

# CDP-M48/M49/M69

## SERVICE MANUAL

*AEP Model*

*CDP-M48*

*AEP Model*

*Australian Model*

*E Model*

*CDP-M49*

*AEP Model*

*E Model*

*CDP-M69*



This photo is CDP-M69.

### SPECIFICATIONS

#### Compact disc player

|                       |                            |
|-----------------------|----------------------------|
| Frequency response    | 2 Hz – 20 kHz $\pm$ 0.5 dB |
| Signal to noise ratio | More than 100 dB           |
| Dynamic range         | More than 92 dB            |
| Harmonic distortion   | Less than 0.008%           |
| Channel separation    | More than 95 dB            |

#### Outputs

|                           |                                                                    |
|---------------------------|--------------------------------------------------------------------|
| LINE OUT<br>(phono jacks) | Output level 2 V (at 50 kilohms)<br>Load impedance over 10 kilohms |
|---------------------------|--------------------------------------------------------------------|

|                                                    |                                                   |
|----------------------------------------------------|---------------------------------------------------|
| HEADPHONES<br>(stereo phone jack)<br>(CDP-M49/M69) | Output level max. 10 mW<br>Load impedance 32 ohms |
|----------------------------------------------------|---------------------------------------------------|

#### General

|                                                   |                                                                                                                                                                                                                                                           |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power requirements                                | AEP model:<br>220V AC (or 240V AC adjustable by<br>Sony personnel), 50/60Hz<br>UK model:<br>240V AC (or 220V AC adjustable by<br>Sony personnel), 50/60Hz<br>Other model:<br>110V – 120V AC (or 220V – 240V AC<br>adjustable by Sony personnel), 50/60 Hz |
| Power consumption                                 | 11W                                                                                                                                                                                                                                                       |
| Dimensions<br>(approx., including<br>projections) | 355 x 95 x 305 mm (w/h/d)<br>(14 x 3 7/8 x 12 1/8 inches)                                                                                                                                                                                                 |
| Weight (approx.)                                  | 3.0 kg (6 lbs 10 oz)                                                                                                                                                                                                                                      |

|                                    |            |
|------------------------------------|------------|
| Model Name Using Similar Mechanism | CDP-M18    |
| CD Mechanism Name                  | CDM14-5BD1 |
| Base Unit Name                     | BU-5BD1    |

#### Supplied accessories

|                           | CDP-M69                              | CDP-M48/M49 |
|---------------------------|--------------------------------------|-------------|
| Audio cord                | 1<br>(2 phono plugs – 2 phono plugs) |             |
| Remote commander          | 1                                    | –           |
| Sony SUM-3 (NS) batteries | 2                                    | –           |

#### Remote commander

|                       |                                                              |
|-----------------------|--------------------------------------------------------------|
| Remote control system | Infrared control                                             |
| Power requirements    | 3 V DC with two R6 (size AA) batteries                       |
| Dimensions            | Approx. 40 x 20 x 175 mm (w/h/d)<br>1 5/8 x 13/16 x 7 inches |
| Weight                | Approx. 95 g (3.4 oz)<br>Including batteries                 |

Design and specifications subject to change without notice.



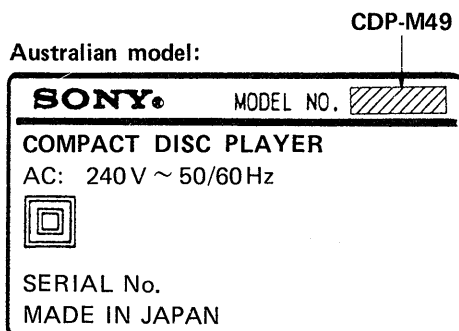
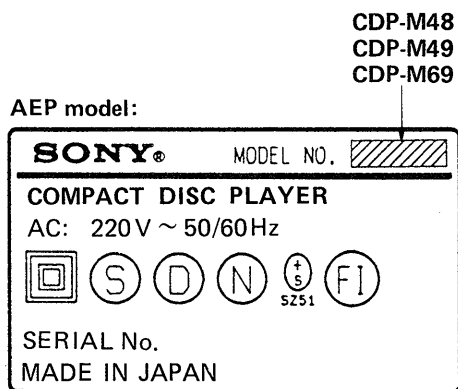
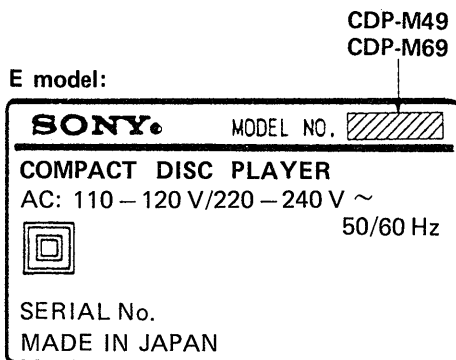
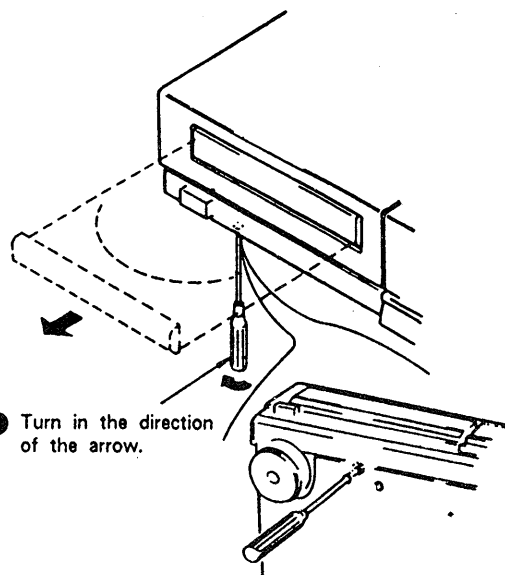
COMPACT DISC PLAYER  
**SONY**®

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## MODEL IDENTIFICATIONS

—Specition Label—

HOW TO OPEN THE DISC TRAY WHEN  
POWER SWITCH TURNS OFF

Caution : When you work, keep the set horizontal.

NOTES ON HANDLING THE OPTICAL PICK-UP  
BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts. The flexible board is easily damaged and should be handled with care.

## NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25 cm away from the objective lens.

## SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

#### 1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output: max. 44.6  $\mu$ W\*

\* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

## BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iøvrigt instruktionerne i servicemanualen.

### ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

#### 1. Laser-diode data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstraling: Kontinuerlig
- Laseroutput: Max. 0,4 mW\*

\* Målt i 1,6 mm afstand fra overfladen af objektiv-linsen på den optiske pick-up enhed.

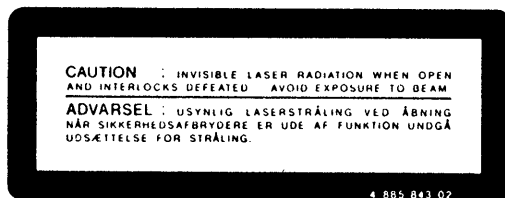
- Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laser-dioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

## LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

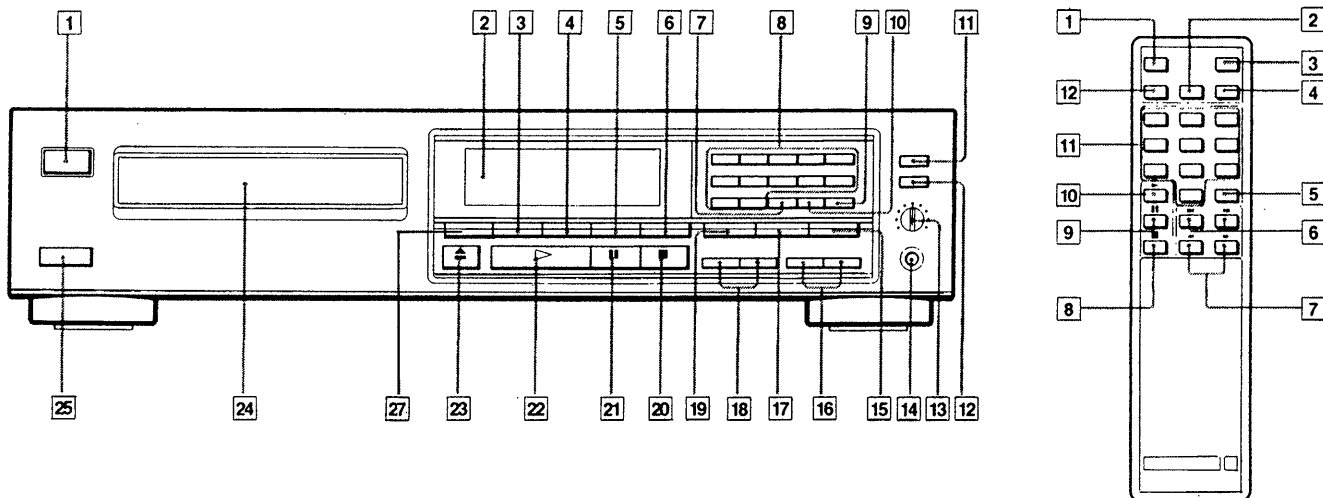
#### 1. Advarsel Mærkning



**VAROITUS:** Laite sisältää, laserdiodin, joka lähettää (näkyvätöntä) silmille vaarallista lasersäteilyä.

## SECTION 1 GENERAL

### 1-1. LOCATION AND FUNCTION OF CONTROLS



- 1 POWER switch
- 2 Display window
- 3 TIME button
- 4 A. SPACE button
- 5 REPEAT button
- 6 FADER (FADE IN/FADE OUT) button
- 7 CHECK (program check) button
- 8 Numeric buttons
- 9 > 12 (over 12) button
- 10 CLEAR (program clear) button
- 11 EDIT/TIME FADE button
- 12 TIME SET button
- 13 HEADPHONES LEVEL control (for CDP-M69/M49)
- 14 HEADPHONES jack (for CDP-M69/M49)
- 15 PROGRAM button
- 16 ◀◀▶▶ (manual search) buttons
- 17 SHUFFLE button
- 18 ◀◀▶▶ (AMS\*/RMS\*\*) buttons
- 19 CONTINUE button
- 20 ■ (stop) button
- 21 || (pause) button
- 22 ▶ (play) button
- 23 ▲ (open/close) button
- 24 Disc tray
- 25 Remote sensor
- 26 ◀◀▶▶ (AMS\*/RMS\*\*) / ◀◀▶▶ (manual search) buttons
- 27 PEAK SEARCH button (Australian, E Model).

- 1 REPEAT button
- 2 SHUFFLE button
- 3 FADER (FADE IN/FADE OUT) button
- 4 PGM (program) button
- 5 > 10 (over 10) button
- 6 ◀◀▶▶ AMS buttons
- 7 ◀◀▶▶ (manual search) buttons
- 8 ■ (stop) button
- 9 || (pause) button
- 10 ▶ (play) button
- 11 Numeric buttons
- 12 CONTINUE button

\* AMS is an abbreviation of Automatic Music Sensor.  
 \*\* RMS is the abbreviation of Random Music Sensor.

## SECTION 2

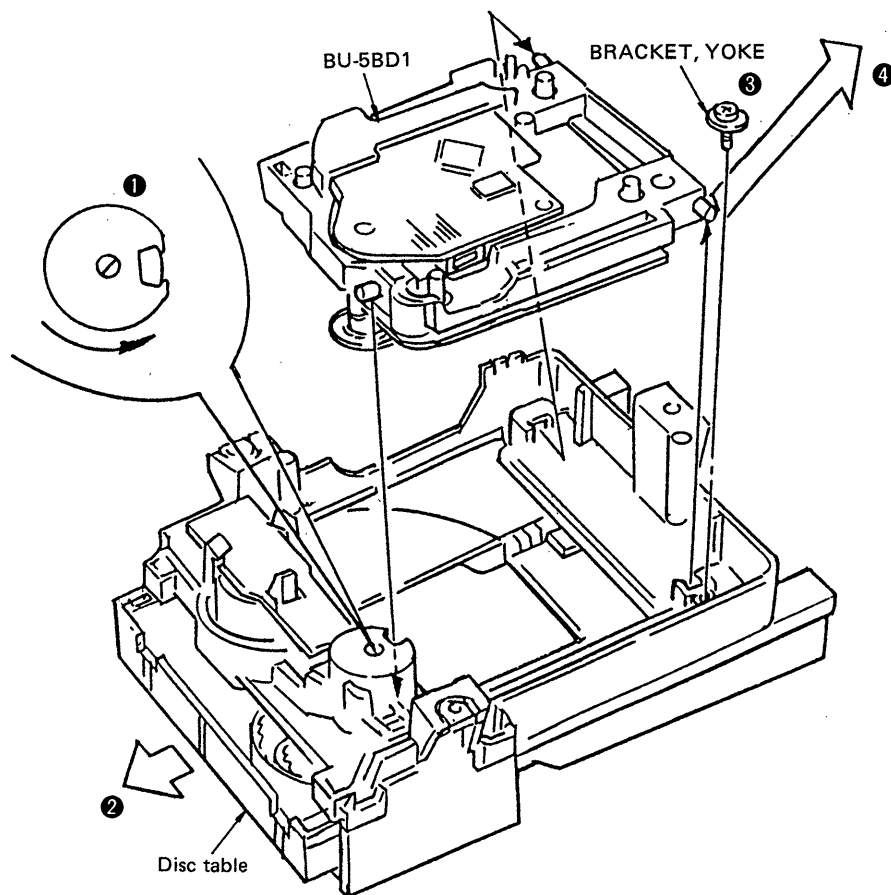
### DISSASSEMBLY OF BASE UNIT

#### REMOVE THE MD (BU-5BD)

**Note:** Follow the disassembly procedure in the numerical order given.

SEE ADDITIONAL  
INFORMATION

- ①. Turn the cam to the direction of arrow (Counter clock wise) by minus screw driver.
- ②. Take off the disc table.
- ③. Remove the bracket yoke.
- ④. Remove the MD (BU-5BD1) to the direction of arrow.



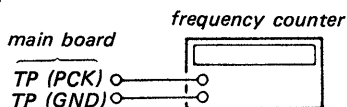
## SECTION 3 ELECTRICAL ADJUSTMENTS

### ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 (Part No. 3-702-101-01) disc unless otherwise indicated.
3. Use the oscilloscope with more than  $10M\Omega$  impedance.

#### RF PLL Free-run Frequency Check

##### Procedure:

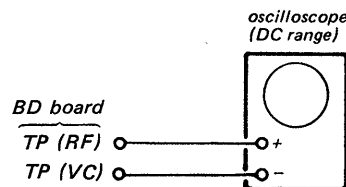


1. Connect the frequency counter to the test points TP (PCK) and TP (GND).
2. Turn POWER switch on.
3. Put the disc (YEDS-18) in and press  $\Delta$  button.
4. Confirm that the reading on the frequency counter is locked at 4.3218 MHz.

#### RF LEVEL Check

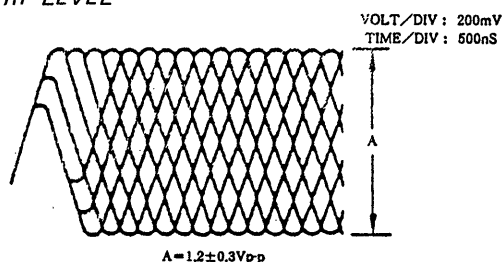
This adjustment should be made after replacing the Optical Pick-up Block.

##### Procedure:



1. Connect oscilloscope to the test points TP (RF) and TP (VC).
2. Turn POWER switch on.
3. Put the disc (YEDS-18) in and press  $\Delta$  button.
4. Confirm that an optimum waveform eye pattern. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.

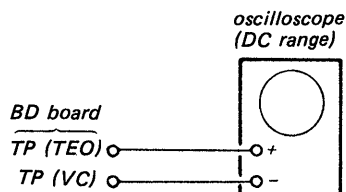
##### RF LEVEL



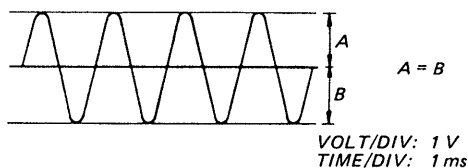
#### E-F Balance Check

This adjustment should be made after replacing the Optical Pick-up Block.

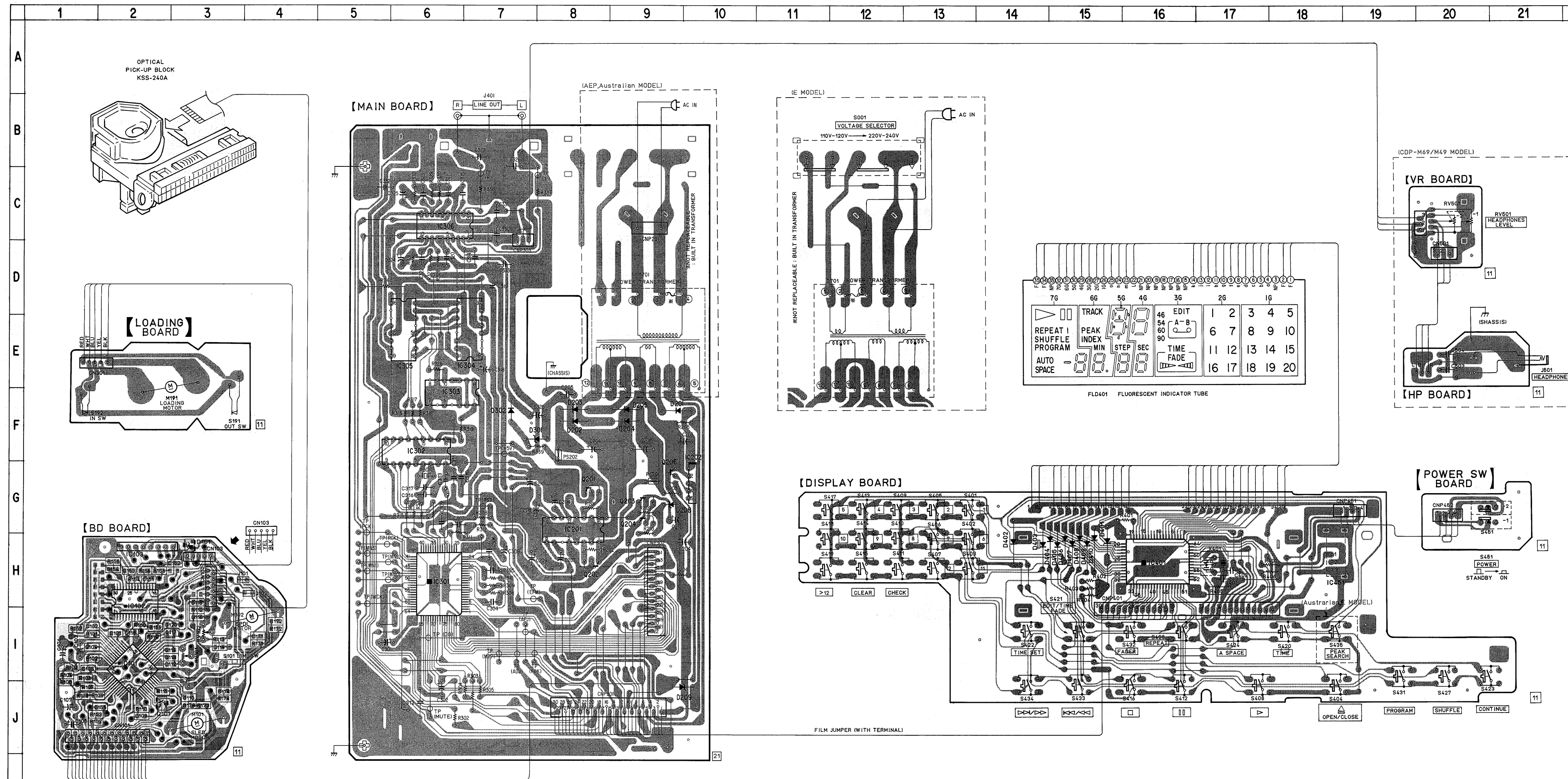
##### Procedure:



1. Connect the oscilloscope to the test points TP (TEO) and TP (VC).
2. Ground TP (ADJ), TP (TEST).
3. Turn POWER switch on.
4. Put the disc (YEDS-18) in and press  $\Delta$  button.
5. Confirm that the traverse waveform is symmetrical above and below.
6. After adjustment, remove the TP (ADJ), TP (TEST) in ground.





