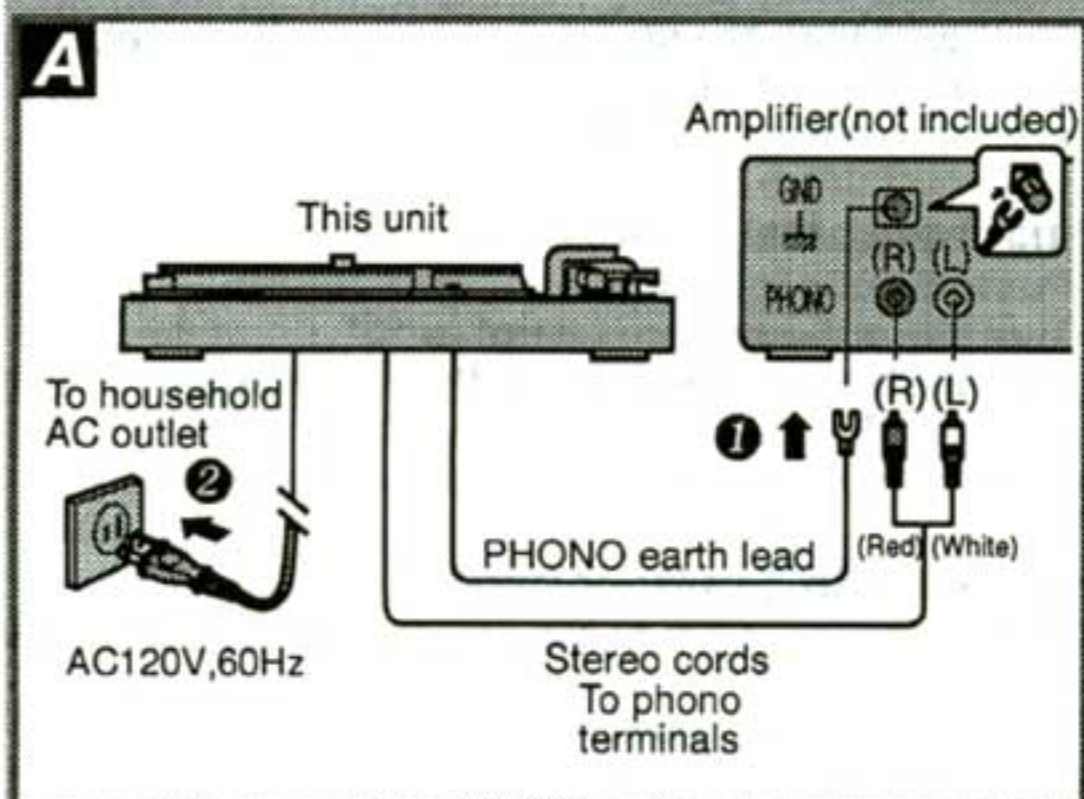
### ■ Connecting the stereo cords and AC power cord A

#### 1 Connect the stereo cords and earth lead.

If the earth lead isn't connected, a hum will be heard from the AC power source.

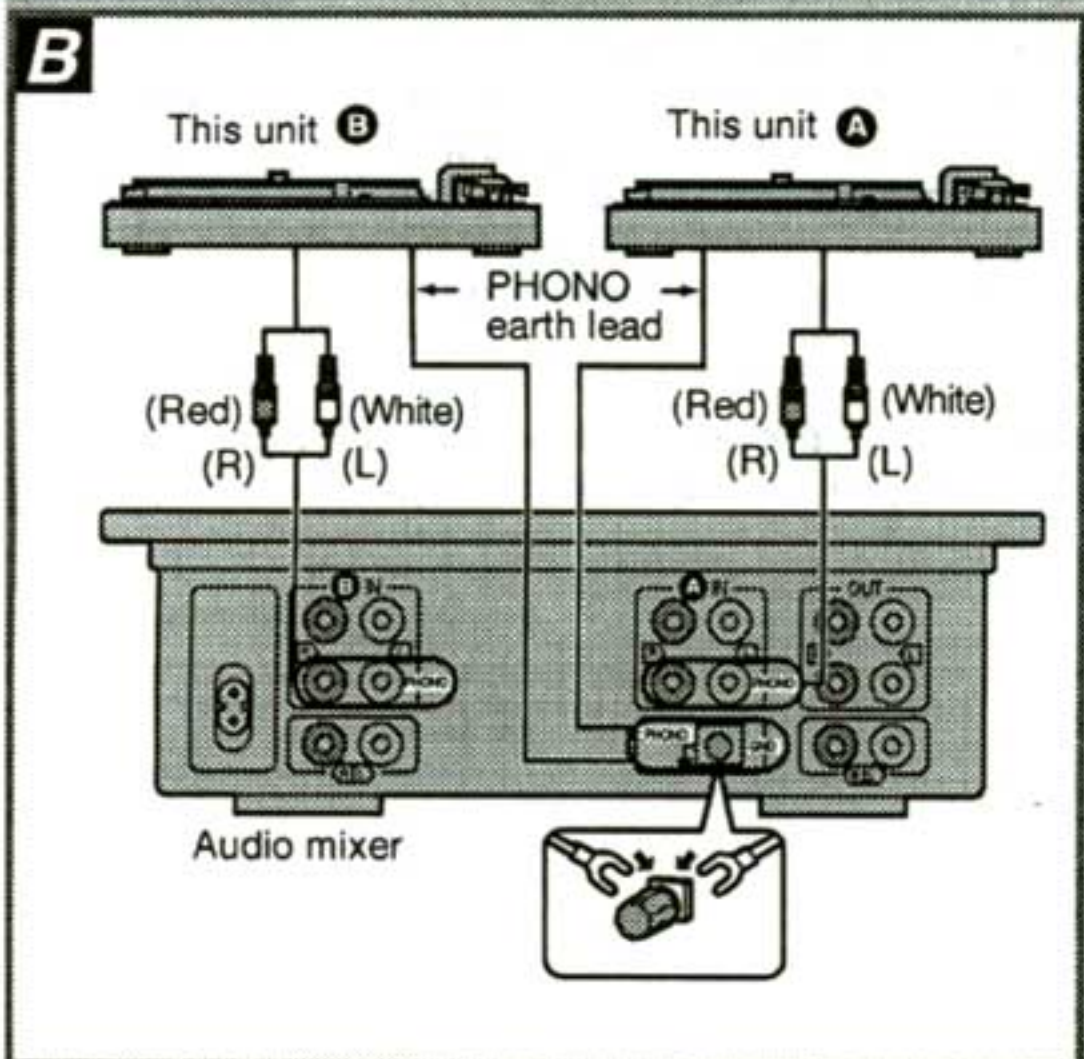
#### 2 Connect the AC power cord.

- Connect this cord only after all other connections are complete.
- Confirm the wattage of AC outlets on amplifiers and receivers before using them for this unit. This unit consumes 14 W.



### ■ Connection to the SH-DJ1200 Audio Mixer (not included) B

- Disconnect all units from the power source before making any connections.
- Reconnect the AC power cords after all other connections are complete.



### ■ Installation

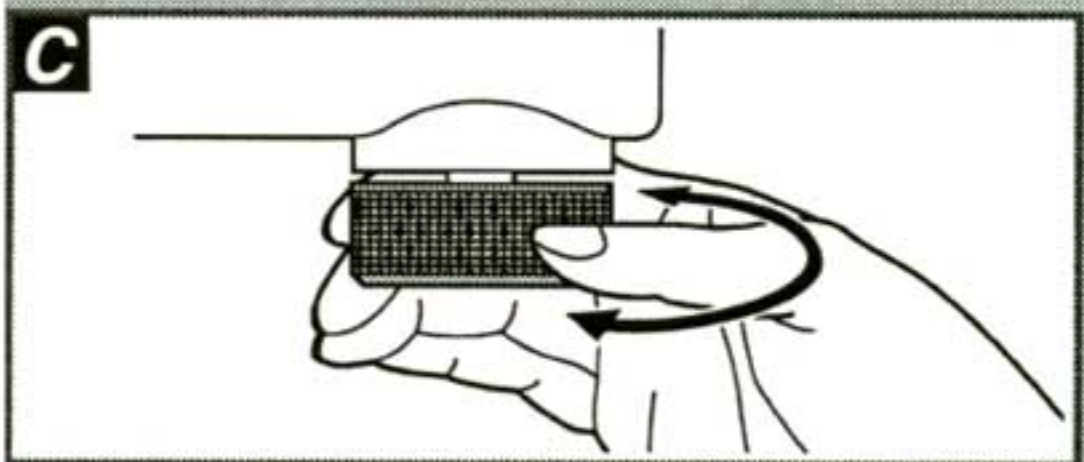
- Install the unit on a horizontal surface protected from vibrations.
- Keep this unit as far as possible from speakers.

#### Note

- Ensure the unit is not exposed to direct sunlight, dust, humidity, and heat from a heating appliance.
- This unit may pick up interference from a radio if there is one nearby. Keep radios as far as possible from this unit.

### ■ Adjusting the height of the insulators C

Place the unit where it is to be used and adjust the height of the legs to make the unit horizontal.





## ■ Preparatory adjustments

### Horizontal balance and stylus pressure

#### 1 Release the tone arm.

- 1 Take care with the stylus and remove its cover, then release the arm clamp.
- 2 Free the tone arm from the arm rest.

#### 2 Adjust horizontal balance

- 1 Push the cue lever down.
- 2 Turn the anti-skating control to "0".
- 3 Turn the balance weight until the arm is approximately horizontal.

Take care at this time not to allow the stylus to touch the unit.

#### 3 Turn the stylus pressure control to "0"

- 1 Return the tone arm to the arm rest and fix it with the arm clamp.
  - 2 Turn the stylus pressure control to "0".
- Hold the balance weight still while doing this.

#### 4 Adjust stylus pressure

Turn the balance weight to adjust to the appropriate pressure for the cartridge you are using.

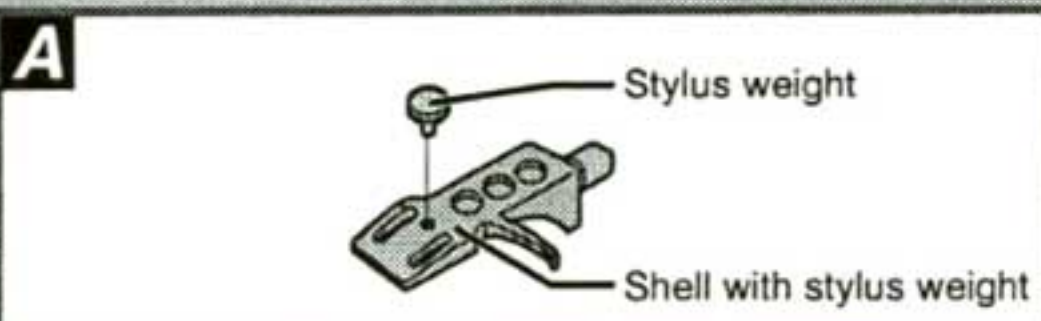
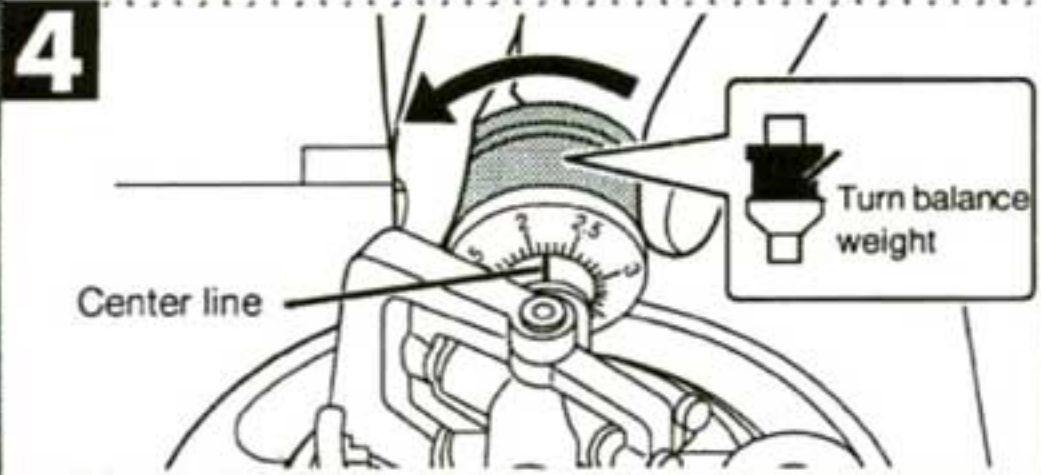
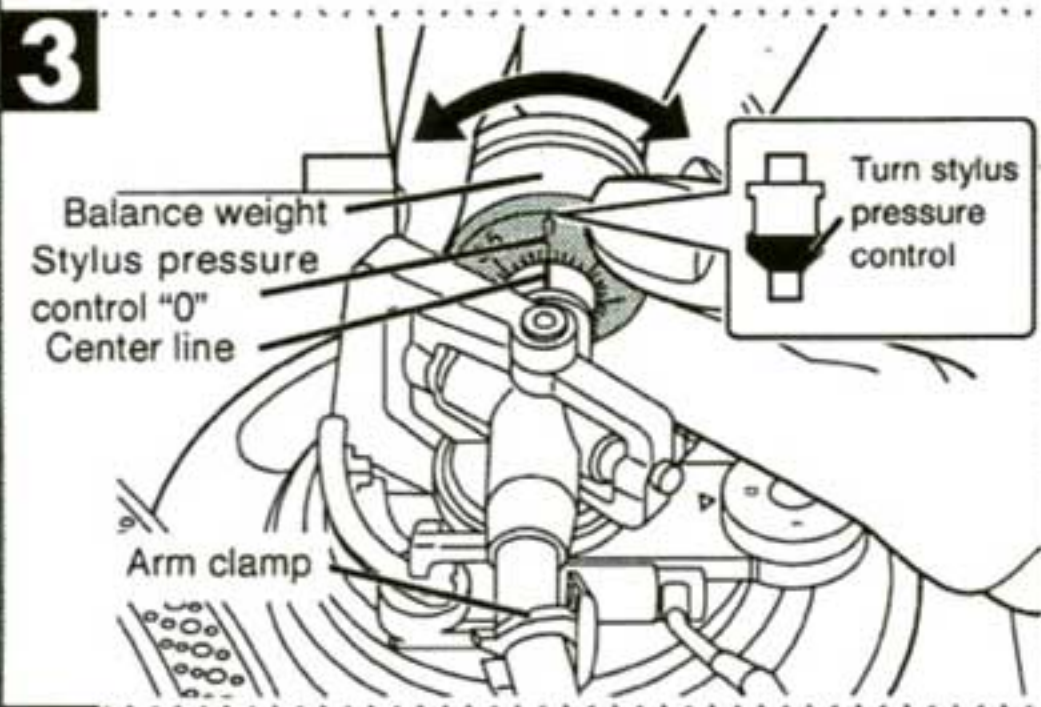
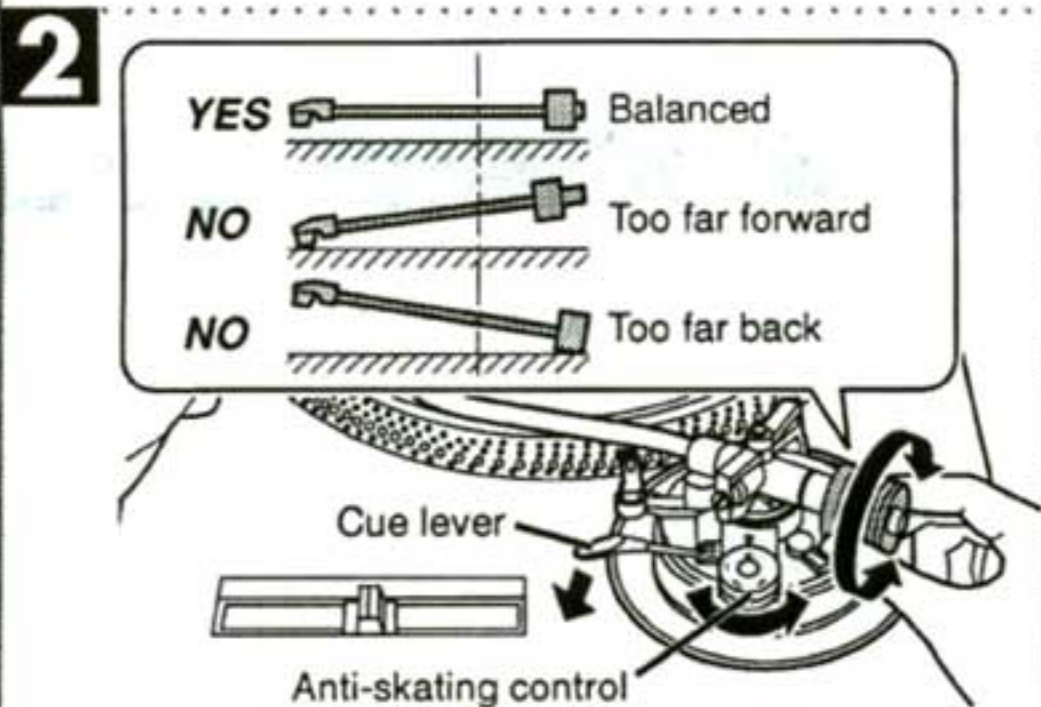
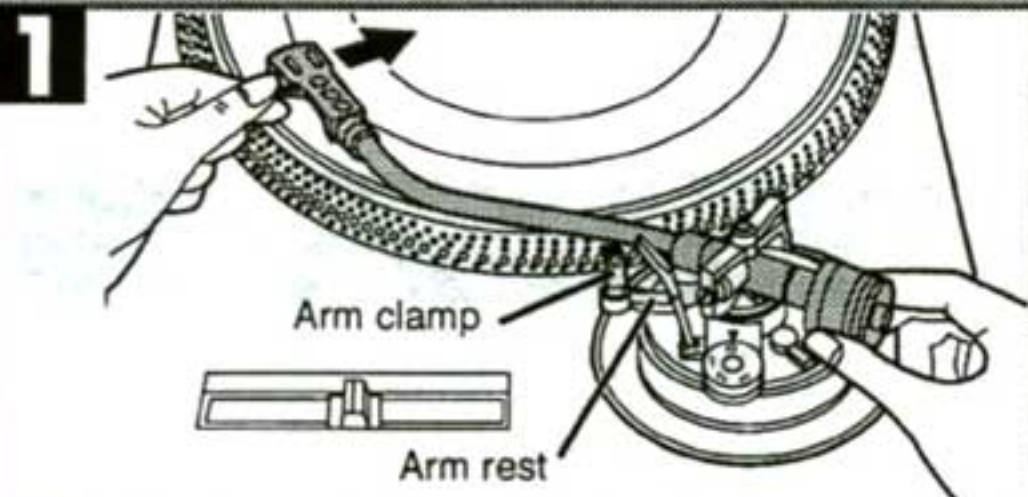
See the cartridge's instructions for recommended stylus pressure. The stylus pressure control will turn at the same time. Stop when the center line points to the required pressure.

#### To increase stylus pressure for scratch play **A**

Use the stylus weight (included) to increase stylus pressure by 4 grams.



1 2 3 4





## (Preparatory adjustments)

### Anti-skating A

Adjust to the same value as the stylus pressure control. If stylus pressure is over 3 grams, set this control to "3".

### Tone arm height B

- 1 Release the arm lock.
- 2 Compare the height of your cartridge (H) with the following and set the arm height appropriately.

• Arm height is indicated in millimeters on the arm-height control, with marks indicating 0.5 millimeter intervals. Turn the control to the required height.

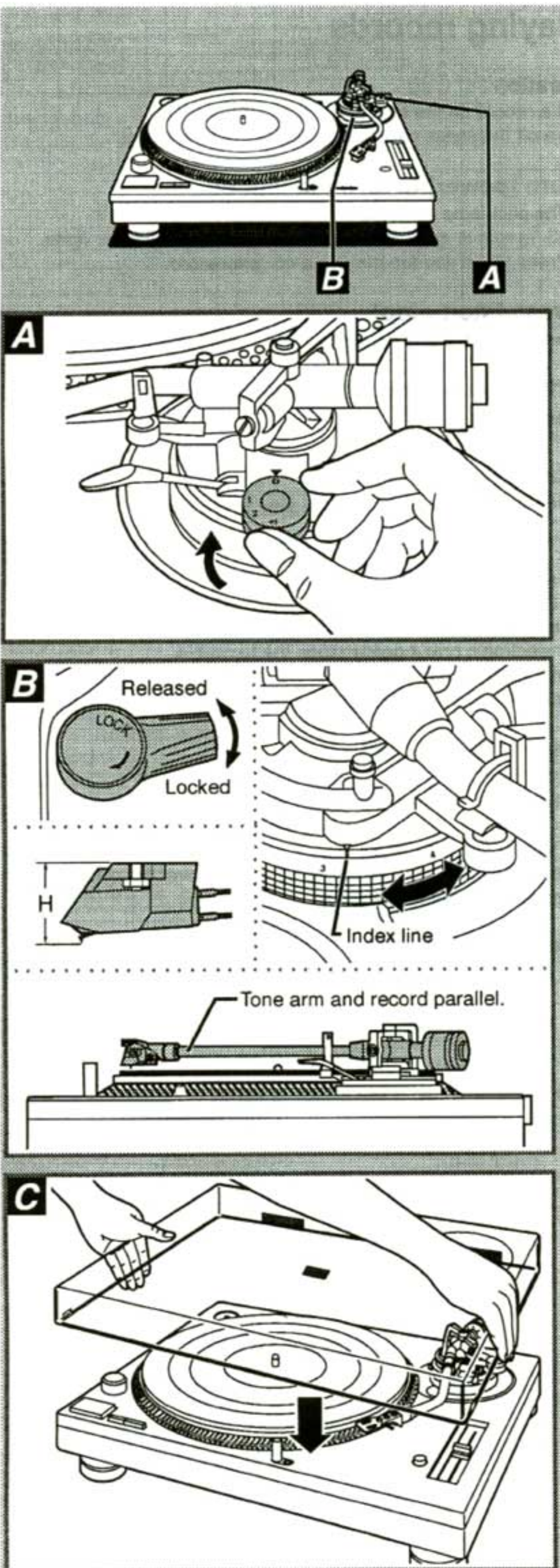
| Cartridge height (H) in millimeters | Height control position |
|-------------------------------------|-------------------------|
| 17                                  | 0                       |
| 18                                  | 1                       |
| 19                                  | 2                       |
| 20                                  | 3                       |
| 21                                  | 4                       |
| 22                                  | 5                       |
| 23                                  | 6                       |

• If you do not know the height of your cartridge, rest the stylus on a record and adjust the height control until the tone arm is parallel with the record.

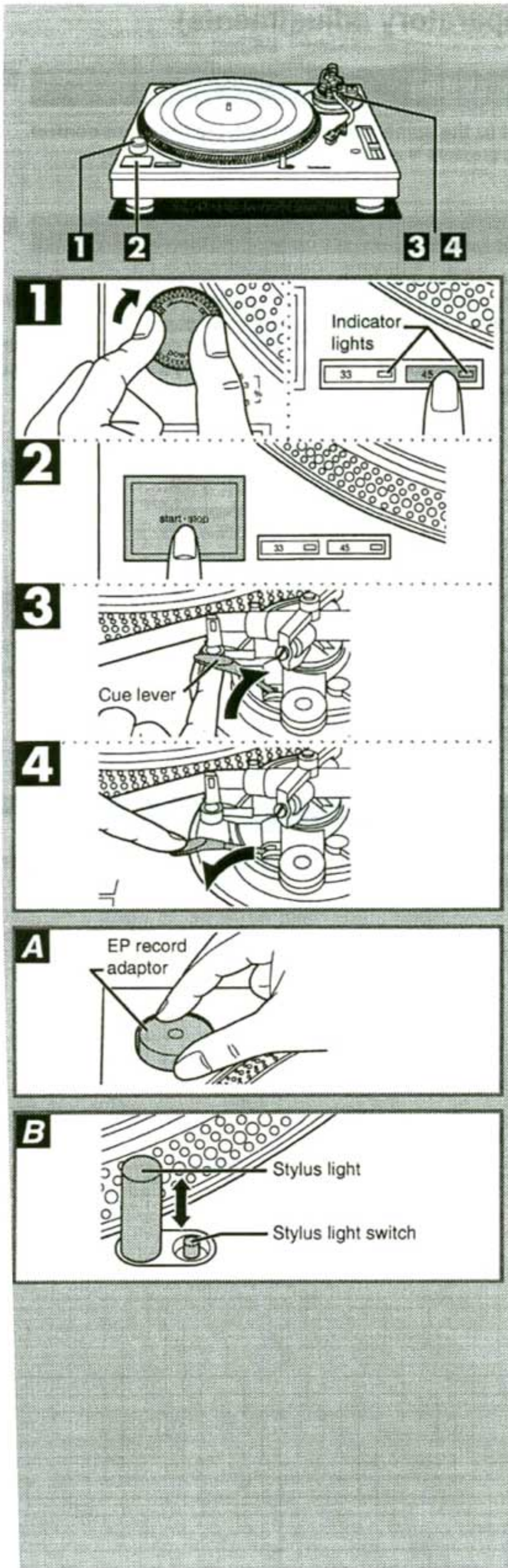
- 3 Lock the arm after adjusting the height.

### Fit the dust cover C

Hold the dust cover with both hands and fit it over the player from directly above.







## ■ Playing records

### Preparation

- 1 Put a record on the turntable.
- 2 Take off the stylus cover and release the arm clamp.

### 1 Turn [power] to turn the unit on.

- The pilot lamp comes on.
- 33 1/3 rpm is automatically selected and the indicator lights.
- Press [45] if you are playing a 45 rpm record.

### 2 Press [start-stop].

The turntable starts revolving.

### 3 Lift the cue lever and move the tone arm over the record.

### 4 Lower the cue lever.

The tone arm moves down and play starts.

### When play finishes

- 1 Lift the cue lever and move the tone arm back to the arm rest.
- 2 Press [start-stop].  
The electronic brake gently stops the turntable.
- 3 Turn [power] to turn the unit off.
- 4 Clamp the tone arm and put the stylus cover back on.

### To temporarily stop play

Lift the cue lever.  
The stylus lifts off the record.

### When using EP records

- 1 Take the adaptor out of its holder **A** and fit it over the center spindle.
- 2 Press [45] to change the speed.

### To light up the stylus **B**

- Press the stylus light switch. The light rises up and illuminates the stylus.
- When the light is not required, press it down. The light also goes out.

### Note

Press the switch firmly. If the switch is lightly pressed, the light may come on but not rise up.



## ■ Adjustments while using the unit

### Pitch control A

Fine adjustment to the number of revolutions per minute.

Slide [pitch adj.] while the turntable is revolving.

Move the indicator to the required position.

- The numbers represent approximate percentages.
- Pitch can be adjusted between -8% to +8%.

### To reset pitch to the preset value

Press [reset].

The green lamp lights and the pitch immediately returns to the set value (33 1/3 or 45 rpm), regardless of any adjustments made with [pitch adj.]. Press [reset] again and pitch returns to the adjusted value.

### To measure pitch B

The four rows of metal circles around the edge of the turntable can assist you in measuring pitch.

They are lit by the strobo light as they pass and each row appears to stand still at a different pitch.

Avoid using fluorescent light while measuring pitch. The timing will be put out and accuracy will be affected.

### Armlift height C

#### Preparation

- 1 Put a record on the turntable.
- 2 Take off the stylus cover and release the arm clamp.

