# SANYO

**Solid State Portable Tape Recorder**

# MODEL MR-213

# SERVICE MANUAL

SANYO ELECTRIC CO., LTD.
INTERNATIONAL DIVISION: SANYO ELECTRIC TRADING CO., LTD.
OSAKA, JAPAN

## SPECIFICATIONS

| | |
|---|---|
| **Recording System** | AC bias, ½ track |
| **Erasing System** | DC erase |
| **Tape Speeds & Recording time** | 32 min. (@ 3¾ ips. tape speed)<br>64 min. (@ 1⅞ ips. tape speed) |
| **Forward Time** | 2 min. 15 sec. |
| **Rewind Time** | 2 min. 15 sec. |
| **Frequency Response** | 200 to 6,000 Hz (@ 3¾ ips tape speed)<br>200 to 3,000 Hz (@ 1⅞ ips tape speed) |
| **Output Power** | 800 mW (Maximum)<br>600 mW (Undistorted) |
| **Power Requirement** | AC; 115V/230V, 50/60 Hz<br>DC; "C" size battery (UM-2)×6 |
| **Output Impedance** | EXT. SP 8 ohm |
| **Input Impedance** | MIC 30K ohm |
| **Loudspeaker** | 8 ohm, 4″×2⅝″ P.D.S. |
| **Dimensions** | 7⅞″(W)×9¾″(D)×3⅛″(H) |
| **Weight** | 4.4 lbs. approx. |
| **Accessories** | Microphone<br>Full tape<br>Empty reel<br>Splicing tape<br>AC power cord<br>Accessories case |

## ADJUSTMENT AND ALIGNMENT

1. ALIGNMENT OF ERASE AND RECORD/PLAYBACK HEADS
   a. Adjust the height and azimuth of the heads in relation to the tape in accordance with Figure 1 by turning the two adjustment screw on each head.
   b. Connect the VTVM with on 8 ohms resistor in parallel, to the monitor jack and playback a standard recorded tape (3KHz signal @ 3¾ips. tape speed).
   CAUTION:
   DEMAGNETIZE THE HEAD BEFORE PLAYBACK TO AVOID DAMAGE TO THE TAPE.
   c. While the tape is playing, carefully turn the R/P head adjustment screws for maximum output.
   d. Lock the screw in place with a dab of laquer.
   NOTE: The erase head does not require fine adjustment.

2. PRESSURE PAD ADJUSTMENT - (Figure 2)
   a. Assure that the pressure pads are positioned correctly in accordance with figure 2.
   b. Assure that the head core slits meet the center of the pressure pads.
   c. Assure that the spring tension provides a 20 to 25 gr. pressure against the heads.

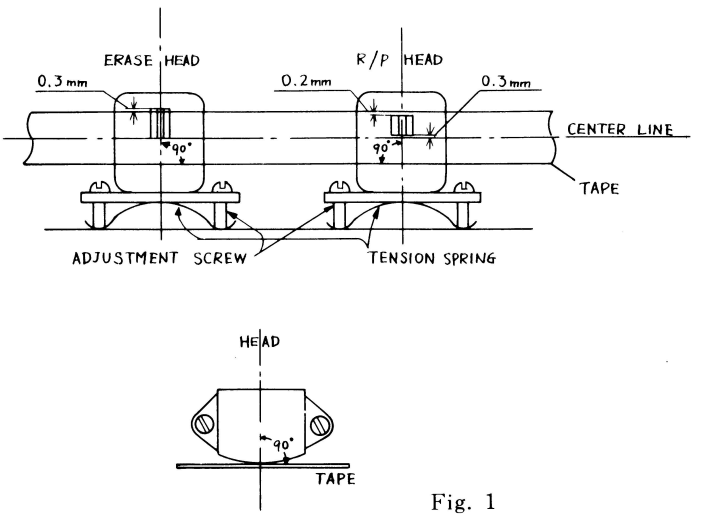
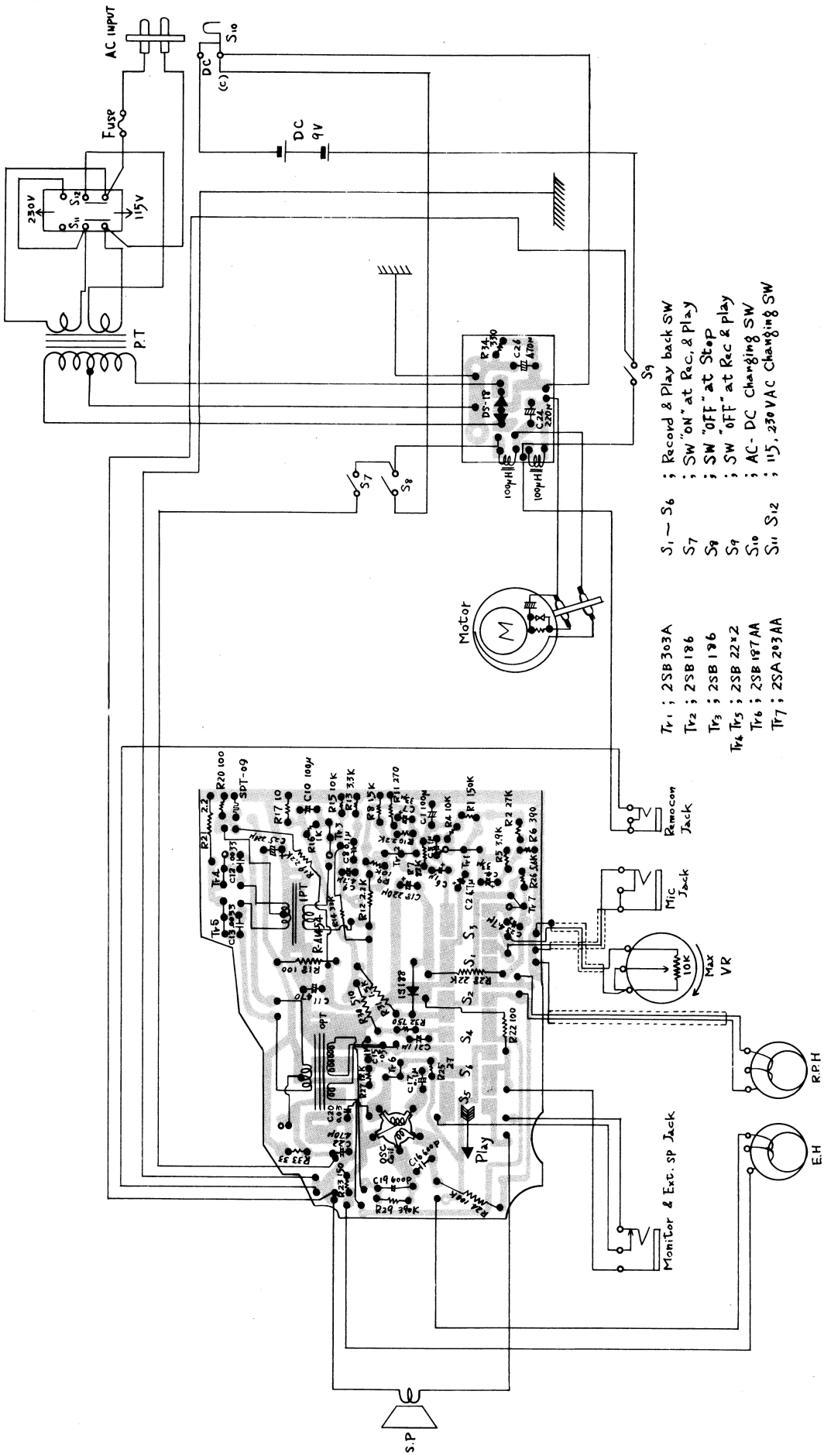