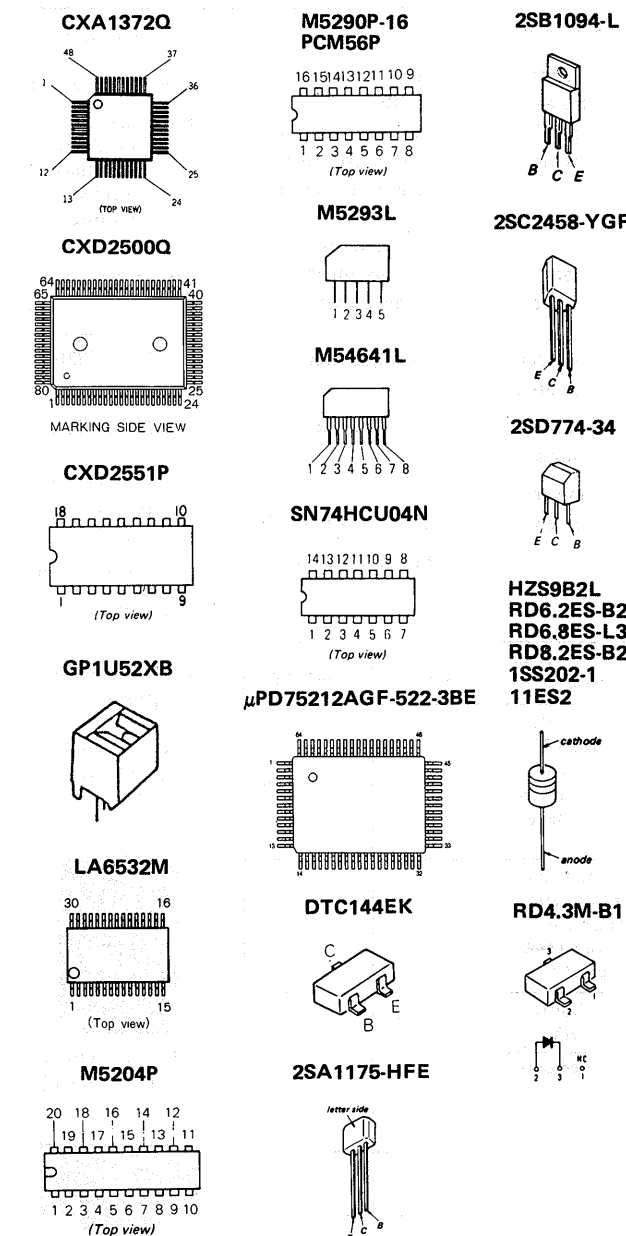


- **Semiconductor Lead Layouts**

| Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|
| D101     | H-3      | IC101    | I-2      |
| D201     | F-9      | IC102    | H-2      |
| D202     | F-8      | IC103    | H-2      |
| D203     | F-9      | IC201    | G-6      |
| D204     | F-9      | IC202    | G-10     |
| D205     | F-9      | IC301    | H-6      |
| D208     | G-9      | IC302    | F-6      |
| D209     | J-10     | IC303    | F-6      |
| D301     | F-8      | IC304    | E-7      |
| D302     | F-7      | IC305    | E-6      |
| D401     | H-15     | IC401    | C-8      |
| D402     | H-14     | IC401    | H-16     |
| D403     | H-14     | IC451    | H-18     |
| D404     | H-15     |          |          |
| D405     | H-15     | 0101     | J-2      |
| D406     | H-15     | 0201     | G-8      |
| D407     | H-15     | 0202     | G-8      |
| D408     | H-15     | 0203     | G-9      |
| D409     | H-15     | 0204     | G-9      |
| D410     | H-15     | 0206     | G-9      |

**Note:**

- ○ — : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.



Note:

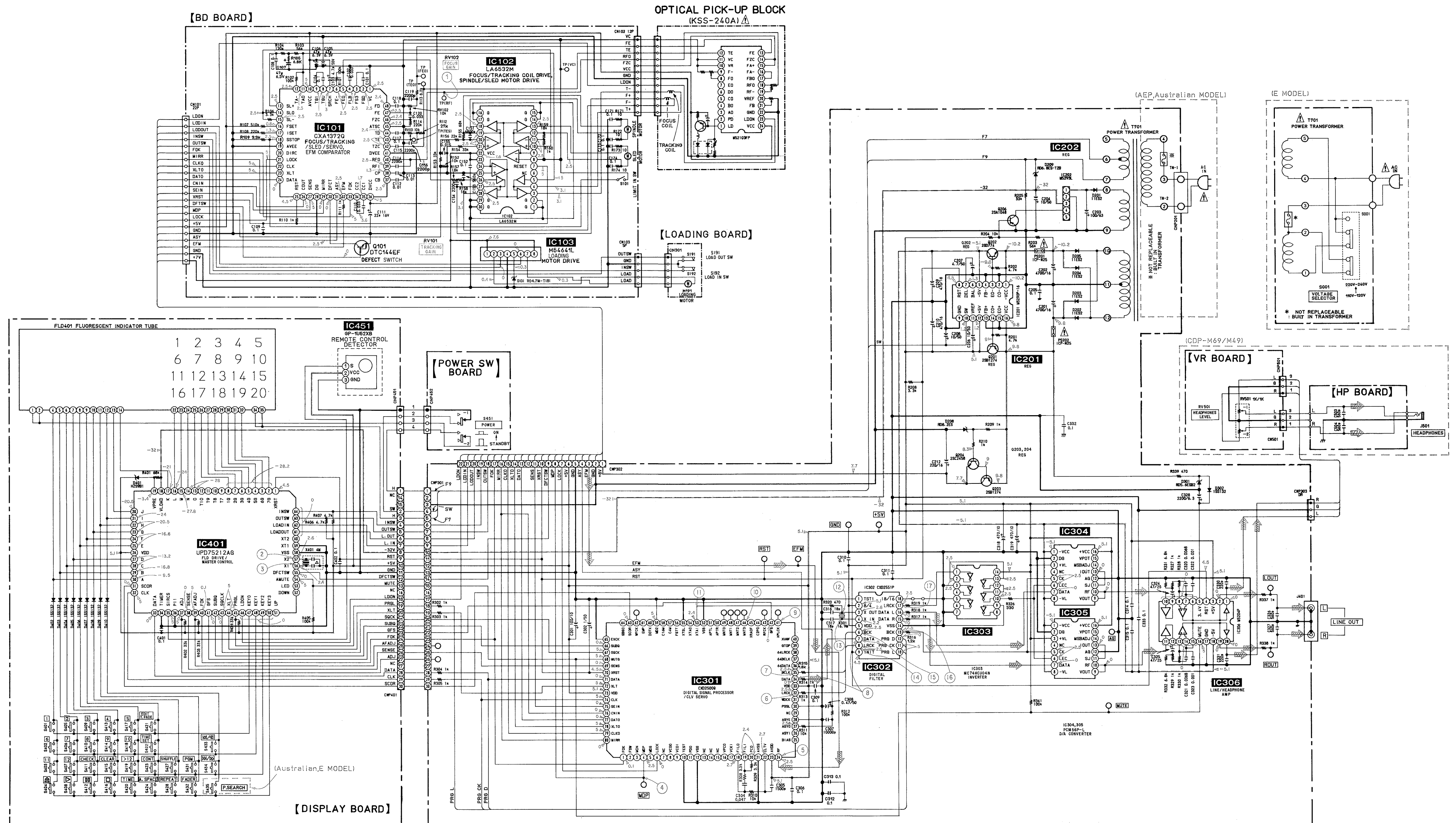
- All capacitors are in  $\mu F$  unless otherwise noted.  $pF$ :  $\mu F$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- %: indicates tolerance.
- $\Delta$ : internal component.
- $\text{---}$ : 8+ Line
- $\text{---}$ : 8- Line
- $\text{---}$ : adjustment for repair.

- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark: stop
- Voltagess are taken with a VOM (input impedance 10M  $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$ : CD

Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

#### 4-2. SCHEMATIC DIAGRAM

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K



## SECTION 5 EXPLODED VIEWS

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

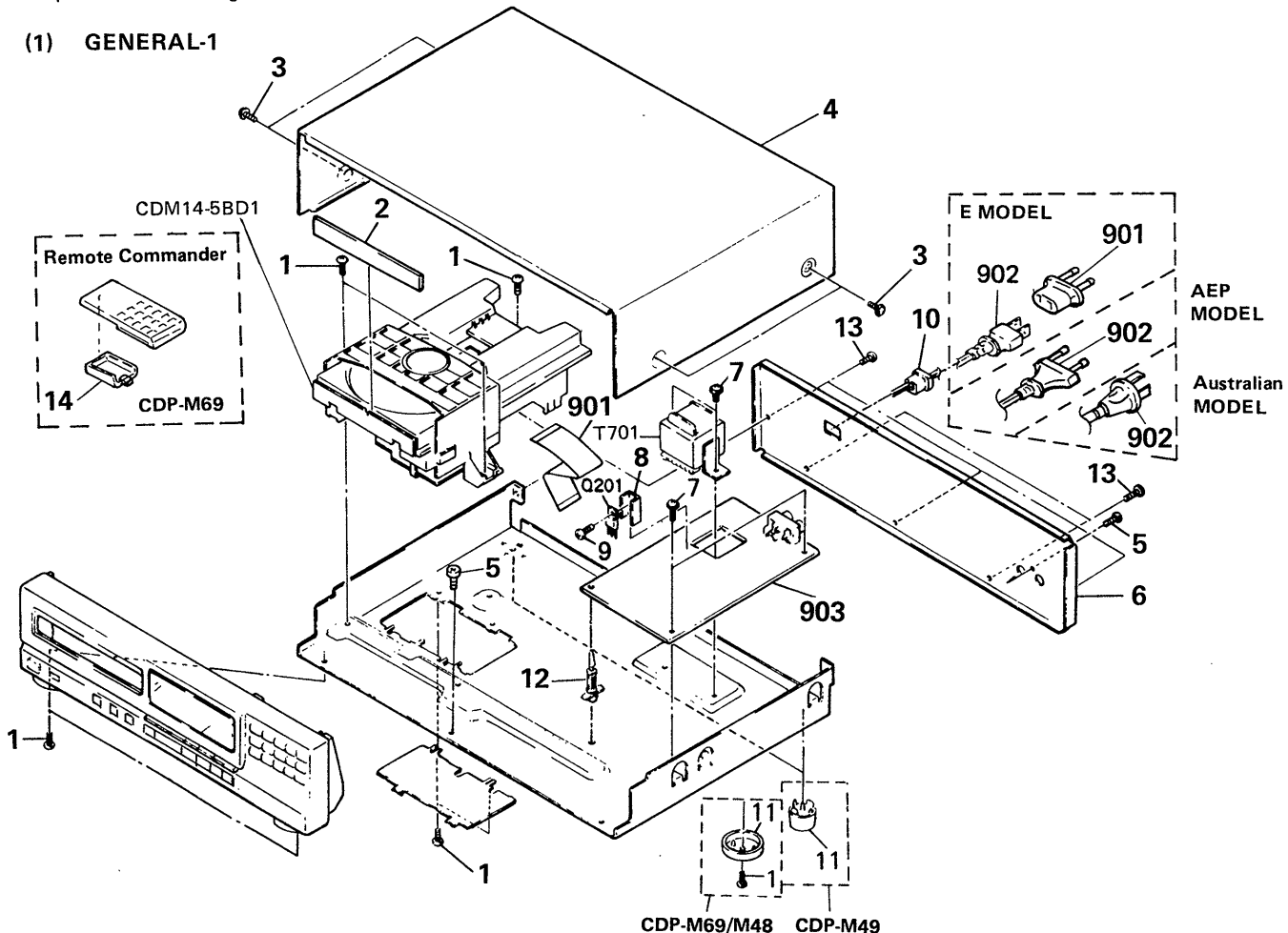
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts  
Example:  
(RED) ... KNOB, BALANCE (WHITE)

↑  
Cabinet's Color

↑  
Parts Color

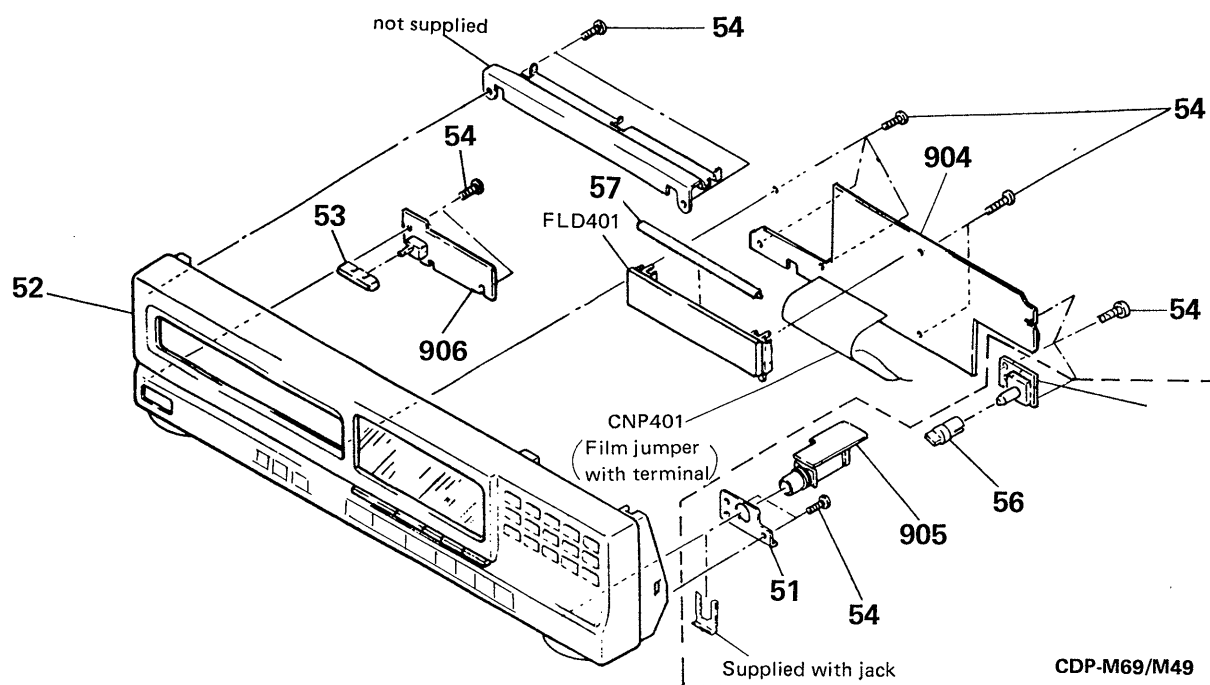
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### (1) GENERAL-1



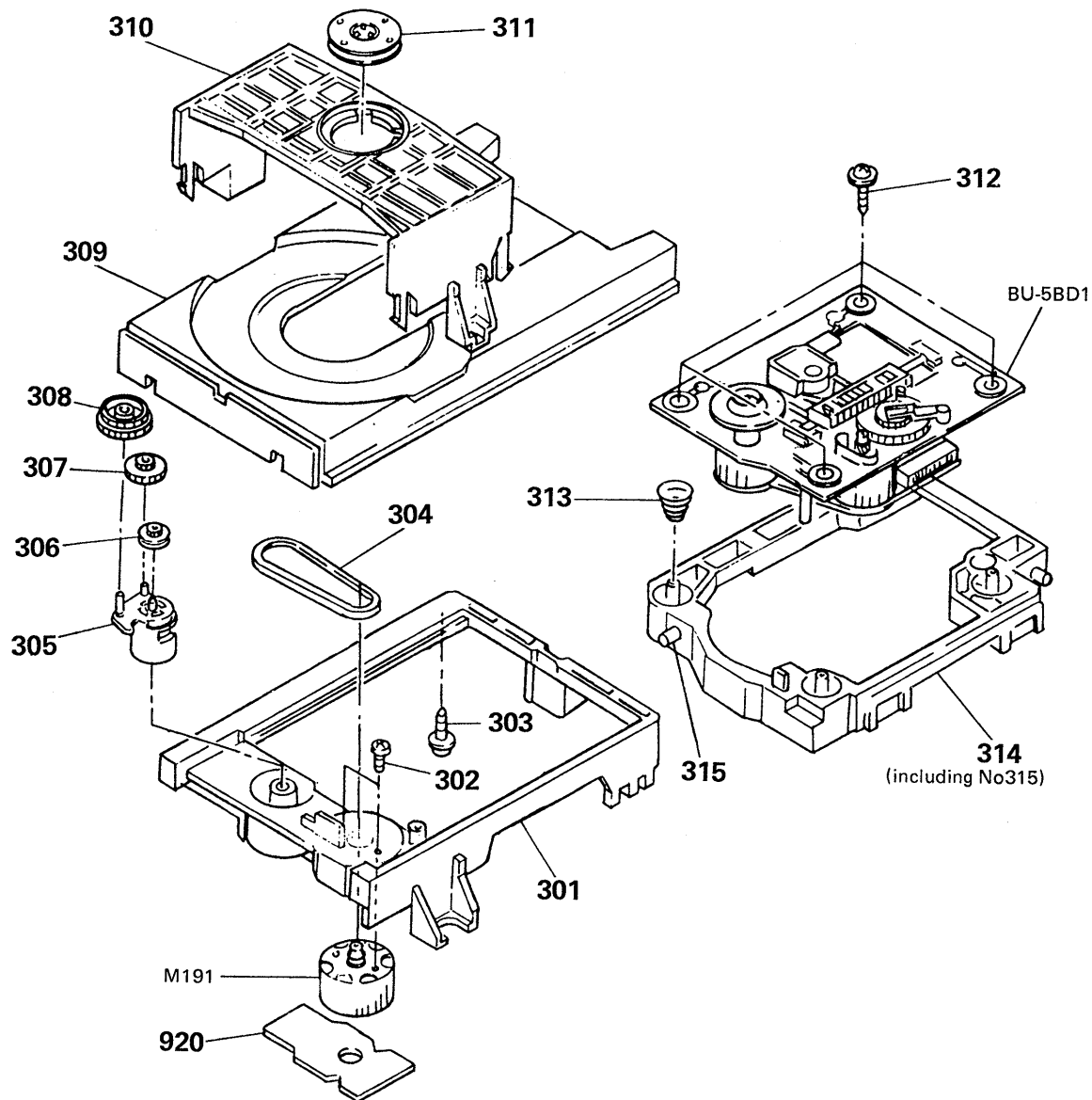
| No. | Part No.      | Description                      | Remarks | No. | Part No.      | Description                   | Remarks |
|-----|---------------|----------------------------------|---------|-----|---------------|-------------------------------|---------|
| 1   | 7-682-548-04  | SCREW +BVTT 3X8 (S)              |         | 11  | 4-933-601-01  | (M49).....FOOT                |         |
| 2   | 4-929-534-01  | PANEL, LOADING                   |         |     | *4-934-883-01 | (M48/M69)...FOOT              |         |
| 3   | 3-704-366-31  | SCREW (CASE) (M3X6)              |         | 12  | *4-924-098-31 | HOLDER, PC BOARD              |         |
| 4   | 4-919-376-31  | CASE                             |         | 13  | 7-682-547-09  | SCREW +BVTT 3X6 (S)           |         |
| 5   | 7-685-646-79  | SCREW +BVTP 3X8 TYPE2 N-S        |         | 14  | 4-384-285-01  | (M69)...COVER, BATTERY        |         |
| 6   | *4-927-388-11 | (M69:AEP)...PANEL, BACK          |         | 901 | 1-575-002-11  | WIRE, FLAT TYPE (22 CORE)     |         |
|     | *4-927-388-21 | (M69:E).....PANEL, BACK          |         | 902 | .1-575-104-11 | (E).....CORD, POWER           |         |
|     | *4-927-388-41 | (M49:AEP)...PANEL, BACK          |         |     | .1-575-453-11 | (AEP)...CORD, POWER           |         |
|     | *4-927-388-51 | (M49:E).....PANEL, BACK          |         |     | .1-575-677-11 | (AUS)...CORD, POWER           |         |
|     | *4-927-388-81 | (M49:AUS)...PANEL, BACK          |         | 903 | *A-4617-495-A | (AEP,AUS)...MOUNTED PCB, MAIN |         |
|     | *4-927-388-71 | (M48:AEP)...PANEL, BACK          |         |     | *A-4617-496-A | (E).....MOUNTED PCB, MAIN     |         |
| 7   | 2-383-566-00  | SCREW +PTTWH 3X8                 |         | 910 | .1-526-565-12 | (AE)...AC PLUG ADAPTOR        |         |
| 8   | 4-902-345-01  | HEAT SINK                        |         |     |               |                               |         |
| 9   | 7-682-547-09  | SCREW +B 3X6                     |         |     |               |                               |         |
| 10  | *3-703-244-00 | (AEP,AUS)...BUSHING (2104), CORD |         |     |               |                               |         |
|     | *3-703-571-11 | (E).....BUSHING (4516), CORD     |         |     |               |                               |         |

