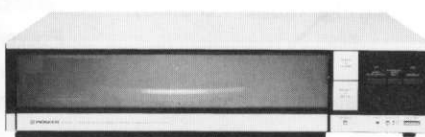




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# Service Manual

**REPAIR & ADJUSTMENTS**

**ORDER NO.  
ARP-139-0**
**STEREO TURNTABLE**

# PL-44F

**MODEL PL-44F COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:**

| Type | Voltage                                | Remarks              |
|------|----------------------------------------|----------------------|
| KU   | 120V only                              | U.S.A. model         |
| HE   | 220V and 240V (Switchable)             | Europe model         |
| HB   | 220V and 240V (Switchable)             | U.K. model           |
| S    | 110V, 120V, 220V and 240V (Switchable) | General export model |

- This is the service manual for model PL-44F/KU. For servicing of the HE, HB and S types, please refer to the additional service manual on page 25.
- For the circuit & mechanism description, please refer to the PL-88F service manual (ARP-143).
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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# 1. SPECIFICATIONS

## Motor and Turntable

|                                       |                                      |
|---------------------------------------|--------------------------------------|
| Drive System .....                    | Belt-drive                           |
| Motor .....                           | DC motor                             |
| Turntable Platter .....               | 280 mm diam. aluminum alloy die-cast |
| Speeds .....                          | 33-1/3 and 45 rpm                    |
| Wow and Flutter .....                 | Less than 0.045% (WRMS)              |
| Signal-to-Noise Ratio .....           | More than 70 dB (DIN-B)              |
| (with Pioneer cartridge model PC-3MC) |                                      |

## Tonearm

|            |                              |
|------------|------------------------------|
| Type ..... | Integrated straight pipe arm |
|------------|------------------------------|

## PC-3MC Specifications

|                                     |                             |
|-------------------------------------|-----------------------------|
| Type .....                          | Moving coil type            |
| Stylus .....                        | 0.5 mil diamond (PN-3 MC)   |
| Output Voltage .....                | 2.5 mV                      |
| (1 kHz, 50 mm/s Peak velocity, LAT) |                             |
| Tracking Force .....                | 1.7 g to 2.3 g (proper 2 g) |
| Frequency Response .....            | 10 to 32,000 Hz             |
| Recommended Load .....              | 50 k $\Omega$               |
| Weight .....                        | 3.1 g                       |

## Accessory mechanisms

|                                                                   |
|-------------------------------------------------------------------|
| Full-auto functions based on motor specially designed for tonearm |
| Auto disc size selector (17 cm, 30 cm)                            |
| Arm elevation mechanism, deck synchronization                     |
| Built-in anti-skating                                             |

## Miscellaneous

|                                         |                               |
|-----------------------------------------|-------------------------------|
| Power Requirements .....                | AC120V, 60Hz                  |
| Power Consumption .....                 | 13W                           |
| Dimensions .....                        | 420 (W) x 98 (H) x 335 (D) mm |
| 16-1/2 (W) x 3-3/4 (H) x 14-1/4 (D) in. |                               |
| Weight .....                            | 9 kg/19 lb 14 oz              |

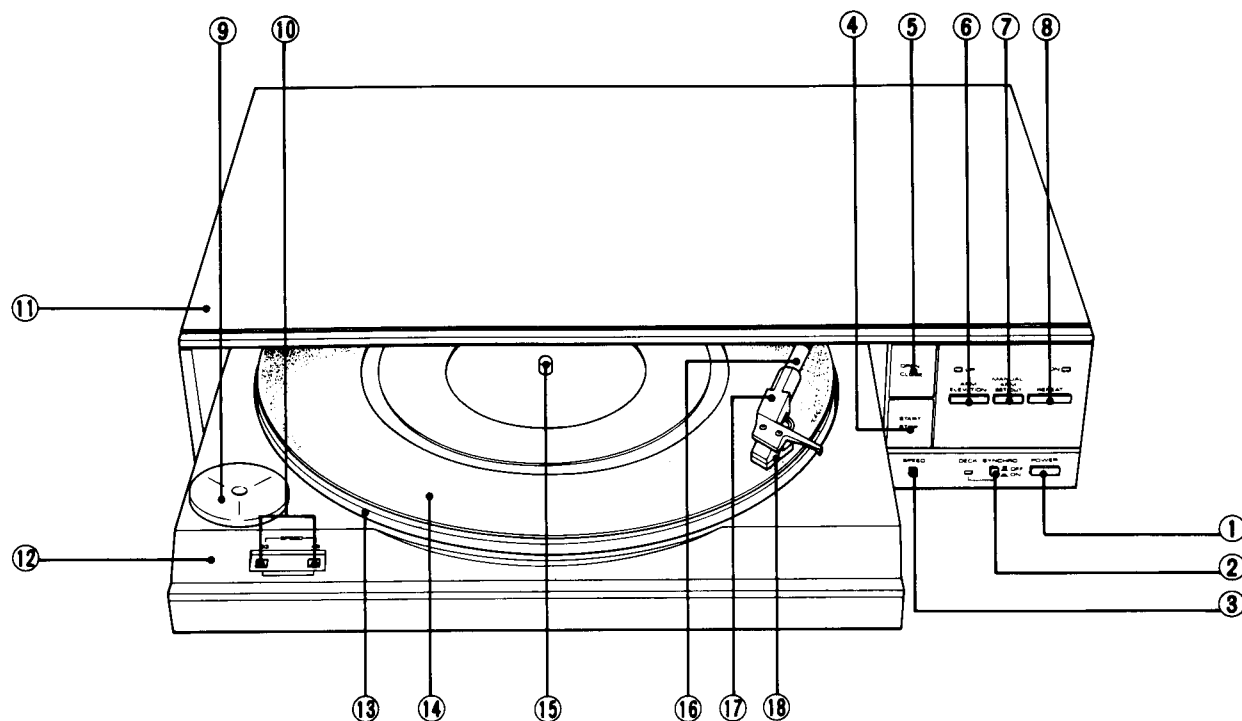
## Accessories

|                              |   |
|------------------------------|---|
| Deck synchro cord .....      | 1 |
| EP Adaptor .....             | 1 |
| Operating Instructions ..... | 1 |

### NOTE:

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

# 2. FRONT PANEL FACILITIES



### ① POWER switch

Press this switch to turn the power on and off.

Depressed (  ) position:

Power is switched ON.

Released (  ) position:

Power is switched OFF.

When the POWER switch is set to ON, the following switches are set automatically.

ARM ELEVATION switch → UP, MANUAL ARM SET/CUT switch → OFF, REPEAT switch → OFF

### ② DECK SYNCHRO switch/indicator

This switch is used when a tape deck has been connected to this unit using the accessory cord.

Depressed (  ) position:

For operations which are synchronized with the tape deck.

Released (  ) position:

For operations which are not synchronized with the tape deck.

### ③ SPEED selector switch

This is pressed so that the speed indicator lights in line with the rated speed of the record which is to be played.

“(33)” lights:

For playing 33-1/3 rpm records.

“(45)” lights:

For playing 45 rpm records.

### ④ START/STOP switch

- Press this switch to start auto play.
- Press this switch to stop auto play.

### ⑤ OPEN/CLOSE switch

- This is pressed to open and close the door and to bring out and retract the slide base.
- It is also pressed to stop auto play.

### ⑥ ARM ELEVATION switch/indicator (UP)

- Press this switch to start manual play.
- Use the switch to suspend record play temporarily.
- Use the switch when changing the tracks (with manual play) during actual play.

“UP” indicator lights:

The tonearm rises (the stylus moves away from the record).

“UP” indicator goes off:

The tonearm descends (the stylus is lowered onto the record).

### ⑦ MANUAL ARM SET/CUT switch

- Press this switch for manual play.
- Press this switch to stop manual play.

### ⑧ REPEAT switch/indicator

Press this switch so that the indicator lights for repeat play.

### ⑨ EP adaptor/EP adaptor holder

Slide the EP adaptor over the platter shaft when the record you want to play does not have a “middle”.

Keep the adaptor on the holder when it is not in use.

#### NOTE:

*Make sure that you use the EP adaptor which is supplied with this unit. Using any other adaptor may invite contact with the stylus with the result that the stylus may be damaged.*

### ⑩ Speed indicators (33, 45)

These indicate the platter speed.

“(33)” lights:

Platter is rotating at 33-1/3 rpm.

“(45)” lights:

Platter is rotating at 45 rpm.

### ⑪ Bonnet

### ⑫ Slide base

### ⑬ Platter

### ⑭ Rubber mat

#### NOTE:

*Always use the rubber mat which is supplied with this unit. Using a different rubber mat will change the stylus height and may cause malfunctions.*