Fig. 1

## WIRING DIAGRAM






WM-65/Oct./'69/3000

Printed in Japan

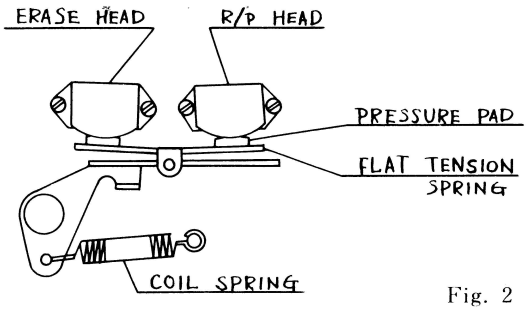



Fig. 2

3. BRAKE MECHANISM ADJUSTMENT

Assure that sufficient braking pressure is applied against the supply reel pulley to prevent tape slack when the operation lever is moved to the STOP position from REW, PLAY, or FWD positions. The braking pressure is varied by bending the brake bar. Figure 3 show the configuration of the brake mechanism when the operation lever is in the STOP position.

NOTE: The brake mechanism remains engaged in all positions of the operation lever except FWD.

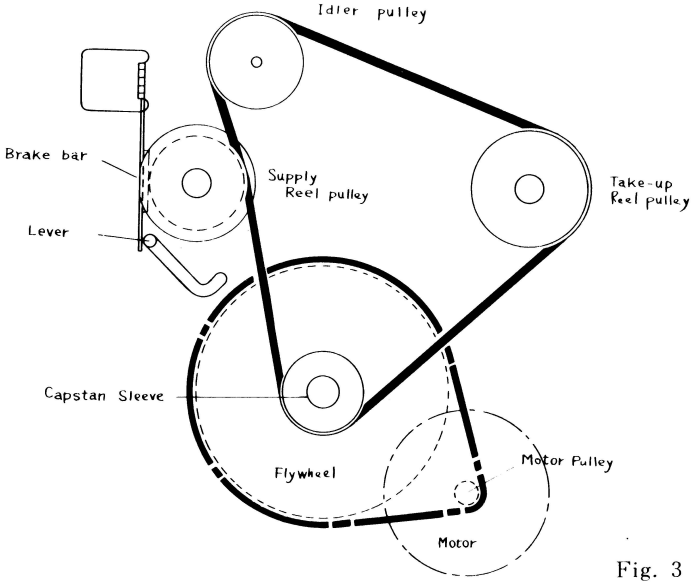



Fig. 3

4. PLAY MECHANISM ADJUSTMENT

Figure 4 and figure 5 show the configuration of pulleys when operation lever is in PLAY posistion.

Assure that the pressure of the pinch roller against the capstan is 300 gr. plus or minus 50 gr. at 1⅞ ips tape speed. The pinch roller pressure is controlled by varying the tension of the coil spring. See figure.

