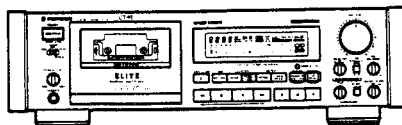


# Service Manual

**PIONEER**  
The Art of Entertainment



ORDER NO.  
ARP2227

STEREO CASSETTE DECK

# CT-S709

## CT-676

## CT-676-S

CT-S709, CT-676 AND CT-676-S HAVE THE FOLLOWING:

| Type  | Model   |        |          | Power Requirement                          | Remarks |
|-------|---------|--------|----------|--|---------|
|       | CT-S709 | CT-676 | CT-676-S |  |         |
| KU/CA | ○       | -      | -        | AC120V only                                |         |
| HEM   | -       | ○      | -        | AC220V-230V, 230V-240V (switchable) *      |         |
| HB    | -       | ○      | -        | AC220V-230V, 230V-240V (switchable) *      |         |
| SD    | -       | ○      | -        | AC110V, 120V-127V, 220V, 240V (switchable) |         |
| HEWM  | -       | -      | ○        | AC220V-230V (switchable) *                 |         |

\* Change the primary wiring of the power transformer.

- This manual is applicable to the CT-S709/KU/CA, CT-676/HEM, HB, SD and CT-676-S/HEWM types.
- As to the CT-676/HEM, HB, SD and CT-676-S/HEWM types, refer to page 43-44.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

**WARNING**

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

**1. SAFETY INFORMATION**

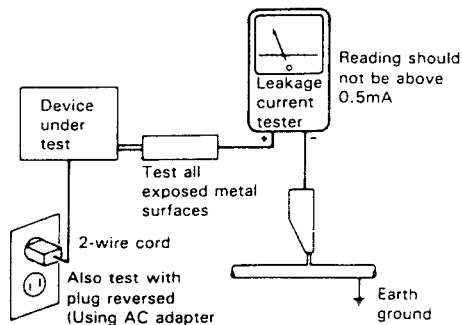
(FOR USA-MODEL ONLY)

**1. SAFETY PRECAUTIONS**

The following check should be performed for the continued protection of the customer and service technician.

**LEAKAGE CURRENT CHECK**

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

**2. PRODUCT SAFETY NOTICE**

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## 2. DISASSEMBLY

1. Remove the bonnet.
2. Remove the three screws ① and take out the FL shield plate. (Fig. 2-1)
3. Remove the upper screw ② and lower three screws ②, then take out the front panel. (Fig. 2-1)
4. Turn the power ON. (Fig. 2-1)
5. Open the cassette door by pressing the open/close button. (Fig. 2-1)
6. Remove the cassette cover and cassette door by pressing the two claws. (Fig. 2-1)

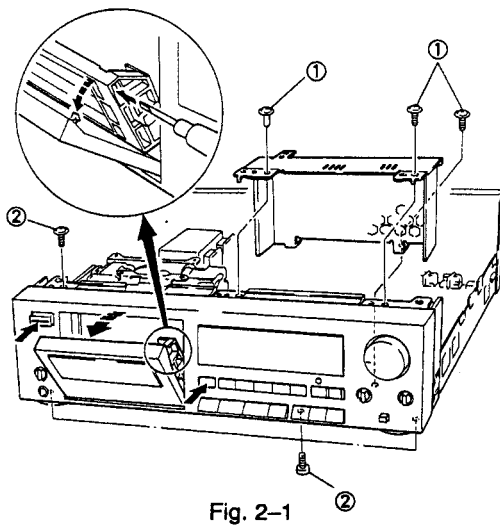


Fig. 2-1

7. Close the cassette door by pressing the close button.
8. Remove the springs at both sides of the cassette cover. Do not touch the end of spring to the cassette mechanism.
9. Remove the hook of the panel stay and take out the cassette door. (Fig. 2-2)
10. Remove the four screws ③ of the panel stay and two screws ④ on the chassis side, then take out the cassette mechanism unit. (Fig. 2-2)

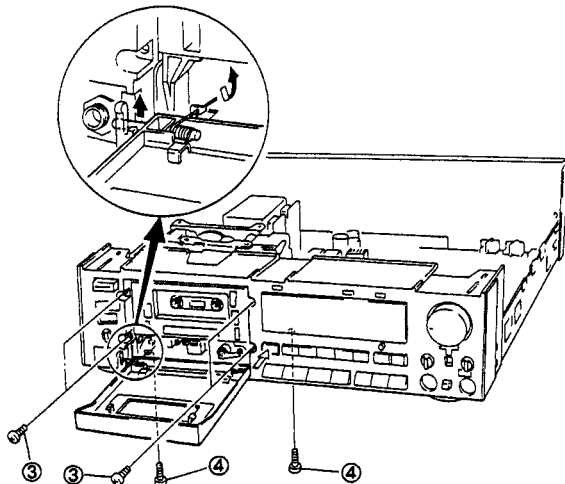


Fig. 2-2

### ● Removal of door

Pull and remove the door by pushing the claw indicated by the arrow in the figure.

(The claw forms hook shape as in SEC A to A. Do not touch the claw to other parts when pushing.)

The claw is symmetrical in configuration.

### ● Mounting of door

Open the door and strongly nip the claw and pocket so that the claw is hooked on the pocket.

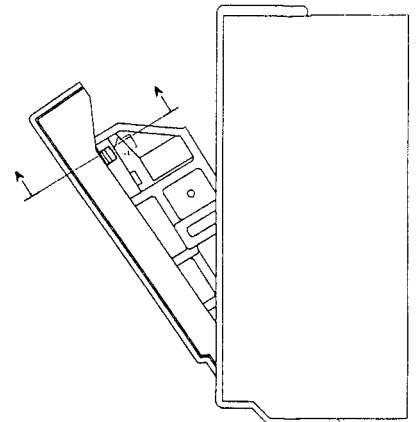
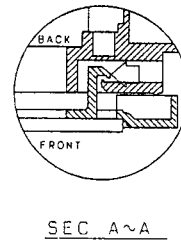


Fig. 2-3

### 3. EXPLODED VIEWS, PACKING AND PARTS LIST

**NOTES:**

- Parts without part number cannot be supplied.
- 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.
- Parts marked by “ $\odot$ ” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

#### 3.1 PARTS LIST OF EXTERIOR AND PACKING

| Mark     | No. | Description             | Part No.     | Mark | No. | Description                         | Part No.     |
|----------|-----|-------------------------|--------------|------|-----|-------------------------------------|--------------|
| $\Delta$ | 1   | Strain relief           | CM - 22C     |      | 46  | Screw                               | BBZ30P060FZK |
| $\Delta$ | 2   | AC Power cord           | PDG1015      |      | 47  | Screw                               | PMA30P060FCU |
| $\Delta$ | 3   | FU703 Fuse (1.6A)       | REK - 074    |      | 48  | Pad (F)                             | RHA1021      |
| $\Delta$ | 4   | FU701, FU702 (500mA)    | REK - 077    |      | 49  | Pad (R)                             | RHA1022      |
| $\Delta$ | 5   | T1 Power transformer    | RTT1159      |      | 50  | Packing case                        | RHG1282      |
|          | 6   | Diode                   | SLF - 401C   |      | 51  | Sheet                               | RHX - 034    |
|          | 7   | Absorb plate (B)        | PNB1109      |      | 52  | Control cord                        | RDE1030      |
|          | 8   | Door spring             | RBH1144      |      | 53  | Connection cord<br>(with mini plug) | PDE - 319    |
|          | 9   | Door spring (L)         | RBH1259      |      | 54  | Connection cord                     | RDE1002      |
|          | 10  | Door spring (R)         | RBH1260      |      | 55  | Operating instructions              | RRB1094      |
|          | 11  | Earth spring            | RBL - 059    |      | 56  | Protector                           | RED1020      |
|          | 12  | Stablizer (B)           | REB1038      |      | 57  | Jack nut                            | RBN - 006    |
|          | 13  | Door cushion            | REB1167      |      | 58  | Binder                              | REC - 371    |
|          | 14  | Spacer                  | REC1086      |      |     |                                     |              |
|          | 15  | Cord clamper            | RNH - 184    |      |     |                                     |              |
|          | 16  | Panel stay              | RNT1090      |      | 101 | HPHN unit                           |              |
|          | 17  | Counter reset knob      | RAA1009      |      | 102 | PWSW unit                           |              |
|          | 18  | Power button            | RAC1410      |      | 103 | TIMS unit                           |              |
|          | 19  | Function knob           | RAC1411      |      | 104 | MAIN unit                           |              |
|          | 20  | Push knob               | RAC1413      |      | 105 | TRN 2 unit                          |              |
|          | 21  | Knob (B)                | RAC1414      |      | 106 | SUBB unit                           |              |
|          | 22  | Mode knob               | RAC1552      |      | 107 | Connector assembly (2P)             |              |
|          | 23  | Slide SW knob           | RAC1562      |      | 108 | PCB spacer                          |              |
|          | 24  | FL filter               | RAH1838      |      | 109 | Rubber spacer (A)                   |              |
|          | 25  | Door                    | RAH1846      |      | 110 | Mechanism sheet (2)                 |              |
|          | 26  | Side rubber             | REB1094      |      | 111 | Main chassis                        |              |
|          | 27  | Door sheet              | REB1170      |      | 112 | PS holder                           |              |
|          | 28  | VR knob assembly        | RXA1281      |      | 113 | FL shield plate                     |              |
|          | 29  | Stopper                 | VEC1061      |      | 114 | Name plate                          |              |
|          | 30  | Insulator               | VNK1095      |      | 115 | Cassette plate                      |              |
|          | 31  | Door lens               | RLP1026      |      | 116 | Front panel                         |              |
|          | 32  | FL lens                 | RLP1027      |      | 117 | Rear panel                          |              |
|          | 33  | Cassette plate assembly | RXX1115      |      | 118 | Connection cord assembly            |              |
|          | 34  | Bonnet                  | RXX1378      |      | 119 | TRN 1 unit                          |              |
|          | 35  | Front panel assembly    | RXX1388      |      |     |                                     |              |
| $\odot$  | 36  | Mechanism unit          | RYM1124      |      |     |                                     |              |
|          | 37  | Screw                   | FBT40P080FZK |      |     |                                     |              |
|          | 38  | Screw                   | ABZ26P080FZK |      |     |                                     |              |
|          | 39  | Screw                   | BBT30P060FCC |      |     |                                     |              |
|          | 40  | Screw                   | BBT30P100FZK |      |     |                                     |              |
|          | 41  | Screw                   | BBZ30P100FZK |      |     |                                     |              |
|          | 42  | Screw                   | IBZ30P060FCC |      |     |                                     |              |
|          | 43  | Screw                   | IBZ30P100FCC |      |     |                                     |              |
|          | 44  | Screw                   | IBZ30P080FCC |      |     |                                     |              |
|          | 45  | Screw                   | BBZ30P100FCC |      |     |                                     |              |

Exterior

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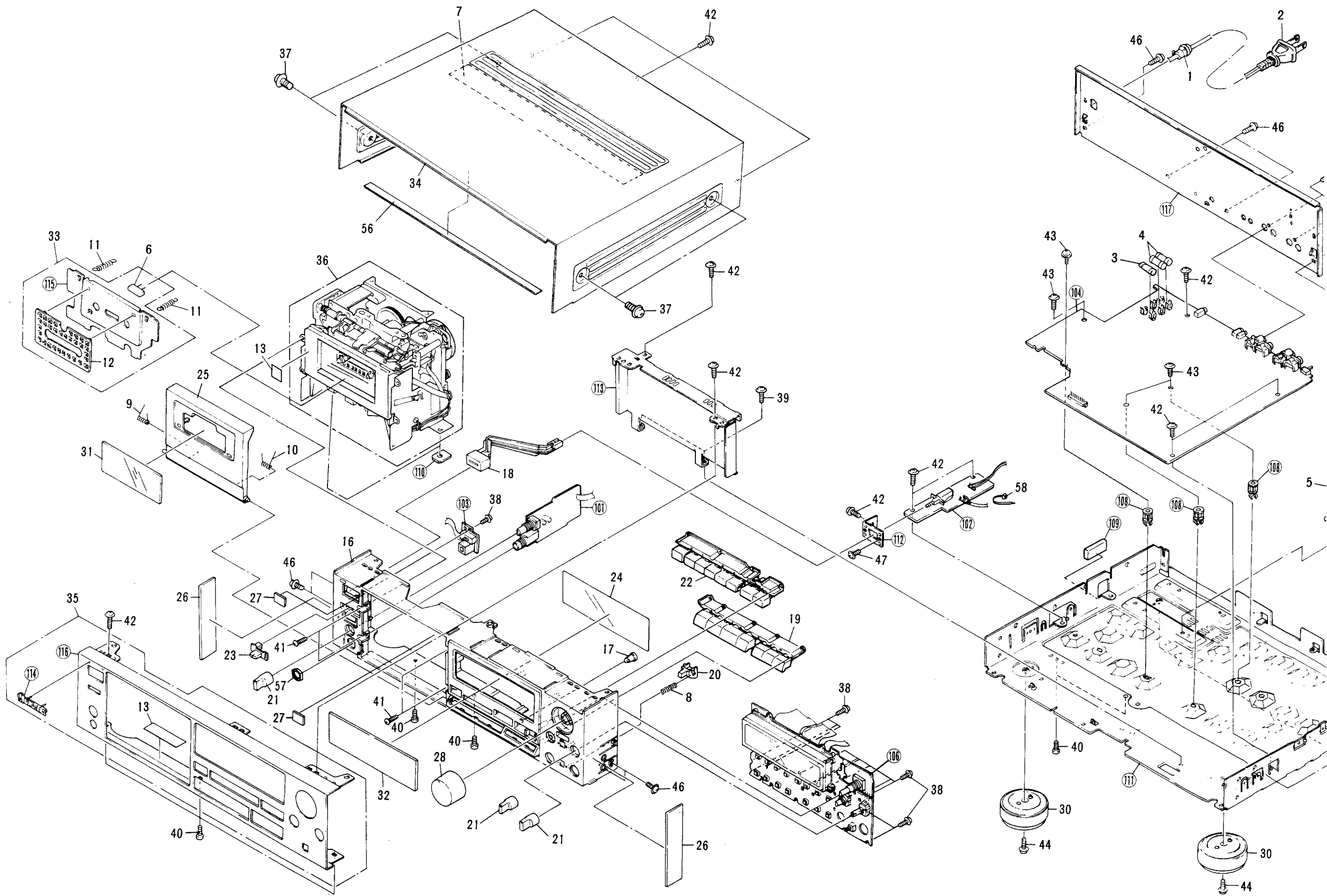
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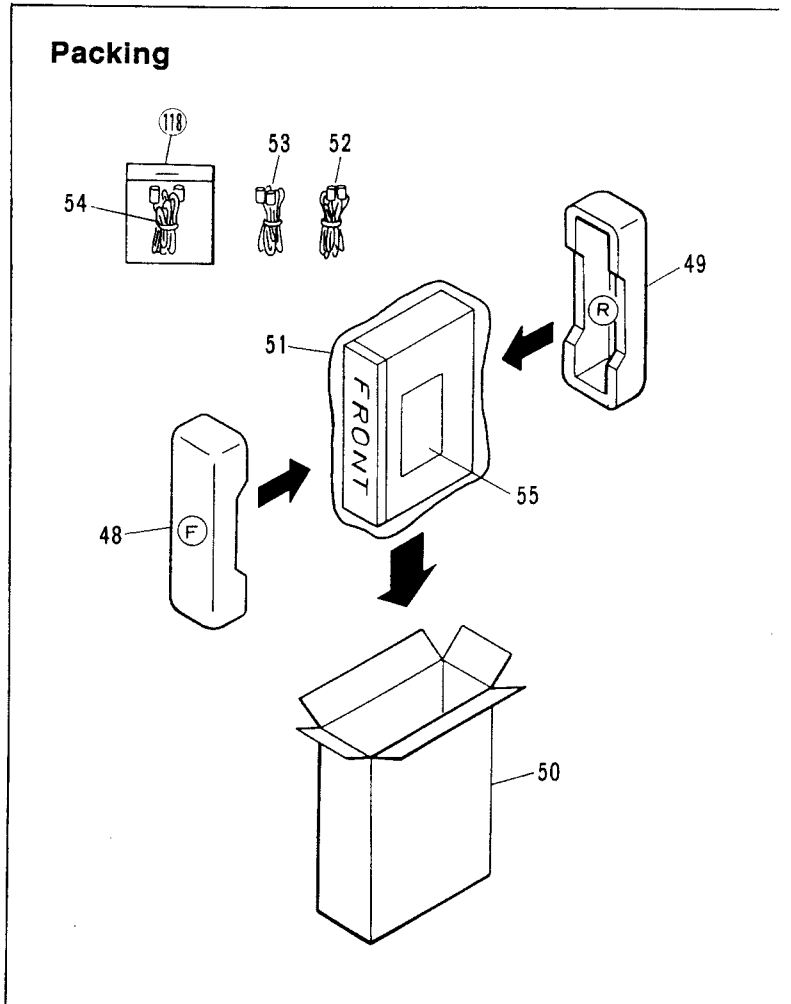
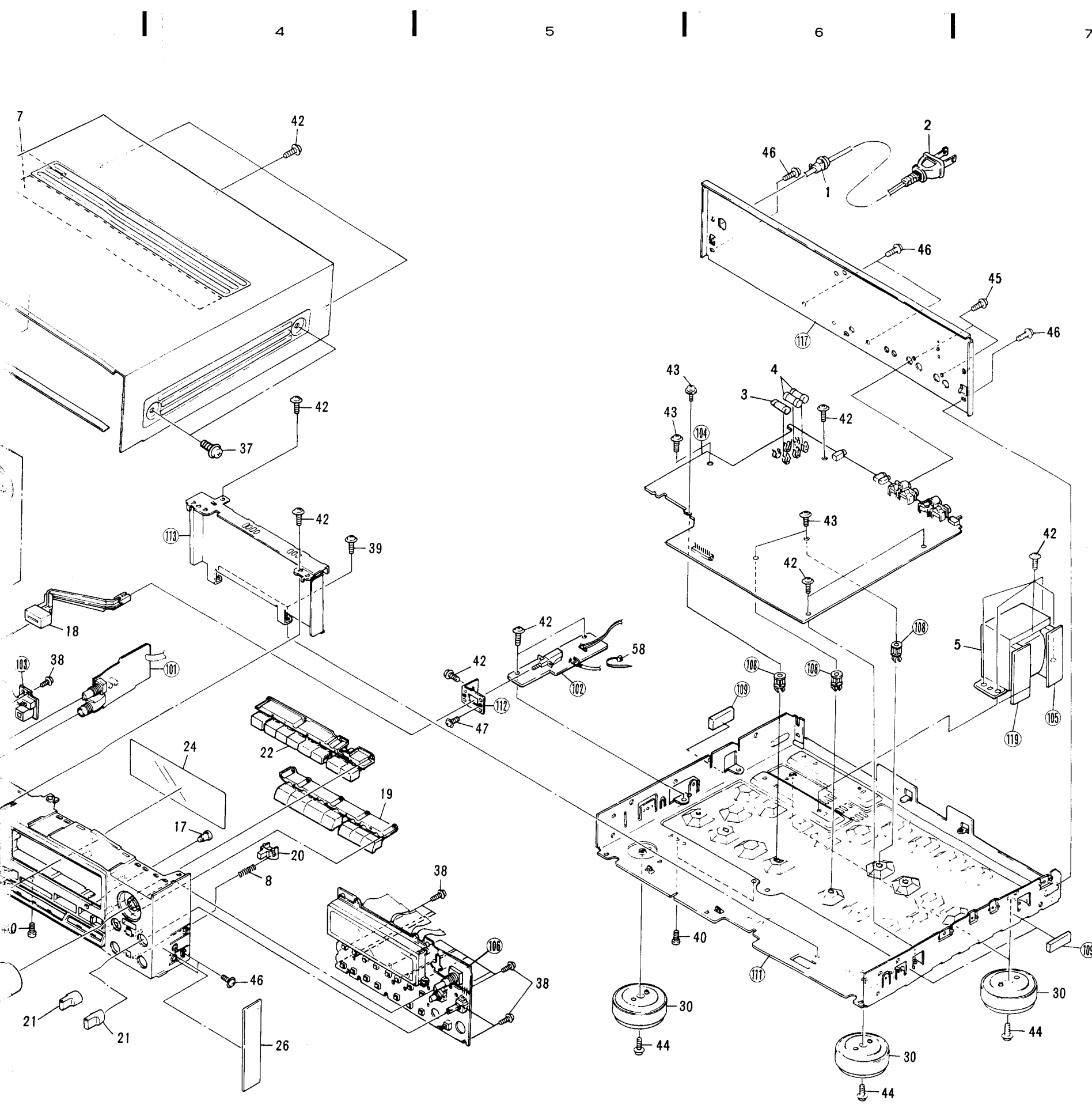
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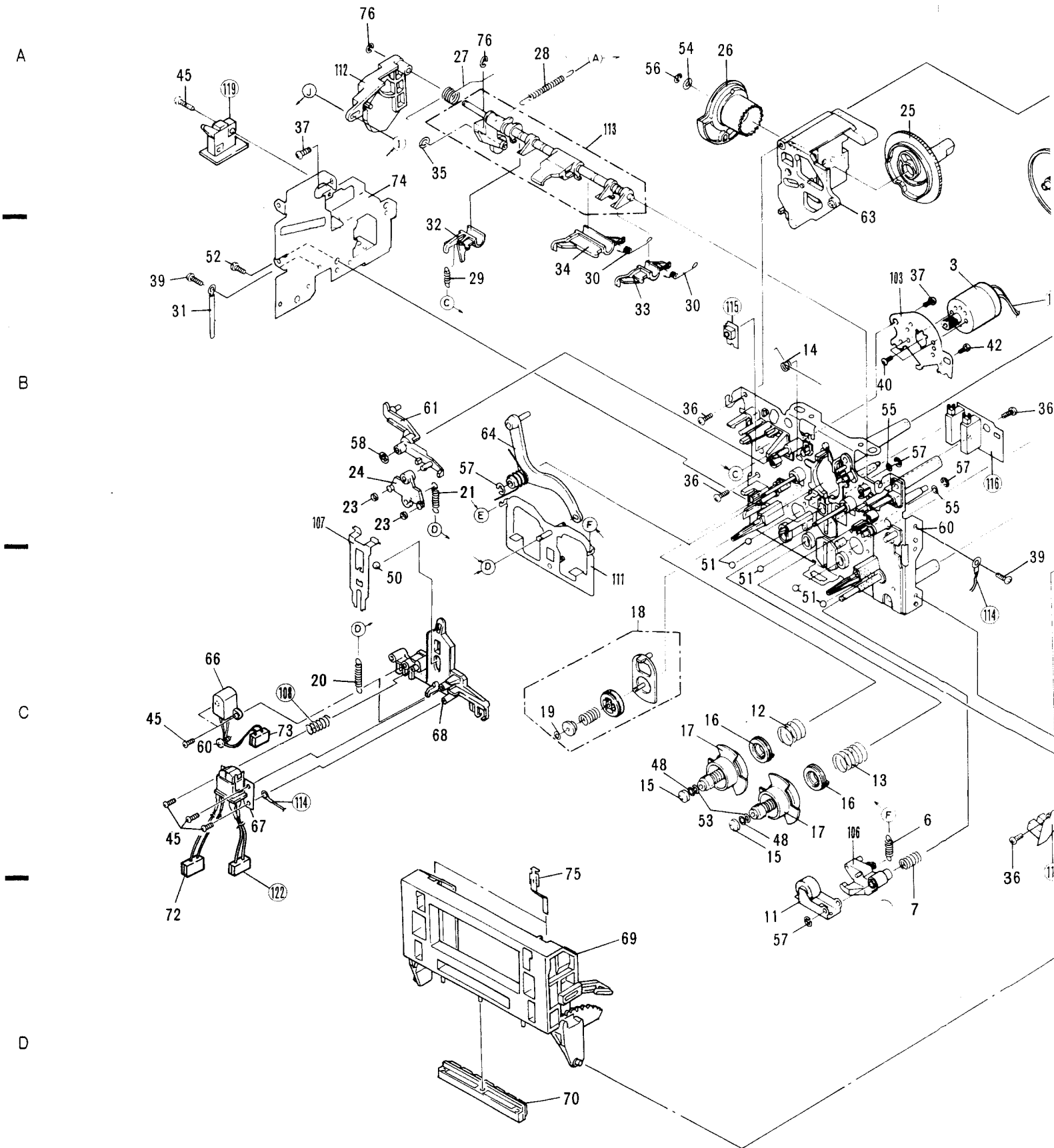
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1.2 MECHANISM UNIT