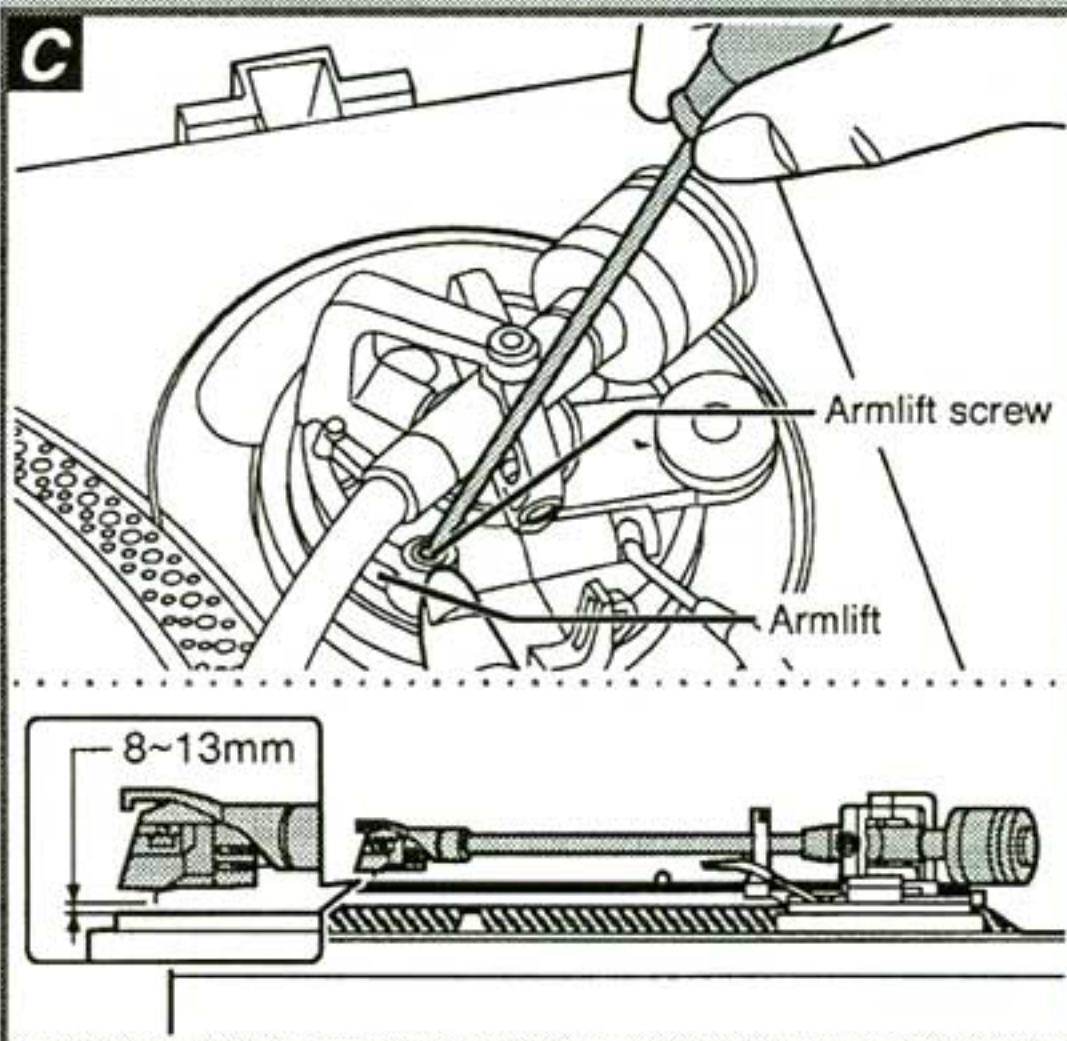
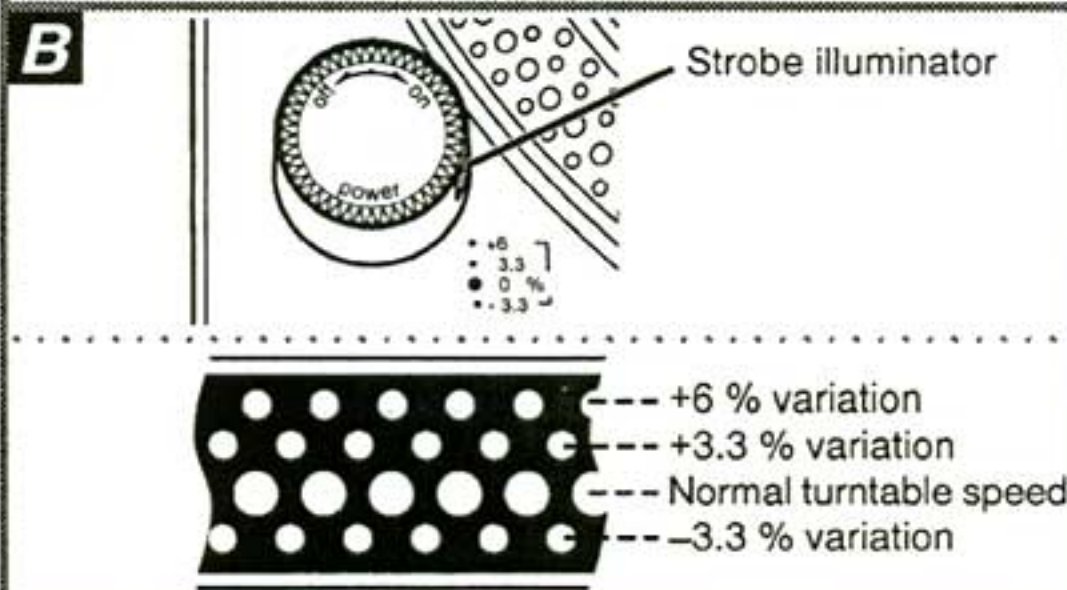
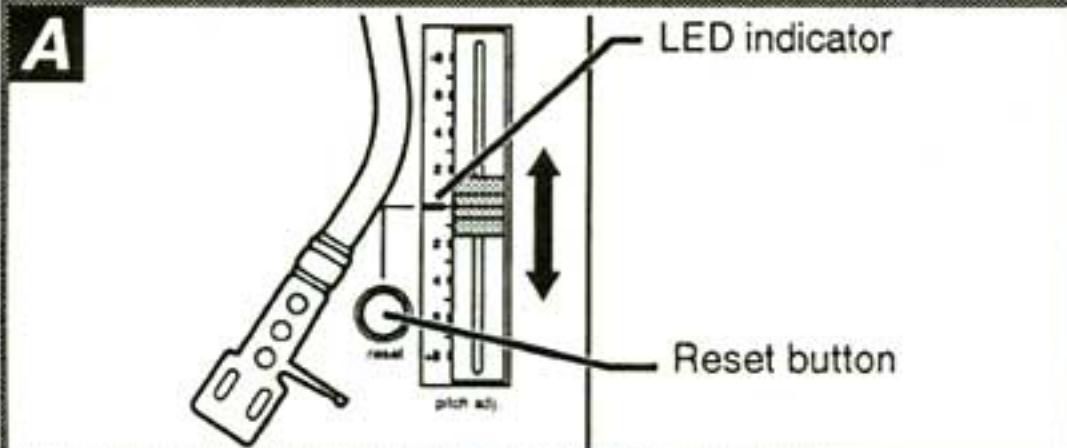
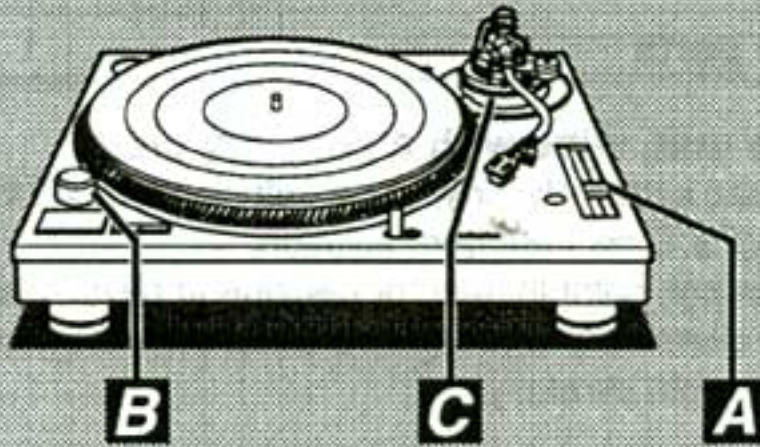
#### Use a screwdriver to turn the armlift screw.

Make this adjustment only if the cartridge you are using makes it necessary.

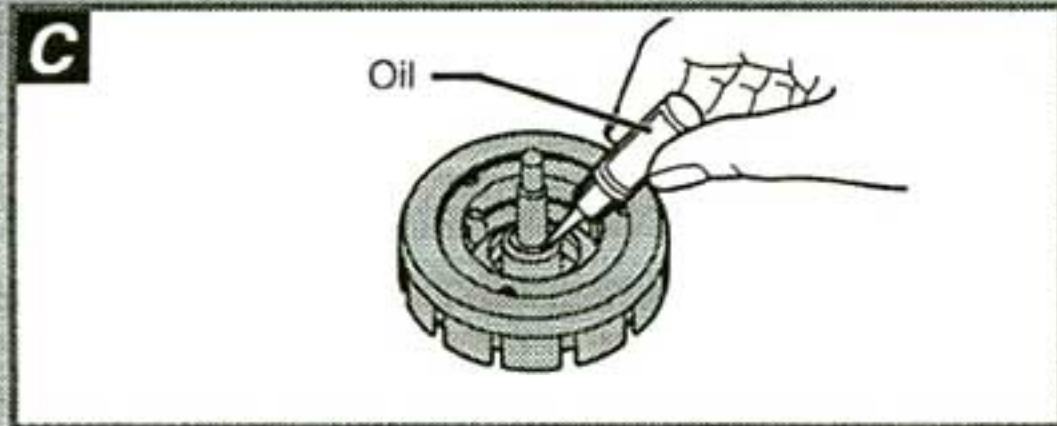
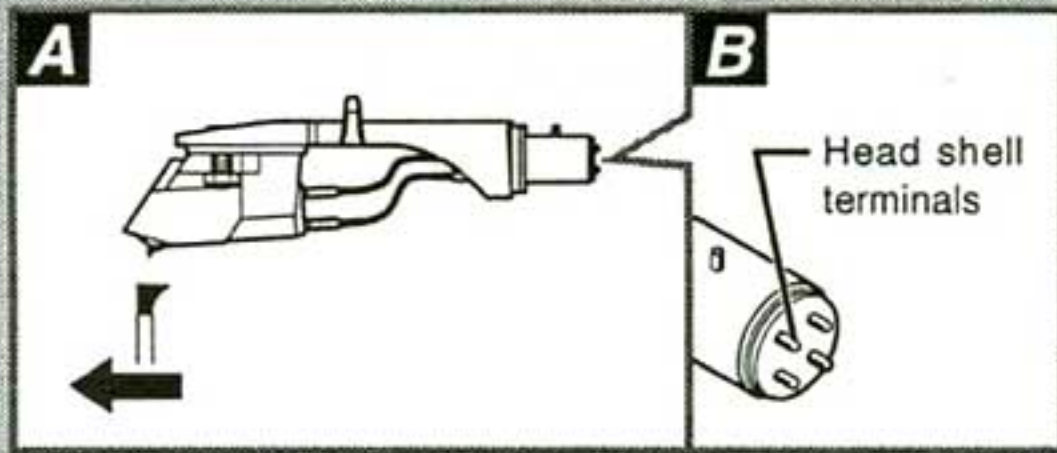
- Turning the screw clockwise lowers the armlift.
- Turning the screw anti-clockwise raises the armlift.

#### Note

Armlift height (the distance between the record and stylus when the cue lever is raised) is set to between 8 and 13 millimeters at time of shipment.







## ■ Maintenance

### Care of the parts

#### To clean this unit, wipe with a soft, dry cloth.

If the surfaces are extremely dirty, use a soft cloth dipped in a soap-and-water solution or a weak detergent solution.

- Never use alcohol, paint thinner, or benzine to clean this unit.
- Before using chemically impregnated cloth, read the instructions that came with the cloth carefully.

#### Note

Do not wipe the dust cover while playing a record.

This can cause static electricity. This static can cause the tone arm to be attracted towards the cover.

#### Thoroughly clean dust off the stylus and record.

- Use a soft brush to clean the stylus. Brush from the base to the tip. **A**
- Use a good quality record cleaner to keep your records clean.

#### Wipe the head shell terminals occasionally **B**

Use a soft cloth. Turn the amplifier off before fitting or removing the head shell.

- Damage to your speakers can occur if the head shell is moved while the volume is turned up.
- Leave the stylus cover on while handling the head shell to prevent damaging the stylus.

#### Oiling the center spindle. **C**

Apply 2 or 3 drops every 2000 hours of operation. Use SFW0010 oil (not included).

### Moving the unit

#### Repackage the unit in the packaging it came in.

If you no longer have the packaging, do the following:

- Return the tone arm to the arm rest and tape it in place.
- Remove the balance weight and head shell from the tone arm and carefully wrap them.
- Take off the turntable and turntable mat and carefully wrap them.
- Carefully wrap the main unit in a blanket or paper.

## ■ Product service

Do not attempt to remove the cover(s) or repair the unit yourself. Refer servicing to qualified personnel only.

#### Product information

For product service, product information or assistance with product operation, refer to the servicenter directory.



## ■ Troubleshooting guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions.

*For detailed instructions, contact an authorized servicenter in the U.S.A. and Panasonic Canada Inc. Customer Care Centre in Canada.*

*In the U.S.A. 1-800-211-7262 or web site (<http://www.panasonic.com>)*

*In Canada 905-624-5505 or web site ([www.panasonic.ca](http://www.panasonic.ca))*

| Problem                             | Probable cause(s)  | Suggested remedy  | Reference page(s) |
|-------------------------------------|--|---|-------------------|
| No power.                           | Is the AC power cord plugged in?                                       | Plug the cord in firmly.                                      | 5                 |
| There is power but no sound.        | Are connections to the amplifier or receiver correct?                  | Double check all connections.                                 | 5                 |
| Left and right sounds are reversed. | Are the stereo cord connections to the amplifier or receiver reversed? | Double check all connections.                                 | 5                 |
| Humming heard during play.          | Are there other appliances or their power cords near the stereo cords? | Separate the appliances and their power cords from this unit. | —                 |
|                                     | Is the earth lead connected?   | Make sure the earth lead is correctly connected.              | 5                 |



# ■ Operation Checks and Component Replacement Procedures

- NOTE**
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
  2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
  3. Select item from the following index when checks or replacement are required.

## ● Contents

### ■ Checking Procedures for each P.C.B.

1. Checking for the drive control P.C.B. and power supply P.C.B. . . . . . Page. 12.

### ■ Main Component Replacement Procedures

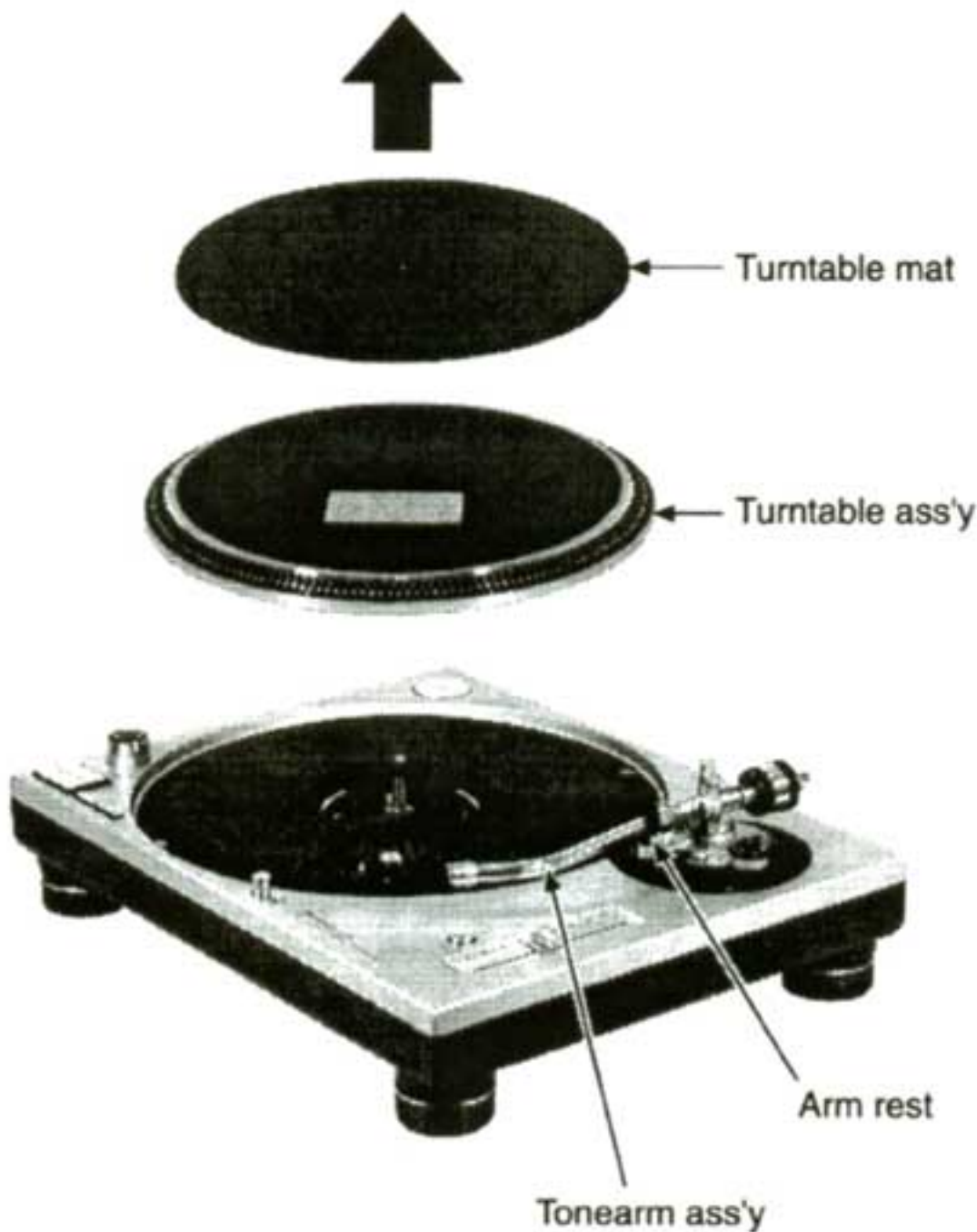
1. Replacement for the drive coil ass'y and FG coil ass'y. . . . . . 13.
2. Replacement for the tonearm unit. . . . . . 13~16.
3. Replacement for the lamp and stylus illuminator switch. . . . . . 16.
4. Replacement for the parts mounted on speed selector P.C.B. and power switch. . . . . . 16.

## ■ Checking Procedures for each P.C.B.

### 1. Checking for the drive control P.C.B. and Power supply P.C.B.

**Step 1**

Remove the turntable mat and turntable ass'y.

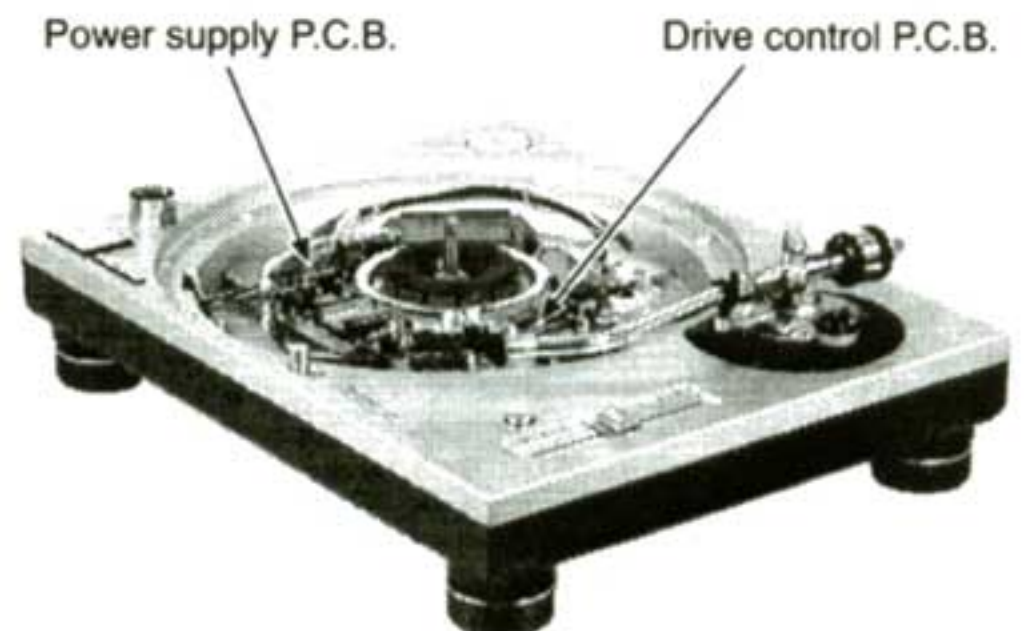


**NOTE**

1. The tonearm ass'y should be supported by arm rest.
2. Take care not to stick the dust or iron powder to the magnet attached to back inner side of turn table.



• Check the drive control P.C.B. and power supply P.C.B. as shown below.

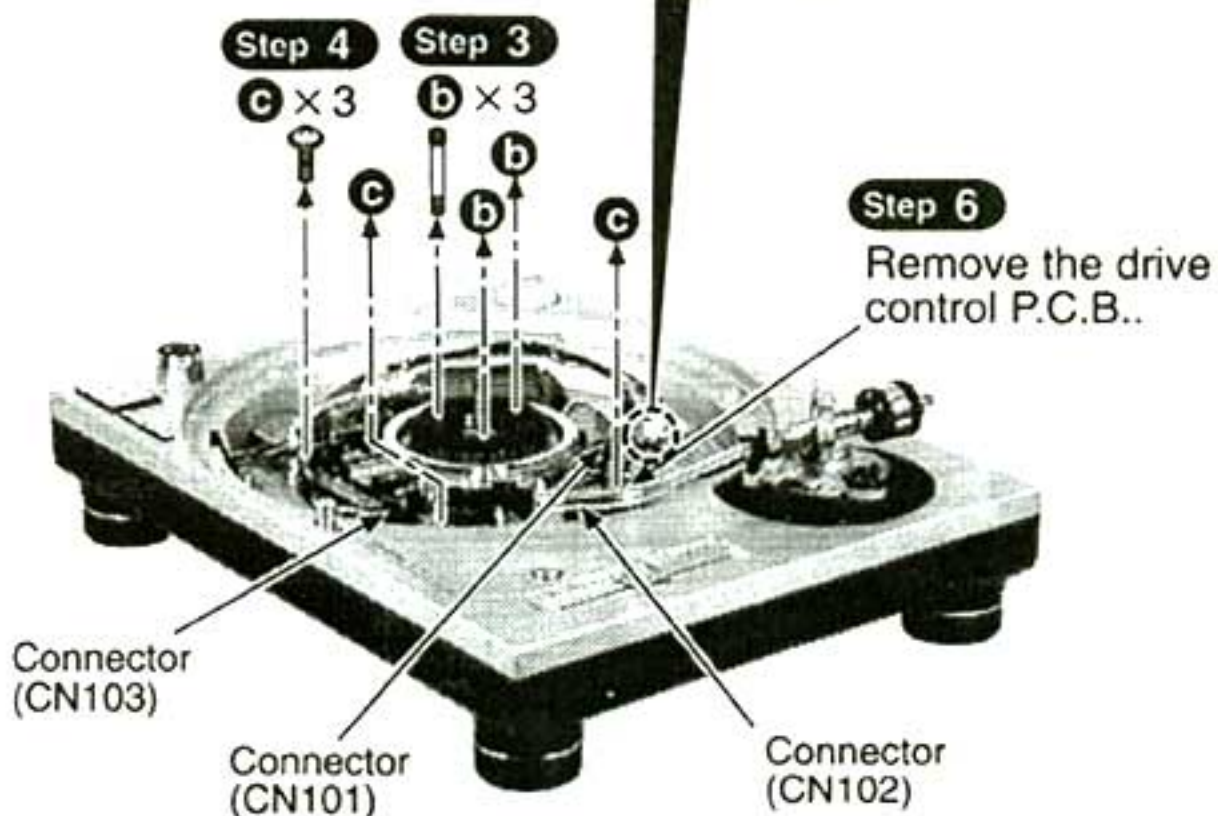
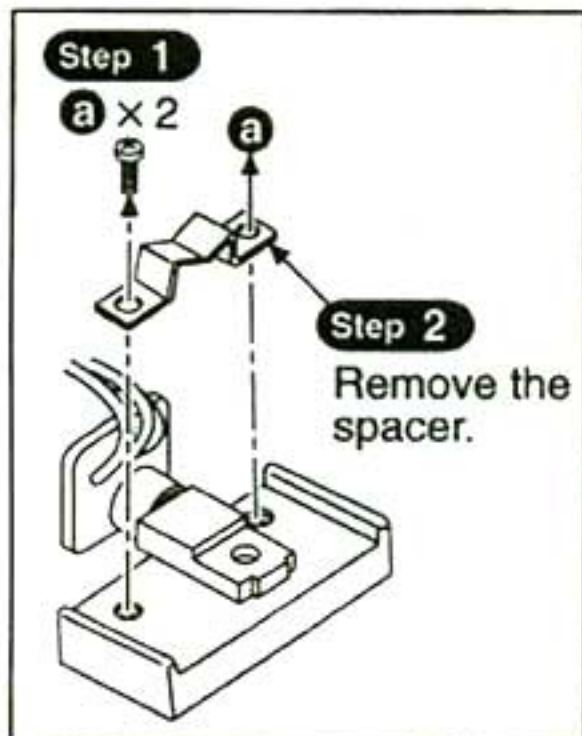




## ■ Main Component Replacement Procedures

### 1. Replacement for the drive coil ass'y and FG coil ass'y

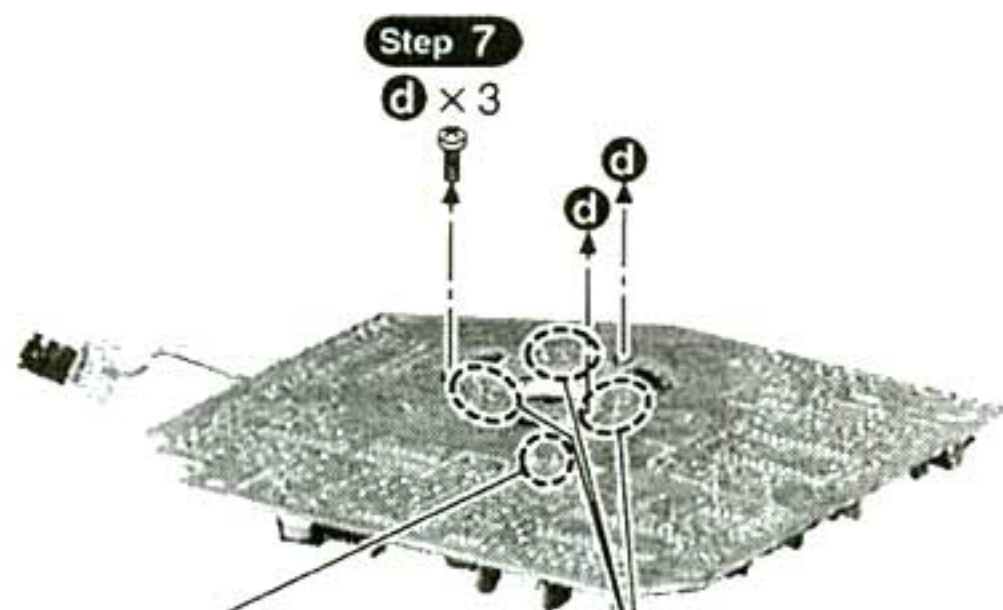
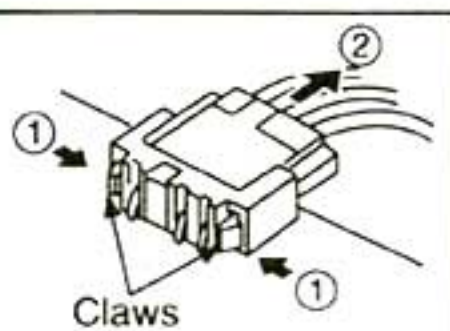
- Follow the **Step 1** - **Step 3** of the item 1 in checking procedure for each P.C.B. on page 12.



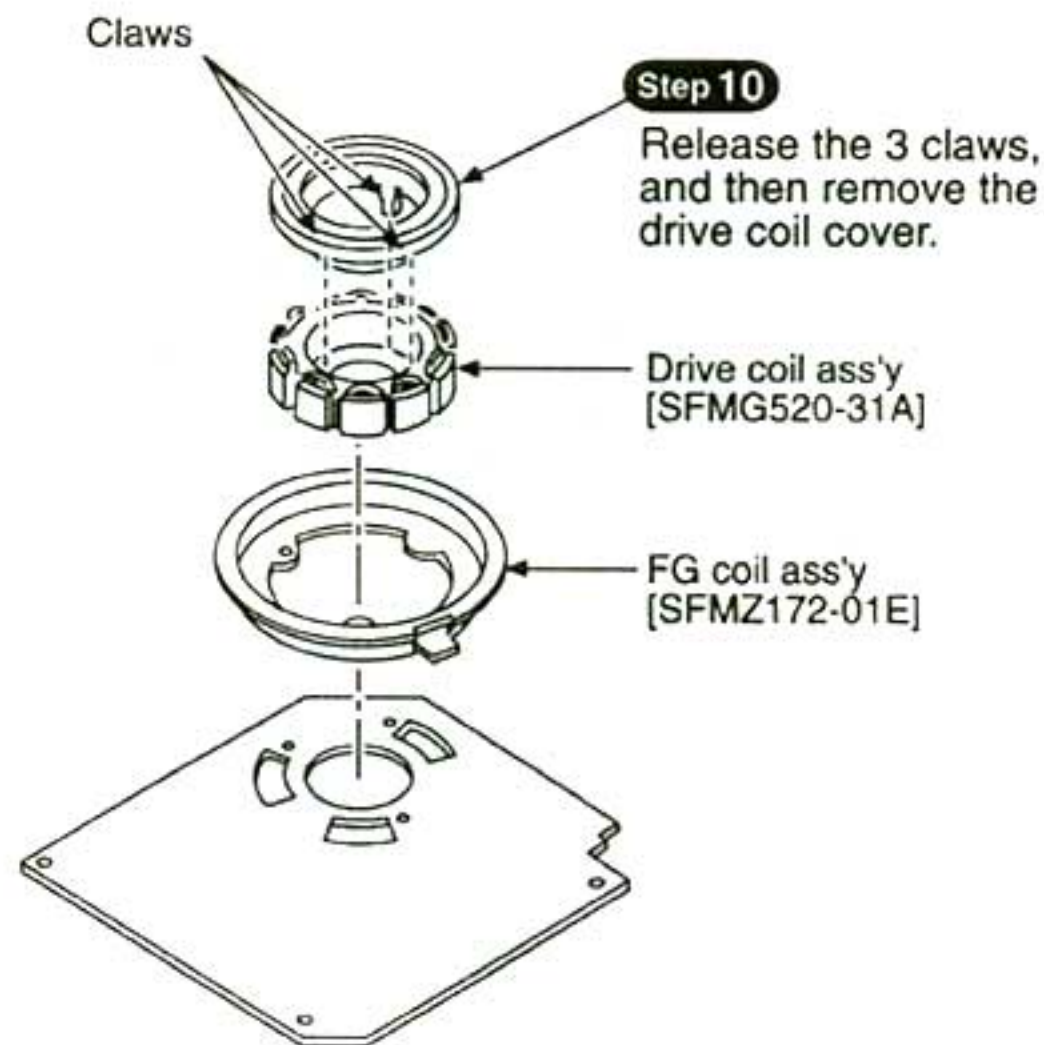
- Step 5**  
Remove the 3 connectors.

#### Removal of the connector

- Release the claws, and then pull out the connector.



- Step 9**  
Unsolder the terminals of FG coil ass'y (4 points).



