

# TC-R302

## SERVICE MANUAL

US Model  
Canadian Model  
AEP Model  
UK Model



Free service manuals  
Gratis schema's

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Dolby Laboratories Licensing Corporation.

### SPECIFICATIONS

|                               |             |
|-------------------------------|-------------|
| Tape Transport Mechanism Type | TCM-CMAYB-4 |
|-------------------------------|-------------|

Recording system 4-track 2-channel stereo  
Fast-forward and rewind time

Approx. 100 sec. (with C-60 cassette)

Bias frequency 105 kHz

Signal-to-noise ratio (NAB, at peak level)

| Cassette                | DOLBY NR switch |           |           |
|-------------------------|-----------------|-----------|-----------|
|                         | OFF             | B-TYPE ON | C-TYPE ON |
| TYPE IV (Sony METAL-ES) | 58 dB           | 65 dB     | 71 dB     |
| TYPE II (Sony UCX-S)    | 57 dB           | 64 dB     | 70 dB     |
| TYPE I (Sony HF-S)      | 54 dB           | 61 dB     | 67 dB     |

Total harmonic distortion

1.0% (with Sony METAL-ES cassettes)

Frequency response

DOLBY NR OFF

• With TYPE IV cassette (Sony METAL-ES)

20 - 16,000 Hz

30 - 15,000 Hz ( $\pm 3$  dB)

30 - 13,000 Hz ( $\pm 3$  dB, 0 VU recording)

30 - 15,000 Hz (DIN)

• With TYPE II cassette (Sony UCX-S)

20 - 16,000 Hz

30 - 15,000 Hz ( $\pm 3$  dB)

30 - 15,000 Hz (DIN)

• With TYPE I cassette (Sony HF-S)

20 - 15,000 Hz

30 - 14,000 Hz (DIN)

Wow and flutter

0.07% WRMS (NAB)

$\pm 0.2\%$  (DIN)

Inputs

Microphone inputs (phone jacks)

Sensitivity 0.25 mV ( $-70$  dB)

For a low-impedance microphone

Line inputs (phone jacks)

Sensitivity 77.5 mV ( $-20$  dB)

Input impedance 47 kilohms

Outputs

Line outputs (phono jacks)

Output level 0.44 V ( $-5$  dB) at load impedance

47 kilohms

Load impedance over 10 kilohms

Headphones output (stereo phone jack)

Output level  $-28$  dB at a load impedance of

8 ohms

### General

#### Power requirements

USA and Canada model: 120V ac, 60Hz

UK model: 240V ac, 50/60Hz

AEP model: 220V ac, 50/60 Hz

#### Power consumption

20 Watts

#### Dimensions

Approx. 430 x 105 x 255 mm (w/h/d)

(17 x 4 1/4 x 10 1/8 inches)

including projecting parts and controls

#### Weight

Approx. 3.9 kg (8 lbs 10 oz)

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND 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.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHEMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

STEREO CASSETTE DECK  
**SONY**®

TC



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## MODEL IDENTIFICATION

— Specification Label —



US, Canadian Model: AC: 120 V 60 Hz 20 W  
AEP Model: AC: 220 V ~ 50/60 Hz 20 W  
UK Model: AC: 240 V ~ 50/60 Hz 20 W

## SAFETY CHECK-OUT (US Model)

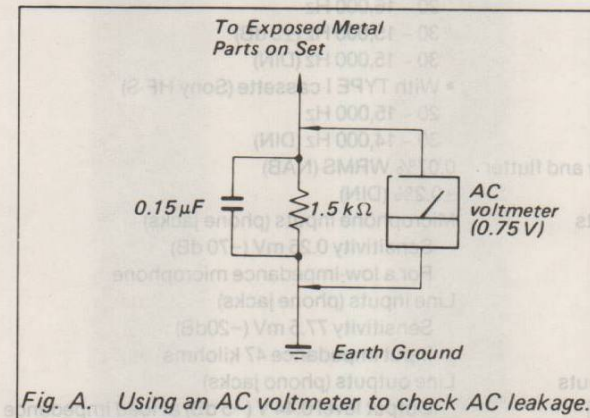
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

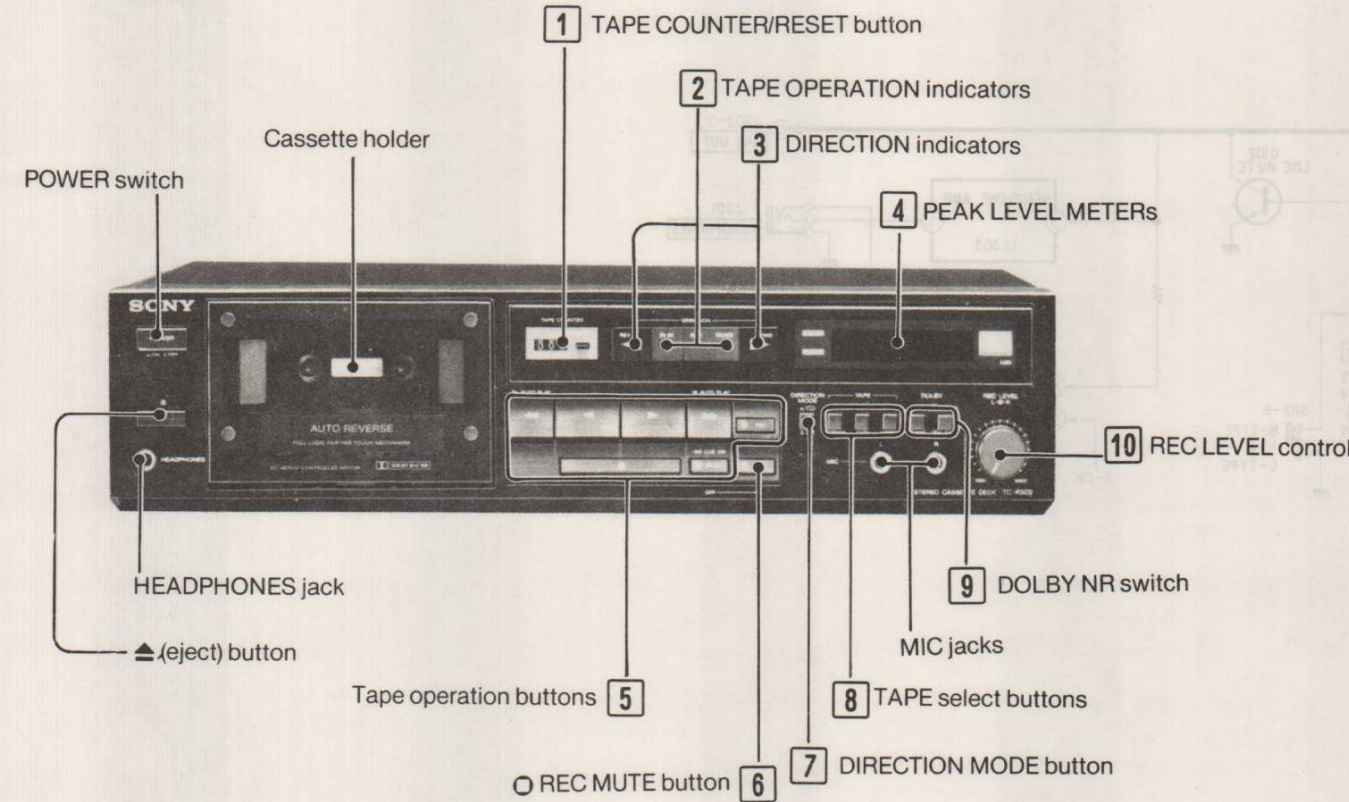
The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

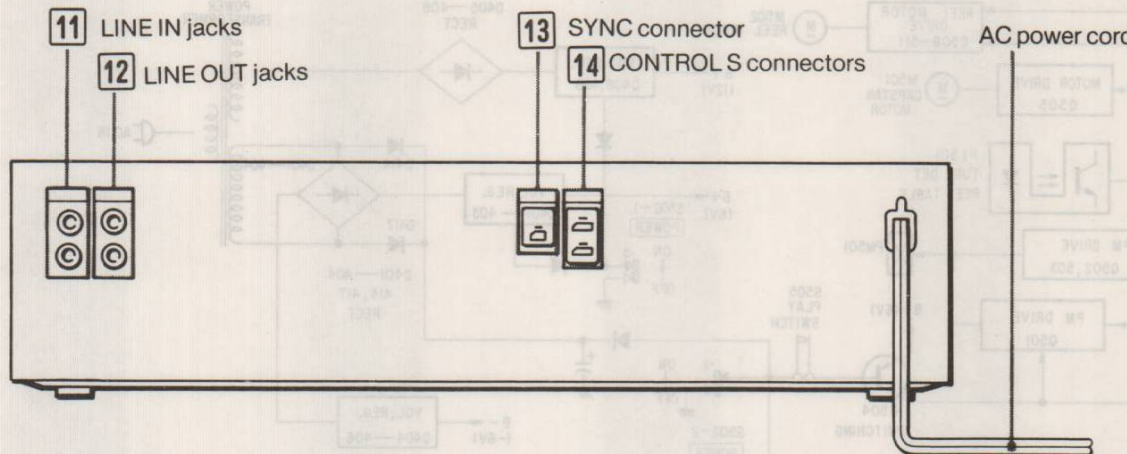


## FUNCTION OF CONTROLS

### FRONT PANEL



### REAR PANEL



### Front panel

#### 1 TAPE COUNTER and RESET button

The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the RESET button.

#### 2 TAPE OPERATION indicators

PLAY, REC, PAUSE

#### 3 DIRECTION indicators

► FWD, ◄ REV

#### 4 PEAK LEVEL METERS

Show the peak input level of each channel during recording, and recorded levels during playback mode.

#### 5 Tape operation buttons

- ◄◄ (fast-reverse) button
- ◄ (reverse play) button
- (forward) button
- (fast-forward) button
- REC (record) button: Keeping this button pressed, press the ► or ◄ button to start recording.
- (stop) button
- || PAUSE button: Press to stop the tape momentarily during recording or playback. To disengage the pause mode, press it again.

#### 6 REC MUTE button

Press to eliminate unwanted material and to insert a blank space during recording.

