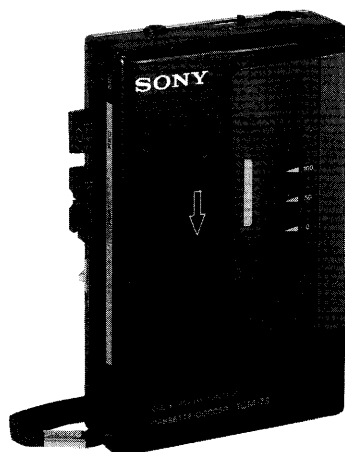


# TCM-71/73

## SERVICE MANUAL



*US Model*  
*E Model*

TCM-71

*Canadian Model*  
*AEP Model*  
*UK Model*

TCM-73

|                                        |                          |          |
|----------------------------------------|--------------------------|----------|
| Model Name Using Similar Mechanism Set | TCM-11, 31<br>TCM-13, 33 |          |
| Tape Transport Mechanism Set           | TCM-71                   | MT-71-13 |
|                                        | TCM-73                   | MT-73-13 |

### SPECIFICATIONS

Recording system.....2-track 1-channel monaural  
Frequency response...150—6,000Hz  
Speaker.....Approx. 4.5cm (1  $\frac{7}{16}$  inches) dia.  
Power output (DC) ...160mW (at 10% harmonic distortion)  
Output.....Earphone jack (minijack) for 8—300  $\Omega$  earphone  
Power requirements...3V DC, two R6 (size AA) batteries  
DC IN 3V jack accepts :

- Sony AC-D2M AC power adaptor (optional) for use on :

|                    |                              |
|--------------------|------------------------------|
| US, Canadian model | 120V AC,60Hz                 |
| UK model           | 240V AC,50Hz                 |
| AEP model          | 220V AC,50Hz                 |
| E model            | 120V AC,60Hz or 220V AC,50Hz |

- Sony DCC-70 car battery cord (optional) for use with 12V car battery.

Battery life (hours)

| Battery                       | Recording  |
|-------------------------------|------------|
| Sony battery SUM-3 (NS)       | Approx. 4  |
| Sony alkaline battery AM3 (N) | Approx. 12 |

Dimensions

TCM-71 :

Approx. 94.1×136.4×37.1mm (w/h/d)  
(3  $\frac{3}{4}$  × 5  $\frac{5}{8}$  × 1  $\frac{1}{2}$  inches)

TCM-783 :

Approx. 94.1×137.1×37.1mm (w/h/d)  
(3  $\frac{3}{4}$  × 5  $\frac{1}{2}$  × 1  $\frac{1}{2}$  inches)

Weight

incl. projecting parts and controls  
Appr50x. 260g (9.2oz)  
incl. batteries.

Supplied accessory Battery tube (1)

Design and specifications subject to change without notice.

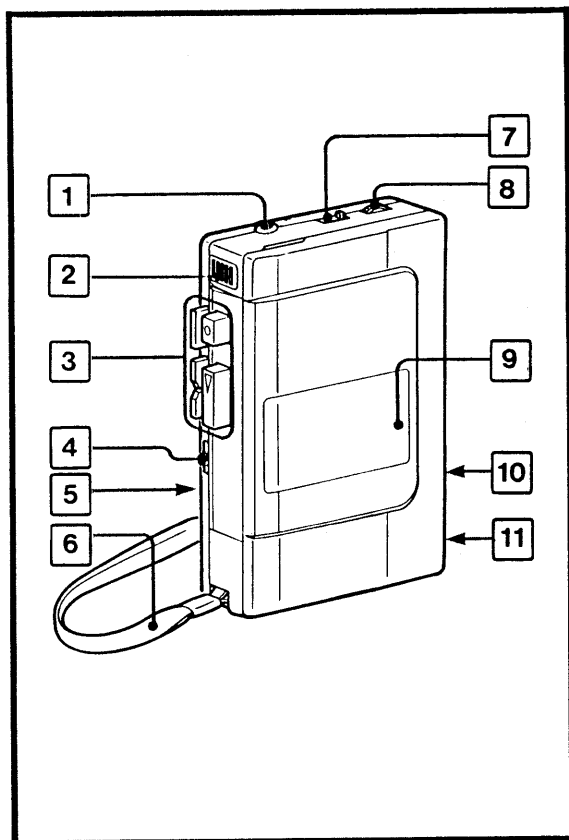
**Note:** If an AC power adaptor or a car battery cord not manufactured by Sony is used, a fuse must be installed in the battery cord and the polarity of the plug must be as illustrated.



