



# SANYO

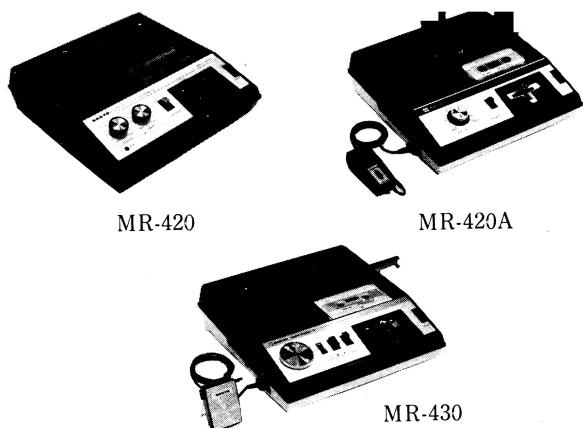
## Portable Cassette Recorder

**MR-420  
MODEL MR-420A  
MR-430**

## **SERVICE MANUAL**

**SANYO ELECTRIC CO., LTD.**

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



## **SPECIFICATIONS**

|                         | <b>MR-420</b>                                  |                   | <b>MR-420A</b>                                 |                   | <b>MR-430</b>                                  |                   |
|-------------------------|--|-------------------|--|-------------------|--|-------------------|
| Recording System        | AC bias, Double track                          |                   | AC bias, Double track                          |                   | AC bias, Double track                          |                   |
| Erasing System          | DC erase                                       |                   | DC erase                                       |                   | DC erase                                       |                   |
| Tape Speed              | 1-7/8 ips.                                     |                   | 1-7/8 ips.                                     |                   | 1-7/8 ips.                                     |                   |
| Rewind & F. foward Time | 1'30" (C-60)                                   |                   | 1'30" (C-60)                                   |                   | 1'30" (C-60)                                   |                   |
| Output Power            | 1 W  |                   | 1 W  |                   | 1 W  |                   |
| Wow & Flutter           | 0.3% RMS.                                      |                   | 0.3% RMS.                                      |                   | 0.3% RMS.                                      |                   |
| Signal to Noise Ratio   | 40 dB  |                   | 40 dB  |                   | 40 dB  |                   |
| Erase Ratio             | 65 dB  |                   | 65 dB  |                   | 65 dB  |                   |
| Terminals               | MIC. 10 Kohm                                   | AUX. IN 100 ohm   | MIC. 10 Kohm                                   |                   | MIC. 10 Kohm                                   |                   |
|                         | EXT. SP 8 ohm                                  |                   | EXT. SP 8 ohm                                  |                   | EXT. SP 8 ohm                                  |                   |
| Frequency Respons       | 90 - 10000 Hz                                  |                   | 90 - 10000 Hz                                  |                   | 90 - 10000 Hz                                  |                   |
| Frequency Range         |  |                   |  |                   | 530 - 1605 KHz                                 |                   |
| Intermediate Frequency  |  |                   |  |                   | 455 KHz  |                   |
| Maximum Sensitivity     |  |                   |  |                   | 100 $\mu$ V/m                                  |                   |
| Transistors             | 2SB303 $\times$ 1                              | 2SB186 $\times$ 1 | 2SB303 $\times$ 1                              | 2SB186 $\times$ 1 | 2SA101 $\times$ 1                              | 2SA202 $\times$ 2 |
|                         | 2SB187 $\times$ 1                              | 2SB405 $\times$ 2 | 2SB187 $\times$ 1                              | 2SB22 $\times$ 2  | 2SB303 $\times$ 1                              | 2SB186 $\times$ 1 |
|                         | 2SB185 $\times$ 1                              |                   | 2SB185 $\times$ 1                              |                   | 2SB187 $\times$ 1                              | 2SB405 $\times$ 2 |
| Diodes                  | 1S1849R $\times$ 1                             | 1S188 $\times$ 1  | 1S1849R $\times$ 1                             | 1S188 $\times$ 1  | 1S1849R $\times$ 1                             | 1S188 $\times$ 3  |
| Thermistors             | SDT-06 $\times$ 1                              |                   | SDT-06 $\times$ 1                              |                   | SDT-06 $\times$ 1                              |                   |
| Speaker                 | 4" P.D.S.                                      |                   | 4" P.D.S.                                      |                   | 4" P.D.S.                                      |                   |
| Power Source            | DC: D-cell $\times$ 4                          |                   | DC: D-cell $\times$ 4                          |                   | DC: D-cell $\times$ 4                          |                   |
|                         | AC: 120/200/240V (50/60Hz)                     |                   | AC: 120/200/240V (50/60Hz)                     |                   | AC: 120/200/240V (50/60Hz)                     |                   |
| Dimensions              | 9-13/16"(W) $\times$ 10 1/4"(L) $\times$ 3"(H) |                   | 9-13/16"(W) $\times$ 10 1/4"(L) $\times$ 3"(H) |                   | 9-13/16"(W) $\times$ 10 1/4"(L) $\times$ 3"(H) |                   |
| Weight                  | 5.5 lbs.                                       |                   | 5.5 lbs.                                       |                   | 5.5 lbs.                                       |                   |

## **DISASSEMBLY INSTRUCTIONS**

To remove the amplifier and mechanism from the cabinet.

- (1) Pull off the volume knob and tone control knob.
- (2) Remove the 3 screws holding the bottom lid (Fig 1.)
- (3) Remove the 4 screws holding the top panel.
- (4) Disconnect battery compartment lead wires and speaker lead wires.

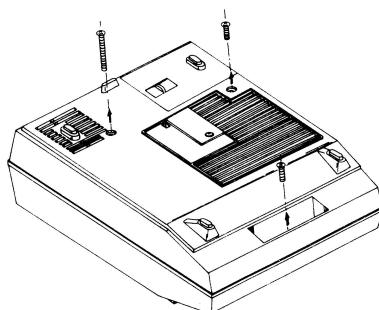
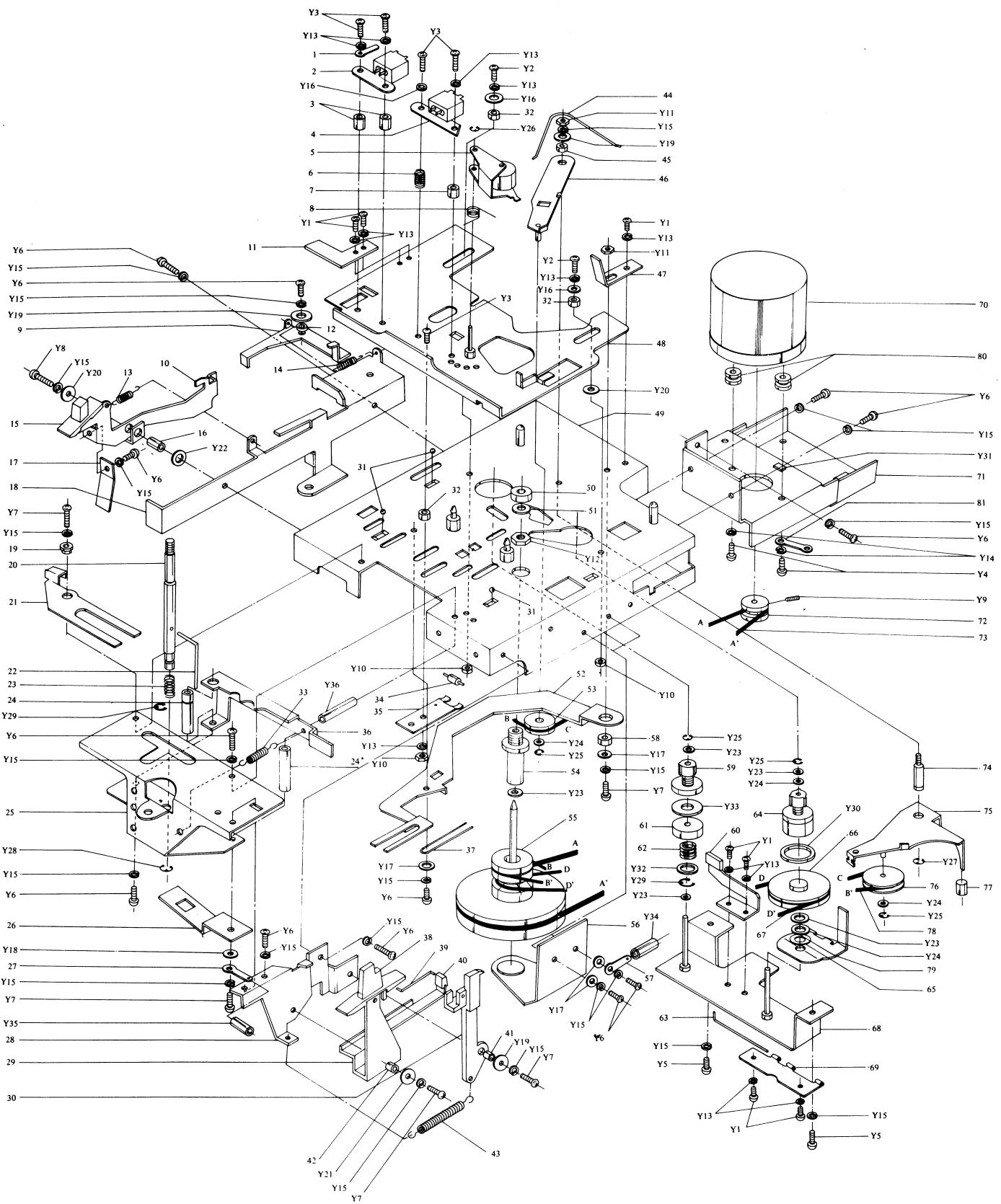


Fig. 1

## **EXPLODED VIEW**



## MECHANICAL ADJUSTMENT

To measure the torque of the tape recorder, a torque gauge (Fig. 3) and a tension gauge are required. To use a torque gauge, make a hole in the side of the cassette. Note: Do not permit the tape rub against edge of the cassette, or the measurement will become incorrect.

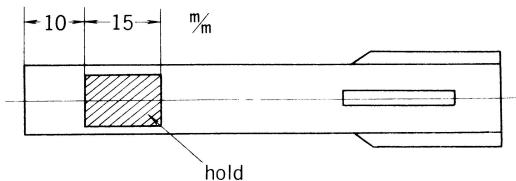


Fig. 2

### 1) Take-up torque (measure with torque gauge)

- (a) Play 40 ~ 70 gr/cm
- (b) Fast Forward 55 ~ 90 gr/cm
- (c) Rewind 55 ~ 90 gr/cm

### 2) Back tension (measure with tension gauge)

- (a) Play 2 ~ 15 gr/cm
- (b) Fast Forward 2 ~ 15 gr/cm
- (c) Rewind 2 ~ 15 gr/cm

### 3) Tape tension

As shown in the figure 4, cut off a length of tape. The one end to a string connected to the tension gauge, and leave the other-end untied.

Depress the PLAY button and hold the tension gauge steady (do not shake it). When the tape stops, read the tension gauge. If this reading falls within the range of 50~200 gr. No adjustment is needed. If it does not fall within this range, adjust the pinch roller pressure. This is done by changing the hole position of the coil spring(8). (Fig. 5)

Clean the pinch roller with alcohol in order to prevent at the tape from slipping.

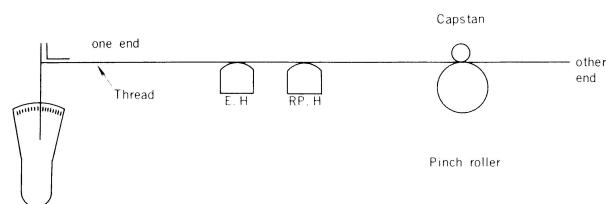


Fig. 4

### 4) Operating lever pressure

Put the operating lever at each position. When the forces required to set each position fall within the ranges shown below, no adjustment is necessary.

1. PLAY — STOP 800 ~ 1800 gr
  2. STOP — FWD less than 1000 gr
  3. STOP — REW less than 1000 gr
- more than 300 gr difference between (2) and (3) will not be allowed.