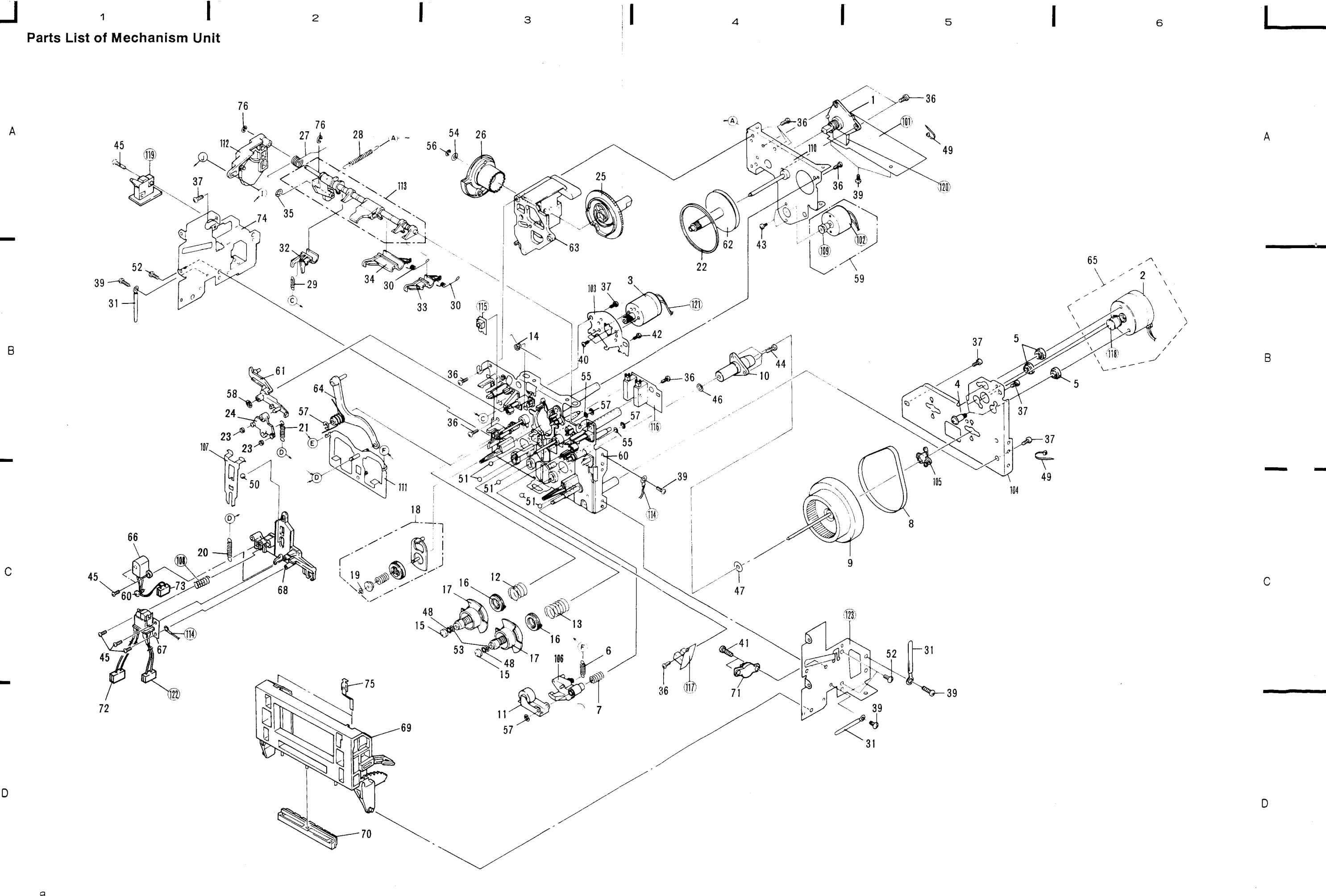
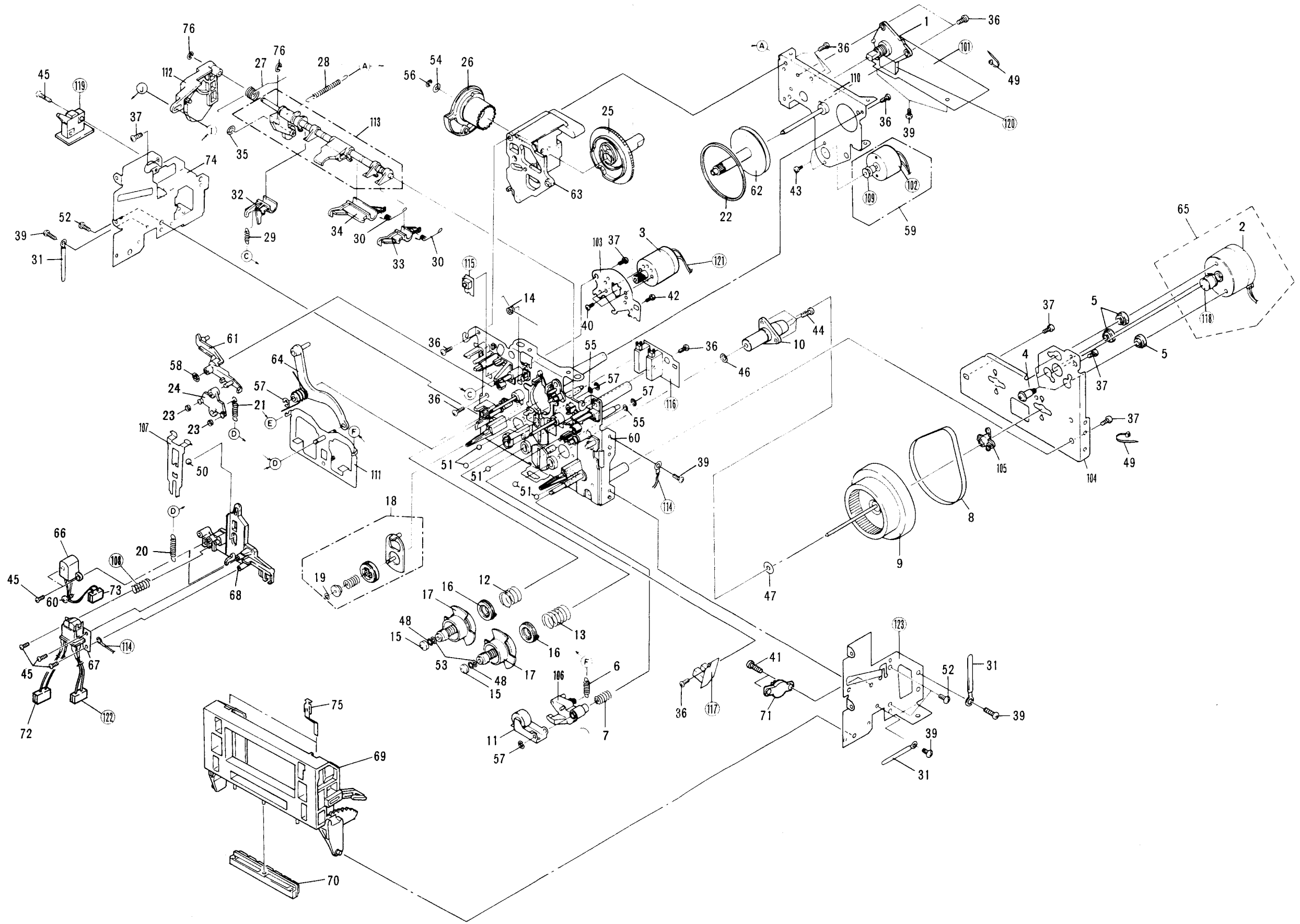
Parts List of Mechanism Unit

| Mark No. | Description                   | Part No.     | Mark No. | Description                | Part No.     |
|----------|-------------------------------|--------------|----------|----------------------------|--------------|
| 1        | Rotary encoder                | RSX1004      | 51       | Steel ball (φ 4)           | REF - 023    |
| 2        | Capstan motor                 | RXM1036      | 52       | Screw                      | VCT30P060FZK |
| 3        | Reel motor assembly           | RXM1018      | 53       | Washer                     | WA21D040D013 |
| 4        | Step screw                    | RBA - 064    | 54       | Washer                     | WA26N070W040 |
| 5        | Rubber cushion                | REB1125      | 55       | Washer                     | WA32D080D050 |
| 6        | Pinch spring                  | RBL - 028    | 56       | E ring                     | YE20FUC      |
| 7        | Pinch thrust spring           | RBL - 030    | 57       | E ring                     | YE25FUC      |
| 8        | Capstan belt                  | RBL1143      | 58       | Washer                     | YS24FBT      |
| 9        | Flywheel assembly             | RXA1374      | 59       | Power motor assembly       | RXX1055      |
| 10       | Metal holder assembly(A)      | RXA1342      | 60       | Mechanism chassis assembly | RXA1422      |
| 11       | Pinch roller arm (R) assembly | RXB - 876    | 61       | Brake lever                | RNK1638      |
| 12       | BT spring (A)                 | RBL - 031    | 62       | Second pulley assembly     | RXA1350      |
| 13       | BT spring (B)                 | RBL - 032    | 63       | Gear base assembly         | RXA1351      |
| 14       | Idler pressure spring         | RBL - 033    | 64       | Pinch lever assembly       | RXA1360      |
| 15       | Reel shaft cap (B)            | RNK - 815    | 65       | Capstan motor assembly     | RXX1334      |
| 16       | BT disc assembly              | RXB - 751    | 66       | E head                     | RPB1002      |
| 17       | Reel base assembly            | RXB - 874    | 67       | R/P head                   | RPB1044      |
| 18       | Take-up idler assembly        | RXB - 875    | 68       | Head base                  | RNK1727      |
| 19       | Washer                        | RBF - 065    | 69       | Door pocket                | RNT1101      |
| 20       | Head base spring              | RBL - 037    | 70       | Stabilizer                 | REB1161      |
| 21       | Brake spring                  | RBL - 038    | 71       | Damper assembly            | REC1005      |
| 22       | Drive belt                    | REB1169      | 72       | Connector assembly (4P)    | RKP1383      |
| 23       | Brake shoe                    | REB - 511    | 73       | Connector assembly (2P)    | RKP1384      |
| 24       | Brake                         | RNL - 723    | 74       | Door frame (L)             | RNE1442      |
| 25       | Cam gear                      | RNK1640      | 75       | Half pressure spring       | RBK1004      |
| 26       | Side cam gear assembly        | RXA1349      | 76       | E ring                     | YE30FUC      |
| 27       | Eject spring                  | RBL - 039    | 77       | Pinch return spring        | RBH1299      |
| 28       | Half pressure spring          | RBL - 040    | 101      | Connector unit             |              |
| 29       | REC arm spring                | RBL - 041    | 102      | Power motor                |              |
| 30       | Detect arm spring             | RBL - 042    | 103      | Reel motor mounting plate  | RNE1169      |
| 31       | Cord clamber                  | RNH - 184    | 104      | Flywheel holder            | RNH - 304    |
| 32       | REC detect arm                | RNL - 733    | 105      | Thrust holder              | RNL - 743    |
| 33       | CrO <sub>2</sub> detect arm   | RNL - 734    | 106      | Pressure arm (R)           | RNL - 725    |
| 34       | Metal detect arm              | RNL - 735    | 107      | Head base pressure spring  | RBL - 026    |
| 35       | Washer                        | RBF - 057    | 108      | Head adjust spring (C)     |              |
| 36       | Screw                         | BBZ26P080FZK | 109      | First pulley               |              |
| 37       | Screw                         | BBZ30P080FZK | 110      | Gear chassis assembly      | RXA1171      |
| 38       | Screw                         | PMB20P060FMC | 111      | Pinch base assembly        | RXB - 878    |
| 39       | Screw                         | BCZ30P060FMC | 112      | Eject lever                | RNL - 738    |
| 40       | Screw                         | BMZ26P030FZK | 113      | Shift shaft assembly       | RXB - 885    |
| 41       | Screw                         | PBZ20P060FMC | 114      | Earth lead assembly        |              |
| 42       | Screw                         | BMZ30P080FZK | 115      | REC switch unit            |              |
| 43       | Screw                         | JGZ20P025FMC | 116      | Tape selector unit         |              |
| 44       | Screw                         | PMA26P050FZK | 117      | Sensor unit (A)            |              |
| 45       | Screw                         | PMZ20P080FZK | 118      | Motor pulley               |              |
| 46       | Washer                        | RBF - 030    | 119      | Door switch unit           |              |
| 47       | Thrust washer (A)             | RBF - 069    | 120      | 2.5mm pitch side post (5P) |              |
| 48       | Washer                        | RBF - 076    | 121      | Vinyl wire (2P)            |              |
| 49       | Binder                        | REC - 371    | 122      | Connector assembly (4P)    |              |
| 50       | Steel ball (φ 3)              | REF - 022    | 123      | Door frame (R)             |              |