#### 7 DIRECTION MODE button

- ◄◄ ►► : Press for recording on both sides or repeat playback of both sides of the cassette.
- ◄ ► : Keep released for recording or playback of one side of the cassette.

#### 8 TAPE select buttons

Press to select the type of tape you use.

| Tape type                   | Tapes (C46—C90)                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------|
| TYPE I (NORMAL)             | SONY: HF, EF, CHF, HF-S<br>Other TYPE I equivalent tapes<br>(For 120 μs and NORMAL BIAS)                 |
| TYPE II (CrO <sub>2</sub> ) | SONY: UCX, UCX-S, UX, UX-S, UX-ES, UX-PRO<br>Other TYPE II equivalent tapes<br>(For 70 μs and HIGH BIAS) |
| TYPE IV (METAL)             | SONY: METAL-ES<br>Other TYPE IV equivalent tapes<br>(For 70 μs and METAL BIAS)                           |

#### 9 DOLBY NR switches

Press to record or play back using the Dolby\* NR (Noise Reduction) system.

| Dolby NR system | Switch setting |                 |
|-----------------|----------------|-----------------|
|                 | Left switch    | Right switch    |
| Dolby B         | ▲ ON           | ◻ B-TYPE        |
| Dolby C         | ▲ ON           | ◻ C-TYPE        |
| Dolby OFF       | ◻ OFF          | Either position |

\* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

#### 10 REC LEVEL (recording level) control

Adjust the recording level while referring to the PEAK LEVEL METERS.

### Rear panel

#### 11 LINE IN (line input) jacks (phono jack)

Accept tape outputs from an amplifier for tape recording.

#### 12 LINE OUT (line output) jacks (phono jack)

Accept tape inputs from an amplifier for playing back a tape.

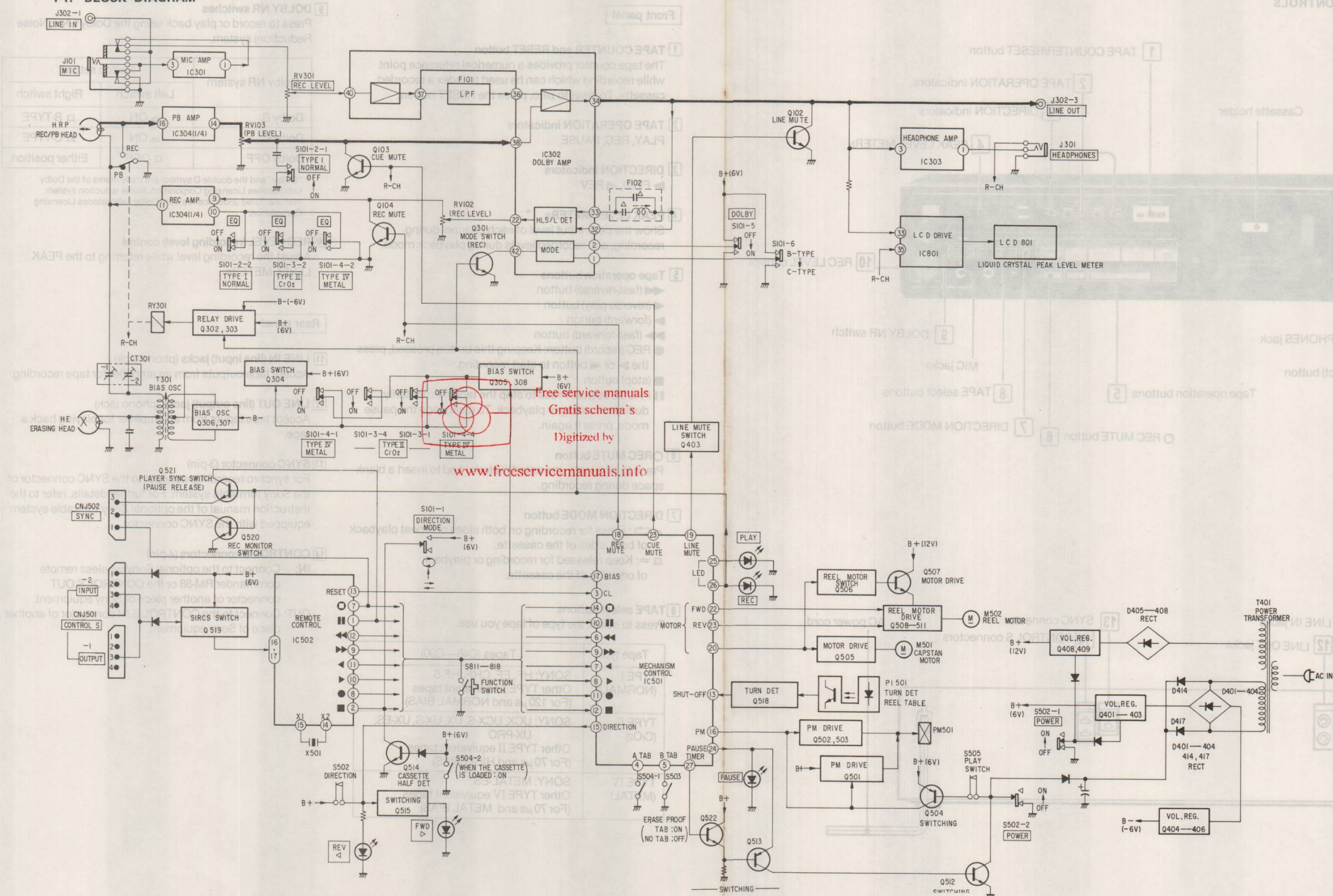
#### 13 SYNC connector (3-pin)

For synchro recording, connect to the SYNC connector of the Sony turntable system. For further details, refer to the instruction manual of the optional Sony turntable system equipped with the SYNC connector.

#### 14 CONTROL S connectors (4-pin)

IN: Connect to the optional Sony wireless remote commander RM-88 or the CONTROL S OUT connector of another piece of Sony equipment.  
OUT: Connect to the CONTROL S IN connector of another piece of Sony equipment.

### 1-1. BLOCK DIAGRAM



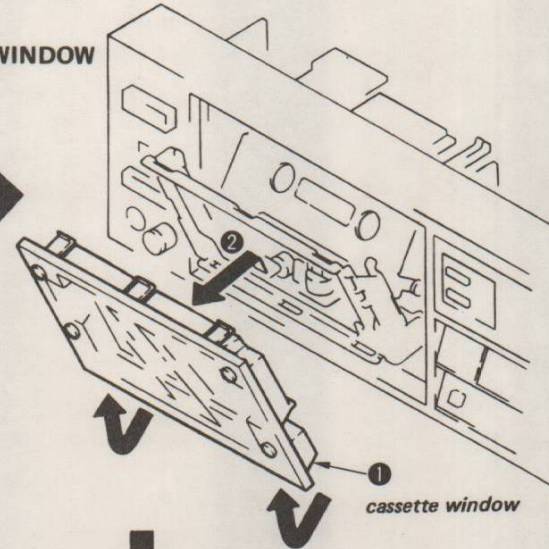
## SECTION 2 DISASSEMBLY

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

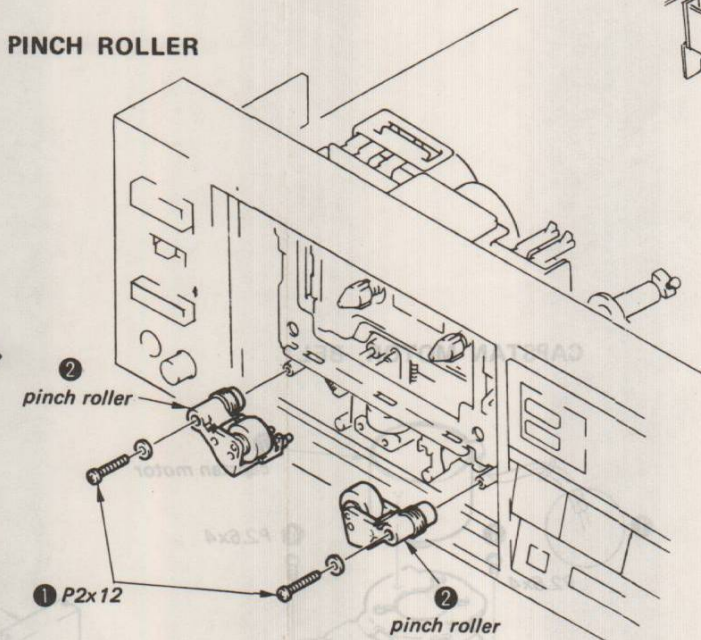
### CASE

Remove four case screws.