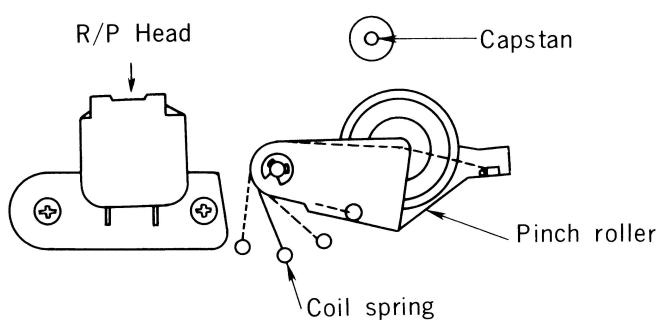


Fig. 5

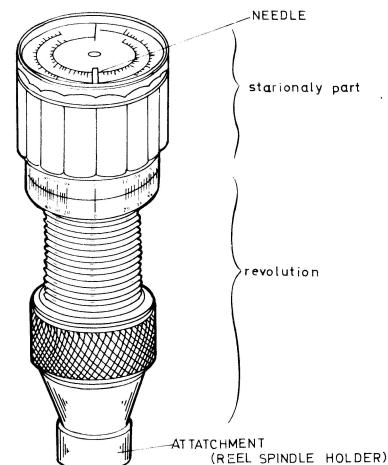


Fig. 3

## ELECTRICAL ADJUSTMENTS

### (MR-420, MR-420A)

#### Oscillation bias current

Bias current during recording is replaced by voltage.

Adjustment is made as follows:

Connect 10 ohm resistor ( $\pm 5\%$ ) in series to R. P Head and insert the VTVM into both ends of the resistor. Bias current value varies as follows according to the colors of R. P Head.

|       |             |
|-------|-------------|
| Blue  | 300 $\mu$ A |
| Green | 350 $\mu$ A |
| Red   | 400 $\mu$ A |

#### Bias current adjusting method:

Set the semi-fixed VR at the position by turning it half around without input on microphone during recording and adjust the variable choke coil so that the meter indicates maximum value. Then turn the semi-fixed VR to set it at 320  $\mu$ A. (Power source: AC)

## MEASUREMENT DATA(MR-420, MR-420A) —

#### (Measuring Conditions)

- (1) Power source voltage.....60Hz 120V AC
  - (2) Input Play.....Feed 1KHz (-74 dB) signal to P-R head terminal
- Recording...Feed 1KHz (-71 dB) signal to Mic jack
- (3) Volume control knob.....maximum
  - (4) Tone control knob.....high

|      | DC (V) |       | Signal (mV) |          |        |
|------|--------|-------|-------------|----------|--------|
|      | Play   | REC   | Play        | REC      |        |
| Tr-1 | B      | 1.18  | 0.56        | 0.20     | 0.29   |
|      | E      | 1.09  | 0.49        | —        | —      |
|      | C      | 2.40  | 3.70        | 1.05     | 2.90   |
| Tr-2 | B      | 0.63  | 0.68        | 1.05     | 2.90   |
|      | E      | 0.52  | 0.51        | —        | —      |
|      | C      | 1.85  | 2.30        | 17.20    | 16.60  |
| Tr-3 | B      | 1.00  | 1.02        | 17.00    | 16.20  |
|      | E      | 0.85  | 0.86        | —        | —      |
|      | C      | 4.55  | 4.60        | 1,160.00 | 560.00 |
| Tr-4 | B      | 0.10  | 0.13        | 390.00   | 185.00 |
|      | E      | 0.20  | 0.09        | —        | —      |
|      | C      | 5.70  | 6.20        | 1,350.00 | 850.00 |
| Tr-5 | B      | 0.095 | 0.13        | 380.00   | 178.00 |
|      | E      | 0.20  | 0.09        | —        | —      |
|      | C      | 5.70  | 6.20        | 1,350.00 | 850.00 |
| Tr-6 | B      | —     | + 0.43 *    | —        | —      |
|      | C      | —     | 0.19        | —        | —      |
|      | E      | —     | 5.50        | —        | —      |

## ELECTRICAL ADJUSTMENT(MR-430)

### Bias current

adjusting methods.

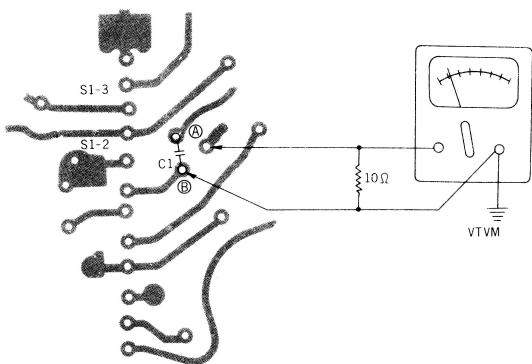


Fig. 6

Bias current during recording is replaced by voltage. As shown in figure above, connect 10 ohm resistor ( $\pm 5\%$ ) and the meter indicator to A and B. Set the semi-fixed variable resistor (SVR, 250K $\Omega$ ) at the position by turning it half around. Adjust the choke coil (LT1) so that the meter indicates maximum value. Then turn the semi-fixed variable resistor to set the bias current at 3.5mV.

### Intermediate frequency adjustment.

#### 1. Measuring instruments.

To test and adjust the intermediate frequency, the following instruments are necessary.

- ① SG (fc = 455 kHz)
- ② Loop antenna
- ③ DC voltage (6V)
- ④ 8Ω speaker or (load)
- ⑤ Output meter (VTVM)
- ⑥ Driver
- ⑦ Adjustment bar

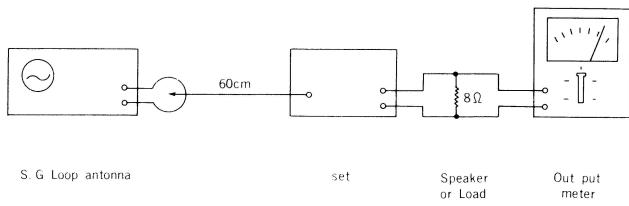


Fig. 7

Use a loop antenna (50 $\Omega$  or 70 $\Omega$ ) and send the input signal to the bar antenna in the set.

Take the output from EXT. SP jack in the set to put it in the speaker.

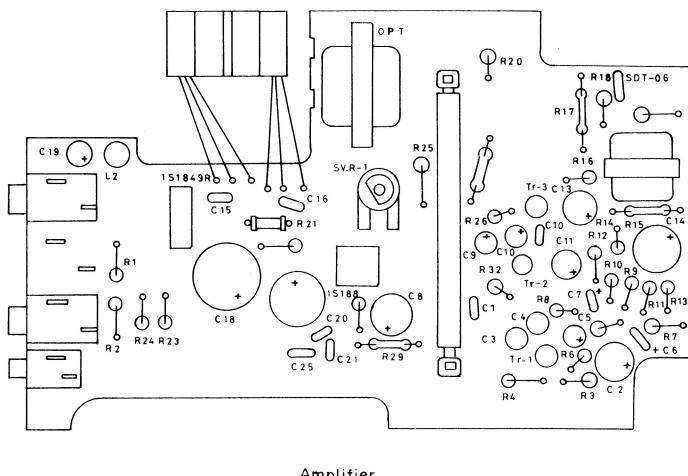
#### 2. Adjusting methods

- 1) Operate the set at the minimum frequency position where the variable capacitor is at the maximum capacity on BC band. Supply the set 6V constantly.
- 2) Adjust the semi-fixed variable resistor (SVR 101, 100K $\Omega$ ) so that the meter shows values between 0.42V and 0.48V or both sides of the resistor (R111).
- 3) Oscillate 455 KHz intermediate frequency by S.G and adjust the intermediate frequency transformers (T-101, T-102, T-103) so that output becomes maximum.

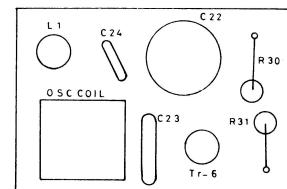
### Tracking adjustment methods

- 1) Set the select switch to RADIO and operate the set with variable resistor at its maximum.
  - 2) Adjust the oscillation coils (L3, L4) so that the low range frequency is 520kHz (515kHz~525kHz).
  - 3) Adjust the oscillation trimmer (CT-2) so that the high range frequency is 1680kHz (1670kHz~1690kHz) repeat ② and ③ procedures so that the frequency comes within the above range.
  - 4) Pick up the low tracking point (600kHz) by adjusting the antenna coils (L1, L2).
  - 5) Pick up the high tracking point (1400kHz) by adjusting the antenna trimmer (CT-1).
- Repeat ④ and ⑤ procedures to attain correct tracking points shown above.

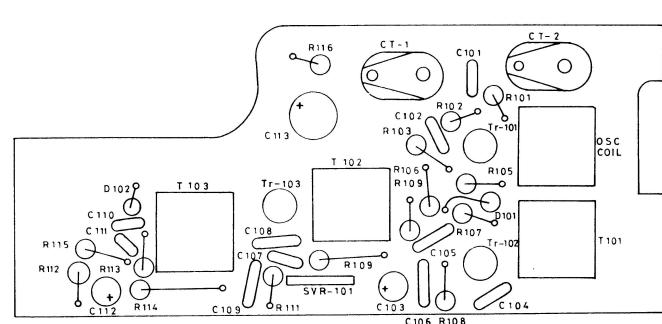
## PARTS LOCATION (MR-430)