CASSETTE-CORDER  
**SONY**®

## SECTION 1 GENERAL

### PARTS IDENTIFICATION



- 1 EAR (EARPHONE) jack
- 2 Built-in microphone
- 3 Tape operation buttons  
● REC (record) / ▼ PLAY / ■ STOP / ▽ FF / CUE (fast forward/cue) / ▲ REW / REVIEW (rewind/review)
- 4 PAUSE switch
- 5 Speaker (rear)
- 6 Handstrap (TCM-73)
- 7 Tape COUNTER and reset button (TCM-73)  
For indexing the tape contents. Before recording push the reset button to set the counter to "000".
- 8 VOLUME control
- 9 Cassette holder
- 10 DC IN 3V (external power input) jack (right side)
- 11 Battery compartment (right side)

### SERVICE NOTE

- **Repairing printed resistor**

Cut both sides 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 2 MECHANICAL ADJUSTMENTS

### PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
 

|                      |              |
|----------------------|--------------|
| record/playback head | pinch roller |
| erase head           | rubber belts |
| capstan              | idlers       |
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 25 g·cm<br>(More than 0.34 oz·inch) | CQ-102C      |
| Fast Forward and Rewind | More than 60 g·cm<br>(More than 0.83 oz·inch) | CQ-201B      |
| Back Tension            | 1.5-4 g·cm<br>(0.021-0.056 oz·inch)           | CQ-102C      |

### Tape Tension Measurement

| Meter   | Meter Reading           |
|---------|-------------------------|
| CQ-403A | More than 70g (2.47 oz) |

## SECTION 3 ELECTRICAL ADJUSTMENTS

### Test tape

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

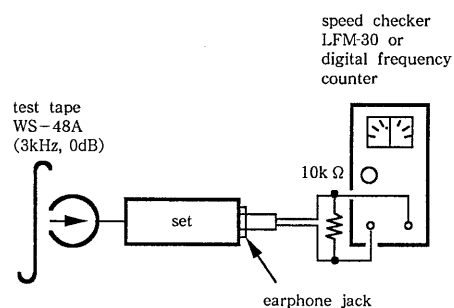
### Tape Speed Adjustment

#### Setting :

VOL control : mechanical mid

#### Procedure :

Mode : playback

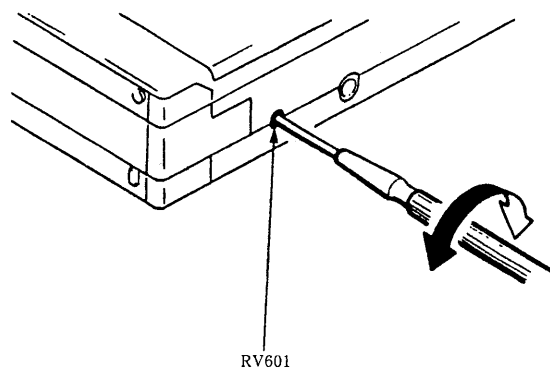


#### Specification :

| Speed checker | Digital frequency counter |
|---------------|---------------------------|
| -0.5 to +1.5% | 2,985-3,045 Hz            |

