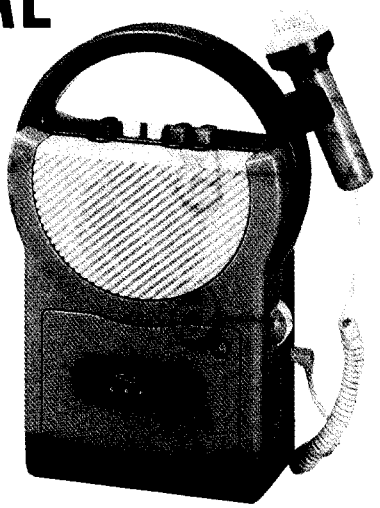
# TCM-4500

# SERVICE MANUAL



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

| Model Name Using Similar Mechanism | New |
|---|---|
| Tape Transport Mechanism Type | MT-4500 |

## SPECIFICATIONS

| | |
|---|---|
| Tape track | Compact cassette monaural |
| Frequency response | 100—6,300Hz |
| Speaker | Approx. 9.2cm ($3^{5}/_{8}$inches) dia |
| Power output (DC) | 500mW |
| Power requirements | 6V DC, four size C (IEC designation R14) batteries |

Battery life (hours)

| Batteries | Playback | Recording |
|---|---|---|
| Sony New Super SUM-2 (NS) | Approx. 10 | Approx. 16 |
| Sony alkaline AM2 (N) | Approx. 18 | Approx. 25 |

| | |
|---|---|
| Dimensions | Approx. 221×307×97mm (w/h/d) ($8^{3}/_{4}$×$12^{1}/_{8}$×$3^{7}/_{8}$ inches) incl. projection parts and controls |
| Weight | Approx. 1.3kg (45.9oz) incl. batteries. |
| Supplied Accessories | MIC |

Design and specifications subject to change without notice.

**Note on the AC power adaptor**
To use an AC power adaptor not made by Sony, the polarity of the plug must be as shown.

Polarity of the plug

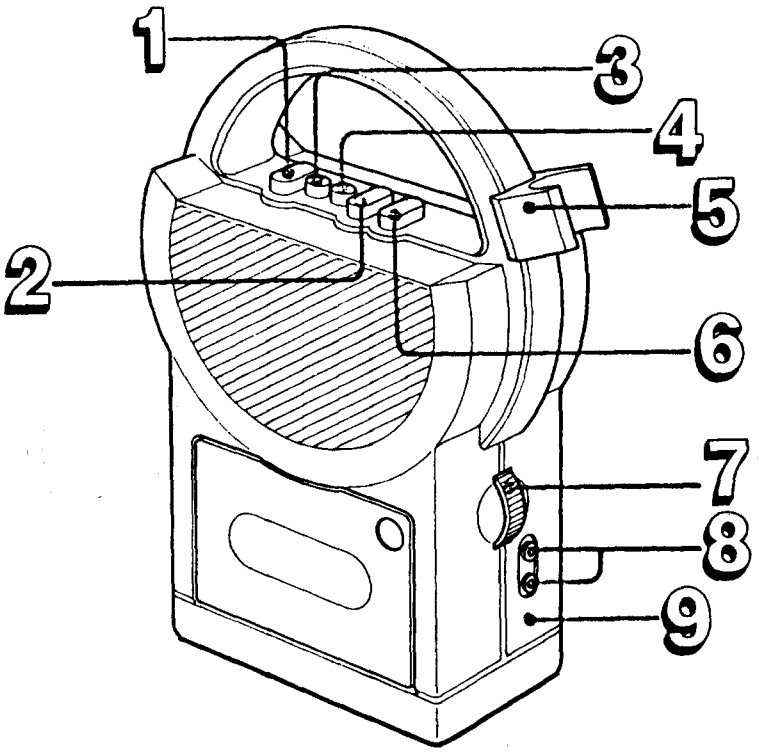
MICROFILM

CASSETTE RECORDER

SONY®

# SECTION 1
# GENERAL

## Parts Identification




1 ■ STOP/EJECT button
2 ◄ PLAY button
3 ◄◄ FF (fast foward) button
4 ►► REW (rewind) button
5 Microphone holder
6 ● REC (record) button
7 VOLUME control
8 MIX MIC 1, MIX MIC 2 Microphone jacks
9 DC IN 6 V jack