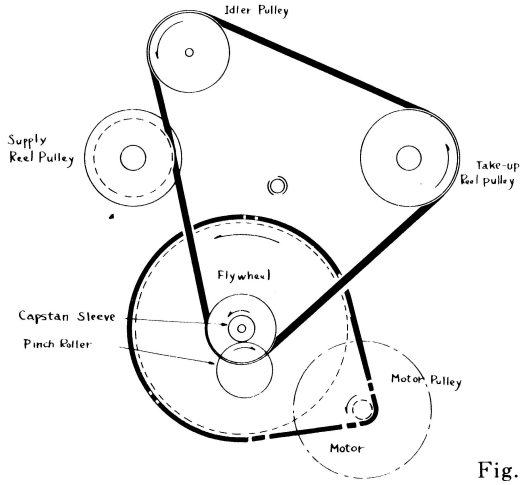



Fig. 4

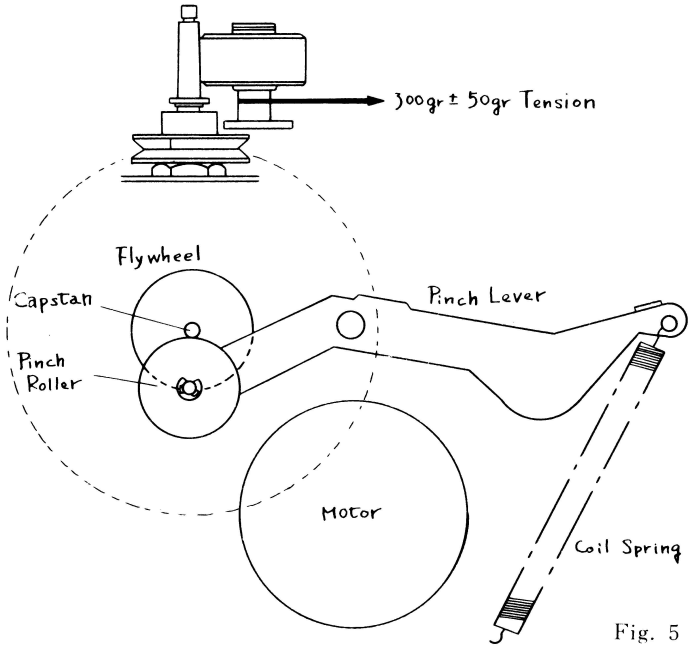



Fig. 5

## CLEANING AND LUBRICATION

1. CLEANING - Before completing reassembly, clean as follows.
   a. Clean dust and tape residue from erase and R/P heads, tape guide, pressure pad, pinch roller and capstan using a clear a clean cloth moistened with alcohol.
   b. Clean oil and grease on drive belt, idler, pulleys, brake drum and all other driving surfaces with alcohol.
2. LUBRICATION - Before completing reassemly, lubricate as follows:
   a. Apply a thin film of light non-hardening grease to all frictional surfaces.
   b. Apply a drop of light machine oil to all bearings and rotating bushings.
   c, Wipe off excess oil and grease with alcohol.

   CAUTION Insure that all driving surfaces are free of oil or grease.

## CABINET DISASSEMBLY

Refer to Figure 6 disassemble the main sub-assemblies as follows;

a. Unscrew the operation knob (4).
b. Unscrew the two plus-screws (1 and 2) and remove the bottom cover (3).
c. Unscrew the four red screws (6) and separate the top deck panel (8) from the main chassis (10).

## CABINET DISASSEMBLY FIGURE

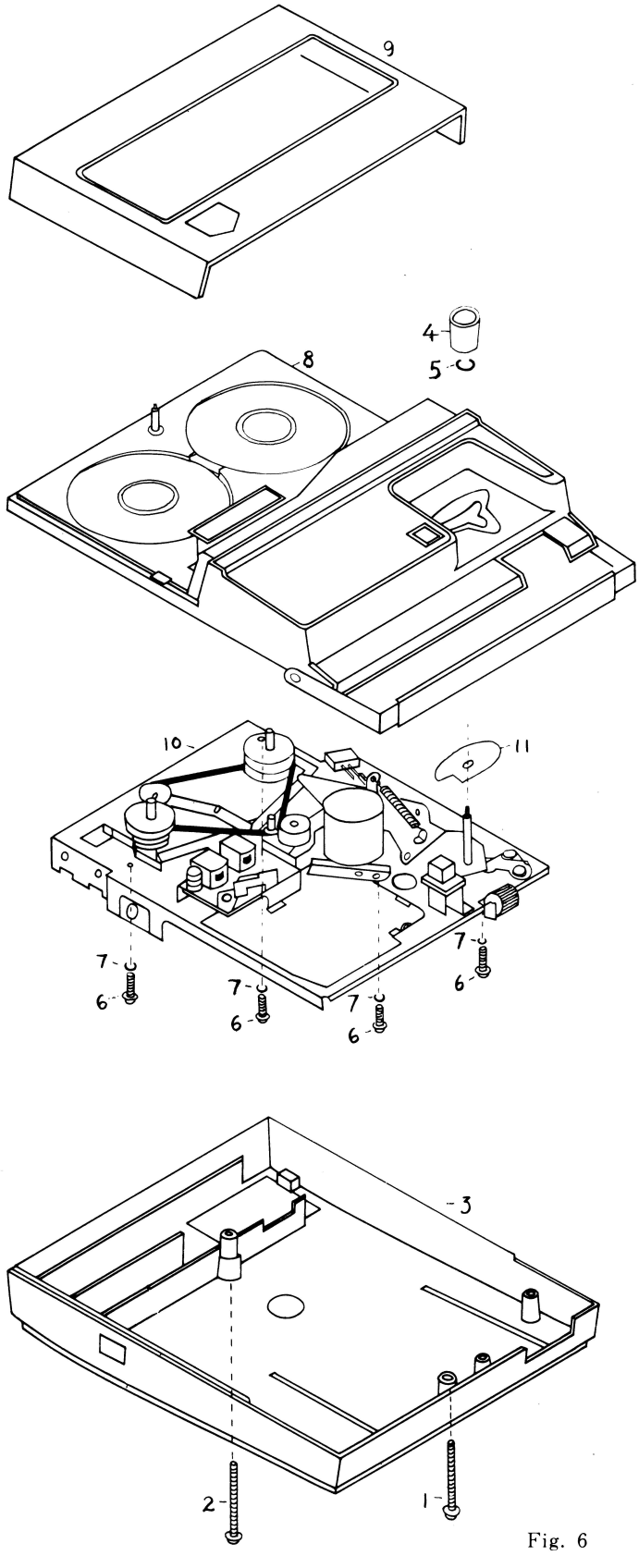
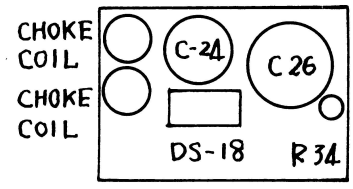