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

#### Adjustment Location :



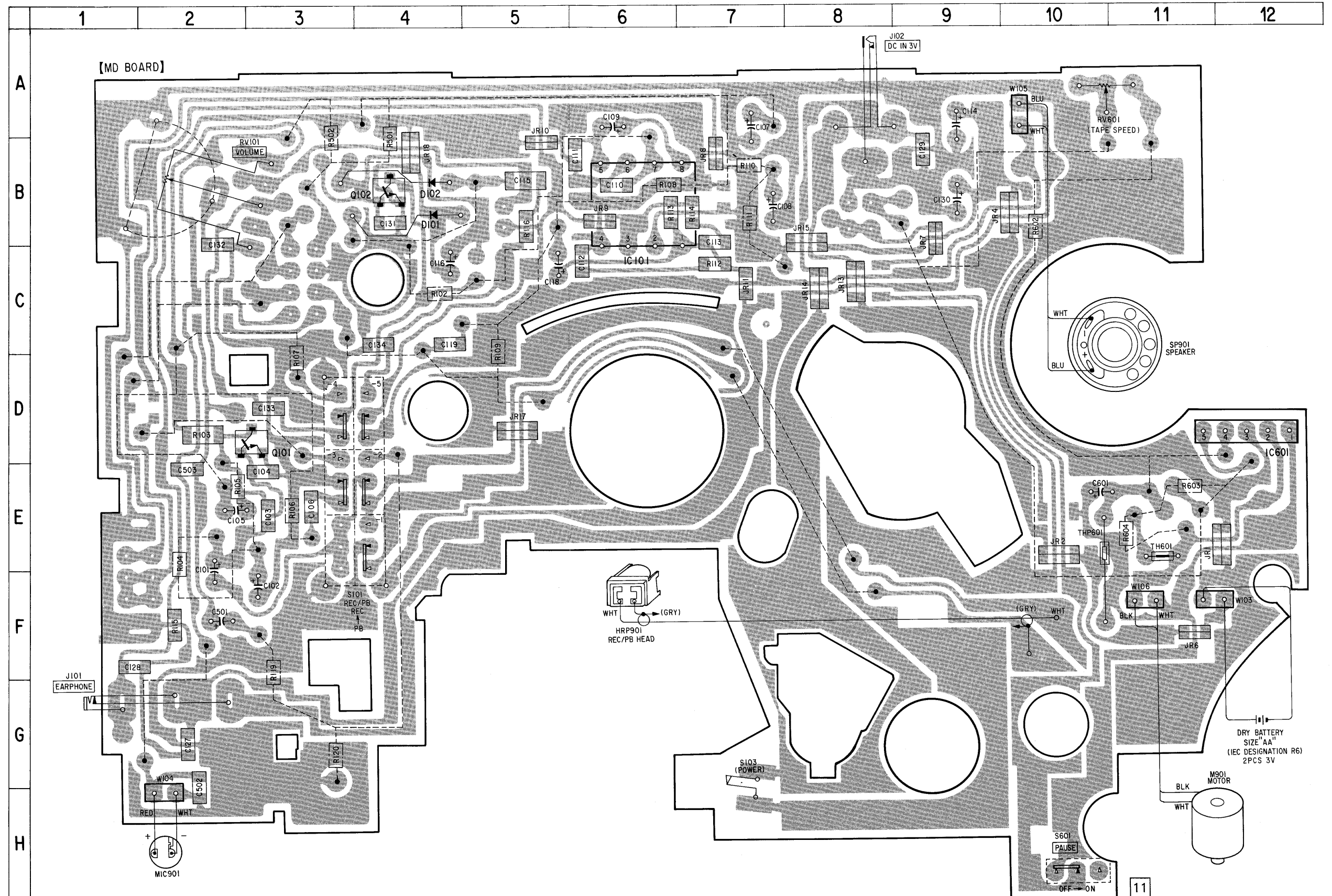


● SEMICONDUCTOR LOCATION

| Ref. No. | Location |
|----------|----------|
| IC101    | B-6      |
| IC601    | D-12     |
| Q101     | D-3      |
| Q102     | B-4      |
| D101     | B-4      |
| D102     | B-4      |

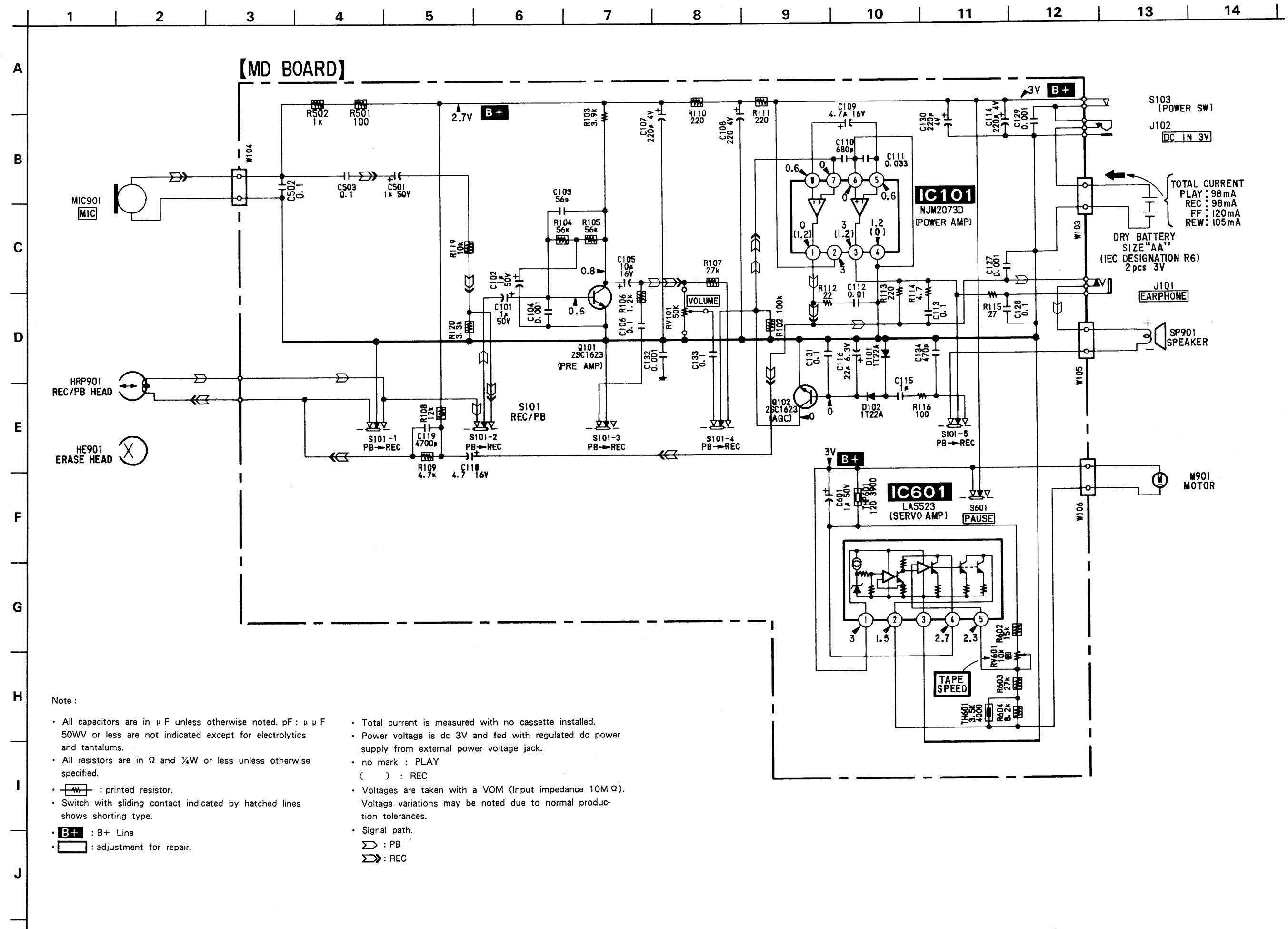
(Top view)

A 3-pin DIN connector is shown with pins labeled C, B, and E.