## (2) GENERAL-2



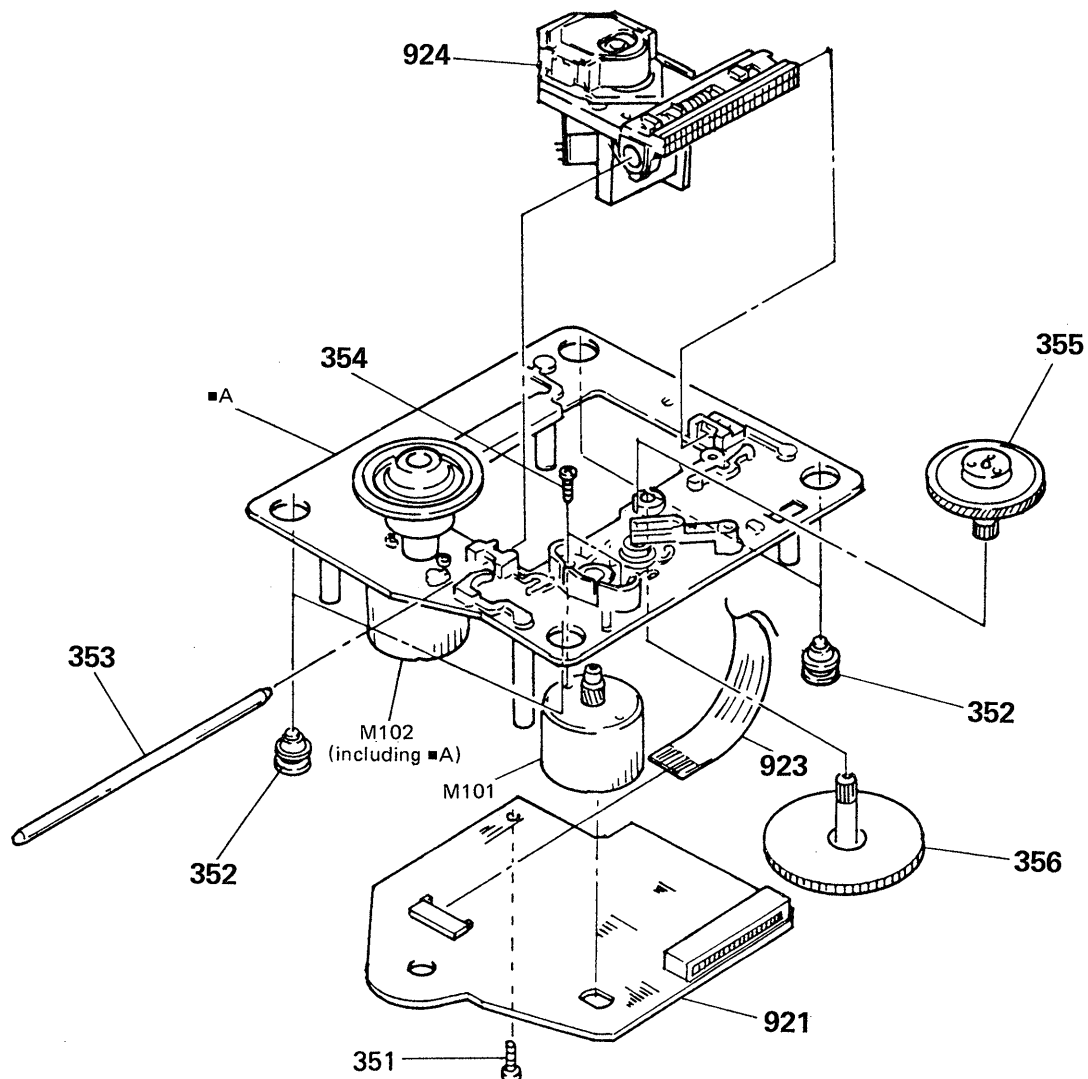
| No. | Part No.      | Description                     | Remarks | No.    | Part No.      | Description                  | Remarks |
|-----|---------------|---------------------------------|---------|--------|---------------|------------------------------|---------|
| 51  | 4-927-374-01  | (M69/M49)...BRACKET (JACK)      |         | 904    | *1-634-642-11 | PC BOARD, DISPLAY            |         |
| 52  | X-4917-595-1  | (M69:AEP)....PANEL ASSY, FRONT  |         | 905    | *1-634-643-11 | (M49/M69)...PC BOARD, HP     |         |
|     | X-4917-602-1  | (M69:E).....PANEL ASSY, FRONT   |         | 906    | *1-634-641-11 | PC BOARD, POWER SW           |         |
|     | X-4917-596-1  | (M48:AEP)....PANEL ASSY, FRONT  |         | 908    | *1-634-644-11 | (M49/M69)...PC BOARD, VR     |         |
|     | X-4917-597-1  | (M49:AEP)....PANEL ASSY, FRONT  |         |        |               |                              |         |
|     | X-4917-603-1  | (M49:E,AUS)...PANEL ASSY, FRONT |         | CNP401 | 1-535-825-11  | JUMPER, FILM (WITH TERMINAL) |         |
| 53  | 4-929-535-01  | BUTTON (POWER)                  |         | FLD401 | 1-519-556-11  | INDICATOR TUBE, FLUORESCENT  |         |
| 54  | 7-685-134-19  | SCREW +BTP 2.6X8 TYPE2 N-S      |         |        |               |                              |         |
| 56  | 4-933-116-01  | (M69/M49)...KNOB (C, TYPE), VOL |         |        |               |                              |         |
| 57  | *4-927-353-01 | SHEET (FL)                      |         |        |               |                              |         |

(3) MD SECTION-1 (CDM14-5BD1)



| No. | Part No.      | Description    | Remarks | No.  | Part No.      | Description                     | Remarks |
|-----|---------------|----------------|---------|------|---------------|---------------------------------|---------|
| 301 | 4-933-111-01  | CHASSIS (MD)   |         | 310  | 4-933-110-01  | HOLDER (MG)                     |         |
| 302 | 7-621-775-10  | SCREW +B 2.6X4 |         | 311  | A-4675-347-A  | MG ASSY                         |         |
| 303 | *4-917-583-21 | BRACKET, YOKE  |         | 312  | 4-933-134-01  | SCREW (+PTPWH M2.6X6)           |         |
| 304 | 4-927-649-01  | BELT           |         | 313  | 4-917-541-01  | SPRING (B)                      |         |
| 305 | 4-933-109-01  | CAM            |         | 314  | 4-933-129-01  | HOLDER (BU)(INCLUDET SHAFT CAM) |         |
| 306 | 4-927-651-01  | PULLEY (S)     |         | 315  | 4-933-108-01  | SHAFT (CAM)                     |         |
| 307 | 4-927-628-01  | GEAR (C)       |         | 920  | *1-632-202-11 | PC BOARD, LOADING               |         |
| 308 | 4-933-107-01  | GEAR (PL)      |         | M191 | A-4604-363-A  | MOTOR (L) ASSY (LOADING)        |         |
| 309 | 4-933-112-01  | TABLE, DISK    |         |      |               |                                 |         |

(4) MD SECTION-2 (BU-5BD1)



| No. | Part No.     | Description                | Remarks | No.  | Part No.       | Description                   | Remarks |
|-----|--------------|----------------------------|---------|------|----------------|-------------------------------|---------|
| 351 | 7-685-134-19 | SCREW +BTP 2.6X8 TYPE2 N-S |         | 921  | *A-4617-161-A  | MOUNTED PCB, BD               |         |
| 352 | 4-933-126-01 | INSULATOR (A)              |         | 923  | 1-575-001-11   | WIRE, FLAT TYPE (12 CORE)     |         |
| 353 | 4-917-565-01 | SHAFT, SLED                |         | 924  | △.8-848-144-11 | DEVICE, OPTICAL KSS-240A (RP) |         |
| 354 | 7-621-255-15 | SCREW +P 2X3               |         | M101 | △.X-4917-504-1 | ASSY, MOTOR (SLED)            |         |
| 355 | 4-917-567-01 | GEAR (M)                   |         | M102 | △.X-4917-523-3 | ASSY, MOTOR (SPINDLE)         |         |
| 356 | 4-917-564-01 | GEAR (P), FLATNESS         |         |      |                |                               |         |

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

## SECTION 6 ELECTRICAL PARTS LIST

### NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

### CAPACITORS:

MF:  $\mu$ F, PF:  $\mu$ PF.

### RESISTORS

- All resistors are in ohms.
- F: nonflammable

### COILS

- MMH: mH, UH:  $\mu$ H

### SEMICONDUCTORS

In each case, U:  $\mu$ , for example:

UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,  
UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

| Ref.No. | Part No.              | Description                   | Ref.No. | Part No.     | Description                       |
|---------|-----------------------|-------------------------------|---------|--------------|-----------------------------------|
| 901     | 1-575-002-11          | WIRE, FLAT TYPE (22 CORE)     | C202    | 1-126-842-11 | ELECT 4700MF 20% 16V              |
| 902     | $\Delta$ 1-575-104-11 | (E)....CORD, POWER            | C203    | 1-126-880-11 | ELECT 100MF 20% 63V               |
|         | $\Delta$ 1-575-453-11 | (AEP)....CORD, POWER          | C204    | 1-126-059-11 | ELECT 10MF 20% 50V                |
|         | $\Delta$ 1-575-677-11 | (AUS)....CORD, POWER          | C205    | 1-162-851-11 | CERAMIC 0.1MF 20% 16V             |
| 903     | *A-4617-495-A         | (AEP,AUS)...MOUNTED PCB, MAIN | C206    | 1-126-059-11 | ELECT 10MF 20% 50V                |
|         | *A-4617-496-A         | (E).....MOUNTED PCB, MAIN     | C207    | 1-124-045-00 | ELECT 4.7MF 20% 50V               |
| 904     | *1-634-642-11         | PC BOARD, DISPLAY             | C208    | 1-126-059-11 | ELECT 10MF 20% 50V                |
| 905     | *1-634-643-11         | (M49/M69)...PC BOARD, HP      | C209    | 1-126-012-11 | ELECT 470MF 20% 16V               |
| 906     | *1-634-641-11         | PC BOARD, POWER SW            | C210    | 1-126-012-11 | ELECT 470MF 20% 16V               |
| 908     | *1-634-644-11         | (M49/M69)...PC BOARD, VR      | C212    | 1-126-024-11 | ELECT 220MF 20% 16V               |
| 910     | $\Delta$ 1-526-565-12 | (AE)...AC PLUG ADAPTOR        | C301    | 1-124-994-11 | ELECT 100MF 20% 10V               |
| 920     | *1-632-202-11         | PC BOARD, LOADING             | C302    | 1-126-301-11 | ELECT 1MF 20% 50V                 |
| 921     | *A-4617-161-A         | MOUNTED PCB, BD               | C304    | 1-136-161-00 | FILM 0.047MF 5% 50V               |
| 923     | 1-575-001-11          | WIRE, FLAT TYPE (12 CORE)     | C305    | 1-161-374-11 | CERAMIC 0.0015MF 30% 16V          |
| 924     | $\Delta$ 8-848-144-11 | DEVICE, OPTICAL KSS-240A (RP) | C306    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C101    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C307    | 1-162-306-11 | CERAMIC 0.01MF 20% 16V            |
| C102    | 1-163-989-11          | CERAMIC CHIP 0.033MF 10% 25V  | C308    | 1-126-300-11 | ELECT 0.47MF 20% 50V              |
| C103    | 1-126-094-11          | ELECT 4.7MF 20% 16V           | C309    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C104    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C310    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C105    | 1-126-154-11          | ELECT 47MF 20% 6.3V           | C311    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C106    | 1-126-154-11          | ELECT 47MF 20% 6.3V           | C312    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C107    | 1-126-154-11          | ELECT 47MF 20% 6.3V           | C313    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C108    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C314    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C109    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C315    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C110    | 1-163-989-11          | CERAMIC CHIP 0.033MF 10% 25V  | C316    | 1-162-205-31 | CERAMIC 18PF 5% 50V               |
| C111    | 1-131-367-00          | TANTALUM 22MF 20% 16V         | C317    | 1-162-205-31 | CERAMIC 18PF 5% 50V               |
| C112    | 1-164-232-11          | CERAMIC CHIP 0.01MF 10% 50V   | C318    | 1-124-997-11 | ELECT 470MF 20% 10V               |
| C113    | 1-164-232-11          | CERAMIC CHIP 0.01MF 10% 50V   | C319    | 1-124-997-11 | ELECT 470MF 20% 10V               |
| C114    | 1-164-161-11          | CERAMIC CHIP 0.0022MF 10% 50V | C320    | 1-130-481-00 | MYLAR 0.0068MF 5% 50V             |
| C115    | 1-164-161-11          | CERAMIC CHIP 0.0022MF 10% 50V | C321    | 1-130-481-00 | MYLAR 0.0068MF 5% 50V             |
| C116    | 1-164-161-11          | CERAMIC CHIP 0.0022MF 10% 50V | C322    | 1-130-471-00 | MYLAR 0.001MF 5% 50V              |
| C117    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C323    | 1-130-471-00 | MYLAR 0.001MF 5% 50V              |
| C118    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C324    | 1-123-332-00 | ELECT 47MF 20% 25V                |
| C119    | 1-164-161-11          | CERAMIC CHIP 0.0022MF 10% 50V | C325    | 1-123-332-00 | ELECT 47MF 20% 25V                |
| C120    | 1-163-989-11          | CERAMIC CHIP 0.033MF 10% 25V  | C326    | 1-162-291-31 | CERAMIC 560PF 10% 50V             |
| C151    | 1-163-019-00          | CERAMIC CHIP 0.0068MF 10% 50V | C327    | 1-162-291-31 | CERAMIC 560PF 10% 50V             |
| C152    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C328    | 1-124-893-11 | ELECT 2200MF 20% 6.3V             |
| C153    | 1-163-006-11          | CERAMIC CHIP 560PF 10% 50V    | C330    | 1-162-286-31 | CERAMIC 220PF 10% 50V             |
| C154    | 1-164-161-11          | CERAMIC CHIP 0.0022MF 10% 50V | C331    | 1-162-286-31 | CERAMIC 220PF 10% 50V             |
| C155    | 1-163-023-00          | CERAMIC CHIP 0.015MF 10% 50V  | C332    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C171    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C333    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C172    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C401    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C173    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C402    | 1-164-159-11 | CERAMIC 0.1MF 50V                 |
| C174    | 1-163-038-00          | CERAMIC CHIP 0.1MF 25V        | C503    | 1-162-291-31 | (M49/M69)...CERAMIC 560PF 10% 50V |
| C201    | 1-126-842-11          | ELECT 4700MF 20% 16V          | C504    | 1-162-291-31 | (M49/M69)...CERAMIC 560PF 10% 50V |

| Ref.No. | Part No.       | Description                                  |
|---------|----------------|----------------------------------------------|
| CN101   | 1-568-796-11   | SOCKET, CONNECTOR 22P                        |
| CN102   | 1-568-795-11   | SOCKET, CONNECTOR 12P                        |
| CN103   | *1-564-721-11  | PIN, CONNECTOR (SMALL TYPE) 5P               |
| CN301   | *1-564-707-11  | PIN, CONNECTOR (SMALL TYPE) 5P               |
| CNP201  | *1-564-321-00  | PIN, CONNECTOR 2P                            |
| CNP301  | *1-568-933-11  | SOCKET, CONNECTOR 30P                        |
| CNP302  | *1-568-822-11  | SOCKET, CONNECTOR 22P                        |
| CNP303  | *1-564-337-61  | PIN, CONNECTOR 3P                            |
| CNP401  | 1-535-825-11   | JUMPER, FILM (WITH TERMINAL)                 |
| D101    | 8-719-105-72   | DIODE RD4.7M-B1                              |
| D201    | 8-719-200-82   | DIODE 11ES2                                  |
| D202    | 8-719-200-82   | DIODE 11ES2                                  |
| D203    | 8-719-200-82   | DIODE 11ES2                                  |
| D204    | 8-719-200-82   | DIODE 11ES2                                  |
| D205    | 8-719-200-82   | DIODE 11ES2                                  |
| D208    | 8-719-110-08   | DIODE RD8.2ES-B2                             |
| D209    | 8-719-120-90   | DIODE RD6.8ES-L3                             |
| D301    | 8-719-123-54   | DIODE RD6.2ES-B2                             |
| D302    | 8-719-107-94   | DIODE 1SS202-1                               |
| D401    | 8-719-933-57   | DIODE HZS9B2L                                |
| D402    | 8-719-107-94   | DIODE 1SS202-1                               |
| D403    | 8-719-107-94   | DIODE 1SS202-1                               |
| D404    | 8-719-107-94   | DIODE 1SS202-1                               |
| D405    | 8-719-107-94   | DIODE 1SS202-1                               |
| D406    | 8-719-107-94   | DIODE 1SS202-1                               |
| D407    | 8-719-107-94   | DIODE 1SS202-1                               |
| D408    | 8-719-107-94   | DIODE 1SS202-1                               |
| D409    | 8-719-107-94   | DIODE 1SS202-1                               |
| D410    | 8-719-107-94   | DIODE 1SS202-1                               |
| FLD401  | 1-519-556-11   | INDICATOR TUBE, FLUORESCENT                  |
| IC101   | 8-752-037-33   | IC CXA1372Q                                  |
| IC102   | 8-759-821-94   | IC LA6532M                                   |
| IC103   | 8-759-633-65   | IC M54641L                                   |
| IC201   | 8-759-630-21   | IC M5290P-16                                 |
| IC202   | 8-759-633-42   | IC M5293L                                    |
| IC301   | 8-752-333-31   | IC CXD2500Q                                  |
| IC302   | 8-752-334-06   | IC CXD2551P                                  |
| IC303   | 8-759-917-18   | IC SN74HC04N                                 |
| IC304   | 8-759-998-22   | IC PCM56P                                    |
| IC305   | 8-759-998-22   | IC PCM56P                                    |
| IC306   | 8-759-631-39   | IC M5204P                                    |
| IC401   | 8-759-148-63   | IC UPD75212AGF-522-3BE                       |
| IC451   | 8-749-920-83   | IC GP1U52XB                                  |
| J101    | 1-216-295-00   | METAL GLAZE 0 5% 1/10W                       |
| J102    | 1-216-295-00   | METAL GLAZE 0 5% 1/10W                       |
| J401    | 1-566-921-11   | JACK, PIN 2P (LINE OUT)                      |
| J501    | 1-568-519-21   | (M69/M49)...JACK, LARGE TYPE<br>(HEADPHONES) |
| M101    | A.X-4917-504-1 | ASSY, MOTOR (SLED)                           |
| M102    | A.X-4917-523-3 | ASSY, MOTOR (SPINDLE)                        |
| M191    | A-4604-363-A   | MOTOR (L) ASSY (LOADING)                     |
| PS201   | A.1-532-685-00 | LINK, IC                                     |
| PS202   | A.1-532-637-00 | LINK, IC                                     |
| Q101    | 8-729-901-01   | TRANSISTOR DTC144EK                          |
| Q201    | 8-729-111-67   | TRANSISTOR 2SB1094-L                         |
| Q202    | 8-729-140-96   | TRANSISTOR 2SD774-34                         |