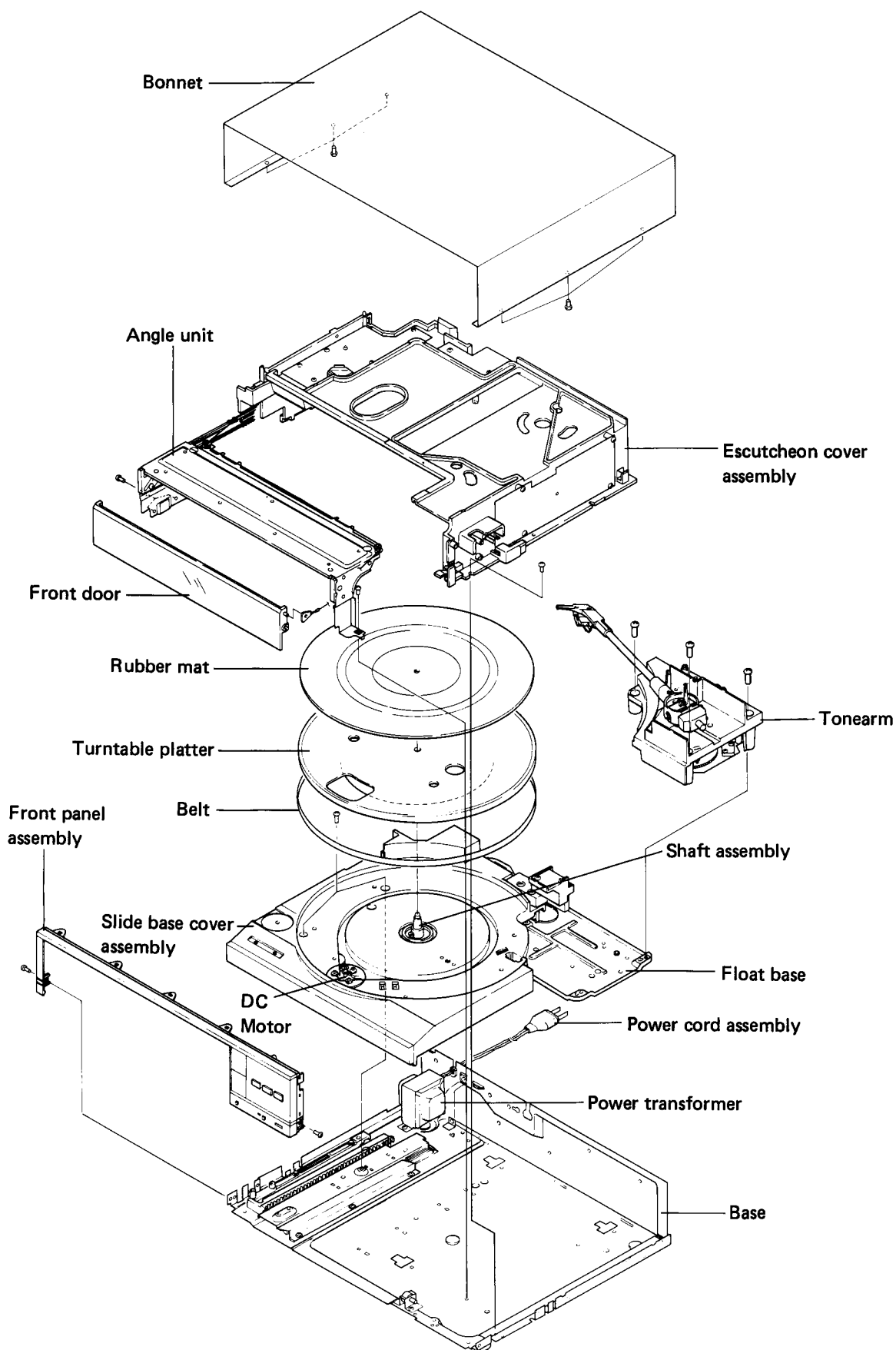
### ⑮ Platter shaft

### ⑯ Tonearm

### ⑰ Headshell

### ⑱ Cartridge (PC-3MC)

### 3. DISASSEMBLY



A

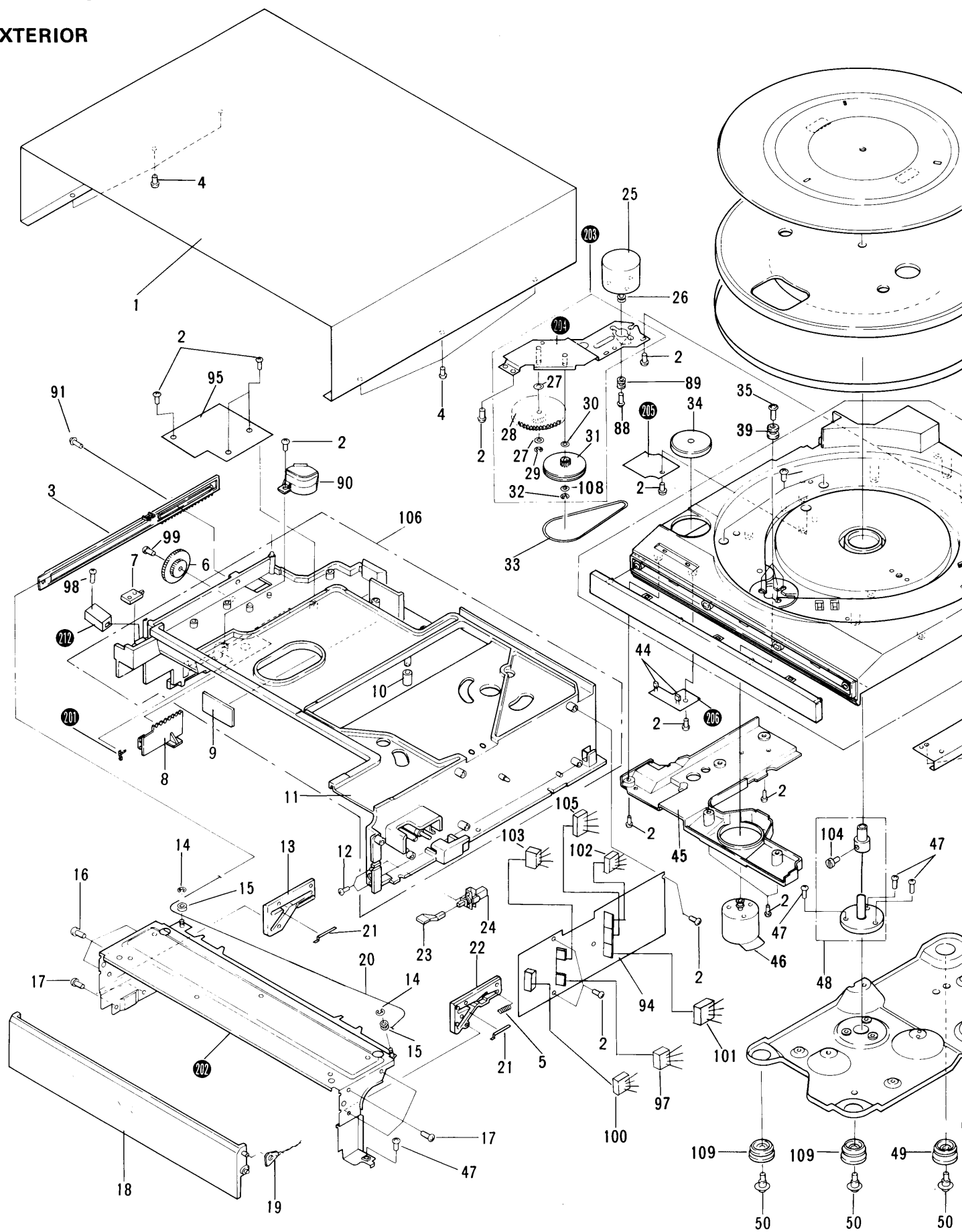
B

C

D

## 4. EXPLODED VIEWS

### 4.1 EXTERIOR





**Tonearm**  
(8 page)

## NOTES:

- Parts without part number cannot be supplied.
  - The  $\triangle$  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  $\star\star$  and  $\star$ .
- $\star\star$  GENERALLY MOVES FASTER THAN  $\star$**
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

## Parts List

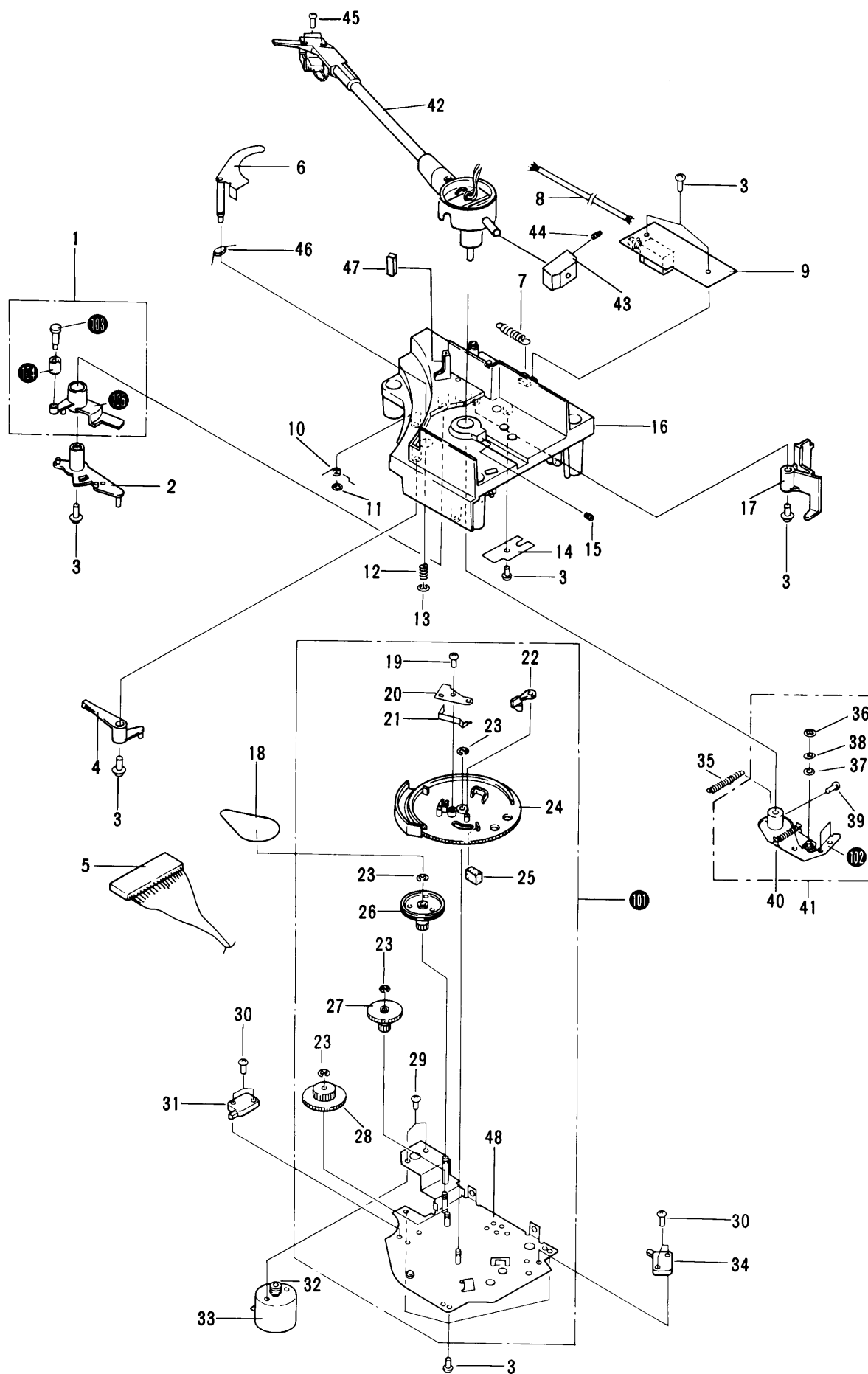
| Mark | No.          | Part No.                  | Description               | Mark         | No.          | Part No.                   | Description             |
|------|--------------|---------------------------|---------------------------|--------------|--------------|----------------------------|-------------------------|
| ★ ★  | 1.           | PNA-170                   | Bonnet                    | ★ ★          | 46.          | PYY-114                    | Motor assembly          |
|      | 2.           | PPZ30P080FMC              | Screw                     |              | 47.          | PDZ30P080FMC               | Screw                   |
|      | 3.           | PNX-437                   | Driving lever rack        |              | 48.          | PXB-274                    | Shaft assembly          |
|      | 4.           | PDZ30P060FZK              | Screw                     |              | 49.          | PEB-209                    | Damper rubber           |
|      | 5.           | PBH-342                   | Spring                    |              | 50.          | PBA-141                    | Screw (B)               |
|      | 6.           | PNX-436                   | Gear (F)                  | ★ ★          | 51.          | PEB-208                    | Damper rubber           |
|      | 7.           | PSH-007                   | Slide switch              |              | 52.          | PBH-335                    | Spring (A)              |
|      | 8.           | PNX-435                   | Slider                    |              | 53.          | PBA-140                    | Screw (A)               |
|      | 9.           | PED-023                   | Rubber cushion            |              | 54.          | PNX-434                    | Lock lever roller       |
|      | 10.          | PEB-207                   | Rubber                    |              | 55.          | PNX-433                    | Lock lever              |
|      | 11.          | PXB-291                   | Escutcheon cover assembly | ★ ★          | 56.          | PNX-432                    | Lock plate              |
|      | 12.          | PMA30P080FMC              | Screw                     |              | 57.          | PNX-431                    | Lowering rack           |
|      | 13.          | PNX-438                   | Door holder (L)           |              | 58.          | PNC-251                    | Slide rail              |
|      | 14.          | YE25S                     | Washer                    |              | 59.          | PNX-428                    | Slide rail rack         |
|      | 15.          | PNX-440                   | Pulley                    |              | 60.          | PNX-426                    | Retainer                |
| 16.  | PPZ26P050FZK | Screw                     | ⚠                         | 61.          |              | Steel 4φ                   |                         |
| 17.  | PDZ30P050FMC | Screw                     |                           | 62.          |              | Steel 6φ                   |                         |
| 18.  | PNX-378      | Front door                |                           | 63.          | PNX-231      | Gear                       |                         |
| 19.  | PYY-115      | Door holder assembly      |                           | 64.          | PNC-253      | Rail cover                 |                         |
| 20.  | PBL-001      | Wire                      |                           | 65.          | PDG-040      | Power cord assembly        |                         |
| 21.  | PBK-058      | Spring                    | ★ ★                       | 66.          | PXB-294      | PU cord assembly           |                         |
| 22.  | PNX-439      | Door holder (R)           |                           | 67.          | PMZ30P150FMC | Screw                      |                         |
| 23.  | PNX-387      | P knob                    |                           | 68.          | PEC-048      | Strain relief (Power cord) |                         |
| ★ ★  | 24.          | PSG-024                   |                           | Power switch | 69.          | PBA-138                    | Screw                   |
| ★ ★  | 25.          | PXM-117                   |                           | Motor        | 70.          | PSH-009                    | Slide switch            |
| ★ ★  | 26.          | PNX-449                   | Motor pulley              | ⚠ ★          | 71.          | PEC-051                    | Strain relief (PU cord) |
| 27.  | WA41D065D25  | Flat washer               | 72.                       |              | PEC-073      | Stopper (Rubber)           |                         |
| 28.  | PNX-430      | Gear (E)                  | 73.                       |              | PMA40P060FMC | Screw                      |                         |
| 29.  | YE30S        | Washer                    | 74.                       |              | PTT-154      | Power transformer (120V)   |                         |
| 30.  | WA31D054D025 | Flat washer               | 75.                       |              | PNX-076      | Function assembly          |                         |
| 31.  | PNX-429      | Gear (D)                  | ★ ★                       | 76.          | PDZ30P100FMC | Screw                      |                         |
| 32.  | YE20S        | Washer                    |                           | 77.          | PDZ30P060FMC | Screw                      |                         |
| 33.  | PEB-206      | Belt                      |                           | 78.          | PXB-278      | Roller angle assembly      |                         |
| 34.  | PNX-442      | 45 adaptor                |                           | 79.          | PNX-402      | Front panel (B)            |                         |
| 35.  | PBA-112      | Screw                     |                           | 80.          | PNX-413      | Lens (A)                   |                         |
| 36.  | PEB-205      | Rubber mat assembly       | ★ ★                       | 81.          | PNX-386      | DS knob                    |                         |
| 37.  | PNR-174      | Turntable platter         |                           | 82.          | PNX-410      | EV knob                    |                         |
| 38.  | PEB-183      | Belt                      |                           | 83.          | PBH-328      | Knob spring                |                         |
| 39.  | PEB-172      | Rubber cushion            |                           | 84.          | PAD-105      | O/C knob unit              |                         |
| 40.  | PDZ30P080FMC | Screw                     |                           | 85.          | PAD-106      | S/S knob unit              |                         |
| 41.  | PNX-450      | Wire guide                | ★                         | 86.          | PNX-404      | Operation panel            |                         |
| 42.  | PXB-263      | Slide base cover assembly |                           | 87.          | PNX-407      | Panel holder               |                         |
| 43.  | PNX-424      | Roller                    |                           | 88.          | PBA-125      | Screw                      |                         |
| 44.  | GL-9PG12     | LED                       |                           | 89.          | PEB-184      | Rubber cushion             |                         |
| 45.  | PNY-026      | Cover (KU Type)           |                           | 90.          | PNX-425      | Lamp cover                 |                         |
|      | PNX-441      | Cover (HE,HB,S Types)     |                           |              |              |                            |                         |

| Mark | No.  | Part No.     | Description           | Mark | No.          | Part No. | Description               |
|------|------|--------------|-----------------------|------|--------------|----------|---------------------------|
| ⚠    | 91.  | IPZ30P100FMC | Screw                 | 106. | PXB-291      |          | Escutcheon cover assembly |
|      | 92.  | PKN-001      | Jack                  | 107. | PLB-176      |          | Caller                    |
|      | 93.  | IDZ30P060FMC | Screw                 | 108. | WA31D054D050 |          | Flat washer               |
|      | 94.  | XWM-133      | Control assembly      | 109. | PEB-236      |          | Damper rubber (E) (KU)    |
|      | 95.  | XWR-039      | Power supply assembly |      | PEB-209      |          | Damper rubber             |
|      | 96.  | XWX-127      | Regulator assembly    | 201. |              |          | Rail stopper              |
|      | 97.  | PDE-180      | Connector assembly    | 202. |              |          | Angle unit                |
|      | 98.  | PBA-126      | Screw                 | 203. |              |          | Gear base assembly        |
|      | 99.  | PBA-146      | Screw                 | 204. |              |          | Gear base unit            |
|      | 100. | PDE-174      | Connector assembly    | 205. |              |          | Photo transistor assembly |
|      | 101. | PDE-176      | Connector assembly    | 206. |              |          | LED assembly              |
|      | 102. | PDE-178      | Connector assembly    | 207. |              |          | Roller plate              |
|      | 103. | PDE-179      | Connector assembly    | 208. |              |          | Float base                |
|      | 104. | PMZ30P040FMC | Screw                 | 209. |              |          | Shaft                     |
|      | 105. | PDE-175      | Connector assembly    | 210. |              |          | Plate                     |
|      |      |              |                       | 211. |              |          | Base unit                 |
|      |      |              |                       | 212. |              |          | Rubber                    |
|      |      |              |                       | 213. |              |          | Front panel assembly      |