-  : Chip components extracted from the side which is seen.
-  : Printed resistor.
-  : Patten on the side which is seen.
-  : Patten on the rear side.

# 4-2. SCHEMATIC DIAGRAM



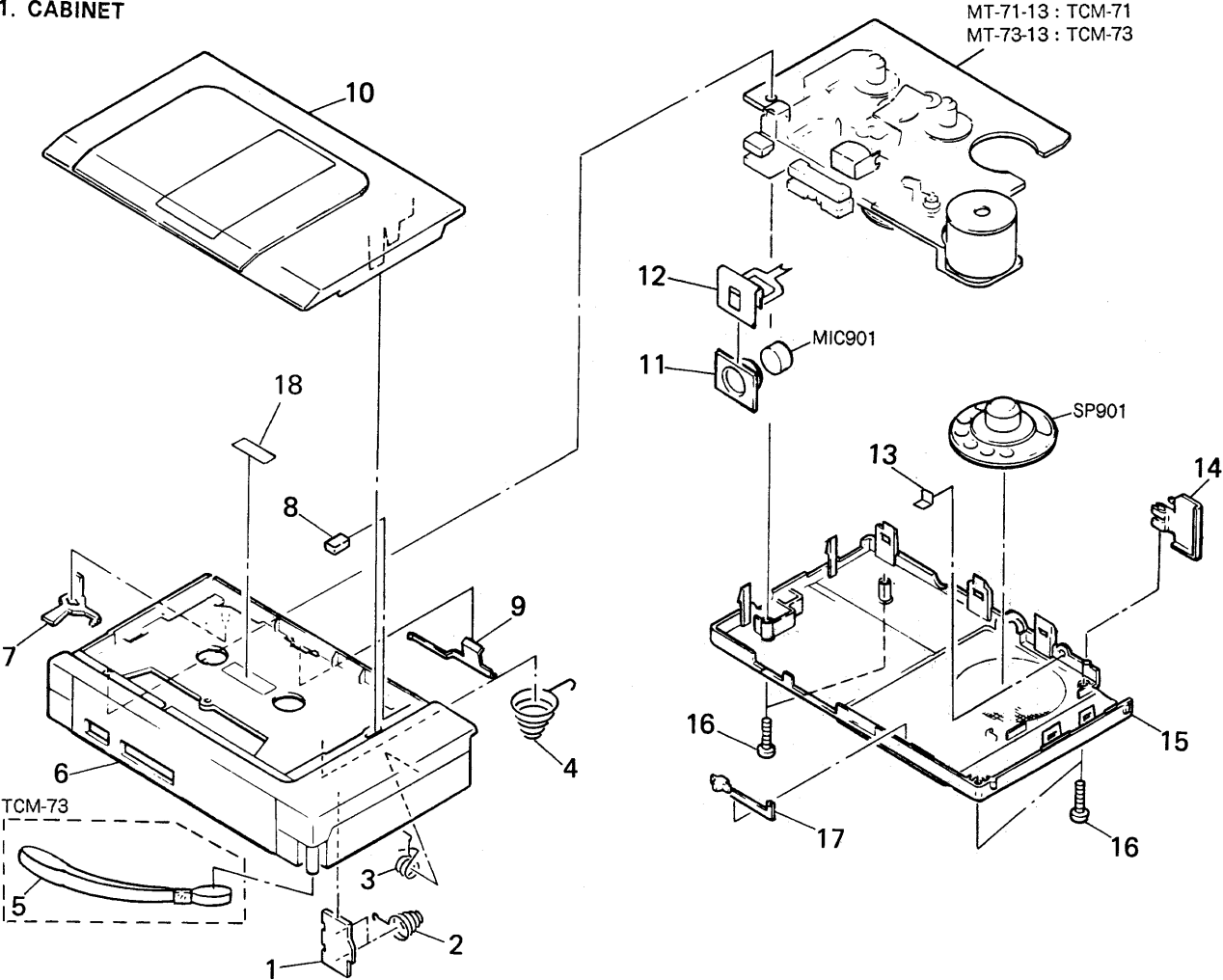
# SECTION 5 EXPLODED VIEWS

**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

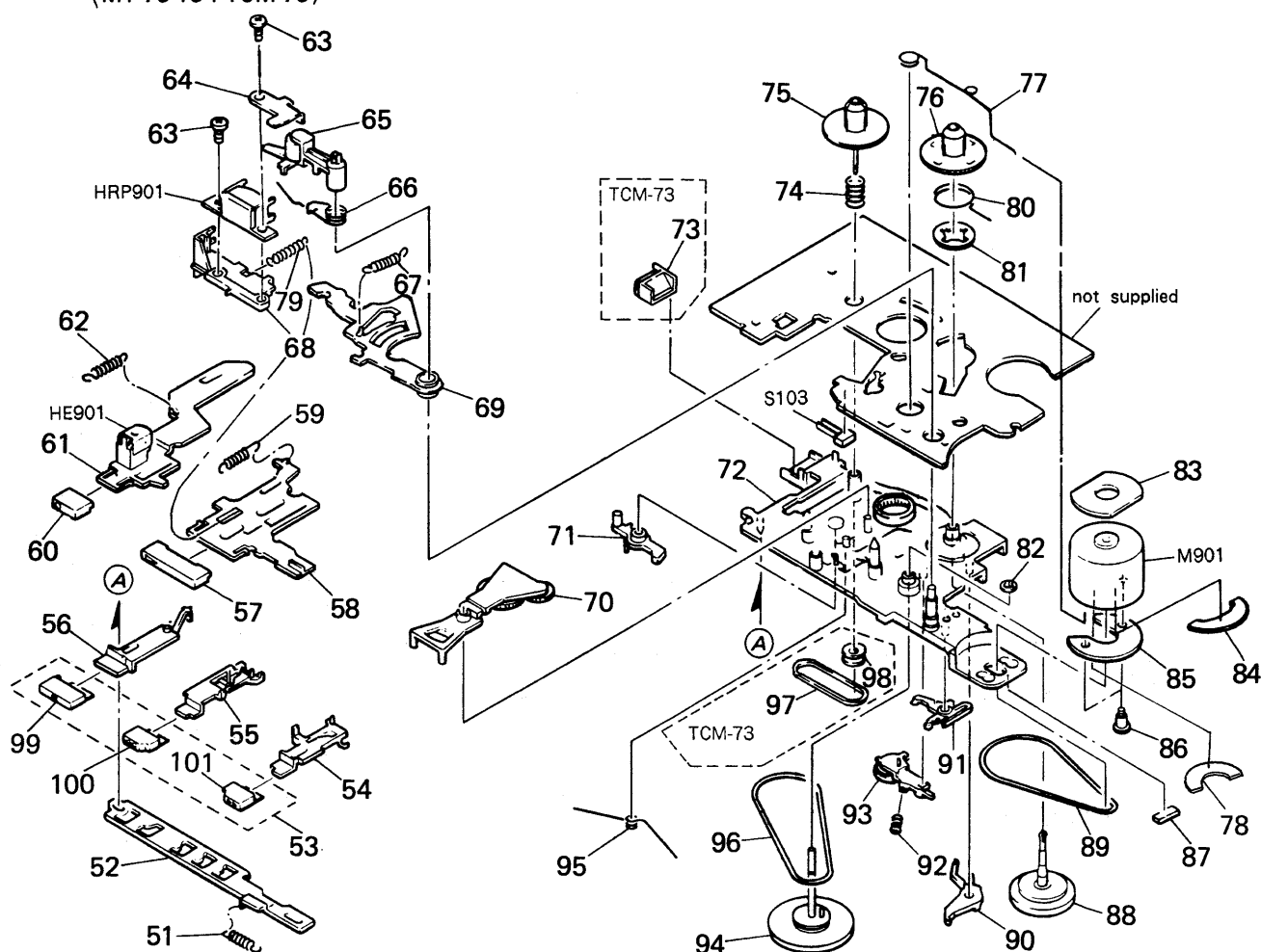
**5-1. CABINET**



| No. | Part No.      | Description                   | Remarks |
|-----|---------------|-------------------------------|---------|
| 1   | 3-352-440-01  | HOLDER (BATTERY TERMINAL)     |         |
| 2   | 3-352-439-01  | SPRING                        |         |
| 3   | 3-352-433-01  | SPRING                        |         |
| 4   | 3-352-437-01  | SPRING (SP)                   |         |
| 5   | 3-320-982-01  | (TCM-73)...STRAP, HAND        |         |
| 6   | 3-355-369-01  | (TCM-71)...CABINET (A)        |         |
|     | 3-355-369-21  | (TCM-73)...CABINET (A)        |         |
| 7   | 3-320-976-01  | CLAW, ERASE SAFETY            |         |
| 8   | ★3-352-471-01 | CUSHION (A)                   |         |
| 9   | 3-320-977-01  | SPRING                        |         |
| 10  | X-3328-399-1  | (TCM-71)...LID ASSY, CASSETTE |         |
|     | X-3328-401-1  | (TCM-73)...LID ASSY, CASSETTE |         |

| No.    | Part No.      | Description                       | Remarks |
|--------|---------------|-----------------------------------|---------|
| 11     | 3-320-975-01  | CUSHION (A), MICROPHONE           |         |
| 12     | *3-352-434-01 | HOLDER (A), MIC                   |         |
| 13     | *3-318-389-01 | SHEET, CONDUCTIVE, CABINET (REAR) |         |
| 14     | A-3046-076-A  | LID ASSY, BATTERY CASE            |         |
| 15     | 3-352-443-01  | CABINET (B)                       |         |
| 16     | 3-335-640-51  | SCREW (M2X16)                     |         |
| 17     | 3-352-432-01  | KNOB, PAUSE                       |         |
| 18     | 3-578-101-11  | PLATE, ORNAMENTAL                 |         |
| MIC901 | 1-542-080-11  | MICROPHONE, BUILT-IN              |         |
| SP901  | 1-503-830-11  | SPEAKER                           |         |