Parts List of Mechanism Unit

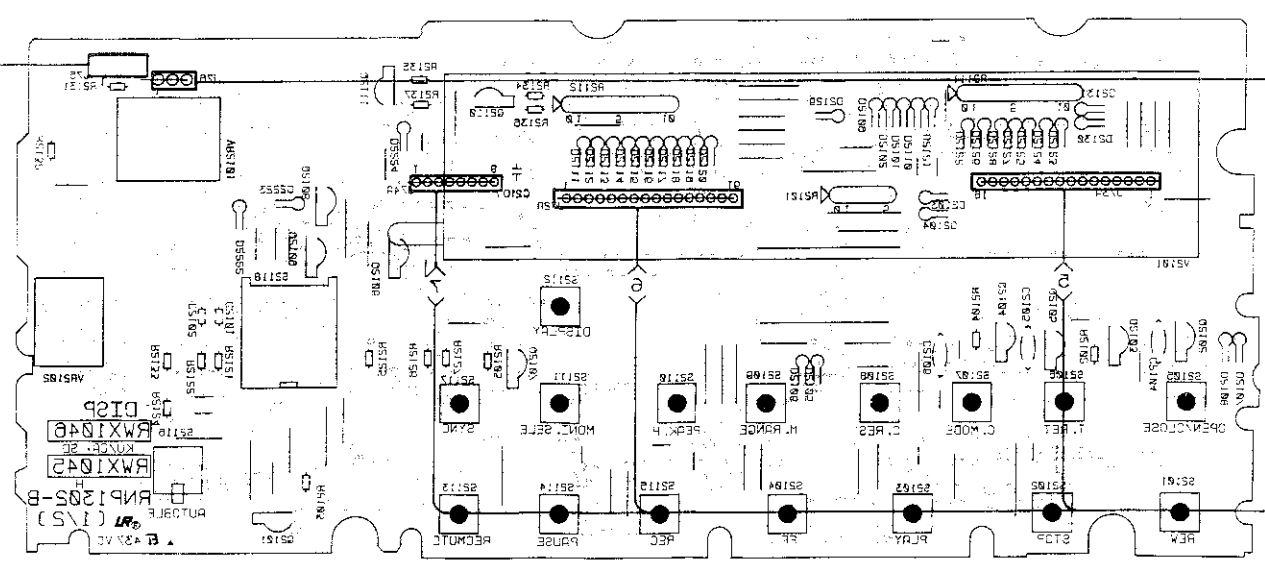
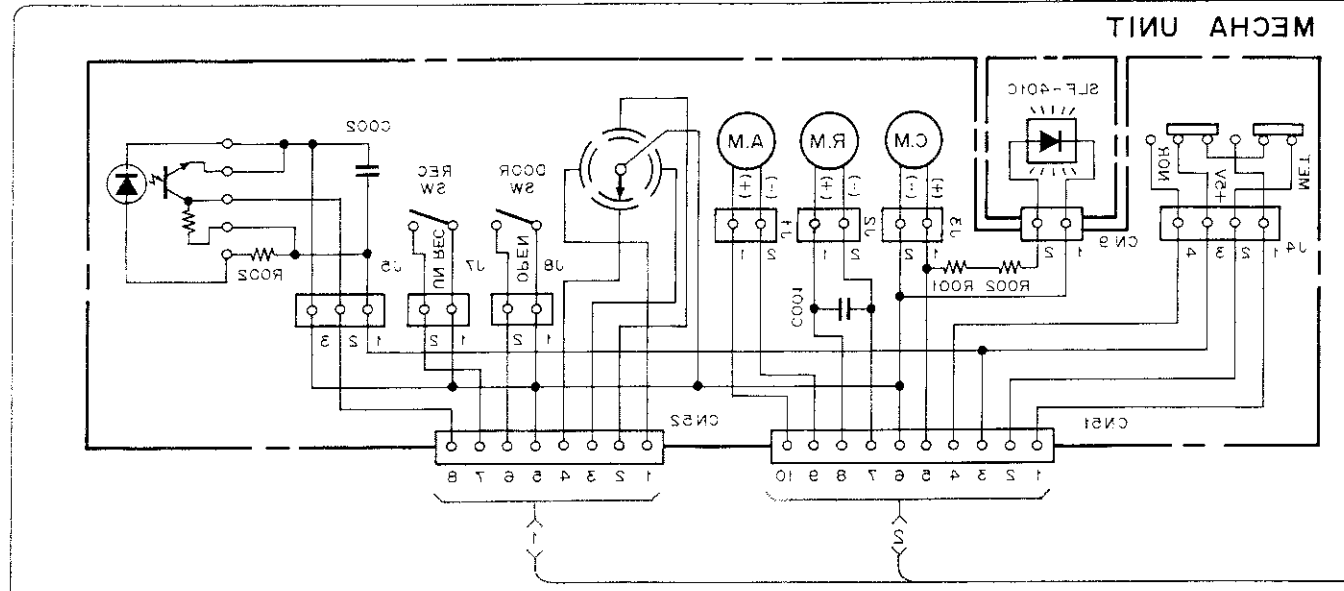
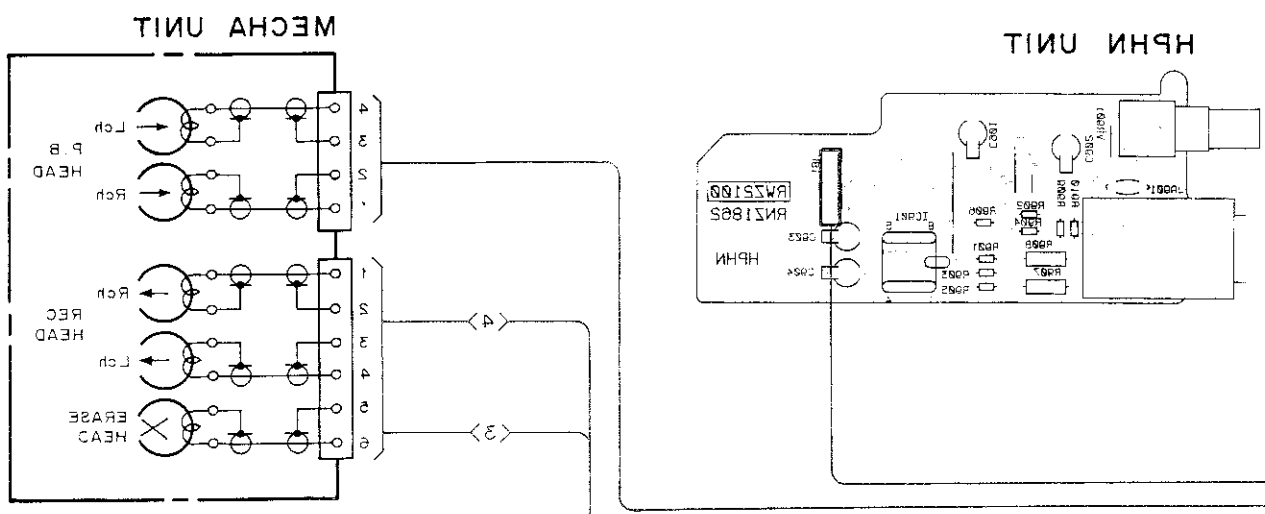
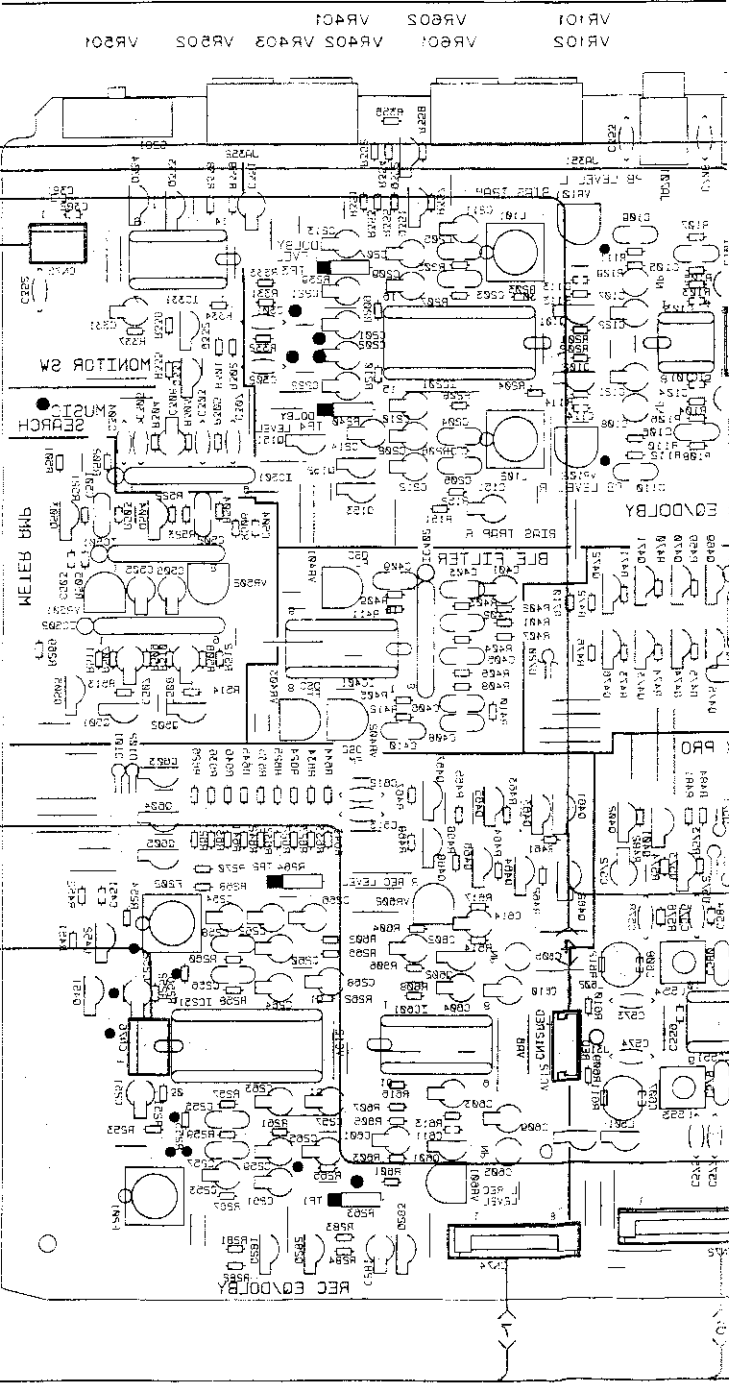


# Parts List of Mechanism Unit





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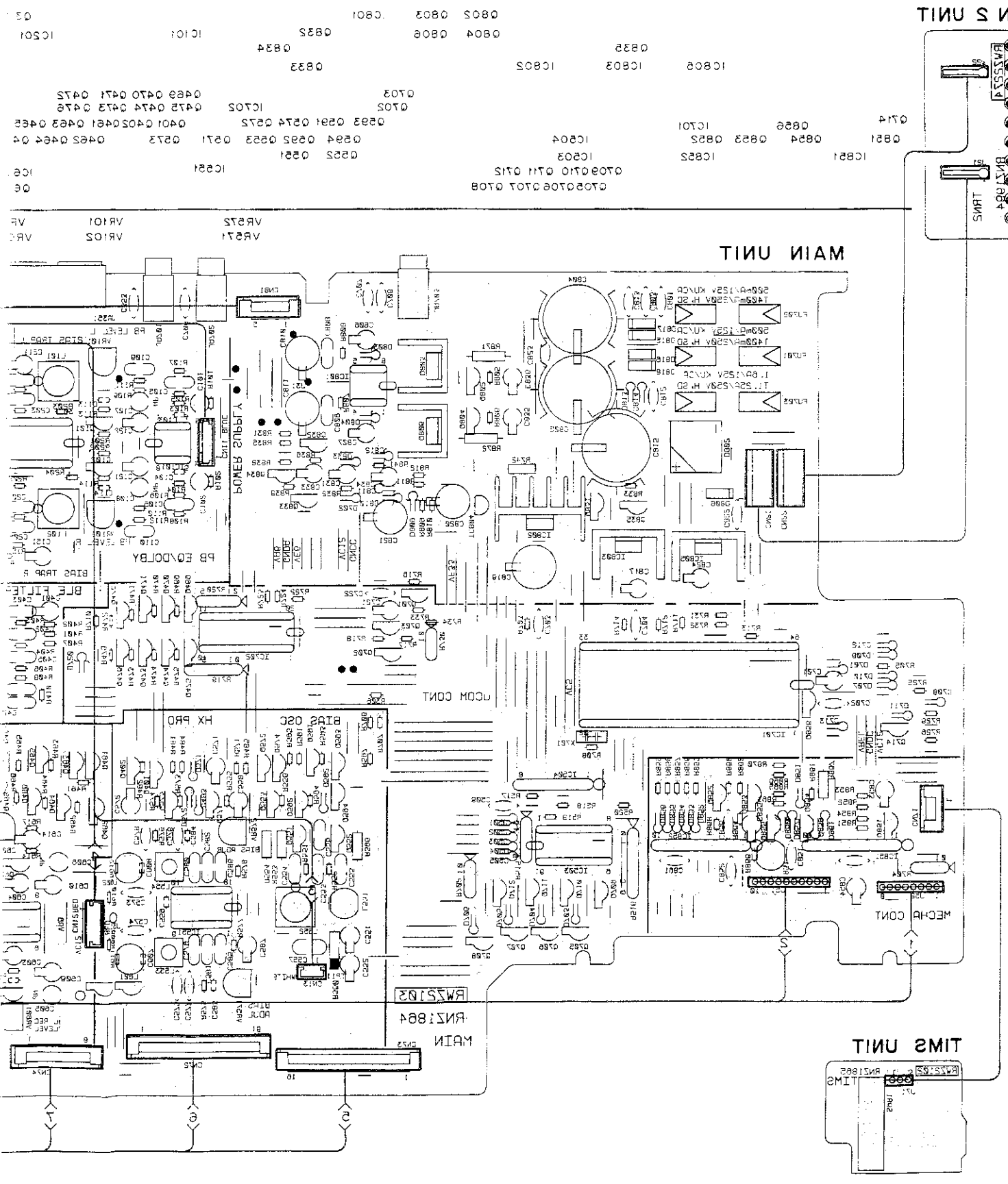
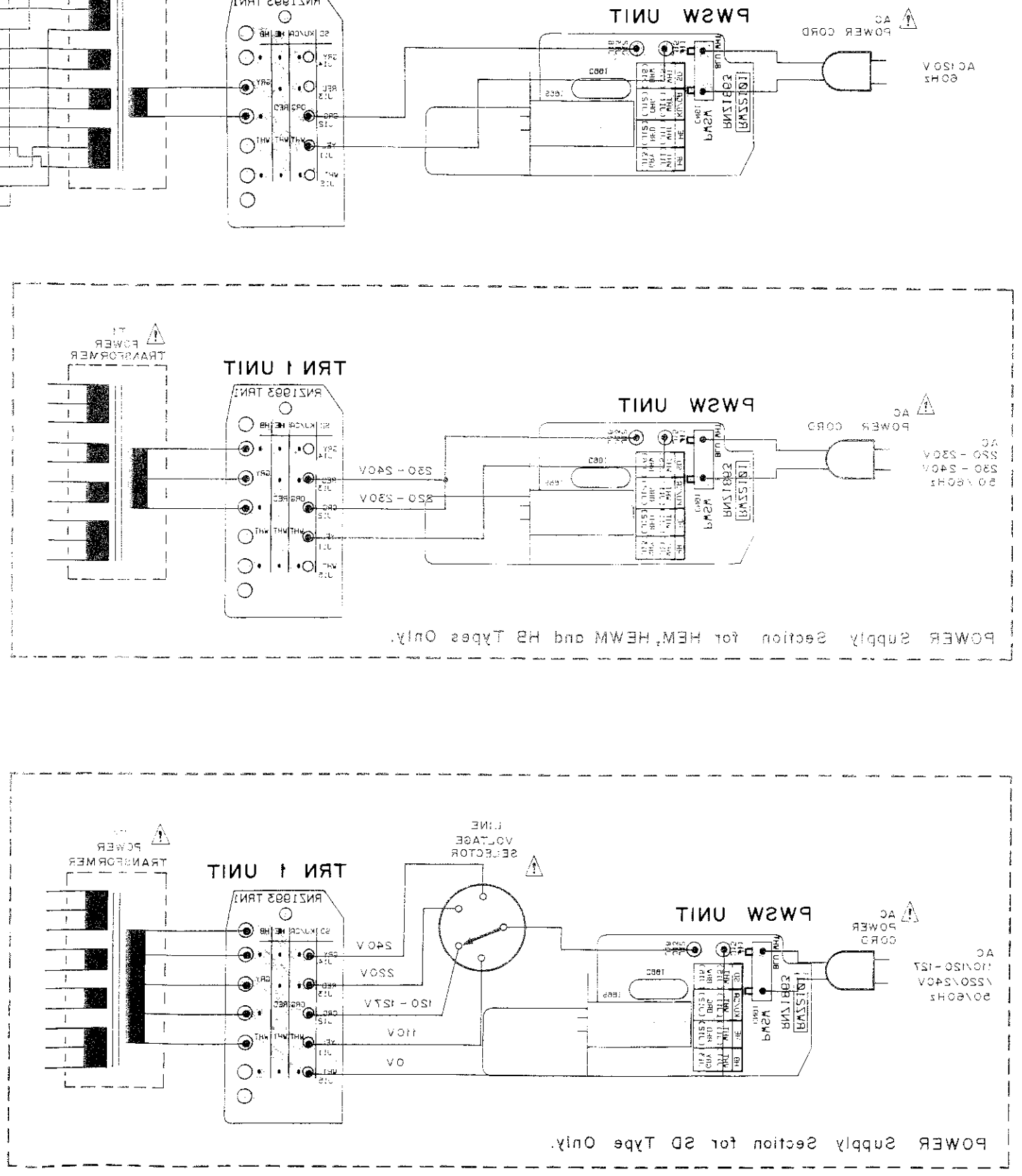
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# 4. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side