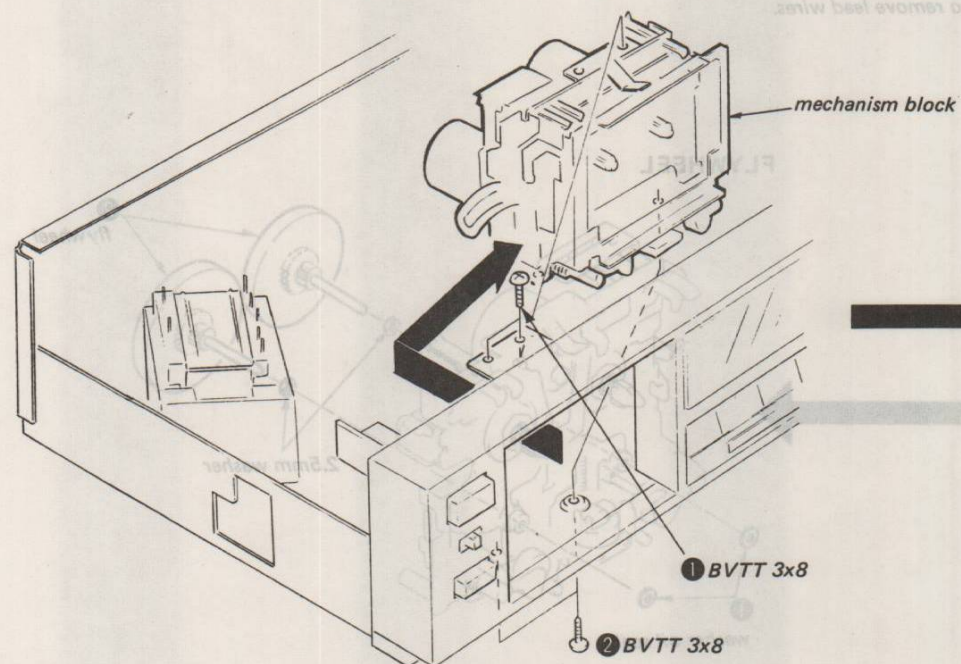
### CASSETTE WINDOW



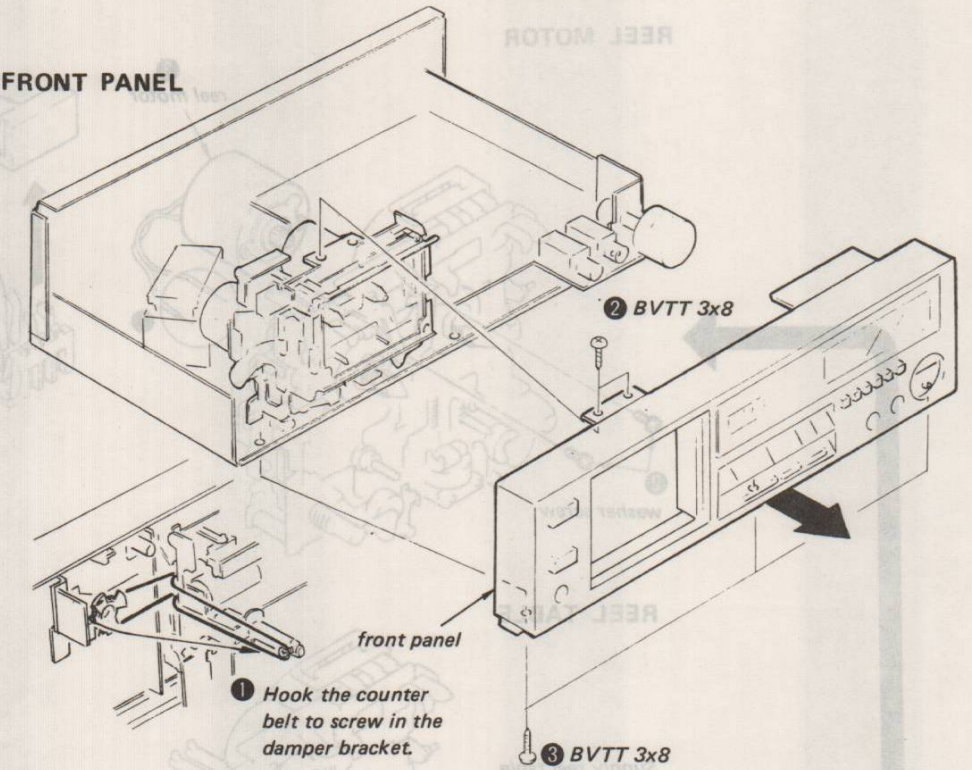
### PINCH ROLLER



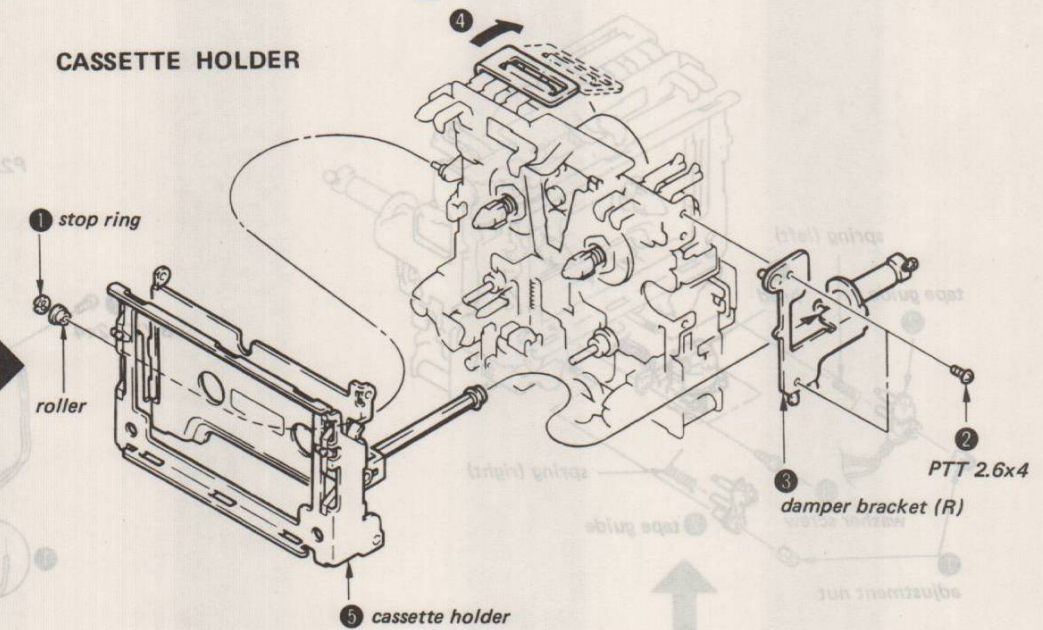
### MECHANISM BLOCK



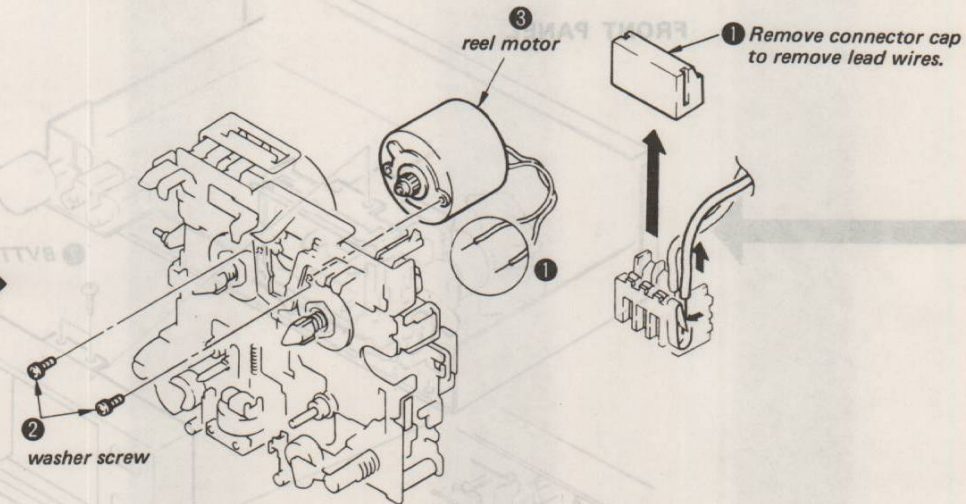
### FRONT PANEL



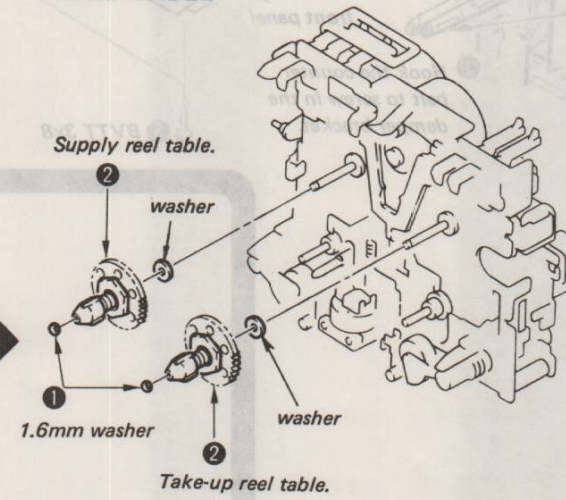
### CASSETTE HOLDER



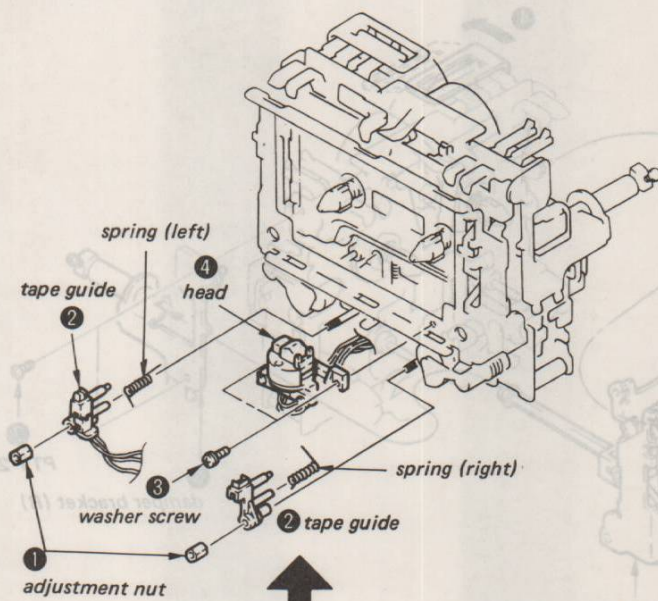
## REEL MOTOR



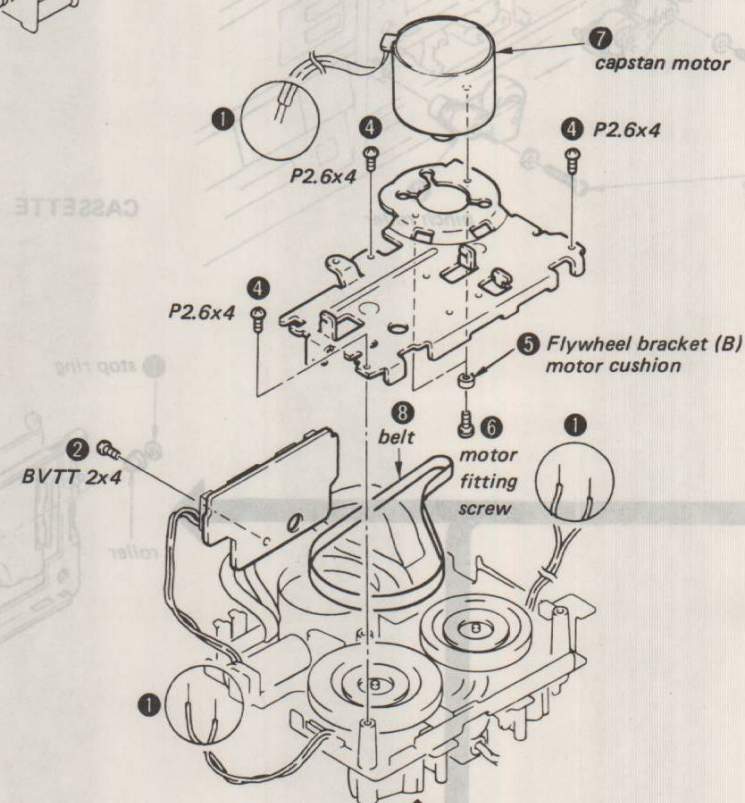
## REEL TABLE



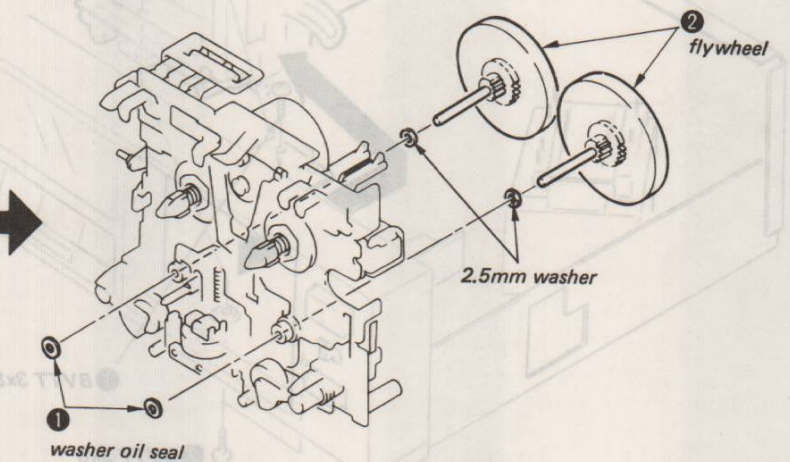
## HEAD



## CAPSTAN MOTOR, BELT



## FLYWHEEL



### SECTION 3 ADJUSTMENTS

#### 3-1. MECHANICAL ADJUSTMENTS

##### PRECAUTION

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

|                      |              |
|----------------------|--------------|
| record/playback head | pinch roller |
| erase head           | rubber belts |
| capstan              | idler        |
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

##### Torque measurement

| Torque        | Torque meter | Meter reading                         |
|---------------|--------------|---------------------------------------|
| FWD Torque    | CQ102C       | 30 – 70 g·cm<br>(0.42 – 0.97 oz·inch) |
| REV Torque    | CQ102RC      | 30 – 70 g·cm<br>(0.42 – 0.97 oz·inch) |
| FF·REW Torque | CQ201B       | 90 – 160 g·cm<br>(1.3 – 2.2 oz·inch)  |

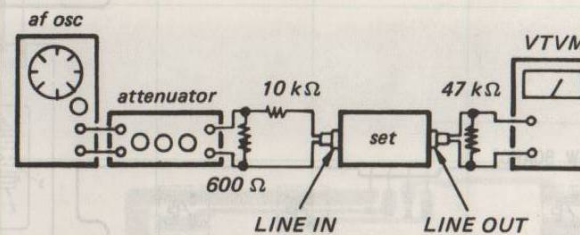
#### 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.  
DOLBY NR switch: OFF  
TIMER switch: OFF

- Standard Record:  
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

##### — Record Mode —



##### Standard Input Level

|                  | LINE IN         |
|------------------|-----------------|
| source impedance | 10 kΩ           |
| input level      | 0.25 V (–10 dB) |

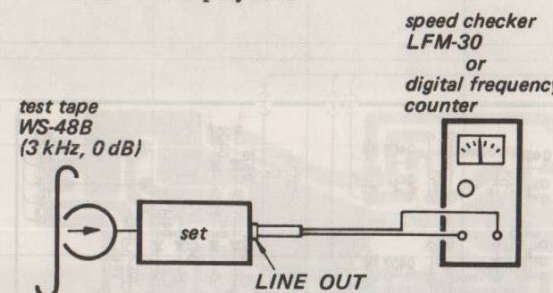
