

TC-208

USA Model



8-TRACK 2 CHANNEL STEREO TAPE DECK

SPECIFICATIONS

Power Requirements: AC 120 V, 60 Hz

Power Consumption: 35 W

Track System: 8-track 2 channel stereo

Tape Size: 8-track cartridge

Tape Speed: 9.5 cm/sec, 3³/₄ ips

Frequency Response: 50 ~ 10000 Hz

Signal-to-Noise Ratio: 50 dB

Wow and Flutter: 0.25 % (RMS) weighted

Distortion: 3 %

Output: LINE OUT (2)
normal output level: 0.775 V (0 dB)
with 100 k Ω load
load impedance: more than 10 k Ω

Semiconductors: 6 transistors and 2 diodes

Head: 1 playback head

Dimensions: 222 (w) x 103 (h) x 242 (d) mm,
8³/₄ (w) x 4¹/₁₆ (h) x 9⁹/₁₆ (d) inches

Weight: 3.5 kg, 7 lb 12 oz

Supplied Accessory: Connection cord RK-74

SONY[®]
SERVICE MANUAL

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

















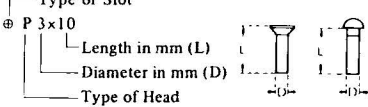
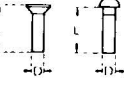


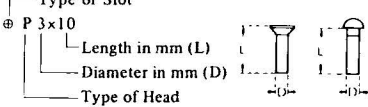
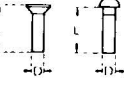










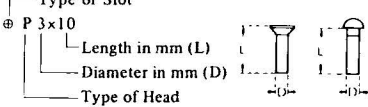
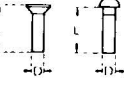
When ordering replacement parts, use PART NUMBERS listed in Parts List or shown in EXPLODED VIEWS. Parts List reference numbers should not be used.

Note: All screws in the set are Phillips type (cross recess type) unless otherwise indicated.
 (-): slotted head

CAUTION

When replacing microswitch S401, cut the switch terminals short to avoid contacting the bracket.

— Hardware Nomenclature —

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|--|---|---|---|---|---|---------------------------------------|---|---------------------------------------|---|--|---|--|---------------------------------|---|--|---|------------|--|--------------------|--|------------------|--|---------|--|--|---|
| <table border="0"> <tr> <td>P - Pan Head Screw</td> <td></td> </tr> <tr> <td>PS - Pan Head Screw with Spring Washer</td> <td></td> </tr> <tr> <td>K - Flat Countersunk Head Screw</td> <td></td> </tr> <tr> <td>B - Binding Head Screw</td> <td></td> </tr> <tr> <td>RK - Oval Countersunk Head Screw</td> <td></td> </tr> <tr> <td>T - Truss Head Screw</td> <td></td> </tr> <tr> <td>R - Round Head Screw</td> <td></td> </tr> <tr> <td>F - Flat Fillister Head Screw</td> <td></td> </tr> </table> | P - Pan Head Screw |  | PS - Pan Head Screw with Spring Washer |  | K - Flat Countersunk Head Screw |  | B - Binding Head Screw |  | RK - Oval Countersunk Head Screw |  | T - Truss Head Screw |  | R - Round Head Screw |  | F - Flat Fillister Head Screw |  | <table border="0"> <tr> <td>SC - Set Screw</td> <td></td> </tr> <tr> <td>E - Retaining Ring (E Washer)</td> <td></td> </tr> <tr> <td>W - Washer</td> <td></td> </tr> <tr> <td>SW - Spring Washer</td> <td></td> </tr> <tr> <td>LW - Lock Washer</td> <td></td> </tr> <tr> <td>N - Nut</td> <td></td> </tr> </table> <p>— Example —</p> <table border="0"> <tr> <td>  </td> <td>  </td> </tr> </table> | SC - Set Screw |  | E - Retaining Ring (E Washer) |  | W - Washer | | SW - Spring Washer | | LW - Lock Washer | | N - Nut | |  |  |
| P - Pan Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PS - Pan Head Screw with Spring Washer |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K - Flat Countersunk Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B - Binding Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RK - Oval Countersunk Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T - Truss Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R - Round Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F - Flat Fillister Head Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC - Set Screw |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E - Retaining Ring (E Washer) |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W - Washer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW - Spring Washer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LW - Lock Washer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N - Nut | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SECTION 1 OUTLINE