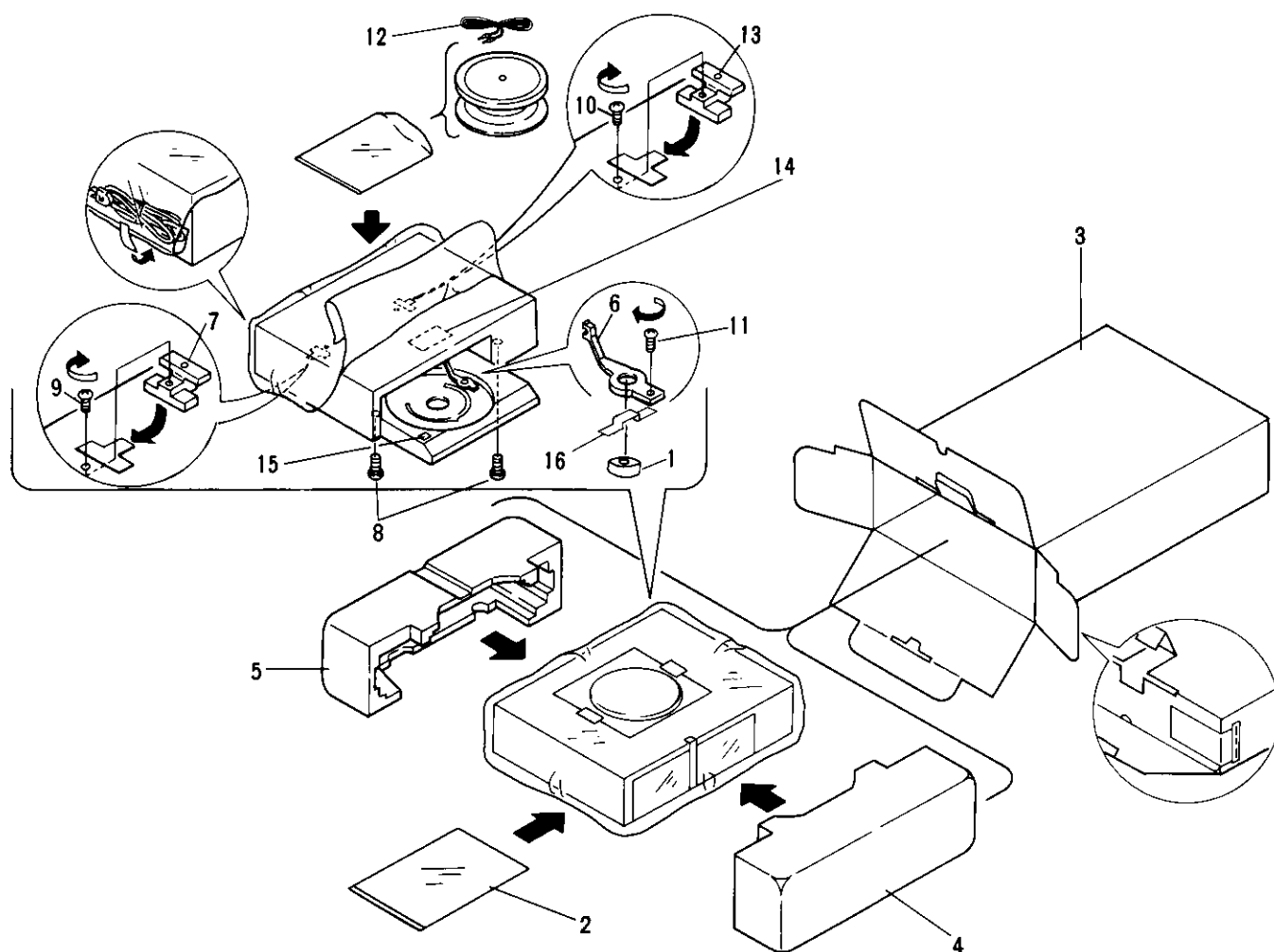
4.2 TONEARM

Parts List

| Mark | No. | Part No.     | Description         | Mark | No. | Part No.     | Description              |
|------|-----|--------------|---------------------|------|-----|--------------|--------------------------|
|      | 1.  | PXB-275      | Cam assembly        |      | 26. | PNX-396      | Gear (C)                 |
|      | 2.  | PNX-443      | Adjust lever        |      | 27. | PNX-395      | Gear (B)                 |
|      | 3.  | IPZ30P080FMC | Screw               |      | 28. | PNX-394      | Gear (A)                 |
|      | 4.  | PNX-422      | Reset lever         |      | 29. | PMZ20P040FMC | Screw                    |
|      | 5.  | PDE-179      | Connector assembly  |      | 30. | PBA-138      | Screw                    |
| ★    | 6.  | PXT-477      | EV sheet unit       | ★★   | 31. | PSH-007      | Slide switch             |
|      | 7.  | PBH-332      | Muting lever spring | ★★   | 32. | PNW-392      | Motor pulley             |
|      | 8.  | PDA-024      | PU lead wire        | ★★   | 33. | PXM-116      | Motor                    |
|      | 9.  | XWX-093      | Muting assembly     | ★★   | 34. | PSH-004      | Slide switch             |
|      | 10. | PBH-330      | Set spring          |      | 35. | PBH-329      | AS spring                |
|      | 11. | YS40FBT      | Washer              |      | 36. | YS40S        | Washer                   |
|      | 12. | PBH-326      | EV spring           |      | 37. | PBE-019      | PU spring washer         |
|      | 13. | YE50S        | Washer              |      | 38. | WB40FMC      | Flat washer              |
|      | 14. | XWX-092      | Sensing assembly    |      | 39. | PMD40P060FMC | Screw M4 X 6             |
|      | 15. | ZMK40H100FBT | Screw               |      | 40. | PBH-331      | PU plate spring          |
|      | 16. | PNX-415      | Tonearm base        |      | 41. | PXB-276      | PU plate assembly        |
|      | 17. | PNX-423      | Muting lever        | ★    | 42. | PPD-630      | Tonearm assembly         |
| ★★   | 18. | PEB-185      | Belt                | ★    | 43. | PNR-532      | Weight                   |
|      | 19. | PPZ30P050FMC | Screw               |      | 44. | ZMK50H100FBT | Screw                    |
|      | 20. | PNC-244      | Holder              |      | 45. | PBA-537      | Cartridge mounting screw |
|      | 21. | PBK-057      | Plate spring        |      | 46. | PBH-344      | Spring                   |
|      | 22. | PNX-398      | Lead in ratch       |      | 47. | PED-024      | Cushion                  |
|      | 23. | YE30S        | Washer E-3          |      | 48. | PXT-485      | Base unit                |
|      | 24. | PNX-416      | Driving plate       |      |     |              |                          |
|      | 25. | PED-022      | Cushion             | 101. |     |              | Base assembly            |
|      |     |              |                     | 102. |     |              | PU plate                 |
|      |     |              |                     | 103. |     |              | Roller stopper           |
|      |     |              |                     | 104. |     |              | Roller                   |
|      |     |              |                     | 105. |     |              | Cam                      |



## 5. PACKING



### Parts List

| Mark | No. | Part No.     | Description            |
|------|-----|--------------|------------------------|
|      | 1.  | PNX-442      | 45 adaptor             |
|      | 2.  | PRB-219      | Operating instructions |
|      | 3.  | PHH-014      | Packing case           |
|      | 4.  | PHA-146      | Protector (F)          |
|      | 5.  | PHA-147      | Protector (R)          |
|      | 6.  | PNX-451      | Tonearm holder         |
|      | 7.  | PNX-452      | Spacer                 |
|      | 8.  | PBA-141      | Screw (B)              |
|      | 9.  | IPZ40P250FMC | Screw                  |
|      | 10. | PMZ40P160FMC | Screw                  |
|      | 11. | IPZ30P120FMC | Screw                  |
|      | 12. | PDE-157      | Tape deck synchro cord |
|      | 13. | PNX-474      | Spacer (A)             |
|      | 14. | PRW-096      | Note paper             |
|      | 15. | PRW-098      | Note paper             |
|      | 16. | PRW-103      | Note paper             |

## 6. 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 × 10 <sup>1</sup> | 561..... | RD4PS | 561 J |
| 47kΩ | 47 × 10 <sup>3</sup> | 473..... | RD4PS | 473 J |
| 0.5Ω | 0R5 .....            | RN2H     | 050 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 × 10 <sup>1</sup> | 5621 .... | RN4SR | 5621 F |
|--------|-----------------------|-----------|-------|--------|

- The  $\Delta$  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  $\star\star$  and  $\star$ .  
 $\star\star$  GENERALLY MOVES FASTER THAN  $\star$   
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

### Miscellaneous Parts

#### P.C. BOARD ASSEMBLY

| Mark     | Part No. | Symbol & Description      |
|----------|----------|---------------------------|
| $\Delta$ | XWM-133  | Control assembly          |
|          | XWR-039  | Power supply assembly     |
|          | XWX-127  | Regulator assembly        |
|          | PWX-076  | Function assembly         |
|          |          | LED assembly              |
|          |          | LED assembly A            |
|          |          | Photo Transistor assembly |
|          | XWX-092  | Sensing assembly          |
|          | XWX-093  | Muting assembly           |

\*LED assembly is composed of LED assembly A, Photo transistor assembly.

#### SWITCH, SEMICONDUCTOR

| Mark                  | Part No. | Symbol & Description |
|-----------------------|----------|----------------------|
| $\Delta$ $\star\star$ | PSG-024  | Power switch         |
| $\star\star$          | PSH-009  | Slide switch         |
| $\star\star$          | PSH-007  | Slide switch         |
| $\star\star$          | PSH-004  | Slide switch         |
| $\star$               | GL-9PG12 | LED                  |

#### MOTORS, OTHERS

| Mark             | Part No. | Symbol & Description   |
|------------------|----------|------------------------|
| $\star\star$     | PYY-114  | Motor assembly (Phono) |
| $\star\star$     | PXM-116  | Motor (Tonearm)        |
| $\star\star$     | PXM-117  | Motor (Slide base)     |
| $\Delta$ $\star$ | PTT-154  | Power transformer      |
| $\Delta$         | PDG-040  | Power cord assembly    |

### CONTROL ASSEMBLY (XWM-133)

#### CAPACITORS

| Mark | Part No.      | Symbol & Description |
|------|---------------|----------------------|
|      | CEA 100M 16L  | C6, C11, C14         |
|      | CEA 1R0M 50L  | C8, C10, C15         |
|      | CKDYF 104Z 50 | C13                  |
|      | CKDYF 103Z 50 | C7, C16, C17         |
|      | CSZA 6R8K 16  | C12                  |

#### 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                           |
|---------|--------------|------------------------------------------------|
| $\star$ | PCP-075      | VR1 Semi-fixed                                 |
| $\star$ | PCP-069      | VR2 Semi-fixed                                 |
| $\star$ | PCP-067      | VR3 Semi-fixed                                 |
|         | RS1PF151J    | R10                                            |
|         | RS2HSFB330JL | R15                                            |
|         | RGSD8X472J   | R23                                            |
|         | RN4PR1503F   | R7                                             |
|         | RD4PM □□□J   | R3-R6, R9, R11-R14, R16-R22, R30, R31, R33-R43 |
|         | RN4PR 1503F  | R7                                             |
|         | RN4PR 4R7F   | R32                                            |

## SEMICONDUCTORS

| Mark | Part No.                         | Symbol & Description         |
|------|----------------------------------|------------------------------|
| ★ ★  | BA6109                           | IC3                          |
| ★ ★  | BA6208                           | IC4                          |
| ★ ★  | PD2003                           | IC5                          |
| ★ ★  | MB84001B                         | IC6                          |
| ★ ★  | 2SC1815<br>(2SC2458)<br>(2SC945) | Q1, Q4, Q5, Q7, Q8, Q10, Q11 |
| ★ ★  | 2SC945-P                         | Q2                           |
| ★ ★  | 2SC1959                          | Q3                           |
| ★ ★  | 2SC1815-Y                        | Q9                           |
| ★    | BZ-061                           | D2                           |
| ★    | RD3.6EB                          | D3                           |
| ★    | 1S2473<br>(1S1555)               | D4, D5                       |
| ★    | 1S1885                           | D6                           |
| ★    | 1S2473                           | D7                           |
| ★    | VD1222                           | D12, D13                     |