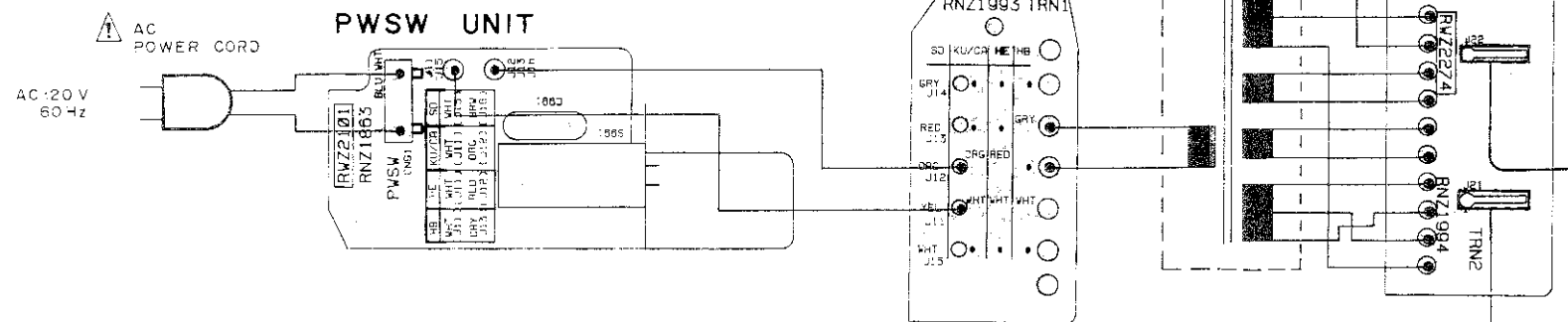


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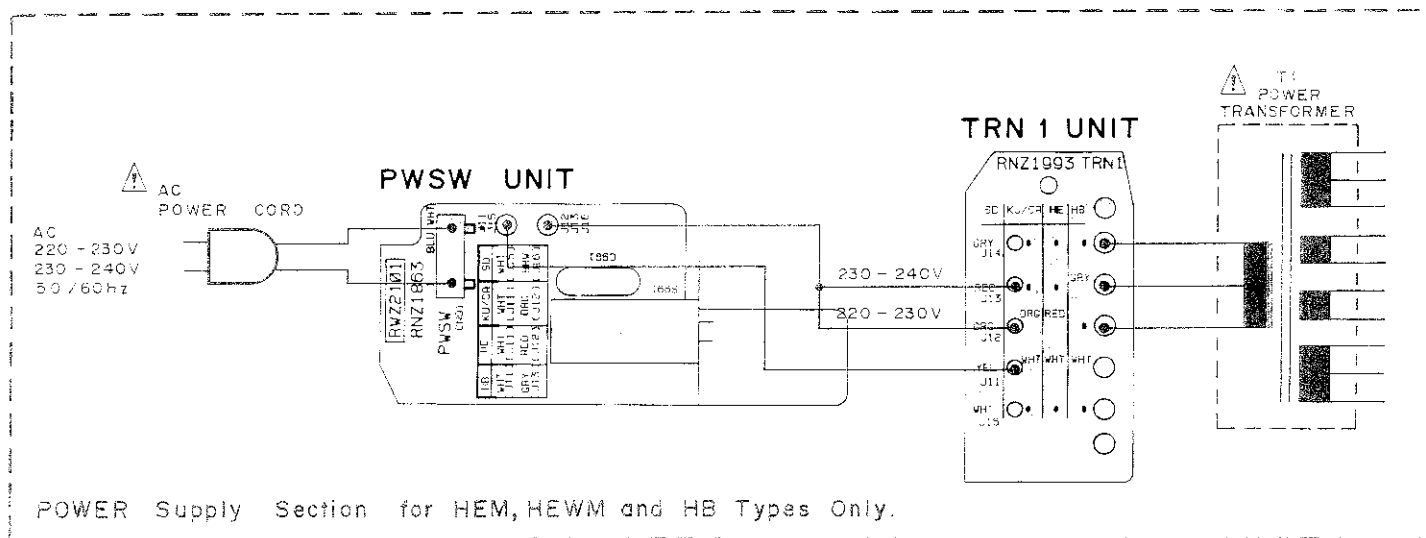
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# 4. P.C. BOARDS CONNECTION DIAGRAM

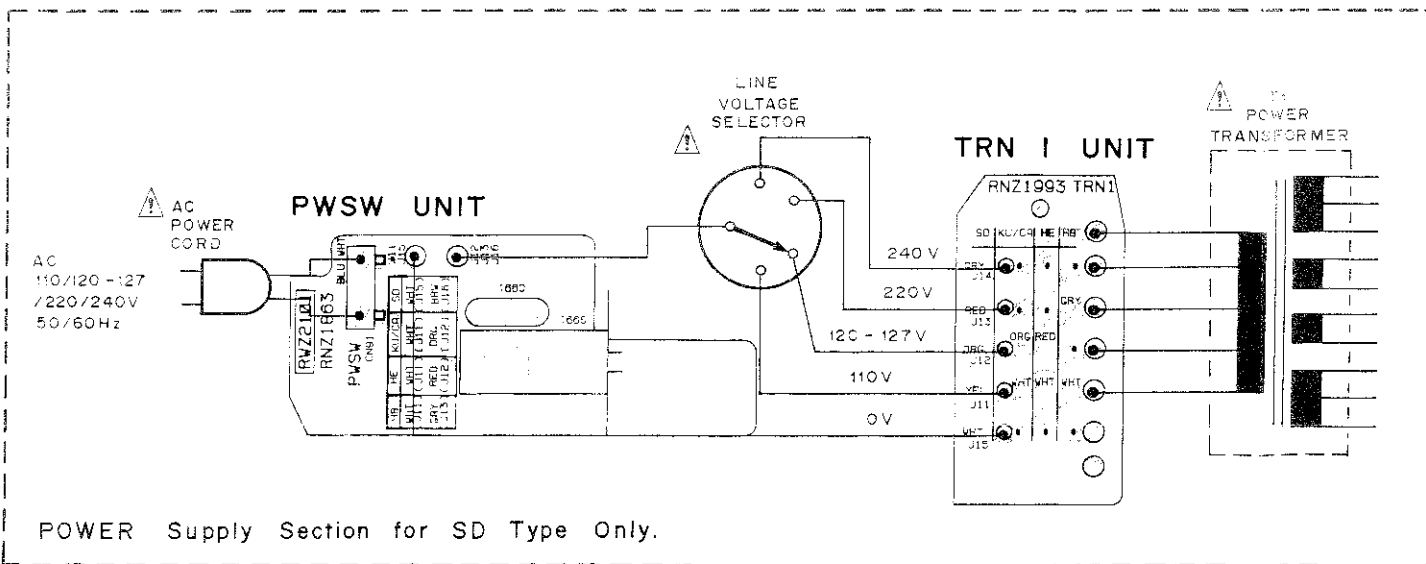
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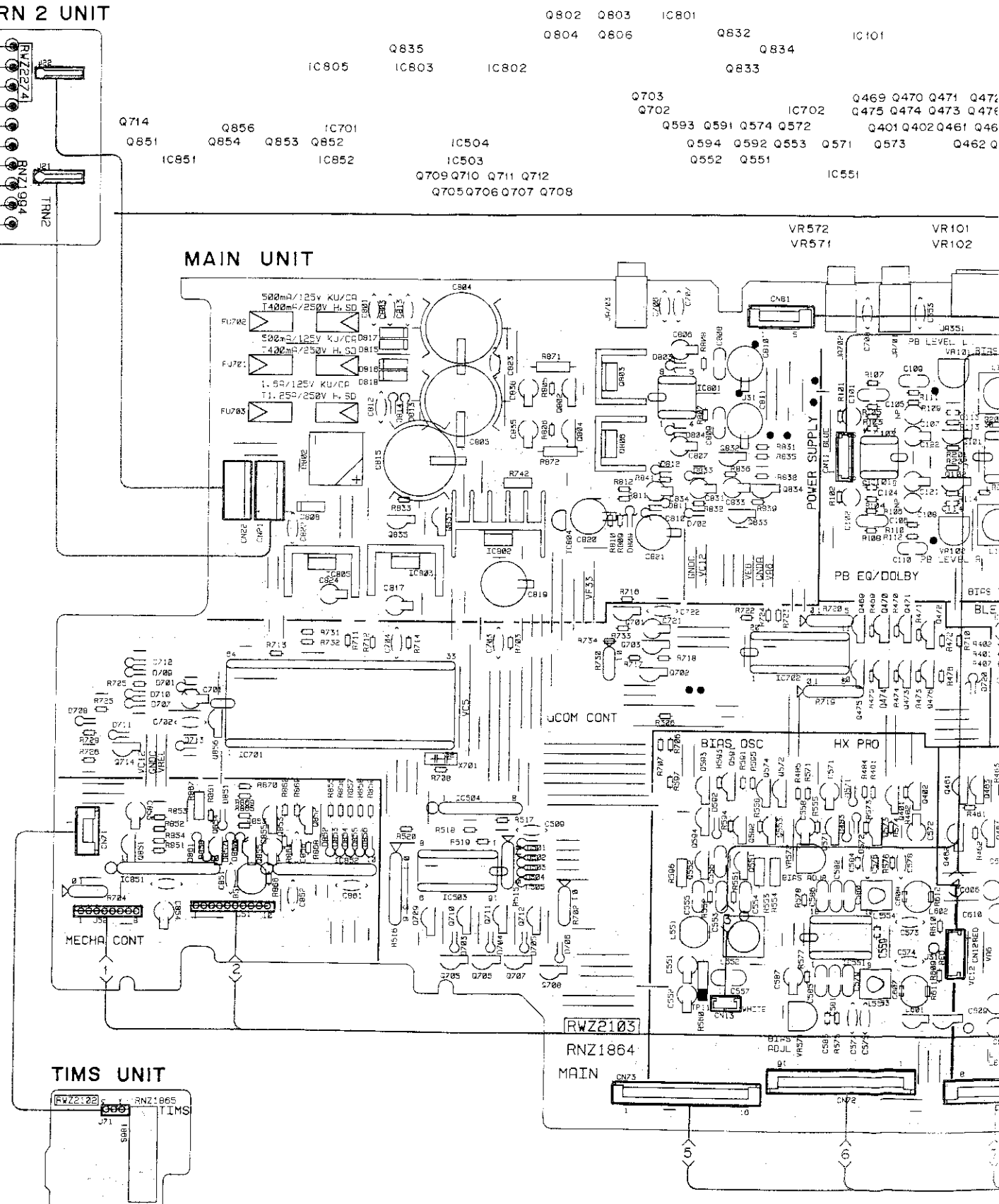
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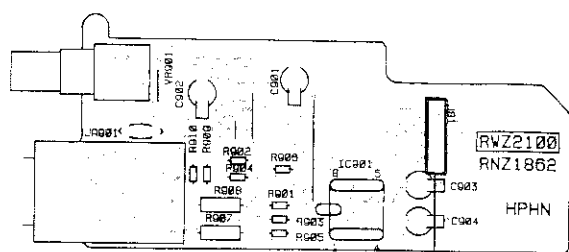


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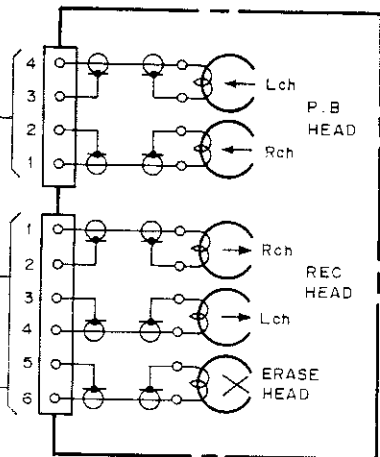


|                               |                     |                |
|-------------------------------|---------------------|----------------|
| IC101                         | Q351 Q352           | Q333 Q334      |
| IC201                         | Q152                | IC301 Q504     |
|                               | Q153                | IC502 Q503     |
| IC702                         | Q469 Q470 Q471 Q472 | Q502 Q501 Q505 |
| Q475 Q474 Q473 Q476           | IC402               | Q603           |
| Q401 Q402 Q461 Q463 Q465 Q467 | IC401               | Q604           |
| Q553 Q571 Q573                | Q462 Q464 Q466 Q468 | Q605           |
| IC551                         | IC601               | IC251          |
|                               | Q601                | Q452           |
|                               | Q283 Q282 Q281      | Q451           |
| VR572                         | VR101               | VR602          |
| VR571                         | VR102               | VR601          |
|                               | VR401               | VR402          |
|                               | VR403               | VR502          |
|                               | VR501               |                |

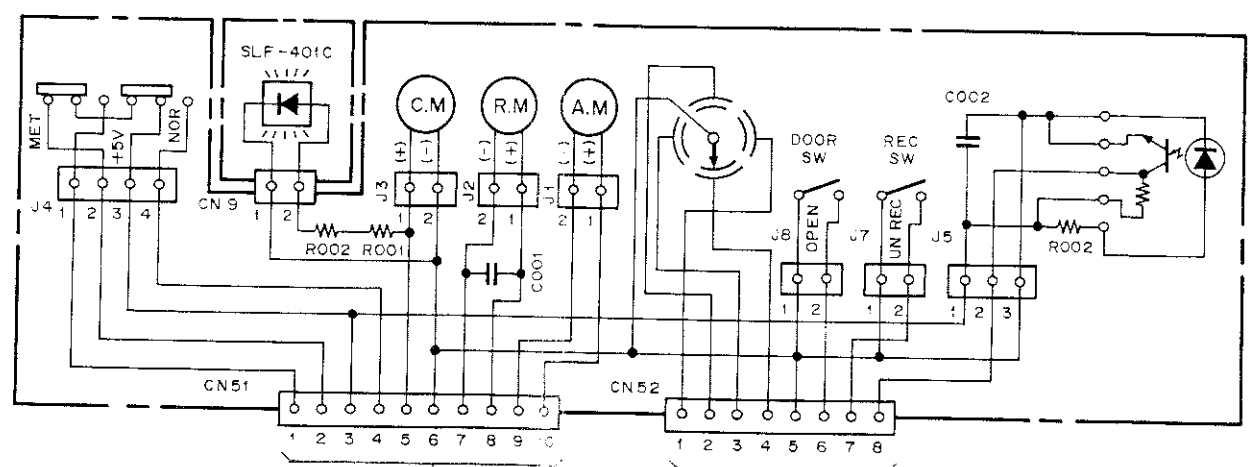
### HPHN UNIT



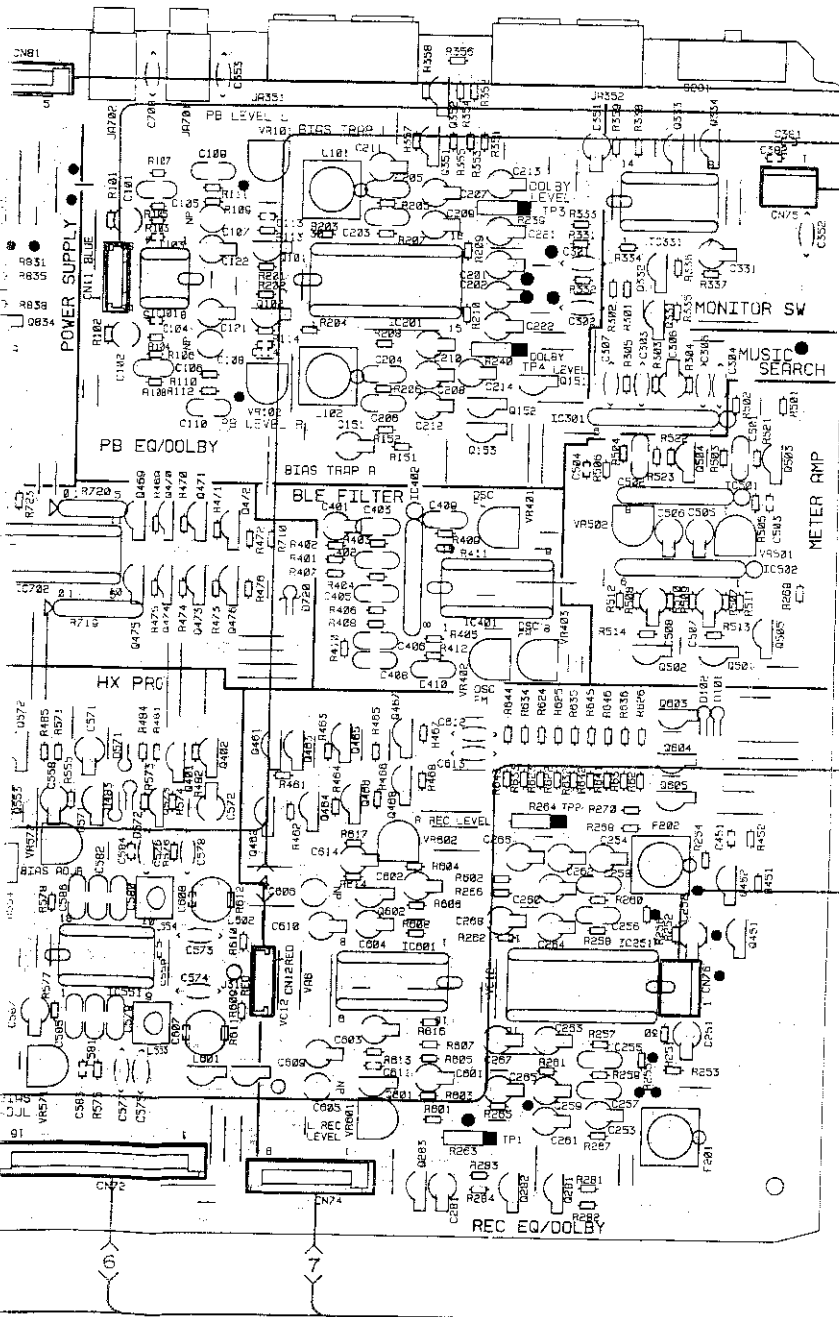
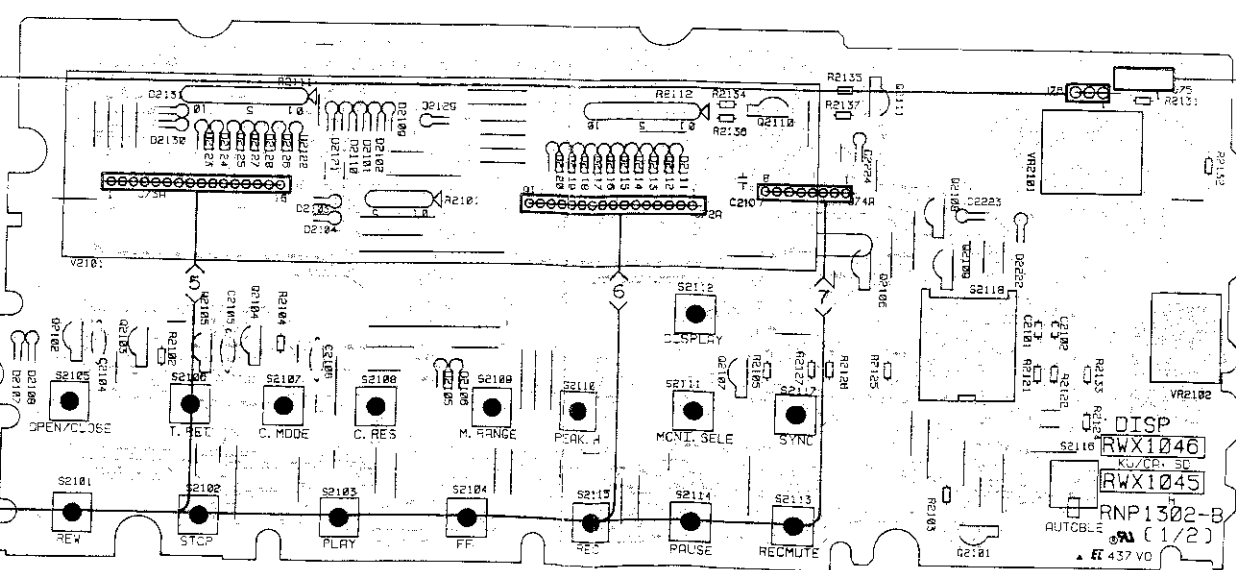
### MECHA UNIT