5-2. MD (MT-71-13 : TCM-71)  
(MT-73-13 : TCM-73)



| No. | Part No.      | Description                           | Remarks |
|-----|---------------|---------------------------------------|---------|
| 51  | 3-342-031-01  | SPRING, TENSION                       | 99-101  |
| 52  | *3-342-040-01 | PLATE, LOCK                           |         |
| 53  | 3-342-079-11  | BUTTON (FRS)                          |         |
| 54  | 3-320-993-01  | LEVER, FF                             |         |
| 55  | 3-320-992-01  | LEVER, REW                            |         |
| 56  | 3-320-994-01  | LEVER, STOP                           |         |
| 57  | 3-352-446-01  | BUTTON, PLAY                          |         |
| 58  | 3-352-449-01  | LEVER, PLAY                           |         |
| 59  | 3-342-029-01  | SPRING, TENSION (POWER TENSION)       |         |
| 60  | 3-352-445-11  | BUTTON, REC                           |         |
| 61  | 3-320-995-01  | LEVER, REC                            |         |
| 62  | 3-342-032-01  | SPRING, TENSION                       |         |
| 63  | 3-352-473-01  | SCREW (2), TAPPING                    |         |
| 64  | *3-352-467-01 | RETAINER, LEVER                       |         |
| 65  | X-3320-921-1  | PINCH ROLLER ASSY                     |         |
| 66  | 3-352-470-01  | SPRING (P), TORSION                   |         |
| 67  | 3-342-033-01  | SPRING, TENSION                       |         |
| 68  | *3-352-447-01 | BASE (A), HEAD                        |         |
| 69  | 3-352-448-01  | BASE (B), HEAD                        |         |
| 70  | X-3343-311-1  | ARM ASSY, FR                          |         |
| 71  | 3-342-010-01  | ARM, CR                               |         |
| 72  | X-3352-402-1  | CHASSIS ASSY, MECHANICAL              |         |
| 73  | 1-548-582-11  | (TCM-73)...COUNTER, TAPE (SMALL TYPE) |         |
| 74  | 3-342-030-01  | SPRING, COMPRESSION                   |         |
| 75  | 3-342-013-01  | GEAR, S REEL                          |         |
| 76  | 3-342-014-01  | GEAR, T REEL                          |         |
| 77  | 3-352-453-01  | SPRING (GROUND)                       |         |

| No.    | Part No.     | Description                     | Remarks |
|--------|--------------|---------------------------------|---------|
| 78     | 3-352-476-01 | SHEET (MOTOR)                   |         |
| 79     | 3-352-451-01 | SPRING, TENSION (POWER TENSION) |         |
| 80     | 3-342-024-01 | SPRING                          |         |
| 81     | 3-342-055-01 | WASHER, T REEL                  |         |
| 82     | 3-321-483-11 | RING, RETAINING                 |         |
| 83     | 3-342-050-11 | RUBBER (A), VIBRATION PROOF     |         |
| 84     | 3-342-075-01 | SPACER, MOTOR                   |         |
| 85     | 3-318-254-11 | CUSHION, MOTOR                  |         |
| 86     | 3-342-076-01 | SCREW (M2), PRECISION STEP      |         |
| 87     | 9-911-839-XX | CUSHION (A) (t=1)               |         |
| 88     | X-3320-918-1 | PLATE ASSY, REEL, TAKE-UP       |         |
| 89     | 3-480-136-00 | BELT                            |         |
| 90     | 3-342-011-01 | LEVER (A), SHUT-OFF             |         |
| 91     | 3-342-012-01 | LEVER (B), SHUT-OFF             |         |
| 92     | 3-342-034-01 | SPRING, COMPRESSION             |         |
| 93     | X-3320-919-1 | ARM ASSY, IDLER                 |         |
| 94     | X-3320-916-1 | FLYWHEEL (PA) ASSY              |         |
| 95     | 3-342-035-01 | SPRING (FR)                     |         |
| 96     | 3-480-136-00 | BELT (MIDWAY PULLEY)            |         |
| 97     | 3-554-103-00 | (TCM-73)...BELT, DRIVING        |         |
| 98     | 3-320-999-11 | (TCM-73)...PULLEY (COUNTER)     |         |
| 99     | 3-320-989-11 | BUTTON, STOP                    |         |
| 100    | 3-320-987-11 | BUTTON, REW                     |         |
| 101    | 3-320-988-11 | BUTTON, FF                      |         |
| HE901  | 8-825-771-21 | HEAD, ERASE EBF5-36C            |         |
| HRP901 | 1-543-607-11 | HEAD, MAGNETIC (REC/PB)         |         |
| M901   | X-3320-925-2 | MOTOR ASSY                      |         |
| S103   | 1-570-549-21 | SWITCH, LEAF (POWER)            |         |