## OTHER

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
|      | PKN-001  | Jack                 |

## POWER SUPPLY ASSEMBLY (XWR-039)

## CAPACITORS

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | PCL-040      | C1                   |
|      | CEA 471M 35L | C2                   |
|      | CEA 1R0M 50L | C3                   |
|      | CEA R47M 50L | C4, C5               |

## RESISTORS

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | RS1HSFB220JL | R1                   |
|      | RS2PF151J    | R2                   |

## SEMICONDUCTORS

| Mark | Part No.           | Symbol & Description |
|------|--------------------|----------------------|
| ★ ★  | NJM78M05A          | IC2                  |
| ★    | PCX-010<br>(WL-02) | D1                   |

## LAMP, OTHER

| Mark | Part No.           | Symbol & Description   |
|------|--------------------|------------------------|
| ★ ★  | PEL-051<br>PNY-009 | L1 Lamp<br>Lamp holder |

## REGULATOR ASSEMBLY (XWX-127)

| Mark | Part No.            | Symbol & Description  |
|------|---------------------|-----------------------|
| ★    | NJM7815A<br>PDE-177 | IC1<br>Connector (3P) |

## OPERATION ASSEMBLY (PWX-076)

## SWITCHES, 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 |
|------|-----------------------|----------------------|
| ★ ★  | PSG-038               | S1-S5                |
| ★ ★  | PSG-039<br>RD%PM □□□J | S6, S7<br>R25-R27    |

## SEMICONDUCTORS, OTHERS

| Mark | Part No.                                  | Symbol & Description                                                |
|------|-------------------------------------------|---------------------------------------------------------------------|
| ★    | GL-9PR2                                   | D9, D11                                                             |
| ★    | GL-9NG12<br>PNX-454<br>PNX-446<br>PDB-181 | D10<br>LED holder (C)<br>LED holder (B)<br>Connector assembly (14P) |

## LED ASSEMBLY

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
|      | PDE-182  | Connector assembly   |

## LED ASSEMBLY A

| Mark | Part No.  | Symbol & Description |
|------|-----------|----------------------|
|      | RD%PM271J | R28, R29             |

## PHOTO TRANSISTOR ASSEMBLY

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
| ★ ★  | PH101    | Q6                   |

\*LED assembly is composed of LED assembly A, Photo transistor assembly.

## SENSING ASSEMBLY (XWX-092)

| Mark | Part No.                      | Symbol & Description                         |
|------|-------------------------------|----------------------------------------------|
| ★    | PCX-031                       | Cds                                          |
| ★ ★  | PEL-048<br>PNX-302<br>PDE-176 | L2 Lamp<br>Lamp holder<br>Connector assembly |

## MUTING ASSEMBLY (XWX-093)

| Mark | Part No.           | Symbol & Description        |
|------|--------------------|-----------------------------|
| ★ ★  | PSG-043<br>PDF-145 | S13 Push switch<br>GND wire |

A

B

C

D

## 7. P.C. BOARDS CONNECTION DIAGRAM

A

S14:POWER

S14

POWER SUPPLY Ass'y  
(XWR-039)T1:POWER  
TRANSFORMER

BRN

RED

AC 120V  
60Hz

WHT

PHONO MOTOR

+ - 1 2

DECK SYNCHRO

CONTROL Ass'y  
(XWM-133)

IC6 Q10 Q9 Q11 Q2 Q8 Q7 Q3 Q1 Q4

VR1 VR3 VR2 TP

B

C5

0.47/50

R2

150

(2W)

C4

0.47/50

L1

NJM78M05A

IC2

R1

22

(1W)

C3

1/50

D E F

CN7

3 1

15

5

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

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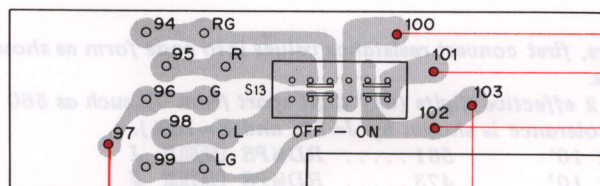
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327

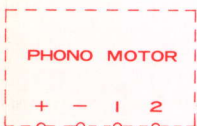
328

329

MUTING Ass'y



PHONO MOTOR



NC NO

S8: UP

NC NO

S9:RESET

IC3            Q5

IC4

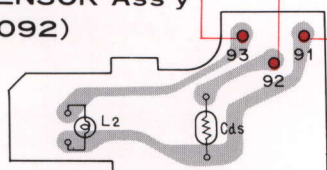
TC5

|     |          |               |               |
|-----|----------|---------------|---------------|
| IC3 | BA6109   | D2 BZ-061     | D6 1S1885     |
| IC4 | BA6208   | D3 RD3.6EB    | D12,13 VD1222 |
| IC5 | PD2003   | D4,5,7 1S2473 |               |
| IC6 | M884001B |               | CN1           |

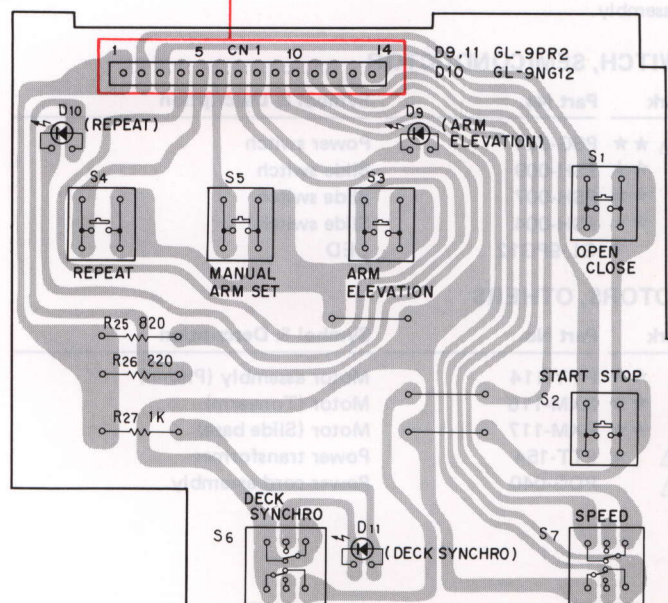
MOTOR

ARM MOTOR

END SENSOR Ass'y  
(XWX-092)



## FUNCTION Ass'y



## 3



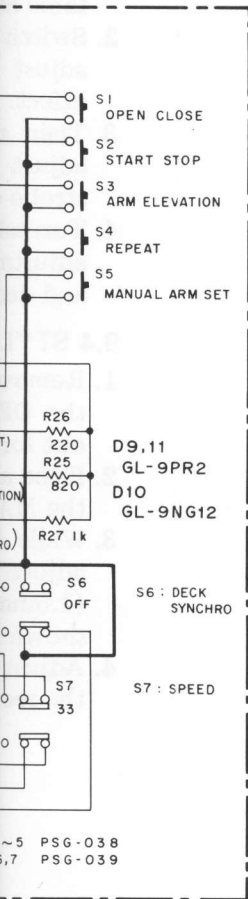
- | SWITCHES: |                | MOTION |
|-----------|----------------|--------|
| S 1 :     | OPEN CLOSE     | ON     |
| S 2 :     | START STOP     | ON     |
| S 3 :     | ARM ELEVATION  | ON     |
| S 4 :     | REPEAT         | ON     |
| S 5 :     | MANUAL ARM SET | ON     |



## NOTE:

The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

ION Ass'y



W:  $\pm 5\%$  tolerance unless otherwise noted k: k $\Omega$ ,  
G:  $\pm 2\%$ , (K):  $\pm 10\%$  (M):  $\pm 20\%$  tolerance

( $\mu$ F)/voltage (V) unless otherwise noted p: pF  
voltage is 50V except electrolytic capacitor.

) at no input signal

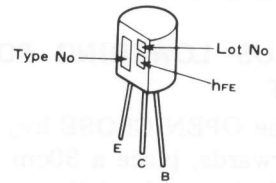
on some component parts indicates the im-  
factor of the part. Therefore, when replacing,  
identical designation.

s and resistors have parts numbers.

matic diagram, but the actual circuit may vary  
n design.

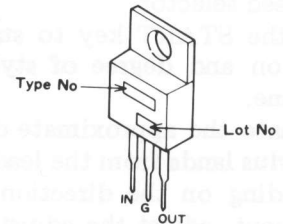
## External Appearance of Transistors and ICs

2SC945  
2SC1815  
2SC1959

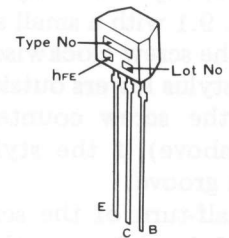


A

NJM78M05A  
NJM7815A

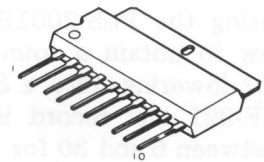


2SC2458

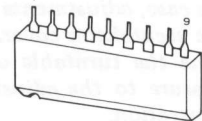


B

BA6109

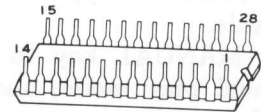


BA6208



C

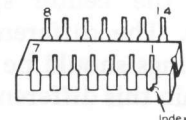
PD2003



PH101R



MB84001B



D

## 9. ADJUSTMENTS

### 9.1 STYLUS LOWERING POSITION ADJUSTMENT

1. Press the OPEN/CLOSE key, pull the slide base out forwards, place a 30cm record on the turntable platter, and set the correct Revolution by the speed selector.

2. Press the START key to start play. Check the direction and degree of stylus displacement at this time.

(Estimate the approximate distance in mm that the stylus lands from the lead-in groove).

3. Depending on the direction and degree of displacement, adjust the adjustment screw indicated in Fig. 9.1 with a small screwdriver.

\* Turn the screw clockwise (as seen from above) if the stylus lowers outside the lead-in groove.

\* Turn the screw counter clockwise (as seen from above) if the stylus lowers inside the lead-in groove.

\* One half-turn of the screw corresponds to a shift of about 9mm in the lowering position.

4. When using the PLS-2001S test record, adjust the screw to obtain a count in the 305 to 317 range for lowering onto a 30cm record. And if the GGF-021 test record is used, adjust to a count between 6 and 30 for a 30cm record.

#### Notes:

\* Removal of the bonnet simplifies adjustment operations. In this case, adjustments can be performed from the top of the escutcheon cover.

\* Do not incline the turntable over too far, not apply excessive pressure to the adjustment screw during the adjustment operation.

### 9.2 END DETECTOR ADJUSTMENT

1. Remove the bonnet, switch the power on, press the OPEN/CLOSE key, and pull the slide base out forwards.

2. Press the MANUAL key to put the turntable into manual play mode, and then switch the power off.

3. Disconnect the CN2 and CN4 connectors on the common circuit board, and connect a DC voltmeter to pin 1 and pin 3 (GND) of TP1.

4. Switch the power back on, move the stylus to a position 47.5mm from the center spindle, and read the voltage.

5. Then move the stylus to a position 57.5mm away from the center spindle and read the meter again. The difference between the two voltage readings should be  $5.6V \pm 0.2V$ . Adjust VR1 to obtain this difference.

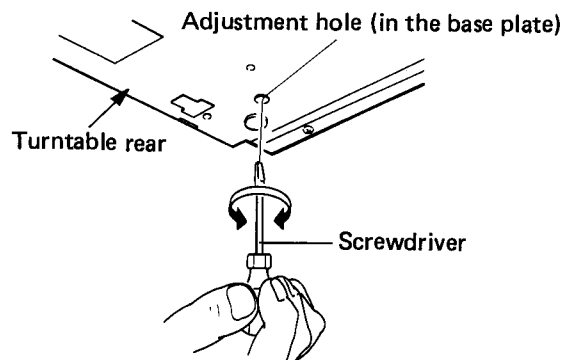


Fig. 9.1 Stylus Lowering Position Adjustment

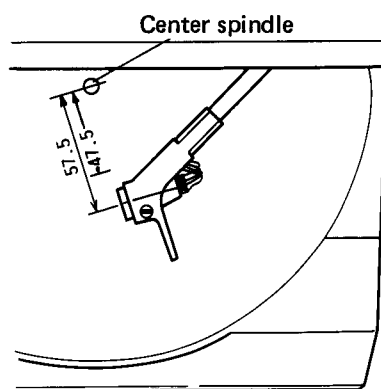


Fig. 9.2 End detector Adjustment 1

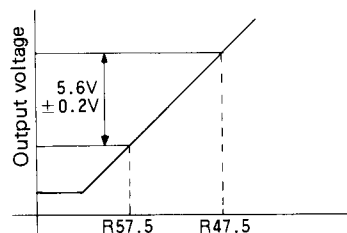


Fig. 9.3 End Detector Adjustment 2

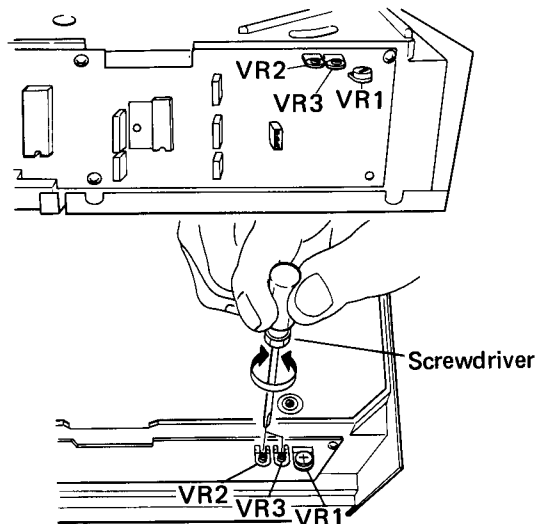


Fig. 9.4 Adjustment Position

6. The voltage difference is decreased by turning VR1 clockwise, and increased by turning counter clockwise (see Fig. 9.4).