### 2. Replacement for the tonearm unit

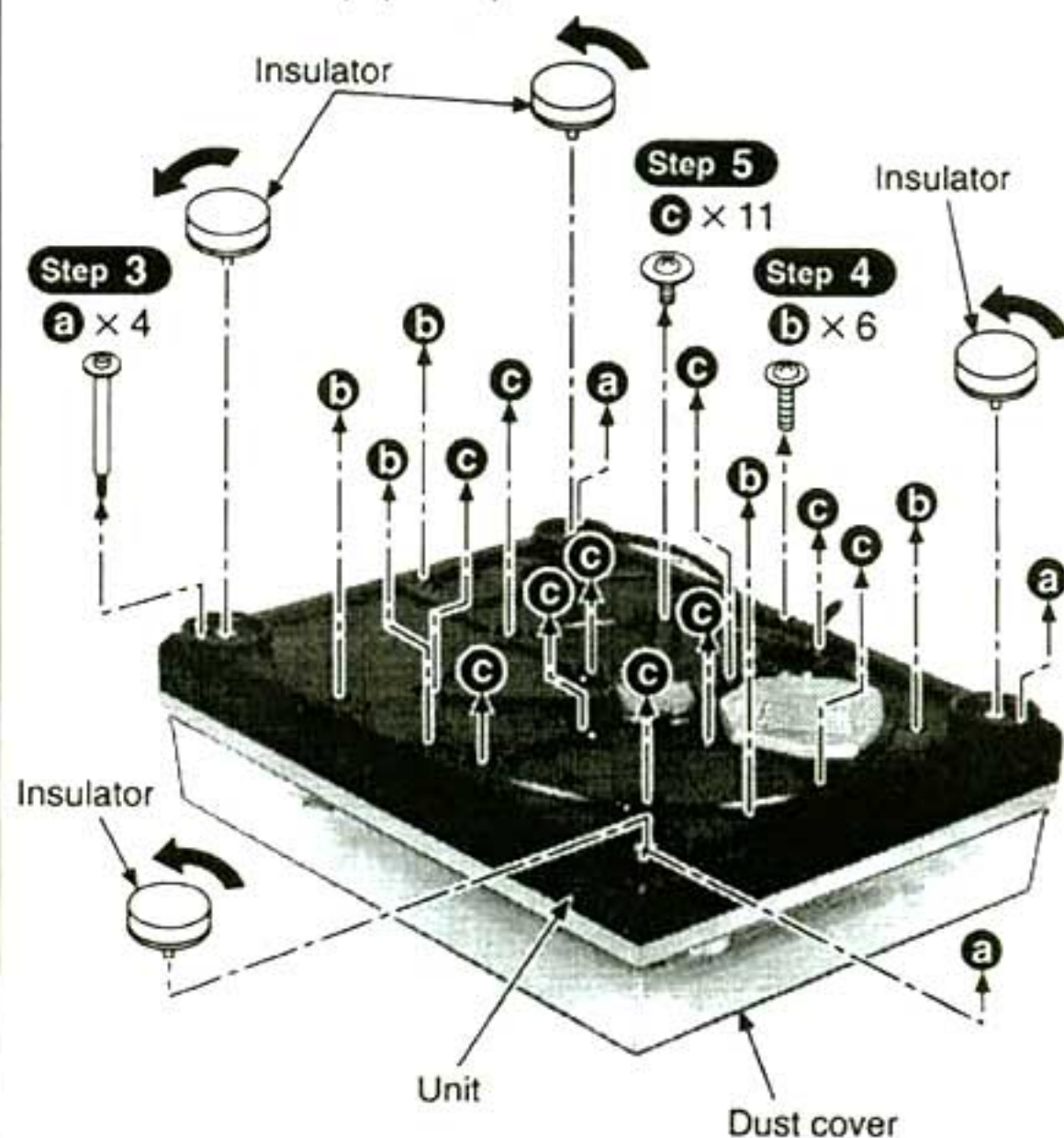
- Follow the **Step 1** of the item 1 in checking procedure for each P.C.B. on page 12.

#### Step 1

Upset the unit, and then put the dust cover.

#### Step 2

Turn the insulators in the direction of arrow, and then remove them (4 points).



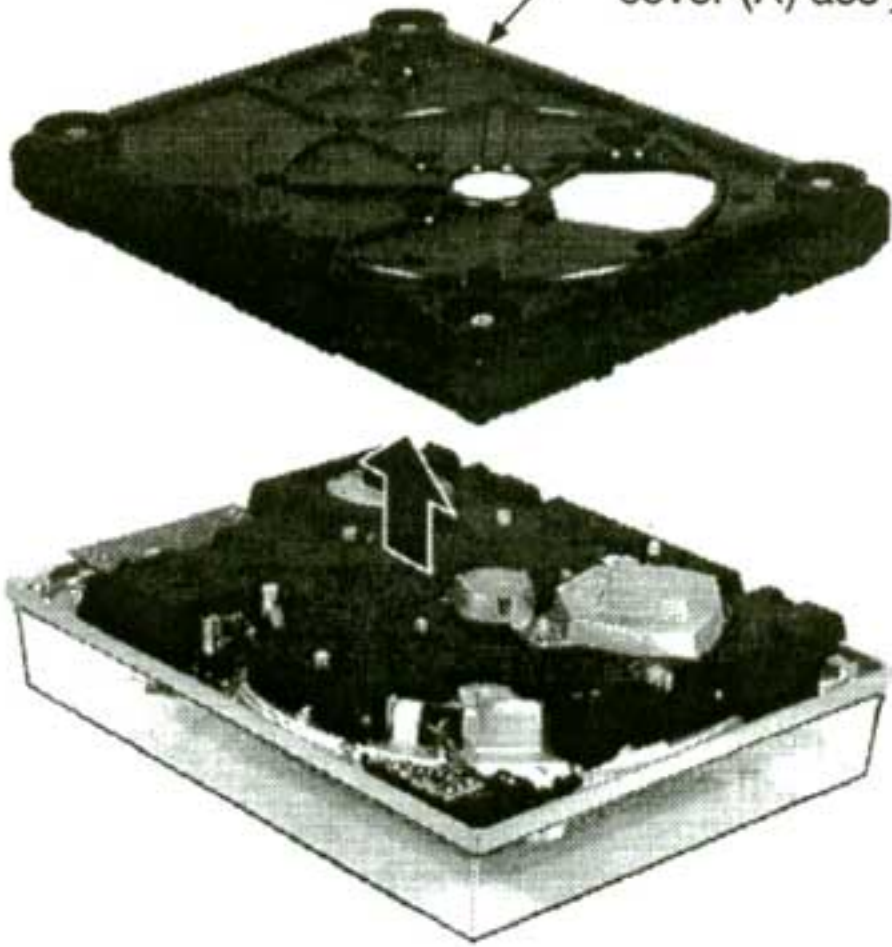
#### NOTE

Use the soft cloth under the unit to prevent damage the dust cover when servicing.



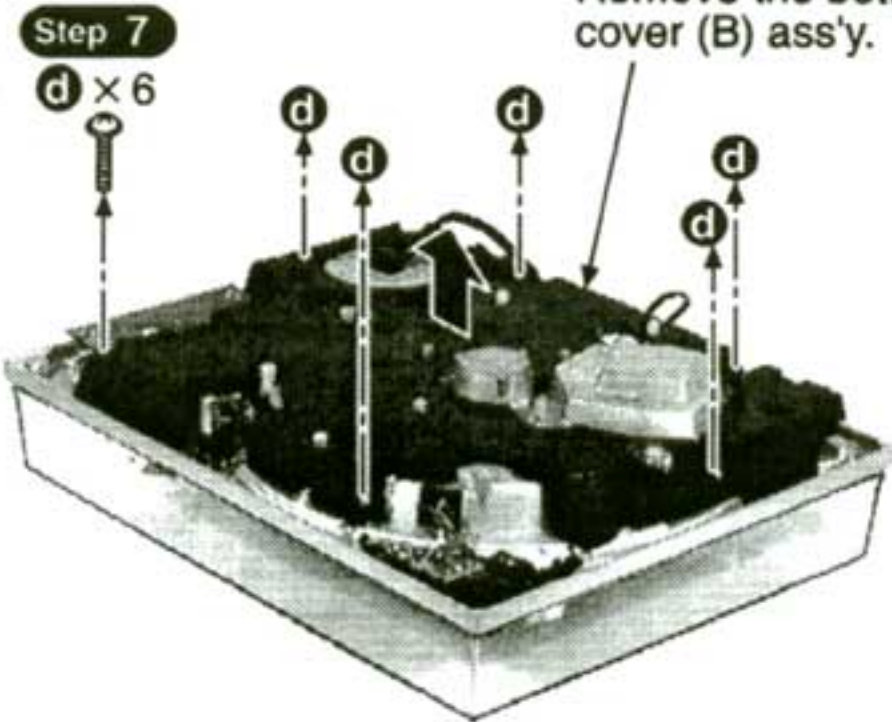
Step 6

Remove the bottom cover (A) ass'y.



Step 8

Remove the bottom cover (B) ass'y.

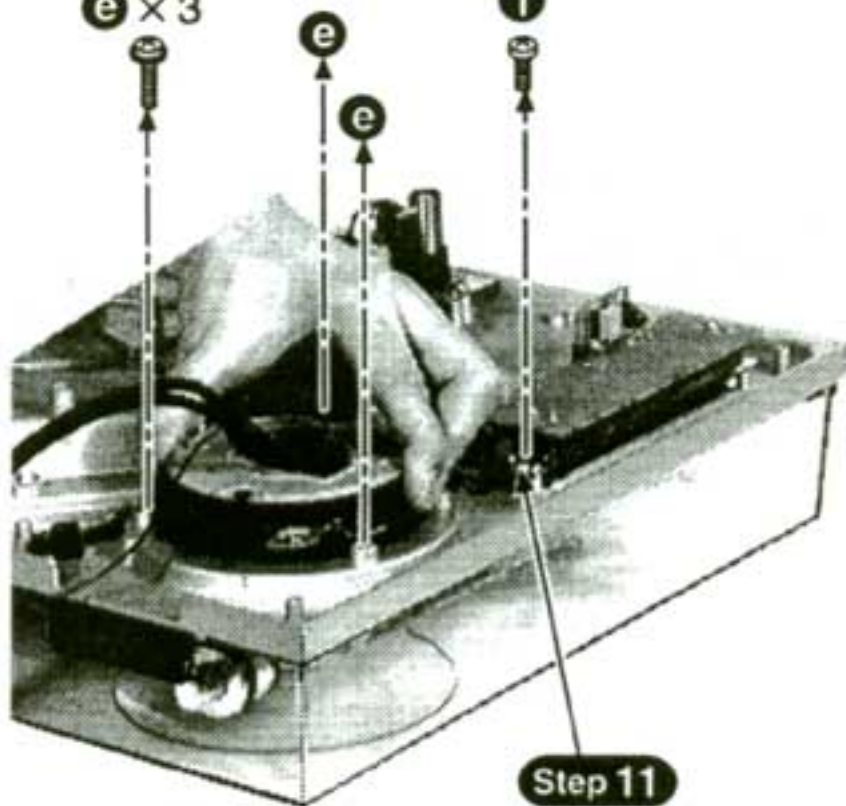


Step 9

e x 3

Step 10

f



Step 11

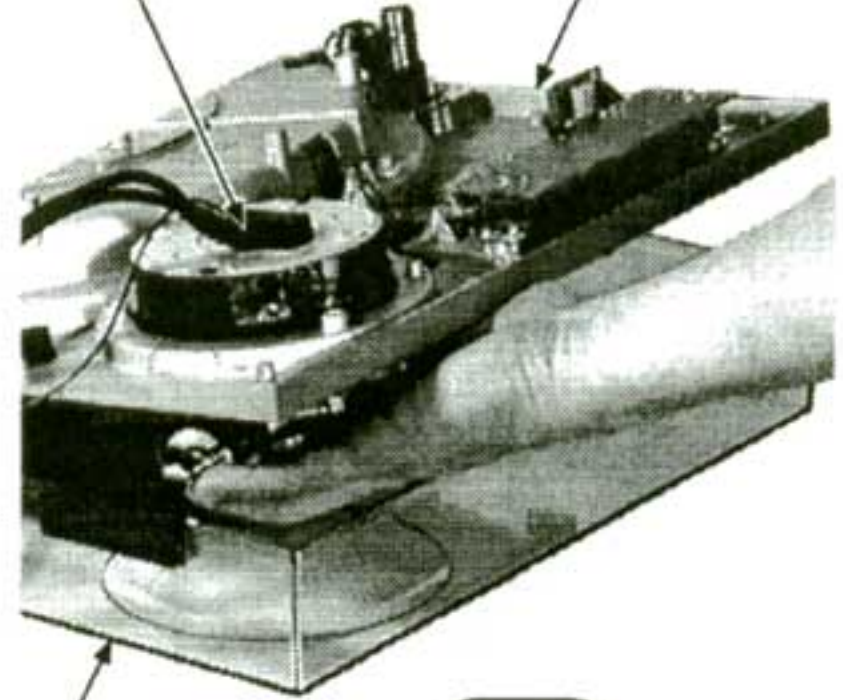
Remove the lug terminal.

**NOTE**

Hold the tonearm with hand when removing the 3 screws (e).

Tonearm ass'y

Cabinet ass'y



Dust cover

Step 12

Separate the dust cover and the cabinet ass'y, and then remove the tonearm ass'y.

Step 14

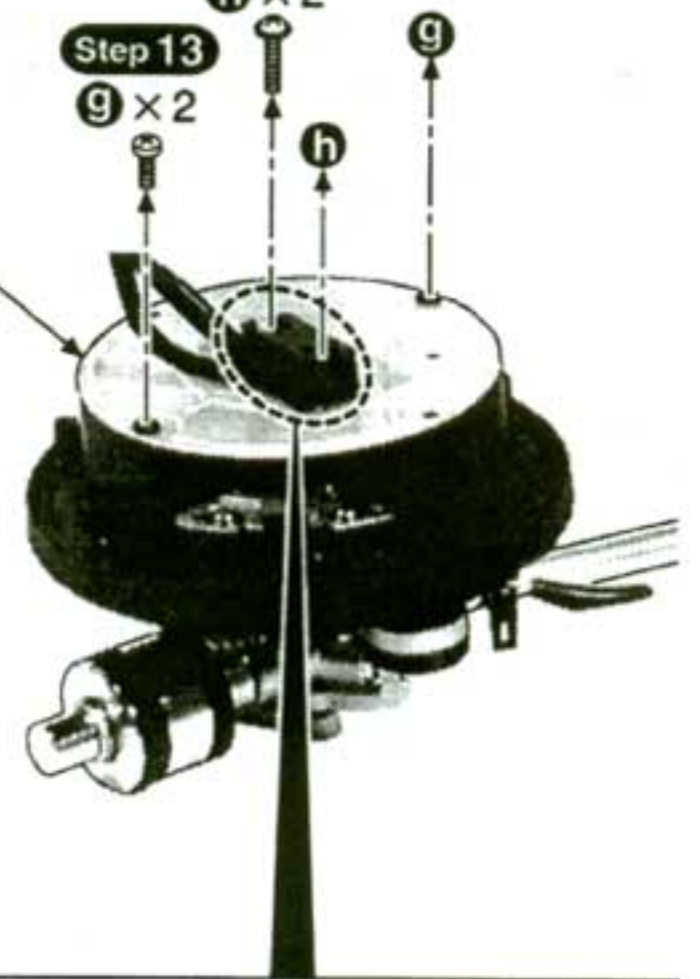
h x 2

Step 13

g x 2

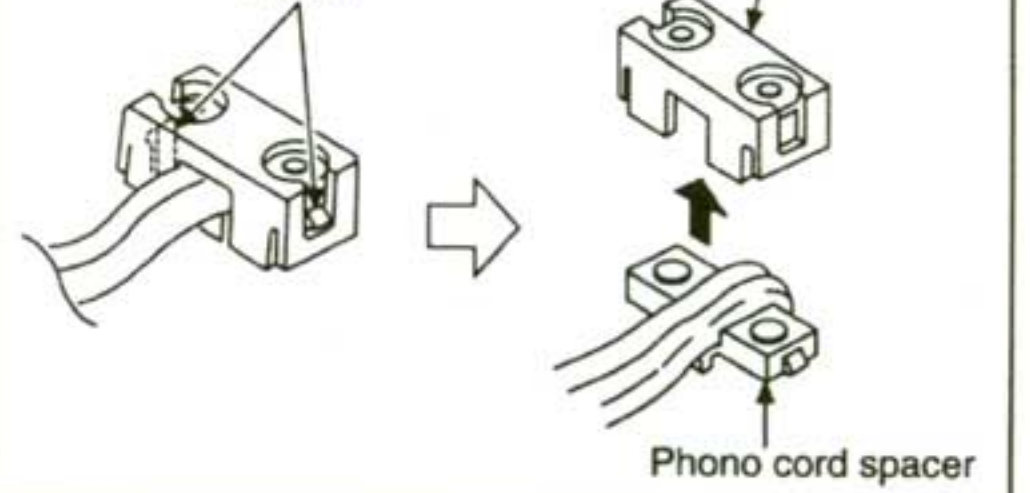
Step 16

Remove the arm base cover plate.



Claws

Phono cord clamber

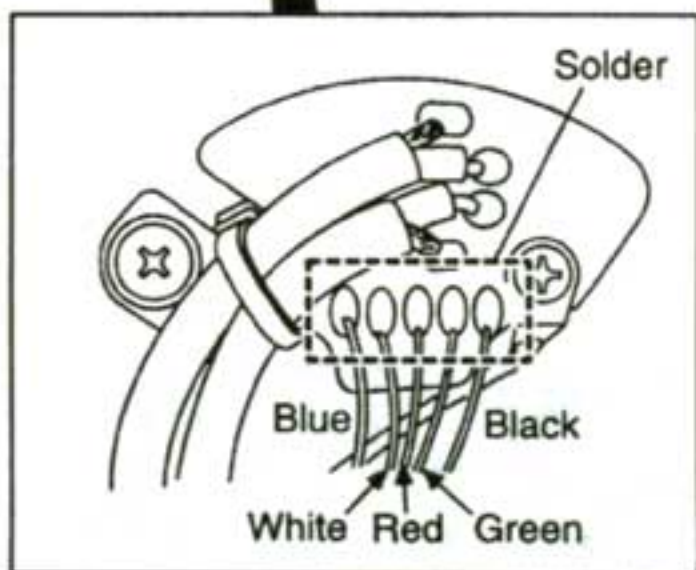
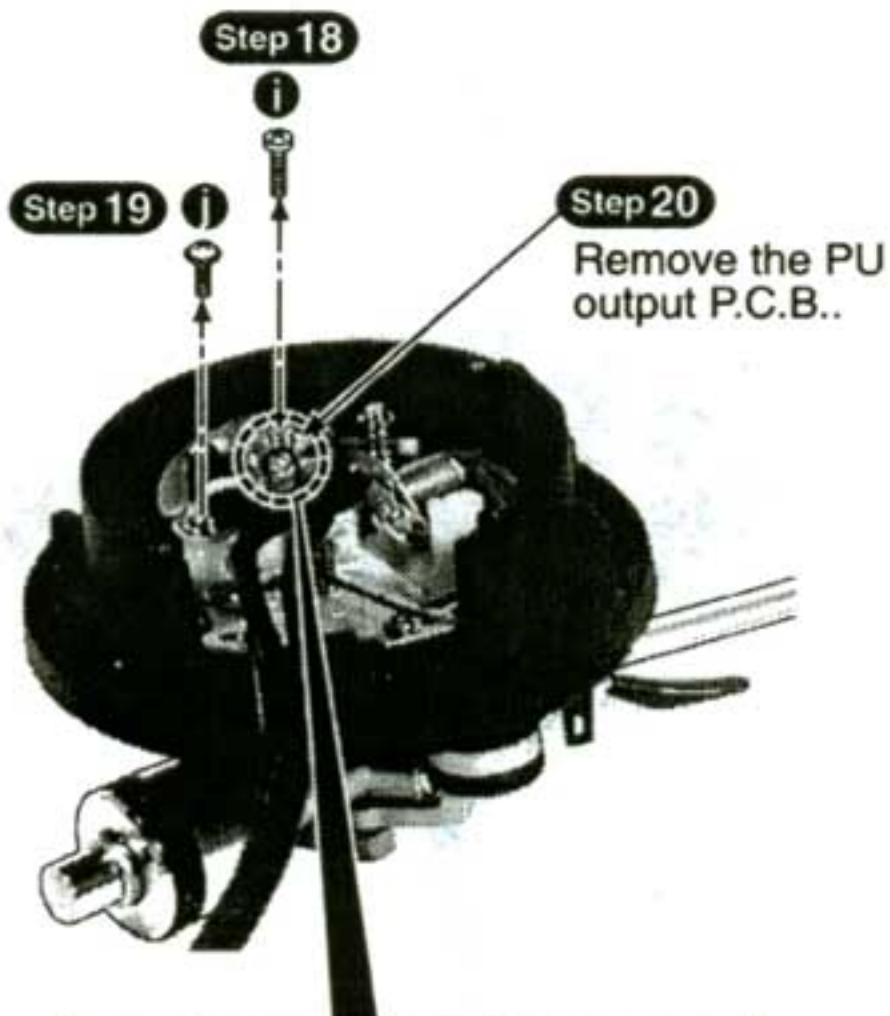


Phono cord spacer

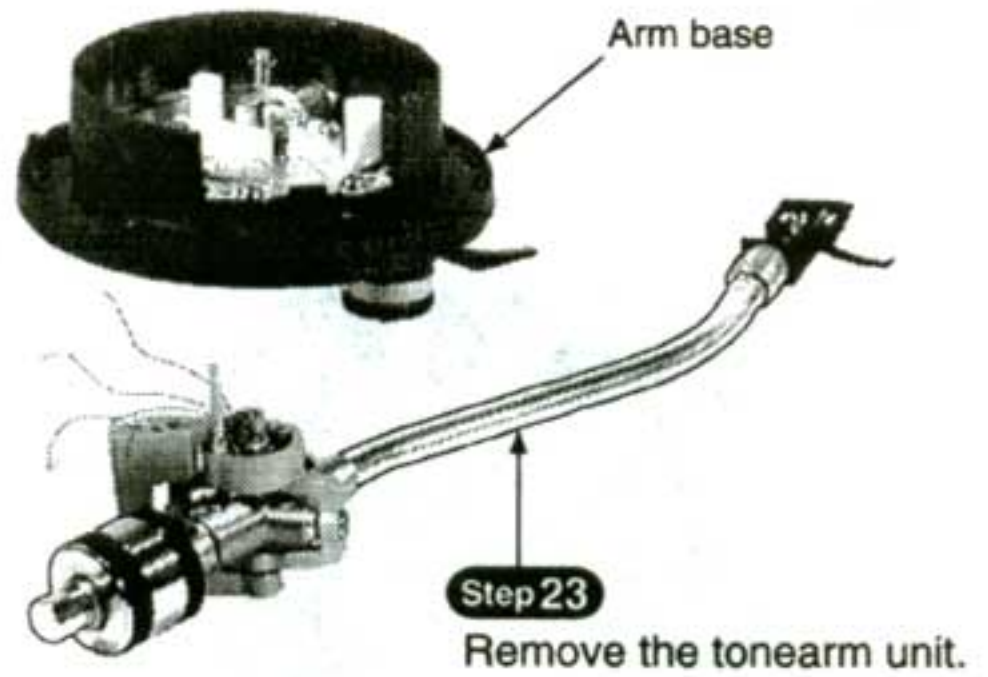
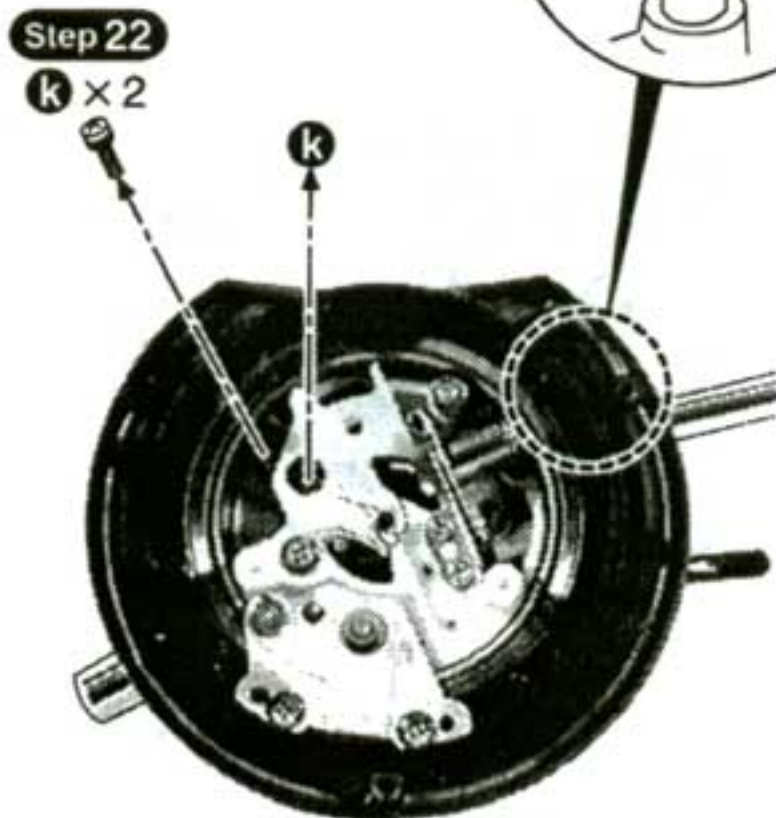
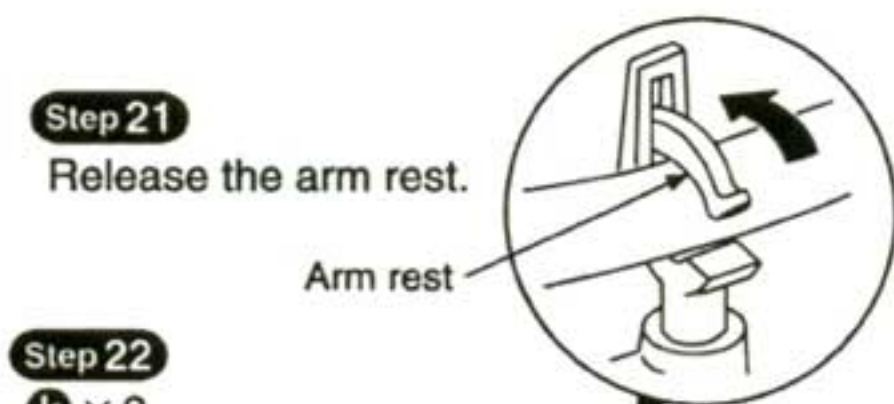
Step 15

Release the 2 claws, and then remove the phono cord clamber and phono cord spacer.





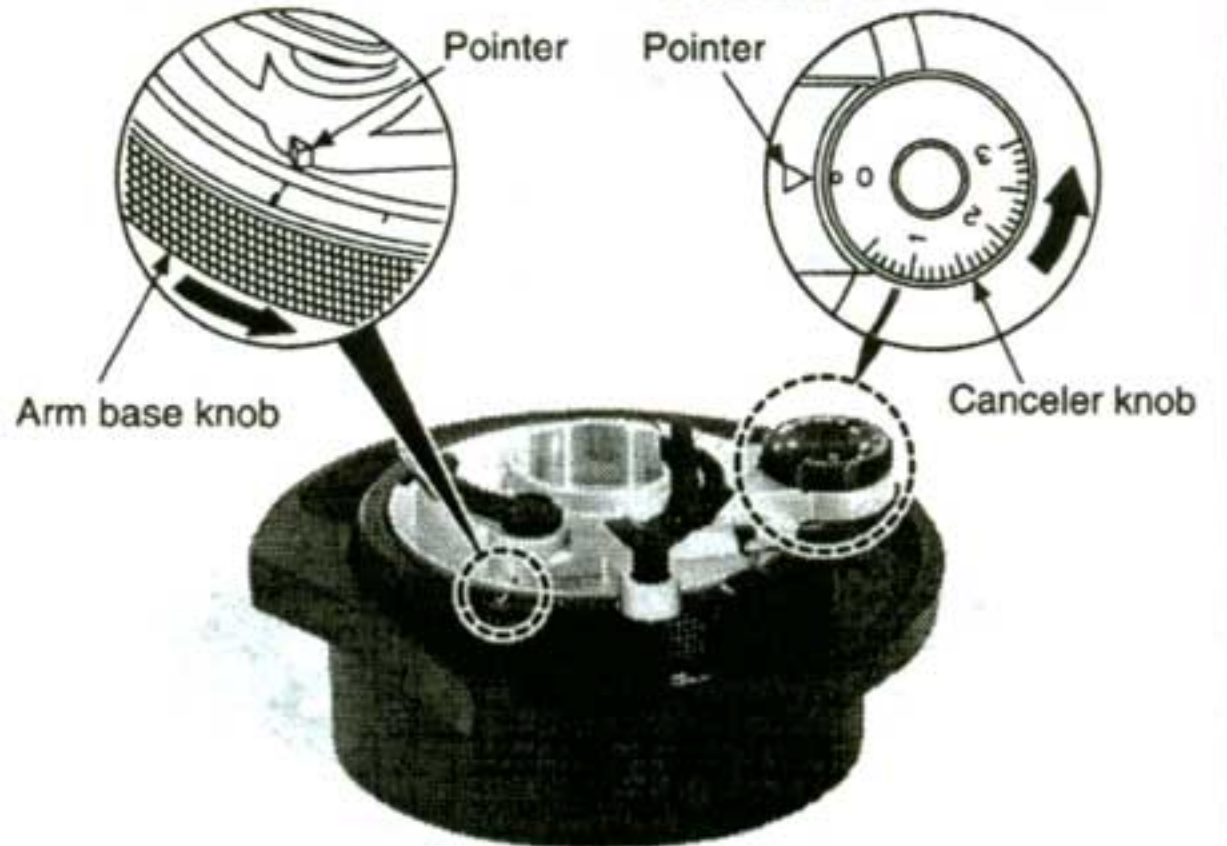
**Step 17**  
Unsolder the terminals (5 points).