##### Standard Output Level

|                | LINE OUT       |
|----------------|----------------|
| load impedance | 47 kΩ          |
| output level   | 0.44 V (–5 dB) |

#### Tape Speed Adjustment

##### Procedure:

Mode: FWD playback



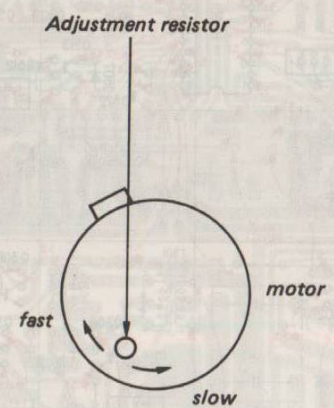
##### Specification:

| Speed checker | Digital frequency counter |
|---------------|---------------------------|
| –1 – +1%      | 2,970 – 3,030 Hz          |

Frequency difference between the beginning and the end of the tape should be within 0.84% (25Hz).

##### Adjustment Location:

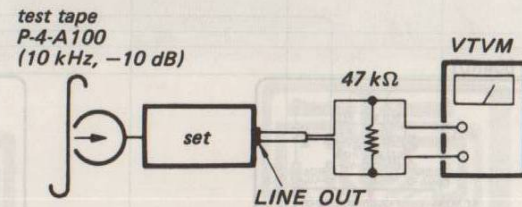
Adjust by using a screwdriver. Turning in the direction of clockwise, speed will be fast.



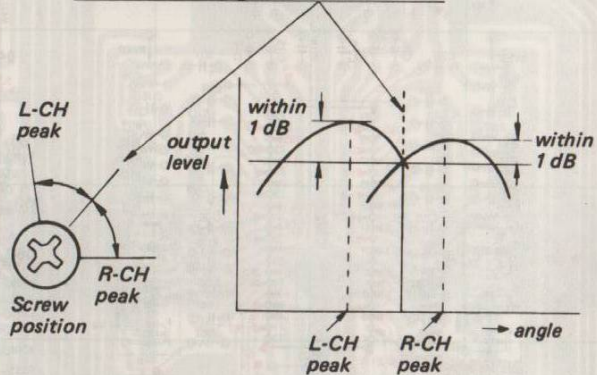
#### Record/Playback Head Azimuth Adjustment

##### Procedure: Adjust both NOR and REV.

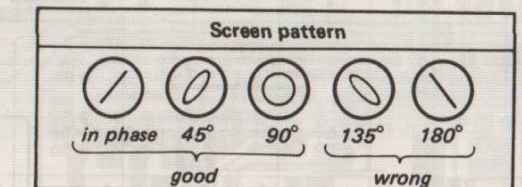
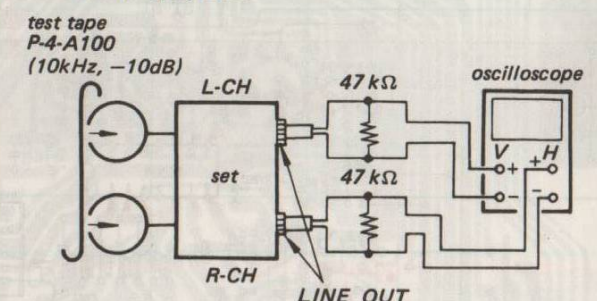
- Mode: playback



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.

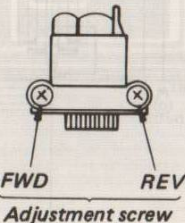


- Phase Check  
Mode: playback



##### Adjustment Location:

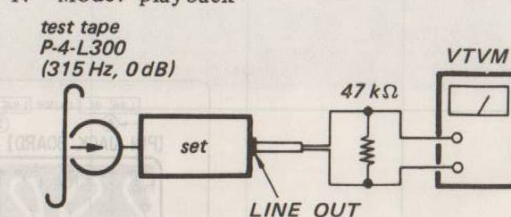
— Record/Playback head —



#### Playback Level adjustment

##### Procedure:

- Mode: playback



Adjust RV103 (L-CH) and RV203 (R-CH) so that the specification is met.

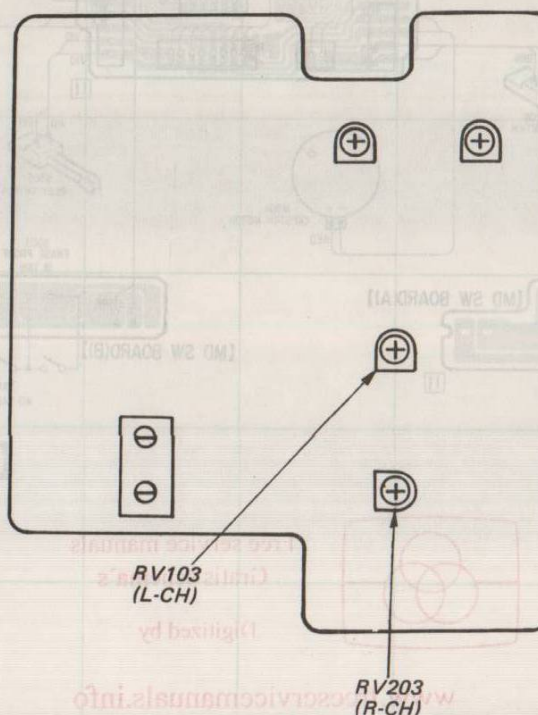
##### Specification:

LINE OUT level: 0.41 to 0.46 V  
(–5.5 to –4.5 dB)

Level difference between channels:  
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

##### Adjustment Location: audio board



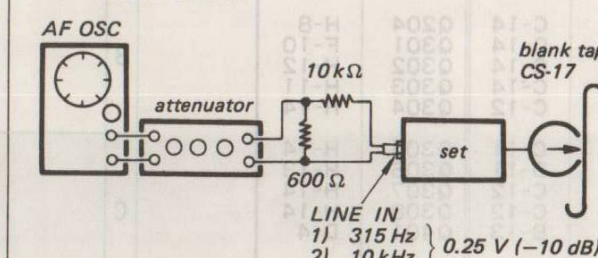
#### Record Bias Adjustment

##### Setting:

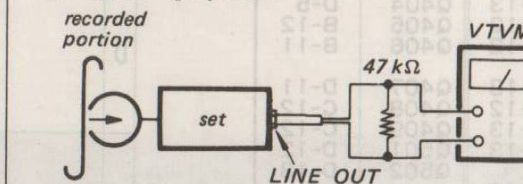
REC LEVEL control: standard record  
(See page 11.)