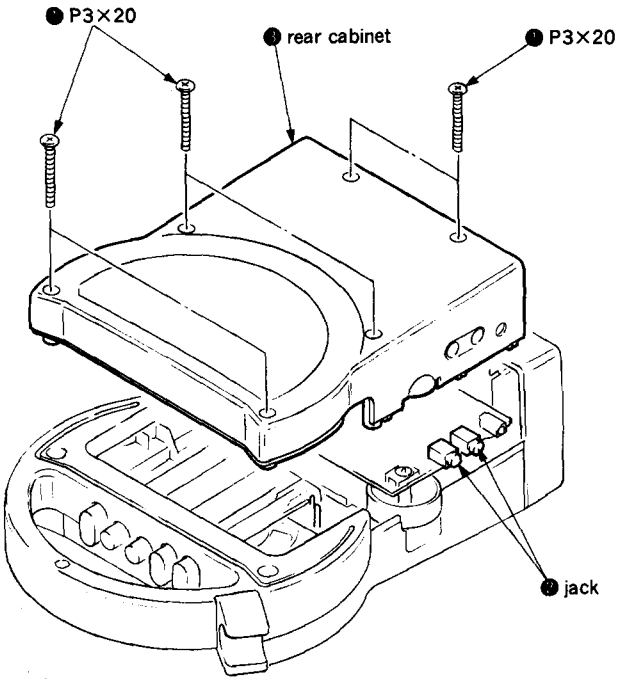
**Note:** At the end of the cassette tape, the PLAY, FF, and REW buttons pop up automatically to prevent the loss of battery.