### Reassembly procedures for tonearm ass'y

**Step 1**  
Rotate the arm base knob in the direction of arrow, and then align the pointer with the scale "0".

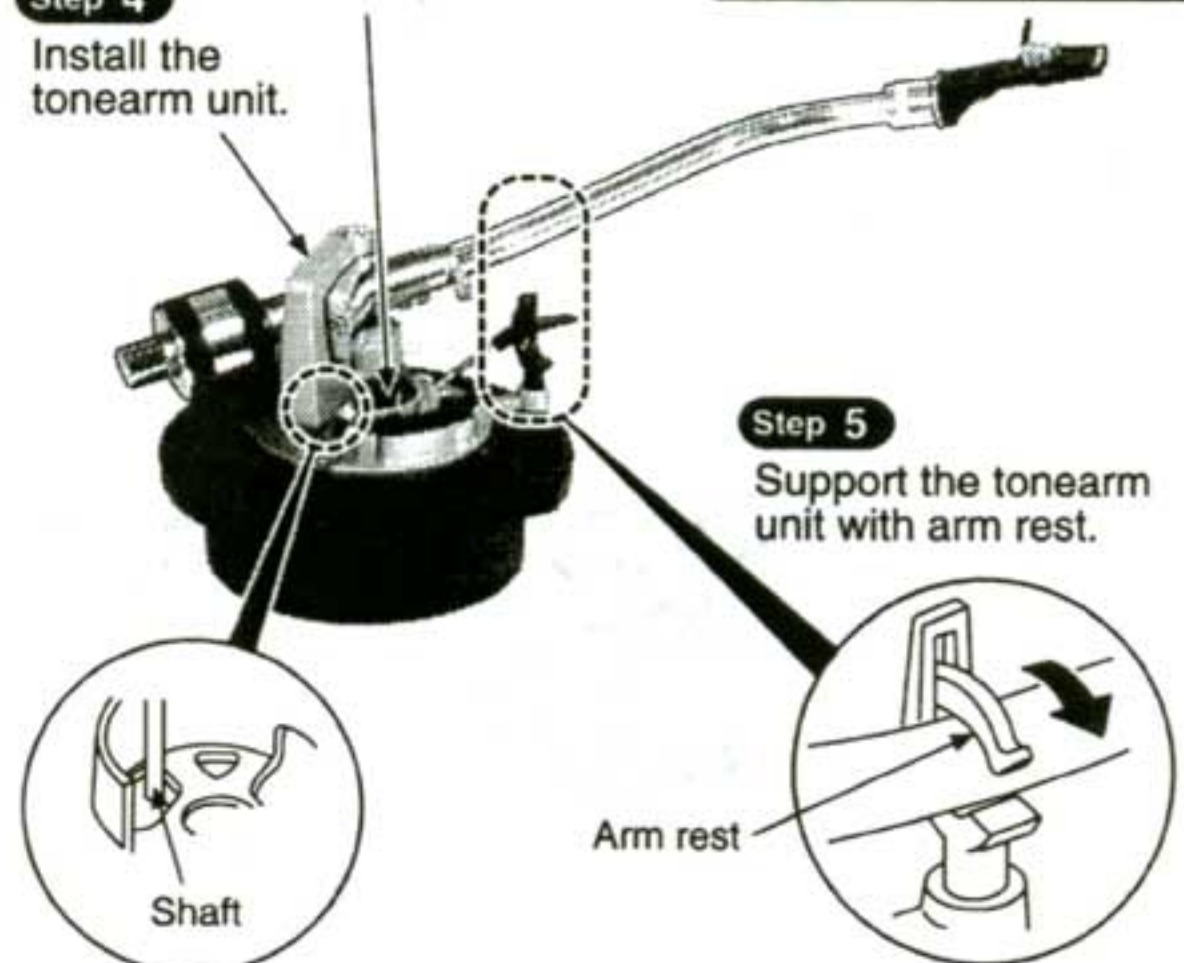
**Step 2**  
Rotate the canceler knob in the direction of arrow, and then align the pointer with the scale "0".



**Step 3**  
Pass the 5 lead wires through the hole of arm basement.

※ When passing the lead wire through the hole, for easy operation, wrap the ends of 5 lead wires with tape.

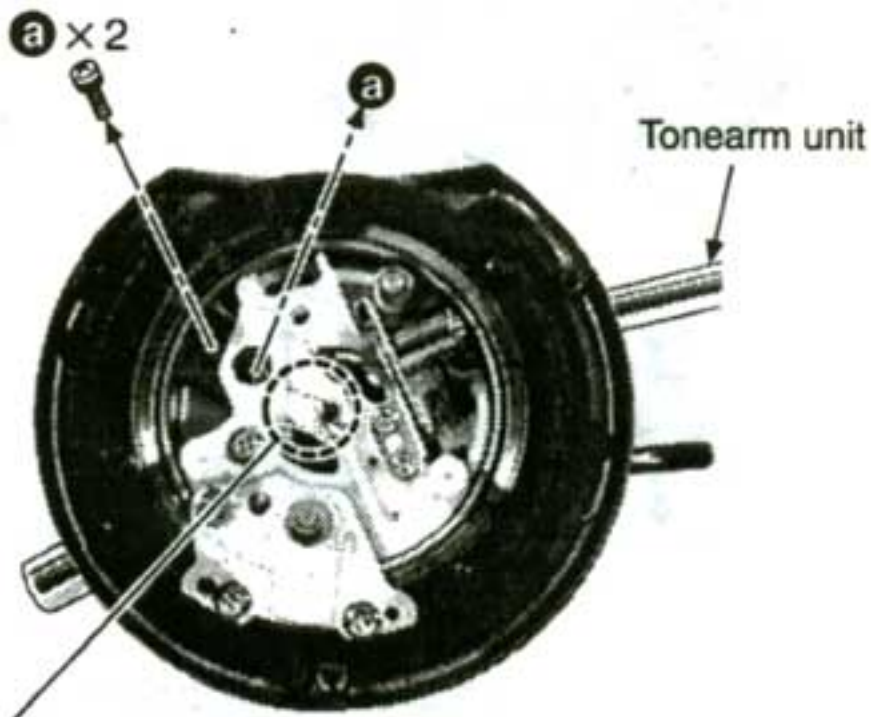
**Step 4**  
Install the tonearm unit.





**Step 6**

Tighten the tonearm unit screws.



**Step 7**

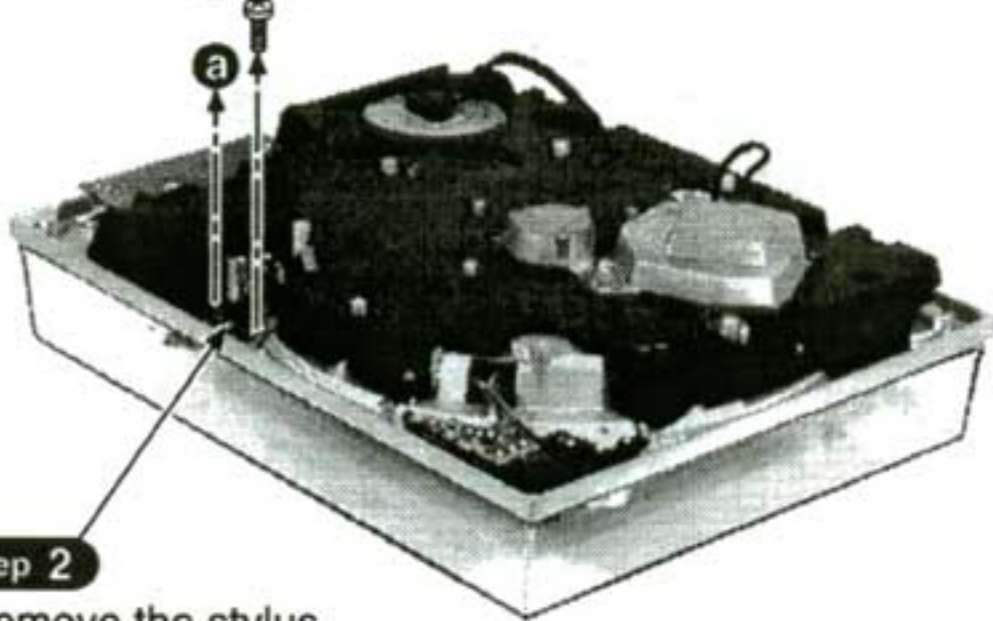
Remove the tape of lead wire.

**3. Replacement for the lamp and stylus illuminator switch**

• Follow the **Step 1** ~ **Step 6** of the item 2 in main component replacement procedures on pages 13 and 14.

**Step 1**

**a** x 2



**Step 2**

Remove the stylus illuminator unit.



**Step 4**

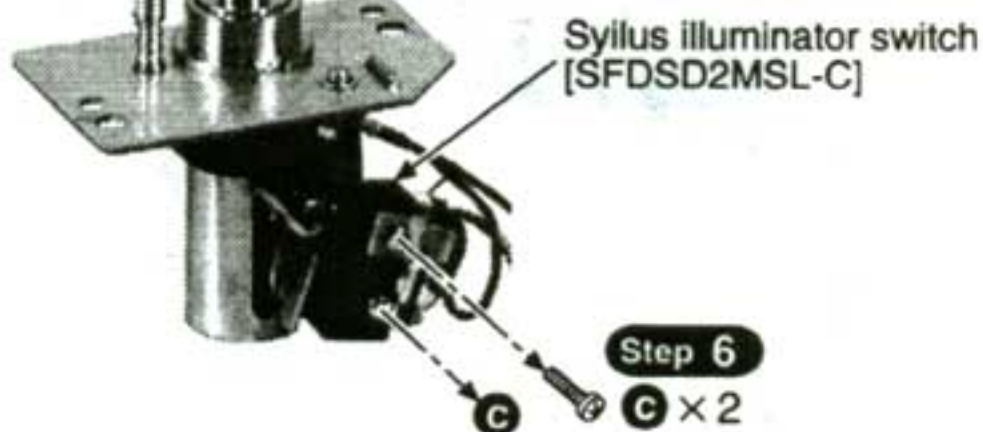
Remove the stylus illuminator cover.

**Step 5**

Remove the lamp. [SFDN122-01E]

**Step 3**

**b**

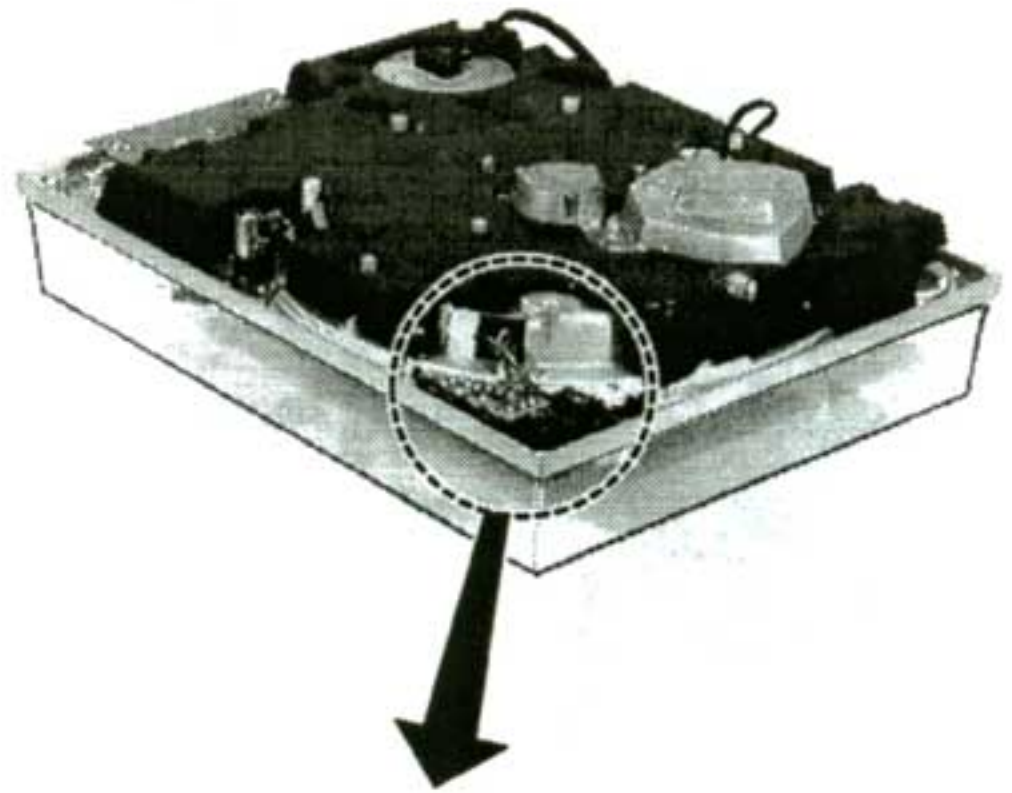


**Step 6**

**c** x 2

**4. Replacement for the parts mounted on speed selector P.C.B. and power switch**

• Follow the **Step 1** ~ **Step 7** of the item 2 in main component replacement procedures on pages 13 and 14.

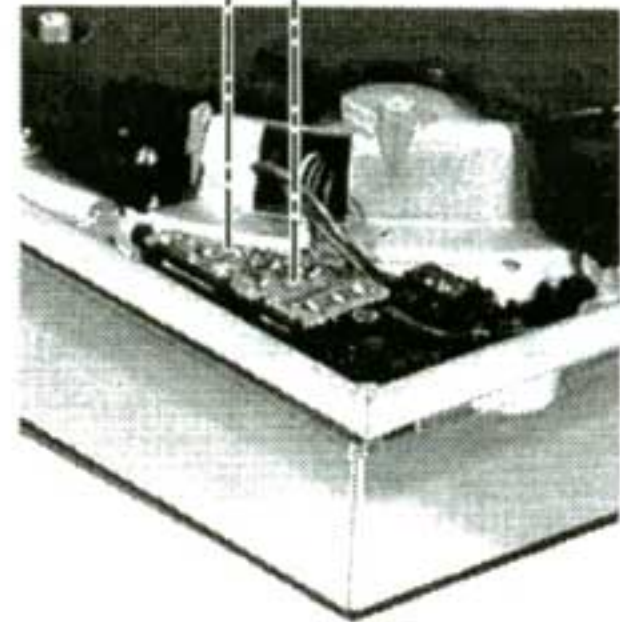


**Step 1**

**a**

**Step 2**

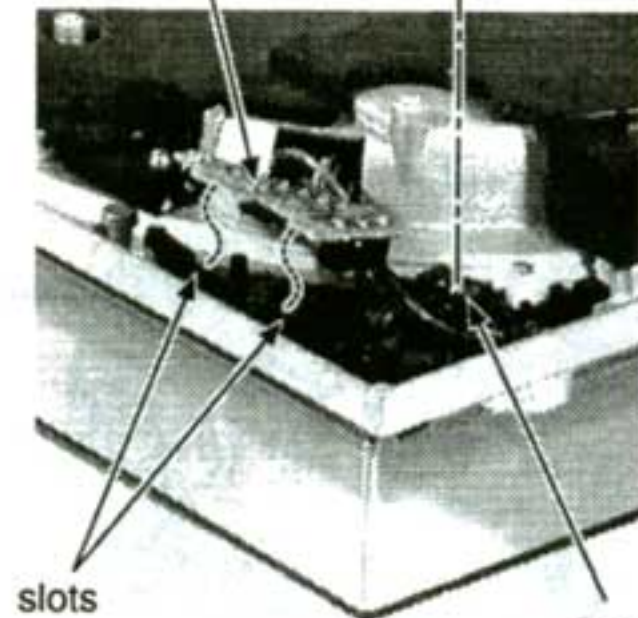
**b**



**Step 4**

**c**

Speed selector P.C.B.



**Step 3**

Remove the speed selector P.C.B..



# ■ Schematic Diagram

- Notes:**
- S201 : SPEED SELECTOR (33 rpm) switch.
  - S202 : SPEED SELECTOR (45 rpm) switch.
  - S203 : START/STOP switch.
  - S301 : PITCH CONTROL RESET switch in "OFF" position. (Interlocked with VR303)
  - S302 : PITCH RESET switch in "OFF" position.
  - S401 : STYLUS ILLUMINATOR switch in "ON" position.
  - S601 : POWER switch in "ON" position.
  - VR201 : BRAKE ADJUSTMENT VR.
  - VR301 : PITCH CONTROL  $\pm 0\%$  ADJUSTMENT VR.
  - VR302 : PITCH CONTROL GAIN ADJUSTMENT VR.
  - VR303 : PITCH CONTROL ADJUSTMENT VR. (Interlocked wwith S301)

- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
- Important safety notice:  
Components identified by  $\triangle$  mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.  
NO MARK: Voltage when at a stop  
( ) : Voltage during rotation

● ————— : +B Line

**【For U.S.A. model only】**


**CAUTION : FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE F1 1.2A 125V FUSE.**

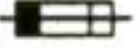


**RISK OF FIRE-REPLACE FUSE AS MARKED.**

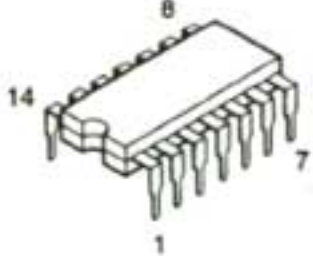

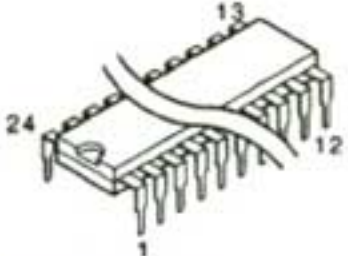
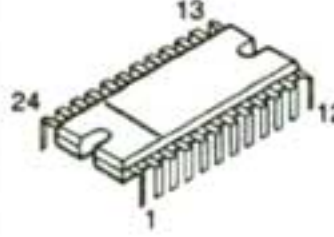
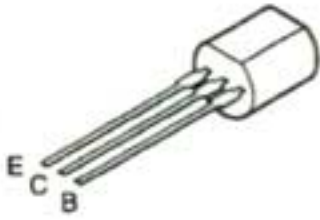
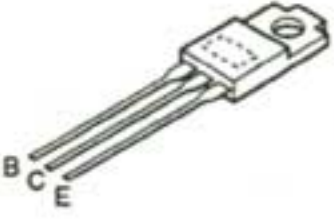

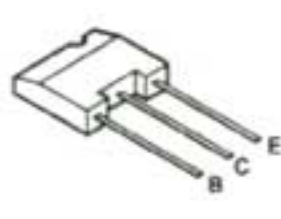
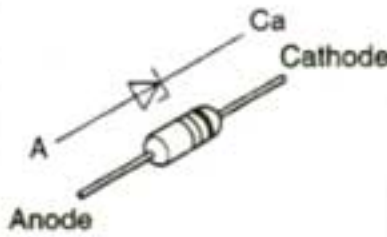
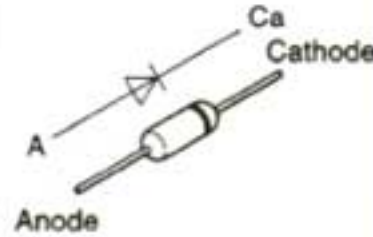
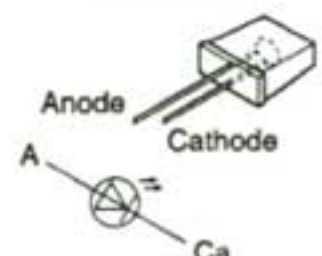
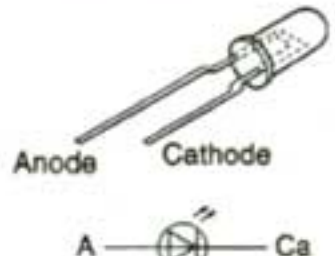

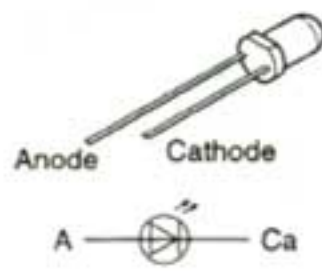
**【For CANADA model only】**

**FUSE CAUTION**

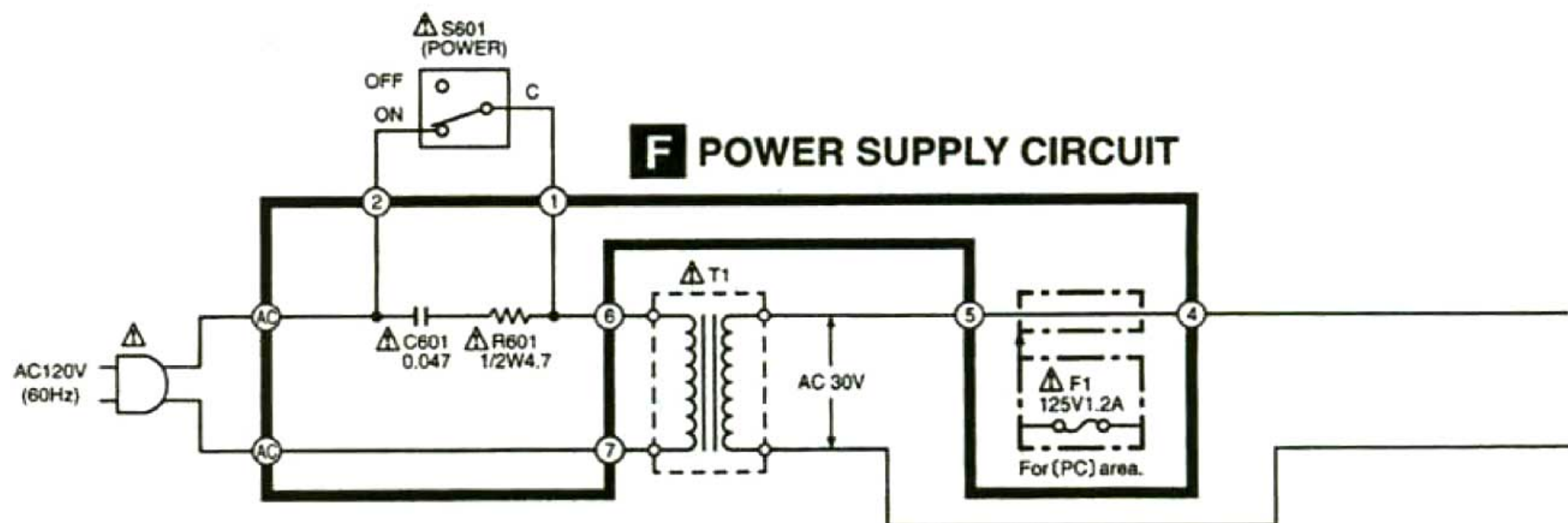
 These symbols located near the fuse indicates that the fuse used is a fast operating type. For continued protection against fire harzard, replace with the same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

 Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n' utiliser que des fusibles de même type. Ce dernier est indiqué là où le présent symbole est apposé.

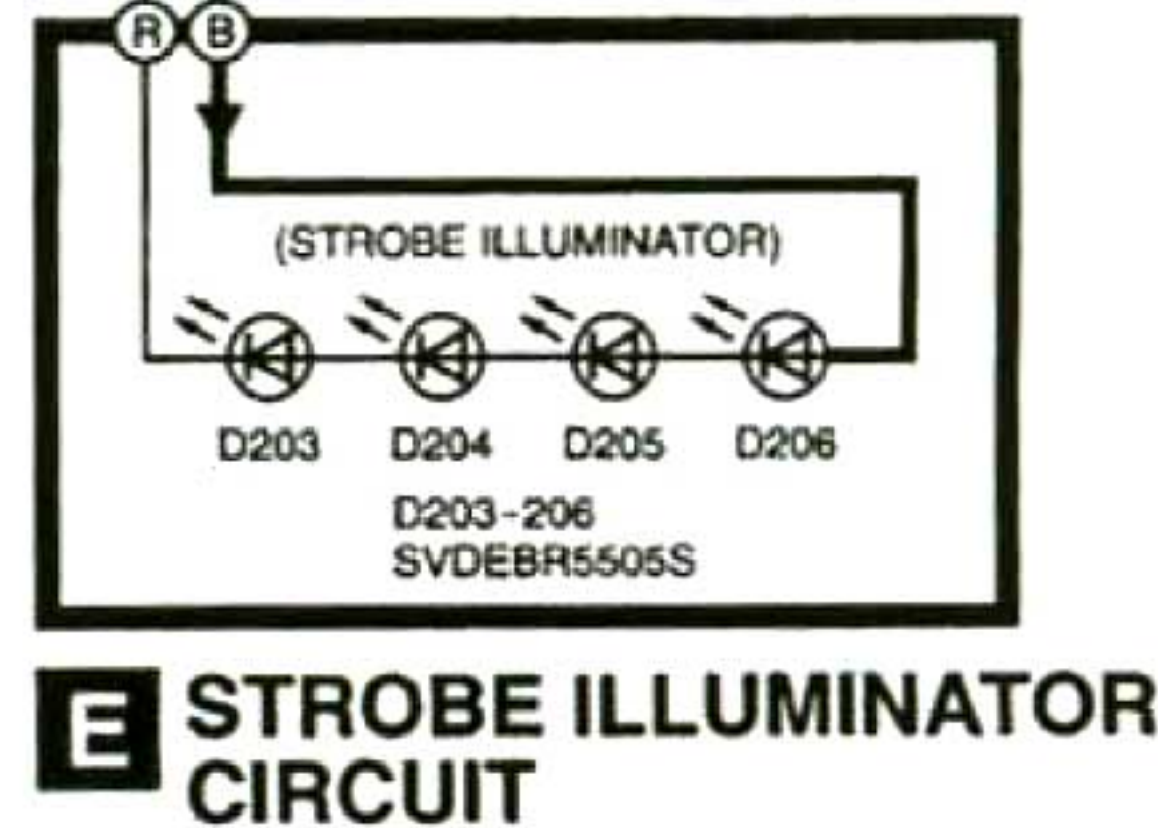
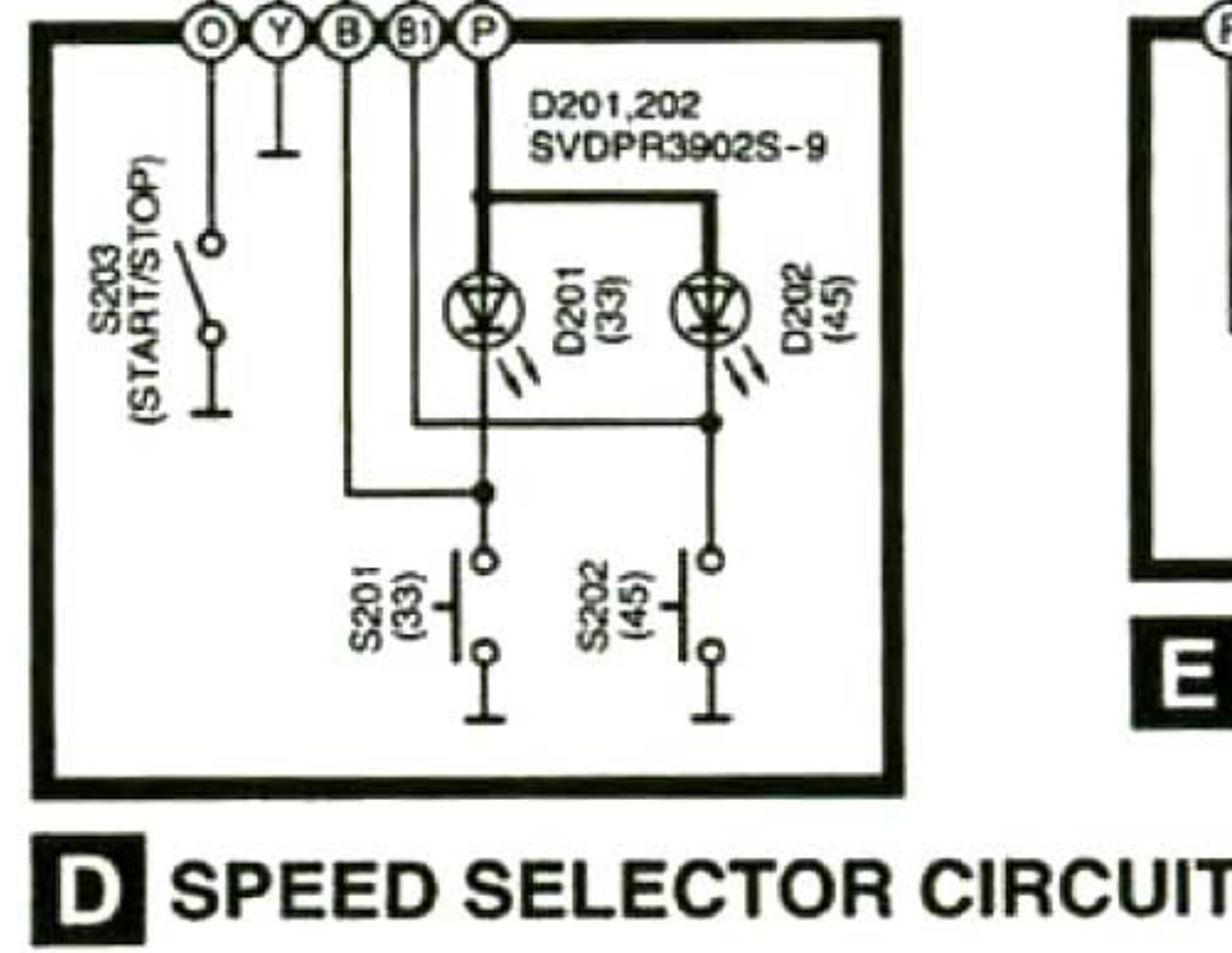
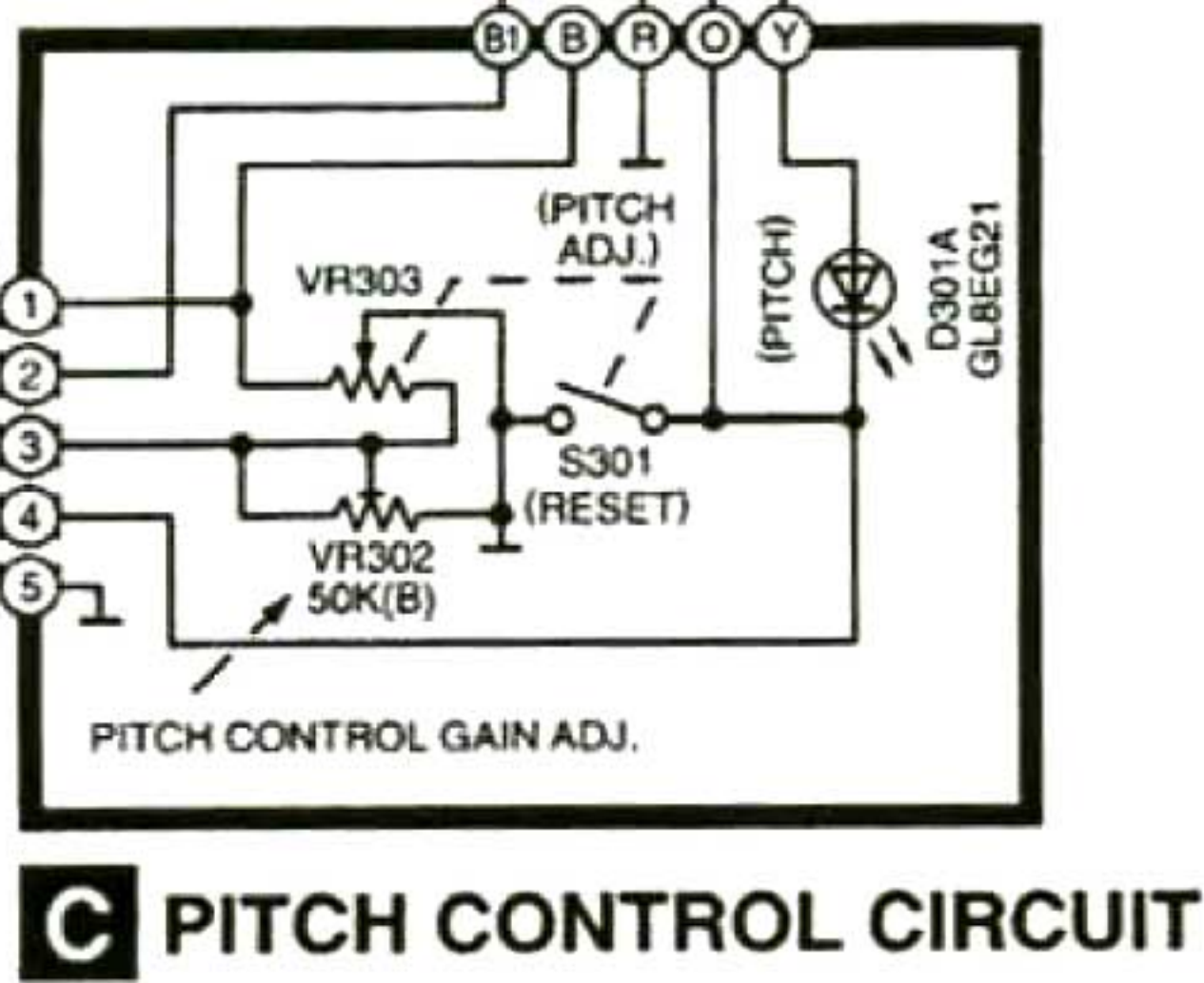
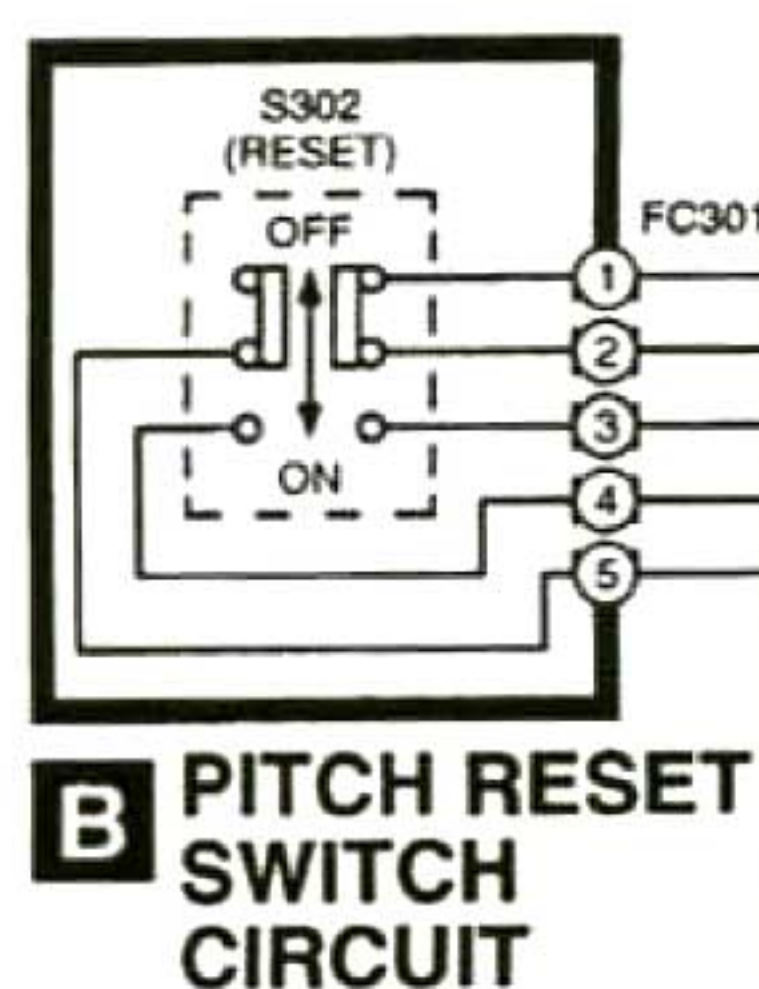
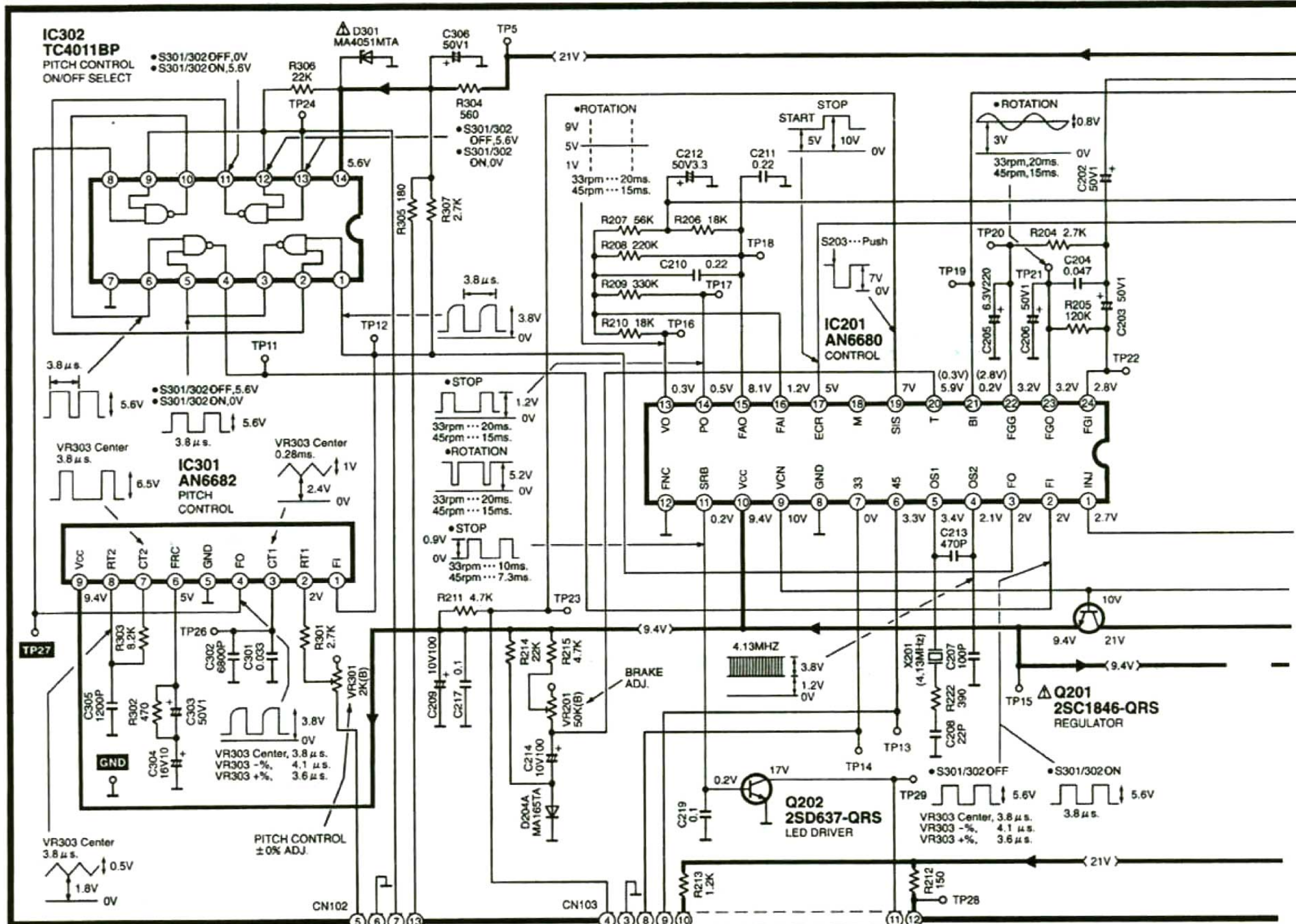
## ● Type Illustration of IC's, Transistors and Diodes