### MECHA UNIT



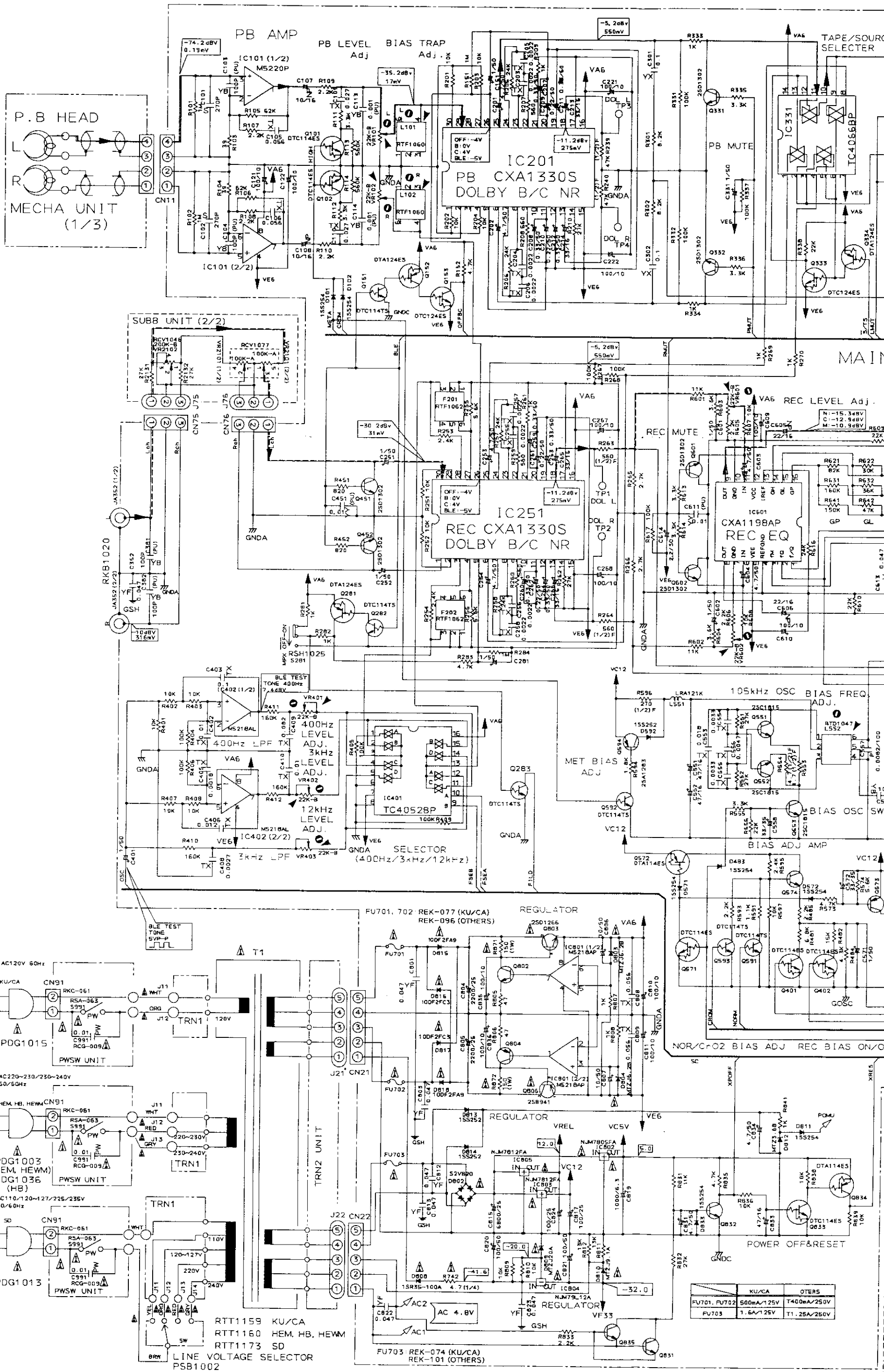
### SUBB UNIT

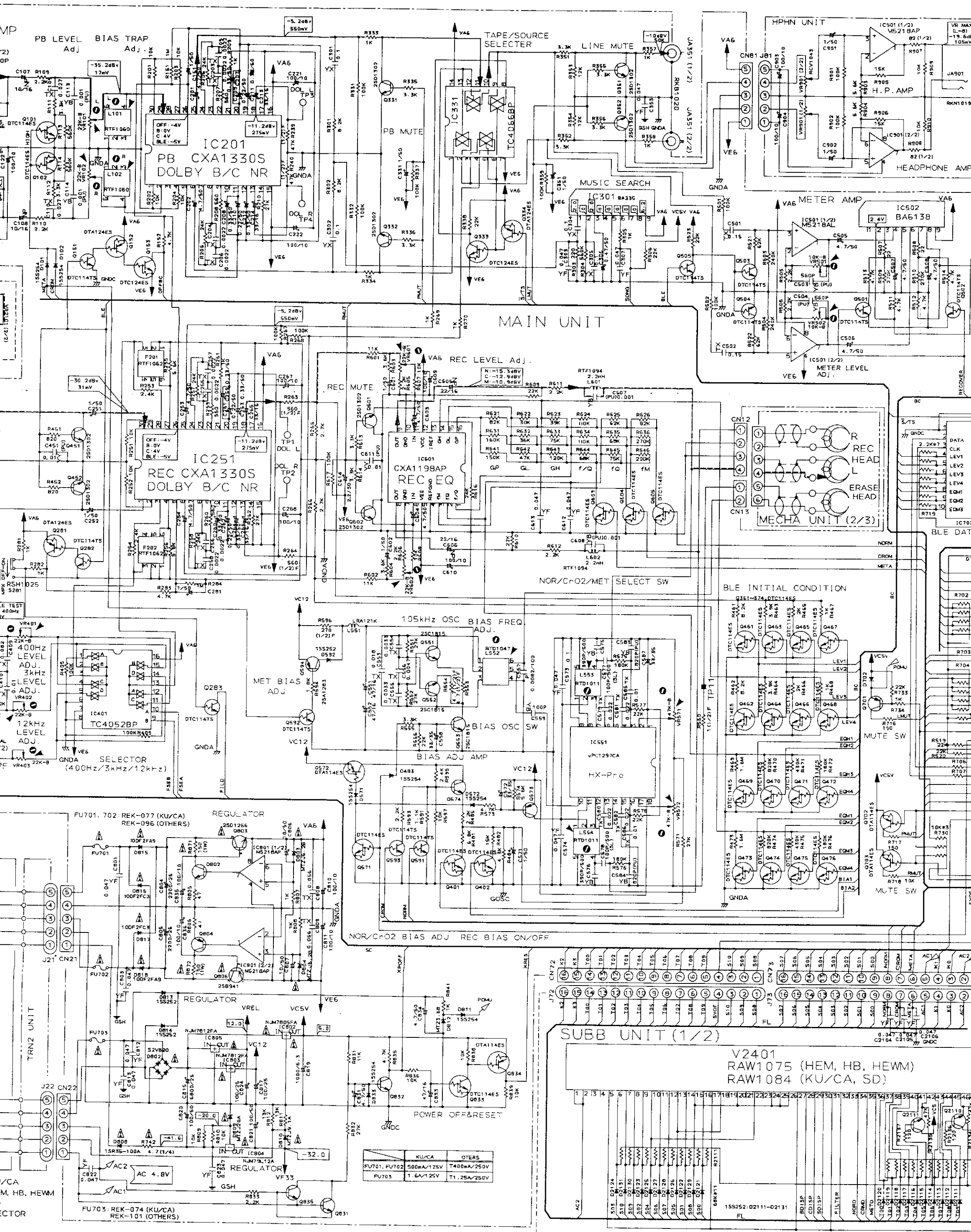


| PCB pattern diagram indication | Corresponding part symbol | Part name                              |
|--------------------------------|---------------------------|--|
|                                |                           | Transistor                             |
|                                |                           | FET                                    |
|                                |                           | Diode                                  |
|                                |                           | Zener diode                            |
|                                |                           | LED                                    |
|                                |                           | Varactor                               |
|                                |                           | Tact switch                            |
|                                |                           | Inductor                               |
|                                |                           | Coil                                   |
|                                |                           | Transformer                            |
|                                |                           | Filter                                 |
|                                |                           | Ceramic capacitor                      |
|                                |                           | Mylar capacitor                        |
|                                |                           | Styrol capacitor                       |
|                                |                           | Electrolytic capacitor (Non polarized) |
|                                |                           | Electrolytic capacitor (Noiseless)     |
|                                |                           | Electrolytic capacitor (Polarized)     |
|                                |                           | Electrolytic capacitor (Polarized)     |
|                                |                           | Power capacitor                        |
|                                |                           | Semifixed resistor                     |
|                                |                           | Resistor array                         |
|                                |                           | Resistor                               |
|                                |                           | Resonator                              |
|                                |                           | Thermistor                             |

1. This PCB connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the boards can be replaced with those shown with the corresponding wiring symbols listed in the above table.
3. The capacitor terminal marked with shows negative terminals.
4. The diode marked with shows cathode side.
5. The transistor terminal marked with shows emitter.

# 5. SCHEMATIC DIAGRAM





|              | KU/CA      | OTHERS      |
|--------------|------------|-------------|
| FU701, FU702 | 500mA/125V | T400MA/250V |
| FU703        | 1.6A/125V  | T1.25A/250V |

V2401  
RAW1075 (HEM, HB, HEWM)  
RAW1084 (KU/CA, SD)

PB LEVEL BIAS TRAP

IC201  
PB CXA1330S  
DOLBY B/C NR

IC251  
REC CXA1330S  
DOLBY B/C NR

MAIN UNIT

IC601  
CXA1198AP  
REC EQ

MECHA UNIT (2/3)

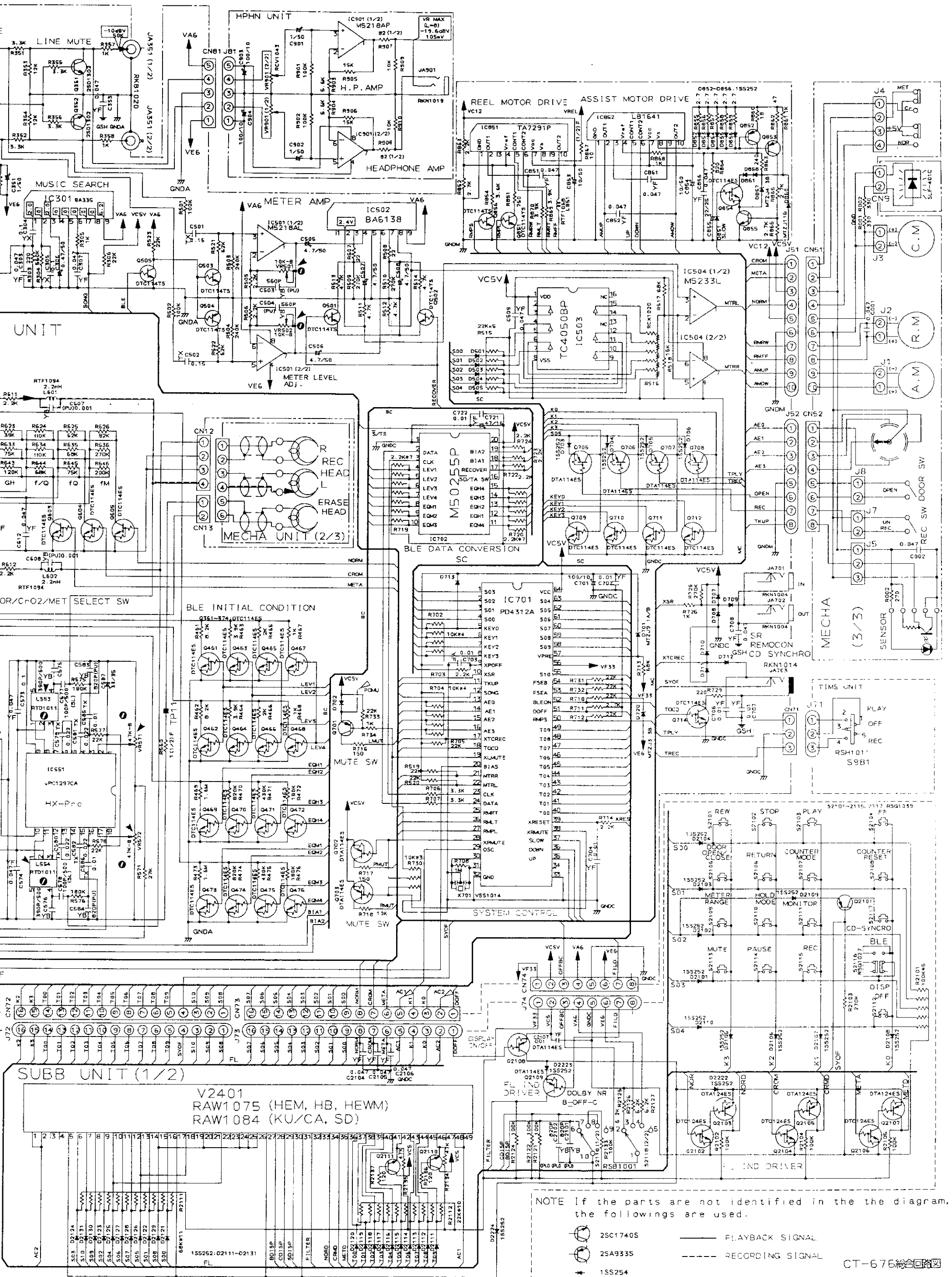
REC HEAD  
ERASE HEAD

REGULATOR

SUBB UNIT (1/2)

FU703: REK-074 (KU/CA)  
REK-101 (OTHERS)

RECOVER

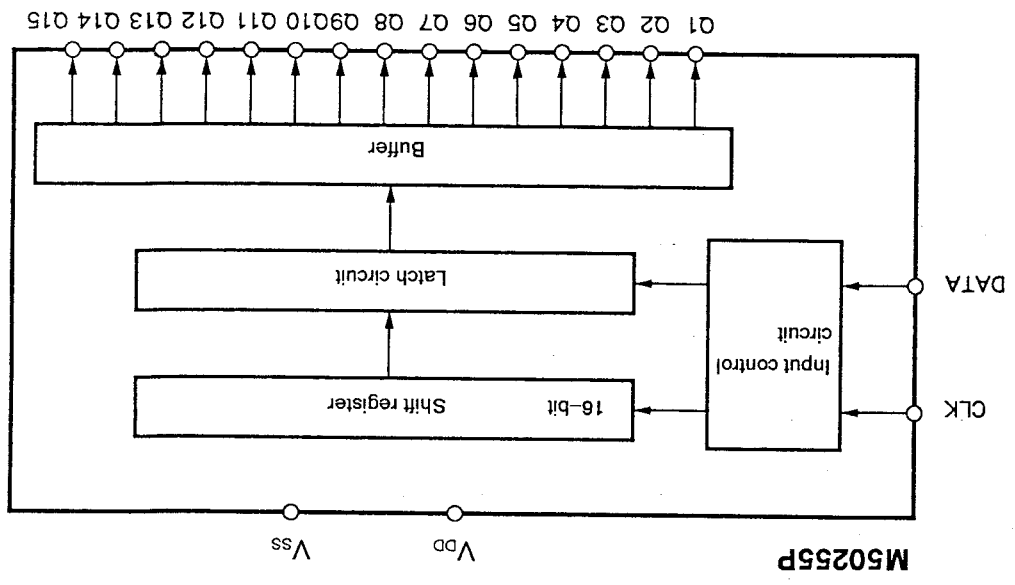


NOTE If the parts are not identified in the the diagram, the followings are used.

- 2SC1740S
- 2SA933S
- 1SS254
- PLAYBACK SIGNAL
- - - RECORDING SIGNAL

- S2118 : DOLBY
- S2117 : CD - SYNCRO
- S2116 : BLE
- S2115 : REC
- S2114 : PAUSE
- S2113 : MUTE
- S2112 : MONITOR
- S2111 : DISP OFF
- S2110 : HOLD MODE
- S2109 : METER RANGE
- S2108 : COUNTER RESET
- S2107 : COUNTER MODE
- S2106 : RETURN
- S2105 : DOOR OPEN/CLOSE
- S2104 : FF
- S2103 : PLAY
- S2102 : STOP
- S2101 : REW
- SUBB UNIT
- PWSW UNIT
- S991 : ON - OFF
- S981 : PLAY - OFF - REC
- TIMS UNIT