Amplifier



Oscillation



Tuner

## PARTS LIST (MR-420)

| REF No           | PARTS No                | DESCRIPTION   | Q'ty | REF No         | PARTS No                 | DESCRIPTION   | Q'ty |  |  |  |  |
|------------------|-------------------------|---|------|----------------|--------------------------|---|------|--|--|--|--|
| <b>PACKING</b>   |                         |   |      |                |                          |   |      |  |  |  |  |
|                  | R-498744                | Inner carton  | 1    |                | R-348099                 | Base jack mtg.  | 1    |  |  |  |  |
|                  | R-428216                | Styrol filler (right)                                 | 1    |                | R-119551a                | Set bracket, PCB mtg.                                     | 1    |  |  |  |  |
|                  | R-428217                | Styrol filler (left)                                  | 1    |                |                          | Fiber washer (3.3×8×1 mm)                                 | 2    |  |  |  |  |
|                  |                         | Polyethylene bag for set<br>(370×450 mm)              | 1    |                | R-368117                 | Plastic plate for jack                                    | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for AC cord<br>(60×250 mm)           | 1    |                | R-478478                 | Label, voltage switch                                     | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for Mic<br>(70×170 mm)               | 1    |                | R-S3008                  | Lug, lead wire holding                                    | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for patch cord<br>(80×200 mm)        | 1    | <b>CHASSIS</b> |                          |   |      |  |  |  |  |
|                  | R-498746                | Cushion between AC case and set                       | 1    |                | R-W7883                  | Power transformer   | 1    |  |  |  |  |
|                  | R-478471a               | Instruction book                                      | 1    |                | R-W6854                  | Out-put transformer                                       | 1    |  |  |  |  |
|                  |                         | Staple  | 4    |                | R-S6953                  | Speaker   | 1    |  |  |  |  |
|                  | R-368125                | Carrying case   | 1    |                | R-S6967                  | Microphone  | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for case<br>(200×350 mm)             | 1    |                | R-W6226(J)               | Input transformer   | 1    |  |  |  |  |
|                  | R-478391                | Caution label   | 1    |                | R-W8819                  | Oscillation coil  | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for plug and<br>adaptors (80×120 mm) | 1    |                | R-W1849                  | Choke coil  | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for connector<br>(50×90 mm)          | 1    |                | R-R124824                | Variable resistor for volume                              | 1    |  |  |  |  |
|                  | R-428151                | Cushion, T-con,-lever                                 | 1    |                | R-R124803                | Variable resistor for tone                                | 1    |  |  |  |  |
|                  | R-428152                | Cushion, cassette lid                                 | 1    |                | R-R11015                 | Semi-fixed variable resistor                              |      |  |  |  |  |
|                  | R-368055                | Case, plug and cord                                   | 1    |                | R-S2859                  | 500K for Bias adjustment                                  | 1    |  |  |  |  |
|                  |                         | Polyethylene bag for case<br>(R-368055) (130×220 mm)  | 1    |                | R-S2860                  | Jack, Mic Aux & Ext. SP                                   | 3    |  |  |  |  |
| <b>CABINET</b>   |                         |   |      |                |                          |   |      |  |  |  |  |
|                  | R-AT23701<br>(R-318245) | Cabinet assembly<br>(Cabinet)                         | 1    |                | R-S1875                  | Jack, remote control                                      | 1    |  |  |  |  |
|                  | R-268713a               | Control panel   | 1    |                | R-S3837                  | Fuse  | 1    |  |  |  |  |
|                  | R-398182                | Ornament sheet  | 1    |                | R-S1227                  | Fuse holder   | 2    |  |  |  |  |
|                  |                         | Cushion (5×5×20 mm)                                   | 2    |                | R-S2133a                 | Plug, voltage select                                      | 1    |  |  |  |  |
|                  | R-318250                | Rubber cushion (3×10×0.5 mm)                          | 2    |                | R-S4266                  | Socket, voltage select                                    | 1    |  |  |  |  |
|                  |                         | Base, cassette rear side                              | 1    |                | R-S4877                  | Slide switch, AC-select                                   | 1    |  |  |  |  |
|                  | R-35216                 | Speaker net   | 1    |                | R-261193a                | Slide switch R-P select                                   | 1    |  |  |  |  |
|                  |                         | Ribbon, batt, take-up                                 | 1    |                | R-S3063                  | Heat sink 2SB405  | 1    |  |  |  |  |
|                  |                         | Fiber washer (33×8×0.5 mm)                            | 1    |                | R-S3063                  | Lug, PCB earth  | 1    |  |  |  |  |
|                  |                         | Cushion (10×10×12 mm)                                 | 1    |                | R-S1146b                 | Lamp, AC indicator  | 1    |  |  |  |  |
|                  | R-318255a               | Vinyle sheet (2.3×165.5 mm)                           | 1    |                | R-S4846                  | Spring switch, Amp  | 1    |  |  |  |  |
|                  | R-328200                | Indicator, AC operation                               | 1    |                | R-S4848                  | Spring switch, REW-FWD                                    | 1    |  |  |  |  |
|                  |                         | Decoration Frame, T-control lever                     | 1    |                | R-S88610                 | RA cassette   | 1    |  |  |  |  |
|                  |                         | Eyelet (3.5×5.5 mm)                                   | 1    |                | R-S8678b                 | Patch cord  | 1    |  |  |  |  |
|                  | R-398184                | Cassette lid  | 1    |                |                          | AC cord is chosen from among<br>the following A. B. C & D |      |  |  |  |  |
|                  | R-158277                | Coil spring, cassette lid                             | 1    | A              | R-S1076a                 | 3 wired cord  | 1    |  |  |  |  |
|                  | R-AT23702<br>(R-318242) | Bottom cover assembly<br>(Bottom cover)               | 1    |                | R-398043                 | Plug, English type 3 pins                                 | 1    |  |  |  |  |
|                  | R-268712                | Specification plate                                   | 1    |                | R-S2813b                 | Rubber cushion (10×10×6)                                  | 1    |  |  |  |  |
|                  | R-328203                | Washer  | 1    |                | R-S3817a                 | Sleeve  | 1    |  |  |  |  |
|                  |                         | Fiber Washer (4.2×10×1 mm)                            | 1    |                | R-S1245                  | Connector   | 1    |  |  |  |  |
|                  | R-119607                | Batt. terminal (+) board                              | 2    |                | R-S3851a                 | Terminal, 3 pins  | 1    |  |  |  |  |
|                  | R-148013                | Batt. terminal (-) spring                             | 2    | B              | R-S1817                  | Plug, Australia 3 pins-type                               | 1    |  |  |  |  |
|                  | R-AT23703<br>(R-318243) | Batt. cover assembly<br>(Batt. cover)                 | 1    |                | R-S3857                  | Terminal  | 1    |  |  |  |  |
|                  |                         | Cushion (10×10×80 mm)                                 | 2    |                | R-398043                 | Plug Siemens-type 2 pins                                  | 1    |  |  |  |  |
|                  | R-44004                 | Lamp holder   | 2    |                | R-S2813b                 | AC cord 1.8 m SEV   | 1    |  |  |  |  |
|                  | R-111564                | Speaker mtg. bracket                                  | 3    |                | R-S3817a                 | 3 wired cord  | 1    |  |  |  |  |
|                  | R-318246                | Accessories compartment lid                           | 1    |                | R-S1076a                 | Plug Photex-type 3 pins                                   | 1    |  |  |  |  |
|                  | R-S88500                | Volume & tone control knob<br>assembly                | 2    |                | R-S3851a                 | Sleeve  | 1    |  |  |  |  |
|                  |                         | Cover, voltage switch                                 | 1    |                | R-S8574b                 | Connector   | 1    |  |  |  |  |
|                  | R-398185                | Operation lever knob assembly                         | 1    |                | R-S8575b                 | Terminal  | 1    |  |  |  |  |
|                  | R-S88427a               | Fiber washer (3×6×0.5 mm)                             | 1    |                | R-S3856                  | Plug English type 3 pins                                  | 1    |  |  |  |  |
|                  | R-438024a               | Screen, T-con.  | 1    |                |                          | Transistor 2SB303A  | 1    |  |  |  |  |
|                  |                         | Fiber washer (4×12×0.5 mm)                            | 1    |                |                          | 2SB186A   | 1    |  |  |  |  |
|                  |                         | Cushion (6×6×15 mm)                                   | 1    |                |                          | 2SB187  | 1    |  |  |  |  |
|                  |                         | Felt (10×20×1.5 mm) for<br>volume and Tone knobs      | 2    |                |                          | 2SB405  | 2    |  |  |  |  |
| <b>CHASSIS</b>   |                         |   |      |                |                          |   |      |  |  |  |  |
|                  | R-AT23704               | Printed circuit board w/components                    | 1    |                |                          | 2SB185AA  | 1    |  |  |  |  |
|                  | R-368118                | Base, jack mtg.                                       | 1    |                |                          | Diode 1S-188AM  | 1    |  |  |  |  |
|                  | R-158231                | Coil spring, R-P switch                               | 1    |                |                          | Thermister SDT-06   | 1    |  |  |  |  |
|                  |                         | Fiber sheet (2.5×8×1 mm)                              | 1    |                |                          | Silicon rectifier 1S1849R                                 | 1    |  |  |  |  |
| <b>RESISTORS</b> |                         |   |      |                |                          |   |      |  |  |  |  |
|                  | R1, R13                 |   |      |                | Carbon Ptype 100KΩ ± 10% | 1/4W  | 2    |  |  |  |  |
|                  | R2                      |   |      |                | " 270Ω ± 10%             | 1/4W  | 1    |  |  |  |  |
|                  | R3                      |   |      |                | " 82KΩ ± 10%             | 1/4W  | 1    |  |  |  |  |
|                  | R4                      |   |      |                | " 33KΩ ± 10%             | 1/4W  | 1    |  |  |  |  |
|                  | R5,R10,R14              |   |      |                | " 5. 6KΩ ± 10%           | 1/4W  | 3    |  |  |  |  |
|                  | R6                      |   |      |                | " 3. 3KΩ ± 10%           | 1/4W  | 1    |  |  |  |  |
|                  | R7                      |   |      |                | " 56Ω ± 10%              | 1/4W  | 1    |  |  |  |  |

**PARTS LIST (MR-420)**

| REF No            | PARTS No | DESCRIPTION                           | Q'ty |
|-------------------|----------|---------------------------------------|------|
| <b>RESISTORS</b>  |          |                                       |      |
| R8                |          | Carbon Ptype 56KΩ ± 10% 1/4W          | 1    |
| R9                |          | Carbon Ptype 10KΩ ± 10% 1/4W          | 1    |
| R11, R21          |          | Carbon Ptype 1.2KΩ ± 10% 1/4W         | 2    |
| R12               |          | Carbon Ptype 390Ω ± 10% 1/4W          | 1    |
| R15               |          | Carbon Ptype 1KΩ ± 10% 1/4W           | 1    |
| R16               |          | Carbon Ptype 22KΩ ± 10% 1/4W          | 1    |
| R17               |          | Carbon Ptype 4.7KΩ ± 10% 1/4W         | 1    |
| R18               |          | Carbon Ptype 220Ω ± 10% 1/4W          | 1    |
| R19               |          | Carbon Ptype 3.9Ω ± 10% 1/4W          | 1    |
| R20               |          | Carbon Ptype 47Ω ± 10% 1/4W           | 1    |
| R22               |          | Carbon Ptype 68Ω ± 10% 1/4W           | 1    |
| R23               |          | Carbon Ptype 1Ω 1/2W                  | 1    |
| R24               |          | Carbon Ptype 15Ω ± 10% 1/4W           | 1    |
| R25               |          | Carbon Ptype 150Ω ± 10% 1/4W          | 1    |
| R26               |          | Carbon Ptype 27Ω ± 10% 1/4W           | 1    |
| R27               |          | Carbon Ptype 470Ω ± 10% 1/4W          | 1    |
| R28               |          | Carbon Ptype 180Ω ± 10% 1/4W          | 1    |
| R29               |          | Carbon Ptype 6.8KΩ ± 10% 1/4W         | 1    |
| R30, R34          |          | Carbon Ptype 120KΩ ± 10% 1/4W         | 2    |
| R31               |          | Carbon Ptype 12Ω ± 10% 1/4W           | 1    |
| R32               |          | Carbon Ptype 15KΩ ± 10% 1/4W          | 1    |
| R35               |          | Carbon Ptype 2.2KΩ ± 10% 1/4W         | 1    |
| <b>CAPACITORS</b> |          |                                       |      |
| C7                |          | Mylar square type 0.033μF ± 20% 50WV  | 1    |
| C21               |          | Mylar square type 0.001μF ± 20% 50WV  | 1    |
| C22               |          | Mylar square type 0.047μF ± 20% 50WV  | 1    |
| C6, C24           |          | Ceramic disk-type 470pF ± 20% 50WV    | 1    |
| C13, C14          |          | Ceramic disk-type 0.0047μF ± 20% 50WV | 2    |
| C18               |          | Ceramic disk-type 820pF ± 20% 50WV    | 2    |
| C19               |          | Ceramic disk-type 0.0022μF ± 20% 50WV | 1    |
| C20               |          | Ceramic disk-type 0.0015μF ± 20% 50WV | 1    |
| C1                | R-C9928  | Electric Capacitor 47μF 6.3WV         | 1    |
| C2, C5, C9, C10   | R-C9867  | Electric Capacitor 4.7μF 16WV         | 4    |
| C3, C8            | R-C9865  | Electric Capacitor 33μF 6.3WV         | 2    |
| C4, C11           | R-C9864  | Electric Capacitor 220μF 6.3WV        | 2    |
| C12, C15          | R-C9900  | Electric Capacitor 470μF 10WV         | 2    |
| C16               | R-C9828  | Electric Capacitor 3μF 10WV           | 1    |
| C17               | R-C9854  | Electric Capacitor 1000μF 10WV        | 1    |
| C23               | R-C9869  | Electric Capacitor 0.22μF 10WV        | 1    |
| C25               |          | Ceramic disk-type 0.001μF ± 20% 150V  | 1    |