## 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:  $\mu$ 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...

| Ref.No. | Part No.      | Description                     |     |      |      |  | Ref.No. | Part No.     | Description                       |      |      |       |  |
|---------|---------------|---------------------------------|-----|------|------|--|---------|--------------|-----------------------------------|------|------|-------|--|
| 904     | *1-563-470-11 | HOUSING, CONNECTOR 2P           |     |      |      |  | JR6     | 1-216-295-00 | METAL GLAZE                       | 0    | 5%   | 1/10W |  |
| C101    | 1-126-160-11  | ELECT 1MF                       | 20% | 50V  |      |  | JR8     | 1-216-295-00 | METAL GLAZE                       | 0    | 5%   | 1/10W |  |
| C102    | 1-126-160-11  | ELECT 1MF                       | 20% | 50V  |      |  | JR9     | 1-216-295-00 | METAL GLAZE                       | 0    | 5%   | 1/10W |  |
| C103    | 1-163-111-00  | CERAMIC CHIP 56PF               | 5%  | 50V  |      |  | JR10    | 1-216-295-00 | METAL GLAZE                       | 0    | 5%   | 1/10W |  |
| C104    | 1-163-009-11  | CERAMIC CHIP 0.001MF            |     | 50V  |      |  | JR11    | 1-216-295-00 | METAL GLAZE                       | 0    | 5%   | 1/10W |  |
| C105    | 1-126-157-11  | ELECT 10MF                      | 20% | 16V  |      |  | JR13    | 1-216-296-00 | METAL GLAZE                       | 0    | 5%   | 1/8W  |  |
| C106    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | JR14    | 1-216-296-00 | METAL GLAZE                       | 0    | 5%   | 1/8W  |  |
| C107    | 1-124-434-00  | ELECT 220MF                     | 20% | 4V   |      |  | JR15    | 1-216-296-00 | METAL GLAZE                       | 0    | 5%   | 1/8W  |  |
| C108    | 1-124-434-00  | ELECT 220MF                     | 20% | 4V   |      |  | JR17    | 1-216-296-00 | METAL GLAZE                       | 0    | 5%   | 1/8W  |  |
| C109    | 1-126-094-11  | ELECT 4.7MF                     | 20% | 16V  |      |  | JR18    | 1-216-296-00 | METAL GLAZE                       | 0    | 5%   | 1/8W  |  |
| C110    | 1-163-007-11  | CERAMIC CHIP 680PF              | 10% | 50V  |      |  | M901    | X-3320-925-2 | MOTOR ASSY                        |      |      |       |  |
| C111    | 1-163-034-00  | CERAMIC CHIP 0.033MF            |     | 50V  |      |  | MIC901  | 1-542-080-11 | MICROPHONE, BUILT-IN              |      |      |       |  |
| C112    | 1-164-232-11  | CERAMIC CHIP 0.01MF             | 10% | 50V  |      |  | Q101    | 8-729-100-66 | TRANSISTOR 2SC1623                |      |      |       |  |
| C113    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | Q102    | 8-729-100-66 | TRANSISTOR 2SC1623                |      |      |       |  |
| C114    | 1-124-434-00  | ELECT 220MF                     | 20% | 4V   |      |  | R102    | 1-249-441-11 | CARBON 100K                       | 5%   | 1/4W |       |  |
| C115    | 1-162-638-11  | CERAMIC CHIP 1MF                |     | 16V  |      |  | R103    | 1-216-212-00 | METAL GLAZE                       | 3.9K | 5%   | 1/8W  |  |
| C116    | 1-126-153-11  | ELECT 22MF                      | 20% | 6.3V |      |  | R104    | 1-249-438-11 | CARBON 56K                        | 5%   | 1/4W |       |  |
| C118    | 1-126-094-11  | ELECT 4.7MF                     | 20% | 16V  |      |  | R105    | 1-249-438-11 | CARBON 56K                        | 5%   | 1/4W |       |  |
| C119    | 1-163-017-00  | CERAMIC CHIP 0.0047MF           | 10% | 50V  |      |  | R106    | 1-249-418-11 | CARBON 1.2K                       | 5%   | 1/4W |       |  |
| C127    | 1-163-009-11  | CERAMIC CHIP 0.001MF            |     | 50V  |      |  | R107    | 1-249-434-11 | CARBON 27K                        | 5%   | 1/4W |       |  |
| C128    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | R108    | 1-249-430-11 | CARBON 12K                        | 5%   | 1/4W |       |  |
| C129    | 1-163-009-11  | CERAMIC CHIP 0.001MF            |     | 50V  |      |  | R109    | 1-249-425-11 | CARBON 4.7K                       | 5%   | 1/4W |       |  |
| C130    | 1-124-434-00  | ELECT 220MF                     | 20% | 4V   |      |  | R110    | 1-249-409-11 | CARBON 220                        | 5%   | 1/4W |       |  |
| C131    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | R111    | 1-249-409-11 | CARBON 220                        | 5%   | 1/4W |       |  |
| C132    | 1-163-009-11  | CERAMIC CHIP 0.001MF            |     | 50V  |      |  | R112    | 1-216-009-00 | METAL GLAZE                       | 22   | 5%   | 1/10W |  |
| C133    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | R113    | 1-216-033-00 | METAL GLAZE                       | 220  | 5%   | 1/10W |  |
| C134    | 1-163-005-11  | CERAMIC CHIP 470PF              | 10% | 50V  |      |  | R114    | 1-216-308-00 | METAL GLAZE                       | 4.7  | 5%   | 1/10W |  |
| C501    | 1-124-438-00  | ELECT 1MF                       | 20% | 50V  |      |  | R115    | 1-216-011-00 | METAL GLAZE                       | 27   | 5%   | 1/10W |  |
| C502    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | R116    | 1-216-025-00 | METAL GLAZE                       | 100  | 5%   | 1/10W |  |
| C503    | 1-163-038-00  | CERAMIC CHIP 0.1MF              |     | 25V  |      |  | R119    | 1-249-429-11 | CARBON 10K                        | 5%   | 1/4W |       |  |
| C601    | 1-124-438-00  | ELECT 1MF                       | 20% | 50V  |      |  | R120    | 1-249-423-11 | CARBON 3.3K                       | 5%   | 1/4W |       |  |
| D101    | 8-719-022-21  | DIODE 1T22A                     |     |      |      |  | R501    | 1-249-405-11 | CARBON 100                        | 5%   | 1/4W |       |  |
| D102    | 8-719-022-21  | DIODE 1T22A                     |     |      |      |  | R502    | 1-249-417-11 | CARBON 1K                         | 5%   | 1/4W |       |  |
| HE901   | 8-825-771-21  | HEAD, ERASE EBF5-36C            |     |      |      |  | R602    | 1-249-431-11 | CARBON 15K                        | 5%   | 1/4W |       |  |
| HRP901  | 1-543-607-11  | HEAD, MAGNETIC (REC/PB)         |     |      |      |  | R603    | 1-249-434-11 | CARBON 27K                        | 5%   | 1/4W |       |  |
| IC101   | 8-759-701-54  | IC NJM2073D                     |     |      |      |  | R604    | 1-249-428-11 | CARBON 8.2K                       | 5%   | 1/4W |       |  |
| IC601   | 8-759-801-12  | IC LA5523                       |     |      |      |  | RV101   | 1-237-771-11 | RES, VAR, CARBON 50K (VOLUME)     |      |      |       |  |
| J101    | 1-566-740-11  | JACK (EAR)                      |     |      |      |  | RV601   | 1-237-278-11 | RES, ADJ, CARBON 10K (TAPE SPEED) |      |      |       |  |
| J102    | 1-568-228-11  | JACK, EXTERNAL POWER (DC IN 3V) |     |      |      |  | S101    | 1-571-151-11 | SWITCH, SLIDE (REC/PB)            |      |      |       |  |
| JR1     | 1-216-296-00  | METAL GLAZE                     | 0   | 5%   | 1/8W |  | S103    | 1-570-549-21 | SWITCH, LEAF (POWER)              |      |      |       |  |
| JR2     | 1-216-296-00  | METAL GLAZE                     | 0   | 5%   | 1/8W |  | S601    | 1-570-675-11 | SWITCH, SLIDE (PAUSE)             |      |      |       |  |
| JR4     | 1-216-296-00  | METAL GLAZE                     | 0   | 5%   | 1/8W |  | SP901   | 1-503-830-11 | SPEAKER                           |      |      |       |  |