1-1. EXTERNAL VIEWS

Case — Front —

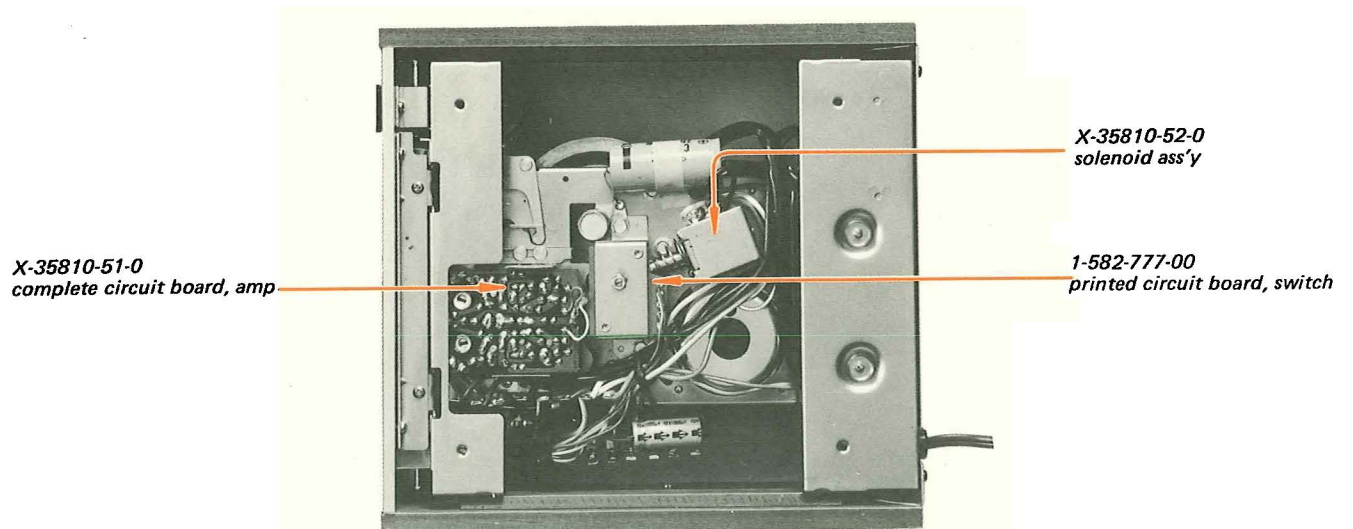


Case — rear —



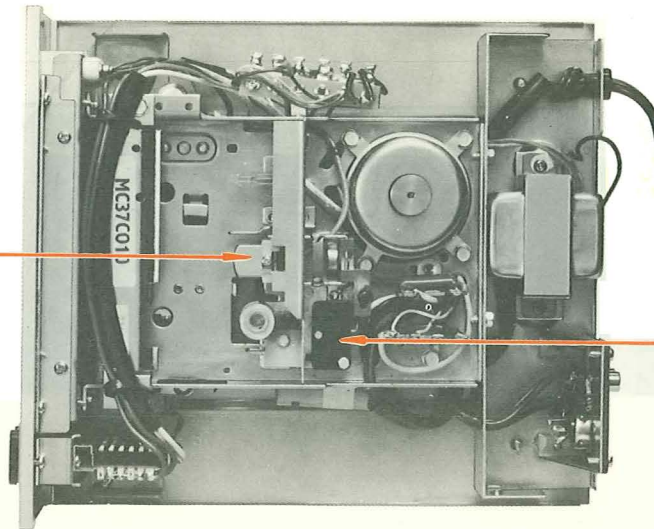
1-2. INTERNAL VIEWS

Chassis — bottom —



Chassis – top –

1-543-048-00
head, playback



1-514-126-12
switch, micro; power (S401)

1-3. SERVICE HINTS

1. Head Lead Wire Color

Head lead wire color of TC-810 is different from usual SONY tape recorders. L channel is red and R channel white. Be careful when you identify L channel or R channel with the lead wire color.