##### Procedure:

- Mode: record

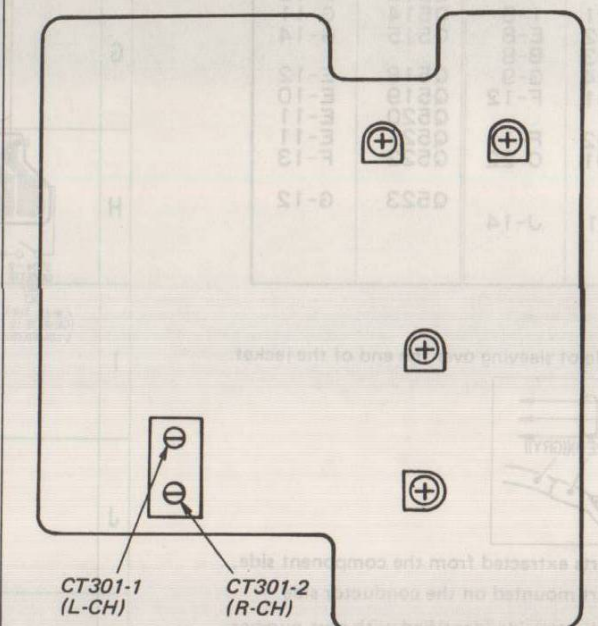


- Mode: playback



Confirm that the 10kHz playback output is 0±0.5 dB relative to the 315 Hz output. If necessary, adjust CT301-1 (L-CH), CT301-2 (R-CH) and repeat the steps given above.

##### Adjustment Location: audio board



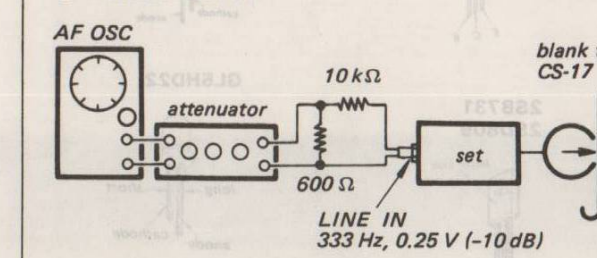
#### Record Level Adjustment

##### Setting:

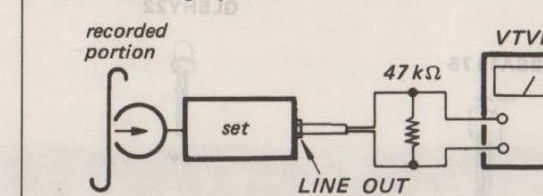
REC LEVEL control: standard record  
(See page 11.)

##### Procedure:

- Mode: record



- Mode: playback



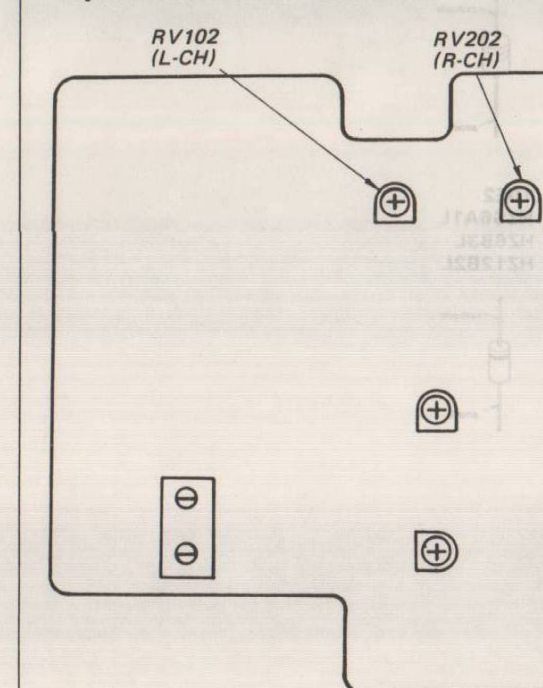
- Playback the signal recorded in step 1.

Confirm that the signal level is within the specification below. If necessary, adjust RV102 (L-CH), RV202 (R-CH) and repeat the step 1-3.

##### Specification:

LINE OUT level: 0.41–0.46 V  
(–5.5 to –4.5 dB)

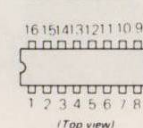
##### Adjustment Location: audio board



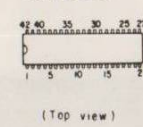
SECTION 4  
DIAGRAMS

## Semiconductor lead layouts

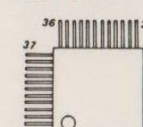
## CX10032A



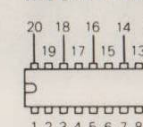
## CX20187



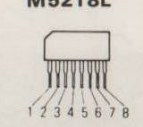
## CXD1017Q



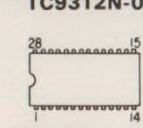
## M50761-417P



## M5218L



## TC9312N-031



## 2SB808

## 2SC634SP

## 2SC120-Y

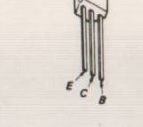
## 2SD1012-F2

## DTA114ES

## DTC114ES

## DTC124ES

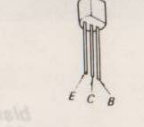
## DTC143TS



## 2SC2001

## 2SC3622A-L

## 2SD1387

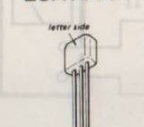


## 2SB731

## 2SD809

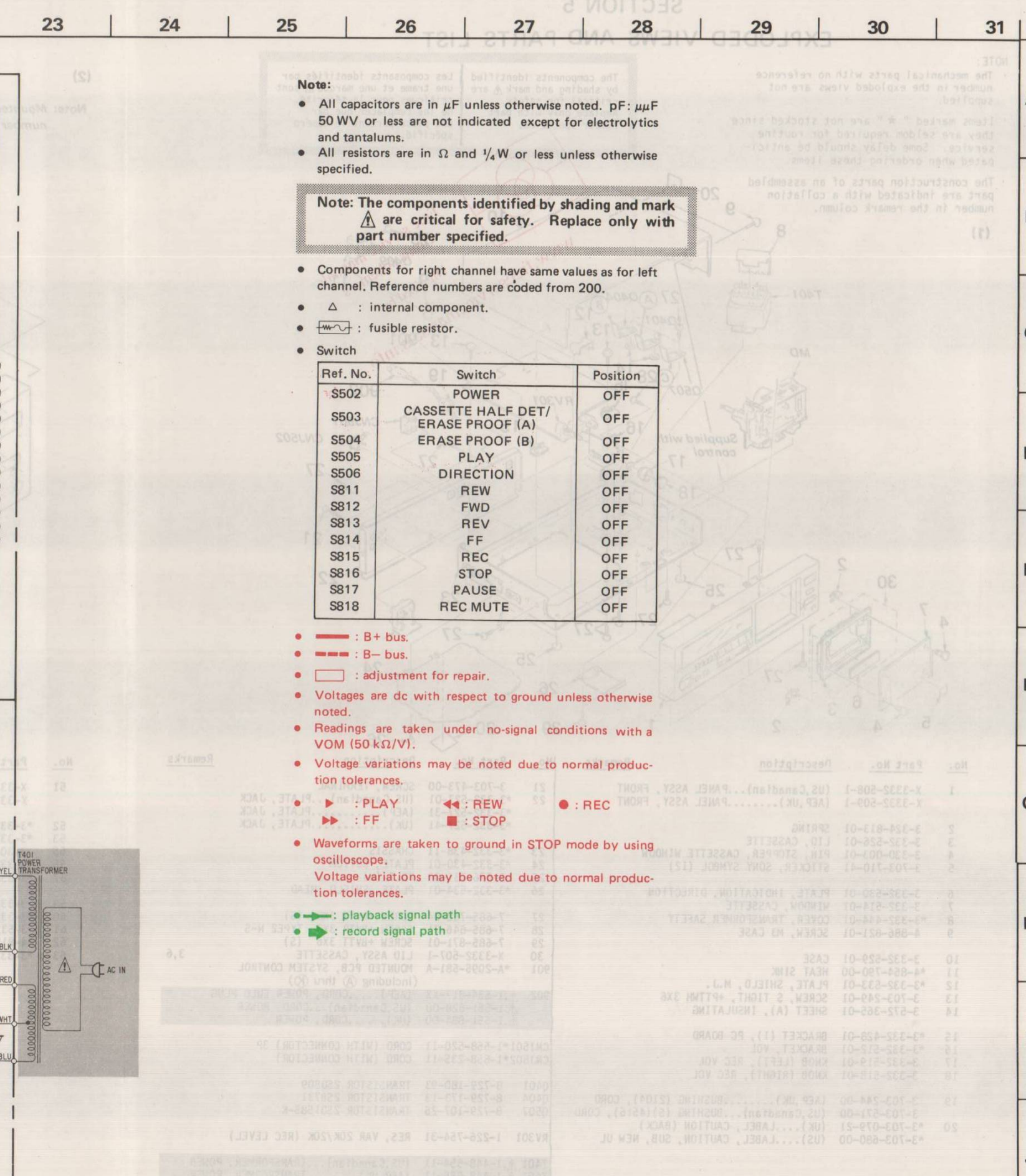


## 2SA1175



## 2SD1585-K







SECTION 6  
ELECTRICAL PARTS LIST

## NOTE:

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 shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## ELECTRICAL PARTS