| Ref.No. | Part No.     | Description               |
|---------|--------------|---------------------------|
| Q203    | 8-729-111-67 | TRANSISTOR 2SB1094-L      |
| Q204    | 8-729-230-45 | TRANSISTOR 2SC2458-YGR    |
| Q206    | 8-729-119-76 | TRANSISTOR 2SA1175-HFE    |
| R101    | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R102    | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R103    | 1-216-091-00 | METAL GLAZE 56K 5% 1/10W  |
| R104    | 1-216-099-00 | METAL GLAZE 120K 5% 1/10W |
| R105    | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W |
| R106    | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W |
| R107    | 1-216-114-00 | METAL GLAZE 510K 5% 1/10W |
| R108    | 1-216-105-00 | METAL GLAZE 220K 5% 1/10W |
| R109    | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W |
| R110    | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W   |
| R111    | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W   |
| R112    | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W  |
| R113    | 1-216-071-00 | METAL GLAZE 8.2K 5% 1/10W |
| R114    | 1-216-105-00 | METAL GLAZE 220K 5% 1/10W |
| R152    | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W  |
| R153    | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W  |
| R154    | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W  |
| R155    | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W  |
| R156    | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W  |
| R157    | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W  |
| R158    | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W  |
| R159    | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W  |
| R160    | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W   |
| R171    | 1-216-001-00 | METAL GLAZE 10 5% 1/10W   |
| R172    | 1-216-001-00 | METAL GLAZE 10 5% 1/10W   |
| R173    | 1-216-001-00 | METAL GLAZE 10 5% 1/10W   |
| R174    | 1-216-001-00 | METAL GLAZE 10 5% 1/10W   |
| R201    | 1-249-425-11 | CARBON 4.7K 5% 1/4W       |
| R202    | 1-249-425-11 | CARBON 4.7K 5% 1/4W       |
| R203    | 1-249-438-11 | CARBON 56K 5% 1/4W        |
| R204    | 1-249-429-11 | CARBON 10K 5% 1/4W        |
| R205    | 1-249-435-11 | CARBON 33K 5% 1/4W        |
| R208    | 1-249-423-11 | CARBON 3.3K 5% 1/4W       |
| R209    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R210    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R302    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R303    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R304    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R305    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R308    | 1-249-423-11 | CARBON 3.3K 5% 1/4W       |
| R309    | 1-249-423-11 | CARBON 3.3K 5% 1/4W       |
| R310    | 1-249-429-11 | CARBON 10K 5% 1/4W        |
| R311    | 1-249-429-11 | CARBON 10K 5% 1/4W        |
| R312    | 1-249-441-11 | CARBON 100K 5% 1/4W       |
| R313    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R314    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R315    | 1-249-420-11 | CARBON 1.8K 5% 1/4W       |
| R316    | 1-249-418-11 | CARBON 1.2K 5% 1/4W       |
| R317    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R318    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R319    | 1-249-417-11 | CARBON 1K 5% 1/4W         |
| R320    | 1-249-413-11 | CARBON 470 5% 1/4W        |
| R326    | 1-249-411-11 | CARBON 330 5% 1/4W        |
| R327    | 1-249-417-11 | CARBON 1K 5% 1/4W         |

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

| Ref.No. | Part No.       | Description                                           |
|---------|----------------|-------------------------------------------------------|
| R328    | 1-249-417-11   | CARBON 1K 5% 1/4W                                     |
| R329    | 1-249-417-11   | CARBON 1K 5% 1/4W                                     |
| R330    | 1-249-417-11   | CARBON 1K 5% 1/4W                                     |
| R331    | 1-249-427-11   | CARBON 6.8K 5% 1/4W                                   |
| R332    | 1-249-427-11   | CARBON 6.8K 5% 1/4W                                   |
| R337    | 1-249-417-11   | CARBON 1K 5% 1/4W                                     |
| R338    | 1-249-417-11   | CARBON 1K 5% 1/4W                                     |
| R339    | 1-249-413-11   | CARBON 470 5% 1/4W                                    |
| R341    | 1-249-441-11   | CARBON 100K 5% 1/4W                                   |
| R401    | 1-249-439-11   | CARBON 68K 5% 1/4W                                    |
| R402    | 1-249-435-11   | CARBON 33K 5% 1/4W                                    |
| R403    | 1-249-435-11   | CARBON 33K 5% 1/4W                                    |
| R404    | 1-249-435-11   | CARBON 33K 5% 1/4W                                    |
| R405    | 1-249-441-11   | CARBON 100K 5% 1/4W                                   |
| R406    | 1-249-425-11   | CARBON 4.7K 5% 1/4W                                   |
| R407    | 1-249-425-11   | CARBON 4.7K 5% 1/4W                                   |
| RV101   | 1-238-016-11   | RES, ADJ, CARBON 10K (TRACKING GAIN)                  |
| RV102   | 1-238-016-11   | RES, ADJ, CARBON 10K (FOCUS GAIN)                     |
| RV501   | 1-238-884-11   | (M69/M49)...RES, VAR, CARBON 1K/1K (HEADPHONES LEVEL) |
| S001    | △ 1-571-722-11 | (E)...SWITCH, VOLTAGE SELECTION                       |
| S101    | 1-572-085-11   | SWITCH, LEAF (LIMIT IN)                               |
| S191    | 1-572-086-11   | SWITCH, LEAF (LOAD OUT)                               |
| S192    | 1-572-086-11   | SWITCH, LEAF (LOAD IN)                                |
| S401    | 1-554-596-21   | SWITCH, KEY BOARD (1)                                 |
| S402    | 1-554-596-21   | SWITCH, KEY BOARD (6)                                 |
| S403    | 1-554-596-21   | SWITCH, KEY BOARD (11)                                |
| S404    | 1-554-596-21   | SWITCH, KEY BOARD (OPEN/CLOSE ▲)                      |
| S405    | 1-554-596-21   | SWITCH, KEY BOARD (2)                                 |
| S406    | 1-554-596-21   | SWITCH, KEY BOARD (7)                                 |
| S407    | 1-554-596-21   | SWITCH, KEY BOARD (12)                                |
| S408    | 1-554-596-21   | SWITCH, KEY BOARD (▶)                                 |
| S409    | 1-554-596-21   | SWITCH, KEY BOARD (3)                                 |
| S410    | 1-554-596-21   | SWITCH, KEY BOARD (8)                                 |
| S411    | 1-554-596-21   | SWITCH, KEY BOARD (CHECK)                             |
| S412    | 1-554-303-21   | SWITCH, KEY BOARD (■)                                 |
| S413    | 1-554-596-21   | SWITCH, KEY BOARD (4)                                 |
| S414    | 1-554-596-21   | SWITCH, KEY BOARD (9)                                 |
| S415    | 1-554-596-21   | SWITCH, KEY BOARD (CLEAR)                             |
| S416    | 1-554-596-21   | SWITCH, KEY BOARD (■)                                 |
| S417    | 1-554-596-21   | SWITCH, KEY BOARD (5)                                 |
| S418    | 1-554-303-21   | SWITCH, KEY BOARD (10)                                |
| S419    | 1-554-596-21   | SWITCH, KEY BOARD (>12)                               |
| S420    | 1-554-596-21   | SWITCH, KEY BOARD (TIME)                              |
| S421    | 1-554-596-21   | SWITCH, KEY BOARD (EDIT/TIME FADE)                    |
| S422    | 1-554-596-21   | SWITCH, KEY BOARD (TIME SET)                          |
| S423    | 1-554-303-21   | SWITCH, KEY BOARD (CONTINUE)                          |

| Ref.No. | Part No.       | Description                               |
|---------|----------------|-------------------------------------------|
| S424    | 1-554-596-21   | SWITCH, KEY BOARD (A SPACE)               |
| S427    | 1-554-303-21   | SWITCH, KEY BOARD (SHUFFLE)               |
| S428    | 1-554-596-21   | SWITCH, KEY BOARD (REPEAT)                |
| S431    | 1-554-596-21   | SWITCH, KEY BOARD (PROGRAM)               |
| S432    | 1-554-596-21   | SWITCH, KEY BOARD (FADER)                 |
| S433    | 1-554-303-21   | SWITCH, KEY BOARD (◀◀/▶▶)                 |
| S434    | 1-554-596-21   | SWITCH, KEY BOARD (▶▶/▶▶)                 |
| S435    | 1-554-596-21   | (E,AUS)...SWITCH, KEY BOARD (PEAK SEARCH) |
| S451    | 1-571-305-11   | SWITCH, PUSH (1 KEY)(POWER)               |
| T701    | △ 1-449-922-11 | (AEP,AUS)...TRANSFORMER, POWER            |
| T701    | △ 1-449-923-11 | (E).....TRANSFORMER, POWER                |
| X301    | 1-567-926-11   | VIBRATOR, CRYSTAL (16.9MHz)               |
| X401    | 1-567-819-11   | VIBRATOR, CERAMIC (4MHz)                  |

## ACCESSORY & PACKING MATERIAL

|               |                                         |
|---------------|-----------------------------------------|
| 1-465-281-11  | (M69)...REMOTE COMMANDER                |
| 1-559-533-11  | CORD, CONNECTION                        |
| 3-701-630-00  | BAG, POLYETHYLENE                       |
| 3-750-792-11  | (M49:E,AUS/M69:E)...MANUAL, INSTRUCTION |
| 3-750-792-41  | (M49:AEP/M69).....MANUAL, INSTRUCTION   |
| 3-750-792-51  | (M49:AEP/M69).....MANUAL, INSTRUCTION   |
| *3-795-629-11 | (AEP)...INSTRUCTION                     |
| *4-922-998-01 | CUSHION                                 |
| *4-927-392-41 | (M69)...INDIVIDUAL CARTON               |
| *4-927-392-51 | (M49)...INDIVIDUAL CARTON               |
| *4-927-392-61 | (M48)...INDIVIDUAL CARTON               |

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

# CDP-M48/M49/M69

## SONY<sup>®</sup> SERVICE MANUAL

*AEP Model*  
CDP-M48

*AEP Model*  
*Australian Model*  
*E Model*  
CDP-M49

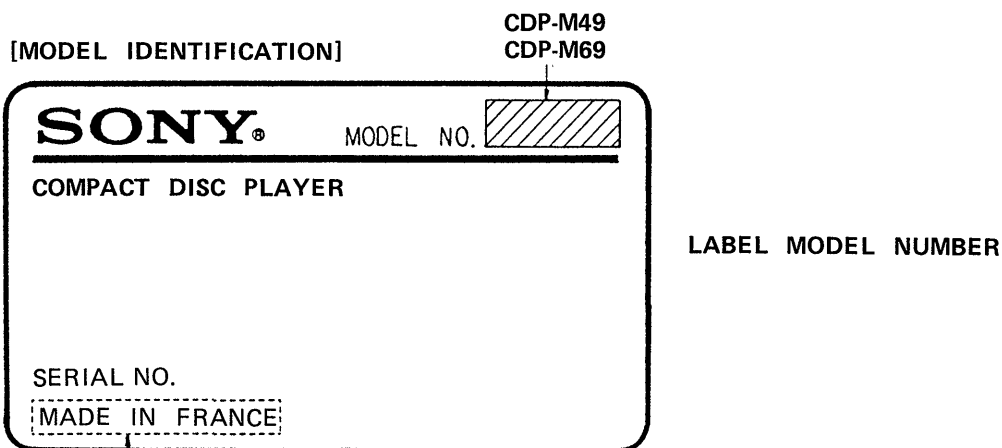
*AEP Model*  
*E Model*  
CDP-M69

## SUPPLEMENT-1

File this supplement with the service manual.

This SUPPLEMENT-1 is for CDP-M49/M69 made in France.

Refer to the CDP-M48/M49/M69 service manual for related information not contained in this SUPPLEMENT-1.



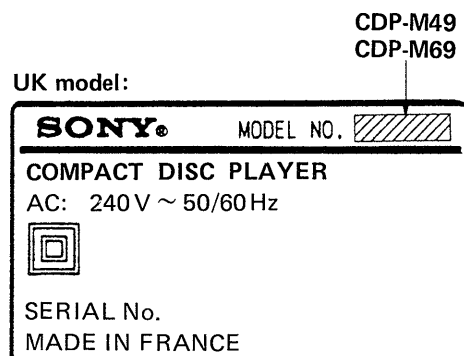
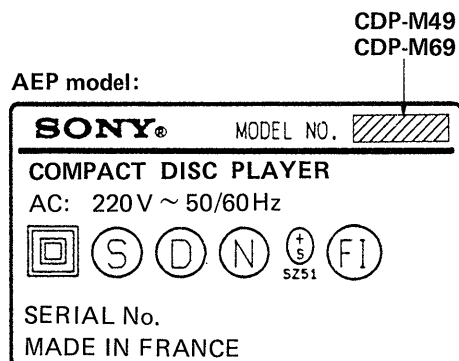
Identify the set with the indication of "MADE IN FRANCE" here.

## TABLE OF CONTENTS

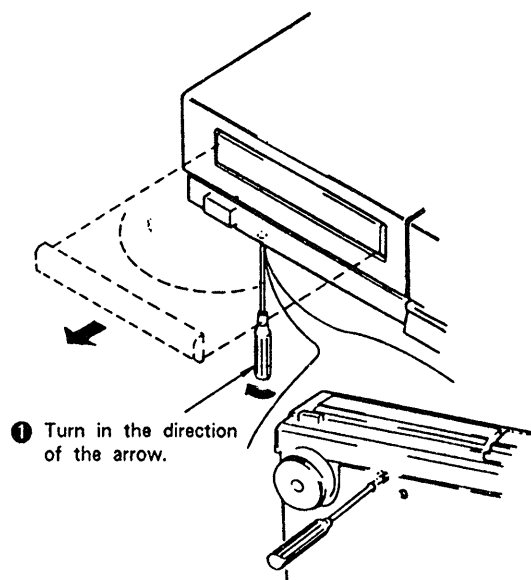
| Section    | Title                       | Page |
|------------|-----------------------------|------|
| SECTION 1. | DISASSEMBLY.....            | 3    |
| SECTION 2. | ELECTRICAL ADJUSTMENTS..... | 4    |
| SECTION 3. | DIAGRAMS                    |      |
| 3-1.       | Printed Wiring Boards.....  | 6    |
| 3-2.       | Schematic Diagram.....      | 9    |
| 3-3.       | IC Block Diagram.....       | 13   |
| SECTION 4. | EXPLODED VIEWS.....         | 15   |
| SECTION 5. | ELECTRICAL PARTS LIST.....  | 18   |

## MODEL IDENTIFICATIONS

—Specication Label —



## HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



Caution : When you work, keep the set horizontal.

## NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts. The flexible board is easily damaged and should be handled with care.

## NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25 cm away from the objective lens.

## SAFETY-RELATED COMPONENT WARNING!!

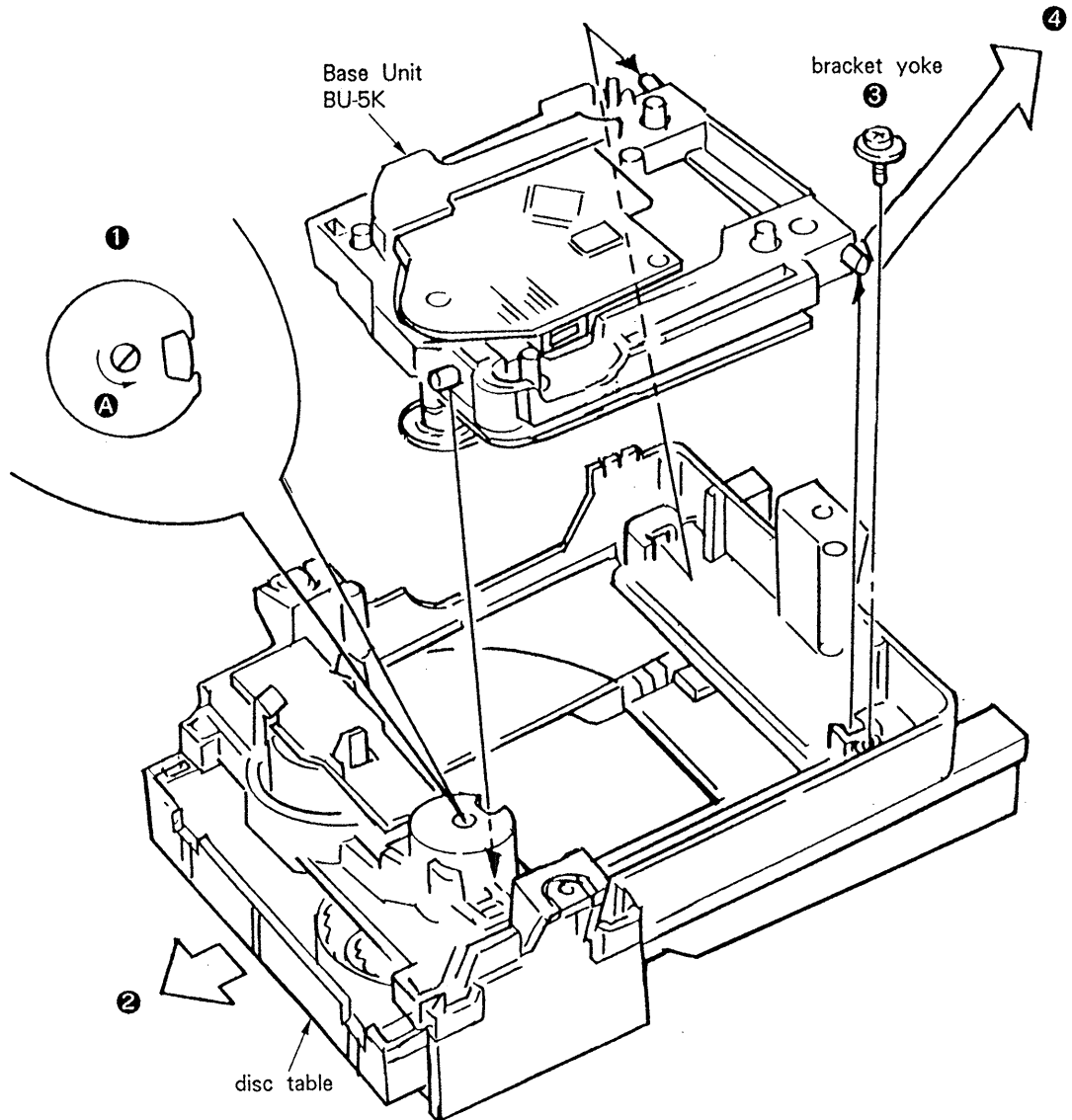
COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## SECTION 1

### DISSASSEMBLY OF BASE UNIT

**Note:** Follow the disassembly procedure in the numerical order given.

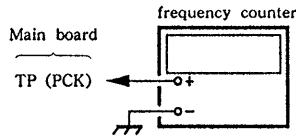
1. Remove CD mechanism from the set and turn over.
2. Turn the cam in the Arrow **A** direction by the **—** driver.
3. Take out disc table.
4. Remove bracket yoke.
5. Remove BU-5K in the Arrow **4** direction.



## SECTION 2 ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 (Part No : 3-702-101-1) disc unless otherwise indicated.
3. Use the oscilloscope with more than 10 M $\Omega$  impedance.