*Note:*

*Shade the sensor section from external light during this adjustment.*

### 9.3 PHONO MOTOR SPEED ADJUSTMENT

1. Remove the bonnet and switch the power on. Place a stroboscope on the turntable platter, and press the MANUAL key to put the turntable into manual play mode.
2. Switch the speed selector to 33-1/3rpm, and adjust VR2 to obtain the "stationary" strobo effect.
3. Then switch the speed selector to 45rpm, and adjust VR3 to again obtain the "stationary" strobo effect.
4. Turntable speed is increased by turning the adjustment controls (VR2 and VR3) clockwise, and decreased by turning counter clockwise.

### 9.4 STYLUS HEIGHT ADJUSTMENT

1. Remove the bonnet, switch the power on, press the OPEN/CLOSE key, and pull the slide base out forwards.
2. Place a record on the turntable platter, and press the MANUAL key to move the tonearm forwards.
3. While holding the tonearm in the left hand, adjust the adjustment screw with a wrench (1.5mm) passed through the adjustment hole as shown in Fig. 9.6.
4. Adjust the stylus to a height 5 to 9mm above the record.

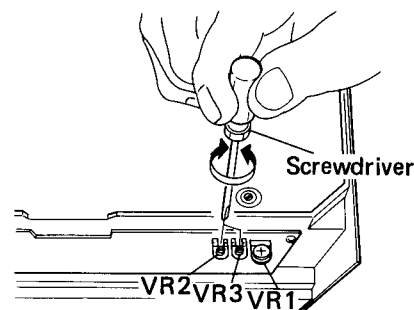
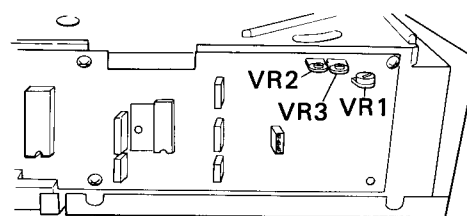


Fig. 9.5 Phono Motor Speed Adjustment

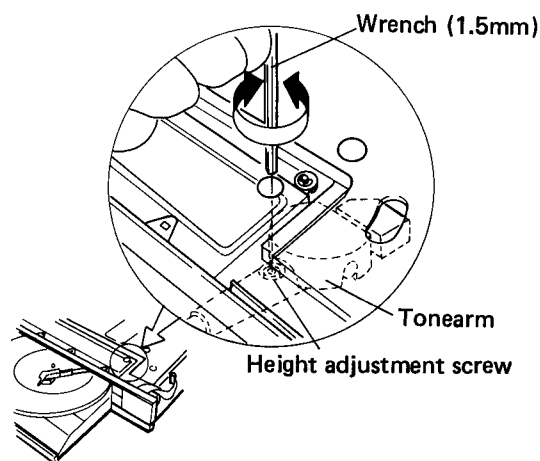


Fig. 9.6 Stylus Height Adjustment

## 9. RÉGLAGE

### 9.1 RÉGLAGE DE L'EMPLACEMENT D'ABAISSEMENT DE L'AIGUILLE.

1. Presser la clé OPEN/COLSE, tirer la base coulissante vers l'avant, mettre un disque de 30cm. sur le plateau et positionner le sélecteur de vitesse sur le nombre Révolution correct.
2. Presser la clé START pour faire marcher le tourne-disques. Vérifier la direction et le degré de déplacement de l'aiguille à ce moment. (Estimer la distance en mm. de l'éloignement de l'aiguille du premier sillon.)
3. Selon la direction et le degré de déplacement, régler la vis de réglage avec un petit tournevis comme il est indiqué Fig. 9.1.
  - \* Tourner la vis vers la droite (en regardant du dessus) si l'aiguille s'abaisse à l'intérieur du premier sillon.
  - \* Tourner la vis vers la gauche (en regardant du dessus) si l'aiguille s'abaisse à l'extérieur du premier sillon.
  - \* Un demi tour de la vis correspond à un déplacement de la position d'abaissement de 9mm environ.
4. Lorsque le disque d'essai PLS-2001S est utilisé, régler la vis pour obtenir une lecture entre 305 et 317 pour l'abaissement sur un disque de 30cm. Pour le disque d'essai GGF-021, régler pour obtenir une lecture entre 3 et 30 pour un disque de 30cm.

#### Remarques:

- \* Enlever le capot facilite l'opération de réglage. Dans ce cas, le réglage s'opère par le haut, sous le couvercle à blason.
- \* Ne pas incliner le tourne-disques exagérément, ne pas appuyer trop fortement sur la vis de réglage pendant l'opération.

### 9.2 RÉGLAGE DU DÉTECTEUR DE FIN

1. Enlever le capot, mettre l'appareil sous tension, presser la clé OPEN/CLOSE et tirer la base coulissante vers l'avant.
2. Presser la clé MANUAL pour mettre l'appareil en mode manuel, puis couper l'alimentation.
3. Débrancher les prises CN2 et CN4 de la plaque de circuits commune et brancher un voltmètre DC sur les ergots 1 et 3 (GND) de TP1.
4. Remettre sous tension et amener l'aiguille à une position 47,5mm du pignon central. Lire le voltage.

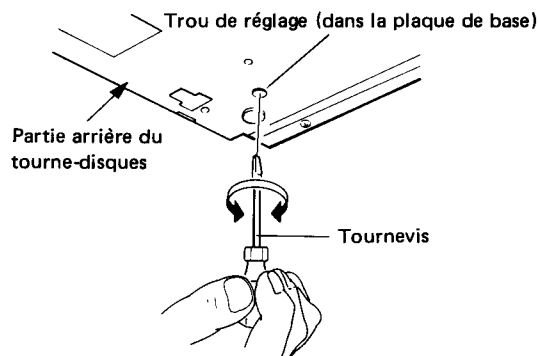


Fig. 9-1 Réglage d'abaissement de position de l'aiguille

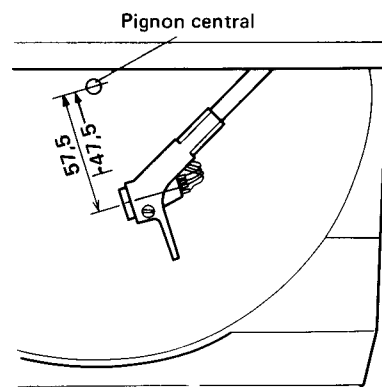


Fig. 9-2 Réglage 1 du détecteur de fin

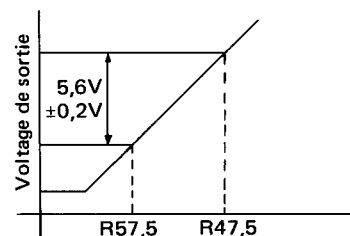


Fig. 9-3 Réglage 2 du détecteur de fin

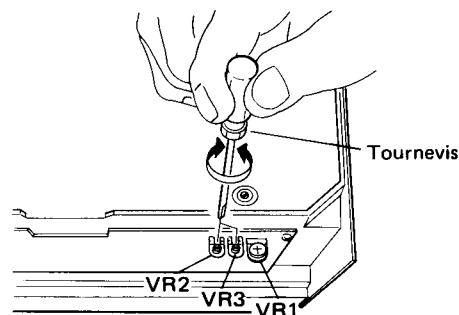
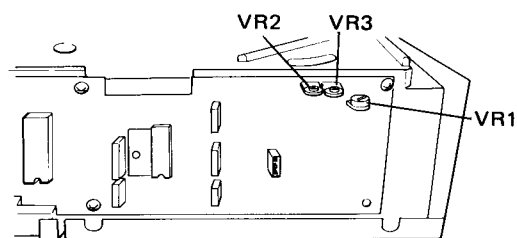


Fig. 9-4 Réglage de position

5. Puis, déplacer l'aiguille vers une position 57,5 mm du pignon central et lire à nouveau l'indication du voltmètre. La différence entre les deux voltages devrait être de  $5,6V \pm 0,2V$ . Régler VR1 pour obtenir cette différence.
6. La différence de voltage est diminuée en tournant VR1 vers la droite, et augmentée en le tournant vers la gauche. (Voir Fig. 9.4)

*Remarque:*

*Faire de l'ombre au-dessus du senseur pendant ce réglage.*

### 9.3 RÉGLAGE DE LA VITESSE DU MOTEUR PHONO

1. Enlever le capot et mettre sous tension. Placer un stroboscope sur le plateau du tourne-disques et presser la clé MANUAL pour mettre l'appareil en mode manuel.
2. Positionner le sélecteur de vitesse sur 33-1/3 tpm. et régler VR2 pour obtenir l'effet stroboscopique stationnaire.
3. Puis positionner le sélecteur de vitesse sur 45 tpm. et régler VR3 pour obtenir à nouveau l'effet stroboscopique stationnaire.
4. La vitesse du plateau est augmentée en tournant les contrôles de réglage (VR2 et VR3) vers la droite, elle est diminuée en tournant vers la gauche.

### 9.4 RÉGLAGE DE HAUTEUR DE L'AIGUILLE

1. Enlever le capot, mettre sous tension, presser la clé OPEN/CLOSE et tirer la base coulissante vers l'avant.
2. Placer un disque sur le plateau du tourne-disques et presser la clé MANUAL pour faire avancer le bras de pick-up vers l'avant.
3. Tout en tenant le bras de pick-up de la main gauche, régler la vis de réglage avec une clé (1,5mm) passée à travers le trou de réglage comme indiqué Fig. 9.6.
4. Régler l'aiguille à une hauteur de 5 à 9mm au-dessus du disque.

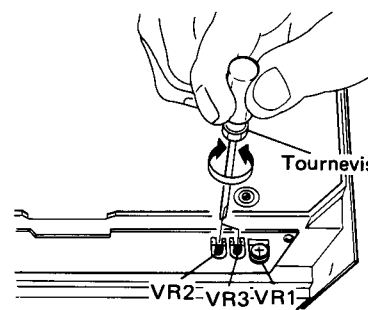
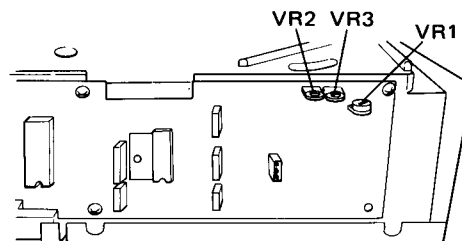


Fig. 9-5 Réglage de la vitesse du moteur phono

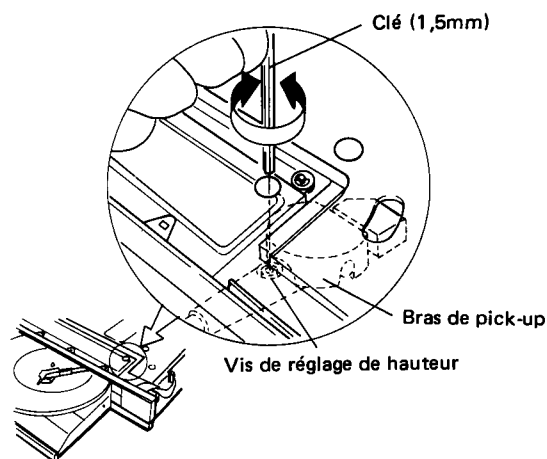


Fig. 9-6 Réglage de hauteur de l'aiguille

## 9. AJUSTE

### 9.1 AJUSTE DE LA POSICIÓN DE DESCENSO DE LA AGUJA

1. Presionar la tecla de apertura/cierre (OPEN/CLOSE), tirar hacia afuera de la base deslizante, colocar un disco de 30cm sobre el plato y poner las Revoluciones correctas mediante el selector de velocidad.
2. Presionar la tecla de inicio START para comenzar la reproducción. Comprobar al mismo tiempo la dirección y el grado de desplazamiento de la aguja. (Estimar la distancia aproximada que hay en mm desde la aguja al surco inicial del disco).
3. Dependiendo de la dirección y el grado de desplazamiento, ajustar el tornillo de ajuste indicado en la Figura 9-1 con un pequeño destornillador.
  - \* Girar el tornillo hacia la derecha (mirando desde arriba) si la aguja desciende hacia el exterior del surco inicial del disco.
  - \* Girar el tornillo hacia la izquierda (mirando desde arriba) si la aguja desciende hacia el interior del surco inicial del disco.
  - \* Una media vuelta del tornillo corresponde a un desplazamiento de aproximadamente 9mm en la posición de bajada.
4. Cuando se utilice el disco de prueba PLS-2001S, Ajustar el tornillo para obtener un valor comprendido entre 305 a 317 de descenso sobre un disco de 30cm. Y si se utiliza el disco de prueba GGF-021, ajustarlo a un valor entre 6 y 30 para un disco de 30cm.