| Ref.No. | Part No.                                                                | Description                                                                         |
|---------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 901     | *A-2095-581-A                                                           | MOUNTED PCB. SYSTEM CONTROL                                                         |
| 902     | $\Delta$ 1-534-817-XX<br>$\Delta$ 1-551-628-00<br>$\Delta$ 1-561-684-00 | (AEP)...CORD, POWER EULO PLUG<br>(US, Canadian)...CORD, POWER<br>(UK)...CORD, POWER |
| 903     | 1-548-589-31                                                            | COUNTER, TAPE (MIDDLE TYPE)                                                         |
| 904     | *1-618-741-11                                                           | PC BOARD, LCD LEVEL METER                                                           |
| 905     | 1-589-051-11                                                            | BLOCK, PC BOARD                                                                     |
| C101    | 1-124-903-00                                                            | ELECT 1MF 20% 50V                                                                   |
| C102    | 1-162-292-31                                                            | CERAMIC 680PF 10% 50V                                                               |
| C104    | 1-124-903-00                                                            | ELECT 1MF 20% 50V                                                                   |
| C106    | 1-124-907-00                                                            | ELECT 10MF 20% 50V                                                                  |
| C107    | 1-124-907-00                                                            | ELECT 10MF 20% 50V                                                                  |
| C108    | 1-110-203-00                                                            | MYLAR 0.0047MF 5% 50V                                                               |
| C109    | 1-136-173-00                                                            | FILM 0.47MF 5% 50V                                                                  |
| C110    | 1-136-167-00                                                            | FILM 0.15MF 5% 50V                                                                  |
| C111    | 1-136-155-00                                                            | FILM 0.015MF 5% 50V                                                                 |
| C112    | 1-136-169-00                                                            | FILM 0.22MF 5% 50V                                                                  |
| C113    | 1-136-163-00                                                            | FILM 0.068MF 5% 50V                                                                 |
| C114    | 1-136-161-00                                                            | FILM 0.047MF 5% 50V                                                                 |
| C115    | 1-110-205-00                                                            | MYLAR 0.0068MF 5% 50V                                                               |
| C116    | 1-136-153-00                                                            | FILM 0.01MF 5% 50V                                                                  |
| C117    | 1-124-927-11                                                            | ELECT 4.7MF 20% 50V                                                                 |
| C118    | 1-124-902-00                                                            | ELECT 0.47MF 20% 50V                                                                |
| C119    | 1-124-185-00                                                            | ELECT 4.7MF 20% 50V                                                                 |
| C120    | 1-162-289-31                                                            | CERAMIC 390PF 10% 50V                                                               |
| C121    | 1-107-202-00                                                            | MICA 10PF 5% 500V                                                                   |
| C123    | 1-136-157-00                                                            | FILM 0.022MF 5% 50V                                                                 |
| C124    | 1-124-184-00                                                            | ELECT 3.3MF 20% 50V                                                                 |
| C125    | 1-110-203-00                                                            | MYLAR 0.0047MF 5% 50V                                                               |
| C126    | 1-162-289-31                                                            | CERAMIC 390PF 10% 50V                                                               |
| C127    | 1-136-272-00                                                            | FILM 68PF 5% 630V                                                                   |
| C128    | 1-124-185-00                                                            | ELECT 4.7MF 20% 50V                                                                 |
| C129    | 1-123-332-00                                                            | ELECT 47MF 20% 16V                                                                  |
| C130    | 1-124-904-00                                                            | ELECT 2.2MF 20% 50V                                                                 |
| C131    | 1-110-205-00                                                            | MYLAR 0.0068MF 5% 50V                                                               |
| C132    | 1-110-201-00                                                            | MYLAR 0.0033MF 5% 50V                                                               |
| C133    | 1-110-202-00                                                            | MYLAR 0.0039MF 5% 50V                                                               |
| C134    | 1-136-154-00                                                            | FILM 0.012MF 5% 50V                                                                 |
| C135    | 1-110-206-00                                                            | MYLAR 0.0082MF 5% 50V                                                               |
| C136    | 1-162-306-31                                                            | CERAMIC 0.01MF 30% 16V                                                              |
| C301    | 1-124-907-00                                                            | ELECT 10MF 20% 50V                                                                  |
| C302    | 1-124-907-00                                                            | ELECT 10MF 20% 50V                                                                  |
| C303    | 1-124-905-11                                                            | ELECT 3.3MF 20% 50V                                                                 |
| C305    | 1-124-903-00                                                            | ELECT 1MF 20% 50V                                                                   |
| C306    | 1-124-903-00                                                            | ELECT 1MF 20% 50V                                                                   |
| C307    | 1-124-907-00                                                            | ELECT 10MF 20% 50V                                                                  |

## ELECTRICAL PARTS

| Ref.No. | Part No.      | Description                    |
|---------|---------------|--------------------------------|
| C308    | 1-124-927-11  | ELECT 4.7MF 20% 50V            |
| C309    | 1-130-336-00  | FILM 0.0068MF 10% 630V         |
| C310    | 1-130-289-00  | FILM 0.0047MF 5% 100V          |
| C311    | 1-130-285-00  | FILM 0.0033MF 5% 100V          |
| C312    | 1-130-285-00  | FILM 0.0033MF 5% 100V          |
| C313    | 1-124-904-00  | ELECT 2.2MF 20% 50V            |
| C314    | 1-124-902-00  | ELECT 0.47MF 20% 50V           |
| C315    | 1-161-494-00  | CERAMIC 0.022MF 30% 25V        |
| C401    | 1-124-555-00  | ELECT 1000MF 20% 16V           |
| C402    | 1-124-555-00  | ELECT 1000MF 20% 16V           |
| C403    | 1-123-321-00  | ELECT 220MF 20% 16V            |
| C404    | 1-123-321-00  | ELECT 220MF 20% 16V            |
| C405    | 1-124-907-00  | ELECT 10MF 20% 50V             |
| C406    | 1-124-473-11  | ELECT 1000MF 20% 10V           |
| C407    | 1-124-472-11  | ELECT 470MF 20% 10V            |
| C408    | 1-124-907-00  | ELECT 10MF 20% 50V             |
| C409    | 1-124-555-00  | ELECT 1000MF 20% 16V           |
| C410    | 1-124-618-11  | ELECT 2200MF 20% 35V           |
| C411    | 1-124-119-00  | ELECT 330MF 20% 16V            |
| C501    | 1-110-206-00  | MYLAR 0.0082MF 5% 50V          |
| C502    | 1-124-904-00  | ELECT 2.2MF 20% 50V            |
| C503    | 1-124-897-11  | ELECT 3300MF 20% 16V           |
| C504    | 1-124-904-00  | ELECT 2.2MF 20% 50V            |
| C505    | 1-124-892-11  | ELECT 47MF 20% 10V             |
| C506    | 1-124-892-11  | ELECT 47MF 20% 10V             |
| C507    | 1-124-893-11  | ELECT 2200MF 20% 10V           |
| C508    | 1-124-903-00  | ELECT 1MF 20% 50V              |
| C509    | 1-162-294-31  | CERAMIC 0.001MF 10% 50V        |
| C510    | 1-162-284-31  | CERAMIC 150PF 10% 50V          |
| C511    | 1-162-284-31  | CERAMIC 150PF 10% 50V          |
| C517    | 1-162-306-31  | CERAMIC 0.01MF 30% 16V         |
| C518    | 1-124-927-11  | ELECT 4.7MF 20% 50V            |
| C519    | 1-124-896-00  | ELECT 33MF 20% 16V             |
| C801    | 1-124-903-00  | ELECT 1MF 20% 50V              |
| C802    | 1-124-904-00  | ELECT 2.2MF 20% 50V            |
| C851    | 1-124-903-00  | ELECT 1MF 20% 50V              |
| C852    | 1-124-904-00  | ELECT 2.2MF 20% 50V            |
| C891    | 1-110-204-00  | MYLAR 0.0056MF 5% 50V          |
| C892    | 1-124-892-11  | ELECT 47MF 20% 10V             |
| CNJ501  | *1-558-520-11 | CORD (WITH CONNECTOR) 3P       |
| CNJ502  | *1-558-235-11 | CORD (WITH CONNECTOR)          |
| CNP101  | *1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) 3P |
| CNP102  | *1-564-708-11 | PIN, CONNECTOR (SMALL TYPE) 6P |
| CNP801  | *1-564-521-11 | PLUG, CONNECTOR 6P             |
| CT301   | 1-141-225-00  | CAP, TUNING, TRIMMER           |

## ELECTRICAL PARTS

| Ref.No. | Part No.      | Description                   |
|---------|---------------|-------------------------------|
| D301    | 8-719-107-94  | DIODE 1SS202-1                |
| D401    | 8-719-200-02  | DIODE 10E2                    |
| D402    | 8-719-200-02  | DIODE 10E2                    |
| D403    | 8-719-200-02  | DIODE 10E2                    |
| D404    | 8-719-200-02  | DIODE 10E2                    |
| D405    | 8-719-200-02  | DIODE 10E2                    |
| D406    | 8-719-200-02  | DIODE 10E2                    |
| D407    | 8-719-200-02  | DIODE 10E2                    |
| D408    | 8-719-200-02  | DIODE 10E2                    |
| D409    | 8-719-107-94  | DIODE 1SS202-1                |
| D410    | 8-719-933-33  | DIODE HZS6A1L                 |
| D411    | 8-719-933-33  | DIODE HZS6B3L                 |
| D412    | 8-719-107-94  | DIODE 1SS202-1                |
| D413    | 8-719-933-77  | DIODE HZS12B2L                |
| D414    | 8-719-200-02  | DIODE 10E2                    |
| D415    | 8-719-107-94  | DIODE 1SS202-1                |
| D416    | 8-719-107-94  | DIODE 1SS202-1                |
| D417    | 8-719-200-02  | DIODE 10E2                    |
| D501    | 8-719-107-94  | DIODE 1SS202-1                |
| D502    | 8-719-200-02  | DIODE 10E2                    |
| D503    | 8-719-200-02  | DIODE 10E2                    |
| D504    | 8-719-107-94  | DIODE 1SS202-1                |
| D505    | 8-719-107-94  | DIODE 1SS202-1                |
| D507    | 8-719-107-94  | DIODE 1SS202-1                |
| D511    | 8-719-200-02  | DIODE 10E2                    |
| D512    | 8-719-107-94  | DIODE 1SS202-1                |
| D513    | 8-719-107-94  | DIODE 1SS202-1                |
| D514    | 8-719-811-44  | DIODE TLG114A                 |
| D515    | 1-806-986-11  | DIODE GL5HD22                 |
| D516    | 8-719-906-44  | DIODE GL-SHY22                |
| D517    | 8-719-811-44  | DIODE TLG114A                 |
| D518    | 8-719-811-44  | DIODE TLG114A                 |
| D519    | 8-719-107-94  | DIODE 1SS202-1                |
| D520    | 8-719-107-94  | DIODE 1SS202-1                |
| F101    | 1-231-388-00  | FILTER, LOW PASS              |
| F102    | 1-235-186-00  | ENCAPSULATED COMPONENT        |
| F201    | 1-231-388-00  | FILTER, LOW PASS              |
| F202    | 1-235-186-00  | ENCAPSULATED COMPONENT        |
| FR401   | *1-217-422-00 | RESISTOR, FUSIBLE 1 5% 1/2W F |
| IC301   | 8-759-600-02  | IC M5218L                     |
| IC302   | 8-752-018-70  | IC CX20187                    |
| IC303   | 8-759-600-02  | IC M5218L                     |
| IC304   | 8-759-101-55  | IC CX10032A                   |
| IC501   | 8-759-206-53  | IC TC9312N-031                |
| IC502   | 8-759-602-47  | IC M50761-417P                |
| IC801   | 8-752-321-65  | IC CXD1017Q                   |