|  |   |   |  |  |  |
|--|---|---|--|--|--|
| <p>TC4011BP</p>     | <p>AN6682</p>        | <p>AN6680</p>     | <p>AN6675</p>   | <p>2SC2458GR</p>  | <p>2SD1265-0PQ</p>  |
| <p>2SC1846-QRS</p>  | <p>2SD637-QRS</p>    | <p>MA4051MTA</p>  | <p>MA165TA</p>  | <p>GL8EG21</p>    | <p>SVDEBR5505S</p>  |
| <p>D2SBA20</p>      | <p>SVDPR3902S-9</p>  |   |  |  |  |



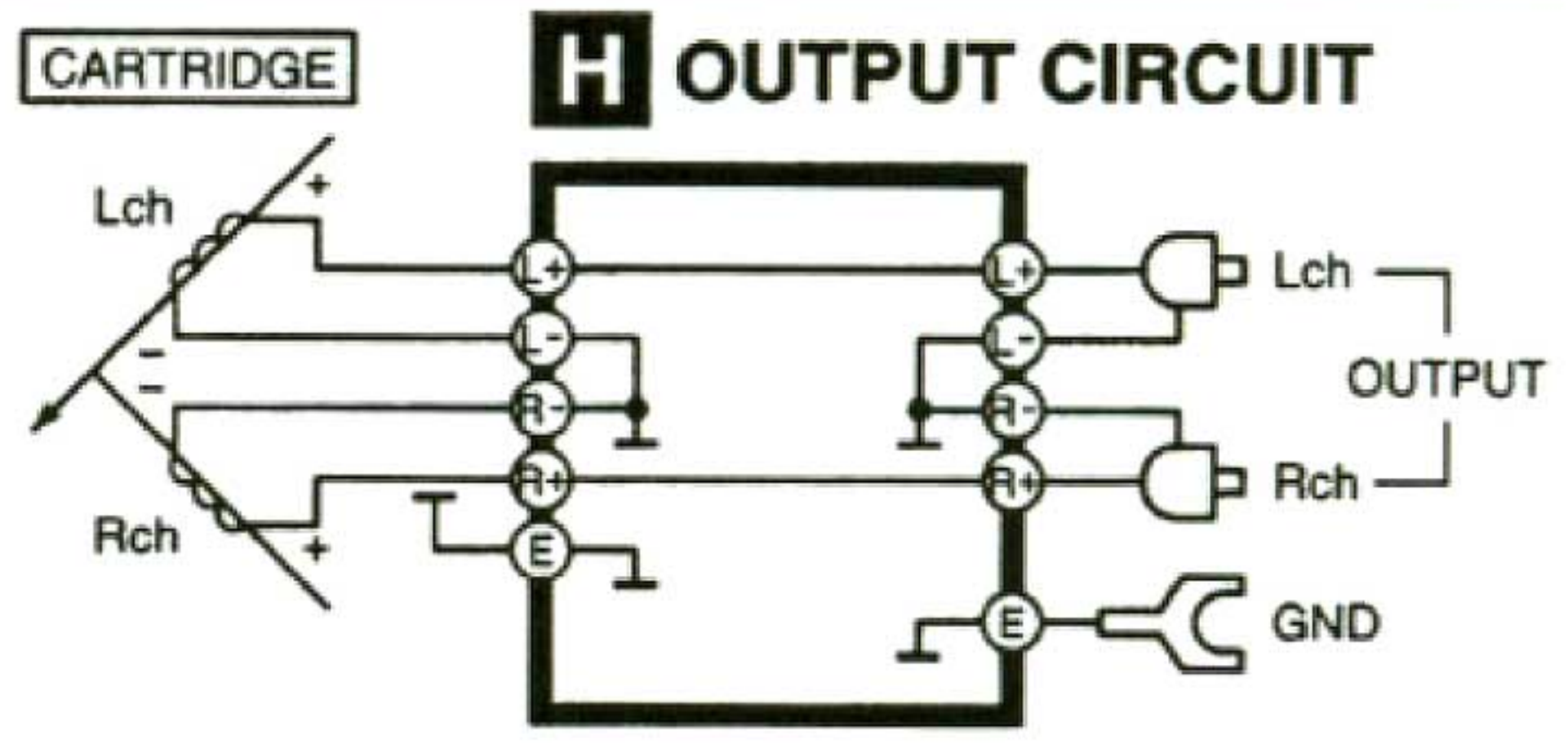
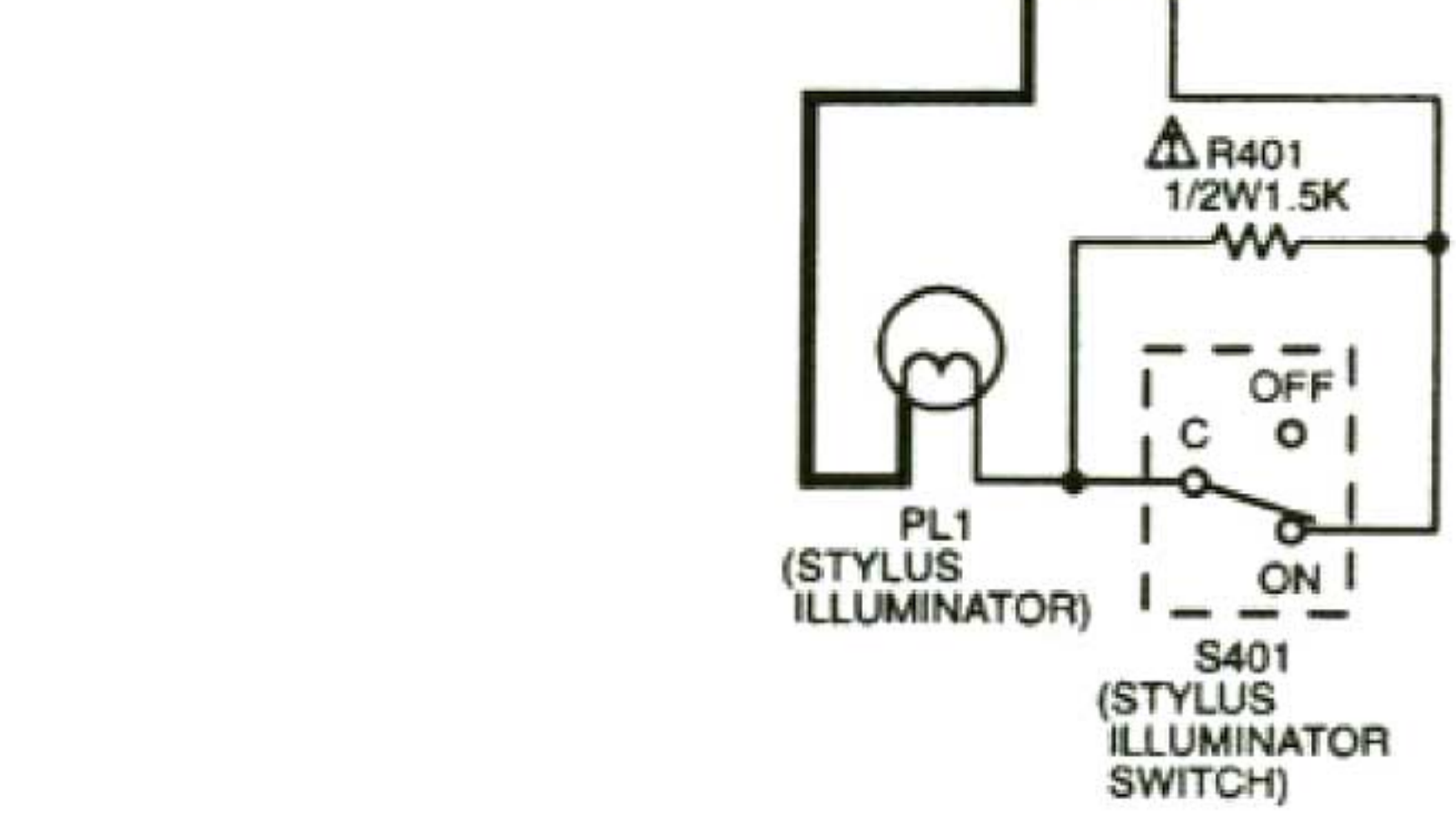
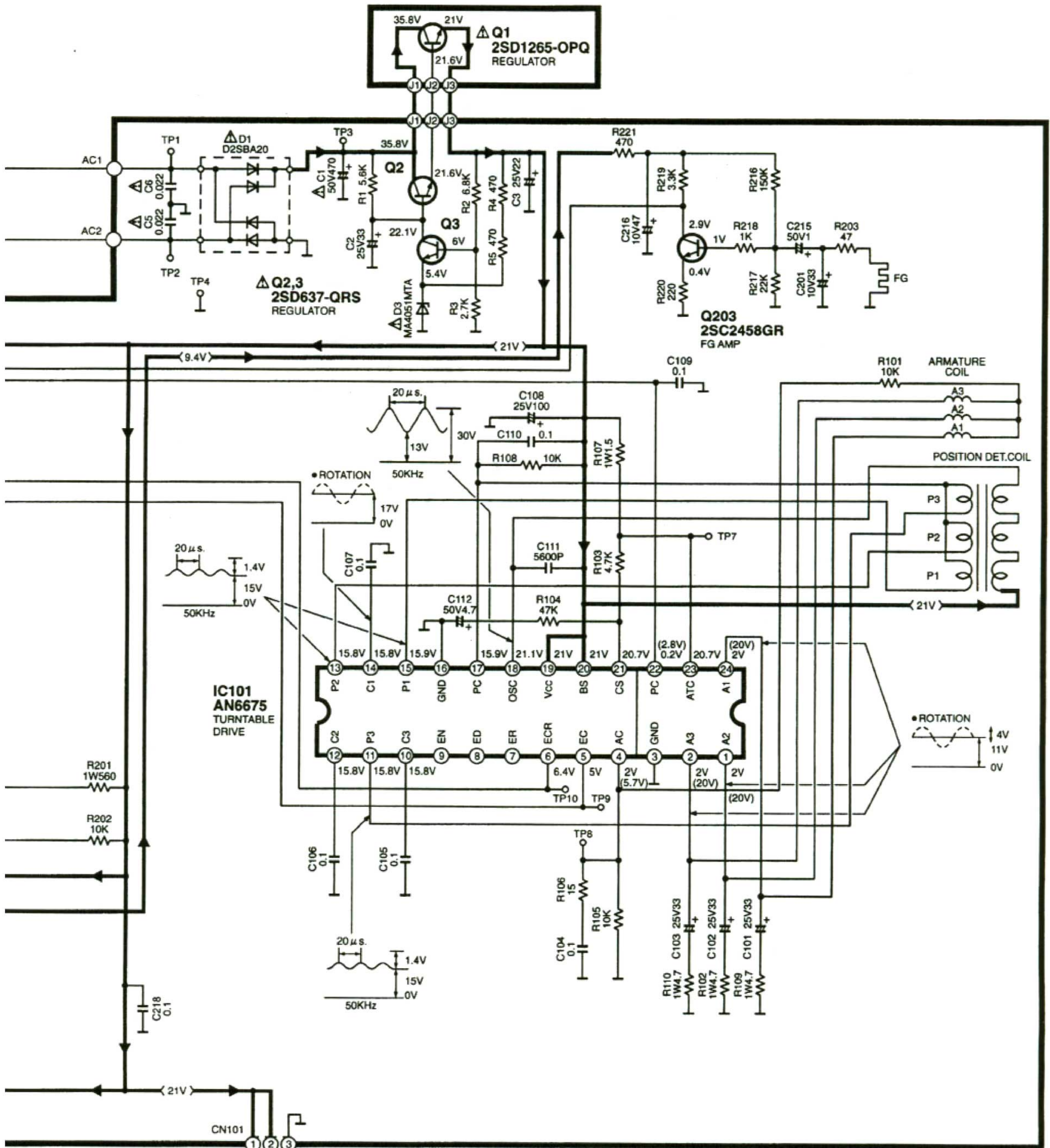


**A DRIVE CONTROL CIRCUIT**





# G REGULATOR CIRCUIT

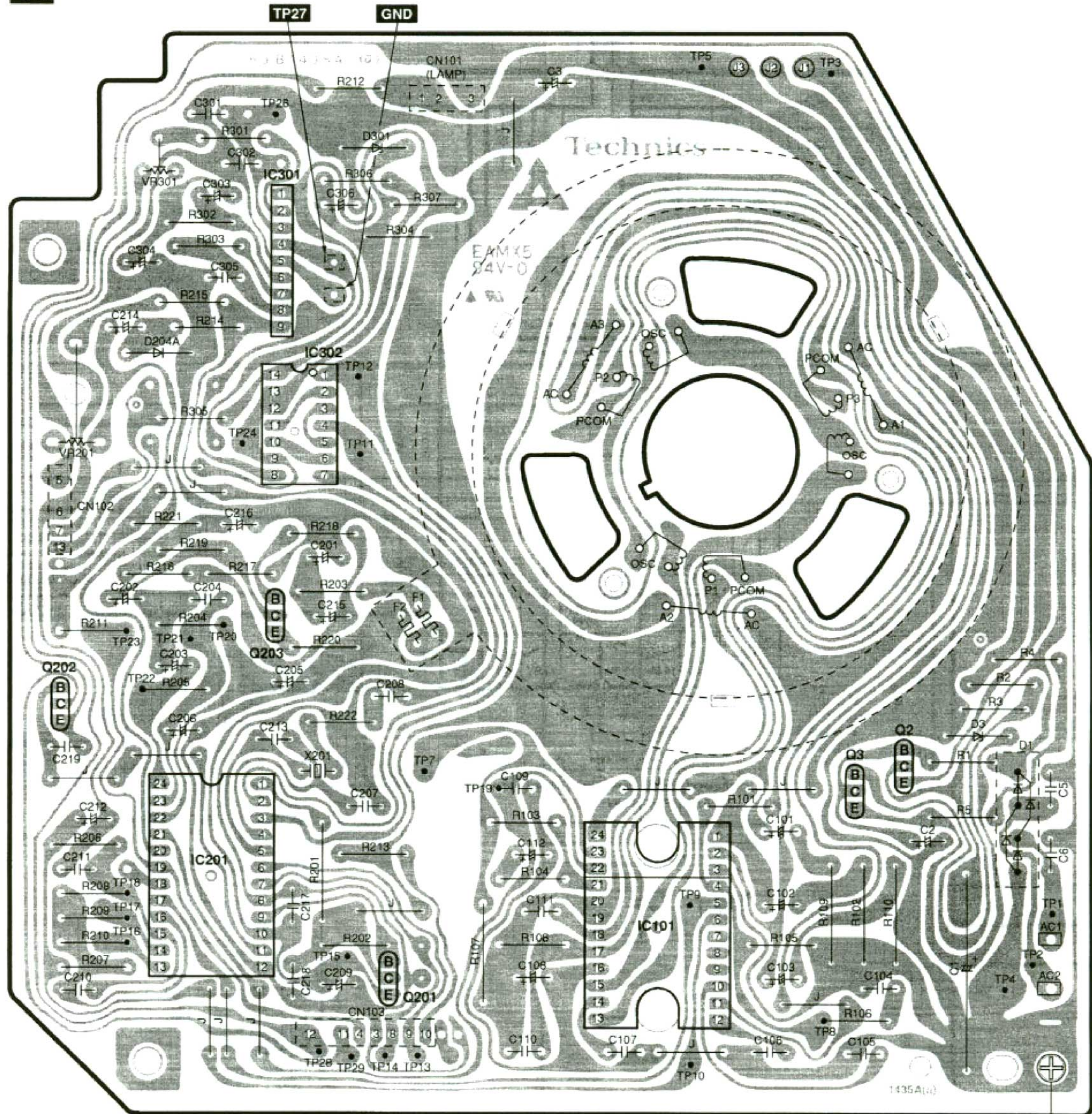




# Printed Circuit Boards

A B C D E F

## A DRIVE CONTROL P.C.B.



(REP2094A-1)

### ELECTRICAL PARTS LOCATION

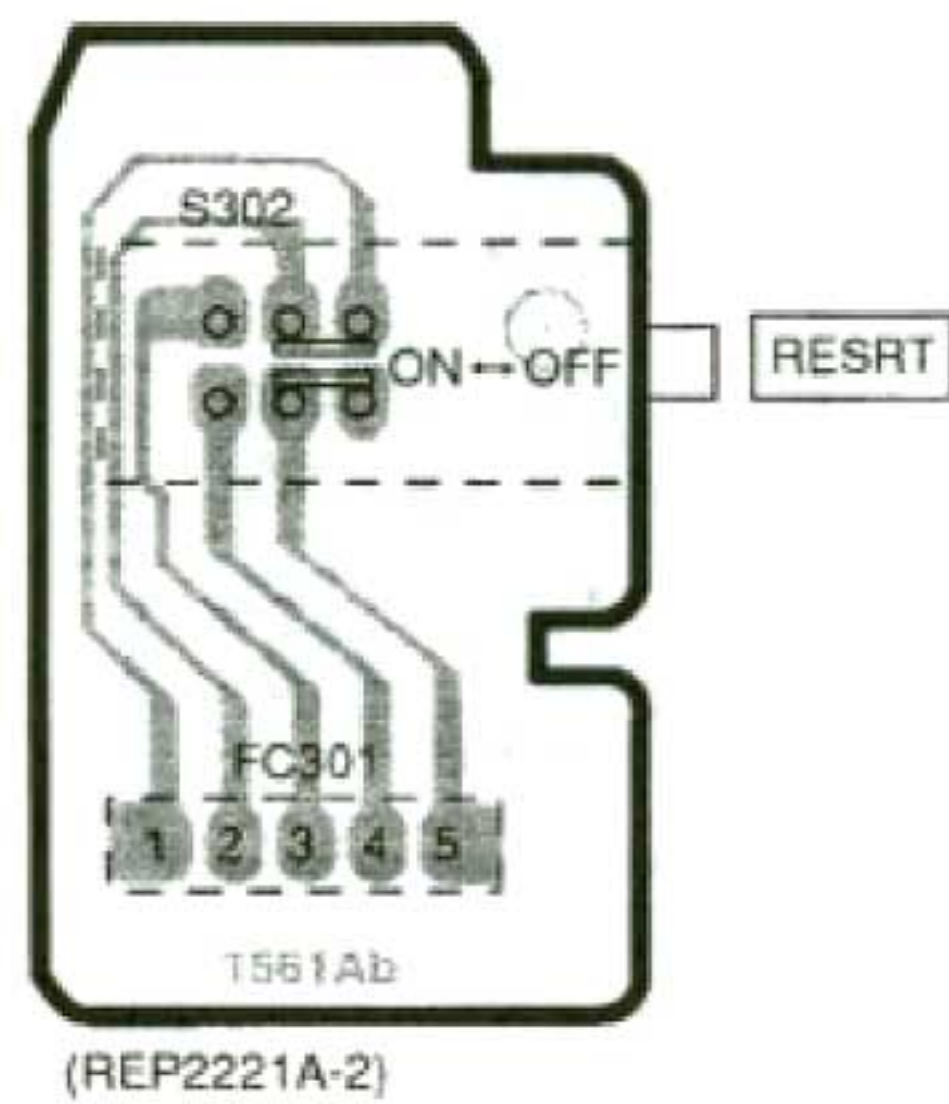
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|-----------------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| <b>A DRIVE P.C.B.</b> |         |          |         |          |         |          |         |          |         |          |         |          |         |          |         |
| IC101                 | 6D      | CN101    | 1C      | TP11     | 3C      | AC1      | 6F      | R201     | 5B      | R219     | 4B      | C103     | 6E      | C209     | 6B      |
| IC201                 | 5B      | CN102    | 3A      | TP12     | 3C      | AC2      | 6F      | R202     | 6C      | R220     | 4B      | C104     | 6E      | C210     | 6A      |
| IC301                 | 2B      | CN103    | 6C      | TP13     | 6C      | GND      | 2B      | R203     | 4B      | R221     | 4B      | C105     | 6E      | C211     | 5A      |
| IC302                 | 3B      | P1       | 4D      | TP14     | 6C      | R1       | 5F      | R204     | 4B      | R222     | 5C      | C106     | 6E      | C212     | 5A      |
| Q2                    | 5E      | P2       | 3D      | TP15     | 6C      | R2       | 4F      | R205     | 4B      | R301     | 2B      | C107     | 6D      | C213     | 5B      |
| Q3                    | 5E      | P3       | 3E      | TP16     | 6A      | R3       | 4F      | R206     | 5A      | R302     | 2B      | C108     | 6C      | C214     | 3A      |
| Q201                  | 6C      | J1       | 1E      | TP17     | 6A      | R4       | 4F      | R207     | 6A      | R303     | 2B      | C109     | 5C      | C215     | 4B      |
| Q202                  | 4A      | J2       | 1E      | TP18     | 5A      | R5       | 5F      | R208     | 5A      | R304     | 2C      | C110     | 6C      | C216     | 4B      |
| Q203                  | 4B      | J3       | 1E      | TP19     | 5C      | R101     | 5E      | R209     | 6A      | R305     | 3B      | C111     | 6D      | C217     | 5B      |
| D1                    | 5F      | TP1      | 6F      | TP20     | 4B      | R102     | 6E      | R210     | 6A      | R306     | 2C      | C112     | 5C      | C218     | 6B      |
| D3                    | 5F      | TP2      | 6F      | TP21     | 4B      | R103     | 5C      | R211     | 4A      | R307     | 2C      | C201     | 4B      | C219     | 5A      |
| D204A                 | 3B      | TP3      | 1E      | TP22     | 4A      | R104     | 5C      | R212     | 1C      | C1       | 6F      | C202     | 4A      | C301     | 1B      |
| VR201                 | 3A      | TP4      | 6F      | TP23     | 4A      | R105     | 6E      | R213     | 5C      | C2       | 5E      | C203     | 4B      | C302     | 2B      |
| VR301                 | 2B      | TP5      | 1D      | TP24     | 3B      | R106     | 6E      | R214     | 3B      | C3       | 1D      | C204     | 4B      | C303     | 2B      |
| X201                  | 5B      | TP7      | 5C      | TP26     | 1B      | R107     | 6C      | R215     | 2B      | C5       | 5F      | C205     | 4B      | C304     | 2A      |
| F1                    | 4C      | TP8      | 6E      | TP27     | 2B      | R108     | 6C      | R216     | 4B      | C6       | 5F      | C206     | 5B      | C305     | 2B      |
| F2                    | 4C      | TP9      | 5D      | TP28     | 6B      | R109     | 6E      | R217     | 4B      | C101     | 5E      | C207     | 5C      | C306     | 2B      |
|                       |         | TP10     | 6D      | TP29     | 6C      | R110     | 6E      | R218     | 4B      | C102     | 5E      | C208     | 4C      |          |         |