Fig. 6

## PARTS LOCATIONS



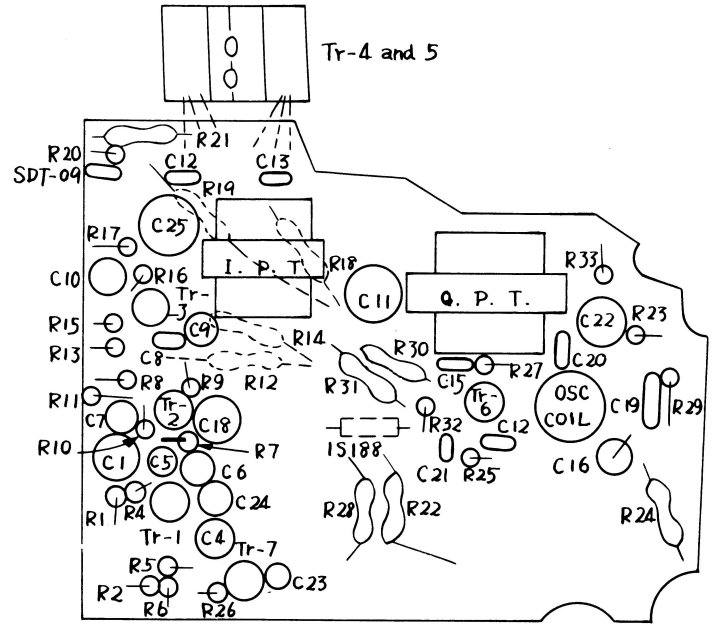




Fig. 7

## PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | *PACKING* | | |
| | R-498918 | Individual carton | 1 |
| | R-41457 | Side filler (right) | 1 |
| | R-41458 | Side filler (left) | 1 |
| | R-478656 | Instruction booklet | 1 |
| | R-368055 | Accessories case | 1 |
| | | Poly-bag 115×195, case | 1 |
| | | Poly-bag 320×500, set | 1 |
| | | Poly-bag 60×150, mic. | 1 |
| | R-49087 | Cover sheet, cabinet front | 1 |
| | R-49104 | Reel cover sheet | 1 |
| | R-498921 | Reel cover sheet | 1 |
| | *CABINET & CHASSIS* | | |
| | R-AT34601 | Cabinet top | 1 |
| | (R-31678b) | (Cabinet top (plastic skeleton)) | (1) |
| | R-39254 | Bezel, control knob | 1 |
| | R-261214 | Nameplate | 1 |
| | R-261205a | Jack plate | 1 |
| | R-261280a | Nameplate, VOLUME | 1 |
| | R-261281a | Perforated panel, speaker | 1 |
| | R-44229 | Rubber cushion | 6 |
| | | Speaker net | 1 |
| | R-39281a | Adhesive sheet, speaker | 1 |
| | | Vinyl sheet, 50×17×1 mm | 1 |
| | | Cloth, 15×15 mm | 2 |
| | R-241217 | Insert nut | 1 |
| | R-241218a | Insert nut | 1 |
| | R-261282a | Ornament sash | 1 |
| | R-AT34602 | Lid assembly | 1 |
| | (R-31635a) | (Lid (plastic skeleton)) | (1) |
| | R-268954 | Badge | 1 |
| | R-39331a | Transparent window | 1 |
| | | Rubber cushion | 4 |

# PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | | *CABINET & CHASSIS* | |
| | R-AT34603 | Cabinet bottom | 1 |
| | ├(R-318386) | (Cabinet bottom (plastic skeleton)) | (1) |
| | ├R-26691 | Badge, SANYO | 1 |
| | ├R-478657 | Circuit diagram | 1 |
| | ├R-268953 | Nameplate | 1 |
| | ├R-268955 | Plate, voltage indicator | 1 |
| | ├R-268956 | Plate, AC INPUT | 1 |
| | ├ | Felt, 26×80×3 mm | 1 |
| | └ | Cloth 15×15 mm | 9 |
| | R-AT34604 | Battery lid assembly | 1 |
| | ├(R-32519a) | (Battery lid) | (1) |
| | ├ | Cloth, 4×20 mm | 2 |
| | └ | Sponge, 30×45×10 mm | 1 |
| | R-112456 | Fixing metal, speaker | 1 |
| | R-241014a | Handle holder | 2 |
| | R-S81153a | Handle | 1 |
| | R-44229 | Cushion, speaker | 1 |
| | R-241077 | Pole, tape guide | 1 |
| | R-35216 | Ribbon, battery removal | 1 |
| | | Nylon washer, 8.2×12×0.5 mm | 5 |
| | | Polyethylene washer, 8.2×12×2mm | 2 |
| | R-43143d | Felt cover, function lever | 1 |
| | R-24678b | Knob, function lever | 1 |
| | R-32521e | Button, RECORD | 1 |
| | R-S3008 | Lug | 2 |
| | R-32520d | Base plate, jacks | 1 |
| | R-39201a | Base plate, slide switch | 1 |
| | R-13075 | Plate spring, slide switch | 2 |
| | R-25144 | Terminal board | 6 |
| | R-15141 | Pin | 2 |
| | (R-41454g) | (Printed circuit board, Amp., bare) | (1) |
| | | Felt cushion, 15×17×30 mm | 1 |
| | (R-418285) | (Printed circuit board, power rect., bare) | (1) |
| | R-471011d | Battery index sheet | 1 |
| | R-AT34605 | Knob, VOLUME | 1 |
| | ├(R-39264b) | (Knob) | (1) |
| | └R-47962a | Numbered tape | 1 |
| | R-112485b | Bracket, variable resistor | 1 |
| | R-112487a | Bracket, VOLUME knob | 1 |
| | R-25260 | Bracket, thermistor | 1 |
| | R-424282d | Insulation paper, bottom of chassis | 1 |
| | R-14209a | Special screw, volume knob | 1 |
| | R-S3063 | Lug | 1 |
| | R-119855 | Bracket, PT and slide switch | 1 |
| | R-248532 | Stud nut, PCB mtg. | 1 |
| | R-278300 | Spacer, AC receptacle socket | 2 |
| | | *ELECTRICAL PARTS* | |
| PT | R-W7107① | Power transformer | 1 |
| IPT | R-W6240e | Input transformer | 1 |
| OPT | R-W6230a③ | Output transformer | 1 |
| | R-W8144 | Oscil'ator coil | 1 |
| | R-W1048 | Choke coil 100 μH | 2 |
| | R-S6367a | Spacer | 1 |
| VR | R-R11649 | Variable resistor 10 KΩ | 1 |
| | R-S6336f | Microphone | 1 |
| | R-S2139 | Socket, MIC | 1 |
| | R-S2803a | Socket, REMOTE | 1 |
| | R-S2854a | Socket, speaker | 1 |
| S11,12 | R-S4266 | Slide switch, voltage select. | 1 |
| | R-S1883 | Fuse 0.1 A | 1 |
| | R-S1881 | Fuse holder | 1 |
| | R-261193a | Heat sink, power | 1 |
| | R-S8516 | Battery terminal (+) | 1 |
| | R-S8517a | Battery terminal (−) | 1 |
| | R-S88190 | 3″ full tape | 1 |
| | R-32126b | 3″ empty reel | 1 |
| | | Splicing tape | 1 |
| | R-S8574b | Power source adaptor (Siemens) | 1 |
| | R-S8575b | Power source adaptor (English) | 1 |
| | R-S3146 | AC power cord | 1 |
| | R-S2182 | AC power receptacle terminal | 1 |
| Tr-1 | | Transistor 2SB303 | 1 |
| Tr-2,3 | | Transistor 2SB186 | 2 |
| Tr-4,5 | | Transistor 2SB22 | 2 |
| Tr-6 | | Transistor 2SB187 | 1 |
| Tr-7 | | Transistor 2SA203 | 1 |