**PARTS LIST (MR-420A)**

| REF No         | PARTS No                | DESCRIPTION                                       | Q'ty     |
|----------------|-------------------------|---|----------|
| <b>PACKING</b> |                         |   |          |
|                | R-498812                | Inner carton                                      | 1        |
|                | R-428216                | Styrol filler (right)                             | 1        |
|                | R-428217                | Styrol filler (left)                              | 1        |
|                |                         | Polyethylene bag (370×450mm) for set              | 1        |
|                |                         | Polyethylene bag (70×170mm) for mic.              | 1        |
|                |                         | Polyethylene bag (60×250mm) for power supply cord | 1        |
|                | R-428151                | Cushion, T-con-lever                              | 1        |
|                | R-428152                | Cushion, cassette lid                             | 1        |
|                | R-368055                | Case, cord and plug                               | 1        |
|                | R-498746                | Polyethylene bag (130×220mm)                      | 1        |
|                | R-478537                | Cushion, case                                     | 1        |
|                | R-478391                | Instruction book                                  | 1        |
|                |                         | Voltage indication label                          | 1        |
|                |                         | Polyethylene bag (80×120mm)                       | 1        |
|                |                         | plug and adaptor                                  | 1        |
|                |                         | Polyethylene bag (50×90mm), connector             | 1        |
| <b>CABINET</b> |                         |   |          |
|                | R-AT30301<br>(R-318332) | Cabinet assembly (Cabinet)                        | 1<br>(1) |
|                | R-318329                | Ornament frame, T-con-lever                       | 1        |
|                | R-398182                | Ornament sheet under cassette                     | 1        |
|                |                         | Sponge cushion (5×5×20mm)                         | 2        |
|                |                         | Sponge cushion (10×10×12mm)                       | 1        |
|                | R-318250                | Base, cassette rear side                          | 1        |
|                |                         | Speaker net                                       | 1        |
|                |                         | Rubber cushion (3×10×5mm)                         | 2        |
|                | R-35216                 | Ribbon, battery take-up                           | 1        |
|                |                         | Fiber washer (3.3×8×0.5mm)                        | 1        |
|                |                         | Felt cushion (15×17×15mm)                         | 1        |
|                |                         | Felt cushion (10×10×15mm)                         | 1        |
|                |                         | Felt cushion (5×5×5mm)                            | 1        |
|                | R-268832                | Control panel                                     | 1        |
|                |                         | Eyelet (3.5×4mm), coil spring                     | 1        |
|                | R-328204                | Cassette lid                                      | 1        |
|                | R-158277                | Coil spring, cassette lid                         | 1        |
|                | R-AT30302<br>(R-318327) | Bottom cover assembly (Bottom cover)              | 1<br>(1) |
|                | R-268831                | Specification plate                               | 1        |
|                | R-328203                | Washer  | 1        |
|                | R-119601                | Battery terminal (+) plate                        | 2        |
|                | R-148013                | Battery terminal (-) spring                       | 2        |
|                |                         | Felt cushion (10×10×2mm)                          | 1        |
|                | R-AT30303<br>(R-318243) | Battery cover assembly (Battery cover)            | 1<br>(1) |
|                | R-111564                | Sponge cushion (10×10×80mm)                       | 2        |
|                | R-398185                | Speaker mtg. bracket                              | 3        |
|                | R-318246                | Cover, voltage select plug                        | 1        |
|                |                         | Accessories compartment lid                       | 1        |
|                |                         | Fiber washer (3×6×0.5mm) for T-con-lever screen   | 1        |
|                | R-248474                | Operation lever knob                              | 1        |
|                | R-438024a               | Screen, T-con-lever                               | 1        |
|                | R-S88500                | Sponge cushion (6×6×15mm)                         | 1        |
|                |                         | Volume control knob assembly                      | 1        |
| <b>CHASSIS</b> |                         |   |          |
|                | R-AT30304               | Printed circuit board, amplifier w/components     | 1        |
|                | R-368138                | Base, jack mtg                                    | 1        |
|                | R-348099                | Spacer, jack mtg. base                            | 1        |
|                | R-158231                | Spring coil, Record/Play switch                   | 1        |
|                |                         | Fiber washer 3.3×8×1mm, P.C. B                    | 3        |
|                |                         | Fiber sheet 2.5×8×1.5mm, remote jack              | 1        |
|                | R-119820                | Bracket, P. C. B mtg.                             | 1        |
|                | R-368117                | Plastic plate for jack                            | 1        |
|                | R-S3008                 | Lug, lead wire holding                            | 1        |

**PARTS LIST (MR-420A)**

| REF No                  | PARTS No   | DESCRIPTION   | Q'ty | REF No            | PARTS No | DESCRIPTION                           | Q'ty |
|-------------------------|------------|---|------|-------------------|----------|---------------------------------------|------|
| <b>ELECTRICAL PARTS</b> |            |   |      | <b>RESISTORS</b>  |          |                                       |      |
| Tr-1                    | R-W7904    | Power transformer                                       | 1    | R24               |          | Carbon P-type 15Ω ± 10%, 1/4W         | 1    |
| Tr-2                    | R-W6863    | Output transformer                                      | 1    | R25               |          | Carbon P-type 56Ω ± 10%, 1/4W         | 1    |
| Tr-3                    | R-W6226(J) | Input transformer                                       | 1    | R26               |          | Carbon P-type 8.2Ω ± 10%, 1/4W        | 1    |
| Tr-4, 5                 | R-S6953    | Speaker   | 1    | R27               |          | Carbon P-type 820Ω ± 10%, 1/4W        | 1    |
| Tr-6                    | R-S6986b   | Microphone  | 1    | R28               |          | Carbon P-type 270Ω ± 10%, 1/4W        | 1    |
|                         | R-W1849    | Choke coil, 20mH variable                               | 1    | R30               |          | Carbon P-type 68KΩ ± 10%, 1/4W        | 1    |
|                         | R-W8819    | Oscillation coil  | 1    | R31               |          | Carbon P-type 12Ω ± 10%, 1/4W         | 1    |
|                         | R-R11656b  | Variable resistor 10KA, volume                          | 1    | R32               |          | Carbon P-type 15KΩ ± 10%, 1/4W        | 1    |
|                         | R-R11018   | Semi-fixed variable resistor, 250k                      | 1    | <b>CAPACITORS</b> |          |                                       |      |
|                         | R-S88682   | RA cassette   | 1    | C1                |          | Ceramic, disk type 0.0015μF ±20% 50WV | 1    |
|                         | R-S2859    | Jack, Mic and Ext. SP                                   | 2    | C2                | R-C9928  | Electrolytic capacitor 47μF 6.3V      | 1    |
|                         | R-S2839a   | Jack, remote  | 1    | C3, C4, C8, C9    | R-C9867  | Electrolytic capacitor 4.7μF 16WV     | 4    |
|                         | R-S1875    | Fuse, 2A  | 1    | C5, C6            | R-C9865  | Electrolytic capacitors 33μF 6.3WV    | 2    |
|                         | R-S3837    | Fuse holder   | 2    | C7, C18           |          | Mylar, square type 0.047μF ±20% 50WV  | 2    |
|                         | R-S1227    | Plug, voltage select                                    | 1    | C10               | R-C9871  | Electrolytic capacitor 100μF 6.3WV    | 1    |
|                         | R-S2133a   | Socket, voltage select                                  | 1    | C11               | R-C9895  | Electrolytic capacitor 470μF 6.3WV    | 1    |
|                         | R-S4877    | Slide switch, Record/Play select                        | 1    | C12, C13          |          | Ceramic, disk-type 0.0047μF ±20% 50WV | 2    |
|                         | R-261193a  | Heat sink, 2SB22  | 1    | C14               | R-C9900  | Electrolytic capacitor 470μF 10WV     | 1    |
|                         | R-S3063    | Lug, P. C. B. earth                                     | 1    | C15               | R-C9854  | Electrolytic capacitor 1000μF 10WV    | 1    |
|                         | R-S4945    | Slide switch, AC/DC select                              | 1    | C16               |          | Ceramic disk type 820pF ±20% 50WV     | 1    |
|                         | R-S4846    | Spring switch, power                                    | 1    | C17               |          | Ceramic disk type 0.0022μF ±20% 50WV  | 1    |
|                         | R-S4915    | Spring switch, REW/FWD select                           | 1    | C19               |          | Mylar, square type 0.001μF ±20% 50WV  | 1    |
|                         |            | Transistor 2SB303A                                      | 1    | C20               | R-C9864  | Electrolytic capacitor 220μF 6.3WV    | 1    |
|                         |            | Transistor 2SB186A                                      | 1    |                   |          |                                       |      |
|                         |            | Transistor 2SB187                                       | 1    |                   |          |                                       |      |
|                         |            | Transistor 2SB22  | 2    |                   |          |                                       |      |
|                         |            | Transistor 2SB185AA                                     | 1    |                   |          |                                       |      |
|                         |            | Diode 1S188   | 1    |                   |          |                                       |      |
|                         |            | Thermistor SDT-09                                       | 1    |                   |          |                                       |      |
|                         |            | Silicon rectifier 1S1849R                               | 1    |                   |          |                                       |      |
|                         |            | AC cord is chosen from among the following A, B, C & D. |      |                   |          |                                       |      |
|                         | R-S1076a   | 3-wired cord, 1.8m                                      | 1    |                   |          |                                       |      |
|                         |            | Plug, English-type, 3 pins                              | 1    |                   |          |                                       |      |
|                         |            | Rubber cushion  | 1    |                   |          |                                       |      |
| A                       | R-398043   | Sleeve  | 1    |                   |          |                                       |      |
|                         | R-S2813b   | Connector   | 1    |                   |          |                                       |      |
|                         | R-S1245    | Terminal 3 pins   | 1    |                   |          |                                       |      |
| B                       | R-S3851a   | Plug, Australia-type, 3 pins                            | 1    |                   |          |                                       |      |
|                         | R-S88690   | Terminal, 2 pins  | 1    |                   |          |                                       |      |
|                         |            | Power supply cord assembly, 1.8m, Siemens-type 2 pins   | 1    |                   |          |                                       |      |
| C                       | R-398043   | 3-wired cord, 1.8m                                      | 1    |                   |          |                                       |      |
|                         | R-S2813b   | Plug, Photex-type 3 pins                                | 1    |                   |          |                                       |      |
|                         | R-S3817a   | Sleeve  | 1    |                   |          |                                       |      |
|                         | R-S1076a   | Connector   | 1    |                   |          |                                       |      |
|                         | R-S3851a   | Terminal  | 1    |                   |          |                                       |      |
| D                       | R-S8574b   | Plug, English-type 3 pins                               | 1    |                   |          |                                       |      |
|                         | R-S8575b   | Terminal  | 1    |                   |          |                                       |      |
|                         | R-S3856    | Adaptor assembly, Siemens-type, 2 pins                  | 1    |                   |          |                                       |      |
|                         |            | Adaptor assembly, English-type 2 pins                   | 1    |                   |          |                                       |      |
|                         |            | Power supply cord, 1.8mm                                | 1    |                   |          |                                       |      |
| <b>RESISTORS</b>        |            |   |      |                   |          |                                       |      |
| R3                      |            | Carbon P-type 82KΩ ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R4                      |            | Carbon P-type 33KΩ ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R5, R10                 |            | Carbon P-type 5.6KΩ ± 10% 1/4W                          | 2    |                   |          |                                       |      |
| R6                      |            | Carbon P-type 3.3KΩ ± 10% 1/4W                          | 1    |                   |          |                                       |      |
| R7                      |            | Carbon P-type 68Ω ± 10% 1/4W                            | 1    |                   |          |                                       |      |
| R8                      |            | Carbon P-type 56KΩ ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R9, R13                 |            | Carbon P-type 10KΩ ± 10% 1/4W                           | 2    |                   |          |                                       |      |
| R11                     |            | Carbon P-type 1.2KΩ ± 10% 1/4W                          | 1    |                   |          |                                       |      |
| R12                     |            | Carbon P-type 22Ω ± 10% 1/4W                            | 1    |                   |          |                                       |      |
| R14                     |            | Carbon P-type 3.9KΩ ± 10% 1/4W                          | 1    |                   |          |                                       |      |
| R15                     |            | Carbon P-type 1KΩ ± 10% 1/4W                            | 1    |                   |          |                                       |      |
| R16                     |            | Carbon P-type 22KΩ ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R17, R29                |            | Carbon P-type 4.7KΩ ± 10% 1/4W                          | 2    |                   |          |                                       |      |
| R18                     |            | Carbon P-type 220Ω ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R19                     |            | Carbon P-type 6.8Ω ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R20, R33                |            | Carbon P-type 1.5KΩ ± 10% 1/4W                          | 2    |                   |          |                                       |      |
| R21                     |            | Carbon P-type 120Ω ± 10% 1/4W                           | 1    |                   |          |                                       |      |
| R22                     |            | Carbon P-type 47Ω ± 10% 1/4W                            | 1    |                   |          |                                       |      |
| R23                     |            | Carbon P-type 1Ω ± 10% 1/4W                             | 1    |                   |          |                                       |      |