### RF PLL Frequency Adjustment/Lock Frequency Check Procedure :

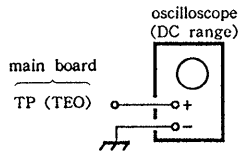


1. Connect test point TP (ASY) to ground with lead wire.
2. Turn POWER switch on.
3. Connect the frequency counter to test point TP (PCK).
4. Adjust RV201 so that the reading on frequency counter is 4,3218 MHz $\pm$ 30 KHz.  
.....(RF PLL frequency adjustment)
5. Remove lead wire connecting TP (ASY) to ground.
6. Set disc (YEDS-18) and press  $\triangleright$  PLAY button.
7. Confirm that the reading on frequency counter is 4,3218 MHz.  
.....(Lock frequency check)
8. Turn POWER switch off.

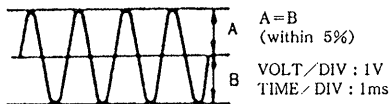
### E-F Balance Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

#### Procedure :



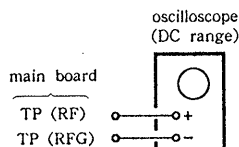
1. Connect test point TP (ADJ) and TP (TES) to ground with lead wire.
2. Connect oscilloscope to test point TP (TEO).
3. Set disc (YEDS-18) and turn POWER switch on.
4. Adjust RV101 so that the traverse waveform is symmetrical above and below.
5. Turn POWER switch off.
6. After adjustment, remove the lead wire connected in step 1.



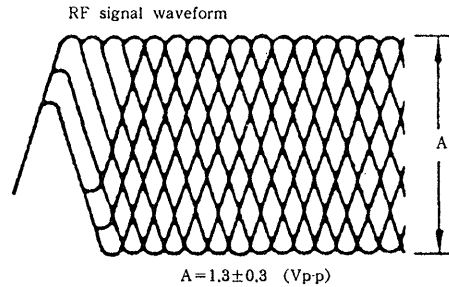
### Focus Bias Adjustment

This adjustment should be made when replacing TOP (T-type Optical Pick-up).

#### Procedure :



1. Connect oscilloscope to test point TP (RF) and test point TP (RFG).
2. Set disc (YEDS-18) and turn POWER switch on.
3. Adjust RV102 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.
4. Turn POWER switch off.



### REFERENCE

#### Focus/Tracking Gain Adjustments

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow up (vertical and horizontal) relative to mechanical noise and shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

| Symptoms \ Gain                                                                                                                                                              | Focus | Tracking    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|
| • The time until music starts becomes longer for ■ STOP $\rightarrow$ $\triangleright$ PLAY or automatic selection. (⏮ ⏭ buttons pressed.) (Normally takes about 1 seconds.) | low   | low or high |
| • Music does not start and disc continues to rotate for ■ STOP $\rightarrow$ $\triangleright$ PLAY or automatic selection. (⏮ ⏭ buttons pressed.)                            | —     | low         |
| • Sound is interrupted during PLAY or time counter display stops progressing.                                                                                                | —     | low         |
| • More noise during 2-axis device operation.                                                                                                                                 | high  | high        |

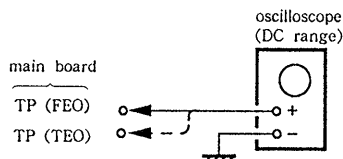
The following is a simple adjustment method.

#### —Primary Adjustment—

**Note :** Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment.

If the position after the primary adjustment are only a little different, return the controls to the original position.

#### Procedure :



1. Keep the set horizontal.

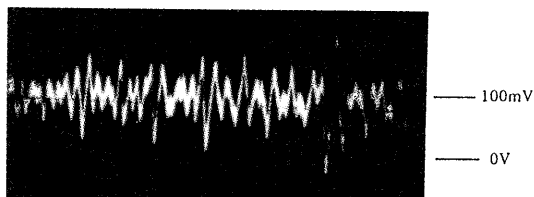
(If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2-axis device.)

2. Set disc (YEDS-18) and turn POWER switch on.

3. Connect oscilloscope to main amp board TP (FEO).

4. Adjust RV103 so that the waveform is as shown in the figure below. (focus gain adjustment)

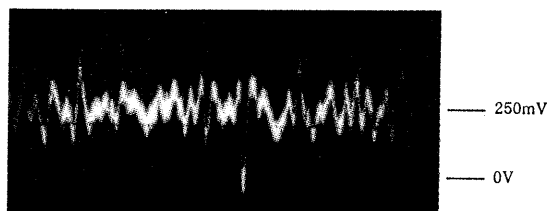
VOLT/DIV : 100mV  
TIME/DIV : 2mS



• Incorrect Examples (DC level changes more than on adjusted waveform)

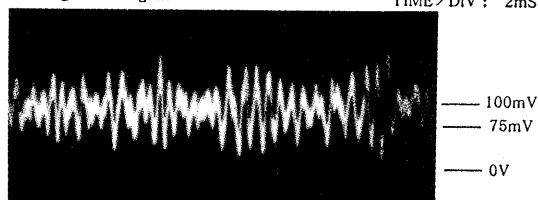
low focus gain

VOLT/DIV : 100mV  
TIME/DIV : 2mS



high focus gain

VOLT/DIV : 100mV  
TIME/DIV : 2mS



5. Connect oscilloscope to main board TP (TEO).

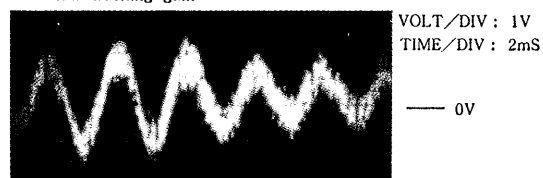
6. Adjust RV104 so that the waveform is as shown in the figure below. (tracking gain adjustment)

7. Turn POWER switch off.

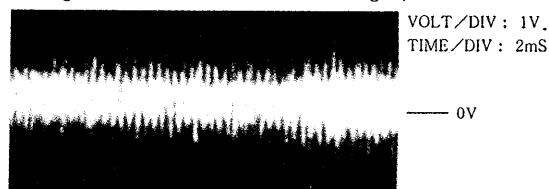


• Incorrect Examples (fundamental wave appears)

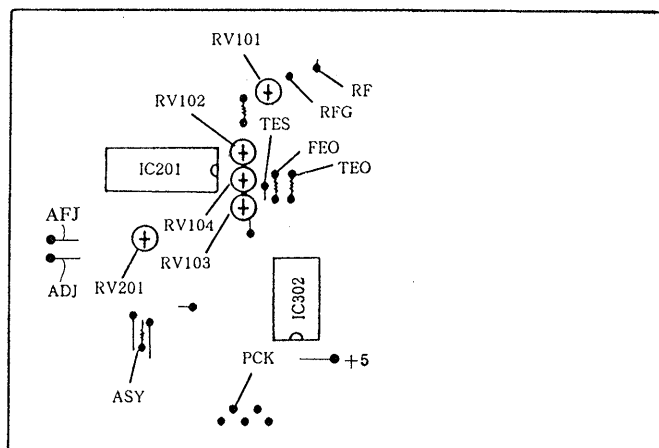
low tracking gain



high tracking gain  
(higher fundamental wave than for low gain)



Adjustment Location : main board —component side—



| Ref. No. | Location | Ref. No. | Location | Ref. No. | Location | Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| D001     | G-18     | D403     | C-7      | IC001    | D-18     | IC451    | C-3      | Q202     | C-14     |
| D002     | G-18     | D404     | D-7      | IC002    | E-19     | IC501    | C-18     | Q304     | B-17     |
| D003     | G-18     | D405     | C-7      | IC101    | F-16     | IC502    | C-19     | Q502     | C-20     |
| D004     | G-18     | D406     | D-7      | IC201    | E-14     | IC503    | B-20     | Q503     | C-20     |
| D005     | D-19     | D407     | C-7      | IC202    | F-14     |          |          | Q504     | A-19     |
| D006     | E-19     | D408     | D-19     | IC203    | G-13     | Q002     | D-19     | Q602     | C-20     |
| D008     | D-19     | D409     | C-7      | IC301    | B-15     | Q003     | E-18     | Q603     | C-20     |
| D009     | E-12     | D410     | D-7      | IC302    | C-16     | Q004     | E-18     | Q604     | B-19     |
| D010     | D-19     | D410     | D-7      | IC304    | B-17     | Q005     | A-17     |          |          |
| D011     | A-17     | D501     | D-20     | IC305    | C-17     | Q101     | G-16     |          |          |
| D402     | D-7      | D502     | C-20     | IC401    | C-6      | Q201     | D-14     |          |          |

SEE ADDITIONAL  
SEE INFORMATIONSEE ADDITIONAL  
SEE INFORMATIONSEE ADDITIONAL  
SEE INFORMATION

Note:

- All capacitors are in  $\mu F$  unless otherwise noted. pF:  $\mu F$  50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{2}W$  or less unless otherwise specified.

- $\Delta$ : internal component.

- B+**: B+ Line

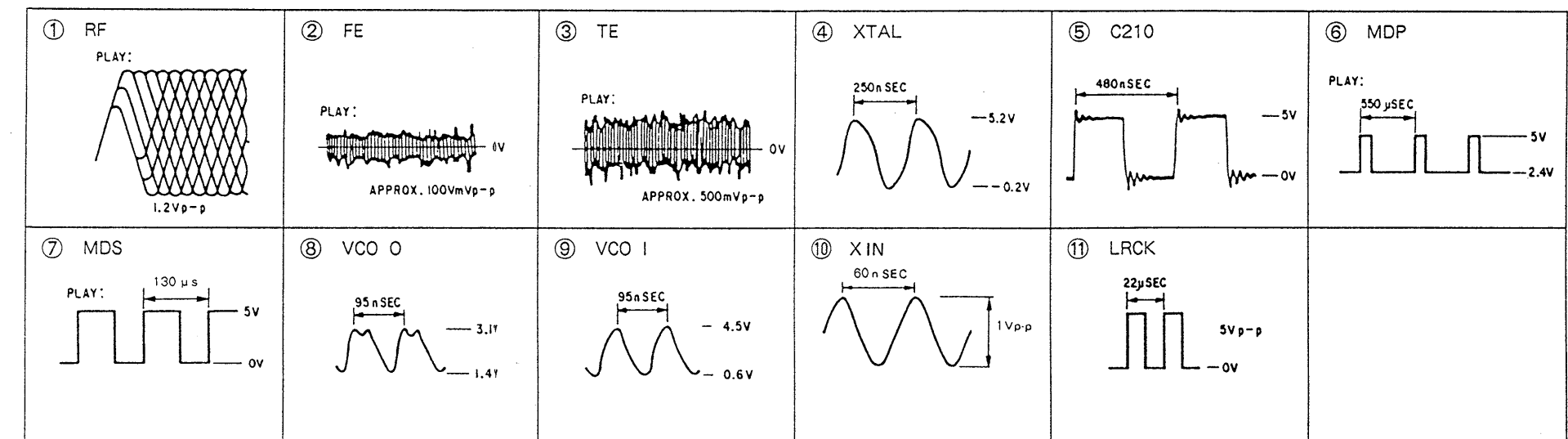
- B-**: B- Line

- $\square$ : adjustment for repair.

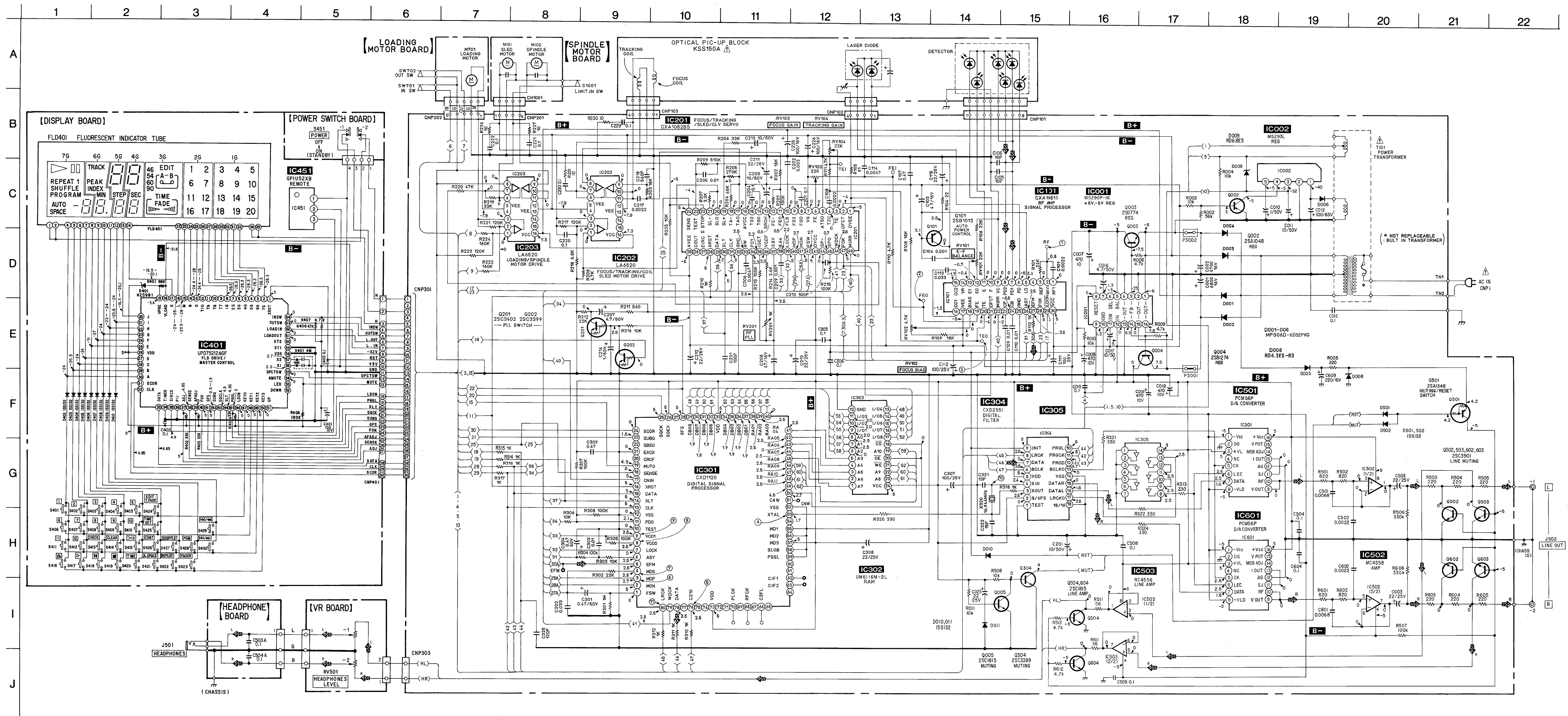
Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- Voltage and waveforms are do with respect to ground under no-signal conditions.
- no mark: PLAY
- Voltages are taken with a VOM (input impedance 10M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$ : CD