*Nota:*

- \* La extracción de la cubierta simplifica las operaciones de ajuste. En este caso, los ajustes se pueden realizar desde la parte superior de la cubierta ornamental.
- \* No incline demasiado el giradiscos ni aplique excesiva presión al tornillo de ajuste durante la operación de ajuste.

### 9.2 AJUSTE DEL DETECTOR DEL EXTREMO

1. Extraer la cubierta, conectar la alimentación, presionar la tecla de apertura/cierre OPEN/CLOSE y tirar hacia afuera de la base deslizante.
2. Presione la tecla manual MANUTL para poner el giradiscos en el modo de reproducción manual y después desconectar la alimentación.
3. Desconectar los conectores CN2 y CN4 de la tarjeta de circuitos comunes y conectar un voltímetro de CC a la patilla 1 y a la patilla 3 (GND) de TP1.
4. Volver a conectar la alimentación, mover la aguja a una posición de 47,5mm desde el eje central y leer la tensión.

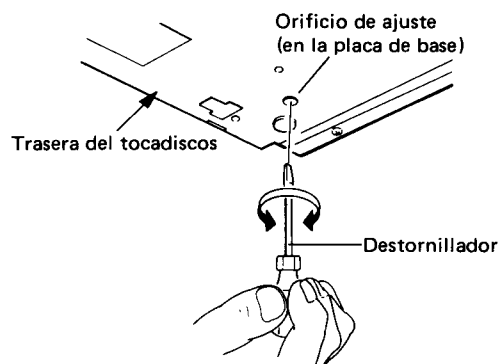


Fig. 9-1 Ajuste de la Posición de Descenso de la Aguja

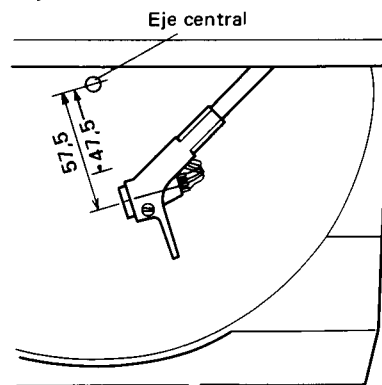


Fig. 9-2 Ajuste del Detector del Extremo 1

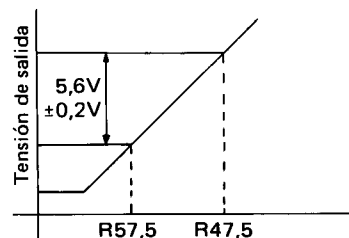


Fig. 9-3 Ajuste del Detector del Extremo 2

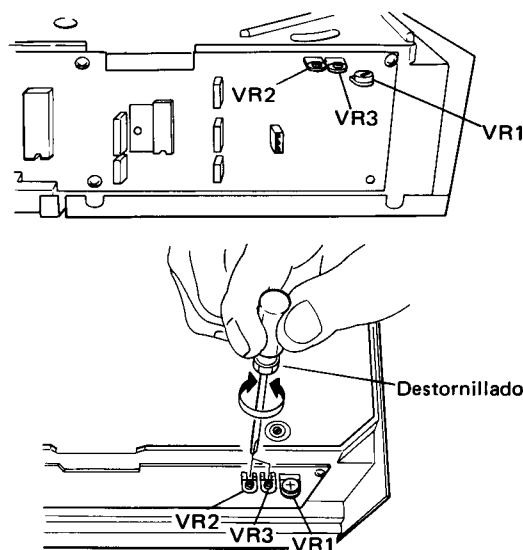


Fig. 9-4 Posición de Ajuste

5. Después mover la aguja a una posición de 57,5 mm alejada desde el eje central y leer de nuevo el medidor. La diferencia entre la lectura de las dos tensiones debe ser de  $5,6 \pm 0,2V$ . Ajustar VR1 para obtener esta diferencia.
6. La diferencia de tensión disminuye girando el VR1 hacia la derecha y aumenta girándolo hacia la izquierda (consultar Figura 9-4).

*Nota:*

*Durante este ajuste proteger la sección del sensor contra la luz exterior.*

### 9.3 AJUSTE DE LA VELOCIDAD DEL MOTOR GIRADISCOS

1. Sacar la cubierta y conectar la alimentación. Colocar un estroboscopio sobre el plato y presionar la tecla manual MANUAL para poner el tocadiscos en el modo de reproducción manual.
2. Cambiar el selector de velocidad a 33-1/3 rpm y ajustar VR2 para obtener el efecto de estrobo "estacionario".
3. Después cambiar el selector de velocidad a 45 rpm y ajustar otra vez VR3 para obtener el efecto de estrobo "estacionario".
4. La velocidad del giradiscos aumenta girando los controles de ajuste (VR2 y VR3) hacia la derecha y disminuye girándolos hacia la izquierda.

### 9.4 AJUSTE DE LA ALTURA DE AGUJA

1. Sacar la cubierta, conectar la alimentación, presionar la tecla de apertura/cierre OPEN/CLOSE y tirar hacia afuera de la base deslizable.
2. Colocar un disco sobre el plato y presionar la tecla manual MANUAL para mover el brazo fonocaptor hacia el disco.
3. A la vez de retener el brazo fonocaptor con la mano izquierda, ajustar con una llave el tornillo de ajuste (1,5mm) pasándolo através del orificio de ajuste tal y como se muestra en la Figura 9-6.
4. Ajustar la aguja a una altura de 5 a 9mm sobre el disco.

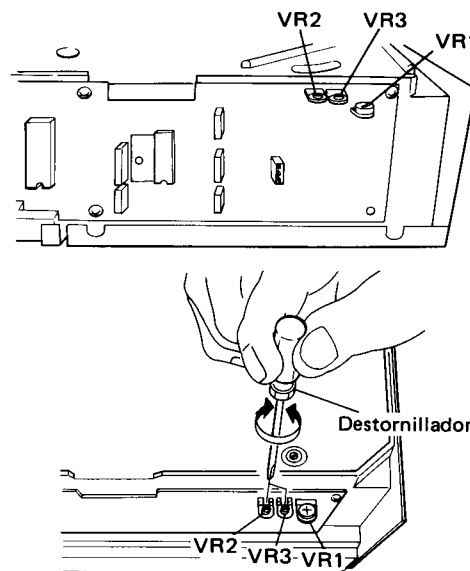


Fig. 9-5 Ajuste de la velocidad del motor giradiscos

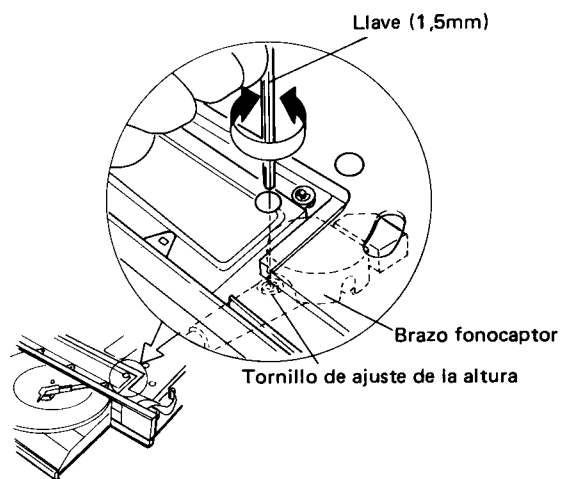


Fig. 9-6 Ajuste de la altura de aguja

ADDITIONAL

 PIONEER®

# Service Manual

STEREO TURNTABLE

# PL-44F

HE, HB, S

## 1. SPECIFICATIONS

### 1.1 HE TYPE

#### Motor and Turntable

Drive System ..... Belt-drive  
Motor ..... DC motor  
Turntable Platter ..... 280 mm diam. aluminum alloy die-cast  
Speeds ..... 33-1/3 and 45 rpm  
Wow and Flutter ..... Less than 0.045% (WRMS)  
Signal-to-Noise Ratio ..... More than 70 dB (DIN-B)  
(with Pioneer cartridge model PC-3MC)

#### Tonearm

Type ..... Integrated straight pipe arm

#### PC-3MC Specifications

Type ..... Moving coil type  
Stylus ..... 0.5 mil diamond (PN-3 MC)  
Output Voltage ..... 2.5 mV  
(1 kHz, 50 mm/s Peak velocity, LAT)  
Tracking Force ..... 1.7 g to 2.3 g (proper 2 g)  
Frequency Response ..... 10 to 32,000 Hz  
Recommended Load ..... 50 k $\Omega$   
Weight ..... 3.1 g

#### Accessory mechanisms

Full-auto functions based on motor specially designed for tonearm  
Auto disc size selector (17 cm, 30 cm)  
Arm elevation mechanism, deck synchronization  
Built-in anti-skating

#### Miscellaneous

Power Requirements ..... AC220/240 V  $\sim$  (switchable),  
50, 60 Hz  
Power Consumption ..... 15 W  
Dimensions ..... 420 (W) x 98 (H) x 335 (D) mm  
16-1/2 (W) x 3-3/4 (H) x 14-1/4 (D) in.  
Weight ..... 9 kg/19 lb 14 oz

#### Accessories

Deck synchro cord ..... 1  
EP Adaptor ..... 1  
Operating Instructions ..... 1

#### NOTE:

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

## 1.2 HB, S TYPES

### Motor and Turntable

|                                       |                                      |
|---------------------------------------|--------------------------------------|
| Drive System .....                    | Belt-drive                           |
| Motor .....                           | DC motor                             |
| Turntable Platter .....               | 280 mm diam. aluminum alloy die-cast |
| Speeds .....                          | 33-1/3 and 45 rpm                    |
| Wow and Flutter .....                 | Less than 0.045% (WRMS)              |
| Signal-to-Noise Ratio .....           | More than 70 dB (DIN-B)              |
| (with Pioneer cartridge model PC-3MC) |                                      |

### Tonearm

|            |                              |
|------------|------------------------------|
| Type ..... | Integrated straight pipe arm |
|------------|------------------------------|

### PC-3MC Specifications

|                                     |                             |
|-------------------------------------|-----------------------------|
| Type .....                          | Moving coil type            |
| Stylus .....                        | 0.5 mil diamond (PN-3 MC)   |
| Output Voltage .....                | 2.5 mV                      |
| (1 kHz, 50 mm/s Peak velocity, LAT) |                             |
| Tracking Force .....                | 1.7 g to 2.3 g (proper 2 g) |
| Frequency Response .....            | 10 to 32,000 Hz             |
| Recommended Load .....              | 50 kΩ                       |
| Weight .....                        | 3.1 g                       |

### Accessory mechanisms

Full-auto functions based on motor specially designed for tonearm  
 Auto disc size selector (17 cm, 30 cm)  
 Arm elevation mechanism, deck synchronization  
 Built-in anti-skating

### Miscellaneous

|                    |                                               |
|--------------------|-----------------------------------------------|
| Power Requirements |                                               |
| HB model .....     | AC220/240V ~ (switchable), 50, 60 Hz          |
| S model .....      | AC110/120/220/240 V ~ (switchable), 50, 60 Hz |

### Power Consumption

|                  |                                         |
|------------------|-----------------------------------------|
| HB model .....   | 15W                                     |
| S model .....    | 10W                                     |
| Dimensions ..... | 420 (W) x 98 (H) x 335 (D) mm           |
|                  | 16-1/2 (W) x 3-3/4 (H) x 14-1/4 (D) in. |
| Weight .....     | 9 kg/19 lb 14 oz                        |

### Accessories

|                              |   |
|------------------------------|---|
| Deck synchro cord .....      | 1 |
| EP Adaptor .....             | 1 |
| Operating Instructions ..... | 1 |

#### NOTE:

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

## 2. CONTRAST OF MISCELLANEOUS PARTS

#### 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.*

| Mark | Symbol & Description                       | Part No. |         |         |         |
|------|--------------------------------------------|----------|---------|---------|---------|
|      |                                            | KU Type  | HE Type | HB Type | S Type  |
| ⚠    | Control assembly                           | XWM-133  | XWM-113 | XWM-118 | XWM-100 |
|      | Power supply assembly                      | XWR-039  | XWR-033 | XWR-036 | XWR-023 |
|      | Regulator assembly                         | XWX-127  | XWX-108 | XWX-110 | XWX-103 |
|      | Front panel                                | PNX-402  | PNX-481 | PNX-481 | PNX-402 |
| ⚠ ★  | Power transformer (120V)                   | PTT-154  | ....    | ....    | ....    |
| ⚠ ★  | Power transformer (220V, 240V)             | ....     | PTT-152 | PTT-152 | ....    |
| ⚠ ★  | Power transformer (110V, 120V, 220V, 240V) | ....     | ....    | ....    | PTT-153 |
| ⚠    | Power cord (assembly)                      | PDG-040  | PDF-170 | PDF-171 | PDG-028 |
|      | PU cord assembly                           | PXB-294  | PXB-280 | PXB-280 | PXB-280 |
| ⚠ ★★ | Line voltage selector                      | ....     | PSB-002 | PSB-002 | PSB-007 |
|      | Operating instructions                     | PRB-219  | PRD-082 | PRB-218 | PRB-218 |
|      | Packing case                               | PHH-014  | PHH-012 | PHH-012 | PHH-012 |
|      | Cover                                      | PNY-026  | PNX-441 | PNX-441 | PNX-441 |
|      | Damper rubber (E)                          | PEB-236  | ....    | ....    | ....    |
|      | Damper rubber                              | ....     | PEB-209 | PEB-209 | PEB-209 |