**PARTS LIST (MR-430)**

| REF No         | PARTS No                | DESCRIPTION  | Q'ty     | REF No                  | PARTS No                            | DESCRIPTION                               | Q'ty |
|----------------|-------------------------|--|----------|-------------------------|-------------------------------------|---|------|
| <b>PACKING</b> |                         |  |          | <b>CHASSIS</b>          |                                     |   |      |
|                | R-498810                | Inner carton   | 1        |                         | R-418204                            | Printed circuit board, variable capacitor | 1    |
|                | R-428216                | Styrol filler (right)                                | 1        |                         | R-44065                             | Cushion, variable capacitor               | 2    |
|                | R-428217                | Styrol filler (left)                                 | 1        |                         | R-448141                            | Rubber ring, antenna mtg.                 | 2    |
|                | R-498746                | Cushion, case (R-368055)                             | 1        |                         | R-328157                            | Shaft, variable capacitor connectig       | 1    |
|                | R-428151                | Cushion, T-control lever                             | 1        |                         | R-158335                            | Ring, shaft holding                       | 1    |
|                | R-428152                | Cushion, cassette lid                                | 1        |                         |                                     | Rubber ring                               | 1    |
|                |                         | Polyethylene bag (370×450mm) for set                 | 1        |                         | R-268757                            | Shield cover, oscillation P. C. B         | 1    |
|                |                         | Polyethylene bag (60×150mm) for mic.                 | 1        |                         | R-119521                            | Shield plate, oscillation P. C. B         | 1    |
|                |                         | Polyethylene bag (80×200mm) for patch cord           | 1        |                         | R-428129                            | Shield cover, oscillation P. C. B         | 1    |
|                |                         | Polyethylene bag (70×170mm) for AC power cord        | 1        |                         | R-398176                            | Set bracket, P. C. B mtg.                 | 1    |
|                |                         | Polyethylene bag (80×120mm) for adaptors             | 1        |                         | R-368121                            | Plastic plate for jack                    | 1    |
|                |                         | Polyethylene bag (50×90mm) for connector             | 1        |                         | R-438027                            | Plastic plate for monitor switch          | 1    |
|                | R-368055                | Case for cord and plug                               | 1        |                         | R-328188                            | Volume control knob                       | 1    |
|                |                         | Polyethylene bag (130×220mm) for case                | 1        |                         | R-128248                            | Felt washer, (10×20×1.5mm), volume shaft  | 1    |
|                | R-478532                | Instruction booklet                                  | 1        |                         | R-119614                            | Plate, volume stopper and earth           | 1    |
|                | R-478391                | Voltage indication label                             | 1        |                         | R-478478                            | Bracket, chassis & mecha, connecting      | 1    |
|                |                         |  |          |                         |                                     |   |      |
| <b>CABINET</b> |                         |  |          | <b>ELECTRICAL PARTS</b> |                                     |   |      |
|                | R-AT27201<br>(R-318245) | Cabinet assembly<br>(Cabinet)                        | 1<br>(1) |                         | (Tape Recorder Section)             |   |      |
|                | R-268746                | Control panel  | 1        |                         | R-W6864                             | Output transformer                        | 1    |
|                | R-328200                | Ornament frame T-con-lever                           | 1        |                         | R-W7904                             | Power transformer                         | 1    |
|                | R-398182                | Ornament sheet under cassette                        | 1        |                         | R-S6986b                            | Microphone                                | 1    |
|                | R-318250                | Base, cassette rear side                             | 1        |                         | R-W1849                             | Choke coil, 20mH variable                 | 1    |
|                | R-35216                 | Speaker net  | 1        |                         | R-W6226(J)                          | Input transformer                         | 1    |
|                |                         | Ribbon, battery take-up                              | 1        |                         | R-S6976                             | Speaker                                   | 1    |
|                |                         | Fiber washer (3.3×8×0.5mm)                           | 1        |                         | R-W8819                             | Oscillation coil                          | 1    |
|                |                         | Sponge cushion (10×10×12mm)                          | 1        |                         | R-W1836                             | Choke coil 4.7mH                          | 1    |
|                |                         | Sponge cushion (5×5×20mm)                            | 2        |                         | R-W1048                             | Choke coil 100μH                          | 1    |
|                |                         | Felt cushion (10×10×15mm)                            | 1        |                         | R-R116812                           | Variable resistor                         | 1    |
|                |                         | Rubber cushion (3×10×0.5mm)                          | 2        |                         | R-R11018                            | Semi-fixed variable resistor              | 1    |
|                |                         | Splicing tape (6×15mm)                               | 1        |                         | R-S88682                            | RA cassette                               | 1    |
|                | R-398184                | Eyelet (3.5×4mm)                                     | 1        |                         | R-S2859                             | Jack, Mic. Ext. SP                        | 2    |
|                | R-158277                | Cassette lid   | 1        |                         | R-S2839a                            | Jack, remote                              | 1    |
|                | R-AT27202<br>(R-318327) | Coil spring, cassette lid                            | 1        |                         | R-S4208                             | Slide switch, AC-DC select                | 1    |
|                | R-268747                | Bottom cover assembly<br>(Bottom cover)              | 1<br>(1) |                         | R-S4877                             | Slide switch, Record/Play select          | 1    |
|                |                         | Specification plate                                  | 1        |                         | R-S4920                             | Slide switch, monitor                     | 1    |
|                |                         | Splicing tape (12×20mm)                              | 1        |                         | R-S4914                             | Push switch Tape/Radio select             | 1    |
|                |                         | Splicing tape (12×30mm)                              | 1        |                         | R-261193a                           | Heat sink, 2SB22                          | 1    |
|                |                         | Felt cushion (10×10×2mm)                             | 1        |                         | R-S3837                             | Fuse holder                               | 2    |
|                | R-119601                | Cover cloth (22×135mm)                               | 1        |                         | R-S1875                             | Fuse                                      | 1    |
|                | R-148013                | Battery terminal (+) plate                           | 2        |                         | R-S1227                             | Plug, voltage select                      | 1    |
|                | R-AT27203<br>(R-318243) | Battery terminal (-) spring                          | 2        |                         | R-S2133a                            | Socket, voltage select                    | 1    |
|                |                         | Battery cover assembly<br>(Battery cover)            | 1<br>(1) |                         | R-S4846                             | Spring switch, power                      | 1    |
|                |                         | Sponge cushion (10×10×80mm)                          | 2        |                         | R-S4848                             | Spring switch, REW/FWD                    | 1    |
|                | R-111564                | Speaker mtg. bracket                                 | 3        |                         | R-S3063                             | Lug,                                      | 1    |
|                | R-318246                | Accessories compartment lid                          | 1        |                         | R-AT27204                           | Amplifier circuit board w/components      | 1    |
|                | R-S88683                | Operation lever knob assembly                        | 1        |                         | R-AT27205                           | Oscillation circuit board w/components    | 1    |
|                | R-S88633a               | Tuning knob assembly                                 | 1        | Tr-1                    | Transistor 2SB303A                  | 1   |      |
|                | R-438024a               | Screen, operation lever                              | 1        | Tr-2                    | Transistor 2SB186A                  | 1   |      |
|                |                         | Sponge cushion (6×6×15mm) for operation lever screen | 1        | Tr-3                    | Transistor 2SB187                   | 1   |      |
|                | R-398185                | Cover, voltage select plug                           | 1        | Tr-4, 5                 | Transistor 2SB22                    | 2   |      |
|                |                         | Felt washer (14×36×2mm) for tuning knob              | 1        | Tr-6                    | Transistor 2SB185AA                 | 1   |      |
|                |                         | Fiber washer (3×6×0.5mm)                             | 1        |                         | Diode 1S-188                        | 1   |      |
|                |                         |  |          |                         | Thermistor SDT-09                   | 1   |      |
| <b>CHASSIS</b> |                         |  |          |                         | Silicon rectifier 1S1849R or 10D-1R | 1   |      |
|                | R-368138                | Base, jack mtg.                                      | 1        |                         | Section)                            |   |      |
|                | R-348099                | Spacer, jack mtg. base                               | 1        |                         | R-W2805                             | ANT coil                                  | 1    |
|                | R-158231                | Coil spring, Record/Play switch                      | 1        |                         | R-C1803                             | Variable capacitor                        | 1    |
|                |                         | Fiber sheet (2.5×8×1.5mm), remote jack               | 1        |                         | R-W8258                             | Oscillation coil                          | 1    |
|                |                         | Fiber washer (3.3×8×1mm), P. C. B. mtg.              | 2        |                         | R-C0057a                            | Trimmer                                   | 2    |
|                |                         |  |          |                         | RW5T008-1                           | IFT                                       | 1    |
|                |                         |  |          |                         | RW5T009-1                           | IFT                                       | 1    |
|                |                         |  |          |                         | RW5T023-1                           | IFT                                       | 1    |
|                |                         |  |          |                         | R-R11011                            | Semi-fixed variable resistor              | 1    |