| Ref.No. | Part No.      | Description                  |
|---------|---------------|------------------------------|
| TH601   | 1-808-980-11  | THERMISTOR                   |
| THP601  | 1-808-272-11  | THERMISTOR, POSITIVE (120)   |
| WI03    | *1-506-984-11 | PIN, CONNECTOR (PC BOARD) 2P |
| WI04    | *1-506-984-11 | PIN, CONNECTOR (PC BOARD) 2P |
| WI05    | *1-506-984-11 | PIN, CONNECTOR (PC BOARD) 2P |
| WI06    | *1-506-984-11 | PIN, CONNECTOR (PC BOARD) 2P |

ACCESSORY & PACKING MATERIAL

|               |                                                                          |
|---------------|--------------------------------------------------------------------------|
| 3-351-508-01  | TUBE, PROTECTION                                                         |
| *3-355-350-01 | (EXCEPT US)...CUSHION                                                    |
| *3-355-352-01 | (TCM-71:E)...INDIVIDUAL CARTON                                           |
| *3-355-356-01 | (TCM-73).....INDIVIDUAL CARTON                                           |
| 3-751-512-11  | (EXCEPT US)...MANUAL, INSTRUCTION<br>(ENGLISH,FRENCH,SPANISH,PORTUGUESE) |
| 3-751-512-21  | (US)....MANUAL, INSTRUCTION(ENGLISH)                                     |
| 3-751-512-41  | (AEP)...MANUAL, INSTRUCTION<br>(GERMAN,DUTCH,SWEDISH,ITALIAN)            |