7

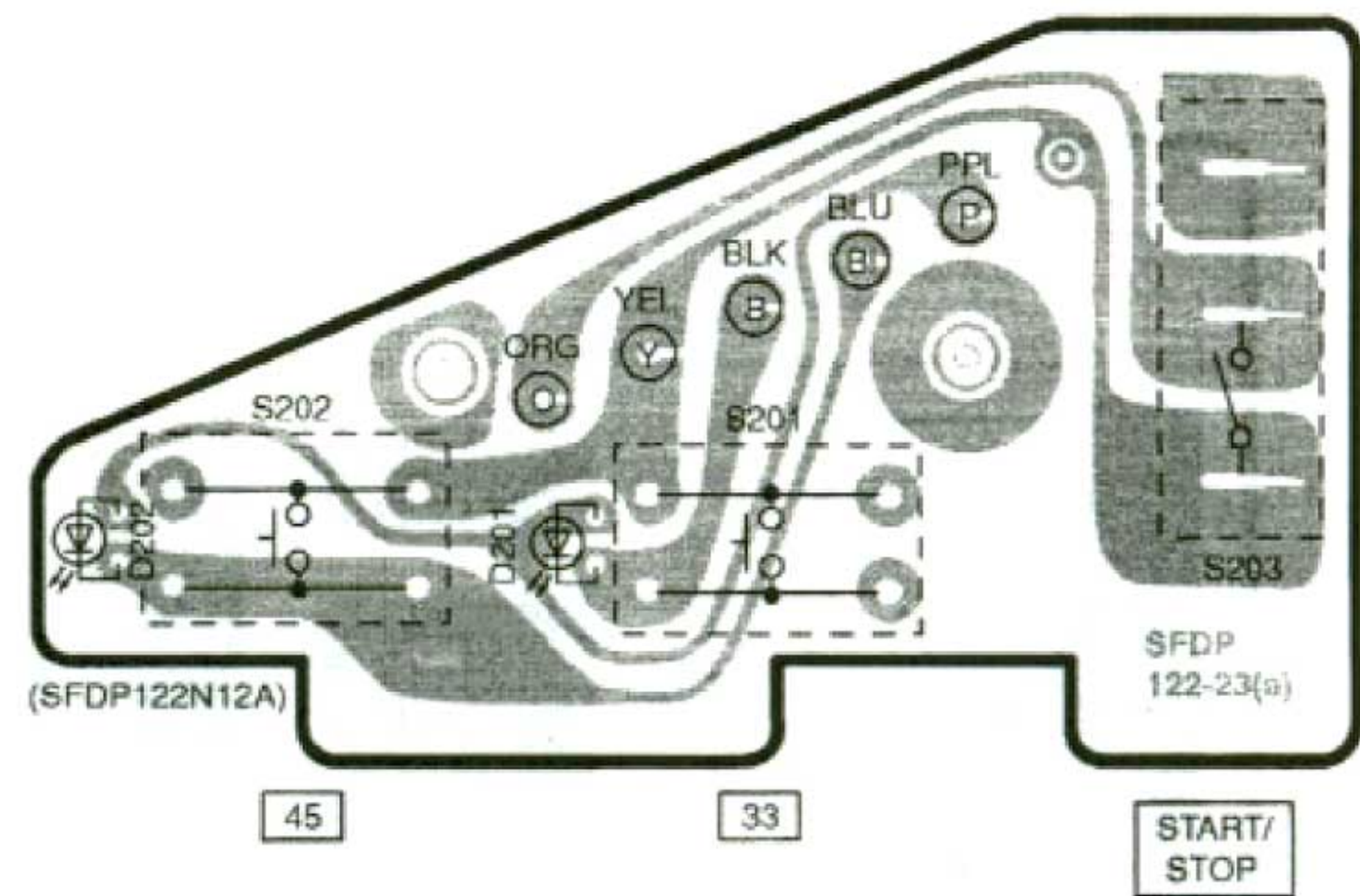
8



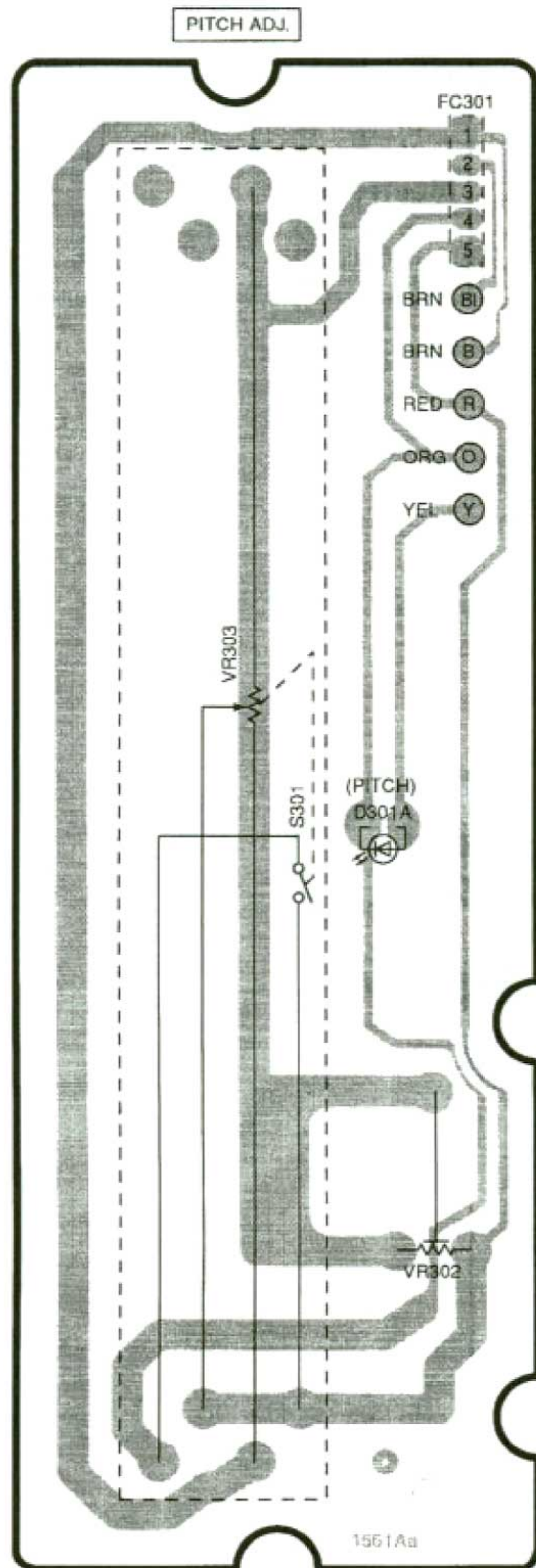
**B** PITCH RESET SWITCH P.C.B.



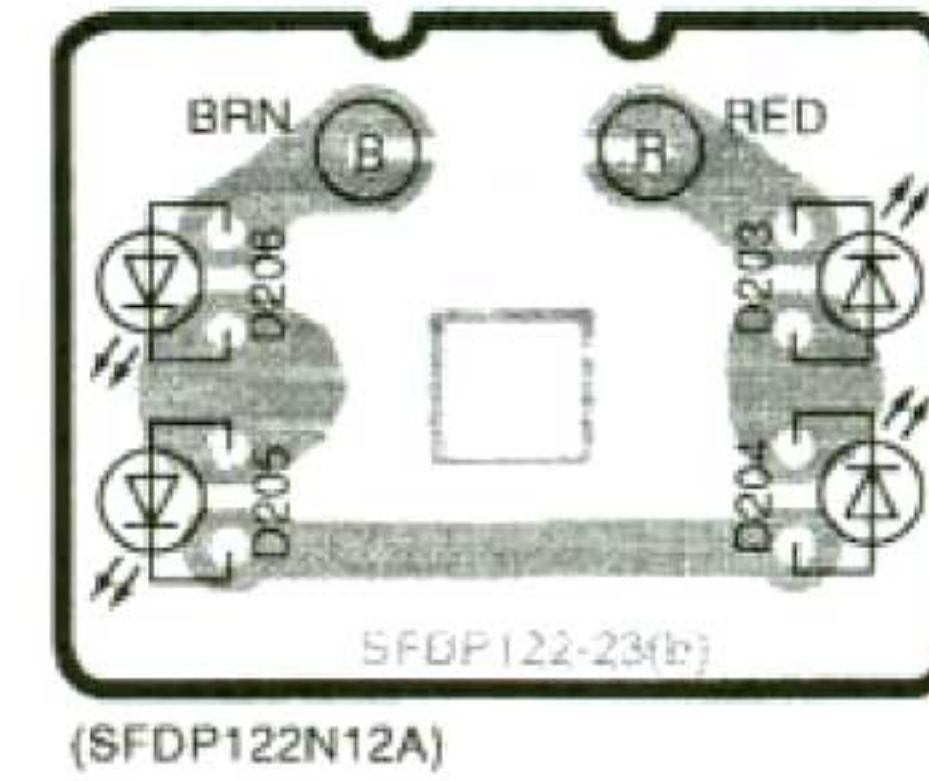
**D** SPEED SELECTOR P.C.B.



**C** PITCH CONTROL P.C.B.



**E** STROBE ILLUMINATOR P.C.B.



**ELECTRICAL PARTS LOCATION**

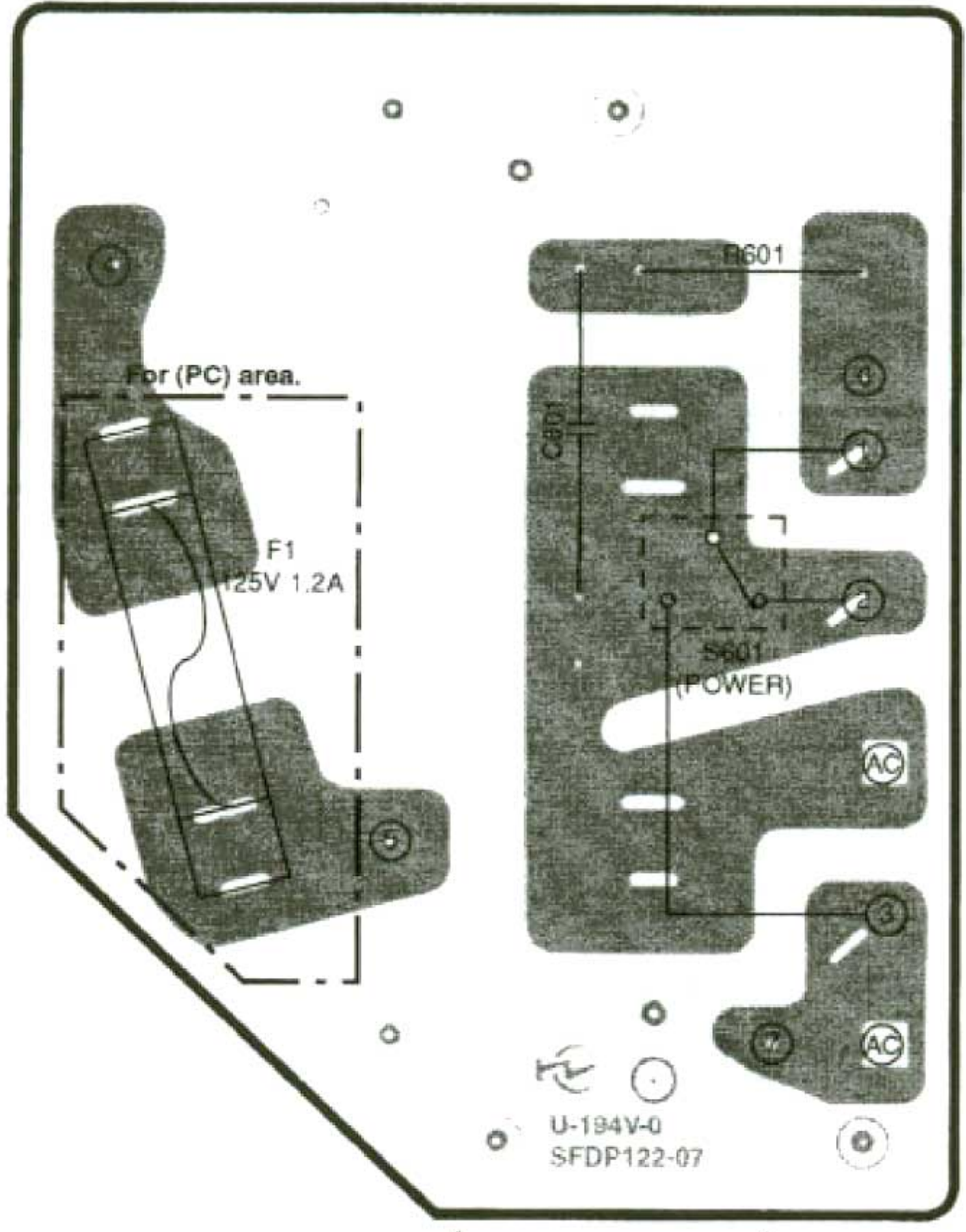
| Ref. No.                           | Lo. No. | Ref. No. | Lo. No. |
|------------------------------------|---------|----------|---------|
| <b>B PITCH RESET SWITCH P.C.B.</b> |         |          |         |
| S302                               | 2B      | FC301    | 2B      |
| <b>C PITCH CONTROL P.C.B.</b>      |         |          |         |
| D301A                              | 6B      | S301     | 6B      |
| VR302                              | 7C      | FC301    | 4C      |
| VR303                              | 5B      |          |         |
| <b>D SPEED SELECTOR P.C.B.</b>     |         |          |         |
| D201                               | 2E      | S202     | 2D      |
| D202                               | 2D      | S203     | 2F      |
| S201                               | 2E      |          |         |
| <b>E STROBE ILLUMINATOR P.C.B.</b> |         |          |         |
| D203                               | 4E      | D205     | 5D      |
| D204                               | 5E      | D206     | 4D      |



A | B | C | D | E | F

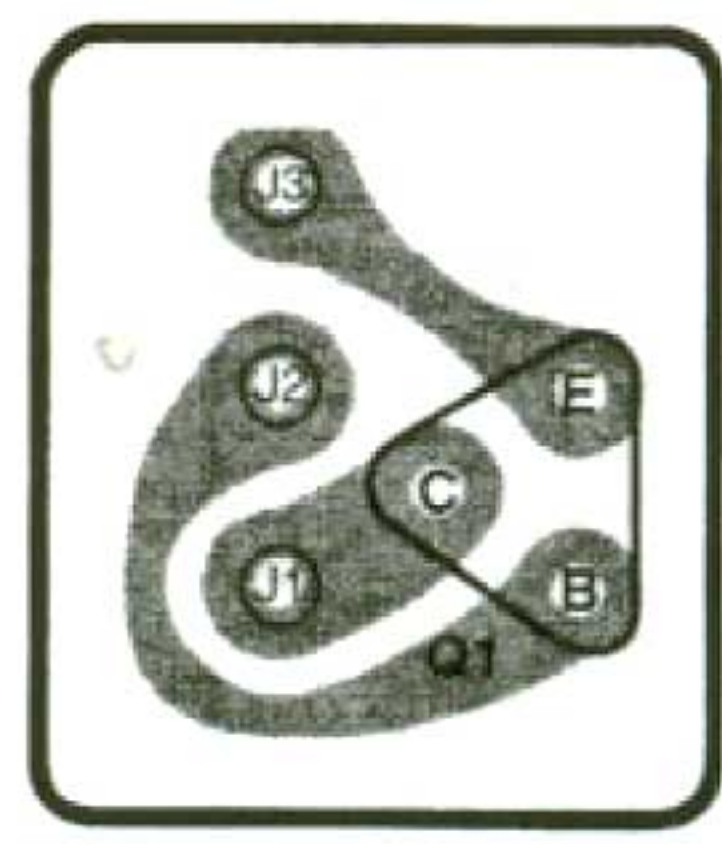
1  
2  
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8

**F** POWER SUPPLY P.C.B.



(SFDP122M06E ..... [P])  
(SFDP122C06E ..... [PC])

**G** REGULATOR P.C.B.

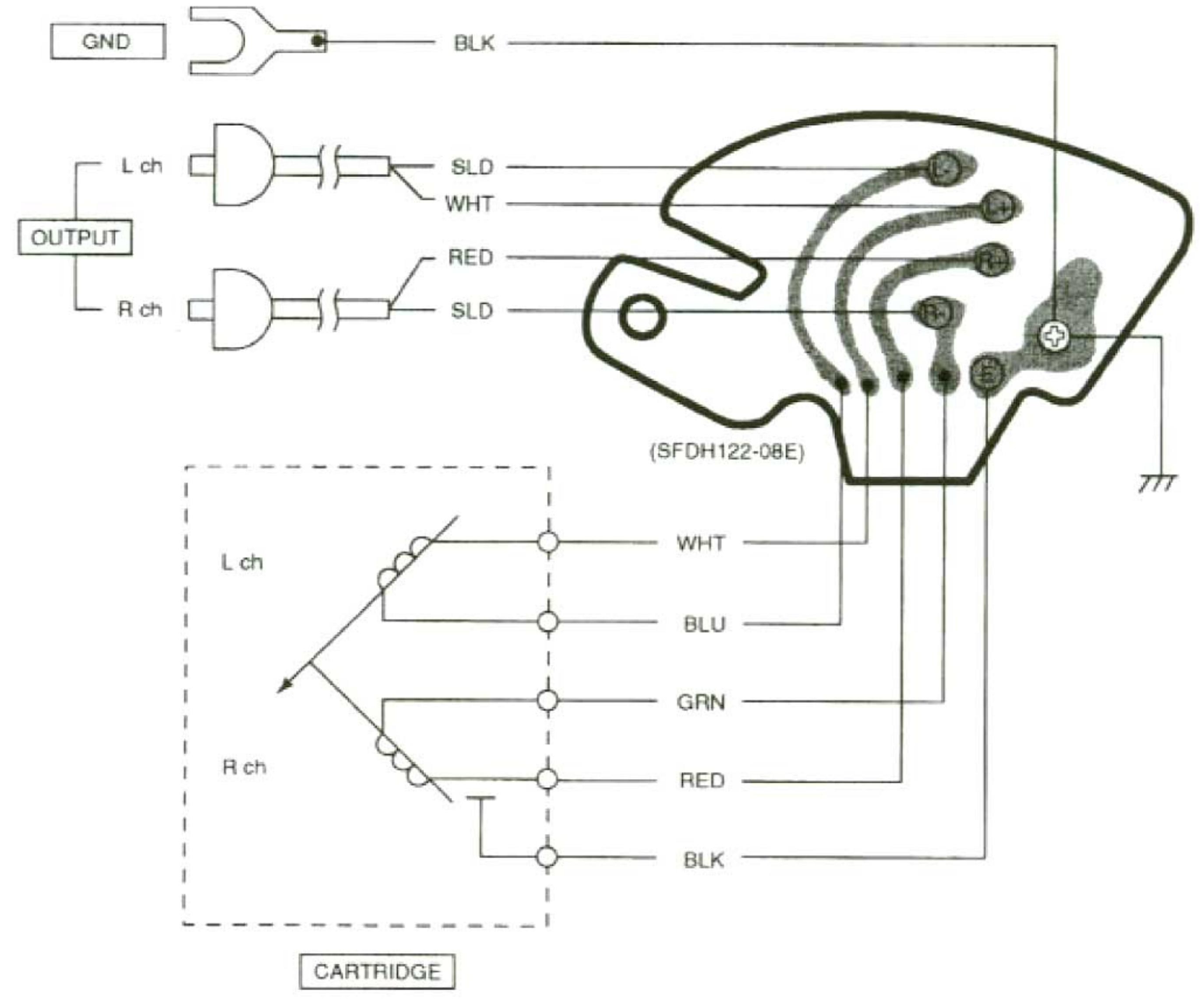


(REP2094A-1)

**ELECTRICAL PARTS LOCATION**

| Ref. No.                     | Lo. No. | Ref. No. | Lo. No. |
|------------------------------|---------|----------|---------|
| <b>F POWER SUPPLY P.C.B.</b> |         |          |         |
| F1                           | 3B      | R601     | 2C      |
| S601                         | 3C      | C601     | 2B      |
| <b>G REGULATOR P.C.B.</b>    |         |          |         |
| Q1                           | 2E      | J2       | 2E      |
| J1                           | 2E      | J3       | 2E      |
| <b>H OUTPUT P.C.B.</b>       |         |          |         |
| L-                           | 6D      | R+       | 6D      |
| L+                           | 6D      | E        | 6D      |
| R-                           | 6D      |          |         |

**H** OUTPUT P.C.B.





## ■ Measurements and Adjustments

**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. Tester
  2. Frequency counter

|   | Adjustment                         | Connection   | Parts adjusted    | Procedure  |
|---|------------------------------------|--|-------------------|--|
| 1 | Pitch control $\pm 0\%$ adjustment | Frequency counter<br>(+) ... TP27<br>(-) ... Earth point       | VR301<br>(Fig. 1) | <ol style="list-style-type: none"> <li>1. Connect the frequency counter and turn the power supply ON.</li> <li>2. Set the pitch control knob to "0".<br/>(Indicator lights up.)</li> <li>3. Adjust VR301 so that the frequency is <math>262.08 \text{ kHz} \pm 0.05 \text{ kHz}</math>.</li> </ol>   |
| 2 | Pitch control gain adjustment      | Tester<br>(+) ... CN102 terminal ⑤<br>(-) ... CN102 terminal ⑥ | VR302<br>(Fig. 2) | <ol style="list-style-type: none"> <li>1. Set the pitch control knob to "0".</li> <li>2. Pull out the connector CN102 of drive P.C.B.</li> <li>3. Connect the tester to terminals, ⑤ and ⑥ of connector CN102 on the pitch control P.C.B. side.</li> <li>4. Adjust VR302 so that the resistance value of the tester is <math>2.875 \pm 0.25 \text{ k}\Omega</math>.</li> </ol> |
| 3 | Brake adjustment                   | —————  | VR201<br>(Fig. 1) | <ol style="list-style-type: none"> <li>1. Adjust VR201 so that the rotation at 33 r.p.m. stops within the angle of <math>30^\circ \sim 210^\circ</math> after depressing the stop position.</li> </ol>   |

## ● Alignment Points

Please refer to Printed Circuit Board Diagram for test point locations.

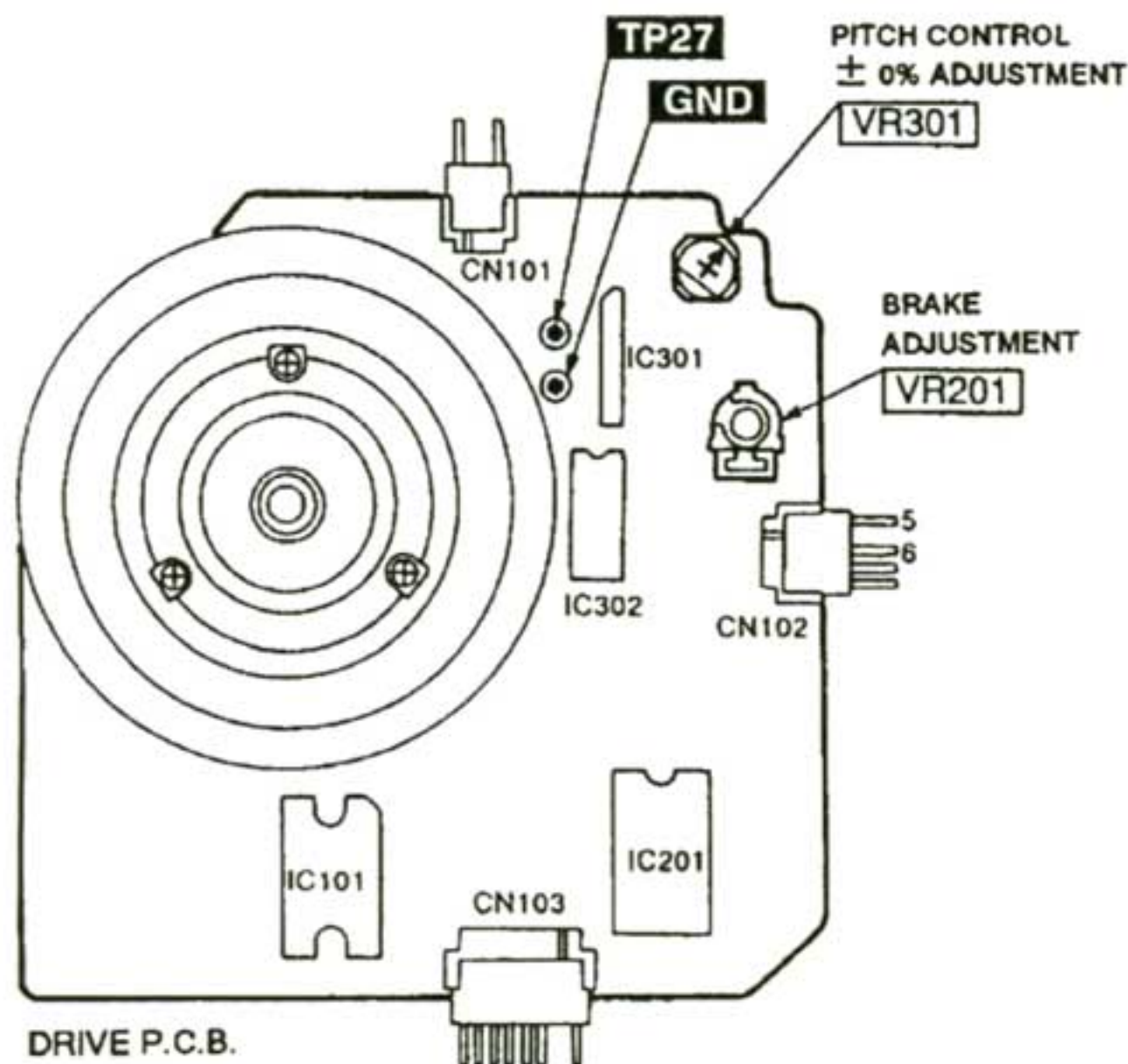


Fig. 1

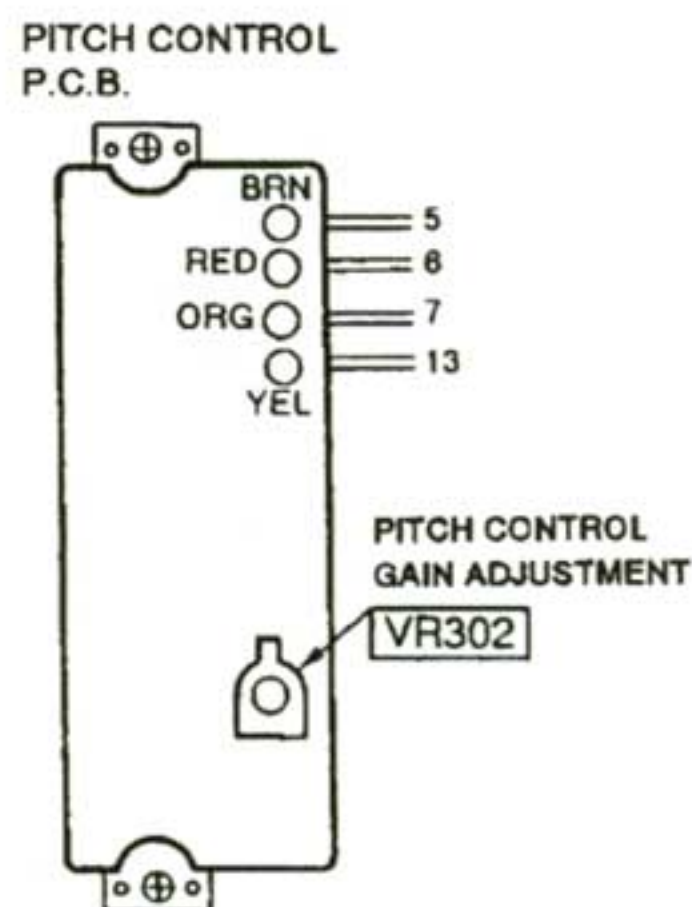
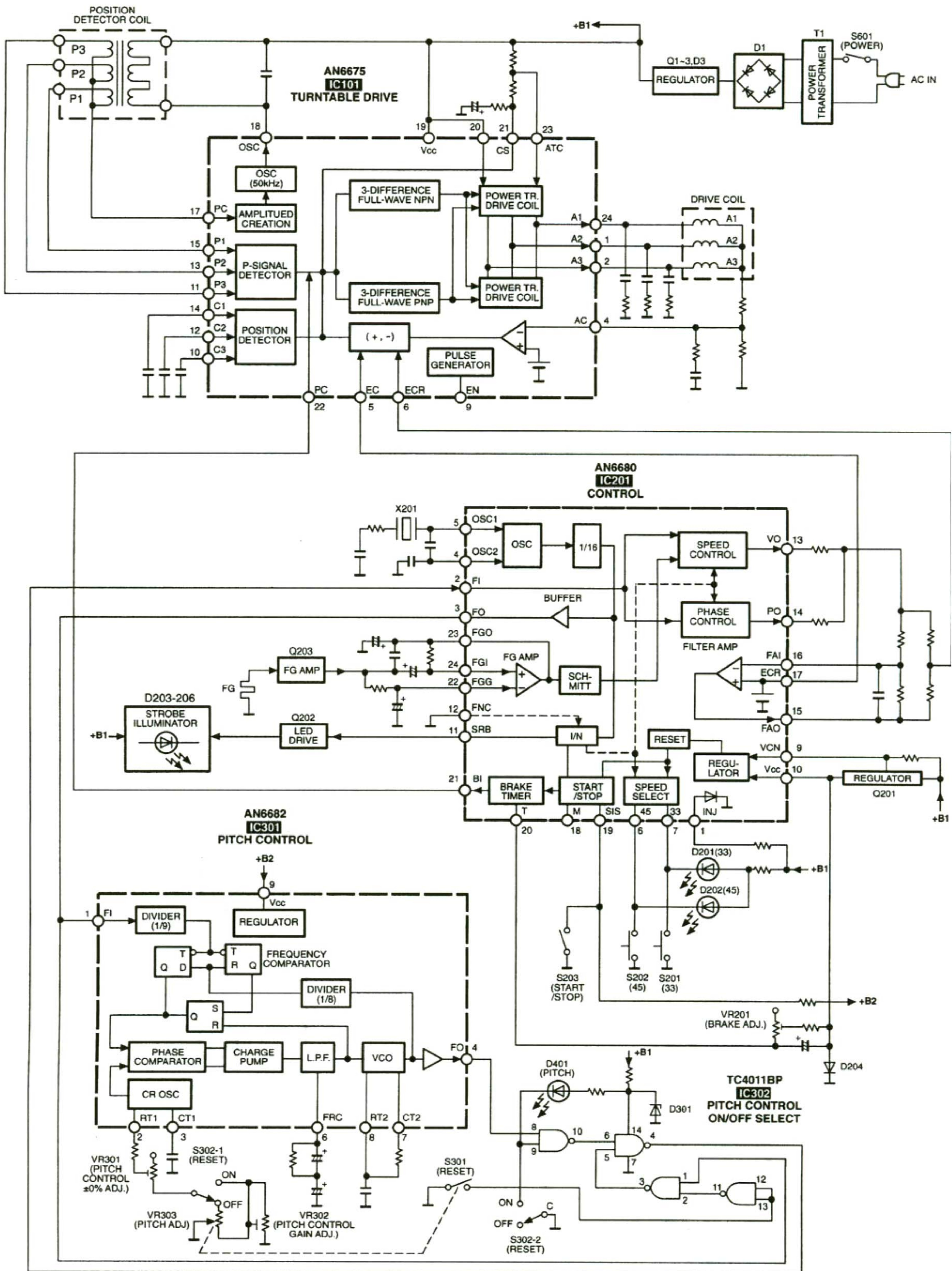