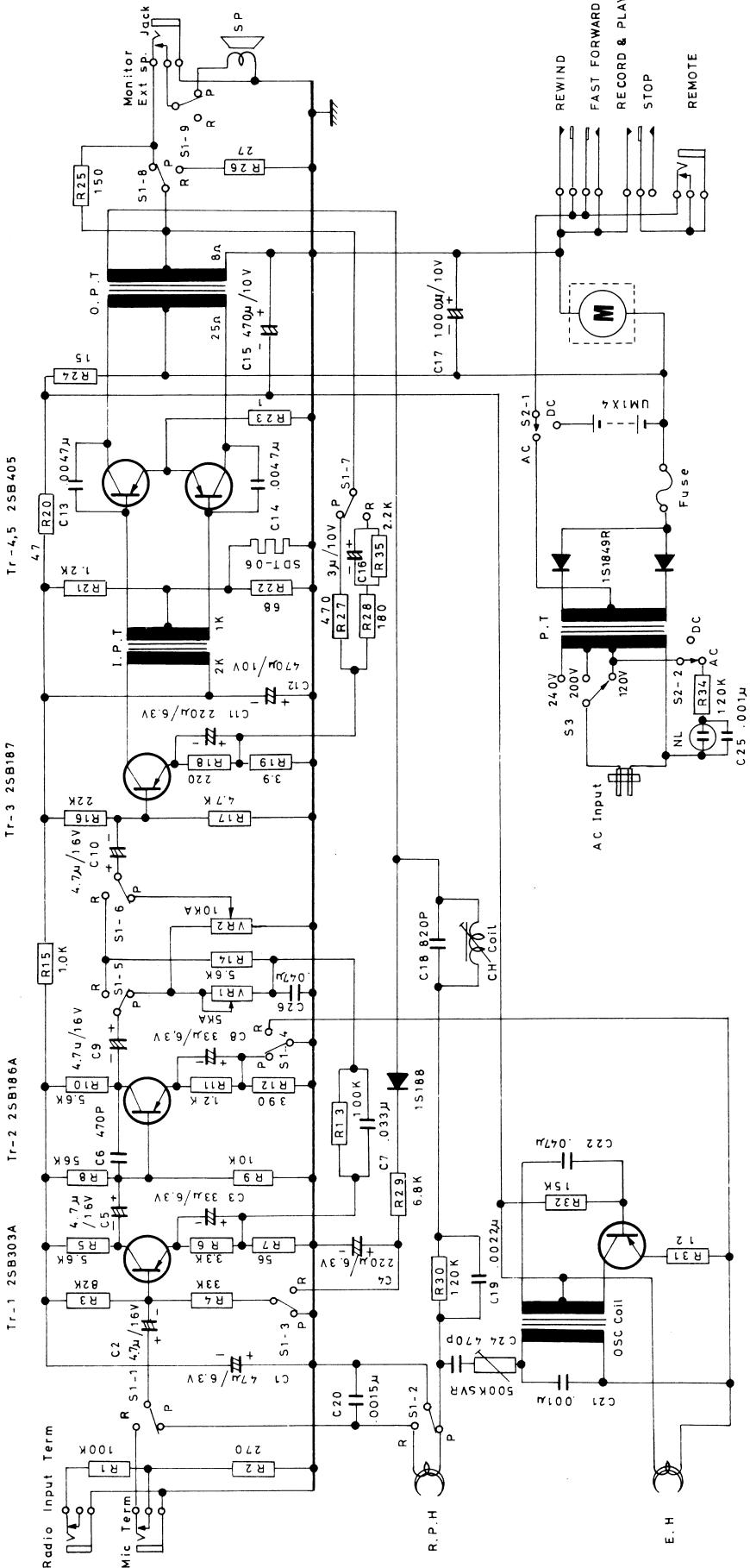
**PARTS LIST (MR-430)**

| REF No                  | PARTS No                | DESCRIPTION   | Q'ty | REF No     | PARTS No | DESCRIPTION                                 | Q'ty |
|-------------------------|-------------------------|---|------|------------|----------|---|------|
| <b>ELECTRICAL PARTS</b> |                         |   |      |            |          |   |      |
| Tr-101                  |                         | Transistor 2SA101                                       | 1    | C5         | R-C9865  | Electrolytic capacitor 33μF 6.3WV           | 1    |
| Tr-102, 103             |                         | Transistor 2SA202                                       | 2    | C6         | R-C9115  | Electrolytic capacitor 1μF 10WV             | 1    |
| D101, 102               |                         | Diode 1S188   | 2    | C7         | R-C9898  | Electrolytic capacitor 0.47μF 10WV          | 1    |
|                         | R-AT27206               | Radio tuner circuit board w/components                  | 1    | C10, C25   |          | Ceramic, disk type 470pF ± 20% 50WV         | 2    |
|                         |                         | AC cord is chosen from among the following A, B, C & D. |      | C11        | R-C9928  | Electrolytic capacitor 47μF 6.3WV           | 1    |
|                         |                         | 3-wired cord, 1.8m                                      | 1    | C13        | R-C9871  | Electrolytic capacitor 100μF 6.3WV          | 1    |
|                         | R-S1076a                | Plug, English-type 3 pins                               | 1    | C14        | R-C9932  | Electrolytic capacitor 330μF 6.3WV          | 1    |
|                         |                         | Rubber cushion  | 1    | C15, C16   |          | Ceramic disk type 0.0068μF ± 20% 50WV       | 2    |
|                         | AR-398043               | Sleeve  | 1    | C17        | R-C9900  | Electrolytic capacitor 470μF 10WV           | 1    |
|                         | R-2813b                 | Connector   | 1    | C18        | R-C9854  | Electrolytic capacitor 1000μF 10WV          | 1    |
|                         | R-S1245                 | Plug, Australia-type 3 pins                             | 1    | C19        | R-C9903  | Electrolytic capacitor 47μF 10WV            | 1    |
|                         | R-S3817a                | Terminal, 3 pins  | 1    | C20        |          | Ceramic, disk type 820pF ± 20% 50WV         | 1    |
|                         | R-S3851a                | Terminal, 2 pins  | 1    | C21        |          | Ceramic, disk type 0.0015μF ± 20% 50WV      | 1    |
|                         | BR-S88690               | Power supply cord assembly, 1.8m                        | 1    | C23        |          | Mylar, square type 0.047μF ± 20% 50WV       | 1    |
|                         | R-S1817                 | Plug, Siemens type 2 pins                               | 1    | C24        |          | Mylar, square type 0.001μF ± 20% 50WV       | 1    |
|                         |                         | 3-wired cord, 1.8m                                      | 1    | C26        |          | Ceramic, disk type 0.047μF ± 20% 50WV       | 1    |
|                         | C-R-398043              | Plug Photex-type, 3 pins                                | 1    |            |          | Mylar, square type 0.047μF ± 20% 50WV       | 1    |
|                         | R-S2813b                | Sleeve  | 1    |            |          | Section)                                    |      |
|                         | R-S3817a                | Connector   | 1    | C101       |          | Mylar, square type 0.0015μF + 30 - 20% 50WV | 1    |
|                         | R-S1076a                | Terminal  | 1    | C102       |          | Mylar, square type 0.0075μF + 30 - 20% 50WV | 1    |
|                         | R-S3851a                | Plug, English-type, 3 pins                              | 1    |            |          | Electrolytic capacitor 4.7μF 16WV           | 2    |
|                         | R-S8574b                | Terminal  | 1    | C103, C112 | R-C9867  | Ceramic disk type 0.02μF + 80 - 20% 25WV    | 4    |
|                         | DR-S8575b               | Adaptor assembly, Siemens 2 pins                        | 1    | C104, C106 |          | Ceramic disk type 12pF ± 10% 50WV           | 1    |
|                         |                         | Adaptor assembly, English-type, 2 pins                  | 1    | C107, C109 |          | Ceramic disk type 10pF ± 0.5pF 50WV         | 1    |
|                         | R-S3856                 | Power supply cord, 1.8m                                 | 1    | C105       |          | Ceramic disk type 0.01μF + 80 - 20% 25WV    | 2    |
| <b>RESISTORS</b>        |                         |   |      |            |          |   |      |
| R2, R27                 | (Tape Recorder Section) | Carbon P-type 180Ω ± 10% 1/4W                           | 2    | C108       |          | Electrolytic capacitor 100μF 6.3WV          | 1    |
| R3, R29                 |                         | Carbon P-type 82KΩ ± 10% 1/4W                           | 2    | C110, C111 |          |   |      |
| R4                      |                         | Carbon P-type 33KΩ ± 10% 1/4W                           | 1    | C113       | R-C9871  |   |      |
| R5, R32                 |                         | Carbon P-type 5. 6KΩ ± 10% 1/4W                         | 2    |            |          |   |      |
| R6                      |                         | Carbon P-type 3. 3KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R7                      |                         | Carbon P-type 56Ω ± 10% 1/4W                            | 1    |            |          |   |      |
| R8, R13, R26            |                         | Carbon P-type 470Ω ± 10% 1/4W                           | 3    |            |          |   |      |
| R9                      |                         | Carbon P-type 27KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R10                     |                         | Carbon P-type 10KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R11                     |                         | Carbon P-type 2. 7KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R12, R18                |                         | Carbon P-type 1. 5KΩ ± 10% 1/4W                         | 2    |            |          |   |      |
| R14                     |                         | Carbon P-type 22KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R15                     |                         | Carbon P-type 4. 7KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R16                     |                         | Carbon P-type 220Ω ± 10% 1/4W                           | 1    |            |          |   |      |
| R17                     |                         | Carbon P-type 5. 6Ω ± 10% 1/4W                          | 1    |            |          |   |      |
| R19                     |                         | Carbon P-type 120Ω ± 10% 1/4W                           | 1    |            |          |   |      |
| R20                     |                         | Carbon P-type 33Ω ± 10% 1/4W                            | 1    |            |          |   |      |
| R21                     |                         | Carbon P-type 1Ω ± 10% 1/4W                             | 1    |            |          |   |      |
| R22                     |                         | Carbon P-type 39Ω ± 10% 1/4W                            | 1    |            |          |   |      |
| R23                     |                         | Carbon P-type 8. 2Ω ± 10% 1/4W                          | 1    |            |          |   |      |
| R24                     |                         | Carbon P-type 10Ω ± 10% 1/4W                            | 1    |            |          |   |      |
| R25, R31                |                         | Carbon P-type 27Ω ± 10% 1/4W                            | 2    |            |          |   |      |
| R28                     |                         | Carbon P-type 8. 2KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R30                     |                         | Carbon P-type 15KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R101                    | (Radio Section)         | Carbon P-type 33KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R102                    |                         | Carbon P-type 4. 7KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R103                    |                         | Carbon P-type 2. 2KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R105                    |                         | Carbon P-type 470Ω ± 10% 1/4W                           | 1    |            |          |   |      |
| R106, R109              |                         | Carbon P-type 150KΩ ± 10% 1/4W                          | 2    |            |          |   |      |
| R107                    |                         | Carbon P-type 10KΩ ± 10% 1/4W                           | 1    |            |          |   |      |
| R108                    |                         | Carbon P-type 1. 2KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R110                    |                         | Carbon P-type 3. 3KΩ ± 10% 1/4W                         | 1    |            |          |   |      |
| R111                    |                         | Carbon P-type 820Ω ± 10% 1/4W                           | 1    |            |          |   |      |
| R112, R113              |                         | Carbon P-type 1KΩ ± 10% 1/4W                            | 2    |            |          |   |      |
| R114, R115              |                         | Carbon P-type 5. 6KΩ ± 10% 1/4W                         | 2    |            |          |   |      |
| R116                    |                         | Carbon P-type 330Ω ± 10% 1/4W                           | 1    |            |          |   |      |
| <b>CAPACITORS</b>       |                         |   |      |            |          |   |      |
| C1                      | (Tape Recorder Section) | Ceramic,disk type 0.001μF ± 20% 50WV                    | 1    |            |          |   |      |
| C2,C8,C22               |                         | Electrolytic capacitor 220μF 6.3WV                      | 3    |            |          |   |      |
| C3, C4, C9, C12         |                         | Electrolytic capacitor 4.7μF 16WV                       | 4    |            |          |   |      |

**PARTS LIST (MR-420, MR-420A, MR-430)**

| REF No           | PARTS No                  | DESCRIPTION                                  | Q'ty | REF No           | PARTS No  | DESCRIPTION                   | Q'ty |
|------------------|---------------------------|--|------|------------------|-----------|-------------------------------|------|
| <b>MECHANISM</b> |                           |  |      | <b>MECHANISM</b> |           |                               |      |
| 1                | R-S3063                   | Lug, leading wire holding                    | 1    | 70               | R-S5175a  | DC motor                      | 1    |
| 2                | R-S6883<br>R-S6932)<br>or | Erase head                                   | 1    | 71               | R-118707a | Set bracket, DC motor         | 1    |
| 3                | R-248380                  | Spacer, erase head                           | 2    | 72               | R-278103  | Motor pulley                  | 1    |
| 4                | R-S6939a                  | Record/Play head                             | 1    | 73               | R-448040a | Belt, flywheel drive          | 1    |
| 5                | R-S88293a                 | Pinch roller assembly                        | 1    | 74               | R-148199a | Shaft, rewind lever           | 1    |
| 6                | R-158154                  | Coil spring, P/R head                        | 1    | 75               | R-S88490a | Lever, rewind                 | 1    |
| 7                | R-248395a                 | Spacer, P/R head                             | 1    | 76               | R-398076  | Idler, rewind                 | 1    |
| 8                | R-158155a                 | Coil spring, pinch roller                    | 1    | 77               | R-448060a | Switch insulator (5×8mm)      | 1    |
| 9                | R-119269                  | Lever, anti-recording                        | 1    | 78               | R-258053  | Belt, REW, FWD                | 1    |
| 10               | R-119267b                 | Lever, REC operating                         | 1    | 79               | R-448089  | Plate spring, pulley press-up | 1    |
| 11               | R-119268                  | Lock lever                                   | 1    | 80               | R-S3063   | Cushion, motor mtg.           | 2    |
| 12               | R-24670                   | Spacer, anti-recording lever                 | 1    |                  |           | Lug, motor earth              | 1    |
| 13               | R-158221                  | Coil spring, REC lever                       | 1    | Y 1              |           | Screw PH 2×4mm                | 8    |
| 14               | R-158157a                 | Coil spring, anti-recording lever            | 1    | Y 2              |           | Screw PH 2×6mm                | 2    |
| 15               | R-318325                  | Button, REC lever                            | 1    | Y 3              |           | Screw PH 2×10mm               | 5    |
| 16               | R-248357a                 | Spacer, REC lever                            | 1    | Y 4              |           | Screw PH 2.6×4mm              | 2    |
| 17               | R-128243                  | Plate spring, R/P switch actuating           | 1    | Y 5              |           | Screw PH 3×4mm                | 2    |
| 18               | R-119266                  | Set bracket, REC lever                       | 1    | Y 6              |           | Screw PH 3×6mm                | 13   |
| 19               | R-248320                  | Spacer, slide lever                          | 1    | Y 7              |           | Screw PH 3×8mm                | 5    |
| 20               | R-148287d                 | Operation lever                              | 1    | Y 8              |           | Screw PH 3×14mm               | 1    |
| 21               | R-119531                  | Lever, slide lever (48) actuating            | 1    | Y 9              |           | Screw HD less 2×6mm           | 1    |
| 22               | R-14115                   | Bar, operation lever                         | 1    | Y10              |           | Nut 2 mm                      | 3    |
| 23               | R-158237                  | Coil spring, operation lever                 | 1    | Y11              |           | Nut 3 mm                      | 2    |
| 24               | R-148288b                 | Shaft, operation lever bracket               | 2    | Y12              |           | Nut                           | 1    |
| 25               | R-119530a                 | Bracket, operation lever                     | 1    | Y13              |           | Spring washer 2 mm            | 12   |
| 26               | R-128200                  | Plate spring, operation lever                | 1    | Y14              |           | Spring washer 2.6 mm          | 2    |
| 27               | R-S3008                   | Lug, lead fixing                             | 1    | Y15              |           | Spring washer 3 mm            | 20   |
| 28               | R-119270                  | Set bracket, cassette up lever               | 1    | Y16              |           | Washer 2 mm                   | 4    |
| 29               | R-119271                  | Lever, cassette up                           | 1    | Y17              |           | Washer 3 mm                   | 3    |
| 30               | R-328205                  | Lever, top-lid holding                       | 1    | Y18              |           | Washer 3×8×0.5t               | 1    |
| 31               | R-Y553000                 | Steel ball                                   | 3    | Y19              |           | Washer 3×10×0.5t              | 3    |
| 32               | R-248233                  | Spacer, plate spring (35) & Slide lever (48) | 3    | Y20              |           | Washer 3×10×1t                | 2    |
| 33               | R-158325                  | Coil spring, REW, FWD lock lever             | 1    | Y21              |           | Washer 3×13×1t                | 1    |
| 34               | R-S88285a                 | Roller                                       | 1    | Y22              |           | Washer 5×12×0.8t              | 1    |
| 35               | R-258110                  | Plate spring, roller (34)                    | 1    | Y23              |           | Nylon washer, (2×4×0.5)       | 4    |
| 36               | R-119529                  | Lever, REW, FWD lock                         | 1    | Y24              |           | Nylon washer, (2×4×0.25)      | 3    |
| 37               | R-158205a                 | Spring, REW FWD operating                    | 1    | Y25              |           | External "E" ring 1.5mm       | 4    |
| 38               | R-318328                  | Cassette up button                           | 1    | Y26              |           | External "E" ring 1.9mm       | 1    |
| 39               | R-158291                  | Bar, levers connecting                       | 1    | Y27              |           | External "E" ring 3mm         | 1    |
| 40               | R-358045                  | Cap, cassette-up lever                       | 1    | Y28              |           | External "E" ring 3.2mm       | 1    |
| 41               | R-248472                  | Spacer, lid holding lever                    | 1    | Y29              |           | External "E" ring 4mm         | 2    |
| 42               | R-248473                  | Spacer, cassette-up lever                    | 1    | Y30              |           | Felt 8×14×1t                  | 1    |
| 43               | R-158333                  | Coil spring, top-lid holding lever           | 1    | Y31              |           | Rubber cushion, 3×7×1mm       | 1    |
| 44               | R-128118a                 | Spring, FWD lever                            | 1    | Y32              |           | Fiber washer 5.2×13×1t        | 1    |
| 45               | R-24670                   | Spacer, FWD lever                            | 1    | Y33              |           | Felt, 6×14×1t                 | 1    |
| 46               | R-S88291a                 | Lever, Fast FWD                              | 1    | Y34              |           | Vinyl tube 3φ                 | 1    |
| 47               | R-258050                  | Plate spring, cassette holding               | 1    | Y35              |           | Vinyl tube 3φ                 | 1    |
| 48               | R-S88489                  | Slide lever, play actuating                  | 1    | Y36              |           | Vinyl tube 5φ ×12             | 1    |
| 49               | R-AM13001                 | Chassis assembly                             | 1    | Y37              |           | Tooth washer, 2.6mm           | 1    |
|                  | R-119554                  | Mechanism chassis                            | 1    |                  |           | Washer                        | 1    |
|                  | R-248372                  | Cassette guide                               | 2    |                  |           |                               |      |
|                  | R-248454                  | Cassette guide                               | 2    |                  |           |                               |      |
| 50               | R-238020                  | Cover, flywheel shaft                        | 1    |                  |           |                               |      |
| 51               |                           | Felt (2×6.5×1mm)                             | 1    |                  |           |                               |      |
| 52               | R-119088a                 | Lever, REW, FWD operating                    | 1    |                  |           |                               |      |
| 53               | R-398077                  | Idler, Fast FWD                              | 1    |                  |           |                               |      |
| 54               | R-S88286a                 | Bearing, flywheel                            | 1    |                  |           |                               |      |
| 55               | R-S88281                  | Flywheel assembly                            | 1    |                  |           |                               |      |
| 56               | R-S88289                  | Bracket, flywheel holding                    | 1    |                  |           |                               |      |
| 57               | R-S3008                   | Lug, lead wire holding                       | 1    |                  |           |                               |      |
| 58               | R-24697                   | Spacer, REW, FWD lever                       | 1    |                  |           |                               |      |
| 59               | R-S88644                  | Reel spindle assembly, left                  | 1    |                  |           |                               |      |
| 60               | R-AM13002                 | Plate spring assembly, back tension          | 1    |                  |           |                               |      |
|                  | R-258049                  | Plate spring                                 | 1    |                  |           |                               |      |
|                  |                           | Felt (3×7×1mm)                               | 1    |                  |           |                               |      |
| 61               | R-398079                  | Pulley, reel spindle                         | 1    |                  |           |                               |      |
| 62               | R-158152                  | Coil spring, supply spindle                  | 1    |                  |           |                               |      |
| 63               | R-128099a                 | Shaft, hinge                                 | 1    |                  |           |                               |      |
| 64               | R-S88645                  | Reel spindle, right                          | 1    |                  |           |                               |      |
| 65               | R-258051                  | Washer, take-up spindle                      | 1    |                  |           |                               |      |
| 66               | R-398078                  | Pulley, take-up                              | 1    |                  |           |                               |      |
| 67               | R-448059                  | Belt, take-up                                | 1    |                  |           |                               |      |
| 68               | R-S88294                  | Set bracket, spindle shaft assembly          | 1    |                  |           |                               |      |
| 69               | R-238027                  | Hinge plate                                  | 1    |                  |           |                               |      |

