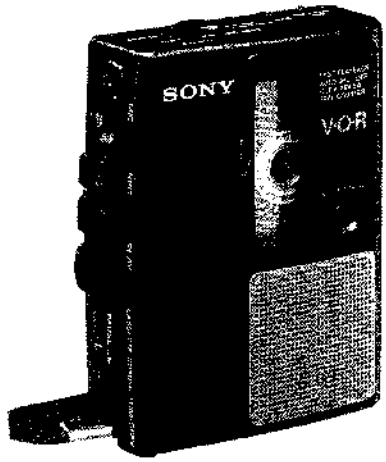
# TCM-S68V

# SERVICE MANUAL

*US Model*
*Canadian Model*
*AEP Model*
*UK Model*
*E Model*




| Model Name Using Similar Mechanism | NEW |
|---|---|
| Tape Transport Mechanism Type | MT-S63 |

## SPECIFICATIONS

Recording system: 2-track 1 channel monaural
Frequency response: 250 – 6,300 Hz
Speaker: Approx. 3.6 cm ($1^{7}/_{16}$ in.) dia.
Power output: 130 mW (at 10% harmonic distortion)
Input: Microphone input jack (minijack) sensitivity 0.2 mV for 3 kΩ or lower impedance microphone
Output: Earphone jack (minijack) for 8 – 300 Ω earphone
Power requirements: 3 V DC, two R6 (size AA) batteries
DC IN 3V jack accepts:
• Sony AC power adaptor AC-E30M AC power adaptor (not supplied) for use on:

| | |
|---|---|
| Canada,US | 120 V AC, 60 Hz |
| U.K. | 240 V AC, 50 Hz |
| European countries,E | 220 V AC, 60 Hz or 220 V AC, 50 Hz |

• Sony DCC-E130L car battery cord (not supplied) for use on 12 V car battery.

Battery life

| Batteries | Recording |
|---|---|
| Sony batteries SUM-3 (NS) | Approx. 4 hours |
| Sony alkaline batteries AM3(N) | Approx. 12 hours |

Dimensions: Approx. 93.6 x 120.1 x 39.1 mm (w/h/d) ($3^{3}/_{4}$x$4^{7}/_{8}$x$1^{9}/_{16}$ in.) Incl. projecting parts and controls
Mass: Approx. 285g (10.1 oz.) incl. batteries

Optional accessories:
Car battery cord DCC-E130L
Monaural earphone ME-81, ME-L62
Connecting cord RK-G64HG
Electret condenser microphone ECM-T10(Except US)
Electret condenser microphone ECM-011(US)
AC power adaptor AC-E30M

Your dealer may not handle some of the listed optional accessories. Please ask the dealer for detailed information.

Design and specifications subject to change without notice.

**Note**
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

CASSETTE-CORDER

SONY®

## Operating with Batteries

**When to replace the batteries**

When the batteries become weak, the REC/BATT indicator will glow faintly and the playback sound will become distorted or unstable.
In this case, replace both batteries with new ones.
Concerning the battery life, see "Specifications".

## Operating on House Current

**Note on the AC power adaptor**

Use only the AC-E30M AC power adaptor (not supplied).
Do not use any other AC power adaptor.

Polarity of the plug
(Unified polarity type)

**Note**

Power will be supplied through the AC power adaptor or the car battery cord when it is connected to the unit instead of the installed batteries.
Make sure that the AC power adaptor or the car battery cord is disconnected from the unit when you wish to use the unit with the installed batteries.

## SERVICE NOTE

- **Repairing printed resistor**

  Cut both side of the resistor and solder the carbon resistor having same value in place of printed one of the conductor side. 1/32W carbon resistor is supplied for the replacing part of the printed resistor.

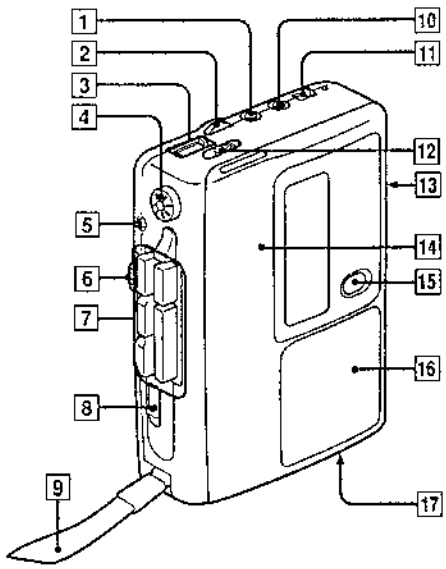
### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

# SECTION 1
# GENERAL

This section is extracted from instruction manual.

## 1-1. PARTS IDENTIFICATION




1 MIC (microphone) (plug in power) jack
2 VOL (volume) control
3 COUNTER (tape counter) and counter reset button
For indexing the tape contents. Before recording, press the counter reset button to set the tape counter to "000".
4 MIC (built-in microphone)
5 REC/BATT (recording/battery) indicator
6 • FAST PB (fast playback) switch
7 Tape operation buttons
● REC (record)/ ▶ PLAY/ ■ STOP/ ▶▶ FF/CUE (fast forward/cue)/ ◀◀ REW/REVIEW (rewind/review) button
8 PAUSE switch
9 Handstrap
10 EAR (earphone) jack
11 VOR (Voice Operated Recording) switch
12 MIC SENS (microphone sensitivity) switch
13 Battery compartment (rear)
14 Cassette holder
15 CUE MARKER button
16 Speaker (built-in)
17 DC IN 3V (external power input) jack

# SECTION 2
# MECHANICAL ADJUSTMENTS

### PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback head — pinch roller
   erase head — rubber belts
   capstanidlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

**Power Supply Voltage : 3V dc**

**Torque Measurement**

| Torque | Meter Reading | Torque Meter |
|---|---|---|
| Forward | More than 23 – 45 g-cm (More than 0.32 – 0.62 oz-inch) | CQ-102C |
| Fast Forward and Rewind | More than 60 g-cm (More than 0.83 oz-inch) | CQ-201B |
| Back Tension | 1.5 – 3.5 g-cm (0.021 – 0.049 oz-inch) | CQ-102C |

**Tape Tension Measurement**

| Meter | Meter Reading |
|---|---|
| CQ-403A | More than 60g(2.12 oz) |

# SECTION 3
# ELECTRICAL ADJUSTMENTS

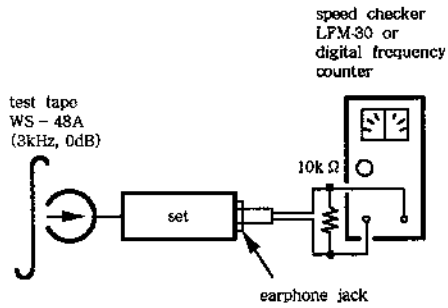
**Test tape**

| Type | Signal | Used for |
|---|---|---|
| WS-48A | 3kHz, 0dB | tape speed adjustment |

## Tape Speed Adjustment

**Setting:**
VOL control: mechanical mid

**Procedure:**
Mode: playback

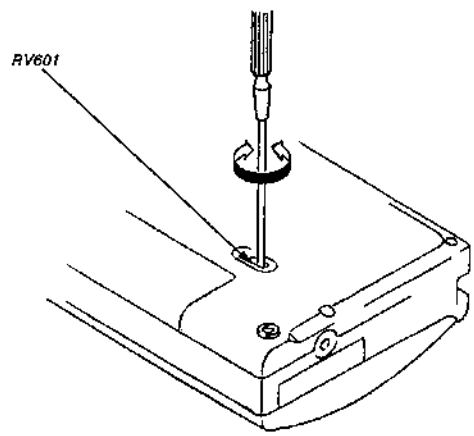



**Specification:**

| Speed checker | Digital frequency counter |
|---|---|
| – 0.5 to +1.5% | 3,000 ± 15 Hz |