## ELECTRICAL PARTS

| Ref.No. | Part No.     | Description                 |
|---------|--------------|-----------------------------|
| J101    | 1-507-854-00 | JACK, LARGE TYPE (MIC L)    |
| J201    | 1-507-854-00 | JACK, LARGE TYPE (MIC R)    |
| J301    | 1-507-796-21 | JACK (HEADPHONES)           |
| J302    | 1-507-908-11 | JACK, PIN 4P                |
| L101    | 1-408-930-00 | MICRO INDUCTOR 33MMH        |
| L102    | 1-408-924-00 | MICRO INDUCTOR 10MMH        |
| L201    | 1-408-930-00 | MICRO INDUCTOR 33MMH        |
| L202    | 1-408-924-00 | MICRO INDUCTOR 10MMH        |
| LCD801  | 1-520-488-11 | METER, LEVEL                |
| M501    | X-3391-130-1 | MOTOR ASSY, CAPSTAN         |
| M502    | X-3391-118-1 | MOTOR ASY, REEL             |
| PI501   | 8-719-902-90 | PHOTO INTERRUPTOR SPI201-20 |
| PL801   | 1-518-596-11 | LAMP, PILOT                 |
| PL802   | 1-518-596-11 | LAMP, PILOT                 |
| PM501   | 1-454-428-11 | SOLENOID, PLUNGER           |
| Q102    | 8-729-100-13 | TRANSISTOR 2SC2001          |
| Q103    | 8-729-900-80 | TRANSISTOR DTC114ES         |
| Q104    | 8-729-100-13 | TRANSISTOR 2SC2001          |
| Q202    | 8-729-100-13 | TRANSISTOR 2SC2001          |
| Q203    | 8-729-900-80 | TRANSISTOR DTC114ES         |
| Q204    | 8-729-100-13 | TRANSISTOR 2SC2001          |
| Q301    | 8-729-900-80 | TRANSISTOR DTC114ES         |
| Q302    | 8-729-900-61 | TRANSISTOR DTA114ES         |
| Q303    | 8-729-900-80 | TRANSISTOR DTC114ES         |
| Q304    | 8-729-600-27 | TRANSISTOR 2SC634SP         |
| Q305    | 8-729-900-61 | TRANSISTOR DTA114ES         |
| Q306    | 8-729-600-27 | TRANSISTOR 2SC634SP         |
| Q307    | 8-729-600-27 | TRANSISTOR 2SC634SP         |
| Q308    | 8-729-900-80 | TRANSISTOR DTC114ES         |
| Q401    | 8-729-180-93 | TRANSISTOR 2SD809           |
| Q402    | 8-729-811-22 | TRANSISTOR 2SD1012-F2       |
| Q403    | 8-729-600-27 | TRANSISTOR 2SC634SP         |
| Q404    | 8-729-173-13 | TRANSISTOR 2SB731           |
| Q405    | 8-729-800-83 | TRANSISTOR 2SB808           |
| Q406    | 8-729-117-54 | TRANSISTOR 2SA1175          |
| Q407    | 8-729-900-69 | TRANSISTOR DTA144WS         |
| Q408    | 8-729-107-98 | TRANSISTOR 2SC3622A-L       |
| Q409    | 8-729-107-26 | TRANSISTOR 2SD1585-K        |
| Q501    | 8-729-212-02 | TRANSISTOR 2SC2120-Y        |
| Q502    | 8-729-800-83 | TRANSISTOR 2SB808           |
| Q503    | 8-729-600-27 | TRANSISTOR 2SC634SP         |
| Q504    | 8-729-117-54 | TRANSISTOR 2SA1175          |
| Q505    | 8-729-801-93 | TRANSISTOR 2SD1387          |
| Q506    | 8-729-900-36 | TRANSISTOR DTC124ES         |
| Q507    | 8-729-107-26 | TRANSISTOR 2SD1585-K        |

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

| ELECTRICAL PARTS |              |                     |  |
|------------------|--------------|---------------------|--|
| Ref.No.          | Part No.     | Description         |  |
| Q508             | 8-729-800-83 | TRANSISTOR 2SA808   |  |
| Q509             | 8-729-800-83 | TRANSISTOR 2SA808   |  |
| Q510             | 8-729-212-02 | TRANSISTOR 2SC120-Y |  |
| Q511             | 8-729-212-02 | TRANSISTOR 2SC120-Y |  |
| Q512             | 8-729-900-80 | TRANSISTOR DTC114ES |  |
| Q513             | 8-729-900-61 | TRANSISTOR DTA114ES |  |
| Q514             | 8-729-600-27 | TRANSISTOR 2SC634SP |  |
| Q515             | 8-729-900-80 | TRANSISTOR DTC114ES |  |
| Q518             | 8-729-117-54 | TRANSISTOR 2SA1175  |  |
| Q519             | 8-729-900-61 | TRANSISTOR DTA114ES |  |
| Q520             | 8-729-900-80 | TRANSISTOR DTC114ES |  |
| Q521             | 8-729-900-80 | TRANSISTOR DTC114ES |  |
| Q522             | 8-729-900-80 | TRANSISTOR DTC114ES |  |
| Q523             | 8-729-900-74 | TRANSISTOR DTC143TS |  |
| R101             | 1-249-497-11 | CARBON 33K 5% 1/4W  |  |
| R102             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R103             | 1-247-819-00 | CARBON 330 5% 1/6W  |  |
| R104             | 1-249-434-11 | CARBON 27K 5% 1/6W  |  |
| R105             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R107             | 1-249-423-11 | CARBON 3.3K 5% 1/6W |  |
| R108             | 1-247-851-00 | CARBON 6.8K 5% 1/6W |  |
| R110             | 1-247-822-00 | CARBON 430 5% 1/6W  |  |
| R111             | 1-249-425-11 | CARBON 4.7K 5% 1/6W |  |
| R112             | 1-247-840-00 | CARBON 2.4K 5% 1/6W |  |
| R113             | 1-247-851-00 | CARBON 6.8K 5% 1/6W |  |
| R114             | 1-249-415-11 | CARBON 680 5% 1/6W  |  |
| R115             | 1-247-839-00 | CARBON 2.2K 5% 1/6W |  |
| R116             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R117             | 1-247-849-00 | CARBON 5.6K 5% 1/6W |  |
| R118             | 1-247-163-00 | CARBON 22K 5% 1/4W  |  |
| R119             | 1-247-717-11 | CARBON 2.2K 5% 1/4W |  |
| R120             | 1-247-713-11 | CARBON 1K 5% 1/4W   |  |
| R121             | 1-247-839-00 | CARBON 2.2K 5% 1/6W |  |
| R122             | 1-247-133-00 | CARBON 1.2K 5% 1/4W |  |
| R123             | 1-247-839-00 | CARBON 2.2K 5% 1/6W |  |
| R124             | 1-247-840-00 | CARBON 2.4K 5% 1/6W |  |
| R125             | 1-247-116-00 | CARBON 240 5% 1/4W  |  |
| R126             | 1-246-531-00 | CARBON 270K 5% 1/4W |  |
| R127             | 1-247-700-11 | CARBON 100 5% 1/4W  |  |
| R128             | 1-246-524-00 | CARBON 130K 5% 1/4W |  |
| R129             | 1-247-149-00 | CARBON 5.6K 5% 1/4W |  |
| R130             | 1-249-459-11 | CARBON 12K 5% 1/4W  |  |
| R131             | 1-247-887-00 | CARBON 220K 5% 1/6W |  |
| R132             | 1-247-859-00 | CARBON 15K 5% 1/6W  |  |