**Caution**
The unit has sharp edges and corners.

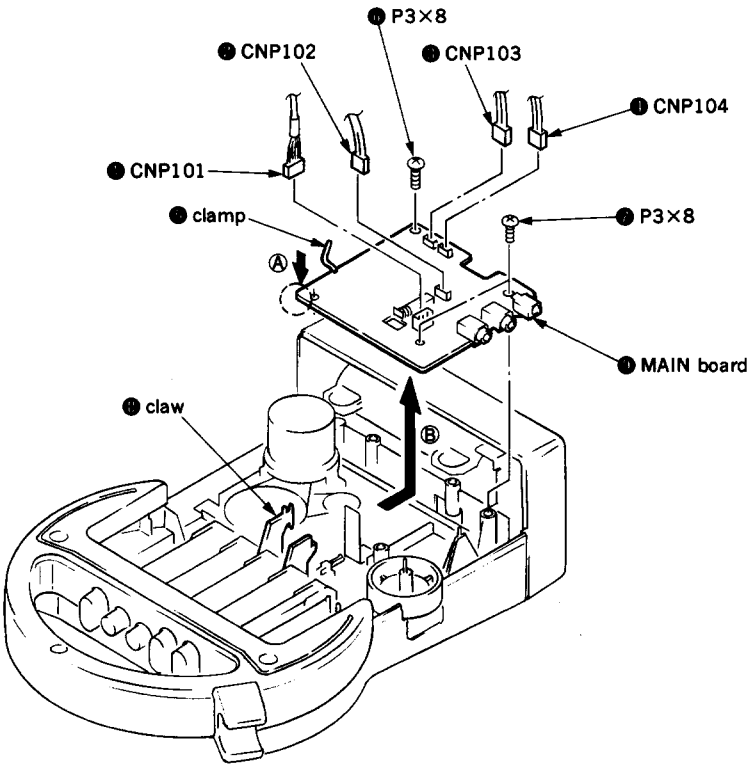
# SECTION 2
# DISASSEMBLY

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

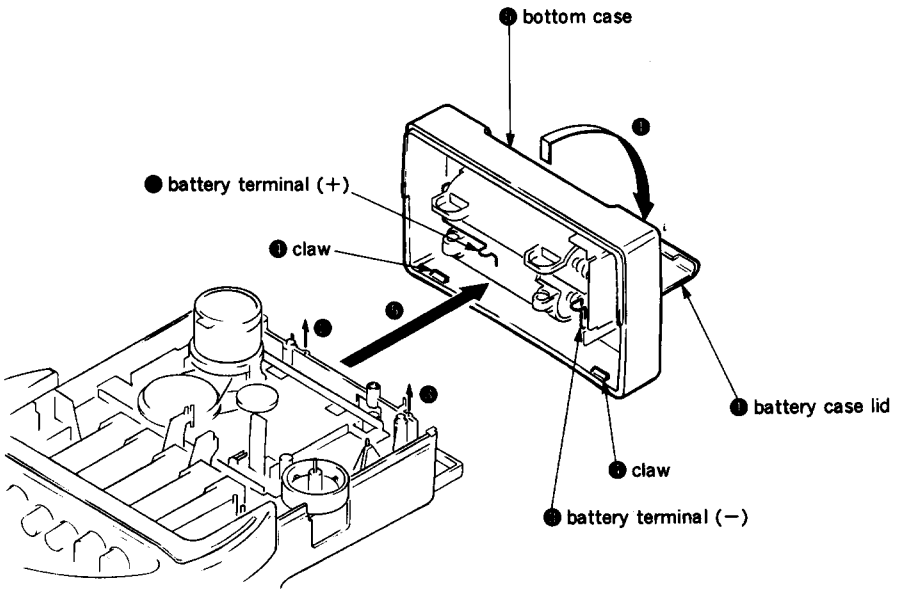
### 2-1. REAR CABINET



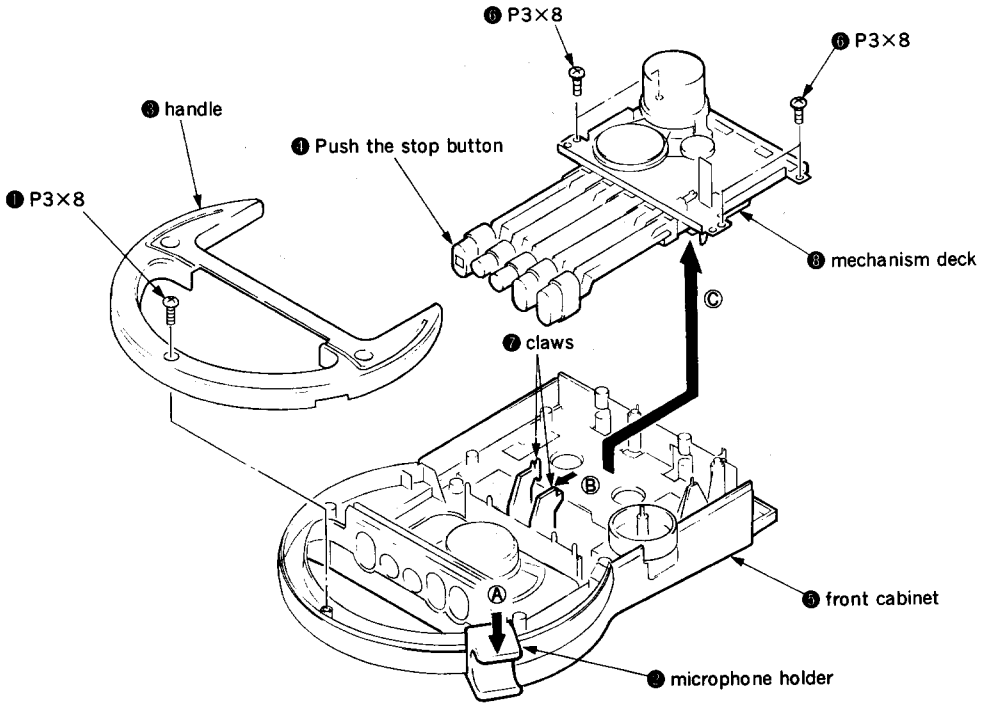
## 2-2. MAIN BOARD




## 2-3. BOTTOM CASE



## 2-4. MECHANISM DECK




# SECTION 3
# MECHANICAL ADJUSTMENTS

### PRECAUTION

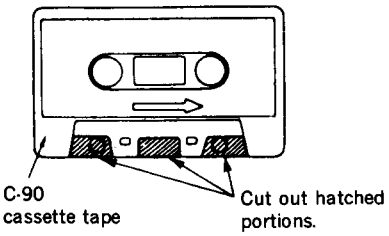
1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback head — pinch roller
   erase head — rubber belts
   capstan — idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be perfomed with the rated power supply voltage (6V DC) unless otherwise noted.