## ● WAVEFORM

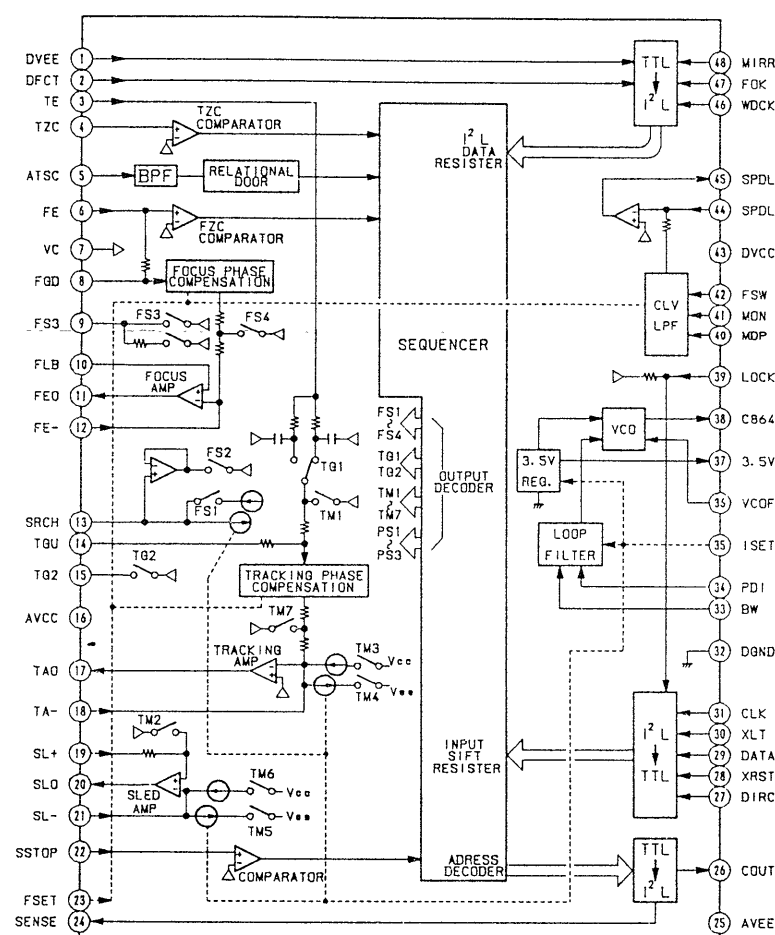


## 4-2. SCHEMATIC DIAGRAM

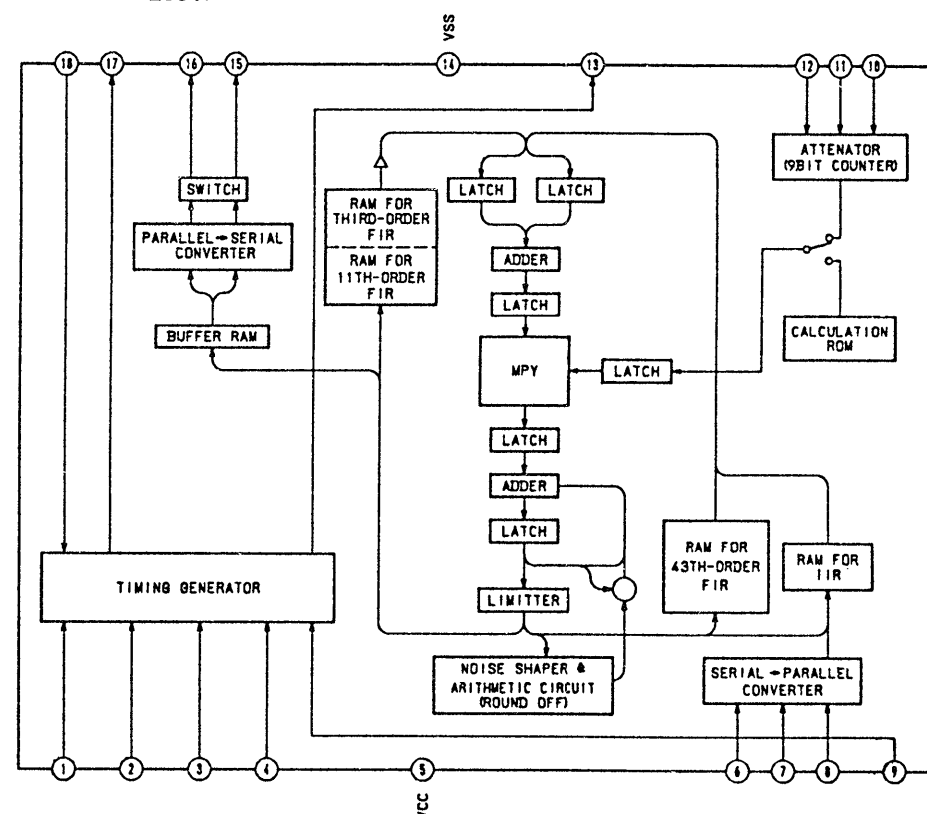




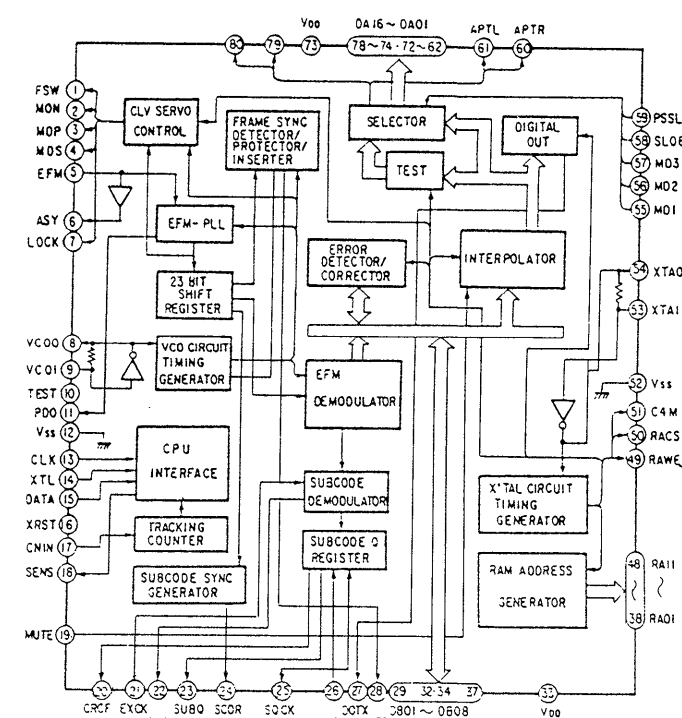
IC201 CXA1082BS



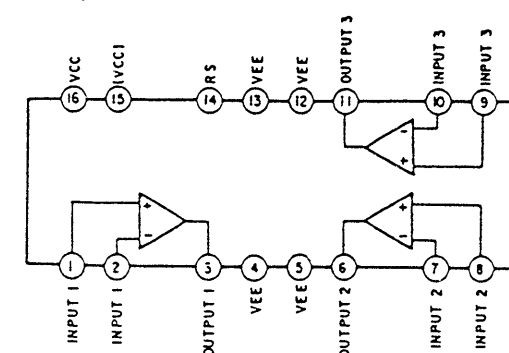
## IC304 CXD2551P



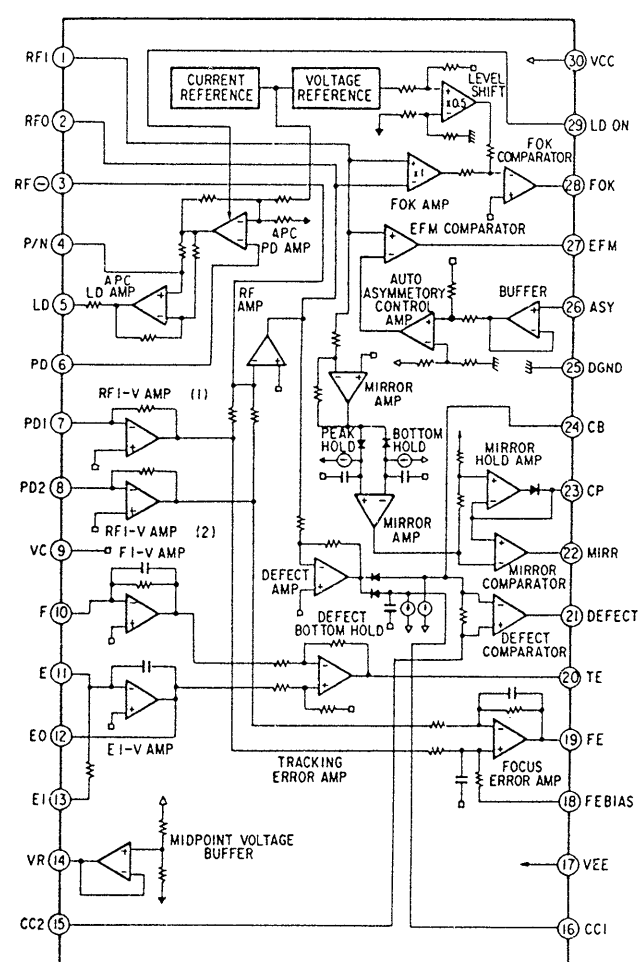
IC301 CXD1125Q



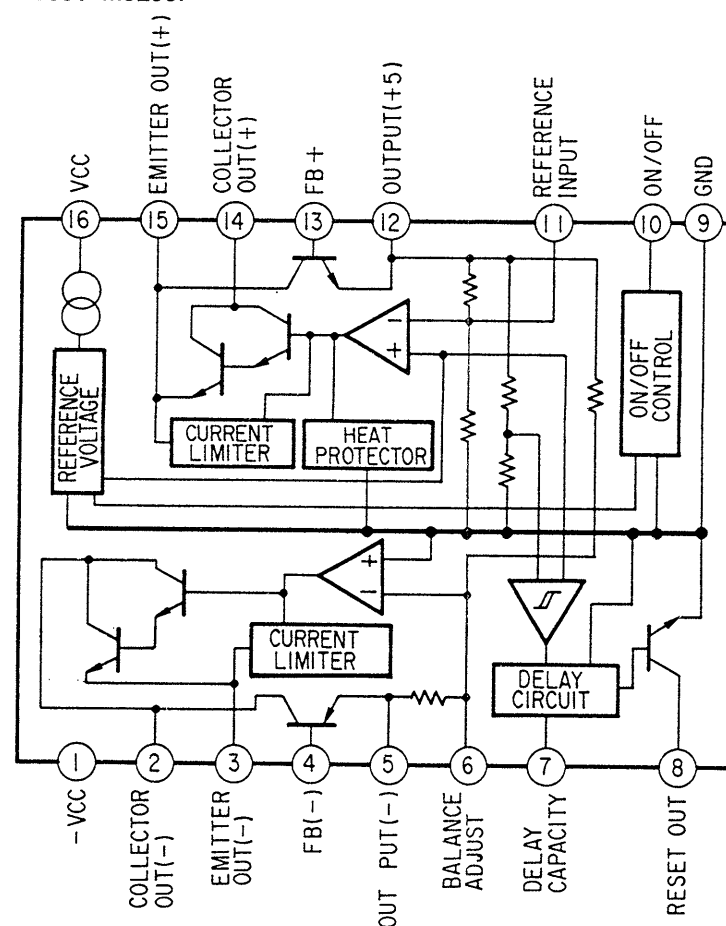
## IC202, 203 LA6520



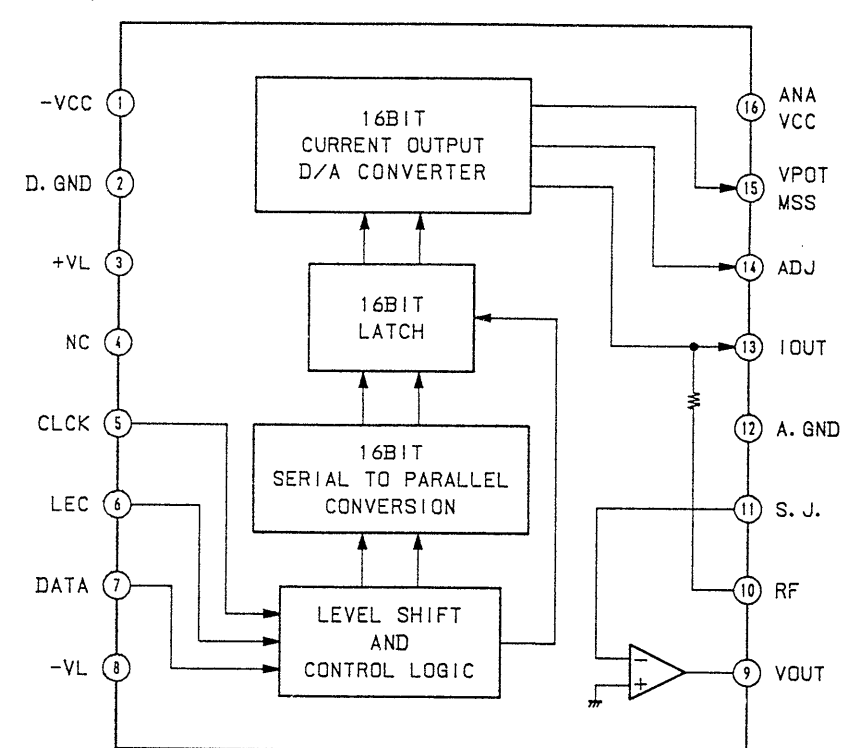
## IC101 CXA1081S



## IC001 M5290P



IC501, 601 PCM56P



## SECTION 4 EXPLODED VIEWS

**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

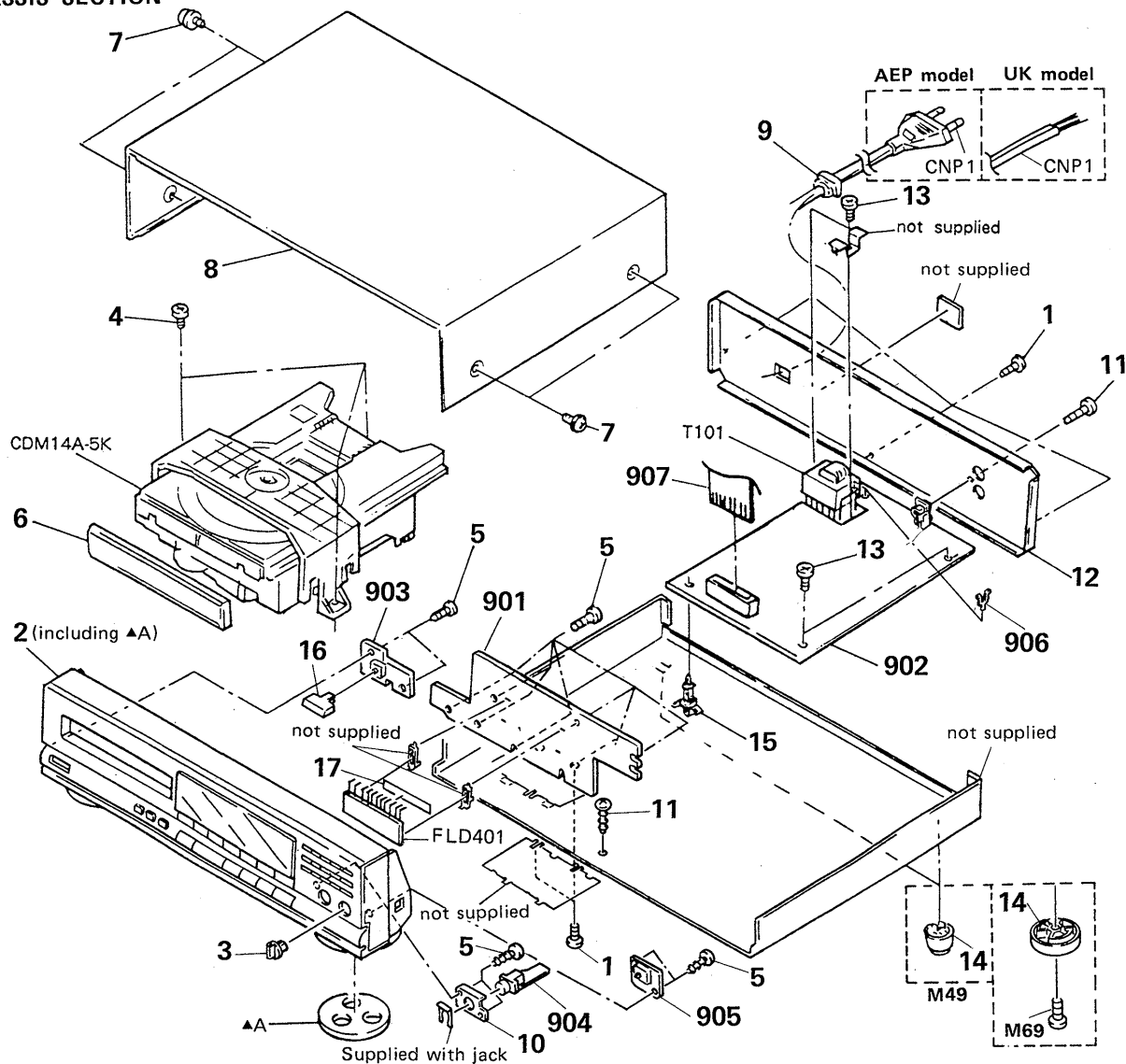
Color Indication of Appearance Parts  
Example:

(RED) ...KNO  
↑  
Cabinet's Color

CE (WHITE)  
↑  
Parts Color

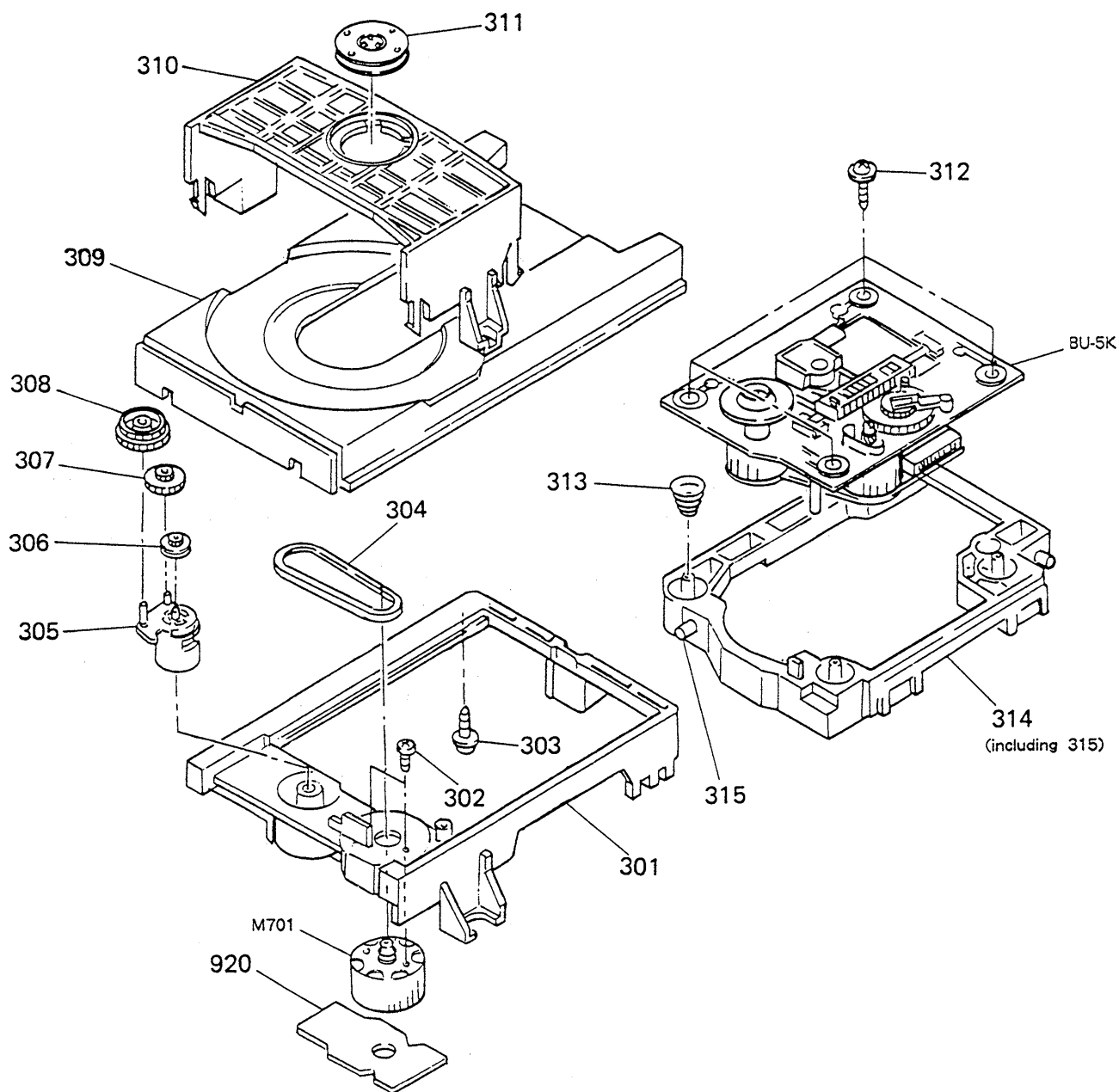
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

## 1. CHASSIS SECTION



| No. | Part No.      | Description                | Remarks | No.    | Part No.       | Description                  | Remarks |
|-----|---------------|----------------------------|---------|--------|----------------|------------------------------|---------|
| 1   | 7-682-548-09  | SCREW +BVTT 3X8 (S)        |         | 15     | *4-924-098-31  | HOLDER, PC BOARD             |         |
| 2   | X-4917-595-1  | (M69)...PANEL ASSY, FRONT  |         | 16     | 4-929-535-01   | BUTTON (POWER)               |         |
|     | X-4917-597-1  | (M49)...PANEL ASSY, FRONT  |         | 17     | *4-927-395-01  | PLATE, LIGHT INTERCEPTION    |         |
| 3   | 4-933-116-01  | KNOB (C, TYPE), LOV        |         | 901    | *A-4617-297-A  | MOUNTED PCB, DISPLAY         |         |
| 4   | 7-682-548-04  | SCREW +BVTT 3X8 (S)        |         | 902    | *A-4617-298-A  | MOUNTED PCB, MAIN            |         |
| 5   | 7-685-134-19  | SCREW +BTP 2.6X8 TYPE2 N-S |         | 903    | *1-633-957-11  | PC BOARD, POWER SWITCH       |         |
| 6   | 4-929-534-01  | PANEL, LOADING             |         | 904    | *1-633-958-11  | PC BOARD, HEADPHONE          |         |
| 7   | 3-704-366-31  | SCREW (CASE) (M3X6)        |         | 905    | *1-633-959-11  | PC BOARD, VR                 |         |
| 8   | 4-919-376-31  | CASE                       |         | 906    | *1-535-771-11  | TERMINAL                     |         |
| 9   | *3-703-244-00 | BUSHING (2104), CORD       |         | 907    | 1-535-825-11   | JUMPER, FILM (WITH TERMINAL) |         |
| 10  | 4-927-374-01  | BRACKET (JACK)             |         | CNP1   | △.1-574-390-11 | (UK)...CORD, POWER           |         |
| 11  | 7-685-646-79  | SCREW +BVTP 3X8 TYPE2 N-S  |         | CNP1   | △.1-574-127-11 | (AEP)...CORD, POWER          |         |
| 12  | *4-927-378-01 | PANEL (ALSACE), BACK       |         | FLD401 | 1-519-556-11   | INDICATOR TUBE, FLUORESCENT  |         |
| 13  | 2-383-566-00  | SCREW                      |         | TI01   | △.1-449-967-11 | TRANSFORMER, POWER           |         |
| 14  | 4-933-601-01  | (M49)...FOOT               |         |        |                |                              |         |
|     | 4-933-701-01  | (M69)...FOOT               |         |        |                |                              |         |