## **CIRCUIT DIAGRAM(MR-420)**

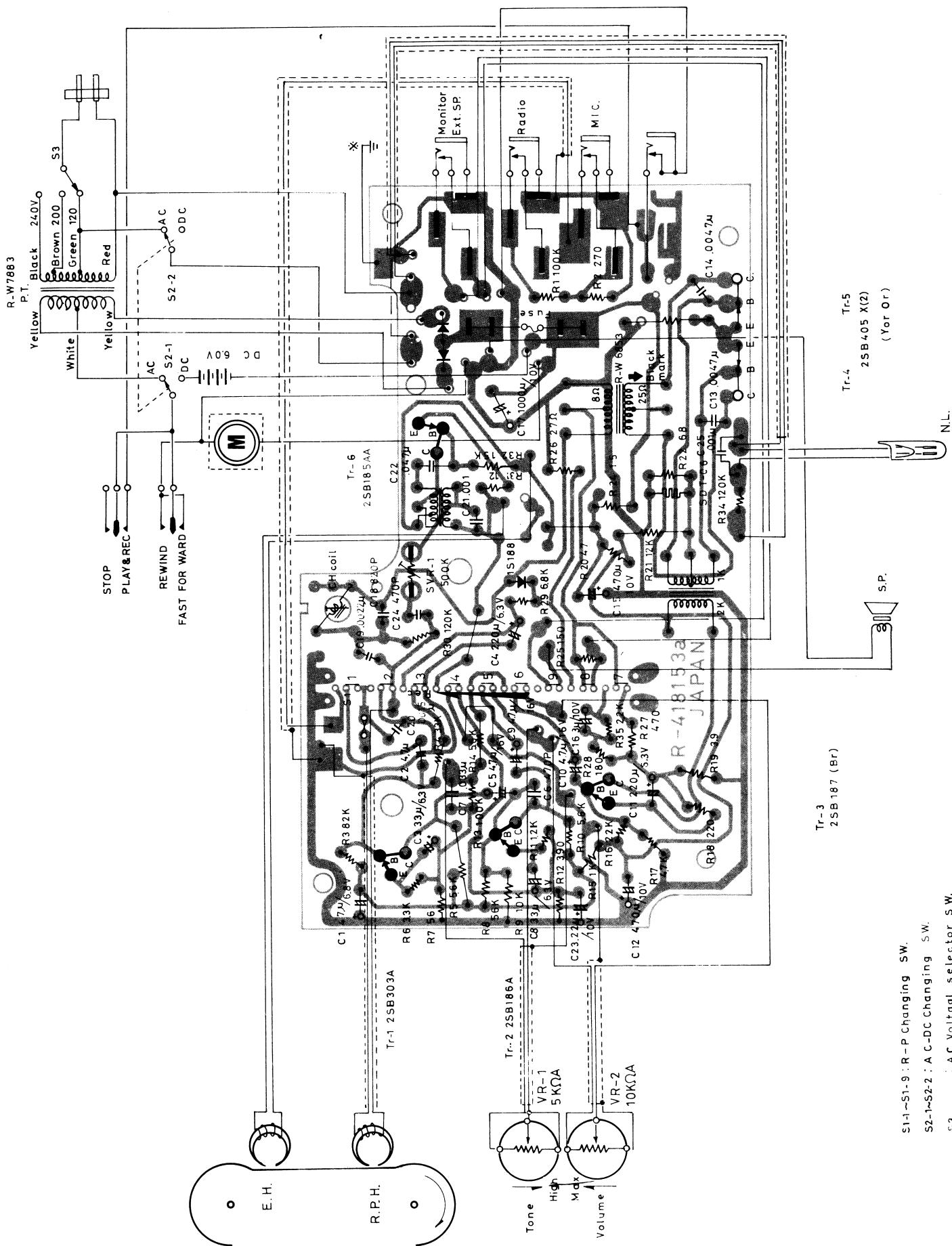


S1 : R-P Changing SW in "Play" Position,

52 : AC, DC Power Charging SW.

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# WIRING DIAGRAM (MR-420)

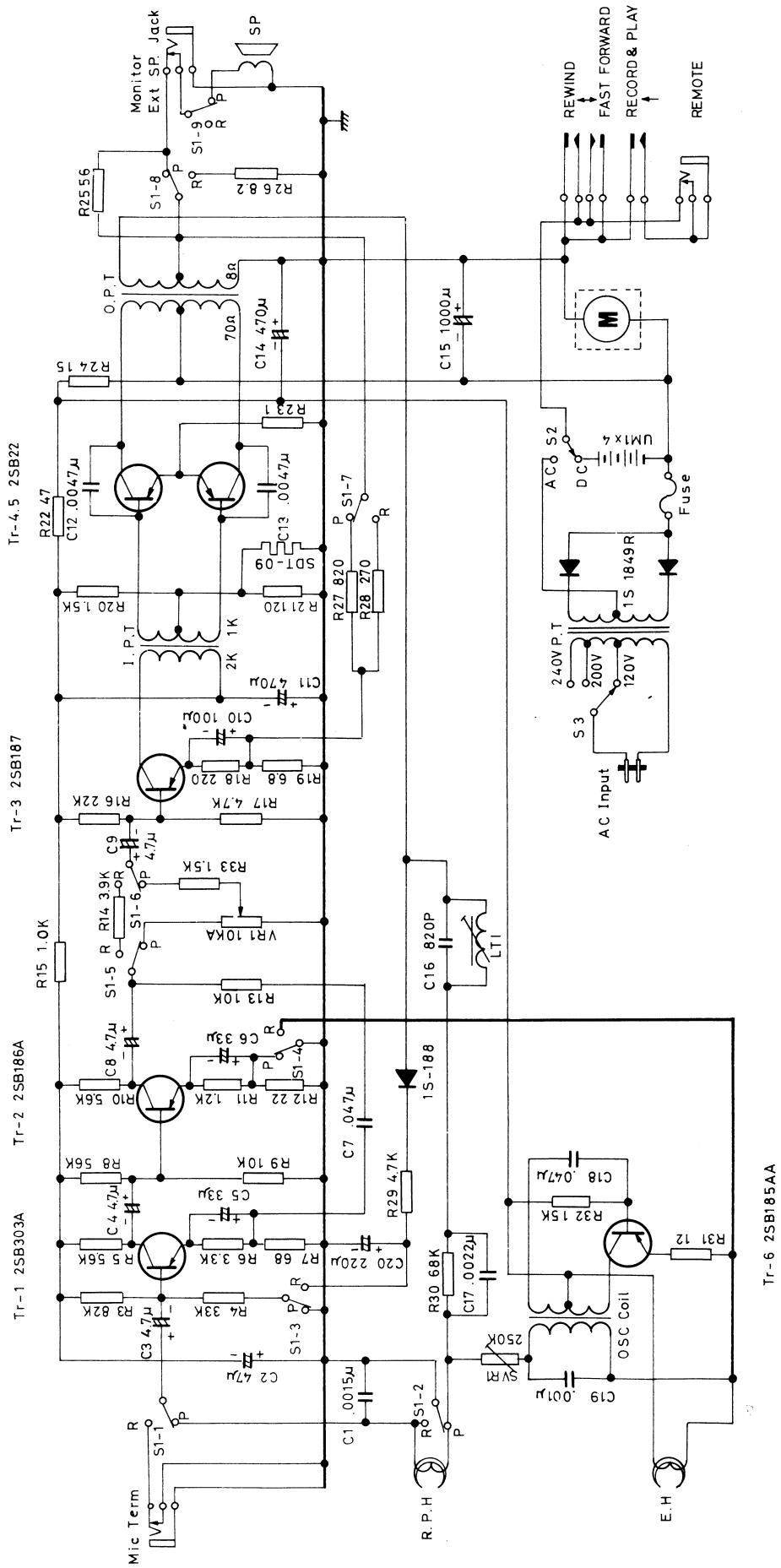


S1-1~S1-9 : R - P Changing SW.  
 S2-1~S2-2 : A C - DC Changing SW.  
 S3 : AC Voltage selector SW.

Tr-3 2SB187 (Br)  
 Tr-4 2SB186A  
 Tr-5 2SB405 X(2)  
 (Yor Or)  
 N.L.  
 S.P.

N.L.