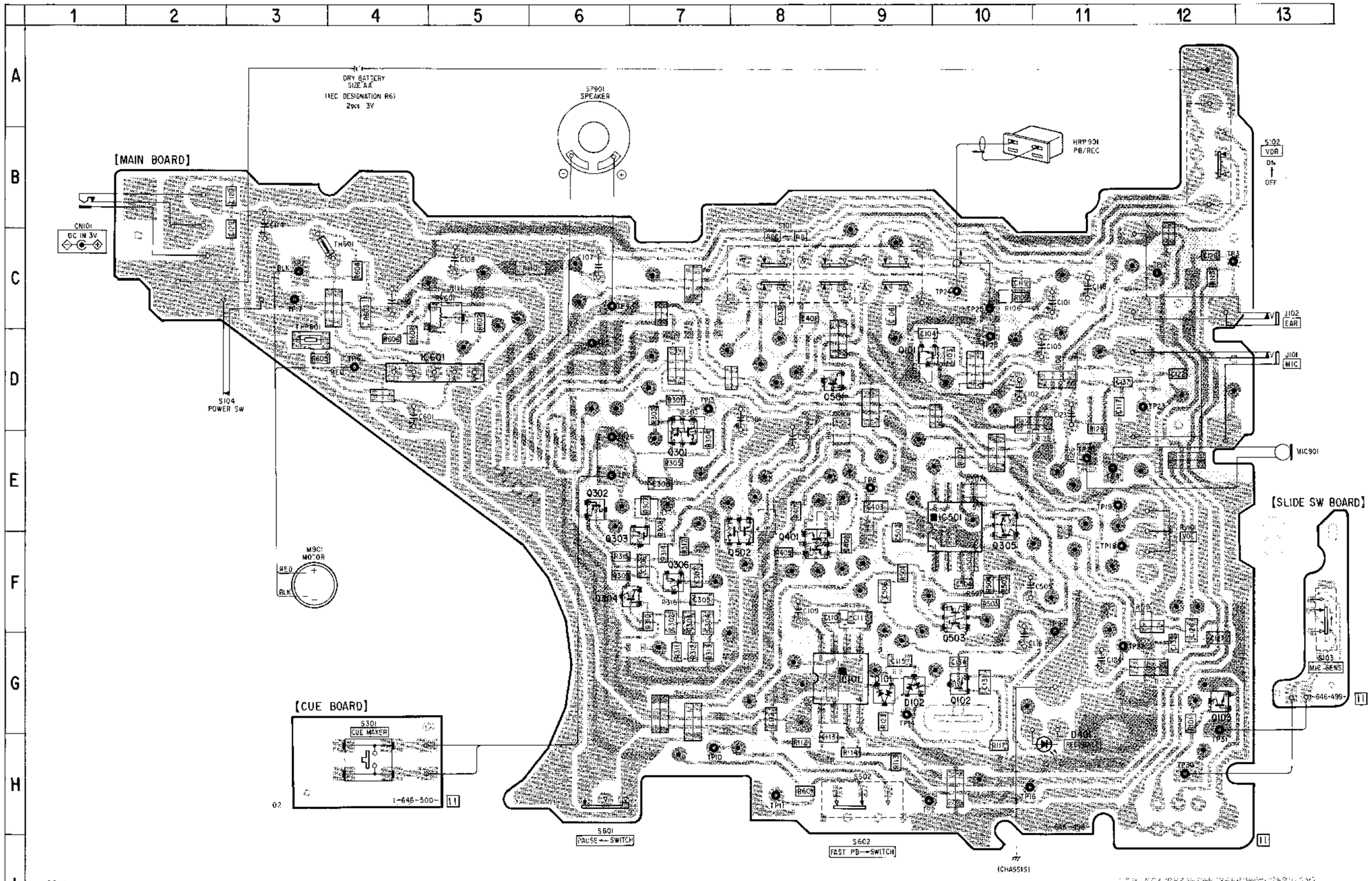
Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

**Adjustment Location :** Main Board



## • SEMICONDUCTOR LOCATION

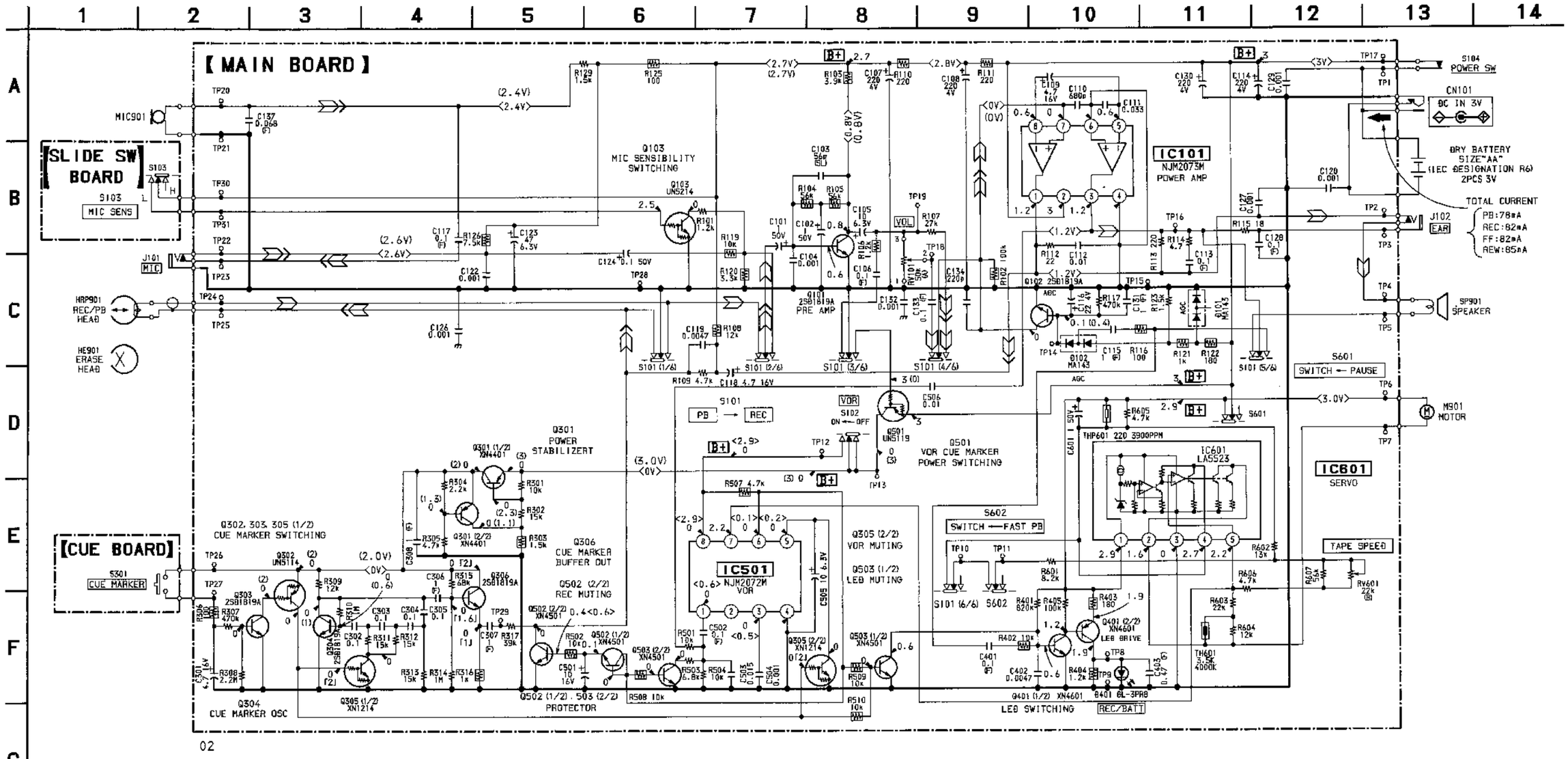
| Ref. No. | Location |
|---|---|
| D101 | G-9 |
| D102 | G-9 |
| D401 | H-11 |
| IC101 | G-9 |
| IC501 | E-10 |
| IC601 | D-5 |
| Q101 | D-9 |
| Q102 | G-10 |
| Q103 | G-12 |
| Q301 | E-7 |
| Q302 | E-6 |
| Q303 | F-7 |
| Q304 | F-8 |
| Q305 | E-10 |
| Q306 | F-7 |
| Q401 | F-8 |
| Q501 | D-9 |
| Q502 | E-8 |
| Q503 | F-10 |




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.
- ▭ : printed resistor.