5. SWITCHES (Underline indicates switch position)



# CT-S709

## 6. P.C.B's PARTS LIST

### NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- 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%)
    - 560 Ω → 56 × 10<sup>1</sup> → 561 ..... RD1/4PS 561J
    - 47k Ω → 47 × 10<sup>3</sup> → 473 ..... RD1/4PS 473J
    - 0.5 Ω → 0R5 ..... RN2H 0R5K
    - 1 Ω → 010 ..... RS1P 010K
  - Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
    - 5.62k Ω → 562 × 10<sup>1</sup> → 5621 ..... RN1/4SR 5621F

| Mark No.              | Description              | Part No.     |
|-----------------------|--------------------------|--------------|
| <b>SUBB UNIT</b>      |                          |              |
| <b>SEMICONDUCTORS</b> |                          |              |
| Q2101                 | TRANSISTOR               | 2SA933S      |
| Q2102                 | TRANSISTOR               | DTC124ES     |
| Q2103                 | TRANSISTOR               | DTA124ES     |
| Q2104                 | TRANSISTOR               | DTC124ES     |
| Q2105                 | TRANSISTOR               | DTA124ES     |
| Q2106                 | TRANSISTOR               | DTC124ES     |
| Q2107                 | TRANSISTOR               | DTA124ES     |
| Q2108, 2109           | DIGITAL TRANSISTOR       | DTA114ES     |
| Q2110, 2111           | TRANSISTOR               | 2SC1740S     |
| D2101-2131            | DIODE                    | 1SS252       |
| D2222-2224            | DIODE                    | 1SS252       |
| <b>SWITCHES</b>       |                          |              |
| S2101-2115            |                          | RSG1039      |
| S2116                 | SWITCH                   | RSG1027      |
| S2117                 |                          | RSG1039      |
| S2118                 |                          | RSB1001      |
| <b>CAPACITORS</b>     |                          |              |
| C2101, 2102           | AXIAL CAPACITOR          | CKPUYB821K50 |
| C2104-2106            | CERAMIC CAPACITOR        | CKCYF473Z50  |
| C2107                 | CERAMIC CAPACITOR        | CKCYF103Z50  |
| <b>RESISTORS</b>      |                          |              |
| R2101                 | RESISTOR ARRAY 100K      | RA5T□□□J     |
| R2102-2105            | CARBONFILM RESISTOR      | RD1/6PM□□□J  |
| R2111                 | RESISTOR ARRAY (68K)     | RA11T□□□J    |
| R2112                 | RESISTOR ARRAY (100K)    | RA10T□□□J    |
| R2121, 2122           | CARBONFILM RESISTOR      | RD1/6PM□□□J  |
| R2124-2127            | CARBONFILM RESISTOR      | RD1/6PM□□□J  |
| R2131-2137            | CARBONFILM RESISTOR      | RD1/6PM□□□J  |
| VR2101                | VARIABLE RESISTOR (100K) | RCV1077      |
| VR2102                | VARIABLE RESISTOR (200K) | RCV1046      |
| <b>OTHERS</b>         |                          |              |
| V2101                 |                          | RAW1084      |

| Mark No.                  | Description             | Part No.     |
|---------------------------|-------------------------|--------------|
| <b>REC SW UNIT</b>        |                         |              |
| <b>SWITCHES</b>           |                         |              |
| S3                        | SWITCH                  | RSG-143      |
| <b>TAPE SELECTOR UNIT</b> |                         |              |
| <b>SWITCHES</b>           |                         |              |
| S1, 2                     |                         | RSH-070      |
| <b>SENSOR UNIT (A)</b>    |                         |              |
| <b>SEMICONDUCTORS</b>     |                         |              |
| D1                        |                         | GPIA51HR     |
| <b>CAPACITORS</b>         |                         |              |
| C2                        | CERAMIC CAPACITOR       | CKPUYY103N16 |
| <b>RESISTORS</b>          |                         |              |
| R2                        | CARBONFILM RESISTOR     | RD1/6PM□□□J  |
| <b>DOOR SW UNIT</b>       |                         |              |
| <b>SWITCHES</b>           |                         |              |
| S4                        |                         | RSK1002      |
| <b>HPHN UNIT</b>          |                         |              |
| <b>SEMICONDUCTORS</b>     |                         |              |
| IC901                     | OP-AMP, IC              | M5218AP      |
| <b>CAPACITORS</b>         |                         |              |
| C901, 902                 | ELECTR. CAPACITOR       | CEAS010M50   |
| C903, 904                 | ELECTR. CAPACITOR       | CEAS101M10   |
| <b>RESISTORS</b>          |                         |              |
| R901-906                  | CARBONFILM RESISTOR     | RD1/6PM□□□J  |
| R907, 908                 | CARBONFILM RESISTOR     | RD1/2LF□□□J  |
| R909, 910                 | CARBONFILM RESISTOR     | RD1/6PM□□□J  |
| VR901                     | VARIABLE RESISTOR (20K) | RCV1043      |
| <b>OTHERS</b>             |                         |              |
| JA901                     | JACK                    | RKN1019      |

| Mark No.              | Description        | Part No.  |
|-----------------------|--------------------|-----------|
| <b>PWSW UNIT</b>      |                    |           |
| <b>SWITCHES</b>       |                    |           |
| Δ S991                | SWITCH             | RSA-063   |
| <b>CAPACITORS</b>     |                    |           |
| Δ C991                | CAPACITOR (0.01)   | RCG-009   |
| <b>TIMS UNIT</b>      |                    |           |
| <b>SWITCHES</b>       |                    |           |
| S981                  |                    | RSH1011   |
| <b>MAIN UNIT</b>      |                    |           |
| <b>SEMICONDUCTORS</b> |                    |           |
| IC101                 | OP-AMP-IC          | M5220P    |
| IC201                 | DOLBY B/C IC       | CXA1330S  |
| IC251                 | DOLBY B/C IC       | CXA1330S  |
| IC301                 | IC                 | BA335     |
| IC331                 | LOGIC IC           | TC4066BP  |
| IC401                 | LOGIC IC           | TC4052BP  |
| IC402                 | OP-AMP, IC         | M5218AL   |
| IC501                 | OP-AMP, IC         | M5218AL   |
| IC502                 |                    | BA6138    |
| IC503                 | CMOS LOGIC IC      | TC4050BP  |
| IC504                 | DUAL-COMPARATOR IC | M5233L    |
| IC551                 | DOLBY HX PRO IC    | UPC1297CA |
| IC601                 | REC EQUALIZER IC   | CXA1198AP |
| IC701                 | MCU                | PD4312A   |
| IC702                 | OUTPUT EXPANDER IC | M50255P   |
| IC801                 | OP-AMP, IC         | M5218AP   |
| Δ IC802               | REGULATOR IC       | NJM7805FA |
| Δ IC803               | REGULATOR IC       | NJM7812FA |
| Δ IC804               | REGULATOR IC       | NJM79L12A |
| Δ IC805               | REGULATOR IC       | NJM7812FA |
| IC851                 | LINEAR IC          | TA7291P   |
| IC852                 |                    | LB1641    |
| Q101, 102             | TRANSISTOR         | DTC114ES  |
| Q151                  | DIGITAL TRANSISTOR | DTC114TS  |
| Q152                  | TRANSISTOR         | DTA124ES  |
| Q153                  | TRANSISTOR         | DTC124ES  |
| Q281                  | TRANSISTOR         | DTA124ES  |
| Q282, 283             | DIGITAL TRANSISTOR | DTC114TS  |
| Q331, 332             | TRANSISTOR         | 2SD1302   |
| Q333                  | TRANSISTOR         | DTC124ES  |
| Q334                  | TRANSISTOR         | DTA124ES  |
| Q351, 352             | TRANSISTOR         | 2SD1302   |
| Q401, 402             | TRANSISTOR         | DTC114ES  |
| Q451, 452             | TRANSISTOR         | 2SD1302   |
| Q461-476              | TRANSISTOR         | DTC114ES  |
| Q501-505              | DIGITAL TRANSISTOR | DTC114TS  |
| Q551-553              | TRANSISTOR         | 2SC1815   |
| Q571                  | TRANSISTOR         | DTC114ES  |
| Q572                  | DIGITAL TRANSISTOR | DTA114ES  |
| Q573                  | TRANSISTOR         | 2SA933S   |
| Q574                  | TRANSISTOR         | 2SC1740S  |



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

※ marked capacitors and resistors have parts numbers replacing, be sure to use parts of identical designation. importance of the safety factor of the part. Therefore, when The Δ mark found on some component parts indicates the

⊙ : Adjusting point.

← : Signal route.

4. OTHERS :

→ mA : DC current at no input signal.

□ : DC voltage (V) at no input signal.

3. VOLTAGE CURRENT :

Indicated in capacity (μF)/voltage (V) unless otherwise noted p.p.f. Indication without voltage is 50V except electrolytic capacitor.

2. CAPACITORS :

Indicated in Ω, 1/6W, ±5% tolerance unless otherwise noted tolerance. k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20%

1. RESISTORS :

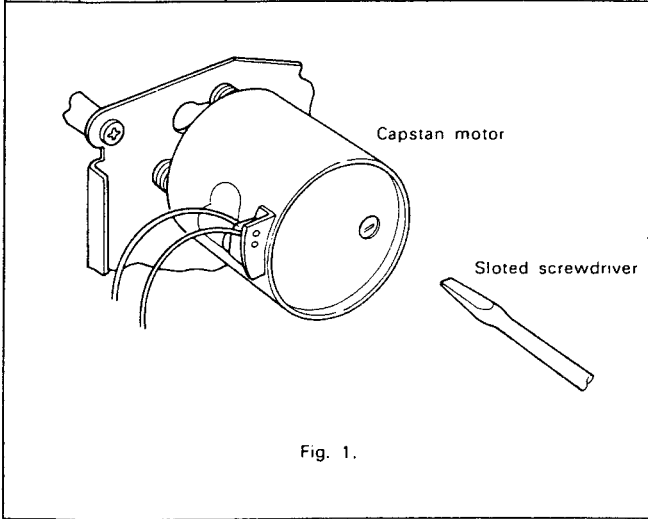
| Part No. | Mark No. | Description                  | Part No.   | Mark No.                  | Description                     | Part No.     | Mark No. | Description                    | Part No.     |
|----------|----------|------------------------------|------------|---------------------------|---------------------------------|--------------|----------|--------------------------------|--------------|
|          |          | Q591-593 DIGITAL TRANSISTOR  | DTC114TS   | <b>COILS/TRANSFORMERS</b> |                                 |              |          | C509 CERAMIC CAPACITOR         | CKCYF473Z50  |
|          |          | Q594 TRANSISTOR              | 2SA1283    |                           | L101, 102 COIL                  | RTF1060      |          | C551, 552 ELECTR. CAPACITOR    | CEAS470M16   |
|          |          | Q601, 602 TRANSISTOR         | 2SD1302    |                           | L551 RADIAL INDUCTOR            | LRA121K      |          | C553 AUDIO FILM CAPACITOR      | CFTXA183J50  |
| 063      |          | Q603-605 TRANSISTOR          | DTC114ES   |                           | L552 COIL                       | RTD1047      |          | C554, 555 AUDIO FILM CAPACITOR | CFTXA332J50  |
|          |          |                              |            |                           | L553, 554                       | RTD1011      |          | C556 AUDIO FILM CAPACITOR      | CFTXA472J50  |
|          |          | Q701 TRANSISTOR              | 2SA933S    |                           | L601, 602 COIL                  | RTF1094      |          |                                |              |
| 009      |          | Q702, 703 DIGITAL TRANSISTOR | DTA114ES   |                           |                                 |              |          | C557 PL. PROPYtene CAPACITOR   | CQPA822J100  |
|          |          | Q705-708 DIGITAL TRANSISTOR  | DTA114ES   |                           | L851                            | RTF1068      |          | C558 ELECTR. CAPACITOR         | CEAS330M35   |
|          |          | Q709-712 TRANSISTOR          | DTC114ES   |                           | F201, 202 FILTER                | RTF1062      |          | C559 AXIAL CAPACITOR           | CKPUYB101K50 |
|          |          | Q714 TRANSISTOR              | DTC114ES   |                           |                                 |              |          | C571 ELECTR. CAPACITOR         | CEAS010M50   |
|          |          |                              |            |                           |                                 |              |          | C572 ELECTR. CAPACITOR         | CEAS330M35   |
|          |          | Q802 TRANSISTOR              | 2SC1740S   | <b>CAPACITORS</b>         |                                 |              |          |                                |              |
| 011      | △        | Q803 TRANSISTOR              | 2SD1266    |                           | C101, 102 PL. STYRENE CAPACITOR | CQSF271J50   |          | C573, 574 CERAMIC CAPACITOR    | CKCYF473Z50  |
|          | △        | Q804 TRANSISTOR              | 2SA933S    |                           | C103, 104 AXIAL CAPACITOR       | CKPUYB101K50 |          | C575, 576 CERAMIC CAPACITOR    | CKCYB391K500 |
|          |          | Q806 TRANSISTOR              | 2SB941     |                           | C105, 106 AUDIO FILM CAPACITOR  | CFTXA563J50  |          | C577, 578 CERAMIC CAPACITOR    | CCCSL101K500 |
|          |          | Q831, 832 TRANSISTOR         | 2SC1740S   |                           | C107, 108 ELECTR. CAPACITOR     | CEANP100M16  |          | C579-582 AUDIO FILM CAPACITOR  | CFTXA223J50  |
|          |          |                              |            |                           | C109, 110 AUDIO FILM CAPACITOR  | CFTXA273J50  |          | C583, 584 AXIAL CAPACITOR      | CKPUYB821K50 |
|          |          | Q833 TRANSISTOR              | DTC114ES   |                           | C113, 114 CERAMIC CAPACITOR     | CKPUYB102K50 |          | C585, 586 AUDIO FILM CAPACITOR | CFTXA103J50  |
| 330S     |          | Q834 DIGITAL TRANSISTOR      | DTA114ES   |                           | C121, 122 ELECTR. CAPACITOR     | CEAS101M10   |          | C587 ELECTR. CAPACITOR         | CEAS330M35   |
| 5        |          | Q835 TRANSISTOR              | 2SC1740S   |                           | C151 ELECTR. CAPACITOR          | CEAS010M50   |          | C601, 602 ELECTR. CAPACITOR    | CEAS010M50   |
| 56BP     |          | Q851 DIGITAL TRANSISTOR      | DTC114TS   |                           | C201, 202 ELECTR. CAPACITOR     | CEYA4R7M50   |          | C603, 604 ELECTR. CAPACITOR    | CEAS4R7M50   |
|          |          | Q852, 853 TRANSISTOR         | 2SA933S    |                           | C203-206 AUDIO FILM CAPACITOR   | CFTXA222J50  |          | C605, 606 ELECTR. CAPACITOR    | CEANP220M16  |
| 52BP     |          | Q854 TRANSISTOR              | DTC114ES   |                           | C207, 208 ELECTR. CAPACITOR     | CEASR33M50   |          | C607, 608 CERAMIC CAPACITOR    | CKPUYB102K50 |
| BAL      |          | Q855 TRANSISTOR              | 2SC1740S   |                           | C209, 210 ELECTR. CAPACITOR     | CEASR22M50   |          | C609, 610 ELECTR. CAPACITOR    | CEAS101M10   |
| BAL      |          | Q856 DIGITAL TRANSISTOR      | DTC114TS   |                           | C211, 212 ELECTR. CAPACITOR     | CEASR33M50   |          | C611 CERAMIC CAPACITOR         | CKPUY103N16  |
| 8        |          | D101, 102 DIODE              | 1SS254     |                           | C213, 214 ELECTR. CAPACITOR     | CEAS330M16   |          | C612, 613 CERAMIC CAPACITOR    | CKCYF473Z50  |
| 50BP     |          | D483 DIODE                   | 1SS254     |                           | C221, 222 ELECTR. CAPACITOR     | CEAS101M10   |          | C614 ELECTR. CAPACITOR         | CEAS2R2M50   |
| BL       |          | D501-505 DIODE               | 1SS254     |                           | C251, 252 ELECTR. CAPACITOR     | CEYA010M50   |          | C701 ELECTR. CAPACITOR         | CEAS101M10   |
| 297CA    |          | D571, 572 DIODE              | 1SS254     |                           | C253, 254 ELECTR. CAPACITOR     | CEAS4R7M50   |          | C702-704 CERAMIC CAPACITOR     | CKCYF103Z50  |
| 98AP     |          | D592 DIODE                   | 1SS252     |                           | C255-258 AUDIO FILM CAPACITOR   | CFTXA222J50  |          | C706, 707 CERAMIC CAPACITOR    | CKCYF103Z50  |
| 2A       |          | D701 ZENER DIODE             | MTZJ9. 1A  |                           | C259, 260 ELECTR. CAPACITOR     | CEASR33M50   |          | C708 CERAMIC CAPACITOR         | CKCYF473Z50  |
| 55P      |          | D702 DIODE                   | 1SS254     |                           | C261, 262 ELECTR. CAPACITOR     | CEASR22M50   |          | C721 ELECTR. CAPACITOR         | CEAS470M16   |
| CAP      |          | D703-706 DIODE               | 1SS252     |                           | C263, 264 ELECTR. CAPACITOR     | CEASR33M50   |          | C722 CERAMIC CAPACITOR         | CKCYF103Z50  |
| 05FA     |          | D707-713 DIODE               | 1SS254     |                           | C265, 266 ELECTR. CAPACITOR     | CEYA330M16   |          | C801 CERAMIC CAPACITOR         | CKCYF473Z50  |
| 12FA     |          | D720 ZENER DIODE             | MTZJ3. 3B  |                           | C267, 268 ELECTR. CAPACITOR     | CEAS101M10   |          | C803 CERAMIC CAPACITOR         | CKCYF473Z50  |
| L12A     |          | D802                         | S2YB20     |                           | C281 ELECTR. CAPACITOR          | CEAS010M50   |          | C804, 805 ELECTR. CAPACITOR    | CENA222M25   |
| 12FA     | △        | D803, 804 ZENER DIODE        | MTZJ6. 2B  |                           | C301, 302 CERAMIC CAPACITOR     | CGCYX104K25  |          | C806, 807 ELECTR. CAPACITOR    | CEAS100M50   |
| 1P       | △        | D808 RECTIFIER DIODE         | 1SR35-100A |                           | C303 CERAMIC CAPACITOR          | CKCYF473Z50  |          | C808, 809 AUDIO FILM CAPACITOR | CFTXA563J50  |
| 1        | △        | D809 ZENER DIODE             | MTZJ20A    |                           | C304, 305 CERAMIC CAPACITOR     | CGCYX104K25  |          | C810, 811 ELECTR. CAPACITOR    | CEAS101M10   |
| 4ES      | △        | D810 ZENER DIODE             | MTZJ9. 1A  |                           | C306 ELECTR. CAPACITOR          | CEASR47M50   |          | C812, 813 CERAMIC CAPACITOR    | CKCYF473Z50  |
| 4ES      |          | D811 DIODE                   | 1SS254     |                           | C307 CERAMIC CAPACITOR          | CKCYF473Z50  |          | C815 CAPACITOR (6800/25)       | YCH1078      |
| 4ES      |          | D812 ZENER DIODE             | MTZ3. 6B   |                           | C331 ELECTR. CAPACITOR          | CEAS010M50   |          | C817 ELECTR. CAPACITOR         | CEAS101M25   |
| 4ES      |          | D813, 814 DIODE              | 1SS252     |                           | C351 ELECTR. CAPACITOR          | CEAS010M50   |          | C819 ELECTR. CAPACITOR         | CEAS102M6R3  |
| 4ES      | △        | D815 DIODE                   | 10DF2FA9   |                           | C352, 353 CERAMIC CAPACITOR     | CKCYF473Z50  |          | C820, 821 ELECTR. CAPACITOR    | CEAS101M50   |
| 02       | △        | D816 DIODE                   | 10DF2FC3   |                           | C381, 382 AXIAL CAPACITOR       | CKPUYB101K50 |          | C822, 823 CERAMIC CAPACITOR    | CKCYF473Z50  |
| 4ES      | △        | D817 DIODE                   | 10DF2FC3   |                           | C401 ELECTR. CAPACITOR          | CEAS010M50   |          | C824 ELECTR. CAPACITOR         | CEAS101M25   |
| 4ES      | △        | D818 DIODE                   | 10DF2FA9   |                           | C402 AUDIO FILM CAPACITOR       | CFTXA103J50  |          | C831 ELECTR. CAPACITOR         | CEAS4R7M50   |
| 02       |          | D833 DIODE                   | 1SS254     |                           | C403 AUDIO FILM CAPACITOR       | CFTXA104J50  |          | C833 ELECTR. CAPACITOR         | CEAS470M16   |
| 4ES      |          | D851 DIODE                   | 1SS254     |                           | C405 AUDIO FILM CAPACITOR       | CFTXA182J50  |          | C834 ELECTR. CAPACITOR         | CEAS4R7M50   |
| 02       |          | D852-856 DIODE               | 1SS252     |                           | C406 AUDIO FILM CAPACITOR       | CFTXA123J50  |          | C835, 836 ELECTR. CAPACITOR    | CEAS101M10   |
| 4ES      |          | D857 ZENER DIODE             | MTZJ4. 3B  |                           | C408                            | CFTXA272J50  |          | C851, 852 CERAMIC CAPACITOR    | CKCYF473Z50  |
| 4ES      |          | D858 DIODE                   | 1SS254     |                           | C409 AUDIO FILM CAPACITOR       | CFTXA823J50  |          | C853, 854 ELECTR. CAPACITOR    | CEAS100M50   |
| 4ES      |          | D860 ZENER DIODE             | MTZJ11B    |                           | C410 AUDIO FILM CAPACITOR       | CFTXA103J50  |          | C855 ELECTR. CAPACITOR         | CEAS220M25   |
| 15       |          | D861 DIODE                   | 1SS254     |                           | C451 CERAMIC CAPACITOR          | CKPUY103N16  |          | C856 CERAMIC CAPACITOR         | CKCYF473Z50  |
| 4ES      |          |                              |            |                           | C501, 502 AUDIO FILM CAPACITOR  | CFTXA154J50  |          | C861 CERAMIC CAPACITOR         | CKCYF473Z50  |
| BS       |          | <b>SWITCHES</b>              |            |                           | C503, 504 AXIAL CAPACITOR       | CKPUYB561K50 |          |                                |              |
|          |          | S281                         | RSH1025    |                           | C505-508 ELECTR. CAPACITOR      | CEAS4R7M50   |          |                                |              |