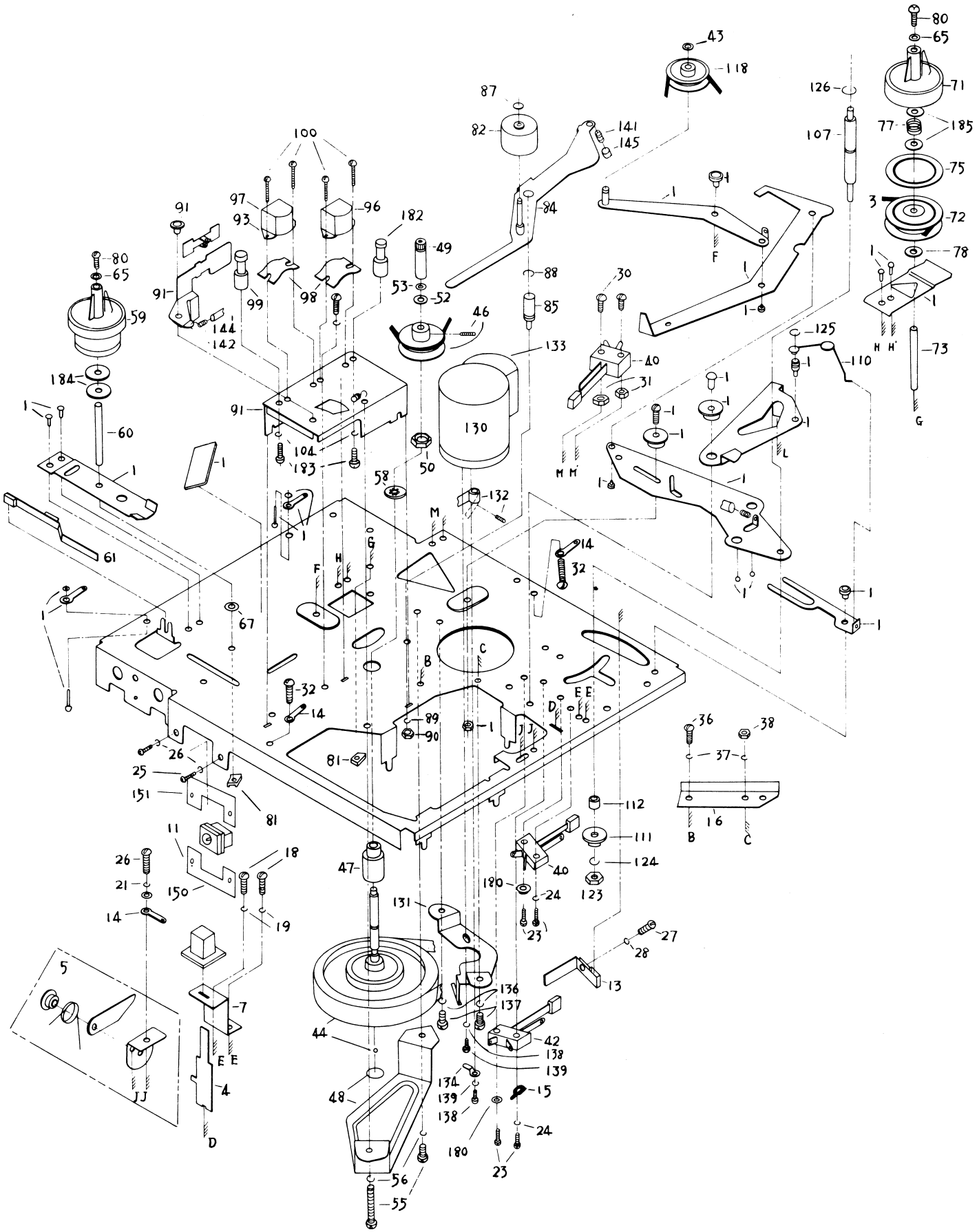
| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | | *ELECTRICAL PARTS* | |
| | | Diode 1S188 or 1N60 | 1 |
| | | Silicon rectifier DS-18 or 10DC-1R | 1 |
| | | Thermistor SDT-09 | 1 |
| | | *CAPACITORS* | |
| C1 | R-C9871 | Electrolytic 100μF 6.3WV | 1 |
| C2 | R-C9867 | Electrolytic 4.7μF 16WV | 1 |
| C4 | R-C9865 | Electrolytic 33μF 6.3WV | 1 |
| C5,6 | R-C9115 | Electrolytic 1μF 10WV | 2 |
| | or R-C9160 | Electrolytic 1μF 10WV | 2 |
| C7 | R-C9865 | Electrolytic 33μF 6.3WV | 1 |
| C8 | R-C9126 | Electrolytic 0.1μF 10WV | 1 |
| | or R-C9831 | Electrolytic 0.1μF 25WV | 1 |
| C9 | R-C9867 | Electrolytic 4.7μF 16WV | 1 |
| C10 | R-C9871 | Electrolytic 100μF 6.3WV | 1 |
| C11 | R-C9908 | Electrolytic 470μF 10WV | 1 |
| C12,13 | | Ruthyl 0.0033μF ±20% 50WV | 2 |
| C15 | | Ruthyl 0.03μF +80 −20% 25WV | 1 |
| C16 | | Styrol 600pF ±10% 125WV | 1 |
| C17 | R-C9126 | Electrolytic 0.1μF 10WV | 1 |
| | or R-C9831 | Electrolytic 0.1μF 25WV | 1 |
| C18 | R-C9864 | Electrolytic 220μF 6.3WV | 1 |
| C19 | | Ruthyl 600pF ±20% 50WV | 1 |
| C20 | | Ruthyl 0.03μF +80 −20% 25WV | 1 |
| C21 | R-C9115 | Electrolytic 1μF 10WV | 1 |
| | or R-C9160 | Electrolytic 1μF 10WV | 1 |
| C22 | R-C9908 | Electrolytic 470μF 10WV | 1 |
| C23 | R-C9867 | Electrolytic 4.7μF 16WV | 1 |
| C24,25 | R-C9863 | Electrolytic 220μF 10WV | 2 |
| C26 | R-C9908 | Electrolytic 470μF 10WV | 1 |
| | | *RESISTORS* | |
| R1 | | Carbon P type 150KΩ ±10% ¼W | 1 |
| R2 | | Carbon P type 27KΩ ±10% ¼W | 1 |
| R4 | | Carbon P type 10KΩ ±10% ¼W | 1 |
| R5 | | Carbon P type 3.9KΩ ±10% ¼W | 1 |
| R6 | | Carbon P type 390Ω ±10% ¼W | 1 |