4-2. SCHEMATIC DIAGRAMS

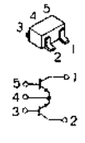



● SEMICONDUCTOR LEAD LAYOUT

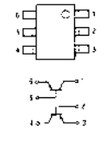
**LA5523**


**2SD1819A-R**
**2SD1819A-S**
**UN5114**
**UN5119**
**UN5214-TW**

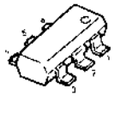

**XN1214**



**XN4401**

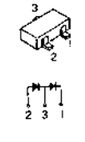


**XN4501**

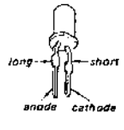


**XN4601**

**1SS226**




**TLR124**




**Note :**

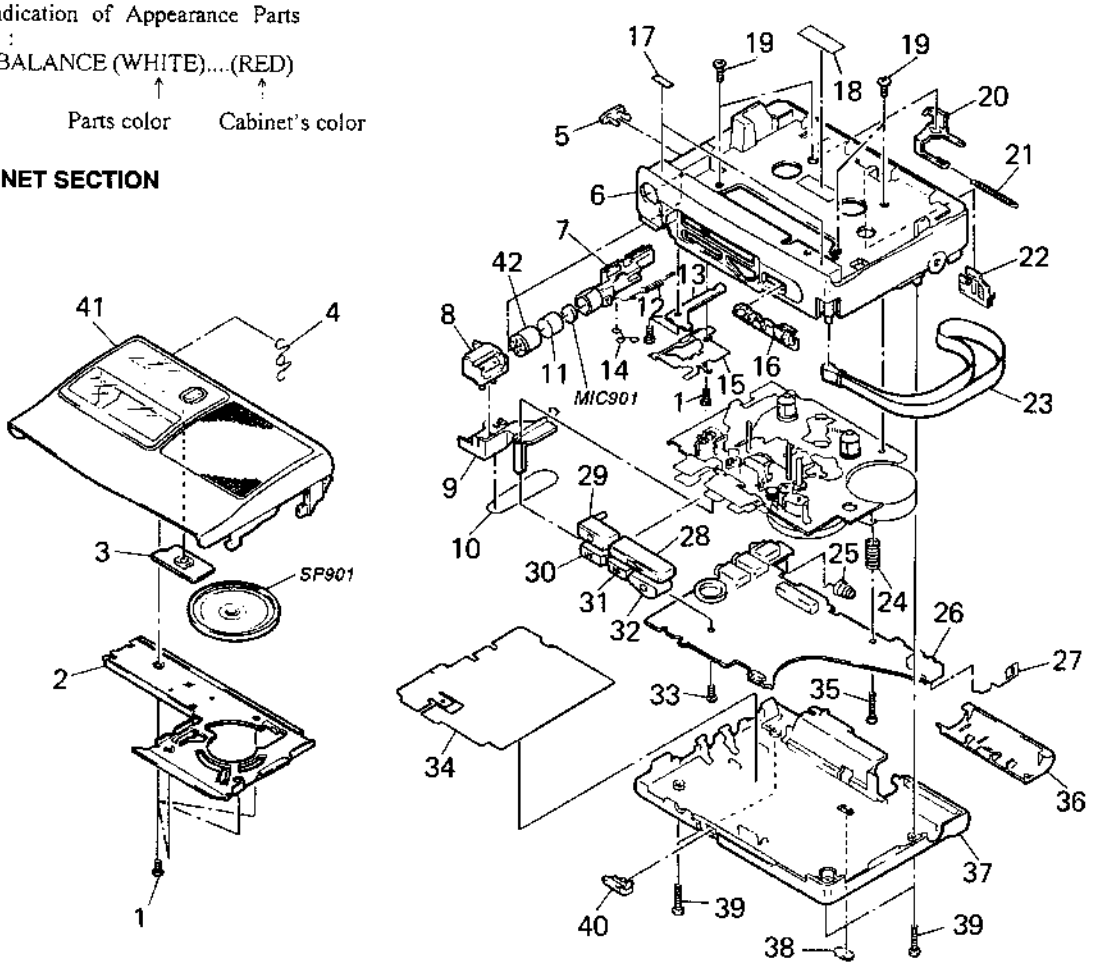
- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- : printed resistor.
- B+ : B+ Line
- : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal ( detuned ) conditions.
  no mark : PLAY
  ( ) : REC
  ( ) : VOR ON
  [ ] : CUE ON
- Voltages are taken with a VOM ( Input impedance 10M Ω ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : PB
  : REC

# SECTION 5
# EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts Example :
  KNOB, BALANCE (WHITE)....(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware ( # mark)list is given in the last of this parts list.

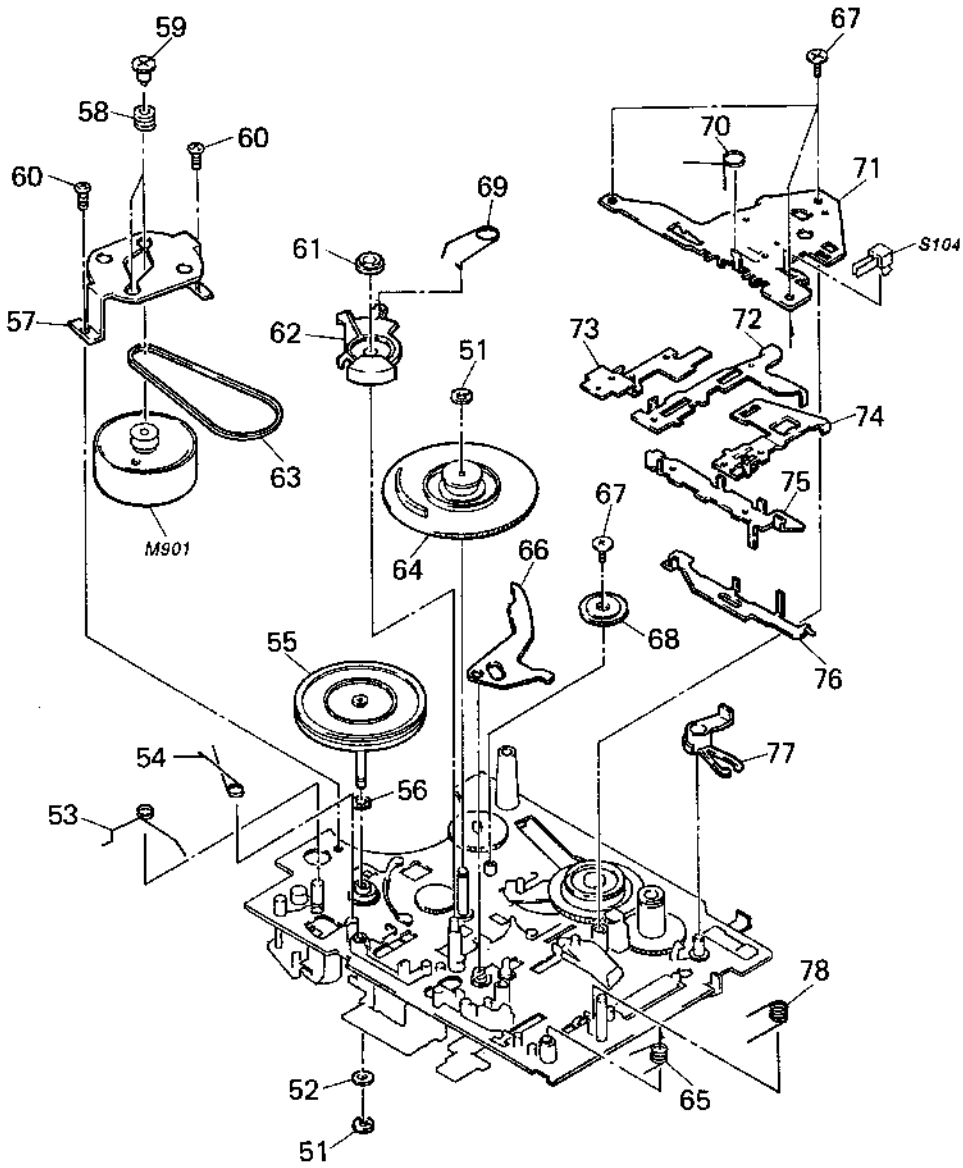
## 5-1. CABINET SECTION




| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 3-318-382-01 | SCREW (1.7X3), TAPPING | |
| * 2 | 3-385-848-01 | BRACKET (SPK2) | |
| * 3 | 1-646-500-11 | CUE SW (PRC) BOARD | |
| 4 | 3-346-509-11 | SPRING, CASSETTE-UP | |
| 5 | 3-385-883-01 | KNOB (SLIDE) | |
| 6 | 3-385-886-51 | CABINET (FRONT) | |
| 7 | 3-385-882-01 | HOLDER (POP-UP) | |
| 8 | 1-548-582-11 | COUNTER, TAPE (SMALL TYPE) | |
| 9 | 3-386-077-01 | BRACKET (COUNTER) | |
| 10 | 3-386-076-01 | BELT (COUNTER) | |
| * 11 | 3-385-885-01 | CUSHION (MICROPHONE POP) | |
| 12 | 3-385-879-01 | SPRING (POP-UP), TENSION | |
| * 13 | 1-646-499-11 | SLIDE SW (PRC) BOARD | |
| 14 | 3-385-880-01 | SPRING (POP-CLICK) | |
| 15 | 3-385-878-01 | SPRING (POP-UP), LEAF | |
| 16 | 3-385-870-01 | KNOB (PAUSE) | |
| 17 | 3-831-441-XX | CUSHION | |
| 18 | 3-578-101-21 | PLATE, ORNAMENTAL | |
| 19 | 3-318-203-61 | SCREW (B1.7X4), TAPPING | |
| 20 | 3-385-866-01 | LEVER (CLAW DETECTION) | |
| 21 | 3-385-855-01 | SPRING(CLAW DETECTION), TENSION | |
| 22 | 3-385-867-01 | SPRING(CASSETTE RETAINER), LEAF | |

| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| 23 | 3-320-982-01 | STRAP, HAND | |
| 24 | 3-386-123-01 | SPRING (PC BOARD GROUND) | |
| 25 | 3-385-864-01 | SPRING, BATTERY COIL | |
| * 26 | A-3016-289-A | MAIN BOARD, COMPLETE | |
| 27 | 3-385-863-01 | TERMINAL, BATTERY | |
| 28 | 3-385-859-01 | BUTTON (PLAY) | |
| 29 | 3-385-858-01 | BUTTON (REC) | |
| 30 | 3-385-860-01 | BUTTON (FF) | |
| 31 | 3-385-861-01 | BUTTON (REW) | |
| 32 | 3-385-862-01 | BUTTON (STOP) | |
| 33 | 3-345-648-03 | SCREW (M1.4X4.0), TOOTHED LOCK | |
| 34 | 3-385-871-01 | PAPER, SHIELD | |
| 35 | 3-386-078-02 | SCREW | |
| 36 | 3-385-876-01 | LID, BATTERY CASE | |
| 37 | 3-385-869-01 | CABINET (REAR) | |
| 38 | 3-358-363-11 | PLATE, BLIND | |
| 39 | 3-334-565-01 | SCREW (B1.7X10), TAPPING | |
| 40 | 3-385-857-01 | KNOB (F-PB) | |
| 41 | X-3366-084-1 | LID (B-C) ASSY, CASSETTE | |
| 42 | 3-385-881-01 | CASE (POP MICROPHONE) | |
| MIC901 | 1-542-142-11 | MICROPHONE, BUILT-IN | |
| SP901 | 1-544-657-11 | SPEAKER (3.6CM) | |

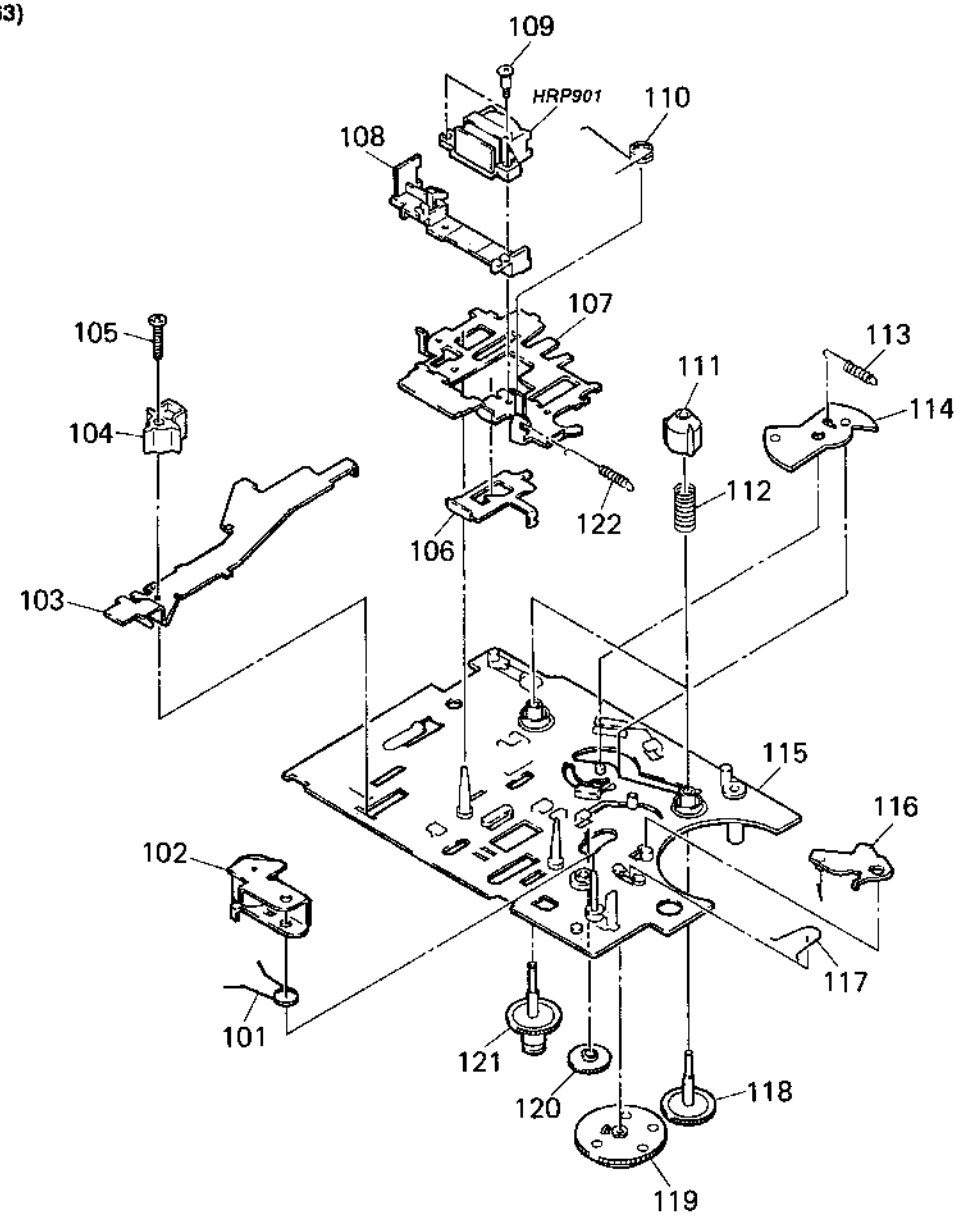
## 5-2. MECHANISM SECTION-1
(MT-S63)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 3-385-743-01 | WASHER | |
| 52 | 3-385-753-01 | WASHER | |
| 53 | 3-385-732-01 | SPRING | |
| 54 | 3-385-733-01 | SPRING | |
| 55 | X-3366-064-1 | ASSY, FLYWHEEL | |
| 56 | 3-385-754-01 | P WASHER | |
| 57 | 3-385-748-01 | BRACKET, MOTOR | |
| 58 | 3-385-749-01 | RUBBER, MOTOR | |
| 59 | 3-385-750-01 | SCREW | |
| 60 | 3-385-751-01 | SCREW | |
| 61 | 3-385-746-01 | BUSH, GEAR | |
| 62 | 3-385-744-01 | LEVER, AS | |
| 63 | 3-385-752-01 | BELT | |
| 64 | X-3366-063-1 | ASSY, FRICTION | |
| 65 | 3-385-734-01 | SPRING | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 66 | 3-385-735-01 | LEVER, FR | |
| 67 | 3-385-728-01 | SCREW | |
| 68 | 3-385-727-01 | GEAR, FF | |
| 69 | 3-385-745-01 | SPRING | |
| 70 | 3-385-742-01 | SPRING | |
| * 71 | 3-385-741-01 | GUIDE, LEVER | |
| * 72 | 3-385-740-01 | LEVER, FF | |
| * 73 | 3-385-731-01 | LEVER, STOP | |
| * 74 | 3-385-739-01 | LEVER, REW | |
| * 75 | 3-385-737-01 | LEVER, LOCK | |
| * 76 | 3-385-736-01 | LEVER, SWITCH | |
| 77 | 3-385-730-01 | ARM, REC | |
| 78 | 3-385-738-01 | SPRING | |
| M901 | X-3366-095-1 | MOTOR, ASSY | |
| S104 | 1-692-400-11 | SWITCH, LEAF(POWER) | |

## 5-3. MECHANISM SECTION-2
(MT-S63)




| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| 101 | 3-385-726-01 | SPRING | |
| 102 | X-3366-062-1 | ASSY, PINCH ARM | |
| * 103 | 3-385-724-01 | LEVER, REC | |
| 104 | X-3366-061-1 | ASSY, E/H C | |
| 105 | 3-385-725-01 | SCREW | |
| * 106 | 3-385-719-01 | PLATE, PLAY | |
| * 107 | 3-385-718-01 | CHASSIS, HEAD | |
| 108 | 3-385-721-01 | GUIDE, HEAD | |
| 109 | 3-385-723-01 | SCREW | |
| 110 | 3-385-720-01 | SPRING | |
| 111 | 3-385-716-01 | REEL | |
| 112 | 3-385-715-01 | SPRING | |

| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| 113 | 3-385-717-01 | SPRING | |
| 114 | X-3366-060-1 | ASSY, CENTER ARM | |
| 115 | X-3366-058-1 | ASSY, MECHA CHASSIS | |
| 116 | X-3366-059-1 | ASSY, PLAY ARM | |
| 117 | 3-385-712-01 | SPRING | |
| 118 | 3-385-713-01 | GEAR, REEL | |
| 119 | X-3366-065-1 | ASSY, GEAR FR | |
| 120 | 3-385-729-01 | GEAR, PLAY | |
| 121 | 3-385-714-01 | GEAR, REEL | |
| 122 | 3-385-756-01 | SPRING | |
| HRP901 | 1-543-607-21 | HEAD, MAGNETIC (REC/PB) | |