### Torque Measurement

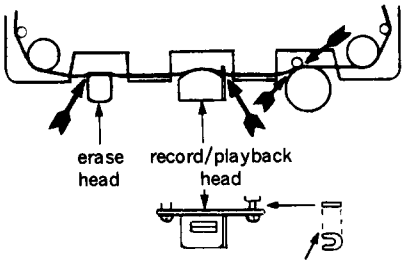
| Mode | Mater Reading | Torque Meter |
|---|---|---|
| Forward | 30−60g•cm (0.42−0.83 oz•inch) | CQ-102C |
| Fast Forward Rewind | 55−140g•cm (0.76−1.94 oz•inch) | CQ-201B |
| Back Tension | 1−5g•cm (0.01−0.07 oz•inch) | CQ-102C |

### Head Height Adjustment

1. Use a mirror cassette CQ-009C (8-909-708-01) or prepare an adjustment cassette as shown below.




2. In record mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrow.




3-578-138-01 (t=0.1)
3-578-138-11 (t=0.2)
3-578-138-21 (t=0.3)
shim (head height adjustment)

# SECTION 4
# ELECTRICAL ADJUSTMENTS

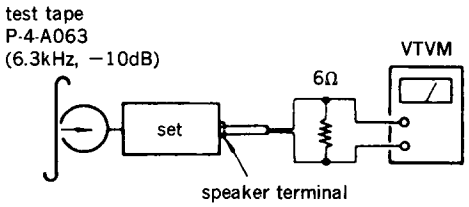
## Test tape

| Type | Signal | Use |
|---|---|---|
| P-4-A063 | 6.3kHz, −10dB | Record/playback Head Azimuth |
| WS-48A | 3kHz, 0dB | Tape Speed |

## Record/playback Head Azimuth Adjustment

**Procedure :**

1. Mode : playback

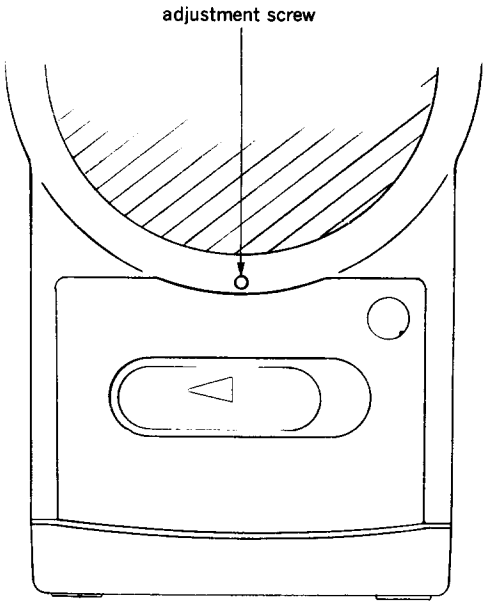



2. Turn the adjustment screw to obtain the maximum reading on VTVM.

**Note :** Several peaks may appears, but take the maximum.

3. After the adjustment, lock the adjustment screw with suitable locking compound.

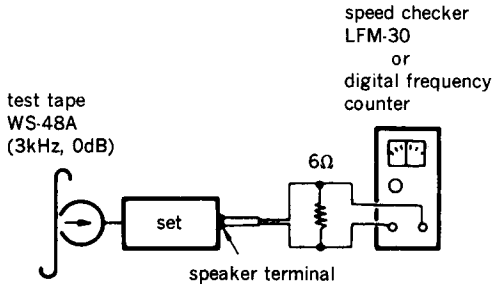
**Adjustment Location :**




## Tape Speed Adjustment

**Procedure :**

1. Mode : playback

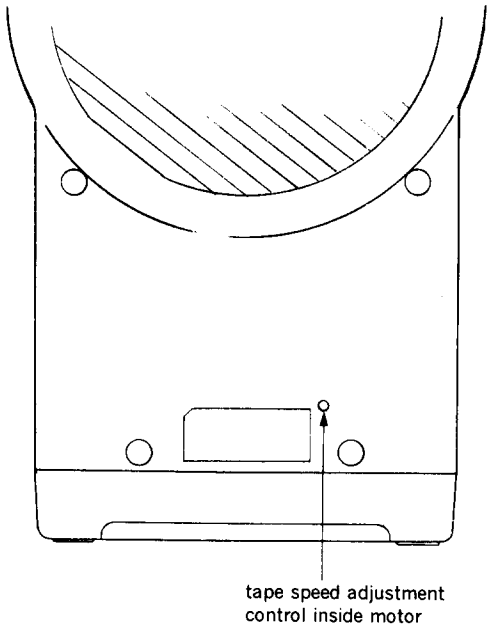



**Specification :**

| Speed checker | Digital frequency counter |
|---|---|
| 3,000Hz±1% | 2,970−3,030Hz |

Adjust at the end of the tape and frequency difference between the beginning and the end of the tape should be within 1.5% (45Hz).