| R7 | | Carbon P type 82KΩ ±10% ¼W | 1 |
| R8 | | Carbon P type 15KΩ ±10% ¼W | 1 |
| R9 | | Carbon P type 10KΩ ±10% ¼W | 1 |
| R10 | | Carbon P type 2.2KΩ ±10% ¼W | 1 |
| R11 | | Carbon P type 270Ω ±10% ¼W | 1 |
| R12 | | Carbon P type 2.2KΩ ±10% ¼W | 1 |
| R13 | | Carbon P type 3.3KΩ ±10% ¼W | 1 |
| R14 | | Carbon P type 33KΩ ±10% ¼W | 1 |
| R15 | | Carbon P type 10KΩ ±10% ¼W | 1 |
| R16 | | Carbon P type 1KΩ ±10% ¼W | 1 |
| R17 | | Carbon P type 10Ω ±10% ¼W | 1 |
| R18 | | Carbon P type 100Ω ±10% ¼W | 1 |
| R19 | | Carbon P type 2.2KΩ ±10% ¼W | 1 |
| R20 | | Carbon P type 100Ω ±10% ¼W | 1 |
| R21 | | Carbon P type 2.2Ω ± 5% ¼W | 1 |
| R22 | | Carbon P type 100Ω ±10% ¼W | 1 |
| R23 | | Carbon P type 150Ω ±10% ¼W | 1 |
| R24 | | Carbon P type 100KΩ ±10% ¼W | 1 |
| R25 | | Carbon P type 27Ω ±10% ¼W | 1 |
| R26 | | Carbon P type 5.6KΩ ±10% ¼W | 1 |
| R27 | | Carbon P type 18KΩ ±10% ¼W | 1 |
| R28 | | Carbon P type 22KΩ ±10% ¼W | 1 |
| R29 | | Carbon P type 390KΩ ±10% ¼W | 1 |
| R30 | | Carbon P type 510Ω ±10% ¼W | 1 |
| R31 | | Carbon P type 1.5KΩ ±10% ¼W | 1 |
| R32 | | Carbon P type 750Ω ±10% ¼W | 1 |
| R33 | | Carbon P type 33Ω ±10% ¼W | 1 |
| R34 | | Carbon P type 330Ω ±10% ½W | 1 |
| | | *MECHANISM CHASSIS (see mechanism exploded view)* | |
| 1 | R-AM04801 | Chassis assembly | 1 |
| | ├R-112457j | Chassis | 1 |
| | ├R-25284e | Plate spring, left reel | 1 |
| | ├ | Rivet, RH 2×3 mm | 2 |
| | ├R-25249d | Plate spring, right reel | 1 |
| | ├ | Rivet, RH 2×4 mm | 2 |
| | ├R-112445b | Fork-lever | 1 |
| | ├R-24763a | Spacer, fork-lever | 1 |
| | ├R-112443b | Lever, rewind idler | 1 |