2. Track Indicator Lamps

When reinserting the lamps to lamp holders;

- 1) By pressing PROGRAM button, set the head to the highest position.
- 2) Insert the illuminated lamp to the top holder.

- 3) Insert the lamp illuminated by next press of PROGRAM button to the second holder from the top.
- 4) In the same way, insert the lamps to the third holder and the lowest holder.

3. REPEAT Button

With REPEAT button pressed, the unit does not change the track even if the tape sensing foil short-circuits the sensing poles. The track can be manually changed with PROGRAM button even if REPEAT button is pressed.

SECTION 2

ADJUSTMENTS

2-1. ELECTRICAL ADJUSTMENTS

Precaution:

1. Clean the following parts with an alcohol moistened swab:
 - * playback head
 - * capstan
 - * rubber belts
 - * idlers
2. Demagnetize playback head with a head demagnetizer.
3. Do not use magnetized screwdriver for adjustments.
4. After adjustments, apply locking paint to the parts adjusted.
5. Adjustments should be performed in the order arranged in this service manual.
6. Adjustments and measurements should be performed for each channel with rated power supply voltage unless otherwise specified.

Test Equipment/Tools Required:

VTVM
 non-magnetic screwdriver
 empty cartridge
 SONY test tapes
 R-9-A1 (5 kHz, -10 dB)
 R-9-T1 (1 kHz, 0 dB)
 R-9-L1 (400 Hz, 0 dB)
 resistor 100 k Ω (1/4 W)

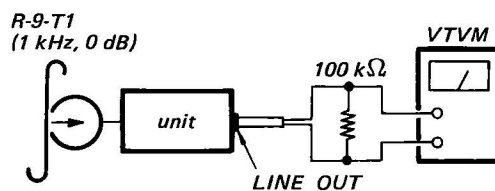
1. Head Height Adjustment

Settings:

PROGRAM button: pushed so that lamp 3 illuminates.

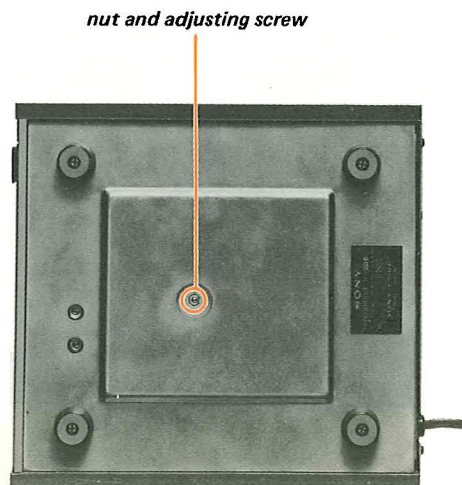
Procedure:

1. Place the unit horizontally.
2. Mode: playback



3. Loosen nut and adjust adjusting screw for the lowest VTVM reading.

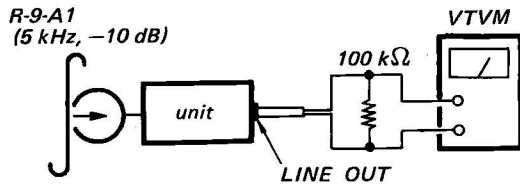
Adjustment Location:



2. Head Azimuth Adjustment

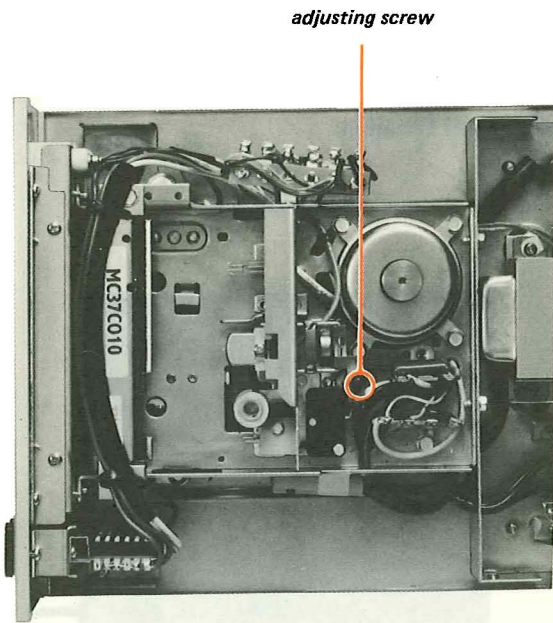
Procedure:

1. Mode: playback



2. Adjust adjusting screw for the highest VTVM reading.

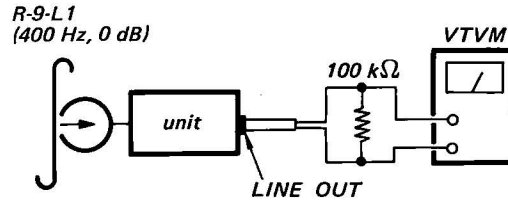
Adjustment Location:



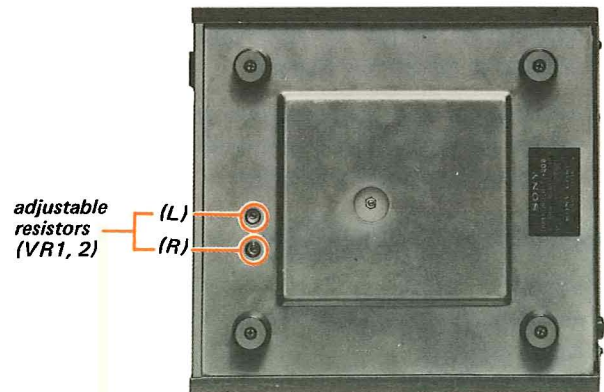
3. Playback Level Adjustment

Procedure:

1. Mode: playback

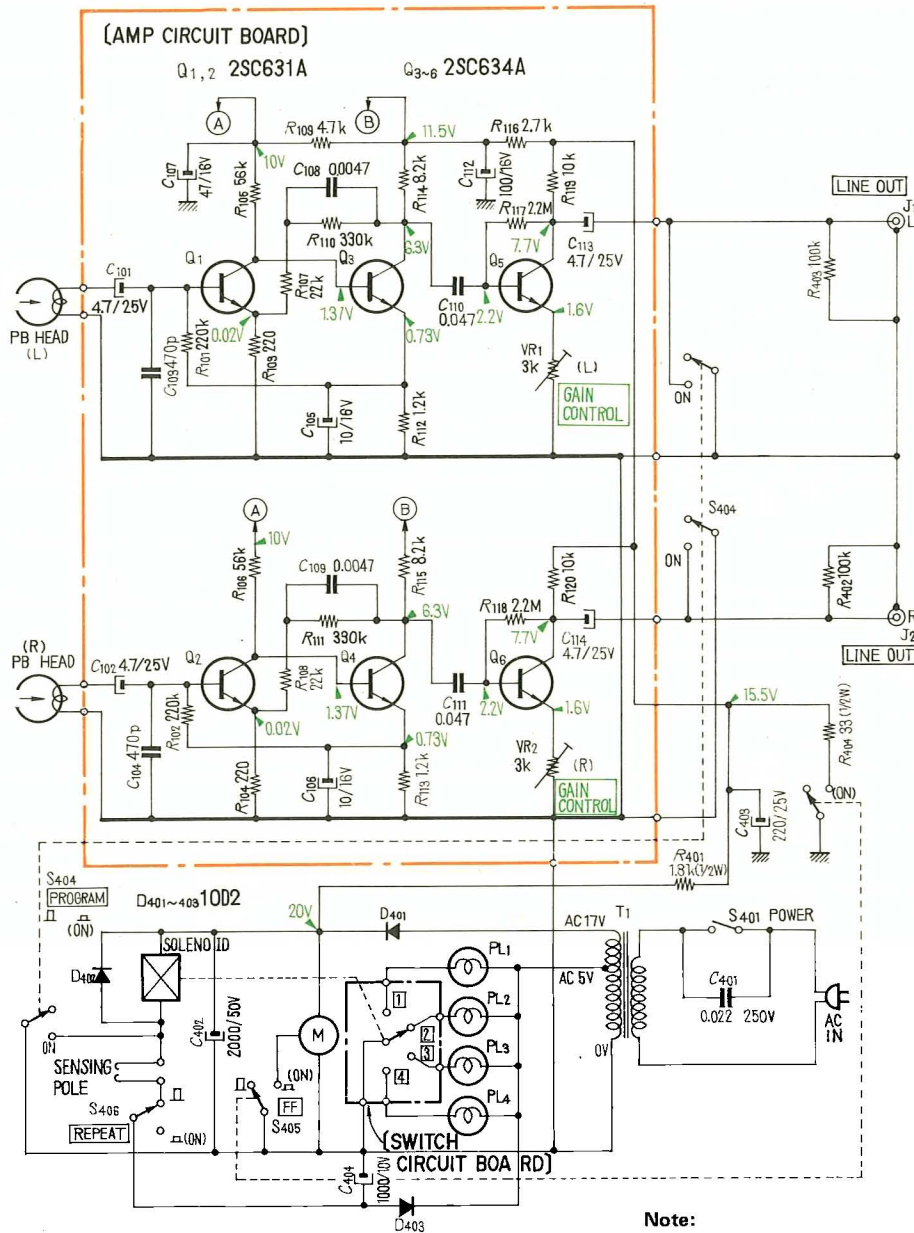


2. Adjust adjustable resistors (VR1, 2) for 0 dB (0.775 V) \pm 3 dB LINE OUT put level.



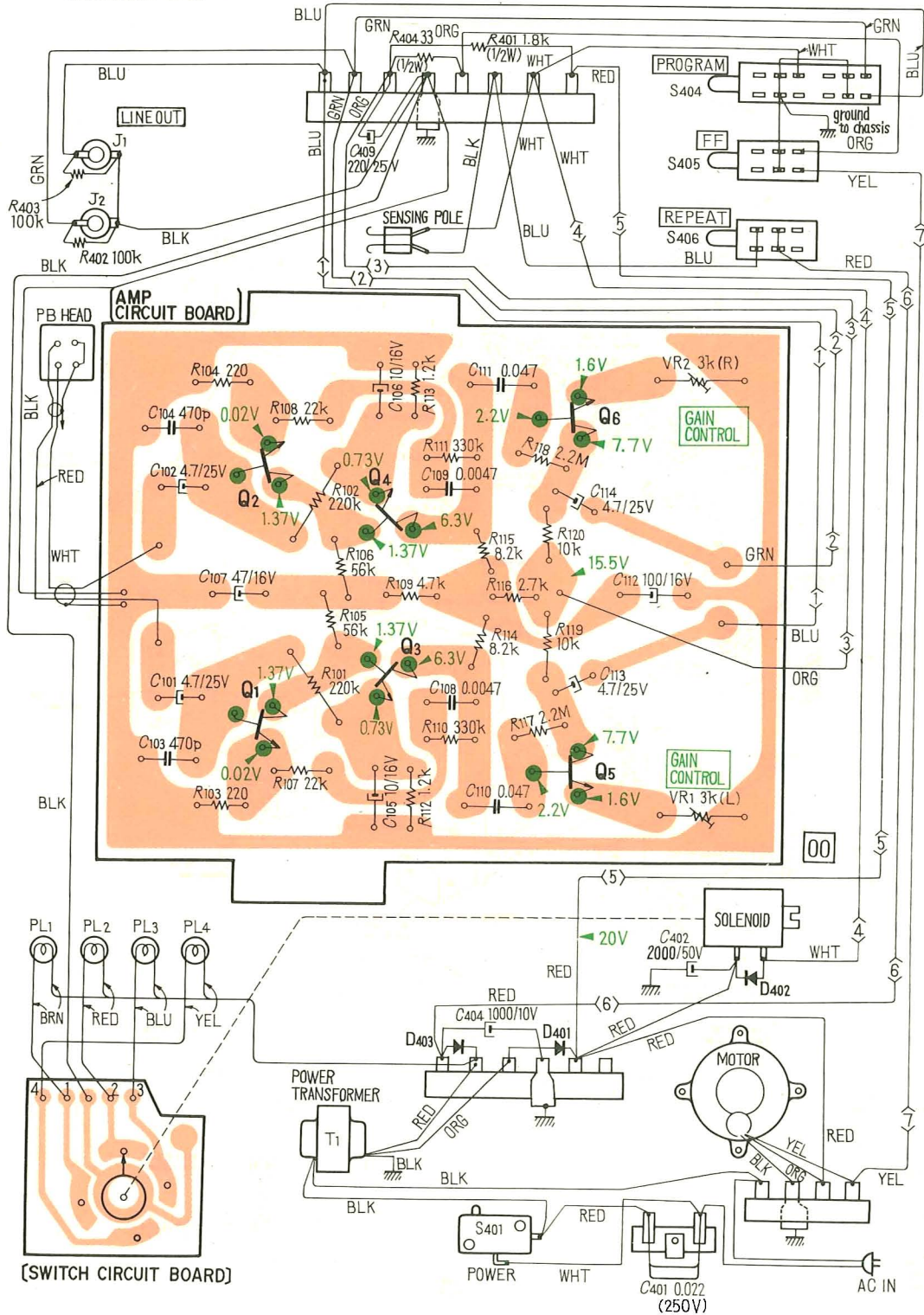
SECTION 3 DIAGRAMS

3-1. SCHEMATIC DIAGRAM

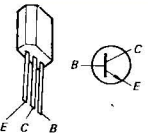


| Ref. No. | Switch | Mode |
|----------|---------|------|
| S401 | power | OFF |
| S404 | PROGRAM | OFF |
| S405 | FF | OFF |
| S406 | REPEAT | OFF |

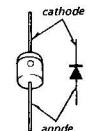
3-2. MOUNTING DIAGRAM
 - Conductor Side -



Q1, 2: 2SC631A
 Q3, 4: 2SC631A
 Q5, 6: 2SC634A



D401: 10D2
 D402: 10D2
 D403: 10D2



SECTION 5
ELECTRICAL PARTS

| Ref. No. | Part No. | Description |
|----------|--------------|-------------------------------|
| | X-35810-51-0 | complete circuit board, amp |
| | 1-582-777-00 | printed circuit board, switch |

SEMICONDUCTORS

| Ref. No. | Part No. | Description |
|----------|----------|--------------------|
| Q1 | | transistor 2SC631A |
| Q2 | | transistor 2SC631A |
| Q3 | | transistor 2SC634A |
| Q4 | | transistor 2SC634A |
| Q5 | | transistor 2SC634A |
| Q6 | | transistor 2SC634A |
| D401 | | diode 10D2 |
| D402 | | diode 10D2 |
| D403 | | diode 10D2 |

TRANSFORMER

| | | |
|----|--------------|-------|
| T1 | 1-442-226-00 | power |
|----|--------------|-------|