| Mark             | No.       | Description           | Part No.    | Mark                                  | No.        | Description          | Part No.    |
|------------------|-----------|-----------------------|-------------|---------------------------------------|------------|----------------------|-------------|
| <b>RESISTORS</b> |           |                       |             |                                       |            |                      |             |
|                  | R101-114  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | R867       | CARBONFILM RESISTOR  | RD1/2LF□□□J |
|                  | R151, 152 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | R868-870   | CARBONFILM RESISTOR  | RD1/6PM□□□J |
|                  | R201-210  | CARBONFILM RESISTOR   | RD1/6PM□□□J | △                                     | R871, 872  | METAL OXIDE RESISTOR | RS1LMF□□□J  |
|                  | R239, 240 | CARBONFILM RESISTOR   | RD1/2LF□□□J |                                       | VR101, 102 | VR(22K)              | RCP1046     |
|                  | R251-262  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | VR401-403  | VR(22K)              | RCP1046     |
|                  |           |                       |             |                                       | VR501, 502 | VR(10K)              | RCP1045     |
|                  | R263, 264 | CARBONFILM RESISTOR   | RD1/2LF□□□J |                                       |            |                      |             |
|                  | R265-270  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | VR571, 572 | VR(47K)              | RCP1047     |
|                  | R281-284  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | VR601, 602 | VR(22K)              | RCP1046     |
|                  | R301-306  | CARBONFILM RESISTOR   | RD1/6PM□□□J | <b>OTHERS</b>                         |            |                      |             |
|                  | R331-338  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | JA351, 352 | JACK                 | RKB1020     |
|                  |           |                       |             |                                       | JA701, 702 | JACK                 | RKN1004     |
|                  | R351-359  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | JA703      | JACK                 | RKN1014     |
|                  | R401-412  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | X701       | CERAMIC RESONATOR    | VSS1014     |
|                  | R451, 452 | CARBONFILM RESISTOR   | RD1/6PM□□□J | <b>CONNECTOR UNIT</b>                 |            |                      |             |
|                  | R461-476  | CARBONFILM RESISTOR   | RD1/6PM□□□J | <b>CAPACITORS</b>                     |            |                      |             |
|                  | R481, 482 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | C1         | CERAMIC CAPACITOR    | CKCYF473Z50 |
|                  |           |                       |             | <b>RESISTORS</b>                      |            |                      |             |
|                  | R484, 485 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       | R4, 5      | CARBONFILM RESISTOR  | RD1/6PM□□□J |
|                  | R501-514  | CARBONFILM RESISTOR   | RD1/6PM□□□J | <b>TRN 1 UNIT</b>                     |            |                      |             |
|                  | R515      | RESISTOR ARRAY (22K)  | RA5T□□□J    | There is no supply part in this unit. |            |                      |             |
|                  | R516      | LADDER RESISTOR(11K)  | RCX1020     | <b>TRN 2 UNIT</b>                     |            |                      |             |
|                  | R517-523  | CARBONFILM RESISTOR   | RD1/6PM□□□J | There is no supply part in this unit. |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R551, 552 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R553, 554 | CARBONFILM RESISTOR   | RD1/2LF□□□J |                                       |            |                      |             |
|                  | R555, 556 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R560      | CARBONFILM RESISTOR   | RD1/2LF□□□J |                                       |            |                      |             |
|                  | R571      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R573-578  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R591      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R593-595  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R596      | CARBONFILM RESISTOR   | RD1/2LF□□□J |                                       |            |                      |             |
|                  | R597      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R601-614  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R616, 617 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R621-626  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R631-636  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R641-646  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R702      | RESISTOR ARRAY (10K)  | RA4T□□□J    |                                       |            |                      |             |
|                  | R703      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R704      | RESISTOR ARRAY (10K)  | RA4T□□□J    |                                       |            |                      |             |
|                  | R705-708  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R710-714  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R716-718  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R719      | RESISTOR ARRAY(2.2K)  | RA7T□□□J    |                                       |            |                      |             |
|                  | R720      | RESISTOR ARRAY (2.2K) | RA5T□□□J    |                                       |            |                      |             |
|                  | R722-726  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R729      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R730      | RESISTOR ARRAY 10K    | RA3T□□□J    |                                       |            |                      |             |
|                  | R731-734  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
| △                | R742      | FUSIBLE RESISTOR      | RFA1/4L□□□J |                                       |            |                      |             |
|                  | R805-812  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R831-833  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  |           |                       |             |                                       |            |                      |             |
|                  | R835, 836 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R838, 839 | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R841      | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |
|                  | R851-866  | CARBONFILM RESISTOR   | RD1/6PM□□□J |                                       |            |                      |             |

## 7. ADJUSTMENTS

### 7.1 MECHANISM RELATED ADJUSTMENT

| 1. Tape Speed Adjustment |  |  |
|--------------------------|--|--|
| Mode                     | Adjustment Location                              | Specifications   |
| PLAY                     | Capstan motor adjustment hole (Refer to Fig. 1.) | Adjust so that the playback frequency is $3000 \pm 5$ Hz at the beginning of winding of test tape STD-301. |
| PLAY                     |  | Playback test tape STD-301 again and confirm that the above specifications are satisfied.                  |



## 7.2 ELECTRICAL ADJUSTMENTS

### Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.

DOLBY NR : OFF  
 TAPE SELECTOR : NORM

### Test Tapes

- STD-331B : Playback adjustments  
 (See Fig. 7-1)
- STD-630 : NORMAL blank tape  
 STD-620 : CrO<sub>2</sub> blank tape  
 STD-610 : METAL blank tape

### List of Adjustments


#### Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

#### Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. Level meter adjustment and BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

*HX Pro headroom extension originated by Bang & Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.*  
*"DOLBY", the double-D symbol , and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

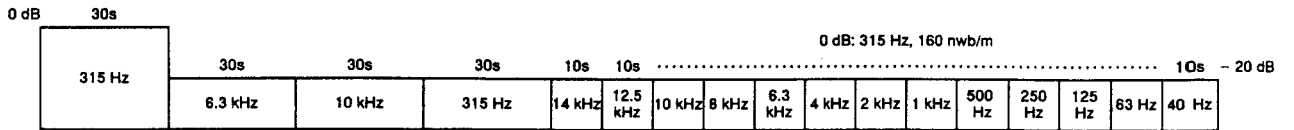


Fig. 7-1 Constants of the test tape STD-331B

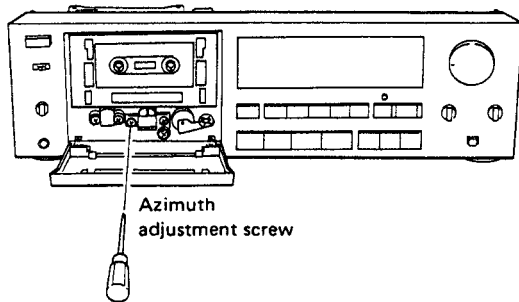


Fig. 7-2 Head azimuth adjustment

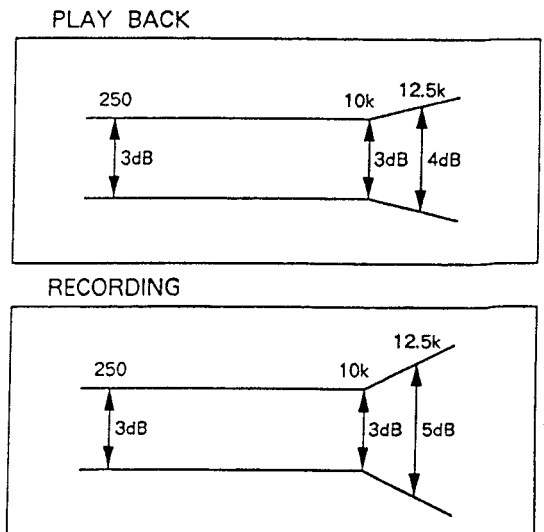


Fig. 7-3 Frequency response zone

## PLAYBACK SECTION

### 1. Head Azimuth Adjustment

- Turn VR101, 102 to mechanical center positions.

| No. | Mode | Input signal & test tape                                    | Adjustment location                              | Measuring location | Adjustment value               | Remarks |
|-----|------|---|--|--------------------|--------------------------------|---------|
| 1.  | PLAY | Play the 10 kHz/-20 dB section of STD-331B test tape.       | Head azimuth adjustment screw.<br>(See Fig. 7-2) | LINE OUT           | Maximum playback signal level. |         |
| 2.  | STOP | Lock the screw with screw lock after completing adjustment. |  |                    |                                |         |

### 2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

| No. | Mode | Input signal & test tape                                | Adjustment location                | Measuring location         | Adjustment value | Remarks  |
|-----|------|---|------------------------------------|----------------------------|------------------|--|
| 1.  | PLAY | Play the 315 Hz/0 dB section of the STD-331B test tape. | Deck<br>VR101 (Lch)<br>VR102 (Rch) | TP. 3 (Lch)<br>TP. 4 (Rch) | -10.7 dBv        | This adjustment must be performed accurately for proper Dolby level setting. |

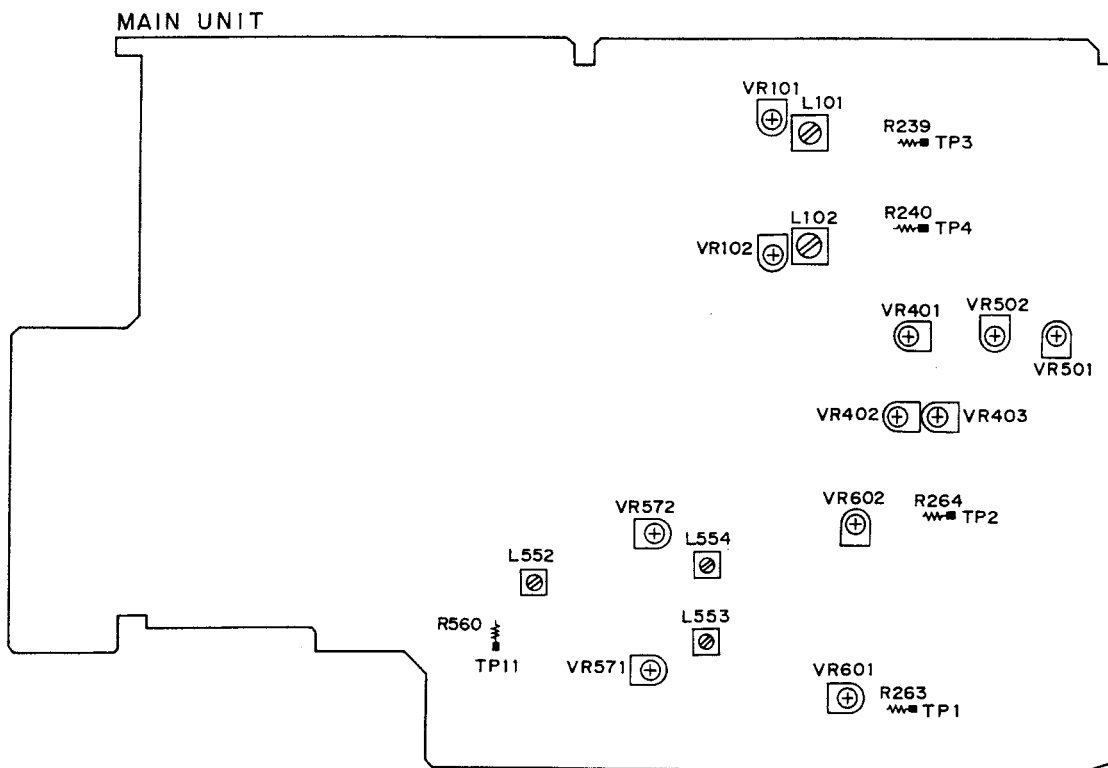


Fig. 7-4 Adjusting points

## RECORDING SECTION

### 1. Bias Oscillator Adjustment

| No. | Mode | Input signal & test tape                         | Adjustment location |      | Measuring location | Adjustment value     | Remarks |
|-----|------|--|---------------------|------|--------------------|----------------------|---------|
| 1.  | REC  | Load the STD-810 test tape with no input signal. | Deck                | L552 | TP. 11             | 105 kHz $\pm$ 300 Hz |         |

### 2. Bias Trap Adjustment

| No. | Mode | Input signal & test tape                         | Adjustment location |                          | Measuring location | Adjustment value | Remarks |
|-----|------|--|---------------------|--------------------------|--------------------|------------------|---------|
| 1.  | REC  | Load the STD-810 test tape with no input signal. | Deck                | L101 (Lch)<br>L102 (Rch) | LINE OUT           | Minimum output   |         |

### 3. Recording Bias Adjustment

| No. | Mode          | Input signal & test tape  | Adjustment location |                        | Measuring location | Adjustment value | Remarks   |
|-----|---------------|---|---------------------|------------------------|--------------------|------------------|---|
| 1.  | REC/<br>PAUSE | Apply a 315 Hz/-20 dBv (-20VU meter reading) signal to the line input terminals and insert STD-830. |                     |                        | LINE OUT           |                  |   |
| 2.  |               | Record and play back the 315 Hz signal and a 10 kHz signal at -20 dBv input level.                  | Deck                | VR571 (L)<br>VR572 (R) |                    |                  | Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to $0 \pm 0.5$ dB. |
| 3.  |               | Check distortion value after adjustment is completed and confirm that there is no underbias.        |                     |                        |                    |                  |   |

### 4. Recording Level Adjustment

- Turn ON the DOLBY NR switch.

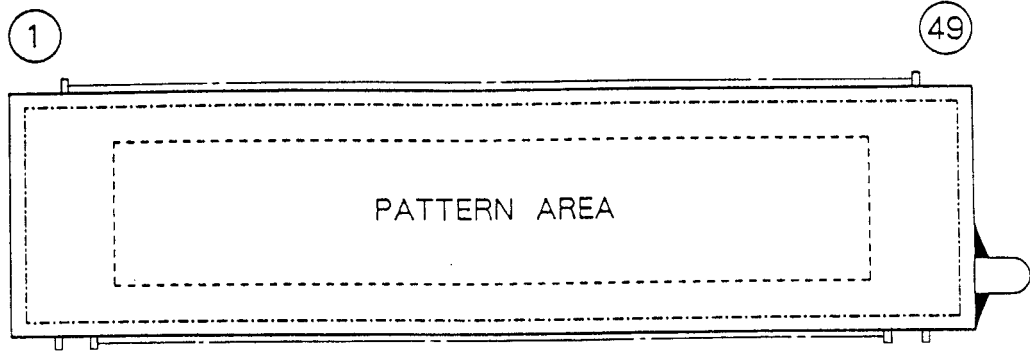
| No. | Mode          | Input signal & test tape  | Adjustment location      |                            | Measuring location         | Adjustment value   | Remarks   |
|-----|---------------|---|--------------------------|----------------------------|----------------------------|--|---|
| 1.  | REC/<br>PAUSE | Apply the 315 Hz/0 dBv signal to the line input, and load STD-830 (NORM). | REC level control volume |                            | TP. 1 (Lch)<br>TP. 2 (Rch) | -11.2 dBv  |   |
| 2.  | REC<br>→ PLAY | Record and play back the 315 Hz/0 dBv signal.                             | Deck                     | VR601 (Lch)<br>VR602 (Rch) | TP. 3 (Lch)<br>TP. 4 (Rch) | Repeatedly record, playback and adjust so that the playback signal level becomes -11.2 dB. | Recording bias adjustment and recording level adjustment with STD-830 must be performed accurately as reference for BLE adjustment. |
| 3.  | REC<br>→ PLAY | Record the 315 Hz/0 dBv signal on STD-820 (CrO2), and play it back.       | Check                    |                            |                            | -11.2 dBv $\pm$ 1.5 dB   |   |
| 4.  | REC<br>→ PLAY | Record the 315 Hz/0 dBv signal on STD-810 (METAL), and play it back.      | Check                    |                            |                            | -11.2 dBv $\pm$ 1.5 dB   |   |

**5. Level Meter Adjustment and BLE Adjustment**

- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode  
 Press the MODE (COUNTER), RANGE and Display ON/OFF keys on the front panel simultaneously, with the power ON. The unit enters the test mode and the following occurs:
  1. When REC key is pressed, the unit enters the test mode 1. (FL indication "1")  
 At this time, level meter adjustment is to be performed.
  2. When REW key is pressed, the unit enters the test mode 2. (FL indication "2")  
 At this time, BLE adjustment (400 Hz) is to be performed.
  3. When STOP key is pressed, the unit enters the test mode 3. (FL indication "3")  
 At this time, BLE adjustment (3 kHz) is to be performed.
  4. When PLAY key is pressed, the unit enters the test mode 4. (FL indication "4")  
 At this time, BLE adjustment (12 kHz) is to be performed.