**CUE SW** **MAIN**

# 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μA.... , uPA.... : μPA....
  uPB.... : μPB.... , uPC.... : μPC....
  uPD.... : μPD....
- CAPACITORS
  uF : μF
- COILS
  uH : μH

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

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | CUE SW BOARD, COMPLETE | | | |
| | | ********** | | | |
| * | 1-646-500-11 | CUE SW (PRC) BOARD | | | |
| | | < SWITCH > | | | |
| S301 | 1-571-887-21 | SWITCH, KEY BOARD (CUE MARKER) | | | |
| ********** | | | | | |
| * | A-3016-289-A | MAIN BOARD, COMPLETE | | | |
| | | ********** | | | |
| * | 3-385-856-01 | CUSHION (LED) | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-126-301-11 | ELECT | 1uF | 20% | 50V |
| C102 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C103 | 1-162-950-11 | CERAMIC CHIP | 56PF | 5% | 50V |
| C104 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C105 | 1-126-157-11 | ELECT | 10uF | 20% | 16V |
| C106 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C107 | 1-104-402-21 | ELECT | 220uF | 20% | 4V |
| C108 | 1-124-635-00 | ELECT | 220uF | 20% | 4V |
| C109 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C110 | 1-162-963-11 | CERAMIC CHIP | 680PF | 10% | 50V |
| C111 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C112 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C113 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C114 | 1-124-635-00 | ELECT | 220uF | 20% | 4V |
| C115 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C116 | 1-124-430-00 | ELECT | 22uF | 20% | 4V |
| C117 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C118 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C119 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V |
| C120 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C122 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C123 | 1-126-154-11 | ELECT | 47uF | 20% | 6.3V |
| C124 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V |
| C126 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C127 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C128 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C129 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C130 | 1-124-635-00 | ELECT | 220uF | 20% | 4V |
| C131 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C132 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C133 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C134 | 1-162-960-11 | CERAMIC CHIP | 220PF | 10% | 50V |
| C137 | 1-164-490-11 | CERAMIC CHIP | 0.068uF | | 16V |
| C301 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C302 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C303 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C304 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C305 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C306 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C307 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C308 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C401 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C402 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V |
| C403 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V |
| C501 | 1-126-157-11 | ELECT | 10uF | 20% | 16V |
| C502 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C503 | 1-164-245-11 | CERAMIC CHIP | 0.015uF | 10% | 25V |
| C504 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C505 | 1-126-157-11 | ELECT | 10uF | 20% | 16V |
| C506 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C601 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| | | < CONNECTOR > | | | |
| CN101 | 1-580-919-11 | JACK, DC(POLARITY UNIFIED TYPE)(DC IN 3V) | | | |
| | | < DIODE > | | | |
| D101 | 8-719-800-76 | DIODE 1SS226 | | | |
| D102 | 8-719-800-76 | DIODE 1SS226 | | | |
| D401 | 8-719-812-41 | LED TLR124 (REC/BATT) | | | |

**MAIN**

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < IC > | |
| IC101 | 8-759-701-02 | IC NJM2073M | |
| IC501 | 8-759-701-51 | IC NJM2072M | |
| IC601 | 8-759-801-12 | IC LA5523 | |
| | | < JACK > | |
| J101 | 1-569-215-31 | JACK (MIC) | |
| J102 | 1-569-215-31 | JACK (EAR) | |
| | | < JUMPER RESISTOR > | |
| JR1 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR3 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR4 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR5 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR6 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR7 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR9 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR10 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR11 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR15 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR16 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR17 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR18 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR20 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR21 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR24 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| JR25 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR27 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR29 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| JR30 | 1-216-296-00 | METAL CHIP 0 5% | 1/8W |
| | | < TRANSISTOR > | |
| Q101 | 8-729-402-32 | TRANSISTOR 2SD1819A-R | |
| Q102 | 8-729-402-32 | TRANSISTOR 2SD1819A-R | |
| Q103 | 8-729-402-93 | TRANSISTOR UN5214-TW | |
| Q301 | 8-729-403-27 | TRANSISTOR XN4401 | |
| Q302 | 8-729-402-96 | TRANSISTOR UN5114 | |
| Q303 | 8-729-402-32 | TRANSISTOR 2SD1819A-R | |
| Q304 | 8-729-402-33 | TRANSISTOR 2SD1819A-S | |
| Q305 | 8-729-420-16 | TRANSISTOR XN1214 | |
| Q306 | 8-729-402-32 | TRANSISTOR 2SD1819A-R | |
| Q401 | 8-729-402-84 | TRANSISTOR XN4601 | |
| Q501 | 8-729-425-21 | TRANSISTOR UN5119 | |
| Q502 | 8-729-402-81 | TRANSISTOR XN4501 | |
| Q503 | 8-729-402-81 | TRANSISTOR XN4501 | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < RESISTOR > | |
| R101 | 1-216-822-11 | METAL CHIP 1.2K 5% | 1/16W |
| R102 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| R103 | 1-249-424-11 | CARBON 3.9K 5% | 1/4W |
| R104 | 1-249-438-11 | CARBON 56K 5% | 1/4W |
| R105 | 1-249-438-11 | CARBON 56K 5% | 1/4W |
| R106 | 1-249-418-11 | CARBON 1.2K 5% | 1/4W |
| R107 | 1-216-838-11 | METAL CHIP 27K 5% | 1/16W |
| R108 | 1-249-430-11 | CARBON 12K 5% | 1/4W |
| R109 | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W |
| R110 | 1-249-409-11 | CARBON 220 5% | 1/4W |
| R111 | 1-249-409-11 | CARBON 220 5% | 1/4W |
| R112 | 1-216-801-11 | METAL CHIP 22 5% | 1/16W |
| R113 | 1-216-813-11 | METAL CHIP 220 5% | 1/16W |
| R114 | 1-216-793-11 | METAL GLAZE 4.7 5% | 1/16W |
| R115 | 1-216-800-11 | METAL GLAZE 18 5% | 1/16W |
| R116 | 1-249-405-11 | CARBON 100 5% | 1/4W |
| R117 | 1-216-853-11 | METAL CHIP 470K 5% | 1/16W |
| R119 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| R120 | 1-249-423-11 | CARBON 3.3K 5% | 1/4W |
| R121 | 1-249-417-11 | CARBON 1K 5% | 1/4W |
| R122 | 1-249-408-11 | CARBON 180 5% | 1/4W |
| R123 | 1-216-823-11 | METAL CHIP 1.5K 5% | 1/16W |
| R125 | 1-249-405-11 | CARBON 100 5% | 1/4W |
| R126 | 1-215-442-00 | METAL 7.5K 1% | 1/6W |
| R129 | 1-216-823-11 | METAL CHIP 1.5K 5% | 1/16W |
| R301 | 1-216-833-11 | METAL CHIP 10K 5% | 1/16W |
| R302 | 1-216-835-11 | METAL CHIP 15K 5% | 1/16W |
| R303 | 1-249-419-11 | CARBON 1.5K 5% | 1/4W |
| R304 | 1-216-825-11 | METAL CHIP 2.2K 5% | 1/16W |
| R305 | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W |
| R306 | 1-249-405-11 | CARBON 100 5% | 1/4W |
| R307 | 1-216-853-11 | METAL CHIP 470K 5% | 1/16W |
| R308 | 1-216-861-11 | METAL CHIP 2.2M 5% | 1/16W |
| R309 | 1-216-834-11 | METAL CHIP 12K 5% | 1/16W |
| R310 | 1-216-857-11 | METAL CHIP 1M 5% | 1/16W |
| R311 | 1-216-835-11 | METAL CHIP 15K 5% | 1/16W |
| R312 | 1-216-835-11 | METAL CHIP 15K 5% | 1/16W |
| R313 | 1-216-835-11 | METAL CHIP 15K 5% | 1/16W |
| R314 | 1-216-857-11 | METAL CHIP 1M 5% | 1/16W |
| R315 | 1-216-843-11 | METAL CHIP 68K 5% | 1/16W |
| R316 | 1-249-417-11 | CARBON 1K 5% | 1/4W |
| R317 | 1-216-840-11 | METAL CHIP 39K 5% | 1/16W |
| R401 | 1-216-856-11 | METAL CHIP 820K 5% | 1/16W |
| R402 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| R403 | 1-249-408-11 | CARBON 180 5% | 1/4W |
| R404 | 1-249-418-11 | CARBON 1.2K 5% | 1/4W |
| R405 | 1-216-845-11 | METAL CHIP 100K 5% | 1/16W |