Fig. 2

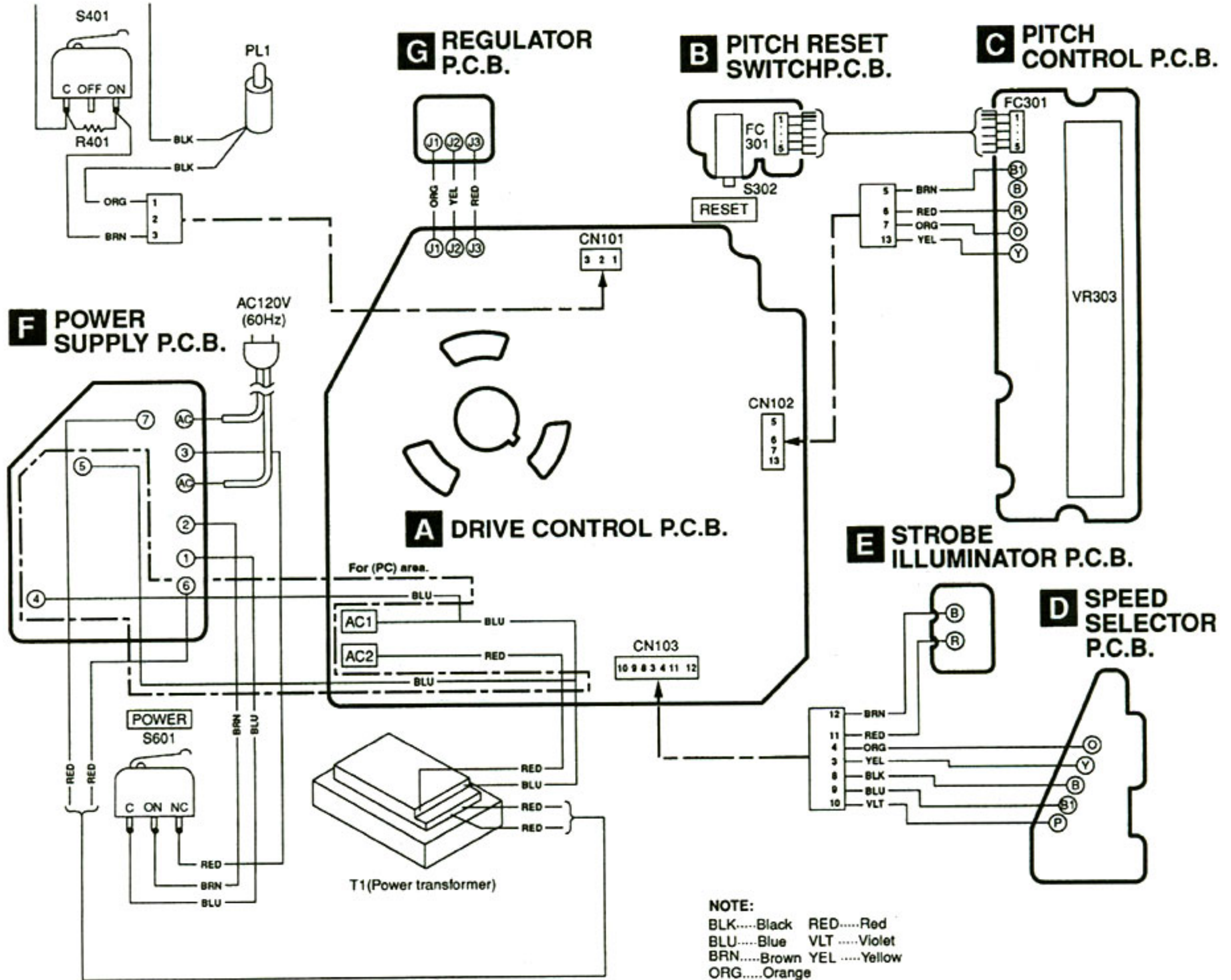


# Block Diagram






## ■ Wiring Connection Diagram





# ■ Replacement Parts List

Notes: \* Important safety notice:  
 Components identified by  mark have special characteristics important for safety.  
 Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.  
 When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.  
 \* All parts are supplied by MESA.  
 \* The "<IA> <IB>" marks in Remarks indicate language of operating instructions.  
 <IA> : English  
 <IB> : Canadian French

| Ref.No. | Part No.     | Part Name & Description    | Pcs | Remarks |
|---------|--------------|----------------------------|-----|---------|
| 1       | SFAD122-01A  | DUST COVER                 | 1   |         |
| 2       | RGS0008      | T/T RUBBER MAT             | 1   |         |
| 3       | SFTE172-01Z  | TURNTABLE ASS'Y            | 1   |         |
| 4       | SFUM172-053  | PANEL COVER                | 1   |         |
| 5       | SFMGQ20-01   | DRIVE COIL COVER           | 1   |         |
| 6       | SFMG520-31A  | DRIVE COIL ASS'Y           | 1   |         |
| 7       | SFMZ172-01E  | FG COIL ASS'Y              | 1   |         |
| 8       | SFMZQ20-01A  | SHAFT ASS'Y                | 1   |         |
| 9       | RFKN1200M3DP | POWER SW KNOB ASS'Y        | 1   |         |
| 10      | SFKT015-061  | BUTTON, START/STOP         | 1   |         |
| 11      | SFKT015-011E | BUTTON, SPEED SELECTOR(33) | 1   |         |
| 12      | SFKT015-021E | BUTTON, SPEED SELECTOR(45) | 1   |         |
| 13      | SFDJ122-02E  | WIRE ASS'Y                 | 1   |         |
| 14      | SFDJ122-06E  | WIRE ASS'Y                 | 1   |         |
| 15      | RGK0942Z-S   | COVER, STROBE ILLUMINATOR  | 1   |         |
| 16      | SFQA122-01   | SPRING                     | 1   |         |
| 17      | RMR1111A-K   | BASE, OPERATION            | 1   |         |
| 18      | SFUM122-03   | CAM, POWER SWITCH          | 1   |         |
| 19      | SFUM015-11   | SPACER, LED                | 2   |         |
| 20      | SFYB5-32     | BALL                       | 1   |         |
| 21      | SFQA520-01   | SPRING                     | 1   |         |
| 22      | SFKK172-01   | COVER, STYLUS ILLUMINATOR  | 1   |         |
| 23      | SFXB122-06   | DRIVE BOSS                 | 1   |         |
| 24      | SFQA172-01   | SPRING                     | 1   |         |
| 25      | SFXJ172-01   | PIN, LOCK CANCELER         | 1   |         |
| 26      | SFQA520-011  | SPRING                     | 1   |         |
| 27      | SFX0172-01-1 | PIN, GUIDE                 | 1   |         |
| 28      | SFUP122-02E  | BRACKET, ILLUMINATOR       | 1   |         |
| 30      | SFUP122-03   | PLATE, LOCK OPERATION      | 1   |         |
| 31      | SFQA122-02   | SPRING                     | 1   |         |
| 32      | SFXJ172-05   | PIN                        | 1   |         |
| 33      | RMG0483-K    | RUBBER, DUST COVER         | 2   |         |
| 35      | SFUP122-09   | HOLDER, LED                | 1   |         |
| 36      | SFUP122-01   | BRACKET, PITCH CONTROL     | 1   |         |
| 37      | SFDJ122-04E  | WIRE ASS'Y                 | 1   |         |
| 38      | SFUP122-15-1 | STOPPER, SPRING            | 1   |         |
| 40      | RKM0101D-S   | CABINET                    | 1   |         |
| 41      | SFUM172-04   | ORNAMENT, ILLUMINATOR      | 1   |         |
| 44      | SFUP122M12E2 | AC CORD ASS'Y              | 1   |         |
| 45      | SFKT122-02   | KNOB, PITCH CONTROL        | 1   |         |
| 46      | RGH0131-S1   | ORNAMENT, PITCH CONTROL    | 1   |         |
| 47      | SFUZ122-01   | FELT                       | 1   |         |
| 51      | SFGC122-01   | RUBBER                     | 3   |         |
| 53      | SFAU122-032  | BOTTOM COVER B             | 1   |         |
| 54      | SFAU122-022  | BOTTOM COVER A             | 1   |         |
| 55      | RGN1655-K    | NAME PLATE                 | 1   | P       |
| 55      | RGN1656-K    | NAME PLATE                 | 1   | PC      |
| 57      | SFUP122-233  | SUPPORTER(A)               | 2   |         |
| 60      | SFGC122-04E  | INSULATOR                  | 4   |         |
| 70      | SFPRT17201K  | ARM REST                   | 1   |         |
| 71      | RFKN1200MK2A | ARM BASE ASS'Y             | 1   |         |
| 73      | SFPKD12201   | BRACKET, ARM BASE          | 1   |         |
| 74      | SFPAB17206   | KNOB, ANTI-SKATING CONTROL | 1   |         |
| 76      | SFPCC31005K  | HEAD SHELL                 | 1   |         |
| 76-1    | REZ1037-1    | WIRE KIT                   | 1   |         |
| 77      | P-AM18201K   | TONEARM ASS'Y              | 1   |         |
| 78      | SFPWG17201K  | BALANCE WEIGHT             | 1   |         |
| 79      | SFPRT18201K  | ARM LIFT                   | 1   |         |
| 80      | SFQA829-03   | SPRING                     | 1   |         |

| Ref.No. | Part No.     | Part Name & Description    | Pcs | Remarks  |
|---------|--------------|----------------------------|-----|----------|
| 81      | SFPAB13202   | KNOB, LIFT                 | 1   |          |
| 82      | SFPAB18201K  | TONEARM FIXING PLATE       | 1   |          |
| 83      | SFPJL18202K  | OIL DAMPER                 | 1   |          |
| 84      | SFPZB12201K  | PLATE                      | 1   |          |
| 85      | SFPZB12203   | PLATE, ARM BASE COVER      | 1   |          |
| 86      | SFUM170-06   | SPACER, PHONO CORD         | 1   |          |
| 87      | SFPZB12204   | CLAMPER, PHONO CORD        | 1   |          |
| 88      | RJL2P001B12  | PHONO CORD                 | 1   |          |
| 89      | SFEL026-01E1 | GROUND WIRE                | 1   |          |
| 90      | SFPZB17202   | KNOB, ARM LOCK             | 1   |          |
| 91      | N092         | SPACER                     | 1   |          |
| 92      | RGU0611-S    | BUTTON, PITCH CONT. RESET  | 1   |          |
| 93      | RMR0945-K    | PLATE, PITCH CONTROL RESET | 1   |          |
| 94      | RMX0124      | SPACER                     | 1   |          |
| 96      | SFGZ122-021  | RUBBER                     | 1   |          |
| 98      | SFXW172-032  | SPACER, PITCH CONTROL      | 1   |          |
| 99      | REZ0836      | FLAT CABLE                 | 1   |          |
| 101     | SFUZ122-04   | SHEET                      | 1   |          |
| 104     | RMR1112-K    | SHELL STAND                | 1   |          |
| 105     | RQLC0142     | TECHNICS LABEL             | 1   |          |
| A1      | RQT4912-P    | O/I BOOK                   | 1   | PPC <IA> |
| A1      | RQT4913-C    | O/I BOOK                   | 1   | PC <IB>  |
| A2      | RQA0149      | WARRANTY CARD              | 1   | P        |
| A2      | SQX7183      | WARRANTY CARD              | 1   | PC       |
| A3      | SFWE010      | EP record ADAPTOR          | 1   |          |
| A4      | RHN26003     | NUT, CARTRIDGE             | 2   |          |
| A5      | SFCZV8801    | SCREW, CARTRIDGE           | 2   |          |
| A6      | SFPEV9801    | SCREW, CARTRIDGE           | 2   |          |
| A7      | SFPEW9601    | WASHER                     | 2   |          |
| A8      | SFPZB3501    | SHELL WEIGHT               | 1   |          |
| A9      | SFPWG17202   | AUXILIARY WEIGHT           | 1   |          |
| A10     | SFK0135-01   | OVERHANG GAUGE             | 1   |          |
| A11     | RGS0005Z     | DISC SLIP SHEET ASSY       | 1   |          |
| A12     | RQLC0142     | TECHNICS LABEL             | 1   |          |
| A13     | RQCB0391     | SERVICENTER LIST           | 1   | P        |
| A13     | RQCB0832     | SERVICENTER LIST           | 1   | PC       |
| △C1     | ECA1HM471S   | 50V 470U                   | 1   |          |
| C2      | RCE1EU330BV  | 25V 33U                    | 1   |          |
| C3      | ECEA1EKA220B | 25V 22U                    | 1   |          |
| △C5,6   | ECQM1223KZ3  | 125V 0.022U                | 2   |          |
| C101-03 | RCE1EU330BV  | 25V 33U                    | 3   |          |
| C104-07 | ECQV1H104JM3 | 50V 0.1U                   | 4   |          |
| C108    | ECA1EM101    | 25V 100U                   | 1   |          |
| C109,10 | ECQV1H104JM3 | 50V 0.1U                   | 2   |          |
| C111    | ECQB1H562JF3 | 50V 5600P                  | 1   |          |
| C112    | RCE1HKA4R7BG | 50V 4.7U                   | 1   |          |
| C201    | RCE1AKA330BG | 10V 33U                    | 1   |          |
| C202,03 | ECEA1HKS010  | 50V 1U                     | 2   |          |
| C204    | ECQV1H473JM3 | 50V 0.047U                 | 1   |          |
| C205    | ECA0JM221    | 6.3V 220U                  | 1   |          |
| C206    | ECEA1HKS010  | 50V 1U                     | 1   |          |
| C207    | ECCR1H101K5  | 50V 100P                   | 1   |          |
| C208    | ECCR1H220KU5 | 50V 22P                    | 1   |          |
| C209    | RCE1AU101BV  | 10V 100U                   | 1   |          |
| C210,11 | ECQV1H224JM3 | 50V 0.22U                  | 2   |          |
| C212    | RCE1HKA3R3BG | 50V 3.3U                   | 1   |          |
| C213    | ECCR1H471K5  | 50V 470P                   | 1   |          |
| C214    | RCE1AU101BV  | 10V 100U                   | 1   |          |
| C215    | ECEA1HKS010  | 50V 1U                     | 1   |          |
| C216    | RCE1AKA470BG | 10V 47U                    | 1   |          |
| C217-19 | ECFR1H104ZF  | 50V 0.1U                   | 3   |          |
| C301    | ECQK1333GZ   | 125V 0.033U                | 1   |          |
| C302    | ECQK1682GZ   | 125V 6800P                 | 1   |          |
| C303    | ECEA1HKS010  | 50V 1U                     | 1   |          |
| C304    | RCE1CKA100BG | 16V 10U                    | 1   |          |
| C305    | ECQB1H122JF3 | 50V 1200P                  | 1   |          |
| C306    | ECEA1HKS010  | 50V 1U                     | 1   |          |
| △C601   | ECQU2A473MY  | 100V 0.047U                | 1   |          |
| CN101   | EMCS0360L    | CONNECTOR(3P)              | 1   |          |
| CN102   | EMCS0460L    | CONNECTOR(4P)              | 1   |          |
| CN103   | EMCS0760L    | CONNECTOR(7P)              | 1   |          |

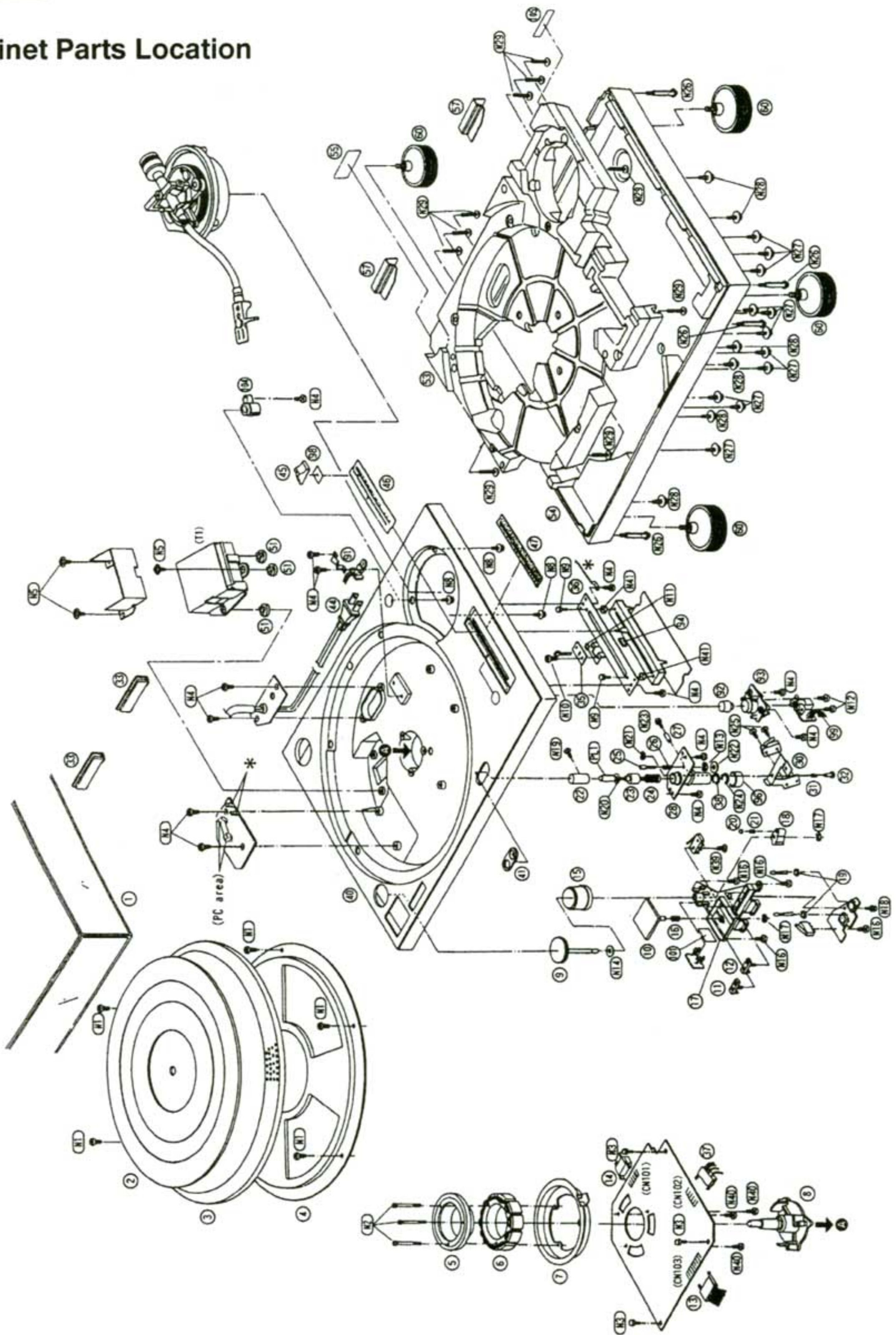


| Ref.No. | Part No.     | Part Name & Description | Pcs | Remarks |
|---------|--------------|-------------------------|-----|---------|
| △D1     | D2SBA20      | DIODE                   | 1   |         |
| △D3     | MA4051M      | DIODE                   | 1   |         |
| D201,02 | SVDPR3902S-9 | LED                     | 2   |         |
| D203,04 | SVDEBR5505S  | LED                     | 2   |         |
| D204A   | MA165        | DIODE                   | 1   |         |
| D205,06 | SVDEBR5505S  | LED                     | 2   |         |
| △D301   | MA4051M      | DIODE                   | 1   |         |
| D301A   | GL8EG21      | LED                     | 1   |         |
| △F1     | XBA1F12NU14  | FUSE                    | 1   | PC      |
| IC101   | AN6675       | IC,TURNTABLE DRIVE      | 1   |         |
| IC201   | AN6680       | IC,CONTROL              | 1   |         |
| IC301   | AN6682       | IC,PITCH CONTROL        | 1   |         |
| IC302   | TC4011BP     | IC,P.CONT.ON/OFF SELECT | 1   |         |
| N1      | XTN3+8JFZ    | SCREW                   | 5   |         |
| N2      | SFXGQ20-02   | SCREW                   | 3   |         |
| N3      | XTW3+8T      | SCREW                   | 4   |         |
| N4      | XTB3+8J      | SCREW                   | 13  |         |
| N5      | SFXG172-01   | SCREW                   | 3   |         |
| N8      | SNSB10       | SCREW                   | 3   |         |
| N9      | XYN3+C6S     | SCREW                   | 2   |         |
| N10     | XTN3+6J      | SCREW                   | 4   |         |
| N11     | XWE4D10BW    | WASHER                  | 1   |         |
| N12     | XTBS26+8J    | SCREW                   | 2   |         |
| N13     | XUC25FY      | WASHER                  | 2   |         |
| N14     | SFXW910J02   | WASHER                  | 1   |         |
| N16     | XTB3+10JFZ   | SCREW                   | 4   |         |
| N17     | XUC3FY       | WASHER                  | 2   |         |
| N18     | XTV3+8G      | SCREW                   | 1   |         |
| N19     | XSN17+3FY    | SCREW                   | 1   |         |
| N20     | SFXW122-03   | WASHER                  | 1   |         |
| N21     | XUC2FT       | WASHER                  | 1   |         |
| N22     | XWE3D8       | WASHER                  | 1   |         |
| N23     | XYN3+C15S    | SCREW                   | 1   |         |
| N24     | RTW-12       | WASHER                  | 1   |         |
| N25     | XSN2+10      | SCREW                   | 2   |         |
| N26     | SFXG122-01   | SCREW                   | 4   |         |
| N27     | SFXG122-02   | SCREW                   | 11  |         |
| N28     | SNSB9-2      | SCREW                   | 6   |         |
| N29     | XTW3+15T     | SCREW                   | 10  |         |
| N31     | SFXG829-1    | SCREW                   | 1   |         |
| N32     | XYN3+C10S    | SCREW                   | 2   |         |
| N33     | XTW3+6T      | SCREW                   | 3   |         |
| N34     | XWE4A10BW    | WASHER                  | 1   |         |
| N35     | XTN3+25J     | SCREW                   | 1   |         |
| N36     | XTB3+6JFZ    | SCREW                   | 2   |         |
| N37     | XTW3+12TFZ   | SCREW                   | 2   |         |
| N38     | XTN3+8J      | SCREW                   | 1   |         |
| N39     | XTV23+10G    | SCREW                   | 1   |         |
| N40     | XTN26+6J     | SCREW                   | 3   |         |
| N41     | XWE3F6       | WASHER                  | 2   |         |
| N42     | XUC5FY-V     | WASHER                  | 1   |         |
| N43     | SFPEW17201   | WASHER                  | 1   |         |
| N44     | XTW26+6S     | SCREW                   | 1   |         |
| P1      | RPG4326      | PACKING CASE            | 1   |         |
| P2      | SFHH122-011  | CUSHION,FRONT           | 1   |         |
| P3      | SFHH122-02   | CUSHION,REAR            | 1   |         |
| P4      | SFHD122N05   | PAD,TOP                 | 1   |         |
| P5      | SFHD122-02   | PAD(A)                  | 1   |         |
| P6      | RPN0306      | PAD(B)                  | 1   |         |
| P7      | RPH0133      | PROTECTION SHEET        | 1   |         |
| P8      | SFHZ122-01   | PROTECTION SHEET        | 1   |         |
| P9      | XZB60X65A01X | PROTECTION BAG          | 2   |         |
| P10     | XZB45X50A01X | PROTECTION BAG          | 1   |         |
| P11     | SFYF09A15    | PROTECTION BAG          | 2   |         |
| P12     | XZB05X06C03  | PROTECTION BAG          | 2   |         |
| P14     | XZB25X34C03X | POLYETHYLENE COVER      | 1   |         |
| P17     | RPO0608      | PAD,TONEARM             | 1   |         |
| PL1     | SFDN122-01E  | LAMP                    | 1   |         |

| Ref.No. | Part No.     | Part Name & Description   | Pcs | Remarks |
|---------|--------------|---------------------------|-----|---------|
| △Q1     | 2SD1265-0    | TRANSISTOR                | 1   |         |
| △Q2,3   | 2SD637-QRS   | TRANSISTOR                | 2   |         |
| △Q201   | 2SC1846-QRS  | TRANSISTOR                | 1   |         |
| Q202    | 2SD637-QRS   | TRANSISTOR                | 1   |         |
| Q203    | 2SC2458GR    | TRANSISTOR                | 1   |         |
| R1      | ERDS2FJ562   | 1/4W 5.6K                 | 1   |         |
| R2      | ERDS2FJ682   | 1/4W 6.8K                 | 1   |         |
| R3      | ERDS2FJ272   | 1/4W 2.7K                 | 1   |         |
| R4,5    | ERDS2FJ471   | 1/4W 470                  | 2   |         |
| R101    | ERDS2FJ103   | 1/4W 10K                  | 1   |         |
| R102    | ERX1SJ4R7    | 1W 4.7                    | 1   |         |
| R103    | ERDS2FJ472   | 1/4W 4.7K                 | 1   |         |
| R104    | ERDS2FJ473   | 1/4W 47K                  | 1   |         |
| R105    | ERDS2FJ103   | 1/4W 10K                  | 1   |         |
| R106    | ERDS2FJ150   | 1/4W 15                   | 1   |         |
| R107    | ERX1ANJ1R5H  | 1W 1.5                    | 1   |         |
| R108    | ERDS2FJ103   | 1/4W 10K                  | 1   |         |
| R109,10 | ERX1SJ4R7    | 1W 4.7                    | 2   |         |
| R201    | ERG1SJ561    | 1W 560                    | 1   |         |
| R202    | ERDS2FJ103   | 1/4W 10K                  | 1   |         |
| R203    | ERDS2FJ470   | 1/4W 47                   | 1   |         |
| R204    | ERDS2FJ272   | 1/4W 2.7K                 | 1   |         |
| R205    | ERDS2FJ124   | 1/4W 120K                 | 1   |         |
| R206    | ERDS2FJ183   | 1/4W 18K                  | 1   |         |
| R207    | ERDS2FJ563   | 1/4W 56K                  | 1   |         |
| R208    | ERDS2FJ224   | 1/4W 220K                 | 1   |         |
| R209    | ERDS2FJ334   | 1/4W 330K                 | 1   |         |
| R210    | ERDS2FJ183   | 1/4W 18K                  | 1   |         |
| R211    | ERDS2FJ472   | 1/4W 4.7K                 | 1   |         |
| R212    | ERDS2FJ151   | 1/4W 150                  | 1   |         |
| R213    | ERDS2FJ122   | 1/4W 1.2K                 | 1   |         |
| R214    | ERDS2FJ223   | 1/4W 22K                  | 1   |         |
| R215    | ERDS2FJ472   | 1/4W 4.7K                 | 1   |         |
| R216    | ERDS2FJ154   | 1/4W 150K                 | 1   |         |
| R217    | ERDS2FJ223   | 1/4W 22K                  | 1   |         |
| R218    | ERDS2FJ102   | 1/4W 1K                   | 1   |         |
| R219    | ERDS2FJ332   | 1/4W 3.3K                 | 1   |         |
| R220    | ERDS2FJ221   | 1/4W 220                  | 1   |         |
| R221    | ERDS2FJ471   | 1/4W 470                  | 1   |         |
| R222    | ERDS2FJ391   | 1/4W 390                  | 1   |         |
| R301    | ER0S2TKG2701 | 1/4W 2.7K                 | 1   |         |
| R302    | ERDS2FJ471   | 1/4W 470                  | 1   |         |
| R303    | ERDS2FJ822   | 1/4W 8.2K                 | 1   |         |
| R304    | ERDS2FJ561   | 1/4W 560                  | 1   |         |
| R305    | ERDS2FJ181   | 1/4W 180                  | 1   |         |
| R306    | ERDS2FJ223   | 1/4W 22K                  | 1   |         |
| R307    | ERDS2FJ272   | 1/4W 2.7K                 | 1   |         |
| △R401   | ERDS1FJ152   | 1/2W 1.5K                 | 1   |         |
| △R601   | ERDS1FJ4R7   | 1/2W 4.7                  | 1   |         |
| S201,02 | EVQPR04K     | SW,SPEED SELECTOR 33/45   | 2   |         |
| S203    | SFDSS01GL13  | SW,START/STOP             | 1   |         |
| S301    | SFDZ122N11-3 | SW,PITCH CONTROL RESET    | 1   | (VR303) |
| S302    | RSP2B010-1J  | SW,PITCH RESET            | 1   |         |
| S401    | SFSD2MSL-C   | SW,STYLUS ILLUMINATOR     | 1   |         |
| △S601   | SFDSS5GL13P  | SW,POWER                  | 1   |         |
| △T1     | SLT66DT15C   | POWER,TRANSFORMER         | 1   |         |
| VR201   | EVMK3GA00B54 | VR,BRAKE ADJ.             | 1   |         |
| VR301   | EVMH1GA00B23 | VR,PITCH CONTROL,0% ADJ.  | 1   |         |
| VR302   | EVMK3GA00B54 | VR,PITCH CONTROL GAIN ADJ | 1   |         |
| VR303   | SFDZ122N11-3 | VR,PITCH CONT.ADJ.        | 1   | (S301)  |
| X201    | RSXB4M13J01  | X*TAL OSCILLATOR(4.13MHZ) | 1   |         |



# ■ Cabinet Parts Location



| Ref.No. | Part No.    | Part Name & Description | Pcs |
|---------|-------------|-------------------------|-----|
| 1       | SFAD122-01A | DUST COVER              | 1   |
| 2       | RGS0008     | T/T RUBBER MAT          | 1   |
| 3       | SFTE172-01Z | TURNTABLE ASS'Y         | 1   |
| 4       | SFUM172-053 | PANEL COVER             | 1   |
| 5       | SFMGQ20-01  | DRIVE COIL COVER        | 1   |
| 6       | SFMG520-31A | DRIVE COIL ASS'Y        | 1   |