| No. | Mode  | Input signal & test tape   | Adjustment location | Measuring location | Adjustment value                                | Remarks                |
|-----|---|--|---------------------|--------------------|---|------------------------|
| 1.  | REC PAUSE   | Input the 315 Hz/-10 dBv (316 mV) signal to the LINE INPUT terminal, set to the test mode, and then press the REC key. | REC LEVEL VR        | LINE OUT           | -10 dBv   | Level meter adjustment |
|     |   |  | VR501               | Level meter Lch    | Adjust so that 0 dB of the level meter flashes. |                        |
|     |   |  | VR502               | Level meter Rch    | Adjust so that 0 dB of the level meter flashes. |                        |
| 2.  |   | REC LEVEL VR MIN or no signal input.   | —                   | —                  | —   |                        |
| 3.  |   | Press the REW key.   | VR401               | Level meter Rch    | Adjust so that 0 dB of the level meter flashes. | 400 Hz adjustment      |
| 4.  |   | Press the STOP key.  | VR402               |                    | Adjust so that 0 dB of the level meter flashes. | 3 kHz adjustment       |
| 5.  |   | Press the PLAY key.  | VR403               |                    | Adjust so that 0 dB of the level meter flashes. | 12 kHz adjustment      |
| 6.  | When the RESET key is pressed again, the test mode is released. |  |                     |                    |   |                        |

● FL INFORMATION



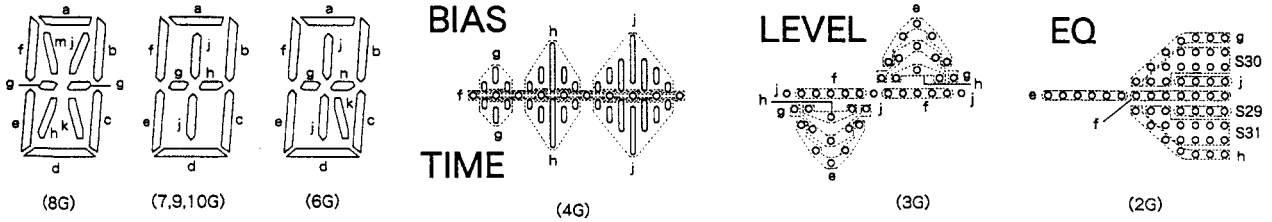
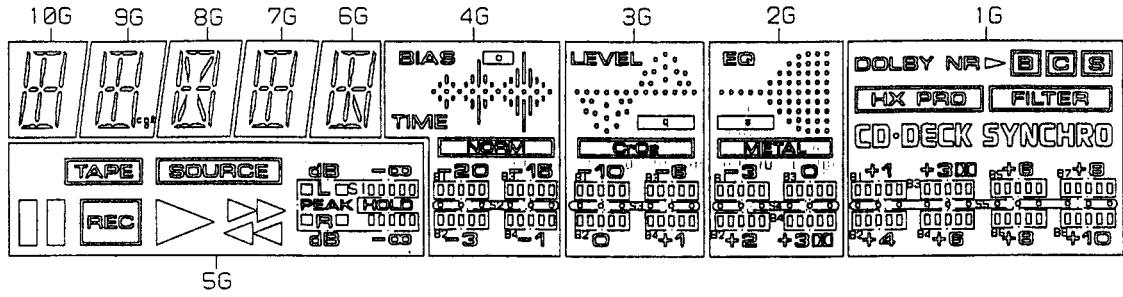
PIN CONNECTION

|            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIN NO.    | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 |   |
|            | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 9 | 8 | 7 | 6 | 5 |
| CONNECTION | F | F | N |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|            | 1 | 1 | P | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G |   |

|            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIN NO.    | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|            | 4 | 3 | 2 | 1 | 0 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| CONNECTION | P | N | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | N | N | F | F |
|            | 2 |   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   |   |
|            | 9 | C | 8 | 7 | 6 | 5 | 4 | 3 | 1 | 9 | 2 | 6 | 8 | 7 | 5 | 3 | 0 | 1 | 4 | 2 | P | P | 2 | 2 |

- Note:** 1) F1, F2 ..... Filament  
 2) NP..... No pin  
 3) NC ..... No connection  
 4) 1G to 10G ... Grid





**ANODE CONNECTION**

|     | 10G | 9G      | 8G | 7G | 6G | 5G            | 4G     | 3G    | 2G           | 1G              |
|-----|-----|---------|----|----|----|---------------|--------|-------|--------------|-----------------|
| P1  | a   | a       | a  | a  | a  |               | B1     | B1    | B1           | B1              |
| P2  | b   | b       | b  | b  | b  | REC           | B2     | B2    | B2           | B2              |
| P3  | c   | c       | c  | c  | c  | ▶             | B3     | B3    | B3           | B3              |
| P4  | d   | d       | d  | d  | d  | ◀◀            | B4     | B4    | B4           | B4              |
| P5  | e   | e       | e  | e  | e  | ▶▶            | TIME   | e     | e            | B5              |
| P6  | f   | f       | f  | f  | f  | -             | f      | f     | f            | B6              |
| P7  | g   | g       | g  | g  | g  | TAPE          | g      | g     | g            | B7              |
| P8  | h   | h       | h  | h  | h  | SOURCE        | h      | h     | h            | B8              |
| P9  | j   | j       | j  | j  | j  | HOLD          | j      | j     | j            | CD-DECK SYNCHRO |
| P10 | -   | -       | k  | -  | k  | dB -∞ -20 -15 | -10 -6 | -3 0  | +1 +3 +6 +8  |                 |
| P11 | -   | o (col) | m  | -  | -  | dB -∞ -3 -1   | 0 +1   | +2 +3 | +4 +6 +8 +10 |                 |
| P12 | -   | -       | -  | -  | -  | -             | S2     | S3    | S4           | S5              |
| P13 | -   | -       | -  | -  | -  | S1            | -      | -     | -            | -               |
| P14 | -   | -       | -  | -  | -  | -             | BIAS   | -     | -            | -               |
| P15 | -   | -       | -  | -  | -  | -             | o      | -     | -            | -               |
| P16 | -   | -       | -  | -  | -  | -             | -      | LEVEL | -            | -               |
| P17 | -   | -       | -  | -  | -  | -             | -      | q     | -            | -               |
| P18 | -   | -       | -  | -  | -  | -             | -      | -     | EQ           | -               |
| P19 | -   | -       | -  | -  | -  | -             | -      | -     | s            | -               |
| P20 | -   | -       | -  | -  | -  | -             | NORM   | -     | -            | -               |
| P21 | -   | -       | -  | -  | -  | -             | -      | CrO2  | -            | -               |
| P22 | -   | -       | -  | -  | -  | -             | -      | -     | METAL        | -               |
| P23 | -   | -       | -  | -  | -  | -             | -      | -     | -            | DOLBY NR        |
| P24 | -   | -       | -  | -  | -  | -             | -      | -     | -            | B               |
| P25 | -   | -       | -  | -  | -  | -             | -      | -     | -            | C               |
| P26 | -   | -       | -  | -  | -  | -             | -      | -     | -            | S               |
| P27 | -   | -       | -  | -  | -  | -             | -      | -     | -            | HX PRO          |
| P28 | -   | -       | -  | -  | -  | -             | -      | -     | -            | FILTER          |
| P29 | -   | -       | -  | -  | -  | -             | -      | -     | S29          | -               |
| P30 | -   | -       | -  | -  | -  | -             | -      | -     | S30          | -               |
| P31 | -   | -       | -  | -  | -  | -             | -      | -     | S31          | -               |

## 8. FOR CT-676/HEM, HB, SD AND CT-676-S/HEWM TYPES

### CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

- Parts without part number cannot be supplied.
- 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.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT-676/HEM, HB, SD and CT-676-S/HEWM types are the same as the CT-S709/KU/CA type with the exception of the following sections.

| Mark     | Symbol & Description  | Part No.               |                     |                    |                    |                        | Remarks |
|----------|---|------------------------|---------------------|--------------------|--------------------|------------------------|---------|
|          |   | CT-S709/<br>KU/CA type | CT-676/<br>HEM type | CT-676/<br>HB type | CT-676/<br>SD type | CT-676-S/<br>HEWM type |         |
|          | SUBB unit   | Non supply             | Non supply          | Non supply         | Non supply         | Non supply             |         |
| $\Delta$ | Strain relief   | CM-22C                 | CM-22B              | CM-22B             | CM-22B             | CM-22B                 |         |
| $\Delta$ | AC Power cord   | PDG1015                | PDG1003             | PDG1036            | PDG1013            | PDG1003                |         |
| $\Delta$ | FU701, FU702 Fuse (500mA)   | REK-077                | .....               | .....              | .....              | .....                  |         |
| $\Delta$ | FU703 Fuse (1.6A)   | REK-074                | .....               | .....              | .....              | .....                  |         |
| $\Delta$ | FU701, FU702 Fuse (400mA)   | .....                  | REK-096             | REK-096            | REK-096            | REK-096                |         |
| $\Delta$ | FU703 Fuse (1.25A)  | .....                  | REK-101             | REK-101            | REK-101            | REK-101                |         |
| $\Delta$ | Power transformer (AC120V)  | RTT1159                | .....               | .....              | .....              | .....                  |         |
| $\Delta$ | Power transformer (AC220-230/230-240V)  | .....                  | RTT1160             | RTT1160            | .....              | RTT1160                |         |
| $\Delta$ | Power transformer (AC110/120-127/220/240V)                                    | .....                  | .....               | .....              | RTT1173            | .....                  |         |
| $\Delta$ | Voltage selector  | .....                  | .....               | .....              | PSB1002            | .....                  |         |
|          | FL filter   | RAH1838                | RAH1542             | RAH1542            | RAH1838            | RAH1542                |         |
|          | Power button  | RAC1410                | RAC1410             | RAC1410            | RAC1410            | RAC1503                |         |
|          | Function knob   | RAC1411                | RAC1411             | RAC1411            | RAC1411            | RAC1502                |         |
|          | Push knob   | RAC1413                | RAC1413             | RAC1413            | RAC1413            | RAC1505                |         |
|          | Knob (B)  | RAC1414                | RAC1414             | RAC1414            | RAC1414            | RAC1492                |         |
|          | VR knob   | .....                  | .....               | .....              | .....              | RAC1496                |         |
|          | Mode knob   | RAC1552                | RAC1552             | RAC1552            | RAC1552            | RAC1611                |         |
|          | Slide SW knob   | RAC1562                | RAC1562             | RAC1562            | RAC1562            | RAC1522                |         |
|          | Door  | RAH1846                | RAH1846             | RAH1846            | RAH1846            | RAH1847                |         |
|          | Side rubber   | REB1094                | REB1094             | REB1094            | REB1094            | REB1128                |         |
|          | Panel stay  | RNT1090                | RNT1090             | RNT1090            | RNT1090            | RNT1110                |         |
|          | VR knob assembly (A)  | RXA1281                | RXA1281             | RXA1281            | RXA1281            | .....                  |         |
|          | Bonnet  | RXX1378                | RXX1378             | RXX1378            | RXX1378            | RXX1379                |         |
|          | Front panel assembly  | RXX1388                | RXX1387             | RXX1387            | RXX1387            | RXX1389                |         |
|          | Packing case  | RHG1282                | RHG1281             | RHG1281            | RHG1281            | RHG1283                |         |
|          | Operating instructions (English)  | RRB1094                | .....               | RRB1094            | RRB1094            | .....                  |         |
|          | Operating instructions (French, Italian, Dutch, Swedish, Spanish, Portuguese) | .....                  | RRD1110             | .....              | .....              | .....                  |         |
|          | Operating instructions (English, German)                                      | .....                  | RRE1045             | .....              | .....              | RRE1045                |         |

# CT-676/HEM, HB, SD, CT-676-S/HEWM

## SUBB UNIT

The SUBB units (for CT-676/HEM, HB and CT-676-S/HEWM types) are the same as the SUBB unit (for CT-S709/KU/CA and SD types) with the exception of the following sections.

| Mark | Symbol & Description          | Part No.                    |   | Remarks |
|------|-------------------------------|-----------------------------|---|---------|
|      |                               | CT-S709/<br>KU/CA, SD types | CT-676/HEM, HB<br>and CT-676-S/<br>HEWM types |         |
|      | R2131, R2132<br>V2101 FL tube | RD1/6PM302J<br>RAW1084      | RD1/6PM273J<br>RAW1075                        |         |

## 9. SPECIFICATIONS

System ..... 4 track, 2-channel stereo  
 Heads

Recording and playback head:

Combined Hard permalloy recording/Hard permalloy playback head × 1

Erasing head: Ferrite head × 1

Motor ..... DC servo capstan motor × 1  
 DC reel motor × 1  
 DC assist motor × 1

**Wow and Flutter**

No more than 0.027% (WRMS)

No more than ±0.065% (DIN)

**Fast Winding Time (C-60 tape)**

Approximately 90 seconds

**Frequency Response (-20 dB recording, ±6 dB)**

Metal tape ..... 15 to 21,000 Hz

Chrome tape ..... 15 to 20,000 Hz

Normal tape ..... 15 to 20,000 Hz

Signal-to-Noise Ratio (Dolby NR off)

More than 60 dB

**Noise Reduction Effect**

Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)

Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)

**Harmonic Distortion** ..... No more than 0.6% (0 dB)

**Input (Sensitivity)**

LINE (INPUT)

63 mV (Input impedance 54 kΩ)

**Output (Reference level)**

LINE (OUTPUT)

316 mV (Output impedance 3.2 kΩ)

Headphone

(Load impedance 8 Ω, PHONES LEVEL control max.)

1.3 mW

### Subfunctions

- Super AUTO BLE system
- Dolby HX Pro Headroom Extension system
- Dolby B-type and C-type noise reduction systems
- MPX filter
- Level meter with 2 modes peak hold selection  
10 + 1 segments
- Level meter range selection (wide/expanded)
- 4-digit electronic tape counter with mode selection  
Normal/Time
- Auto monitor selection (Tape/Source)
- Display off
- Music search (over ± 15 selections)
- Automatic Tape Loose Canceller (ATLC)
- Tape return/Return play
- Auto space recording mute
- Auto tape selector
- Playback/recording timer start function
- CD•DECK SYNCHRO recording
- Headphones jack with level control
- Power eject (Open/Close)
- Repeat playback
- System remote control available

### Miscellaneous

**Power Requirements**

U.S., Canadian model ..... AC 120 V, 60 Hz

U.K. model ..... AC 230–240 Volts–, 50/60 Hz

Multi-voltage model ..... AC 110/120–127/220/240 V  
 (switchable), 50/60 Hz

**Power Consumption**

|         | U.S. Canadian | U.K. | Multi-voltage |
|---------|---------------|------|---------------|
| CT-S709 | 21 W          | –    | –             |

**Dimensions**

420(W) × 130.5(H) × 323(D) mm

16-9/16(W) × 5-1/8(H) × 12-11/16(D) in

**Weight (without package)**

5.8 kg (12 lb 13 oz)

### Accessories

Operating instructions ..... 1

Connection cord with pin plugs ..... 2

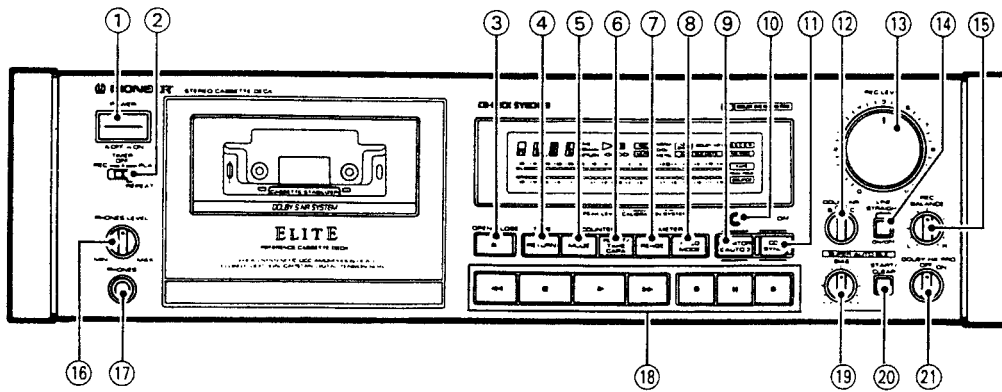
CD•DECK SYNCHRO control cord ..... 1

Remote control cord ..... 1

**NOTE:**

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

# 10. PANEL FACILITIES



- ① **Power switch (POWER OFF/ON)**
- ② **Timer mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)**
- ③ **Open/close button (OPEN/CLOSE ▲)**  
Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.  
*NOTE:*  
If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.
- ④ **Tape return button (TAPE RETURN)**  
This button is used in the normal tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000."
- ⑤ **Counter mode button (COUNTER MODE)**  
Each time this button is pressed, one of the two mode (Normal tape counter/Time counter) is set in sequence.
- ⑥ **Counter reset button (COUNTER RESET)**  
Reset the counter indication to "0000."
- ⑦ **Level meter range selector button (METER RANGE)**  
Selects wide or expanded range for the level meter.
- ⑧ **Level meter hold mode button (METER HOLD MODE)**  
Selects the display mode of the peak level.  
When press this button so that the HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.
- ⑨ **Monitor selector button (MONITOR [AUTO])**  
Used to monitor the source sound or just recorded sound during recording.
  - When the unit is set to record or playback mode, the TAPE indicator light up and the monitor mode is automatically selected.
- ⑩ **Display off button (DISPLAY OFF)**  
Press this button to turn off the function display.
- ⑪ **CD DECK SYNCHRO recording button (CD SYNC)**
- ⑫ **DOLBY\* NR switch**  
3-position (B/OFF/C)
- \*  
• *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*  
• *"DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*
- ⑬ **Recording level control (REC LEVEL)**

- ⑮ **Recording balance control (REC BALANCE)**
- ⑯ **Headphones level control (PHONES LEVEL)**
- ⑰ **Headphones jack (PHONES)**
- ⑱ **Operation buttons**
  - ◀ : Rewind/music search
  - : Stop
  - ▶ : Playback
  - ▶▶ : Fast forward/music search
  - : Recording
  - ⏸ : Pause
  - : Recording mute
- ⑳ **SUPER AUTO BLE button (START/CLEAR)**

## ATLC (Automatic Tape Loose Canceler)

With the tape slack prevention function, when the cassette door closes, the take-up reel automatically revolves to eliminate any tape slack.

## SUPER AUTO BLE

With commercially available cassette tapes, sensitivity and frequency characteristics might differ slightly from one another, even though the same sound adjustment is set for them. To utilize tape characteristics to the maximum possible and realize an ideal recording which reproduces the source exactly, optimum recording level (sensitivity) and equalizer values must be set accordingly for each tape. In many conventional tape decks, standard values are fixed for standard tapes, thus nullifying the subtle differences between individual tapes. Perfect tuning by ear through use of fine adjustment controllers for bias and sensitivity is difficult and requires a lot of effort.  
The AUTO BLE on this unit automatically adjusts bias, level and equalizer by using a microprocessor to set the optimum recording characteristics accordingly for each tape.

### Contrast of Super AUTO BLE Tuning System

|                             | CT-S709           |
|-----------------------------|-------------------|
| BIAS tuning (Freq./Steps)   | 12 kHz<br>3-step  |
| LEVEL tuning (Freq./Steps)  | 400 Hz<br>16-step |
| Mid EQ tuning (Freq./Steps) | 3 kHz<br>16-step  |
| Hi EQ tuning (Freq./Steps)  | 12 kHz<br>16-step |