| ELECTRICAL PARTS |              |                     |  |
|------------------|--------------|---------------------|--|
| Ref.No.          | Part No.     | Description         |  |
| R133             | 1-247-821-00 | CARBON 390 5% 1/6W  |  |
| R134             | 1-249-434-11 | CARBON 27K 5% 1/6W  |  |
| R135             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |
| R136             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R137             | 1-247-839-00 | CARBON 2.2K 5% 1/6W |  |
| R138             | 1-249-405-11 | CARBON 100 5% 1/6W  |  |
| R139             | 1-249-419-11 | CARBON 1.5K 5% 1/6W |  |
| R140             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R141             | 1-247-849-00 | CARBON 5.6K 5% 1/6W |  |
| R142             | 1-247-846-00 | CARBON 4.3K 5% 1/6W |  |
| R143             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R301             | 1-247-823-00 | CARBON 470 5% 1/6W  |  |
| R302             | 1-247-823-00 | CARBON 470 5% 1/6W  |  |
| R303             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R304             | 1-215-469-00 | METAL 100K 1% 1/6W  |  |
| R305             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R306             | 1-247-849-00 | CARBON 5.6K 5% 1/6W |  |
| R307             | 1-249-414-11 | CARBON 560 5% 1/6W  |  |
| R308             | 1-249-425-11 | CARBON 4.7K 5% 1/6W |  |
| R309             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |
| R310             | 1-247-081-00 | CARBON 6.8 5% 1/4W  |  |
| R311             | 1-247-859-00 | CARBON 15K 5% 1/6W  |  |
| R312             | 1-247-859-00 | CARBON 15K 5% 1/6W  |  |
| R313             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R314             | 1-247-856-00 | CARBON 11K 5% 1/6W  |  |
| R315             | 1-249-425-11 | CARBON 4.7K 5% 1/6W |  |
| R316             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R317             | 1-249-433-11 | CARBON 22K 5% 1/6W  |  |
| R402             | 1-247-713-11 | CARBON 1K 5% 1/4W   |  |
| R403             | 1-247-713-11 | CARBON 1K 5% 1/4W   |  |
| R404             | 1-247-713-11 | CARBON 1K 5% 1/4W   |  |
| R405             | 1-247-713-11 | CARBON 1K 5% 1/4W   |  |
| R406             | 1-247-710-11 | CARBON 560 5% 1/4W  |  |
| R407             | 1-247-719-11 | CARBON 3.3K 5% 1/4W |  |
| R408             | 1-247-718-11 | CARBON 2.7K 5% 1/4W |  |
| R409             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R410             | 1-247-721-11 | CARBON 4.7K 5% 1/4W |  |
| R411             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |
| R412             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R501             | 1-249-435-11 | CARBON 33K 5% 1/6W  |  |
| R502             | 1-247-815-00 | CARBON 220 5% 1/6W  |  |
| R503             | 1-247-821-00 | CARBON 390 5% 1/6W  |  |
| R504             | 1-247-817-00 | CARBON 220 5% 1/6W  |  |
| R505             | 1-247-815-00 | CARBON 220 5% 1/6W  |  |
| R506             | 1-247-815-00 | CARBON 220 5% 1/6W  |  |

| ELECTRICAL PARTS |              |                     |  |
|------------------|--------------|---------------------|--|
| Ref.No.          | Part No.     | Description         |  |
| R507             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R508             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R509             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R510             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R511             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R512             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |
| R513             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R514             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R515             | 1-249-420-11 | CARBON 1.8K 5% 1/6W |  |
| R516             | 1-249-415-11 | CARBON 680 5% 1/6W  |  |
| R517             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R518             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R519             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R520             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R521             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R522             | 1-249-433-11 | CARBON 22K 5% 1/6W  |  |
| R523             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R524             | 1-247-819-00 | CARBON 330 5% 1/6W  |  |
| R525             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R526             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |
| R527             | 1-249-429-11 | CARBON 10K 5% 1/6W  |  |
| R528             | 1-249-405-11 | CARBON 100 5% 1/6W  |  |
| R529             | 1-249-432-11 | CARBON 18K 5% 1/6W  |  |
| R530             | 1-247-857-00 | CARBON 12K 5% 1/6W  |  |
| R531             | 1-249-432-11 | CARBON 18K 5% 1/6W  |  |
| R532             | 1-249-422-11 | CARBON 2.7K 5% 1/6W |  |
| R533             | 1-247-903-00 | CARBON 1M 5% 1/6W   |  |
| R534             | 1-247-783-00 | CARBON 10 5% 1/6W   |  |
| R537             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R538             | 1-249-417-11 | CARBON 1K 5% 1/6W   |  |
| R539             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R540             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R541             | 1-247-839-00 | CARBON 2.2K 5% 1/6W |  |
| R801             | 1-247-872-00 | CARBON 51K 5% 1/6W  |  |
| R802             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R803             | 1-247-903-00 | CARBON 1M 5% 1/6W   |  |
| R851             | 1-247-872-00 | CARBON 51K 5% 1/6W  |  |
| R852             | 1-249-437-11 | CARBON 47K 5% 1/6W  |  |
| R853             | 1-247-903-00 | CARBON 1M 5% 1/6W   |  |
| R891             | 1-247-893-00 | CARBON 390K 5% 1/6W |  |
| R893             | 1-247-815-00 | CARBON 220 5% 1/6W  |  |
| R894             | 1-249-834-00 | CARBON 1.3K 5% 1/6W |  |
| R895             | 1-249-441-11 | CARBON 100K 5% 1/6W |  |

| ELECTRICAL PARTS             |              |                                                  |  |
|------------------------------|--------------|--------------------------------------------------|--|
| Ref.No.                      | Part No.     | Description                                      |  |
| RV102                        | 1-228-994-00 | RES, ADJ, CARBON 10K                             |  |
| RV103                        | 1-228-994-00 | RES, ADJ, CARBON 10K                             |  |
| RV202                        | 1-228-994-00 | RES, ADJ, CARBON 10K                             |  |
| RV203                        | 1-228-994-00 | RES, ADJ, CARBON 10K                             |  |
| RV301                        | 1-226-754-31 | RES, VAR 20K/20K (REC LEVEL)                     |  |
| RY301                        | 1-515-547-11 | RELAY                                            |  |
| S101                         | 1-570-533-11 | SWITCH, PUSH (6 KEY)(TAPE SELECTOR)              |  |
| S502                         | 1-570-103-11 | SWITCH, PUSH (1 KEY)(POWER)                      |  |
| S503                         | 1-570-722-11 | SWITCH, PUSH (1 KEY)(ERASE PROOF)                |  |
| S504                         | 1-570-720-11 | SWITCH, PUSH (1 KEY) (CASSETTE HALF/ERASE PROOF) |  |
| S505                         | 1-570-719-11 | SWITCH, LEAF (PLAY)                              |  |
| S506                         | 1-570-721-11 | SWITCH, LEAF (DIRECTION)                         |  |
| S811                         | 1-554-980-11 | SWITCH, KEY BOARD (REW)                          |  |
| S812                         | 1-554-980-11 | SWITCH, KEY BOARD (FWD)                          |  |
| S813                         | 1-554-980-11 | SWITCH, KEY BOARD (REV)                          |  |
| S814                         | 1-554-980-11 | SWITCH, KEY BOARD (FF)                           |  |
| S815                         | 1-554-980-11 | SWITCH, KEY BOARD (REC)                          |  |
| S816                         | 1-554-980-11 | SWITCH, KEY BOARD (STOP)                         |  |
| S817                         | 1-554-980-11 | SWITCH, KEY BOARD (PAUSE)                        |  |
| S818                         | 1-554-980-11 | SWITCH, KEY BOARD (REC MUTE)                     |  |
| T301                         | 1-433-308-11 | TRANSFORMER, BIAS OSCILLATION                    |  |
| T401                         | 1-448-554-11 | (US,Canadian)...TRANSFORMER, POWER               |  |
| T401                         | 1-448-556-11 | (AEP,UK).....TRANSFORMER, POWER                  |  |
| X501                         | 1-527-532-00 | OSCILLATOR, CERAMIC                              |  |
| ACCESSORY & PACKING MATERIAL |              |                                                  |  |
| No.                          | Part No.     | Description                                      |  |
| 201                          | 1-558-233-11 | CORD (WITH CONNECTOR)(SIRCS)4P                   |  |
| 202                          | 1-558-787-11 | CORD, CONNECTION                                 |  |
| 203                          | 3-701-630-00 | BAG, POLYETHYLENE                                |  |
| 204                          | 3-765-222-21 | (US,UK).....MANUAL, INSTRUCTION                  |  |
|                              | 3-765-222-31 | (Canadian)...MANUAL, INSTRUCTION                 |  |
|                              | 3-765-222-41 | (AEP).....MANUAL, INSTRUCTION                    |  |
| 205                          | 3-318-958-01 | CUSHION (LEFT), LOWER                            |  |
| 206                          | 3-318-959-01 | CUSHION (RIGHT), LOWER                           |  |
| 207                          | 3-318-960-01 | CUSHION (LEFT), UPPER                            |  |
| 208                          | 3-318-961-01 | CUSHION (RIGHT), UPPER                           |  |
| 209                          | 3-318-988-61 | INDIVIDUAL CARTON                                |  |
| 210                          | 4-876-352-00 | SHEET, PROTECTION                                |  |

The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## TROUBLE CHECKS

The following trouble checks will help you correct the most common problems encountered with a tape deck. Should any problem persist after you have made these checks, consult you nearest Sony service facility.

Before proceeding with these trouble checks, first check these basic points:

- The power cord must be firmly connected.
- Amplifier connections must be firmly made.
- Heads, capstan and pinch roller should be clean.
- The amplifier controls and switches should be set correctly.

## FUNCTION BUTTONS AND TAPE TRANSPORT PROBLEMS

|                                                                             |                                                                                           |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| The function buttons do not activate.                                       | • The cassette holder is not fully closed.                                                |
| The ● button does not activate.                                             | • No cassette in the holder<br>• The tab has been removed from the cassette.              |
| The automatic shut-off mechanism activates before the end of the tape.      | • The tape is slack.<br>• This situation may also be caused by a deformed cassette shell. |
| Tape transport noise seems excessively loud in rewind or fast-forward mode. | • This situation depends upon the cassette used and is not a problem.                     |

## RECORDING AND PLAYBACK PROBLEMS

|                                                                             |                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recording or playback cannot be made or there is a decrease in sound level. | • Contamination or magnetic build-up on the record/playback head<br>• Improper connection<br>• Improper setting of the amplifier controls                                                                                                                                |
| Excessive wow or flutter or drop out                                        | • Contamination of the head, capstan or pinch roller                                                                                                                                                                                                                     |
| Incomplete erasure                                                          | • Contamination of the erase head                                                                                                                                                                                                                                        |
| Increase of noise or erasure of high frequencies                            | • Magnetic build-up on the head                                                                                                                                                                                                                                          |
| Unbalanced tone in higher frequencies                                       | • Improper setting of the DOLBY NR switch. When playing back, set the button to the same position used in recording.<br>• Improper setting of the TAPE select buttons. If recorded with the wrong button pressed, adjust the tone controls of the amplifier in playback. |

## NOISE

|                                                            |                                                                                                                                                                                                                                       |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oscillation occurs when trying to record from microphones. | • The microphone is too near the loudspeakers. Move the microphone away from the loudspeakers or reduce the amplifier volume.                                                                                                         |
| Hum noise                                                  | • The tape deck is stacked on or under the amplifier. Separate the units.                                                                                                                                                             |
| Noise                                                      | • When recording is made near a television set or a color monitor, interference may affect the recording on the tape and the Dolby NR system may not function properly. Move the television or color monitor away from the tape deck. |

Sony Corporation