# MAIN SLIDE SW (PRC)

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R501 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R502 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R503 | 1-216-831-11 | METAL CHIP | 6.8K | 5% | 1/16W |
| R504 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R507 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W |
| R508 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R509 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R510 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R601 | 1-216-832-11 | METAL CHIP | 8.2K | 5% | 1/16W |
| R602 | 1-216-994-11 | METAL GLAZE | 13K | 5% | 1/16W |
| R603 | 1-216-230-00 | METAL GLAZE | 22K | 5% | 1/8W |
| R604 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R605 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R606 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R607 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/16W |
| | | < VARIABLE RESISTOR > | | | |
| RV101 | 1-223-293-11 | RES, VAR, CARBON 50K (VOL) | | | |
| RV601 | 1-238-665-11 | RES, ADJ, CERMET 22K (TAPE SPEED) | | | |
| | | < SWITCH > | | | |
| S101 | 1-571-151-11 | SWITCH, SLIDE (REC/PB) | | | |
| S102 | 1-571-478-11 | SWITCH, SLIDE (VOR) | | | |
| S601 | 1-570-675-11 | SWITCH, SLIDE (PAUSE/SWITCH) | | | |
| S602 | 1-692-397-21 | SWITCH, SLIDE (FAST PB/SWITCH) | | | |
| | | < THERMISTOR > | | | |
| TH601 | 1-808-980-11 | THERMISTOR | | | |
| | | < THERMISTOR(POSITIVE) > | | | |
| THP601 | 1-810-007-11 | THERMISTOR, POSITIVE | | | |
| ********** | | | | | |
| * | 1-646-499-11 | SLIDE SW (PRC) BOARD | | | |
| | | ********** | | | |
| | | < SWITCH > | | | |
| S103 | 1-572-581-11 | SWITCH, SLIDE (MIC SENS) | | | |
| ********** | | | | | |
| | | MISCELLANEOUS | | | |
| | | ********** | | | |
| 8 | 1-548-582-11 | COUNTER, TAPE (SMALL TYPE) | | | |
| HRP901 | 1-543-607-21 | HEAD, MAGNETIC (REC/PB) | | | |
| M901 | X-3366-095-1 | MOTOR, ASSY | | | |
| MIC901 | 1-542-142-11 | MICROPHONE, BUILT-IN | | | |
| S104 | 1-692-400-11 | SWITCH, LEAF(POWER) | | | |
| SP901 | 1-544-657-11 | SPEAKER (3.6CM) | | | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | ACCESSORIES & PACKING MATERIALS | |
| | | ********** | |
| * | 3-387-183-01 | CUSHION (TOP) (US) | |
| * | 3-387-184-01 | CUSHION (BOTTOM) (US) | |
| | 3-756-196-11 | MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGESE) (Canadian, AEP, UK, E, Saudi Arabia, Tourist) | |
| | 3-756-196-21 | MANUAL, INSTRUCTION (ENGLISH) (US) | |
| | 3-756-196-41 | MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP) | |



English
93B02103-1
Printed in Japan

Published by Audio Corporate Planning Group

# TCM-S68V

SONY
# SERVICE MANUAL

*US Model*
*Canadian Model*
*AEP Model*
*UK Model*
*E Model*

# SUPPLEMENT-1

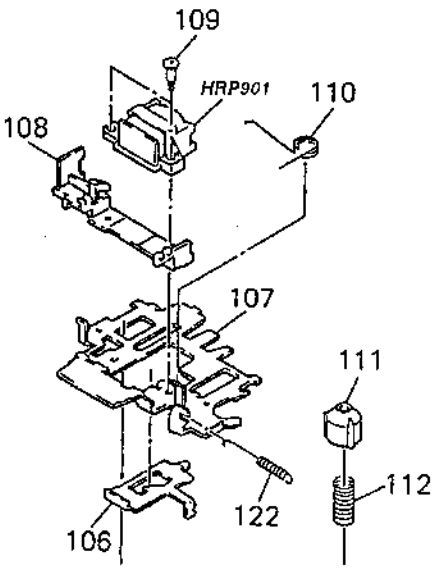
File this Supplement with the Service Manual.

**Subject : Change of REC/PB Head**

Page 11

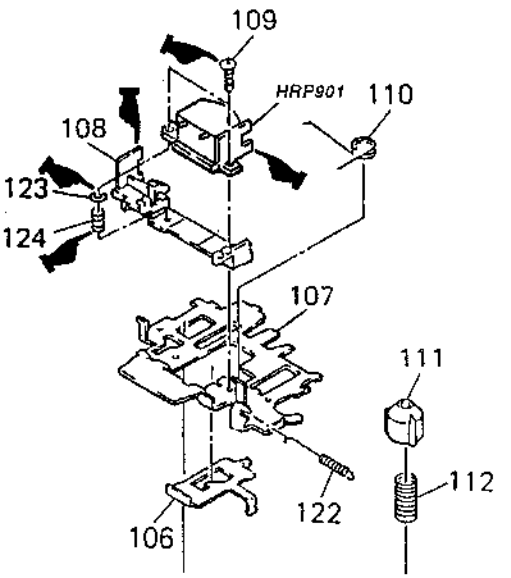
☛ or under line : changed portion

**Former**




| Ref.No. | Part No. | Description |
|---|---|---|
| 108 | 3-385-721-01 | GUIDE, HEAD |
| 109 | 3-385-723-01 | SCREW |
| 123 | ———————— | |
| 124 | ———————— | |
| HRP901 | 1-543-607-21 | HEAD, MAGNETIC (REC/PB) |

**New**



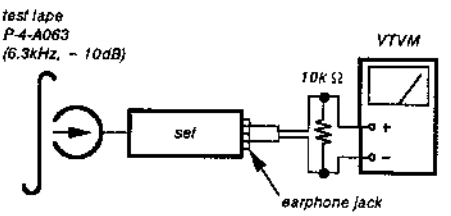

| Ref.No. | Part No. | Description |
|---|---|---|
| 108 | 3-907-591-01 | GUIDE, HEAD |
| 109 | 3-907-592-01 | SCREW |
| 123 | 3-907-593-01 | WASHER |
| 124 | 3-907-594-01 | SPRING |
| HRP901 | 1-543-410-11 | HEAD, MAGNETIC (REC/PB) |

The record/playback head azimuth adjustment is requested due to this change.

### Record/playback Head Azimuth Adjustment

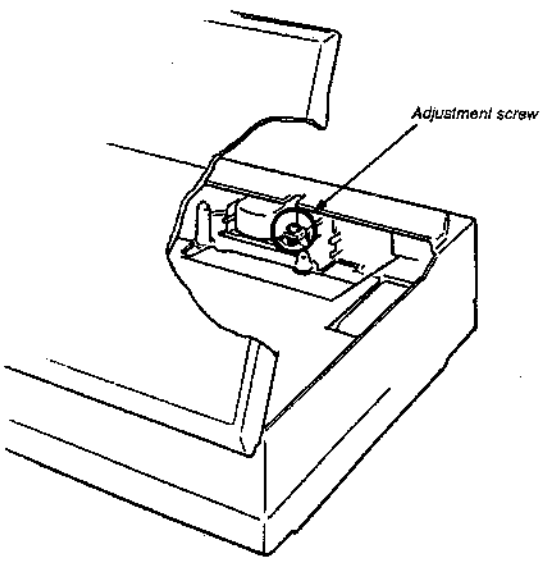
**Procedure :**

1. Mode : Playback




2. Turn the adjustment screw to obtain the maximum reading on VTVM.
   **Note :** Several peaks may appear, but take the maximum.
3. After the adjustment, lock the adjustment screw with suitable locking compound.

**Adjustment Location :**






English
94A02103-1
Printed in Japan

Published by Audio Sector Quality Assurance Dept.

# TCM-S68V

SONY

# SERVICE MANUAL

*US Model*
*Canadian Model*
*AEP Model*
*UK Model*
*E Model*

## SUPPLEMENT-2

File the Supplement with the Service Manual and Supplement-1.

**Subject :**

**1. CHANGE OF BOARDS**

**2. CORRECTION**

(ECN MT300499)

9-957-623-82

**Sony Corporation**
**Consumer A&V Products Company**
**Personal A&V Products Div.**

**English**
94K0288-1
Printed in Japan

**Published by Home A&V Products Div.**
**Quality Engineering Dept.**

## 1. CHANGE OF BOARDS

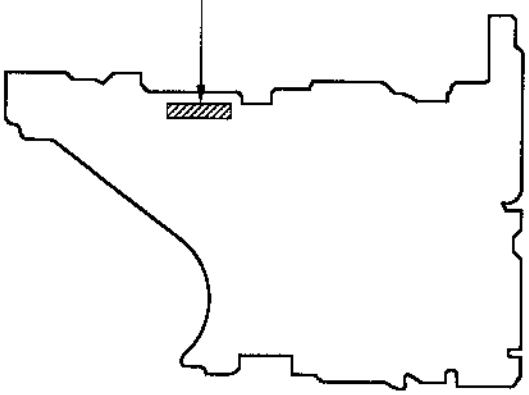
The boards have been changed.