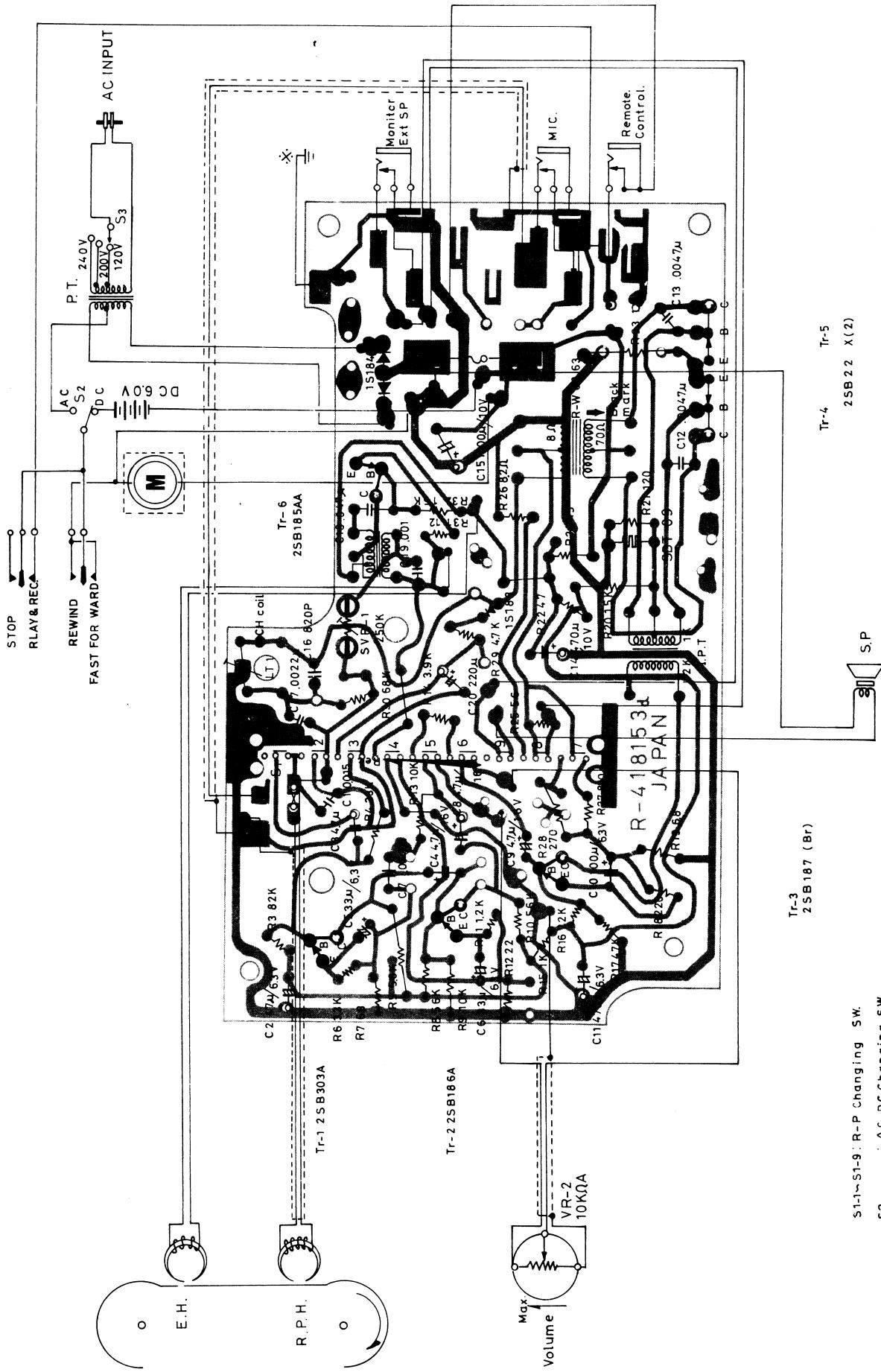
# CIRCUIT DIAGRAM (MR-420A)



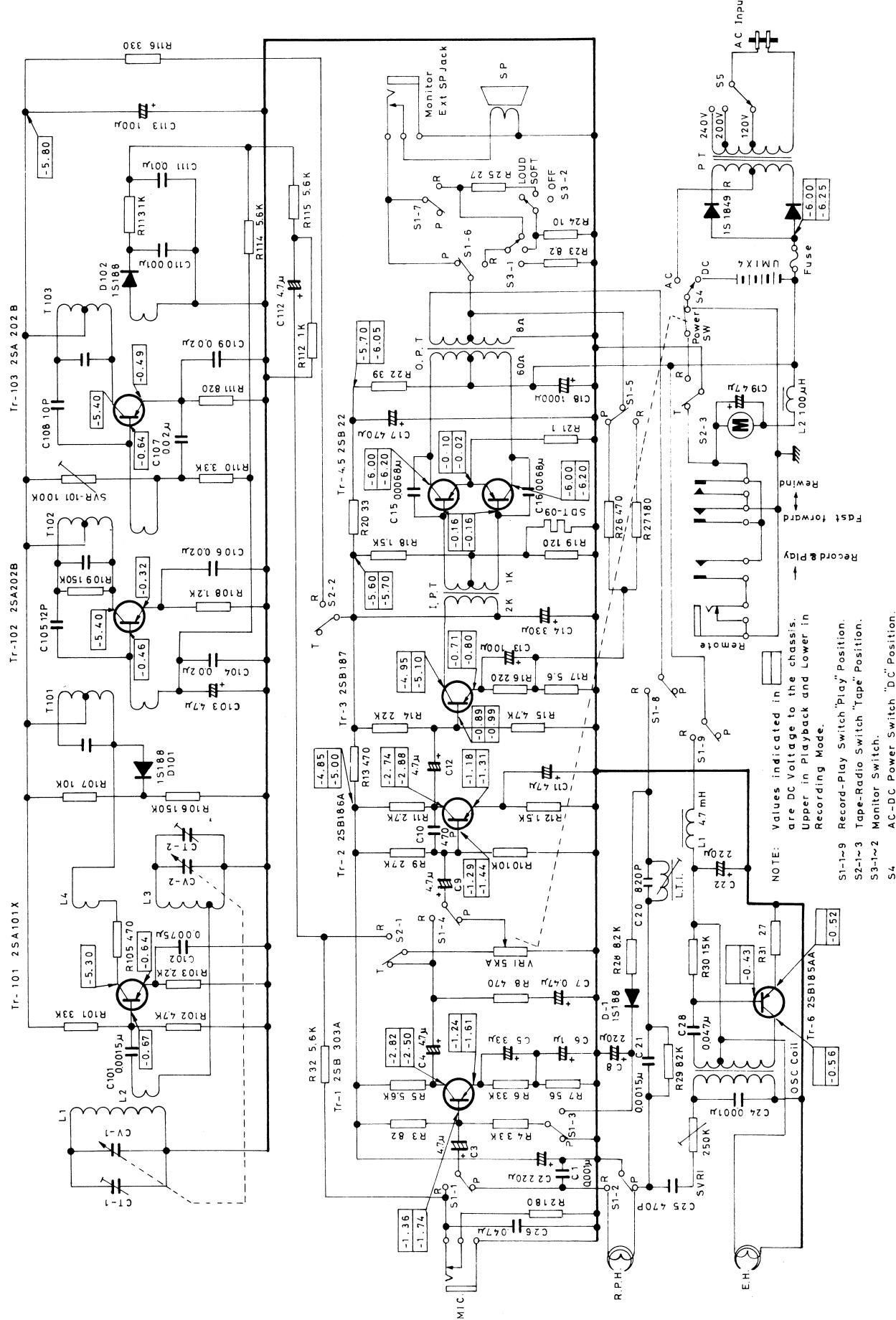
- S1 : R-P Change SW "Play" Position.  
 S2 : AC, DC Power Changing SW "DC" Position.  
 S3 : AC, Voltage Select SW

Tr-6 2SB185AA

# WIRING DIAGRAM (MR-420A)



# CIRCUIT DIAGRAM (MR-430)

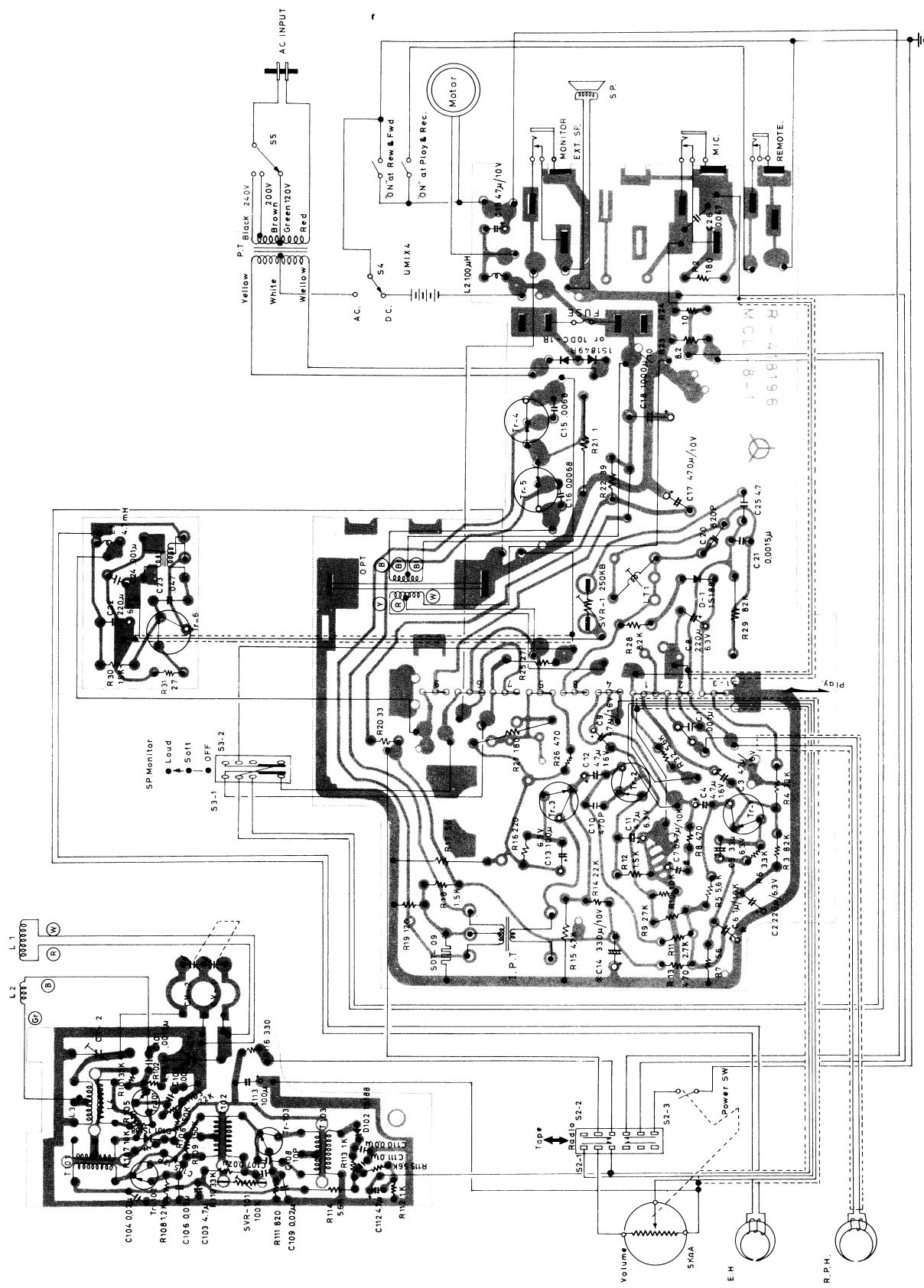


NOTE: Values indicated in parentheses are DC Voltage to the chassis.  
Upper in Playback and Lower in Recording Mode.

S1-1~9 Record-Play Switch "Play" Position.  
S2-1~3 Tape-Radio Switch "Tape" Position.  
S3-1~2 Monitor Switch.

S4 AC-DC Power Switch "DC" Position.

# WIRING DIAGRAM (MR-430)



|                 |                  |                                     |
|-----------------|------------------|-------------------------------------|
| Tr-1 : 2SB303A  | Tr-101 : 2SA101X | S1-1~S1-9 : Recording SW.           |
| Tr-2 : 2SB186NA | Tr-102 : 2SA202B | S2-1~S2-3 : "Tape" Radio Select SW. |
| Tr-3 : 2SB187   | Tr-103 : 2SA202B | S3-1 S3-2 : Monitor Select SW.      |
| Tr-4 : { 2SB22  |                  | A.C. D.C. Select SW.                |
| Tr-5 : }        |                  | S4 : AC Voltage Select SW.          |
| Tr-6 : 2SB185A/ |                  |                                     |