CAPACITORS

All capacitors are in μF unless otherwise indicated.
(p = $\mu\mu$, elect = electrolytic)

| | | | | |
|------|--------------|--------|-------|---------------|
| C101 | 1-121-395-11 | 4.7 | 25 V | elect |
| C102 | 1-121-395-11 | 4.7 | 25 V | elect |
| C103 | 1-129-662-11 | 470 p | 50 V | polypropylene |
| C104 | 1-129-662-11 | 470 p | 50 V | polypropylene |
| C105 | 1-121-347-11 | 10 | 16 V | elect |
| C106 | 1-121-347-11 | 10 | 16 V | elect |
| C107 | 1-121-409-11 | 47 | 16 V | elect |
| C108 | 1-105-669-12 | 0.0047 | 50 V | mylar |
| C109 | 1-105-669-12 | 0.0047 | 50 V | mylar |
| C110 | 1-105-681-12 | 0.047 | 50 V | mylar |
| C111 | 1-105-681-12 | 0.047 | 50 V | mylar |
| C112 | 1-121-413-11 | 100 | 16 V | elect |
| C113 | 1-121-395-11 | 4.7 | 25 V | elect |
| C114 | 1-121-395-11 | 4.7 | 25 V | elect |
| C401 | 1-105-597-12 | 0.022 | 250 V | mylar |
| C402 | 1-119-342-11 | 2000 | 50 V | elect |
| C403 | 1-121-422-11 | 220 | 25 V | elect |
| C404 | 1-119-355-11 | 1000 | 10 V | elect |

RESISTORS

All resistors are $\frac{1}{4}$ W, carbon type unless otherwise indicated. (k = 1000 M = 1000 k)

| | | |
|------|--------------|-------|
| R101 | 1-242-729-11 | 220 k |
|------|--------------|-------|

| Ref. No. | Part No. | Description |
|----------|--------------|-------------------|
| R102 | 1-242-729-11 | 220 k |
| R103 | 1-242-657-11 | 220 |
| R104 | 1-242-657-11 | 220 |
| R105 | 1-242-715-11 | 56 k |
| R106 | 1-242-715-11 | 56 k |
| R107 | 1-242-705-11 | 22 k |
| R108 | 1-242-705-11 | 22 k |
| R109 | 1-242-689-11 | 4.7 k |
| R110 | 1-242-733-11 | 330 k |
| R111 | 1-242-733-11 | 330 k |
| R112 | 1-242-675-11 | 1.2 k |
| R113 | 1-242-675-11 | 1.2 k |
| R114 | 1-242-695-11 | 8.2 k |
| R115 | 1-242-695-11 | 8.2 k |
| R116 | 1-242-683-11 | 2.7 k |
| R117 | 1-202-463-31 | 2.2 M composition |
| R118 | 1-202-463-31 | 2.2 M composition |
| R119 | 1-242-697-11 | 10 k |
| R120 | 1-242-697-11 | 10 k |

| | | | |
|----------------|--------------|-----------------|-----------------|
| R401 | 1-244-879-11 | 1.8 k | $\frac{1}{2}$ W |
| R402 | 1-242-721-11 | 100 k | |
| R403 | 1-242-721-11 | 100 k | |
| R404 | 1-244-837-11 | 33 | $\frac{1}{2}$ W |
| R405 | 1-244-835-11 | 27 | |
| VR1 } VR2 } | 1-221-620-00 | 3 k, adjustable | |

SWITCHES

| | | |
|----------------------------|--------------|--|
| S401 | 1-514-126-12 | micro, power |
| S404 } S405 } S406 } | 1-516-380-00 | 3-key, PROGRAM 3-key, FF 3-key, REPEAT |

MISCELLANEOUS

| | | |
|-----|--------------|------------------------|
| | X-35810-52-0 | solenoid ass'y |
| M | 1-541-085-00 | motor |
| PL1 | 1-518-090-00 | lamp |
| PL2 | 1-518-090-00 | lamp |
| PL3 | 1-518-090-00 | lamp |
| PL4 | 1-518-090-00 | lamp |
| | 1-536-179-00 | strip, terminal; 1-L-1 |
| | 1-536-180-00 | strip, terminal; 2-L-1 |
| | 1-536-183-00 | strip, terminal; 2-L-3 |
| | 1-543-048-00 | head, playback |

SONY CORPORATION