Printed wiring boards and schematic diagram of new type, and changed parts list are described in this Supplement-2.

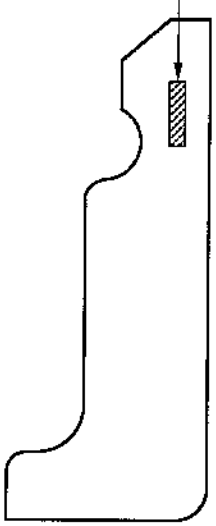
Refer to original service manual previously issued for the other information.

### NEW TYPE IDENTIFICATION

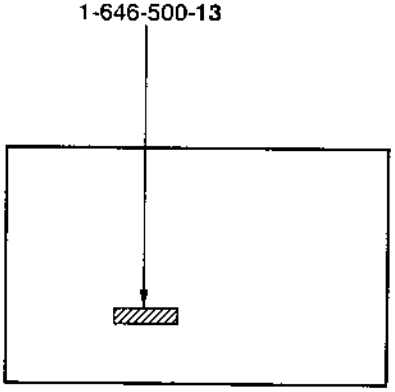
– **MAIN board** (Conductor Side) –
1-646-498-13



– **SLIDE SW board** (Conductor Side) –
1-646-499-13



– **CUE SW board** (Conductor Side) –
1-646-500-13

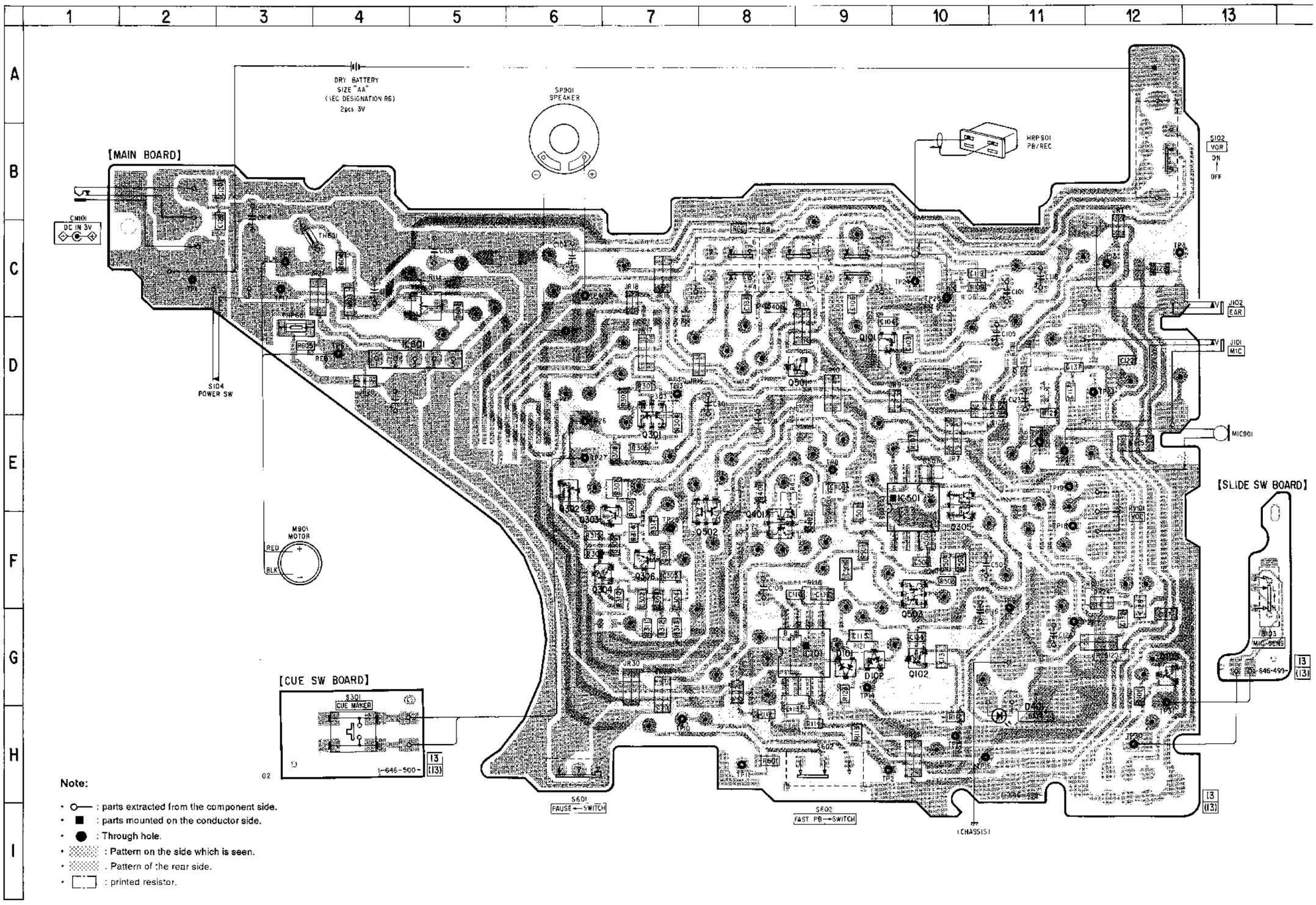


## 1-1. PRINTED WIRING BOARDS

• Refer to page 5 for Semiconductor Lead Layouts.

• SEMICONDUCTOR LOCATION

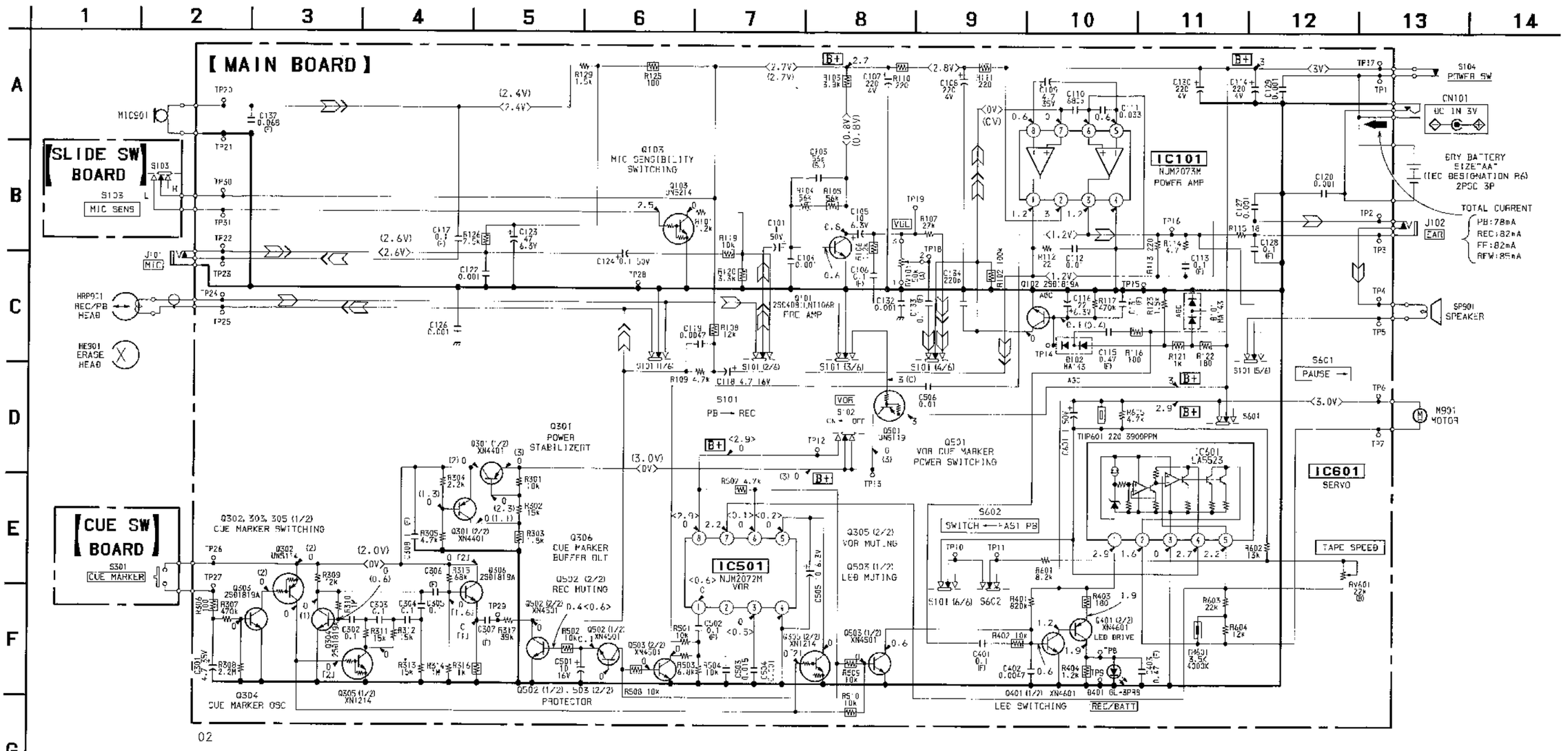
| Ref. No. | Location |
|---|---|
| D101 | G-9 |
| D102 | G-9 |
| D401 | H-11 |
| IC101 | G-9 |
| IC501 | E-10 |
| IC601 | D-5 |
| Q101 | D-9 |
| Q102 | G-10 |
| Q103 | G-12 |
| Q301 | E-7 |
| Q302 | E-6 |
| Q303 | F-7 |
| Q304 | F-6 |
| Q305 | E-10 |
| Q306 | F-7 |
| Q401 | F-8 |
| Q501 | D-9 |
| Q502 | E-8 |
| Q503 | F-10 |




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.
- ⊏⊐ : printed resistor.