## 3. ELECTRICAL PARTS LIST

### 3.1 CONTROL ASSEMBLY (XWM-113)(XWM-100)

#### CAPACITORS

| Mark | Part No.      | Symbol & Description |
|------|---------------|----------------------|
|      | CEA 100M 16L  | C6, C11              |
|      | CEA 1R0M 50L  | C8, C10              |
|      | CKDYF 104Z 50 | C13                  |
|      | CKDYF 103Z 50 | C7                   |
|      | CSZA 6R8K 16  | C12                  |

| Mark | Part No.        | Symbol & Description |
|------|-----------------|----------------------|
| ★    | BZ-061          | D2                   |
| ★    | 1S1885          | D6                   |
| ★    | 1S2473 (1S1555) | D4, D5               |
| ★    | RD3.6EB         | D3                   |
| ★    | VD1222          | D12, D13             |

#### 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                  |
|------|--------------|---------------------------------------|
| ★    | PCP-075      | VR1 Semi-fixed                        |
| ★    | PCP-069      | VR2 Semi-fixed                        |
| ★    | PCP-067      | VR3 Semi-fixed                        |
|      | RS2HSFB330JL | R15                                   |
|      | RS1PF151J    | R10                                   |
|      | RGSD8X472J   | R23                                   |
|      | RN%PR1503F   | R7                                    |
|      | RD%PM □□□J   | R3-R6, R9, R11-R14, R16-R21, R30, R31 |

#### OTHER

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
|      | PKN-001  | Jack                 |

### 3.2 POWER SUPPLY ASSEMBLY (XWR-033)

#### CAPACITORS

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | PCL-040      | C1                   |
|      | CEA 471M 35L | C2                   |
|      | CEA 1R0M 50L | C3                   |
|      | CEA R47M 50L | C4, C5               |

#### RESISTORS

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | RS1HSFB220JL | R1                   |
|      | RS2PF151J    | R2                   |

#### SEMICONDUCTORS

| Mark | Part No.                   | Symbol & Description |
|------|----------------------------|----------------------|
| ★★   | BA6109                     | IC3                  |
| ★★   | BA6208                     | IC4                  |
| ★★   | PD2003                     | IC5                  |
| ★★   | 2SC1815 (2SC2458) (2SC945) | Q1, Q4, Q5, Q7, Q8   |
| ★★   | 2SC945-P                   | Q2                   |
| ★★   | 2SC1959                    | Q3                   |

#### SEMICONDUCTORS

| Mark | Part No.        | Symbol & Description |
|------|-----------------|----------------------|
| ★★   | NJM78M05A       | IC2                  |
| ★    | PCX-010 (WL-02) | D1                   |

#### LAMP, FUSE, OTHER

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
| ★★   | PEL-051  | L1 Lamp              |
| ⚠ ★★ | PEK-038  | Fuse                 |
|      | PNY-009  | Lamp holder          |

**3.3 REGULATOR ASSEMBLY (XWX-108)**

| Mark | Part No.            | Symbol & Description           |
|------|---------------------|--------------------------------|
| ★ ★  | NJM7815A<br>PDE-196 | IC1<br>Connector assembly (3P) |

**3.4 CONTROL ASSEMBLY (XWM-118)****CAPACITORS**

| Mark | Part No.      | Symbol & Description |
|------|---------------|----------------------|
|      | CEA 100M 16L  | C6, C11              |
|      | CEA 1R0M 50L  | C8, C10              |
|      | CKDYF 104Z 50 | C13                  |
|      | CKDYF 103Z 50 | C7                   |
|      | CSZA 6R8K 16  | C12                  |

**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                  |
|------|--------------|---------------------------------------|
| ★    | PCP-075      | VR1 Semi-fixed                        |
| ★    | PCP-069      | VR2 Semi-fixed                        |
| ★    | PCP-067      | VR3 Semi-fixed                        |
|      | RS2HSFB330JL | R15                                   |
|      | RS1PF151J    | R10                                   |
|      | RGSD8X472J   | R23                                   |
|      | RN%PR1503F   | R7                                    |
|      | RD%PM □□□J   | R3—R6, R9, R11—R14, R16—R22, R30, R31 |

**SEMICONDUCTORS**

| Mark | Part No.                         | Symbol & Description |
|------|----------------------------------|----------------------|
| ★ ★  | BA6109                           | IC3                  |
| ★ ★  | BA6208                           | IC4                  |
| ★ ★  | PD2003                           | IC5                  |
| ★ ★  | 2SC1815<br>(2SC2458)<br>(2SC945) | Q1, Q4, Q5, Q7, Q8   |
| ★ ★  | 2SC945                           | Q2                   |
| ★ ★  | 2SC1959                          | Q3                   |
| ★    | BZ-061                           | D2                   |
| ★    | 1S1885                           | D6                   |
| ★    | 1S2473<br>(1S1555)               | D4, D5               |
| ★    | RD3.6EB                          | D3                   |
| ★    | VD1222                           | D12, D13             |

**OTHER**

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
|      | RKN-001  | Jack                 |

**3.5 POWER SUPPLY ASSEMBLY (XWR-036)****CAPACITORS**

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | PCL-040      | C1                   |
|      | CEA 471M 35L | C2                   |
|      | CEA 1R0M 50L | C3                   |
|      | CEA R47M 50L | C4, C5               |

**RESISTOR**

| Mark | Part No.   | Symbol & Description |
|------|------------|----------------------|
|      | RS2PF 151J | R2                   |

**SEMICONDUCTORS**

| Mark | Part No.           | Symbol & Description |
|------|--------------------|----------------------|
| ★ ★  | NJM 78M 05A        | IC2                  |
| ★    | PCX-010<br>(WL-02) | D1                   |

**LAMP, FUSE, OTHER**

| Mark | Part No. | Symbol & Description |
|------|----------|----------------------|
| ★ ★  | PEL-051  | L1 Lamp              |
| ★ ★  | PEK-038  | Fuse                 |
|      | PNY-009  | Lamp holder          |

**3.6 REGULATOR ASSEMBLY (XWX-110)**

| Mark | Part No.            | Symbol & Description           |
|------|---------------------|--------------------------------|
| ★ ★  | NJM7815A<br>PDE-196 | IC1<br>Connector assembly (3P) |

**3.7 POWER SUPPLY ASSEMBLY (XWR-023)****CAPACITORS**

| Mark | Part No.     | Symbol & Description |
|------|--------------|----------------------|
|      | PCL-040      | C1                   |
|      | CEA 471M 35L | C2                   |
|      | CEA 1R0M 50L | C3                   |
|      | CEA R47M 50L | C4, C5               |

**RESISTORS**

| Mark | Part No.    | Symbol & Description |
|------|-------------|----------------------|
|      | RS1HSF220JL | R1                   |
|      | RS2PF 151J  | R2                   |

**SEMICONDUCTORS**

| Mark | Part No.           | Symbol & Description |
|------|--------------------|----------------------|
| ★ ★  | NJM78M05A          | IC2                  |
| ★    | PCX-010<br>(WL-02) | D1                   |

**LAMP, OTHER**

| Mark | Part No.           | Symbol & Description   |
|------|--------------------|------------------------|
| ★ ★  | PEL-051<br>PNY-009 | L1 Lamp<br>Lamp holder |

**3.8 REGULATOR ASSEMBLY (XWX-103)**

| Mark | Part No.            | Symbol & Description  |
|------|---------------------|-----------------------|
| ★    | NJM7815A<br>PDE-177 | IC1<br>Connector (3P) |

A

B

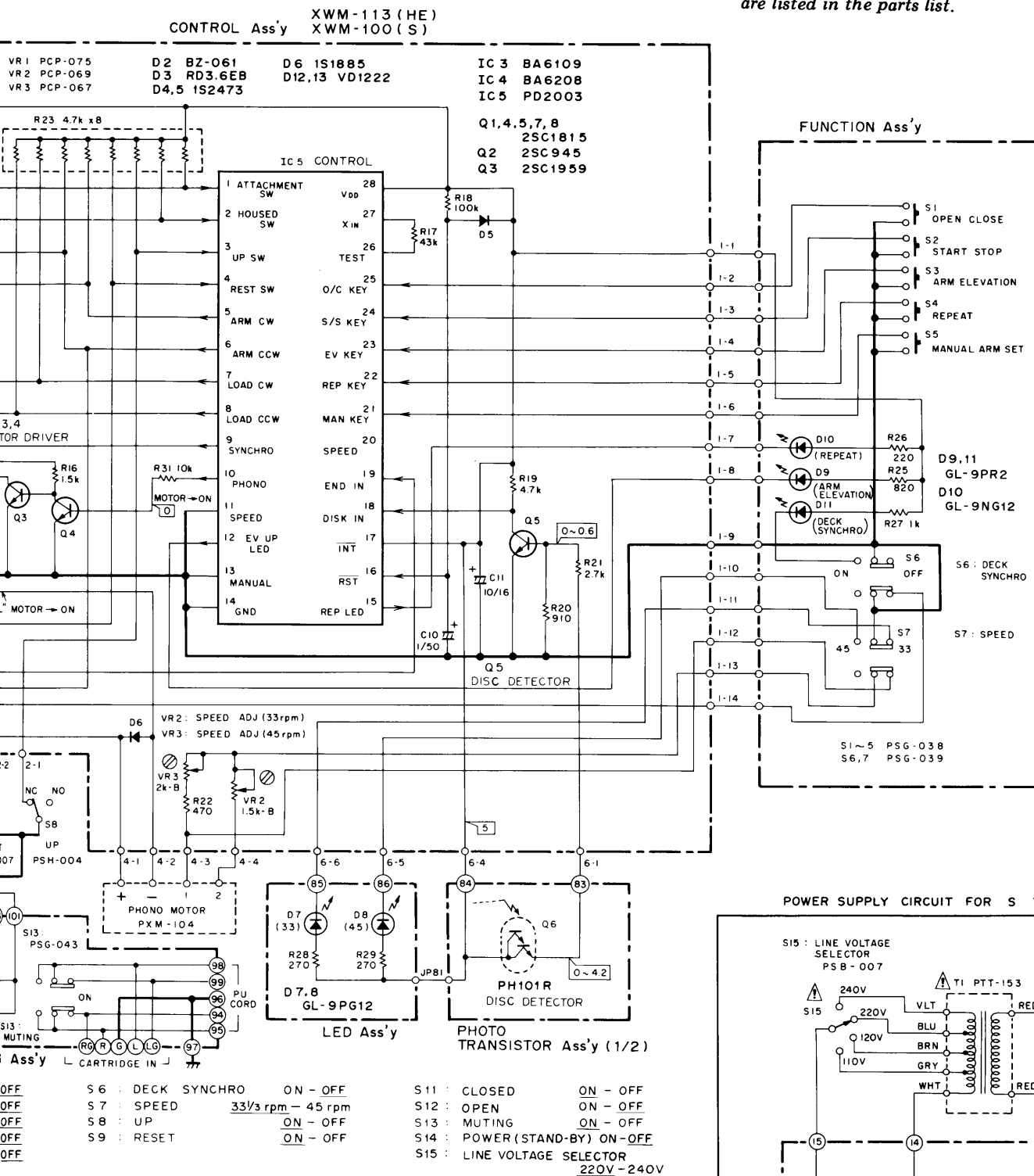
C

D



**NOTE:**

*The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.*



The underlined indicates the switch position.

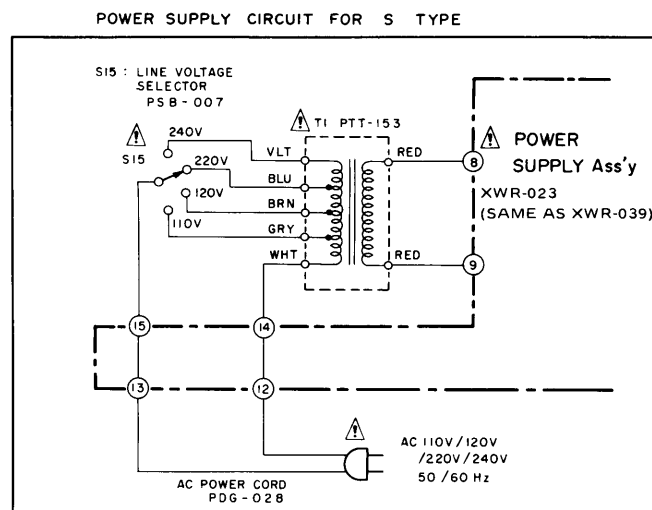
4. OTHERS:

⊙ : Adjusting point.

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.

\* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.