**Adjustment Location :**



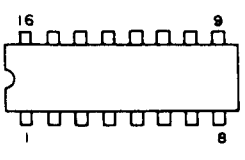
• ○—— : parts extracted from the component side.

## • Semiconductor Location

| Ref. No. | Location |
|---|---|
| D101 | B-2 |
| D102 | B-2 |
| D103 | D-4 |
| IC101 | C-2 |
| Q101 | B-4 |

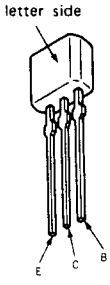
## • Semiconductor Lead Layouts

**TA7628HP**

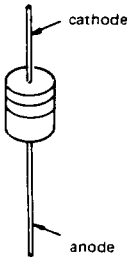



(TOP VIEW)

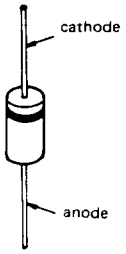
**2SC2785-HFE**



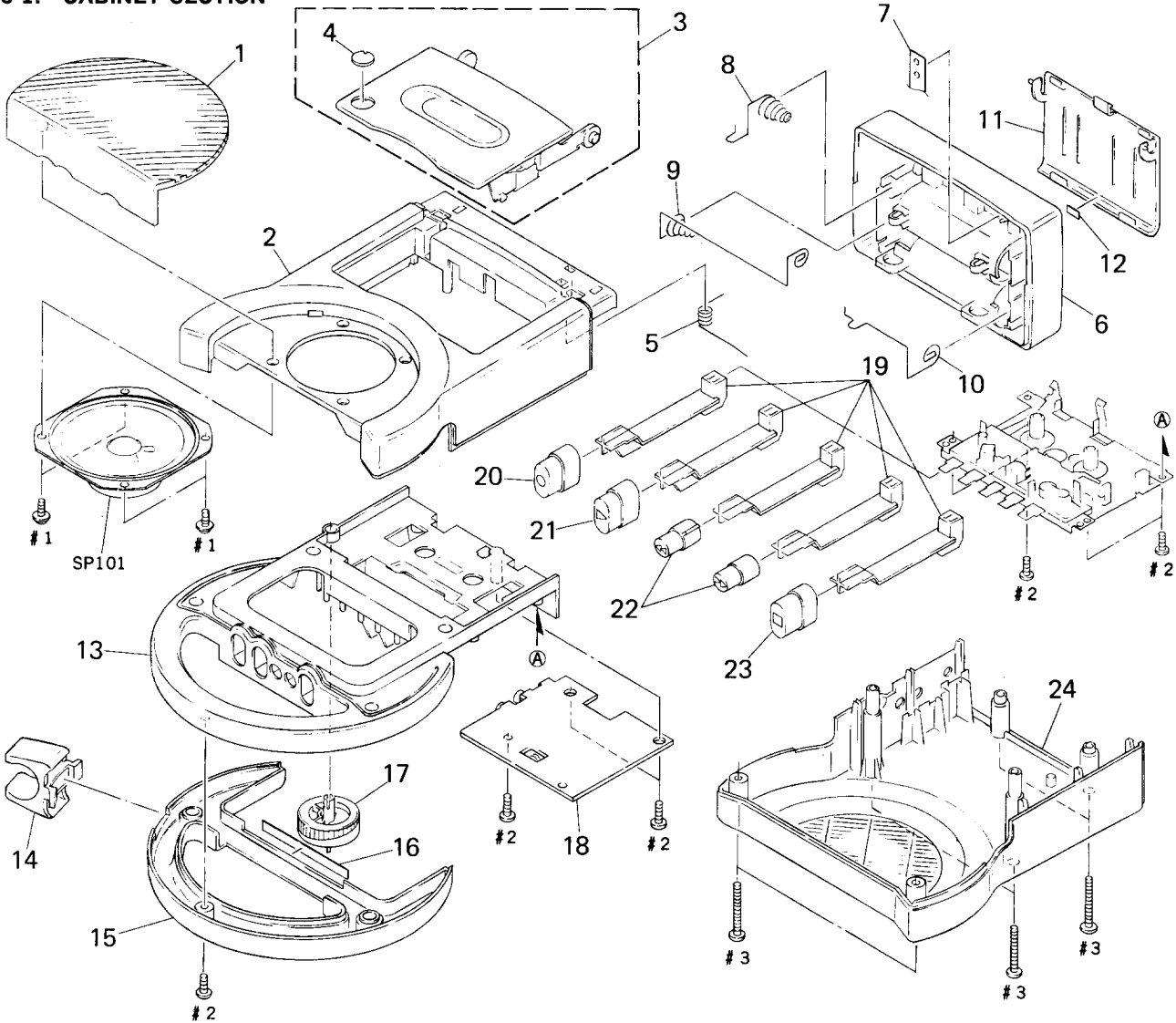

**1SS119**



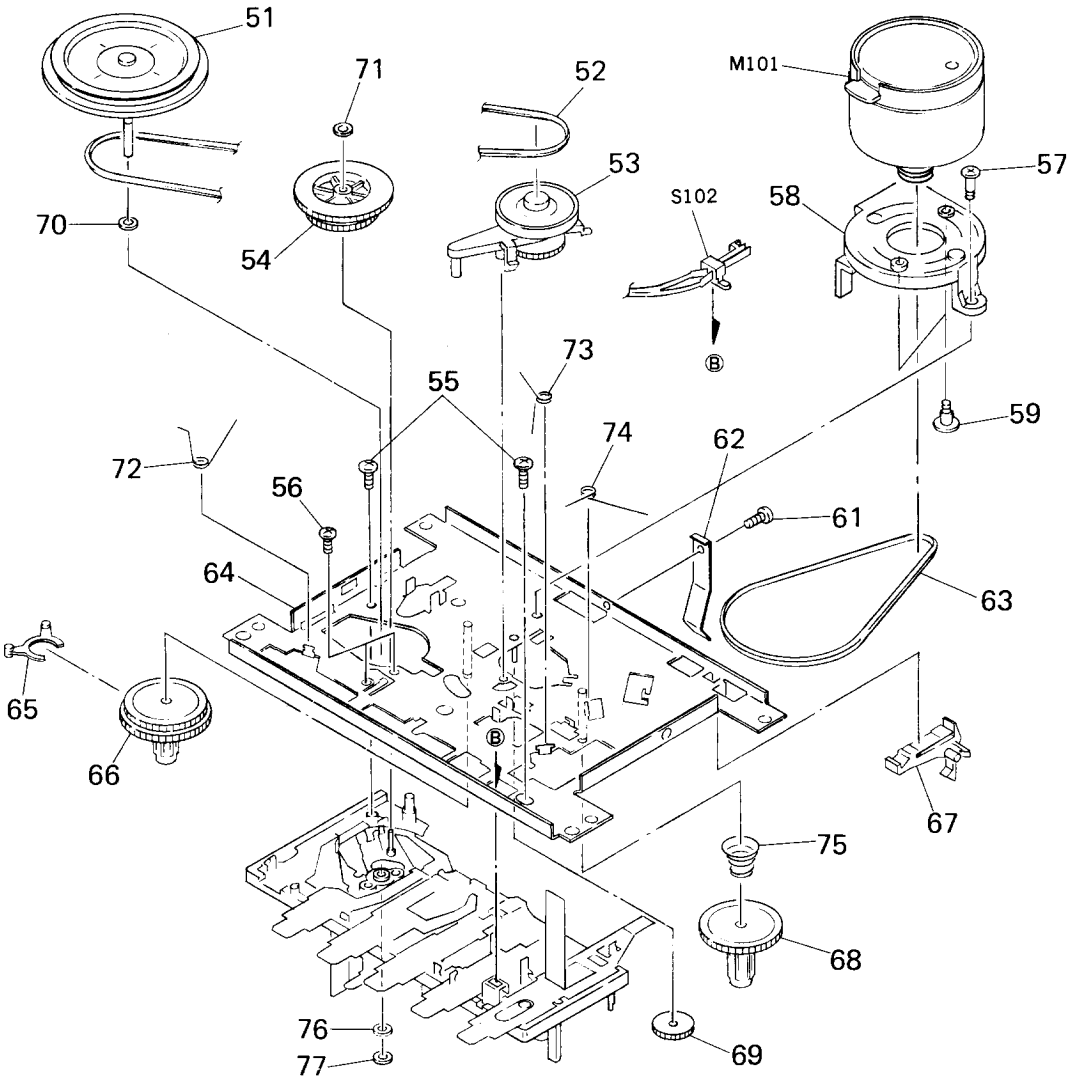

**10E2**



## 6-1. CABINET SECTION



## 6-2. MECHANISM DECK SECTION (1)
## (MT-4500 : TN-21ZVC-880)



## 6-3. MECHANISM DECK SECTION (2)
## (MT-4500 : TN-21ZVC-880)