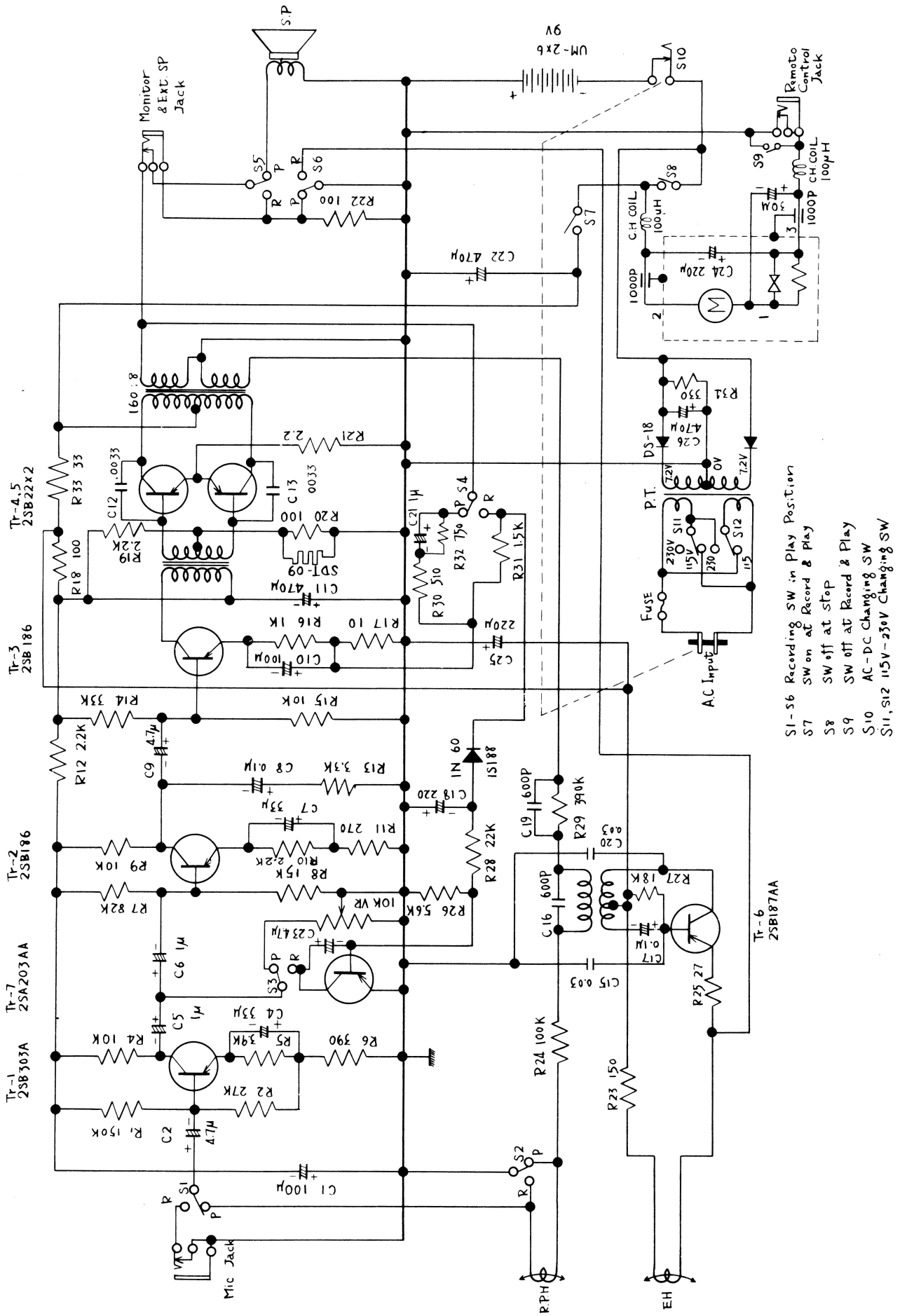
## PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | | *MECHANISM CHASSIS (see mechanism exploded view)* | |
| | ├R-24763a | Spacer, rewind idler lever | 1 |
| | | Felt attachment, 10×20×1 mm | 1 |
| | ├R-14129 | Spacer, lever (R-112443b and R-112450g) | 2 |
| | ├R-14170b | Shaft, rewind idler | 1 |
| | ├R-112442b | Operative lever, under plate | 1 |
| | ├R-112450g | Function slide | 1 |
| | ├ | Fiber washer, 3×8×1 mm | 1 |
| | ├ | Steel ball, 3 mm dia. | 2 |
| | ├R-112441a | Stepper plate, function lever | 1 |
| | ├R-241321 | Spacer, stepper plate | 1 |
| | ├R-24997 | Post, torsion spring hook | 1 |
| | ├ | Screw, PH 3×8 mm | 1 |
| | ├ | Nut, 3 mm | 1 |
| | ├R-241065d | Spacer, function slide | 1 |
| | ├ | Screw, PH 2.6×3 mm | 1 |
| | ├ | Nut, 2.6 mm | 1 |
| | ├R-S3008 | Lug | 2 |
| | ├ | Ribet, RH 2×6 mm | 2 |
| | └ | Washer, 2.6 mm | 2 |
| 2 | R-44247b | Belt, flywheel drive | 1 |
| 3 | R-44248b | Belt, square | 1 |
| 4 | R-112451a | Lever, record interlock | 1 |
| 5 | R-AM04802 | Self-tension lever, record/playback | 1 |
| | ├R-112452 | Bracket | 1 |
| | ├R-112453 | Lever | 1 |
| | ├R-15231d | Torsion spring | 1 |
| | └R-241001 | Shaft, lever and spring | 1 |
| 7 | R-113454 | Bracket, record interlock lever | 1 |
| 11 | R-S2831 | Socket, AC adaptor | 1 |
| 13 | R-112576a | Lever, spring switch actuate | 1 |
| 14 | R-S3008 | Lug chip | 3 |
| 15 | R-S3063 | Lug chip | 1 |
| 16 | R-112776b | Reinforcement plate, chassis | 1 |
| 40 | R-S4371a | Spring switch | 2 |
| 42 | R-S4372b | Spring switch | 1 |
| 18 | | Screw, RH 3×6 mm | 2 |
| 19 | | Spring washer, 3 mm | 2 |
| 20 | | Screw, RH 3×6 mm | 1 |
| 21 | | Spring washer, 3 mm | 1 |
| 23 | | Screw, RH 2.6×10 mm | 4 |
| 24 | | Spring washer, 2.6 mm | 2 |
| 25 | | Screw, RH 2.6×6 mm | 2 |
| 26 | | Spring washer, 2.6 mm | 2 |
| 27 | | Screw, RH 2.6×6 mm | 1 |
| 28 | | Spring washer, 2.6 mm | 1 |
| 30 | | Screw, RH 2.6×12 mm | 2 |
| 31 | | Nut, 3 mm | 2 |
| 32 | | Screw, PH tapping, 3×5 mm | 2 |
| 36 | | Screw, RH 3×6 mm | 1 |
| 37 | | Spring washer, 3 mm | 1 |
| 38 | | Nut, 3 mm | 1 |
| 180 | | Washer, 2.6 mm | 2 |
| 44 | R-S81088a | Flywheel assembly with steel ball | 1 |
| 46 | R-AM04803 | Pulley, flywheel | 1 |
| | ├R-34135 | Pulley | 1 |
| | └ | Screw, Hd-less, 2.6×3 mm | 1 |
| 47 | R-241064b | Flywheel bearing | 1 |
| 49 | R-S81152a | Capstan sleeve | 1 |
| 50 | R-S7069 | Nut, 8 mm, flywheel bearing | 1 |
| 48 | R-AM04804 | Bracket, assy., flywheel | 1 |
| | ├R-112446 | Bracket | 1 |
| | | Fiber disk, flywheel pivot | 1 |
| 52 | | Rubber washer, 3.2×8×1 mm | 1 |
| 53 | | Nylon washer, 2.8×5×0.5 mm | 2 |
| 55 | | Screw, RH 3×6 mm | 1 |
| 56 | | Spring washer, 3 mm | 2 |
| 57 | | Screw, RH 3×20 mm | 1 |
| 58 | | Inner tooth washer, 8 mm | 1 |
| 181 | | Nylon washer, 4.5×8×0.5 mm | 1 |
| 181 | | Nylon washer, 4.5×8×0.3 mm | 1 |
| 59 | R-AM04805 | Reel base assy., left | 1 |
| | ├R-34137b | Reel base | 1 |
| | └R-128016a | Spring | 1 |
| 60 | R-14168d | Shaft, left reel base | 1 |
| 61 | R-AM04806 | Plate spring, assy., Back Tension | 1 |
| | ├R-25250b | Plate spring | 1 |
| | └ | Felt attachment, 10×5×2 mm | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | | *MECHANISM CHASSIS* | |
| 67 | | Fiber washer, 4.5×8×1 mm | 1 |
| 80 | | Screw, Trass Hd. 2.6×5 mm | 1 |