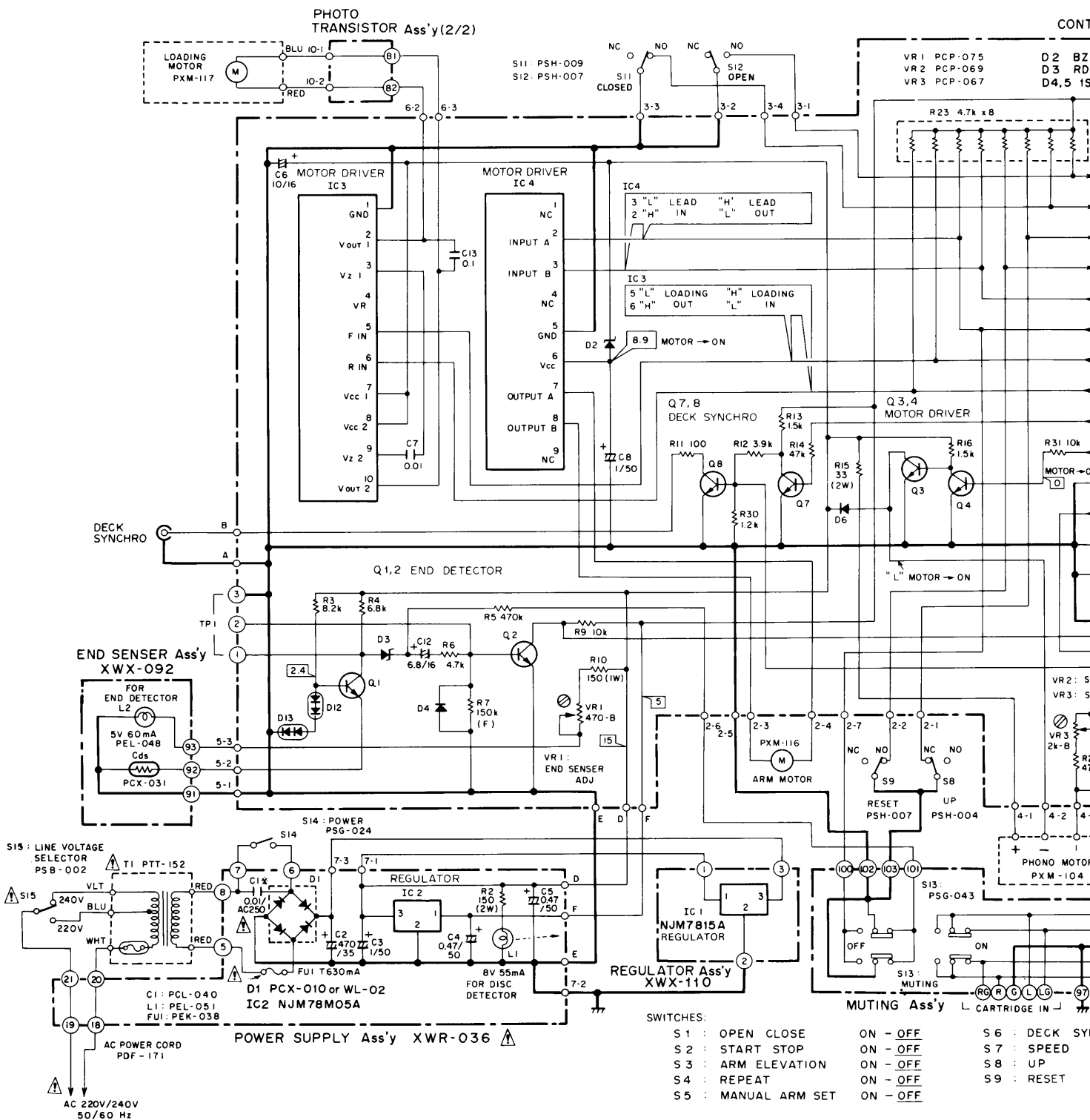
# 4.2 HB TYPE

A

B

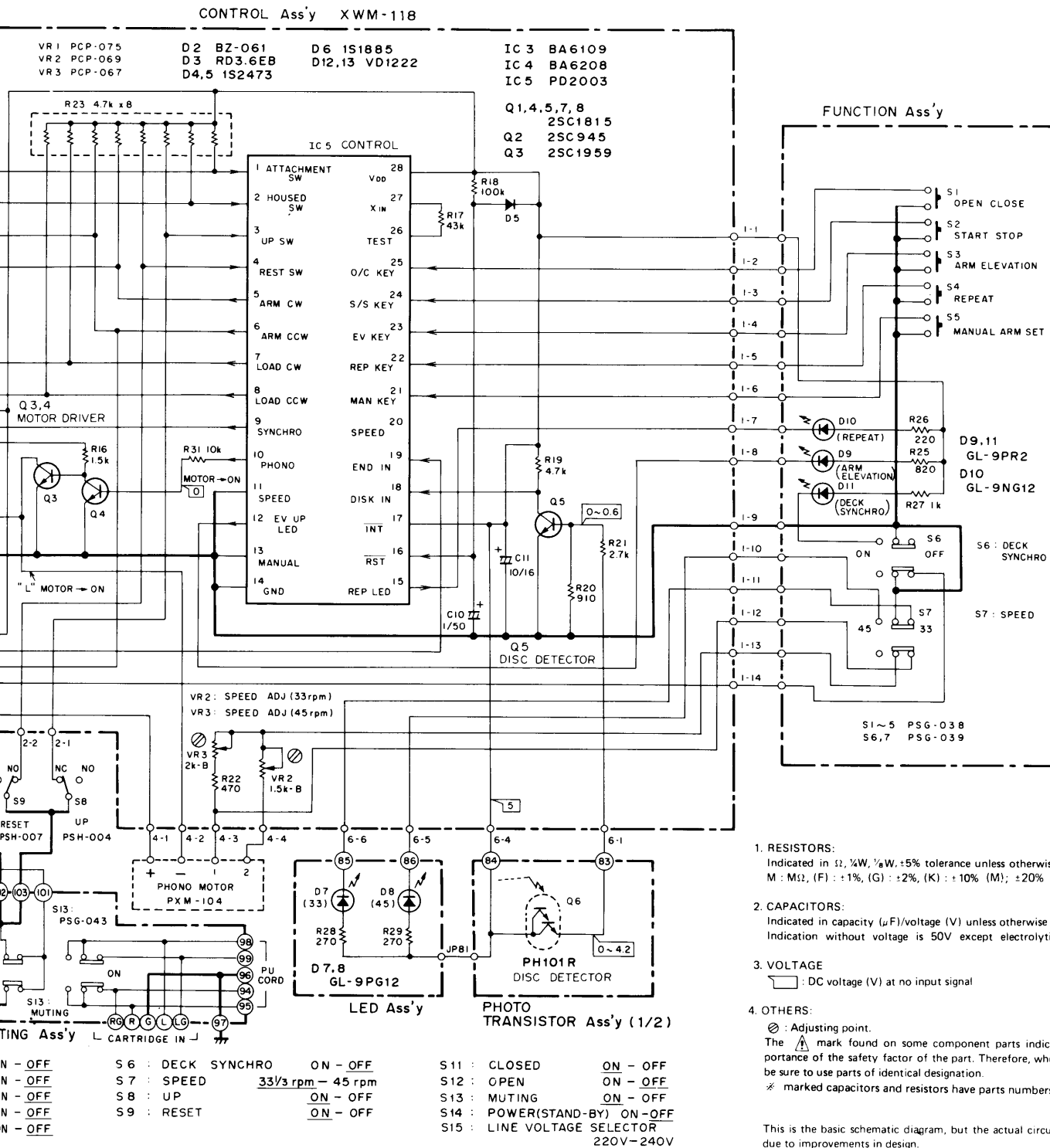
C

D



**NOTE:**

*The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.*



### 1. RESISTORS:

Indicated in  $\Omega$ ,  $\frac{1}{4}W$ ,  $\frac{1}{8}W$ ,  $\pm 5\%$  tolerance unless otherwise noted k : k $\Omega$ , M : M $\Omega$ , (F) :  $\pm 1\%$ , (G) :  $\pm 2\%$ , (K) :  $\pm 10\%$  (M);  $\pm 20\%$  tolerance

## 2. CAPACITORS:

Indicated in capacity ( $\mu\text{F}$ )/voltage (V) unless otherwise noted p : pF  
Indication without voltage is 50V except electrolytic capacitor.

### 3. VOLTAGE

 : DC voltage (V) at no input signal

4. OTHERS:

⊗ : Adjusting point.

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.

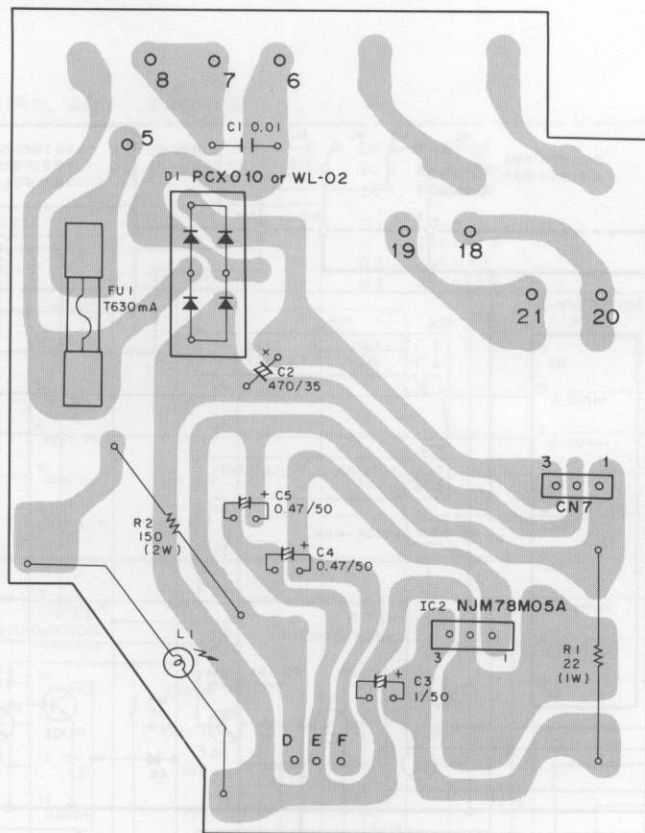
\* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

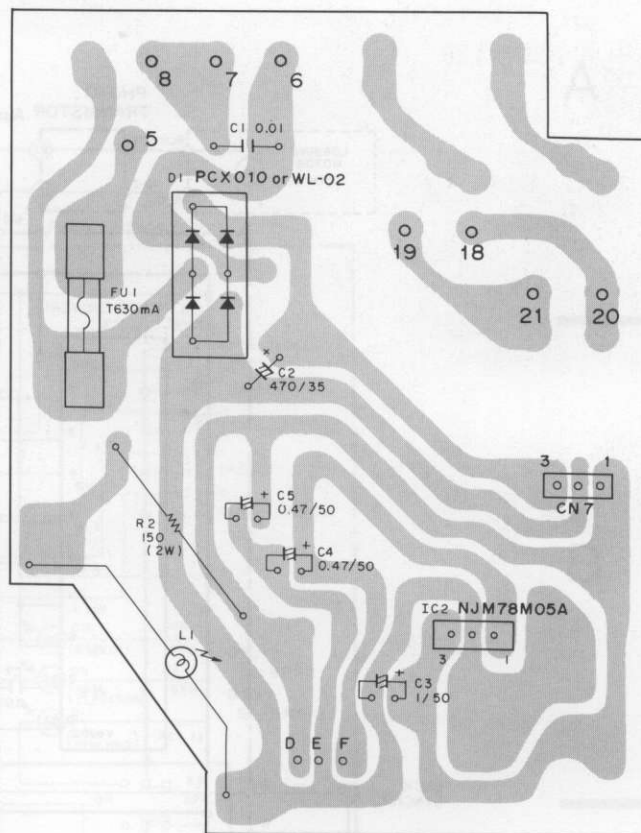


## 5.2 POWER SUPPLY ASSEMBLY

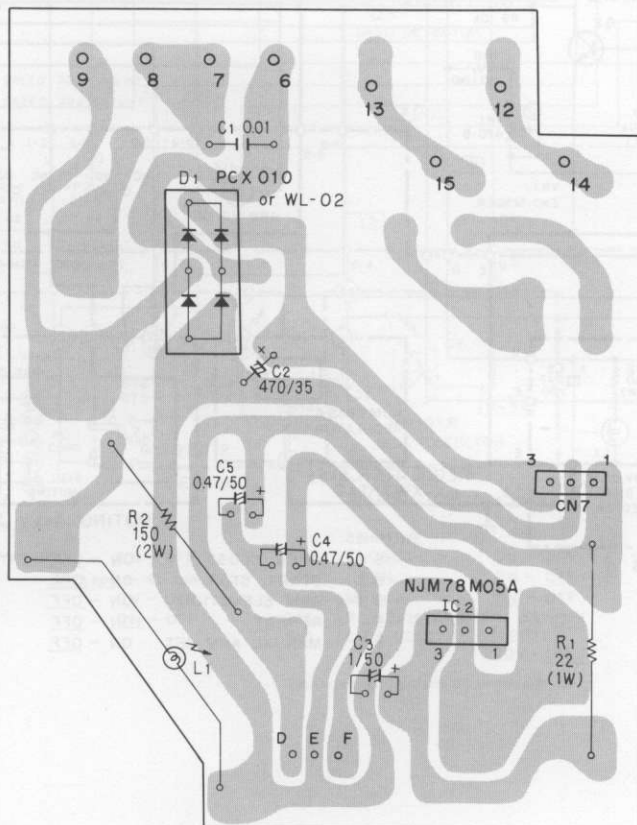
### ■ XWR-033



### ■ XWR-036



### ■ XWR-023



## 5.3 REGULATOR ASSEMBLY

### ■ XWX-110, XWX-108, XWX-103