2. CD MECHANISM SECTION  
(CDM14A-5K)



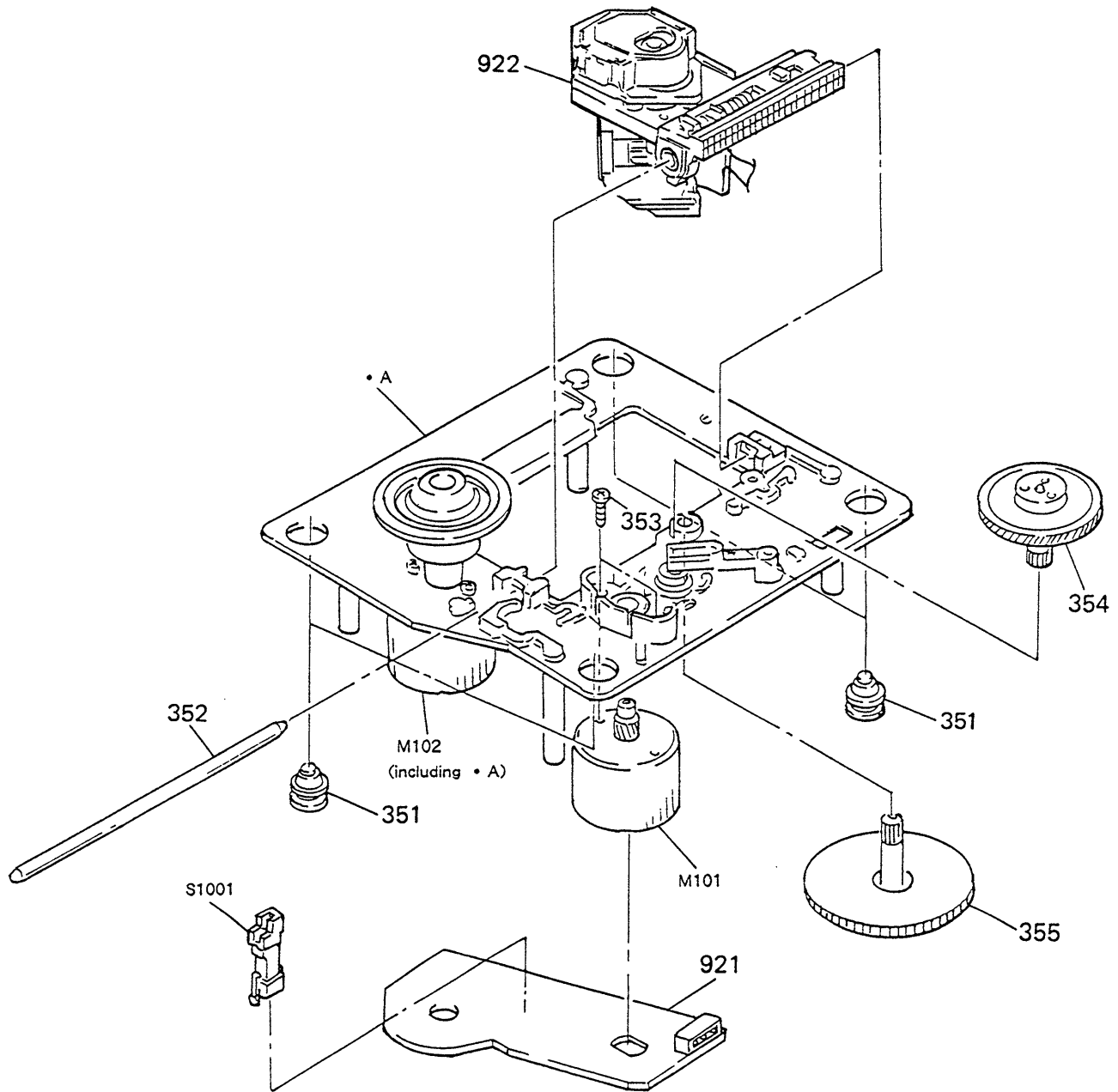
| No. | Part No.      | Description    |
|-----|---------------|----------------|
| 301 | 4-933-111-01  | CHASSIS. (MD)  |
| 302 | 7-621-775-10  | SCREW +B 2.6X4 |
| 303 | *4-917-583-21 | BRACKET, YOKE  |
| 304 | 4-927-649-01  | BELT           |
| 305 | 4-933-109-01  | CAM            |
| 306 | 4-927-651-01  | PULLEY (S)     |
| 307 | 4-927-628-01  | GEAR (C)       |
| 308 | 4-933-107-01  | GEAR (PL)      |
| 309 | 4-933-112-01  | TABLE, DISK    |

Remarks

| No.  | Part No.      | Description             |
|------|---------------|-------------------------|
| 310  | 4-933-110-01  | HOLDER (MG)             |
| 311  | A-4675-347-A  | MG ASSY                 |
| 312  | 4-933-134-01  | SCREW (+PTPWH M2.6X6)   |
| 313  | 4-917-541-01  | SPRING (B)              |
| 314  | 4-933-129-01  | HOLDER (BU)             |
| 315  | 4-933-108-01  | SHAFT (CAM)             |
| 920  | *1-632-169-11 | PC BOARD, LOADING MOTOR |
| M701 | A-4608-362-A  | MOTOR (L) ASSY          |

Remarks

### 3. OPTICAL PICK-UP BLOCK (BU-5K)



**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

| No. | Part No.     | Description        | Remarks | No.   | Part No.                                                                                         | Description                  | Remarks |
|-----|--------------|--------------------|---------|-------|--------------------------------------------------------------------------------------------------|------------------------------|---------|
| 351 | 4-933-126-01 | INSULATOR (A)      |         | 921   | *1-632-460-11                                                                                    | PC BOARD, SL/SP MOTOR        |         |
| 352 | 4-917-565-01 | SHAFT, SLED        |         | 922   |  8-848-062-01 | DEVICE, OPTICAL KSS-150A (H) |         |
| 353 | 7-621-255-15 | SCREW +P 2X3       |         | M101  | X-4917-504-1                                                                                     | ASSY, MOTOR (SLED)           |         |
| 354 | 4-917-567-01 | GEAR (M)           |         | M102  | X-4917-523-1                                                                                     | ASSY, MOTOR (SPINDLE)        |         |
| 355 | 4-917-564-01 | GEAR (P), FLATNESS |         | S1001 | 1-570-822-11                                                                                     | SWITCH, LEAF (LIMIT IN SW)   |         |

## SECTION 5 ELECTRICAL PARTS LIST

### NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

### CAPACITORS:

MF:  $\mu$ F, PF:  $\mu$ F.

### RESISTORS

- All resistors are in ohms.
- F: nonflammable

### COILS

- MMH: mH, UH:  $\mu$ H

### SEMICONDUCTORS

In each case, U:  $\mu$ , for example:

UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,

UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

| Ref.No. | Part No.       | Description                   |          |     |      |  | Ref.No. | Part No.     | Description |          |     |      |  |
|---------|----------------|-------------------------------|----------|-----|------|--|---------|--------------|-------------|----------|-----|------|--|
| 901     | *A-4617-297-A  | MOUNTED PCB, DISPLAY          |          |     |      |  | C208    | 1-124-477-11 | ELECT       | 47MF     | 20% | 16V  |  |
| 902     | *A-4617-298-A  | MOUNTED PCB, MAIN             |          |     |      |  | C209    | 1-162-294-31 | CERAMIC     | 0.001MF  | 10% | 50V  |  |
| 903     | *1-633-957-11  | PC BOARD, POWER SWITCH        |          |     |      |  | C210    | 1-162-282-31 | CERAMIC     | 100PF    | 10% | 50V  |  |
| 904     | *1-633-958-11  | PC BOARD, HEADPHONE           |          |     |      |  | C211    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| 905     | *1-633-959-11  | PC BOARD, VR                  |          |     |      |  | C212    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| 906     | *1-535-771-11  | TERMINAL                      |          |     |      |  | C213    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| 907     | 1-535-825-11   | JUMPER, FILM (WITH TERMINAL)  |          |     |      |  | C214    | 1-124-791-11 | ELECT       | 1MF      | 20% | 50V  |  |
| 920     | *1-632-169-11  | PC BOARD, LOADING MOTOR       |          |     |      |  | C217    | 1-161-375-00 | CERAMIC     | 0.0022MF | 20% | 16V  |  |
| 921     | *1-632-460-11  | PC BOARD, SL/SP MOTOR         |          |     |      |  | C218    | 1-162-291-31 | CERAMIC     | 560PF    | 10% | 50V  |  |
| 922     | 1-8-848-062-01 | DEVICE, OPTICAL KSS-150A (RP) |          |     |      |  | C219    | 1-123-875-11 | ELECT       | 10MF     | 20% | 50V  |  |
| C001    | 1-126-017-11   | ELECT                         | 6800MF   | 20% | 16V  |  | C220    | 1-136-165-00 | FILM        | 0.1MF    | 5%  | 50V  |  |
| C002    | 1-124-898-11   | ELECT                         | 4700MF   | 20% | 16V  |  | C221    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C007    | 1-124-472-11   | ELECT                         | 470MF    | 20% | 10V  |  | C222    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C008    | 1-124-472-11   | ELECT                         | 470MF    | 20% | 10V  |  | C225    | 1-126-101-11 | ELECT       | 100MF    | 20% | 16V  |  |
| C010    | 1-124-791-11   | ELECT                         | 1MF      | 20% | 50V  |  | C226    | 1-126-101-11 | ELECT       | 100MF    | 20% | 16V  |  |
| C011    | 1-123-875-11   | ELECT                         | 10MF     | 20% | 50V  |  | C229    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C012    | 1-124-572-11   | ELECT                         | 100MF    | 20% | 63V  |  | C230    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C013    | 1-164-159-11   | CERAMIC                       | 0.1MF    |     | 50V  |  | C231    | 1-162-282-31 | CERAMIC     | 100PF    | 10% | 50V  |  |
| C015    | 1-164-159-11   | CERAMIC                       | 0.1MF    |     | 50V  |  | C301    | 1-124-902-00 | ELECT       | 0.47MF   | 20% | 50V  |  |
| C016    | 1-124-927-11   | ELECT                         | 4.7MF    | 20% | 50V  |  | C302    | 1-106-379-12 | MYLAR       | 0.033MF  | 5%  | 100V |  |
| C017    | 1-123-875-11   | ELECT                         | 10MF     | 20% | 50V  |  | C303    | 1-162-306-11 | CERAMIC     | 0.01MF   | 20% | 16V  |  |
| C018    | 1-124-472-11   | ELECT                         | 470MF    | 20% | 10V  |  | C304    | 1-124-902-00 | ELECT       | 0.47MF   | 20% | 50V  |  |
| C019    | 1-124-472-11   | ELECT                         | 470MF    | 20% | 10V  |  | C305    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C021    | 1-123-875-11   | ELECT                         | 10MF     | 20% | 50V  |  | C306    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C023    | 1-126-233-11   | ELECT                         | 22MF     | 20% | 25V  |  | C307    | 1-124-478-11 | ELECT       | 100MF    | 20% | 25V  |  |
| C101    | 1-106-351-00   | MYLAR                         | 0.0022MF | 5%  | 50V  |  | C308    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| C103    | 1-124-477-11   | ELECT                         | 47MF     | 20% | 16V  |  | C309    | 1-136-173-00 | FILM        | 0.47MF   | 5%  | 50V  |  |
| C104    | 1-162-294-31   | CERAMIC                       | 0.001MF  | 10% | 50V  |  | C321    | 1-162-202-31 | CERAMIC     | 13PF     | 5%  | 50V  |  |
| C105    | 1-162-199-31   | CERAMIC                       | 10PF     | 5%  | 50V  |  | C322    | 1-162-203-31 | CERAMIC     | 15PF     | 5%  | 50V  |  |
| C106    | 1-162-199-31   | CERAMIC                       | 10PF     | 5%  | 50V  |  | C325    | 1-162-283-31 | CERAMIC     | 120PF    | 10% | 50V  |  |
| C107    | 1-136-173-00   | FILM                          | 0.47MF   | 5%  | 50V  |  | C401    | 1-124-443-00 | ELECT       | 100MF    | 20% | 10V  |  |
| C108    | 1-161-375-00   | CERAMIC                       | 0.0022MF | 20% | 16V  |  | C402    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C109    | 1-106-367-00   | MYLAR                         | 0.01MF   | 5%  | 100V |  | C403    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C110    | 1-106-367-00   | MYLAR                         | 0.01MF   | 5%  | 100V |  | C501    | 1-161-329-00 | CERAMIC     | 0.0068MF | 20% | 16V  |  |
| C111    | 1-124-478-11   | ELECT                         | 100MF    | 20% | 25V  |  | C502    | 1-161-375-00 | CERAMIC     | 0.0022MF | 20% | 16V  |  |
| C112    | 1-124-478-11   | ELECT                         | 100MF    | 20% | 25V  |  | C503    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| C113    | 1-106-379-12   | MYLAR                         | 0.033MF  | 5%  | 100V |  | C503A   | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C114    | 1-161-377-00   | CERAMIC                       | 0.0047MF | 20% | 16V  |  | C504    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C115    | 1-126-233-11   | ELECT                         | 22MF     | 20% | 25V  |  | C504A   | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C201    | 1-136-165-00   | FILM                          | 0.1MF    | 5%  | 50V  |  | C508    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C202    | 1-106-379-12   | MYLAR                         | 0.033MF  | 5%  | 100V |  | C509    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C203    | 1-124-927-11   | ELECT                         | 4.7MF    | 20% | 50V  |  | C601    | 1-161-329-00 | CERAMIC     | 0.0068MF | 20% | 16V  |  |
| C204    | 1-136-165-00   | FILM                          | 0.1MF    | 5%  | 50V  |  | C602    | 1-161-375-00 | CERAMIC     | 0.0022MF | 20% | 16V  |  |
| C205    | 1-162-306-11   | CERAMIC                       | 0.01MF   | 20% | 16V  |  | C603    | 1-126-233-11 | ELECT       | 22MF     | 20% | 25V  |  |
| C206    | 1-161-377-00   | CERAMIC                       | 0.0047MF | 20% | 16V  |  | C604    | 1-164-159-11 | CERAMIC     | 0.1MF    |     | 50V  |  |
| C207    | 1-124-927-11   | ELECT                         | 4.7MF    | 20% | 50V  |  | C609    | 1-124-120-11 | ELECT       | 220MF    | 20% | 16V  |  |

| Ref.No. | Part No.       | Description                    |
|---------|----------------|--------------------------------|
| CN101   | *1-564-710-11  | PIN, CONNECTOR (SMALL TYPE) 8P |
| CN102   | *1-564-706-31  | PIN, CONNECTOR (SMALL TYPE) 4P |
| CN103   | *1-564-706-31  | PIN, CONNECTOR (SMALL TYPE) 4P |
| CN201   | *1-568-953-11  | PIN, CONNECTOR 4P              |
| CN202   | *1-568-954-11  | PIN, CONNECTOR 5P              |
| CN301   | *1-568-933-11  | SOCKET, CONNECTOR 30P          |
| CN303   | *1-568-951-11  | PIN, CONNECTOR 2P              |
| CN1001  | *1-568-942-11  | PIN, CONNECTOR 4P              |
| CNP1    | A.1-574-390-11 | (UK)....CORD, POWER            |
| CNP1    | A.1-574-127-11 | (AEP)...CORD, POWER            |
| D001    | 8-719-950-59   | DIODE MPG06D-6052              |
| D002    | 8-719-950-59   | DIODE MPG06D-6052              |
| D003    | 8-719-950-59   | DIODE MPG06D-6052              |
| D004    | 8-719-950-59   | DIODE MPG06D-6052              |
| D005    | 8-719-950-59   | DIODE MPG06D-6052              |
| D006    | 8-719-950-59   | DIODE MPG06D-6052              |
| D008    | 8-719-109-76   | DIODE RD4.3ES-B3               |
| D009    | 8-719-109-96   | DIODE RD6.8ES-B1               |
| D010    | 8-719-107-94   | DIODE 1SS202-1                 |
| D011    | 8-719-107-94   | DIODE 1SS202-1                 |
| D401    | 8-719-933-56   | DIODE HZS9B1L                  |
| D402    | 8-719-107-94   | DIODE 1SS202-1                 |
| D403    | 8-719-107-94   | DIODE 1SS202-1                 |
| D404    | 8-719-107-94   | DIODE 1SS202-1                 |
| D405    | 8-719-107-94   | DIODE 1SS202-1                 |
| D406    | 8-719-107-94   | DIODE 1SS202-1                 |
| D407    | 8-719-107-94   | DIODE 1SS202-1                 |
| D408    | 8-719-107-94   | DIODE 1SS202-1                 |
| D409    | 8-719-107-94   | DIODE 1SS202-1                 |
| D410    | 8-719-107-94   | DIODE 1SS202-1                 |
| D501    | 8-719-107-94   | DIODE 1SS202-1                 |
| D502    | 8-719-107-94   | DIODE 1SS202-1                 |
| FLD401  | 1-519-556-11   | INDICATOR TUBE, FLUORESCENT    |
| IC001   | 8-759-630-21   | IC M5290P-16                   |
| IC002   | 8-759-633-42   | IC M5293L                      |
| IC101   | 8-752-034-00   | IC CXA1081S                    |
| IC201   | 8-752-032-30   | IC CXA1082BS                   |
| IC202   | 8-759-805-18   | IC LA6520                      |
| IC203   | 8-759-805-18   | IC LA6520                      |
| IC301   | 8-752-334-00   | IC CXD1125Q                    |
| IC302   | 8-759-994-18   | IC UM6116M-2L                  |
| IC304   | 8-752-334-06   | IC CXD2551P                    |
| IC305   | 8-759-917-18   | IC MC74HCU04N                  |
| IC401   | 8-759-148-72   | IC UPD75212AGF-TTX662AL        |
| IC451   | 8-749-920-83   | IC GP1U52XB                    |
| IC501   | 8-759-998-22   | IC PCM56P                      |
| IC502   | 8-759-995-08   | IC MC4558                      |
| IC503   | 8-759-981-85   | IC RC4556D                     |
| IC601   | 8-759-998-22   | IC PCM56P                      |
| J501    | 1-568-519-51   | JACK, LARGE TYPE (HEADPHONES)  |
| J502    | 1-569-442-11   | JACK, PIN 2P (LINE OUT)        |
| M101    | X-4917-504-1   | MOTOR ASSY (SLED)              |
| M102    | X-4917-523-3   | MOTOR ASSY (SPINDLE)           |
| M701    | A-4608-362-A   | MOTOR (L) ASSY                 |
| PS001   | 1-532-637-00   | LINK, IC                       |
| PS002   | 1-532-637-00   | LINK, IC                       |

| Ref.No. | Part No.     | Description            |
|---------|--------------|------------------------|
| Q002    | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |
| Q003    | 8-729-140-96 | TRANSISTOR 2SD774-34   |
| Q004    | 8-729-111-67 | TRANSISTOR 2SB1094-L   |
| Q005    | 8-729-281-52 | TRANSISTOR 2SC1815-Y   |
| Q101    | 8-729-116-57 | TRANSISTOR 2SB1068-K   |
| Q201    | 8-729-900-80 | TRANSISTOR DTC114ES    |
| Q202    | 8-729-900-89 | TRANSISTOR DTC144ES    |
| Q304    | 8-729-900-80 | TRANSISTOR DTC114ES    |
| Q501    | 8-729-900-61 | TRANSISTOR DTA114ES    |
| Q502    | 8-729-900-74 | TRANSISTOR DTC143TS    |
| Q503    | 8-729-900-74 | TRANSISTOR DTC143TS    |
| Q504    | 8-729-281-52 | TRANSISTOR 2SC1815-Y   |
| Q602    | 8-729-900-74 | TRANSISTOR DTC143TS    |
| Q603    | 8-729-900-74 | TRANSISTOR DTC143TS    |
| Q604    | 8-729-281-52 | TRANSISTOR 2SC1815-Y   |
| R002    | 1-249-438-11 | CARBON 56K 5% 1/4W     |
| R003    | 1-249-429-11 | CARBON 10K 5% 1/4W     |
| R004    | 1-249-429-11 | CARBON 10K 5% 1/4W     |
| R005    | 1-249-409-11 | CARBON 220 5% 1/4W     |
| R008    | 1-249-425-11 | CARBON 4.7K 5% 1/4W    |
| R009    | 1-249-425-11 | CARBON 4.7K 5% 1/4W    |
| R010    | 1-249-429-11 | CARBON 10K 5% 1/4W     |
| R011    | 1-249-429-11 | CARBON 10K 5% 1/4W     |
| R101    | 1-247-864-11 | CARBON 24K 5% 1/4W     |
| R104    | 1-249-397-11 | CARBON 22 5% 1/4W      |
| R105    | 1-247-806-11 | CARBON 91 5% 1/4W      |
| R106    | 1-249-433-11 | CARBON 22K 5% 1/4W     |
| R108    | 1-249-432-11 | CARBON 18K 5% 1/4W     |
| R109    | 1-249-432-11 | CARBON 18K 5% 1/4W     |
| R110    | 1-249-425-11 | CARBON 4.7K 5% 1/4W    |
| R111    | 1-249-425-11 | CARBON 4.7K 5% 1/4W    |
| R112    | 1-249-417-11 | CARBON 1K 5% 1/4W      |
| R201    | 1-247-882-11 | CARBON 130K 5% 1/4W    |
| R202    | 1-249-432-11 | CARBON 18K 5% 1/4W     |
| R203    | 1-249-432-11 | CARBON 18K 5% 1/4W     |
| R204    | 1-249-439-11 | CARBON 68K 5% 1/4W     |
| R205    | 1-247-889-00 | CARBON 270K 5% 1/4W    |
| R206    | 1-249-435-11 | CARBON 33K 5% 1/4W     |
| R207    | 1-249-423-11 | CARBON 3.3K 5% 1/4W    |
| R208    | 1-249-425-11 | CARBON 4.7K 5% 1/4W    |
| R209    | 1-247-896-11 | CARBON 510K 5% 1/4W    |
| R210    | 1-249-417-11 | CARBON 1K 5% 1/4W      |
| R211    | 1-249-414-11 | CARBON 560 5% 1/4W     |
| R212    | 1-249-433-11 | CARBON 22K 5% 1/4W     |
| R213    | 1-249-441-11 | CARBON 100K 5% 1/4W    |
| R214    | 1-247-844-11 | METAL 3.6K 5% 1/4W     |
| R215    | 1-249-441-11 | CARBON 100K 5% 1/4W    |
| R216    | 1-249-429-11 | CARBON 10K 5% 1/4W     |
| R217    | 1-247-881-00 | CARBON 120K 5% 1/4W    |
| R218    | 1-249-427-11 | CARBON 6.8K 5% 1/4W    |
| R219    | 1-249-435-11 | CARBON 33K 5% 1/4W     |
| R220    | 1-249-437-11 | CARBON 47K 5% 1/4W     |
| R221    | 1-247-881-00 | CARBON 120K 5% 1/4W    |
| R222    | 1-247-884-11 | CARBON 160K 5% 1/4W    |
| R223    | 1-247-881-00 | CARBON 120K 5% 1/4W    |
| R224    | 1-247-884-11 | CARBON 160K 5% 1/4W    |
| R225    | 1-249-429-11 | CARBON 10K 5% 1/4W     |