## 1-2. SCHEMATIC DIAGRAM

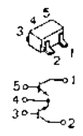



## • SEMICONDUCTOR LEAD LAYOUTS

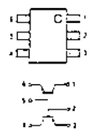
**LA5523**


**2SC1623-L5L6**
**2SD1819A-R**
**2SD1819A-S**
**UN5114**
**UN5119**
**UN5214-TW**

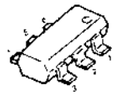

**XN1214**



**XN4401**

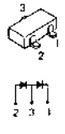


**XN4501**

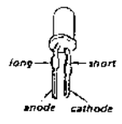


**XN4601**

**1SS226**




**TLR124**




**Note :**

- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ▭ : printed resistor.
- B+ : B+ Line
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PLAY
  ( ) : REC
  〈 〉 : VOR ON
  [ ] : CUE ON
- Voltages are taken with a VOM ( Input impedance 10M Ω ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : PB
  ▷▷ : REC

### 1-3. CHANGED ELECTRICAL PARTS LIST

MAIN

| Ref. No. | Former Type | | | | | New Type | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Part No. | Description | | | | Part No. | Description | | | | |
| C102 | 1-126-160-11 | ELECT | 1uF | 20% | 50V | ——— | | | | | Deleted |
| C104 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | Changed |
| C113 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V | Changed |
| C115 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 16V | Changed |
| C120 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | 1-163-009-11 | CERAMIC CHIP | 0.001uF | | 50V | Changed |
| C128 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | Changed |
| C129 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | 1-163-009-11 | CERAMIC CHIP | 0.001uF | | 50V | Changed |
| C401 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V | Changed |
| C402 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 10% | 50V | Changed |
| C502 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V | Changed |
| JR3 | 1-216-296-91 | METAL CHIP | 0 | 5% | 1/8W | ——— | | | | | Deleted |
| JR4 | 1-216-296-91 | METAL CHIP | 0 | 5% | 1/8W | ——— | | | | | Deleted |
| JR5 | 1-216-296-91 | METAL CHIP | 0 | 5% | 1/8W | ——— | | | | | Deleted |
| Q101 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | 8-729-120-28 | TRANSISTOR | 2SC1623-L5L6 | | | Changed |
| R107 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W | 1-216-083-00 | METAL GLAZE | 27K | 5% | 1/10W | Changed |
| R112 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W | 1-216-009-00 | METAL GLAZE | 22 | 5% | 1/10W | Changed |
| R113 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W | 1-216-033-00 | METAL GLAZE | 220 | 5% | 1/10W | Changed |
| R115 | 1-216-800-11 | METAL GLAZE | 18 | 5% | 1/16W | 1-216-156-00 | METAL GLAZE | 18 | 5% | 1/8W | Changed |
| R117 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W | 1-216-113-11 | METAL GLAZE | 470K | 5% | 1/10W | Changed |
| R123 | 1-216-823-11 | METAL CHIP | 1.5K | 5% | 1/16W | 1-216-053-00 | METAL GLAZE | 1.5K | 5% | 1/10W | Changed |
| R302 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W | 1-216-077-00 | METAL GLAZE | 15K | 5% | 1/10W | Changed |
| R305 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W | 1-216-065-00 | METAL GLAZE | 4.7K | 5% | 1/10W | Changed |
| R401 | 1-216-856-11 | METAL CHIP | 820K | 5% | 1/16W | 1-216-119-00 | METAL GLAZE | 820K | 5% | 1/10W | Changed |
| R405 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W | ——— | | | | | Deleted |
| R501 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W | 1-216-073-00 | METAL GLAZE | 10K | 5% | 1/10W | Changed |
| R601 | 1-216-832-11 | METAL CHIP | 8.2K | 5% | 1/16W | 1-216-071-00 | METAL GLAZE | 8.2K | 5% | 1/10W | Changed |
| R604 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W | 1-216-075-00 | METAL GLAZE | 12K | 5% | 1/10W | Changed |
| R605 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W | 1-216-065-00 | METAL GLAZE | 4.7K | 5% | 1/10W | Changed |
| R606 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W | ——— | | | | | Deleted |
| R607 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/16W | ——— | | | | | Deleted |

## 2. CORRECTION

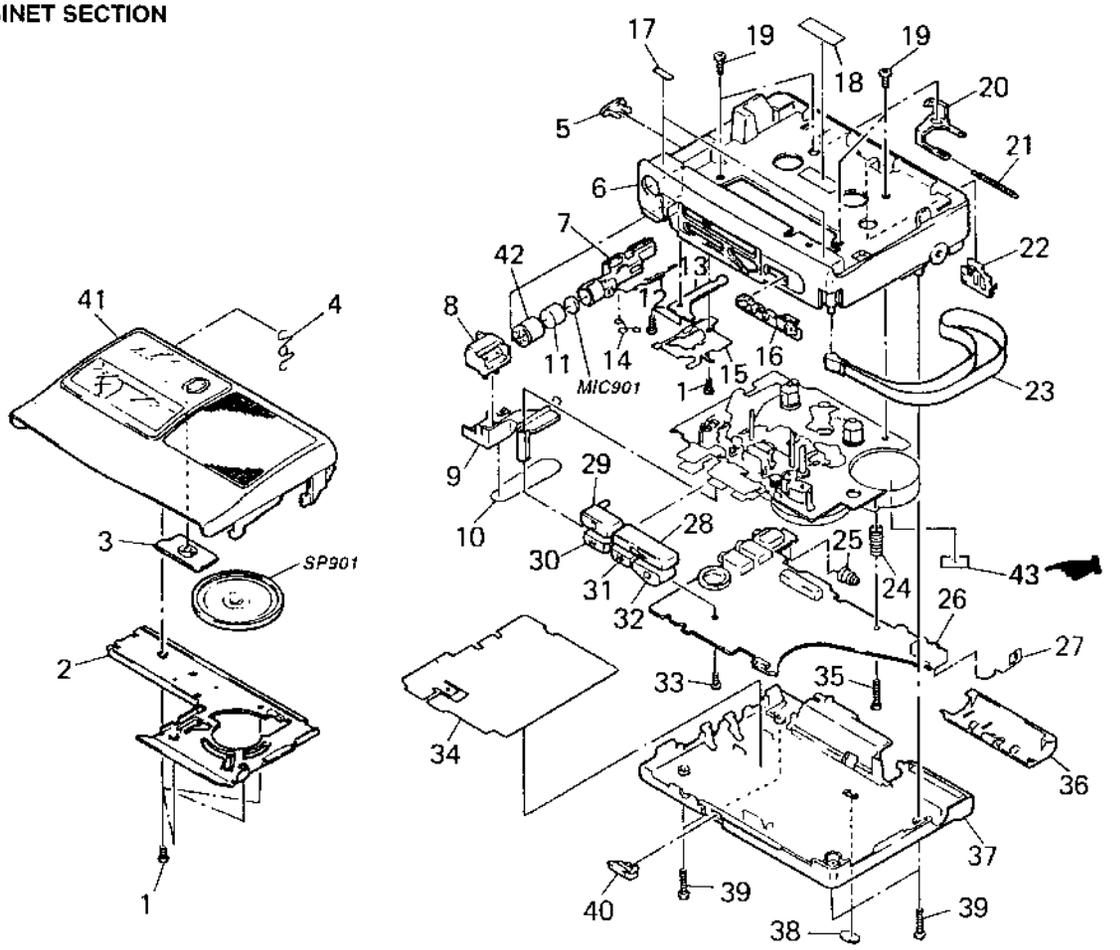
Correct your service manual as shown below.

**EXPLODEED VIEWS**

Page 9

☛ : Corrected portion

**CABINET SECTION**




**EXPLODED VIEWS PARTS LIST**

Page 9

| | Incorrect | | Correct | |
|---|---|---|---|---|
| Ref. No. | Part No. | Description | Part No. | Description |
| 43 | ——— | ——— | *3-386-313-01 | CUSHION (BATTERY CASE LID) |