| 81 | R-119139 | Special nut, spindle | 1 |
| 71 | R-AM04807 | Reel base assy., right | 1 |
| | ├R-34136b | Reel base | 1 |
| | └R-128016a | Spring | 1 |
| 72 | R-34134a | Pulley, right reel base | 1 |
| 73 | R-14168b | Shaft, right reel base | 1 |
| 75 | | Felt washer, 31×24×1 mm | 1 |
| 77 | R-15303 | Coil spring, right reel | 1 |
| 80 | | Screw, Trass Hd., 2.6×5 mm | 1 |
| 81 | R-119139 | Special washer, spindle | 1 |
| 65 | | Nylon washer, 4.2×6×0.5 mm | 2 |
| 65 | | Nylon washer, 4.2×6×0.33 mm | 2 |
| 184 | | Nylon (graphite) washer, 4.2×7.5×0.25 mm | 2 |
| 185 | | Nylon washer, 4.2×7.5×0.5 mm | 2 |
| 78 | | Nylon washer, 4.2×10×0.5 mm | 1 |
| 78 | | Nylon washer, 4.2×10×0.3 mm | 1 |
| 82 | R-AM04808 | Pinch roller assy., | 1 |
| | ├R-44246b | Rubber tire | 1 |
| | └R-241002 | Bearing | 1 |
| 84 | R-AM04809 | Lever, pinch roller assy., | 1 |
| | ├R-14169a | Shaft, pinch roller | 1 |
| | ├R-112448a | Lever | 1 |
| | └R-241074 | Spacer | 1 |
| 85 | R-128001 | Shaft, pinch lever | 1 |
| 87 | | Nylon washer, 3.2×6×0.5 mm | 1 |
| 88 | | External "E" ring, 4 mm | 1 |
| 89 | | Spring washer, 3 mm | 1 |
| 90 | | Nut, 3 mm | 1 |
| 91 | R-AM04809 | Head mtg. assy., board | 1 |
| | ├R-112444a | Board | 1 |
| | ├R-112447a | Pad lever | 1 |
| | └R-24763a | Spacer, pad lever | 1 |
| 93 | R-AM04810 | Pressure pad assy., | 1 |
| | ├R-25201 | Pad plate | 1 |
| | └ | Felt attachment, 6×6×2 mm | 2 |
| 96 | R-S6328 | Head, record/play | 1 |
| 97 | R-S6357 | Head, erase | 1 |
| 98 | R-25187 | Plate spring, head adjustment | 2 |
| 99 | R-241320b | Tape guide, left | 1 |
| 182 | R-248037b | Tape guide, right | 1 |
| 100 | | Screw, RH 2×8 mm | 4 |
| 101 | | Screw, RH 3×6 mm | 1 |
| 102 | | Spring washer, 3 mm | 1 |
| 104 | | Spring washer, 3 mm | 2 |
| 183 | | Screw, RH 3×6 mm | 2 |
| 107 | R-14171a | Operation lever | 1 |
| 110 | R-15232 | Spring, operation lever detent | 1 |
| 111 | R-241067a | Special washer, operation lever | 1 |
| 112 | R-24998b | Spacer, operation lever | 1 |
| 118 | R-34139d | Idler | 1 |
| 43 | | Nylon washer, 3.5×6×0.5 mm | 1 |
| 123 | | Nut, 4 mm | 1 |
| 124 | | Spring washer, 4 mm | 1 |
| 125 | | External "E" ring, 3 mm | 1 |
| 126 | | External "E" ring, 4 mm | 1 |
| 130 | R-S5111f | DC Motor | 1 |
| 131 | R-112458e | Bracket, motor | 1 |
| 133 | R-29015a | Shield plate, motor | 1 |
| 134 | R-S3176 | Lug chip, belt guide | 1 |
| 132 | R-AM04811 | Motor Pulley assy., (low speed use) | 1 |
| | ├R-241009e | Motor pulley | 1 |
| | └ | Screw, Hd-less, 1.4×2 mm | 1 |
| 132 | R-AM04812 | Motor pulley assy., (high speed use) | 1 |
| | ├R-248022a | Motor pulley | 1 |
| | └ | Screw, Hd-less, 1.4×2 mm | 1 |
| 136 | | Spring washer, 3 mm | 2 |
| 137 | | Screw, RH 3×6 mm | 2 |
| 138 | | Spring washer, 2.6 mm | 2 |
| 139 | | Screw, RH 2.6×6 mm | 2 |
| 141 | R-15235a | Coil spring, pinch lever | 1 |
| 142 | R-15300 | Coil spring, pad | 1 |
| 144 | | Vinyl tube, 4φ | 1 |
| 145 | | Vinyl tube, 5φ | 1 |

## EXPLODED VIEW




S1-S6 Recording SW in Play Position
S7 SW on at Record & Play
S8 SW off at stop
S9 SW off at Record & Play
S10 AC-DC Changing SW
S11, S12 115V-230V Changing SW
Tr-1 2SB303A
Tr-2 2SB196
Tr-3 2SB186
Tr-4,5 2SB22x2
Tr-6 2SB187AA
Tr-7 2SA203AA
Mic Jack
Monitor & Ext. SP Jack
Remote Control Jack
AC Input
Fuse
P.T.
DS-18
1S188
IN 60
SDT-09
RPH
EH
SP
9V
UM-2x6
160 : 8
10K VR