| Ref.No. | Part No.     | Description                               |      |    |      |
|---------|--------------|-------------------------------------------|------|----|------|
| R226    | 1-249-393-11 | CARBON                                    | 10   | 5% | 1/4W |
| R227    | 1-249-393-11 | CARBON                                    | 10   | 5% | 1/4W |
| R230    | 1-249-393-11 | CARBON                                    | 10   | 5% | 1/4W |
| R231    | 1-249-393-11 | CARBON                                    | 10   | 5% | 1/4W |
| R301    | 1-247-903-00 | CARBON                                    | 1M   | 5% | 1/4W |
| R302    | 1-249-433-11 | CARBON                                    | 22K  | 5% | 1/4W |
| R303    | 1-249-429-11 | CARBON                                    | 10K  | 5% | 1/4W |
| R304    | 1-249-441-11 | CARBON                                    | 100K | 5% | 1/4W |
| R305    | 1-249-441-11 | CARBON                                    | 100K | 5% | 1/4W |
| R306    | 1-249-429-11 | CARBON                                    | 10K  | 5% | 1/4W |
| R307    | 1-249-441-11 | METAL                                     | 100K | 5% | 1/4W |
| R308    | 1-249-441-11 | METAL                                     | 100K | 5% | 1/4W |
| R310    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R311    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R312    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R313    | 1-249-411-11 | CARBON                                    | 330  | 5% | 1/4W |
| R314    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R315    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R316    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R317    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R318    | 1-249-417-11 | CARBON                                    | 1K   | 5% | 1/4W |
| R320    | 1-249-411-11 | CARBON                                    | 330  | 5% | 1/4W |
| R321    | 1-249-411-11 | CARBON                                    | 330  | 5% | 1/4W |
| R322    | 1-249-411-11 | CARBON                                    | 330  | 5% | 1/4W |
| R324    | 1-249-411-11 | CARBON                                    | 330  | 5% | 1/4W |
| R401    | 1-249-439-11 | CARBON                                    | 68K  | 5% | 1/4W |
| R402    | 1-249-435-11 | CARBON                                    | 33K  | 5% | 1/4W |
| R403    | 1-249-435-11 | CARBON                                    | 33K  | 5% | 1/4W |
| R404    | 1-249-435-11 | CARBON                                    | 33K  | 5% | 1/4W |
| R405    | 1-249-441-11 | CARBON                                    | 100K | 5% | 1/4W |
| R406    | 1-249-425-11 | CARBON                                    | 4.7K | 5% | 1/4W |
| R407    | 1-249-425-11 | CARBON                                    | 4.7K | 5% | 1/4W |
| R501    | 1-249-416-11 | CARBON                                    | 820  | 5% | 1/4W |
| R502    | 1-249-416-11 | CARBON                                    | 820  | 5% | 1/4W |
| R503    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R504    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R505    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R506    | 1-247-891-00 | CARBON                                    | 330K | 5% | 1/4W |
| R507    | 1-249-441-11 | CARBON                                    | 100K | 5% | 1/4W |
| R508    | 1-249-429-11 | CARBON                                    | 10K  | 5% | 1/4W |
| R511    | 1-249-402-11 | CARBON                                    | 56   | 5% | 1/4W |
| R512    | 1-249-425-11 | CARBON                                    | 4.7K | 5% | 1/4W |
| R601    | 1-249-416-11 | CARBON                                    | 820  | 5% | 1/4W |
| R602    | 1-249-416-11 | CARBON                                    | 820  | 5% | 1/4W |
| R603    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R604    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R605    | 1-249-409-11 | CARBON                                    | 220  | 5% | 1/4W |
| R606    | 1-247-891-00 | CARBON                                    | 330K | 5% | 1/4W |
| R611    | 1-249-402-11 | CARBON                                    | 56   | 5% | 1/4W |
| R612    | 1-249-425-11 | CARBON                                    | 4.7K | 5% | 1/4W |
| RV101   | 1-228-995-00 | RES, ADJ, CARBON 22K (E-F BALANCE)        |      |    |      |
| RV102   | 1-228-993-00 | RES, ADJ, CARBON 4.7K (FOCUS BIAS)        |      |    |      |
| RV103   | 1-228-995-00 | RES, ADJ, CARBON 22K (FOCUS GAIN)         |      |    |      |
| RV104   | 1-228-995-00 | RES, ADJ, CARBON 22K (TRACKING GAIN)      |      |    |      |
| RV201   | 1-228-990-00 | RES, ADJ, METAL GLAZE 1K (RF PLL)         |      |    |      |
| RV501   | 1-238-884-11 | RES, VAR, CARBON 1K/1K (HEADPHONES LEVEL) |      |    |      |

| Ref.No. | Part No.     | Description                        |
|---------|--------------|------------------------------------|
| S401    | 1-554-303-21 | SWITCH, KEY BOARD (1)              |
| S402    | 1-554-303-21 | SWITCH, KEY BOARD (2)              |
| S403    | 1-554-303-21 | SWITCH, KEY BOARD (3)              |
| S404    | 1-554-303-21 | SWITCH, KEY BOARD (4)              |
| S405    | 1-554-303-21 | SWITCH, KEY BOARD (5)              |
| S406    | 1-554-303-21 | SWITCH, KEY BOARD (6)              |
| S407    | 1-554-303-21 | SWITCH, KEY BOARD (7)              |
| S408    | 1-554-303-21 | SWITCH, KEY BOARD (8)              |
| S409    | 1-554-303-21 | SWITCH, KEY BOARD (9)              |
| S410    | 1-554-303-21 | SWITCH, KEY BOARD (10)             |
| S411    | 1-554-303-21 | SWITCH, KEY BOARD (11)             |
| S412    | 1-554-303-21 | SWITCH, KEY BOARD (12)             |
| S413    | 1-554-303-21 | SWITCH, KEY BOARD (CHECK)          |
| S414    | 1-554-303-21 | SWITCH, KEY BOARD (CLEAR)          |
| S415    | 1-554-303-21 | SWITCH, KEY BOARD (>12)            |
| S416    | 1-554-303-21 | SWITCH, KEY BOARD (OPEN/CLOSE)     |
| S417    | 1-554-303-21 | SWITCH, KEY BOARD ( > )            |
| S418    | 1-554-303-21 | SWITCH, KEY BOARD ( ■ )            |
| S419    | 1-554-303-21 | SWITCH, KEY BOARD ( ■ )            |
| S420    | 1-554-303-21 | SWITCH, KEY BOARD (TIME)           |
| S421    | 1-554-303-21 | SWITCH, KEY BOARD (A.SPACE)        |
| S422    | 1-554-303-21 | SWITCH, KEY BOARD (REPEAT)         |
| S423    | 1-554-303-21 | SWITCH, KEY BOARD (FADER)          |
| S424    | 1-554-303-21 | SWITCH, KEY BOARD (EDIT/TIME FADE) |
| S425    | 1-554-303-21 | SWITCH, KEY BOARD (TIME SET)       |
| S426    | 1-554-303-21 | SWITCH, KEY BOARD (CONTINUE)       |
| S427    | 1-554-303-21 | SWITCH, KEY BOARD (SHUFFLE)        |
| S428    | 1-554-303-21 | SWITCH, KEY BOARD (PROGRAM)        |
| S429    | 1-554-303-21 | SWITCH, KEY BOARD ( << << )        |
| S430    | 1-554-303-21 | SWITCH, KEY BOARD ( >> >> )        |
| S451    | 1-571-305-11 | SWITCH, PUSH (1 KEY)(POWER)        |
| S1001   | 1-570-822-11 | SWITCH, LEAF (LIMIT IN)            |
| SW701   | 1-572-086-11 | SWITCH, LEAF (IN)                  |
| SW702   | 1-572-086-11 | SWITCH, LEAF (OUT)                 |
| T101    | 1-449-967-11 | TRANSFORMER, POWER                 |
| X320    | 1-577-328-21 | VIBRATOR, CRYSTAL (16.944MHz)      |
| X401    | 1-567-819-11 | VIBRATOR, CERAMIC (4MHz)           |

## ACCESSORY & PACKING MATERIAL

|               |                             |
|---------------|-----------------------------|
| 1-465-291-11  | (M69)...REMOTE COMMANDER    |
| 1-559-533-11  | CORD, CONNECTION            |
| 3-750-792-61  | MANUAL, INSTRUCTION         |
| 3-750-792-71  | (AEP)...MANUAL, INSTRUCTION |
| *4-927-355-01 | CUSHION                     |
| *4-927-394-01 | (M69)...INDIVIDUAL CARTON   |
| *4-927-394-11 | (M49)...INDIVIDUAL CARTON   |

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## SUPPLEMENT-2

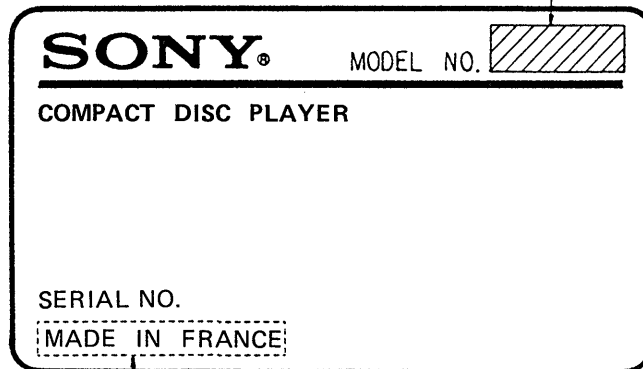
File this supplement with the service manual.

This SUPPLEMENT-1 is for CDP-M48 made in France.

Refer to the CDP-M48/M49/M69 service manual and SUPPLEMENT-1  
for related information not contained in this SUPPLEMENT-2.

[MODEL IDENTIFICATION]

CDP-M48



LABEL MODEL NUMBER

Identify the set with the indication of "MADE IN FRANCE" here.

ACCESSORY & PACKING MATERIAL

\*4-927-394-21 (M48) ...INDIVIDUAL CARTON



## SECTION 4 EXPLODED VIEWS

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

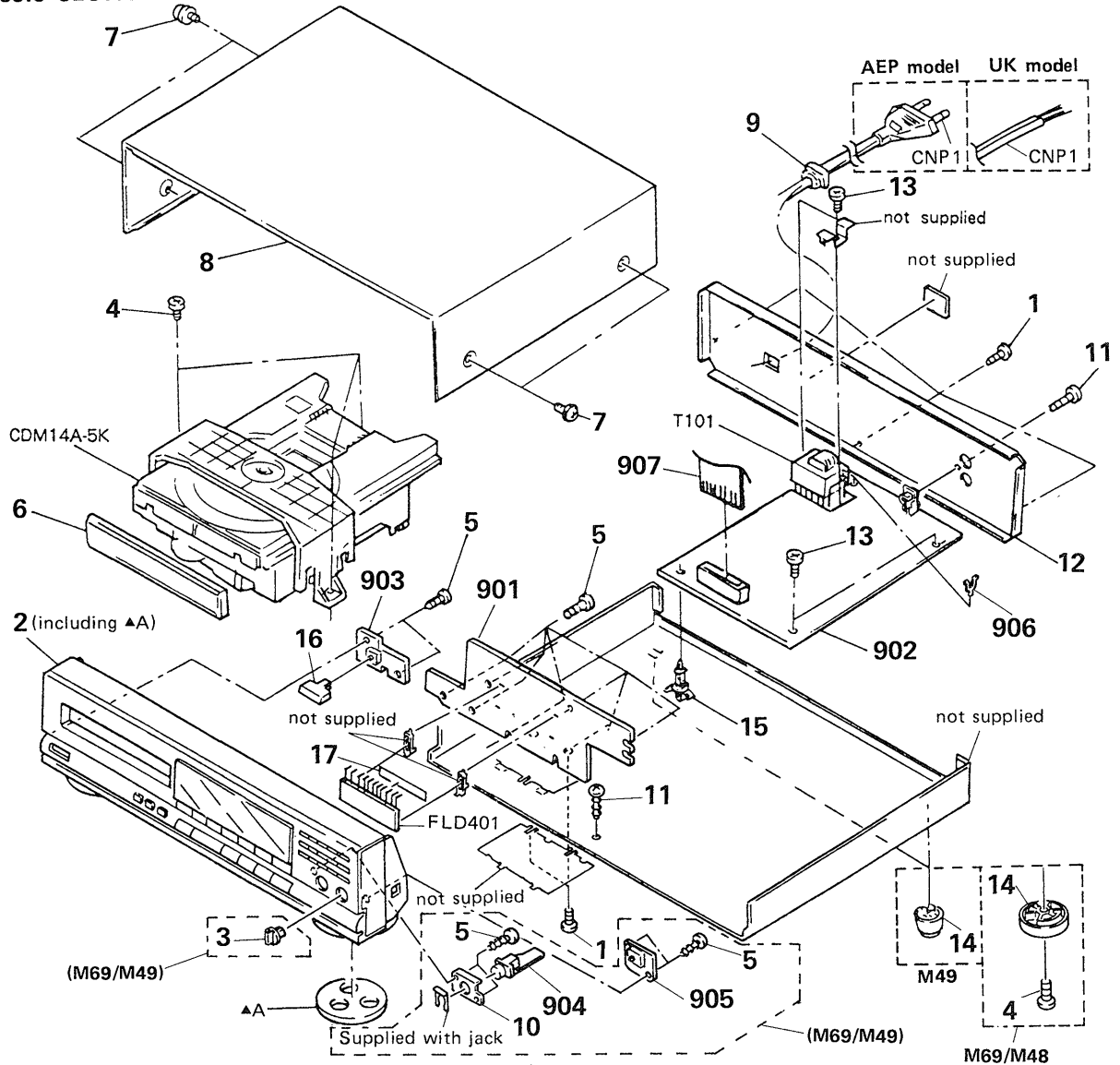
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts  
Example:  
(RED) ... KNOB, BALANCE (WHITE)

↑  
Cabinet's Color

↑  
Parts Color

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

### 1. CHASSIS SECTION



| No. | Part No.      | Description                     | Remarks | No.    | Part No.      | Description                      | Remarks |
|-----|---------------|---------------------------------|---------|--------|---------------|----------------------------------|---------|
| 1   | 7-682-548-09  | SCREW +BVTT 3X8 (S)             |         | 15     | *4-924-098-31 | HOLDER, PC BOARD                 |         |
| 2   | X-4917-595-1  | (M69)...PANEL ASSY, FRONT       |         | 16     | 4-929-535-01  | BUTTON (POWER)                   |         |
| 2   | X-4917-597-1  | (M49)...PANEL ASSY, FRONT       |         | 17     | *4-927-395-01 | PLATE, LIGHT INTERCEPTION        |         |
| 2   | X-4917-596-1  | (M48)...PANEL ASSY, FRONT       |         | 901    | *A-4617-297-A | (M69/M49)...MOUNTED PCB, DISPLAY |         |
| 3   | 4-933-116-01  | (M69/M49)...KNOB (C, TYPE), LOV |         | 901    | *A-4617-447-A | (M48)...MOUNTED PCB, DISPLAY     |         |
| 4   | 7-682-548-04  | SCREW +BVTT 3X8 (S)             |         | 902    | *A-4617-298-A | (M69/M49)...MOUNTED PCB, MAIN    |         |
| 5   | 7-685-134-19  | SCREW +BTP 2.6X8 TYPE2 N-S      |         | 902    | *A-4617-448-A | (M48)...MOUNTED PCB, MAIN        |         |
| 6   | 4-929-534-01  | PANEL, LOADING                  |         | 903    | *1-633-957-11 | PC BOARD, POWER SWITCH           |         |
| 7   | 3-704-366-31  | SCREW (CASE) (M3X6)             |         | 904    | *1-633-958-11 | (M69/M49)...PC BOARD, HEADPHONE  |         |
| 8   | 4-919-376-31  | CASE                            |         | 905    | *1-633-959-11 | (M69/M49)...PC BOARD, VR         |         |
| 9   | *3-703-244-00 | BUSHING (2104), CORD            |         | 906    | *1-535-771-11 | TERMINAL                         |         |
| 10  | 4-927-374-01  | (M69/M49)...BRACKET (JACK)      |         | 907    | 1-535-825-11  | JUMPER, FILM (WITH TERMINAL)     |         |
| 11  | 7-685-646-79  | SCREW +BVTT 3X8 TYPE2 N-S       |         | CNP1 ▲ | 1-556-562-11  | (UK)...CORD, POWER               |         |
| 12  | *4-927-378-01 | PANEL (ALSACE), BACK            |         | CNP1 ▲ | 1-574-127-11  | (AEP)...CORD, POWER              |         |
| 13  | 2-383-566-00  | SCREW                           |         | FLD401 | 1-519-556-11  | INDICATOR TUBE, FLUORESCENT      |         |
| 14  | 4-933-601-01  | (M49).....F00T                  |         | T101 ▲ | 1-449-967-11  | TRANSFORMER, POWER               |         |
| 14  | 4-934-883-01  | (M69/M48)....F00T               |         |        |               |                                  |         |



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### CORRECTION-1

Correct your service manual as shown below.

 : indicates corrected portion.

| Page | INCORRECT                                                                     | CORRECT                                                                                                                                                                                                                                                                                                                                 |
|------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | <b>E-F Balance Check</b><br>Procedure :<br><br>2. Ground TP (ADJ), TP (TEST). | <b>E-F Balance Check</b><br>Procedure :<br><br>2. Connect test point <u>TP (ADJ)</u> to <u>ground</u> and <u>TP (TES)</u> to <u>TP (VC)</u> with lead wire.   |

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### CORRECTION-2

Correct your service manual as shown below.

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 : indicates corrected portion.

| Page | INCORRECT |                              |                   | CORRECT                                                                             |                              |                   |
|------|-----------|------------------------------|-------------------|-------------------------------------------------------------------------------------|------------------------------|-------------------|
|      | No.       | Part No.                     | Description       | No.                                                                                 | Part No.                     | Description       |
| 19   | 52        | X-4917-602-1 (M69:E)...      | PANEL ASSY, FRONT | 52                                                                                  | X-4918-602-1 (M69:E)...      | PANEL ASSY, FRONT |
|      |           | X-4917-603-1 (M49:E, AUS)... | PANEL ASSY, FRONT |  | X-4918-603-1 (M49:E, AUS)... | PANEL ASSY, FRONT |