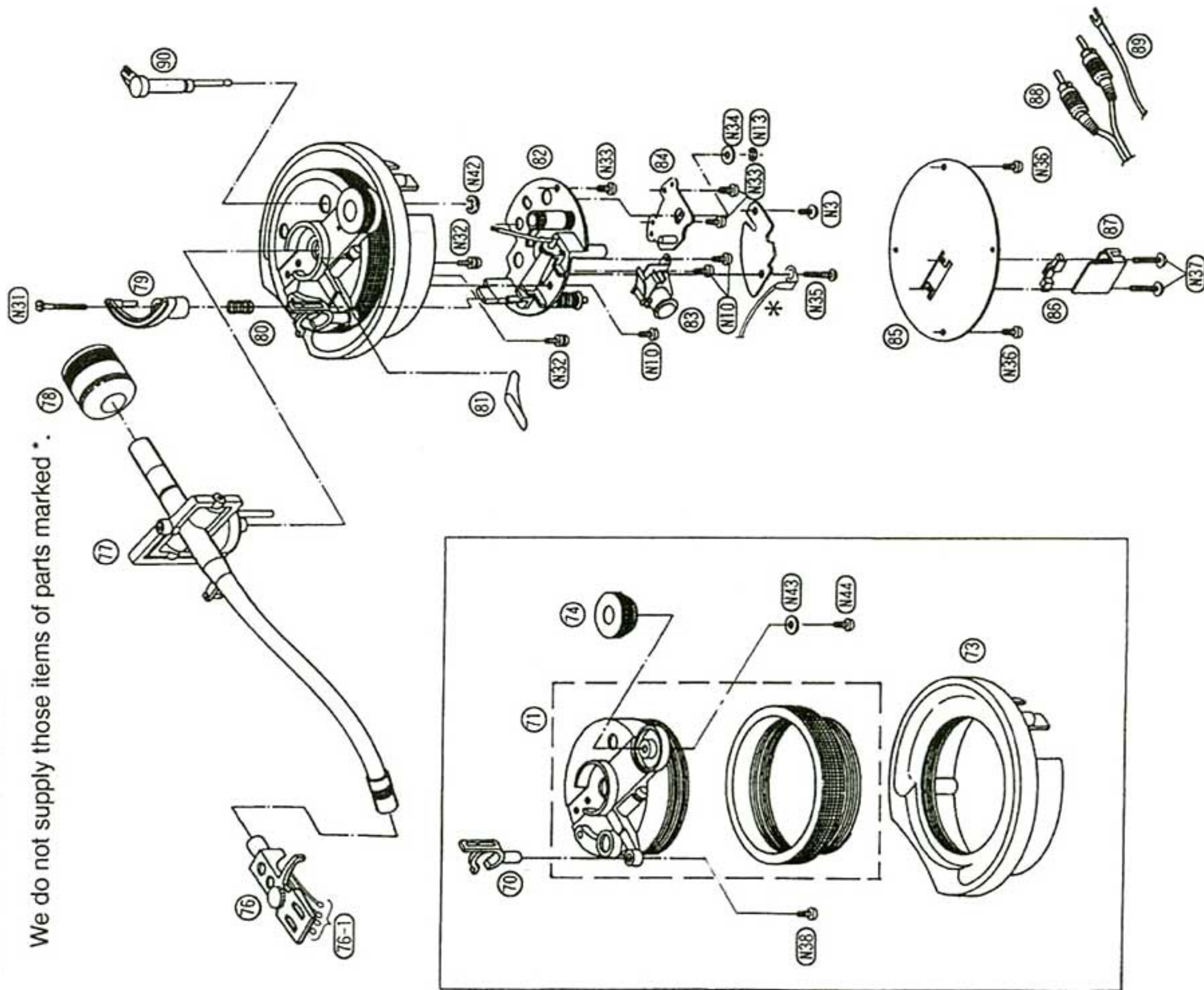
| Ref.No. | Part No.     | Part Name & Description   | Pcs |
|---------|--------------|---------------------------|-----|
| 7       | SFMZ172-01E  | FG COIL ASS'Y             | 1   |
| 8       | SFMZQ20-01A  | SHAFT ASS'Y               | 1   |
| 9       | RFKN1200M3DP | POWER SW KNOB ASS'Y       | 1   |
| 10      | SFKT015-061  | BUTTON,START/STOP         | 1   |
| 11      | SFKT015-011E | BUTTON,SPEED SELECTOR(33) | 1   |
| 12      | SFKT015-021E | BUTTON,SPEED SELECTOR(45) | 1   |
| 13      | SFDJ122-02E  | WIRE ASS'Y                | 1   |

| Ref.No. | Part No.    | Part Name & Description  | Pcs |
|---------|-------------|--------------------------|-----|
| 14      | SFDJ122-06E | WIRE ASS'Y               | 1   |
| 15      | RGK0942Z-S  | COVER,STROBE ILLUMINATOR | 1   |
| 16      | SFQA122-01  | SPRING                   | 1   |
| 17      | RMR1111A-K  | BASE,OPERATION           | 1   |
| 18      | SFUM122-03  | CAM,POWER SWITCH         | 1   |
| 19      | SFUM015-11  | SPACER,LED               | 2   |
| 20      | SFYB5-32    | BALL                     | 1   |



# ● Tonearm section

We do not supply those items of parts marked \*.



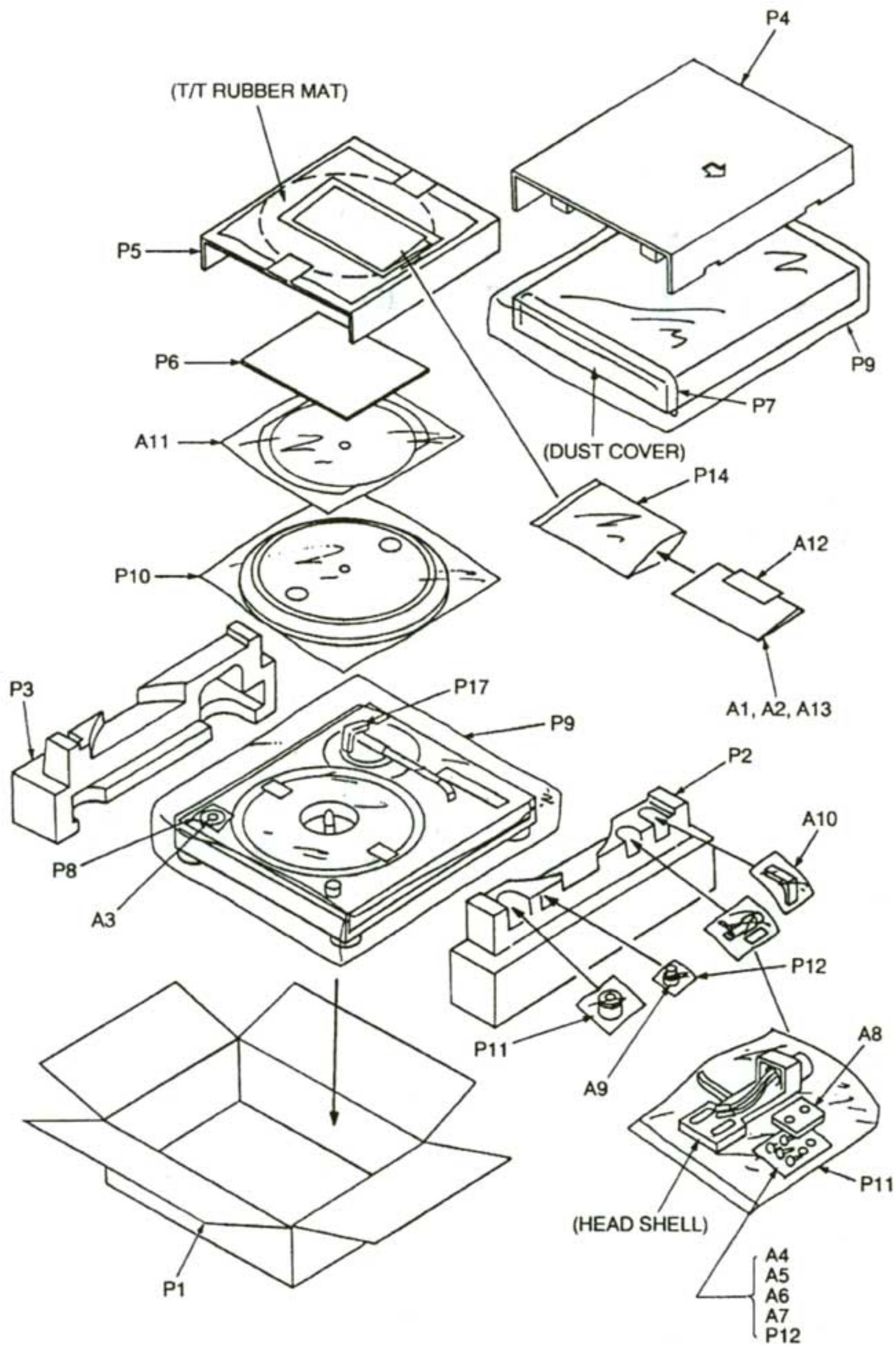
| Ref.No. | Part No.     | Part Name & Description   | Pcs |
|---------|--------------|---------------------------|-----|
| 21      | SFQA520-01   | SPRING                    | 1   |
| 22      | SFKK172-01   | COVER,STYLUS ILLUMINATOR  | 1   |
| 23      | SFXB122-06   | DRIVE BOSS                | 1   |
| 24      | SFQA172-01   | SPRING                    | 1   |
| 25      | SFXJ172-01   | PIN,LOCK CANCELER         | 1   |
| 26      | SFQA520-011  | SPRING                    | 1   |
| 27      | SFX0172-01-1 | PIN,GUIDE                 | 1   |
| 28      | SFUP122-02E  | BRACKET,ILLUMINATOR       | 1   |
| 30      | SFUP122-03   | PLATE,LOCK OPERATION      | 1   |
| 31      | SFQA122-02   | SPRING                    | 1   |
| 32      | SFXJ172-05   | PIN                       | 1   |
| 33      | RMG0483-K    | RUBBER,DUST COVER         | 2   |
| 35      | SFUP122-09   | HOLDER,LED                | 1   |
| 36      | SFUP122-01   | BRACKET,PITCH CONTROL     | 1   |
| 37      | SFDJ122-04E  | WIRE ASS'Y                | 1   |
| 38      | SFUP122-15-1 | STOPPER,SPRING            | 1   |
| 40      | RKM0101D-S   | CABINET                   | 1   |
| 41      | SFUM172-04   | ORNAMENT,ILLUMINATOR      | 1   |
| 44      | SFUP122M12E2 | AC CORD ASS'Y             | 1   |
| 45      | SFKT122-02   | KNOB,PITCH CONTROL        | 1   |
| 46      | RGH0131-S1   | ORNAMENT,PITCH CONTROL    | 1   |
| 47      | SFUZ122-01   | FELT                      | 1   |
| 51      | SFGC122-01   | RUBBER                    | 3   |
| 53      | SFAU122-032  | BOTTOM COVER B            | 1   |
| 54      | SFAU122-022  | BOTTOM COVER A            | 1   |
| 55      | RGN1655-K    | NAME PLATE for U.S.A.     | 1   |
| 55      | RGN1656-K    | NAME PLATE for Canada.    | 1   |
| 57      | SFUP122-233  | SUPPORTER(A)              | 2   |
| 60      | SFGC122-04E  | INSULATOR                 | 4   |
| 70      | SFPRT17201K  | ARM REST                  | 1   |
| 71      | RFKN1200MK2A | ARM BASE ASS'Y            | 1   |
| 73      | SFPKD12201   | BRACKET,ARM BASE          | 1   |
| 74      | SFPAB17206   | KNOB,ANTI-SKATING CONTROL | 1   |
| 76      | SFPCC31005K  | HEAD SHELL                | 1   |

| Ref.No. | Part No.     | Part Name & Description   | Pcs |
|---------|--------------|---------------------------|-----|
| 76-1    | REZ1037-1    | WIRE KIT                  | 1   |
| 77      | P-AM18201K   | TONEARM ASS'Y             | 1   |
| 78      | SFPWG17201K  | BALANCE WEIGHT            | 1   |
| 79      | SFPRT18201K  | ARM LIFT                  | 1   |
| 80      | SFQA829-03   | SPRING                    | 1   |
| 81      | SFPAB13202   | KNOB,LIFT                 | 1   |
| 82      | SFPAB18201K  | TONEARM FIXING PLATE      | 1   |
| 83      | SFPJL18202K  | OIL DAMPER                | 1   |
| 84      | SFPZB12201K  | PLATE                     | 1   |
| 85      | SFPZB12203   | PLATE,ARM BASE COVER      | 1   |
| 86      | SFUM170-06   | SPACER,PHONO CORD         | 1   |
| 87      | SFPZB12204   | CLAMPER,PHONO CORD        | 1   |
| 88      | RJL2P001B12  | PHONO CORD                | 1   |
| 89      | SFEL026-01E1 | GROUND WIRE               | 1   |
| 90      | SFPZB17202   | KNOB,ARM LOCK             | 1   |
| 91      | N092         | SPACER                    | 1   |
| 92      | RGU0611-S    | BUTTON,PITCH CONT.RESET   | 1   |
| 93      | RMR0945-K    | PLATE,PITCH CONTROL RESET | 1   |
| 94      | RMX0124      | SPACER                    | 1   |
| 96      | SFGZ122-021  | RUBBER                    | 1   |
| 98      | SFXW172-032  | SPACER,PITCH CONTROL      | 1   |
| 99      | REZ0836      | FLAT CABLE                | 1   |
| 101     | SFUZ122-04   | SHEET                     | 1   |
| 104     | RMR1112-K    | SHELL STAND               | 1   |
| 105     | RQLC0142     | TECHNICS LABEL            | 1   |
| N1      | XTN3+8JFZ    | SCREW                     | 5   |
| N2      | SFXGQ20-02   | SCREW                     | 3   |
| N3      | XTW3+8T      | SCREW                     | 4   |
| N4      | XTB3+8J      | SCREW                     | 13  |
| N5      | SFXG172-01   | SCREW                     | 3   |
| N8      | SNSB10       | SCREW                     | 3   |
| N9      | XYN3+C6S     | SCREW                     | 2   |
| N10     | XTN3+6J      | SCREW                     | 4   |

| Ref.No. | Part No.   | Part Name & Description | Pcs |
|---------|------------|-------------------------|-----|
| N11     | XWE4D10BW  | WASHER                  | 1   |
| N12     | XTBS26+8J  | SCREW                   | 2   |
| N13     | XUC25FY    | WASHER                  | 2   |
| N14     | SFXW910J02 | WASHER                  | 1   |
| N16     | XTB3+10JFZ | SCREW                   | 4   |
| N17     | XUC3FY     | WASHER                  | 2   |
| N18     | XTV3+8G    | SCREW                   | 1   |
| N19     | XSN17+3FY  | SCREW                   | 1   |
| N20     | SFXW122-03 | WASHER                  | 1   |
| N21     | XUC2FT     | WASHER                  | 1   |
| N22     | XWE3D8     | WASHER                  | 1   |
| N23     | XYN3+C15S  | SCREW                   | 1   |
| N24     | RTW-12     | WASHER                  | 1   |
| N25     | XSN2+10    | SCREW                   | 2   |
| N26     | SFXG122-01 | SCREW                   | 4   |
| N27     | SFXG122-02 | SCREW                   | 11  |
| N28     | SNSB9-2    | SCREW                   | 6   |
| N29     | XTW3+15T   | SCREW                   | 10  |
| N31     | SFXG829-1  | SCREW                   | 1   |
| N32     | XYN3+C10S  | SCREW                   | 2   |
| N33     | XTW3+6T    | SCREW                   | 3   |
| N34     | XWE4A10BW  | WASHER                  | 1   |
| N35     | XTN3+25J   | SCREW                   | 1   |
| N36     | XTB3+6JFZ  | SCREW                   | 2   |
| N37     | XTW3+12TFZ | SCREW                   | 2   |
| N38     | XTN3+8J    | SCREW                   | 1   |
| N39     | XTV23+10G  | SCREW                   | 1   |
| N40     | XTN26+6J   | SCREW                   | 3   |
| N41     | XWE3F6     | WASHER                  | 2   |
| N42     | XUC5FY-V   | WASHER                  | 1   |
| N43     | SFPEW17201 | WASHER                  | 1   |
| N44     | XTW26+6S   | SCREW                   | 1   |



# ■ Packaging



| Ref.No. | Part No.   | Part Name & Description | Pcs |
|---------|------------|-------------------------|-----|
| A1      | RQT4912-P  | O/I BOOK                | 1   |
| A1      | RQT4913-C  | O/I BOOK                | 1   |
| A2      | RQA0149    | WARRANTY CARD           | 1   |
| A2      | SQX7183    | WARRANTY CARD           | 1   |
| A3      | SFWE010    | EP record ADAPTOR       | 1   |
| A4      | RHN26003   | NUT,CARTRIDGE           | 2   |
| A5      | SFCZV8801  | SCREW,CARTRIDGE         | 2   |
| A6      | SFPEV9801  | SCREW,CARTRIDGE         | 2   |
| A7      | SFPEW9601  | WASHER                  | 2   |
| A8      | SFPZB3501  | SHELL WEIGHT            | 1   |
| A9      | SFPWG17202 | AUXILIARY WEIGHT        | 1   |
| A10     | SFK0135-01 | OVERHANG GAUGE          | 1   |
| A11     | RGS0005Z   | DISC SLIP SHEET ASSY    | 1   |
| A12     | RQLC0142   | TECHNICS LABEL          | 1   |
| A13     | RQCB0391   | SERVICENTER LIST        | 1   |
| A13     | RQCB0832   | SERVICENTER LIST        | 1   |

| Ref.No. | Part No.     | Part Name & Description | Pcs |
|---------|--------------|-------------------------|-----|
| P1      | RPG4326      | PACKING CASE            | 1   |
| P2      | SFHH122-011  | CUSHION,FRONT           | 1   |
| P3      | SFHH122-02   | CUSHION,REAR            | 1   |
| P4      | SFHD122N05   | PAD, TOP                | 1   |
| P5      | SFHD122-02   | PAD(A)                  | 1   |
| P6      | RPN0306      | PAD(B)                  | 1   |
| P7      | RPH0133      | PROTECTION SHEET        | 1   |
| P8      | SFHZ122-01   | PROTECTION SHEET        | 1   |
| P9      | XZB60X65A01X | PROTECTION BAG          | 2   |
| P10     | XZB45X50A01X | PROTECTION BAG          | 1   |
| P11     | SFYF09A15    | PROTECTION BAG          | 2   |
| P12     | XZB05X06C03  | PROTECTION BAG          | 2   |
| P14     | XZB25X34C03X | POLYETHYLENE COVER      | 1   |
| P17     | RPQ0608      | PAD, TONEARM            | 1   |



# Service Manual

## Turntable System



### SL-1200LTD

### SL-1200M3D

### SL-1210M3D

Area

|      |   |
|------|---|
| (P)  | U.S.A.(SL-1200M3D only)                 |
| (PC) | Canada(SL-1200M3D only)                 |
| (E)  | Europe(SL-1200LTD/1210M3D only)         |
| (EG) | Germany, Italy(SL-1200LTD/1210M3D only) |
| (EB) | Great Britain(SL-1200LTD/1210M3D only)  |
| (GN) | Oseania(SL-1210M3D only)                |

**Subject :** Change of parts (for the UL/CSA safety regulation).

This document is supplementary to the following Service Manuals.

| Model No.  | Area Code | Order No.   | Brand    |
|------------|-----------|-------------|----------|
| SL-1200LTD | (E,EB,EG) | AD9601011C2 | Technics |
| SL-1200M3D | (P,PC)    | AD9903091C1 | Technics |
| SL-1210M3D | (E,EB,EG) | AD0104106A2 | Technics |
| SL-1210M3D | (GN)      | AD0108137C3 | Technics |

### WARNING

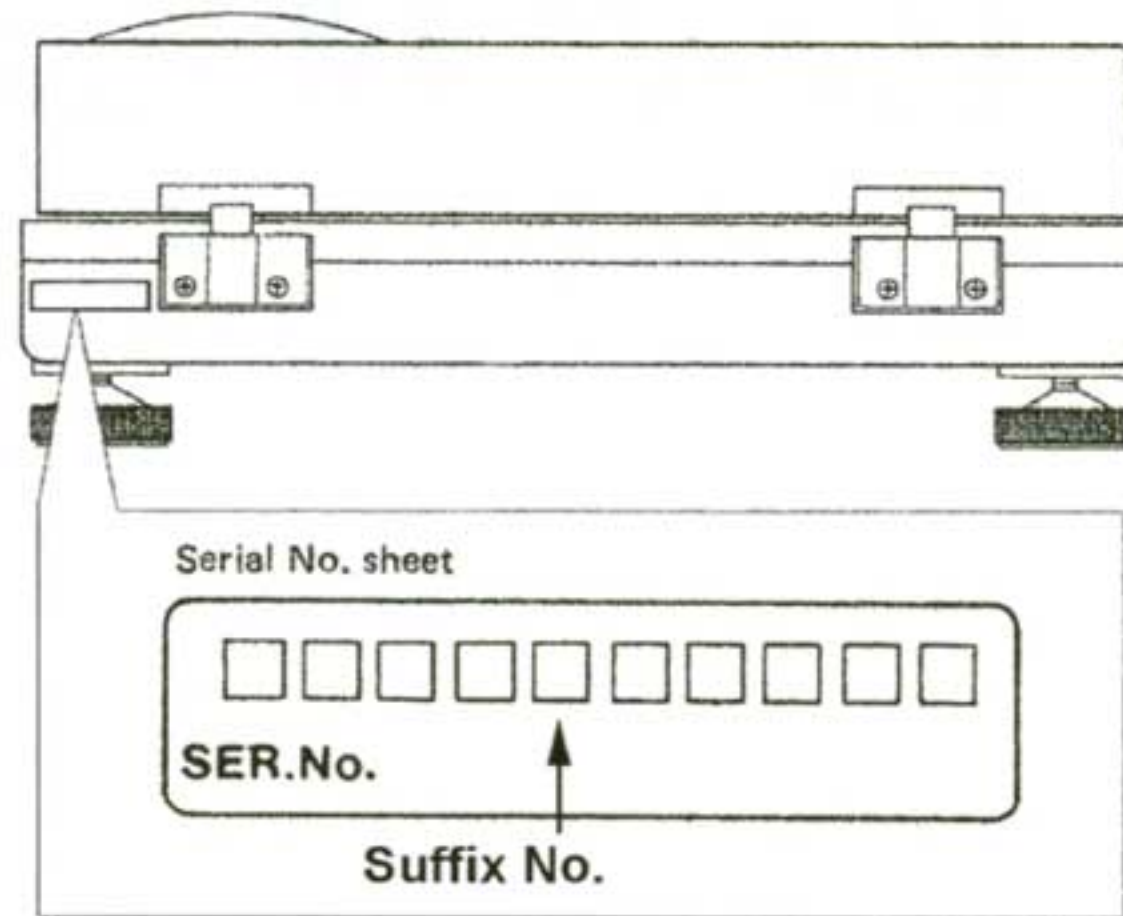
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

# Technics



# 1 Change of suffix No.

| Model name | Original Suffix No. | New Suffix No. |
|------------|---------------------|----------------|
| SL-1200M3D | B                   | C              |

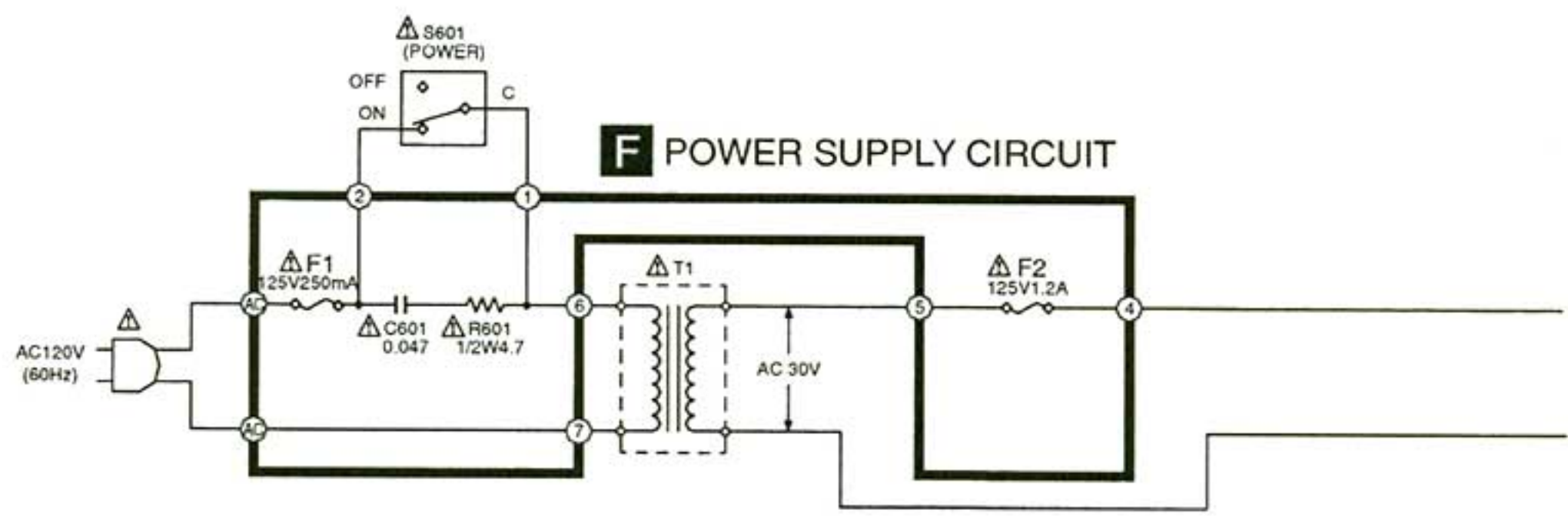


# 2 Replacement Part List

| Ref. No.              | Change of Parts No. |              | Part Name & Description | Remarks                |
|-----------------------|---------------------|--------------|-------------------------|------------------------|
|                       | Original            | Supplement   |                         |                        |
| <b>CABINETS</b>       |                     |              |                         |                        |
| 4                     | SFUM172-053         | SFUM172-054  | PANEL COVER             | SL-1200M3D             |
| 17                    | RMR1111A-K          | RMR1111B-K   | BASE,OPERATION          | SL-1200M3D             |
| 17                    | SFUM122-011         | RMR1111B-K   | BASE,OPERATION          | SL-1200LTD             |
| 54                    | SFAU122-022         | SFAU122-024  | BOTTOM COVER A          | SL-1200M3D             |
| 55                    | RGN1655-K           | RGN1655-K2   | NAME PLATE              | SL-1200M3D (P)         |
| 55                    | RGN1656-K           | RGN1656-K1   | NAME PLATE              | SL-1200M3D (PC)        |
| <b>ELECTRIC PARTS</b> |                     |              |                         |                        |
| F1                    | XBA1F12NU14         | K5D251AQ0002 | FUSE 125V250mA          | SL-1200M3D (PC)△       |
| F1                    | —                   | K5D251AQ0002 | FUSE 125V250mA          | SL-1200M3D (P)<br>△    |
| F2                    | —                   | XBA1F12NU14  | FUSE 125V1.2A           | SL-1200M3D (P,PC)<br>△ |



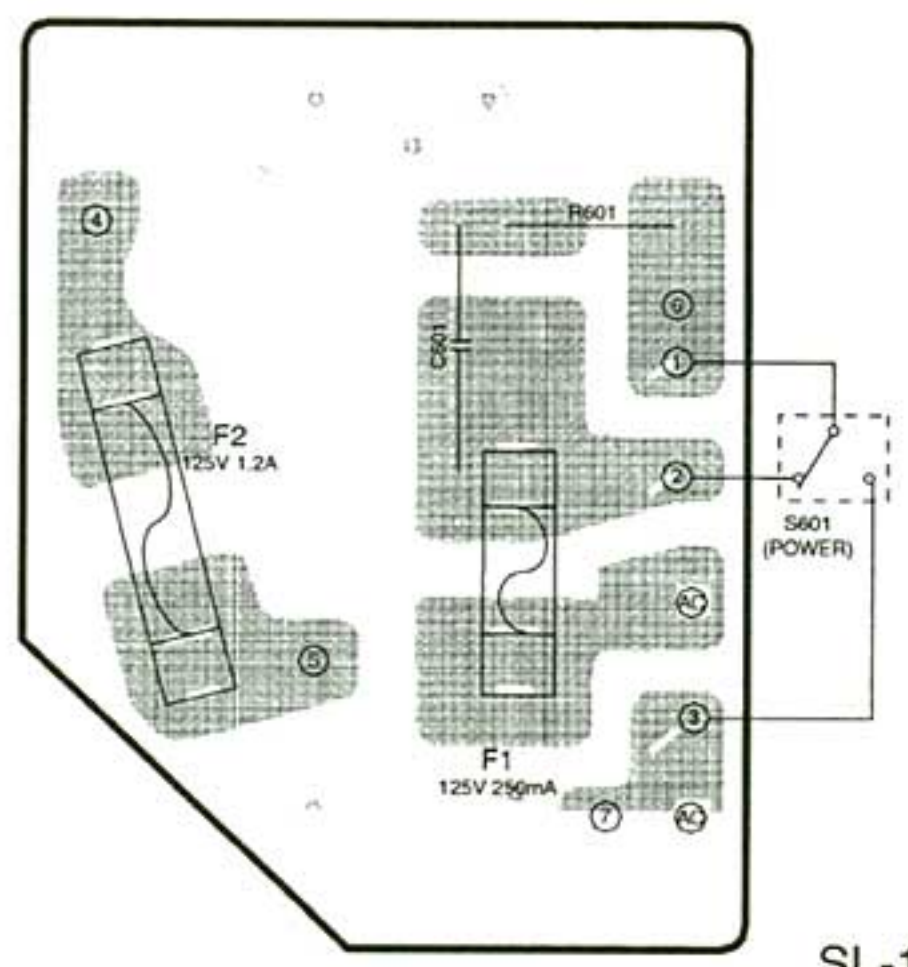
### 3 Schematic Diagram



SL-1200M3D(P,PC) only

### 4 Printed Circuit Board

**F** POWER SUPPLY P.C.B.



SL-1200M3D(P,PC) only