

BM-535

SERVICE MANUAL

US Model
AEP Model



| | |
|------------------------------------|-----------|
| Model Name Using Similar Mechanism | BM-575 |
| Tape Transport Mechanism Type | MB-575-50 |

SPECIFICATIONS

Tape

MICROCASSETTE™ (normal position type)

Recording system

2-track 1-channel monaural

Speaker

Approx. 3.6cm (1 7/16 in.) dia.

Tape speed

2.4 cm/s (1 1/16 ips), 1.2 cm/s (1/2 ips)

Frequency response

300 to 4,000 Hz (at 2.4 cm/s)

Output

Earphone jack (minijack) for 8 - 300 ohms earphone

Power output

150 mW (at 10 % harmonic distortion)

Battery life

Continuous recording hours with the built-in microphone:
Approx. 9 hours (average) with alkaline batteries.

Power requirements

3V DC

• Two size AAA (R03) batteries (not supplied)

DC IN 3 V jack accepts:

• Sony AC-E30HG AC power adaptor (not supplied) for use on 120 V AC, 60 Hz

• Sony DCC-E130L car battery cord (not supplied) for use on 12 V car battery.

Dimensions (w/h/d) (incl. projecting parts and controls)

Approx. 60 × 129 × 25.6 mm (w/h/d)

(2 3/8 × 5 1/2 × 1 1/2 in.)

Mass

Approx. 155 g (5.5 oz.)

Approx. 185 g (6.6oz.) (incl. batteries and cassette)

Design and specifications are subject to change without notice.

NOTES ON CHIP COMPONENT REPLACEMENT

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

MICROCASSETTE™ DICTATOR

SONY®



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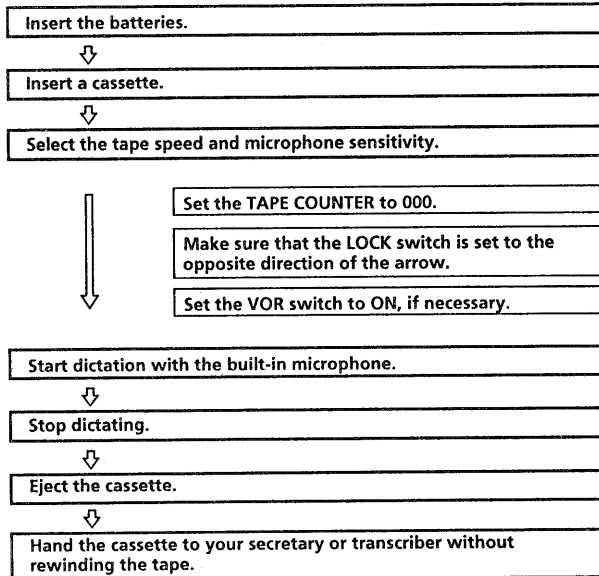
7. ELECTRICAL PARTS LIST

20

SECTION 1 GENERAL

This section is extracted from instruction manual.

Operation Flow Chart



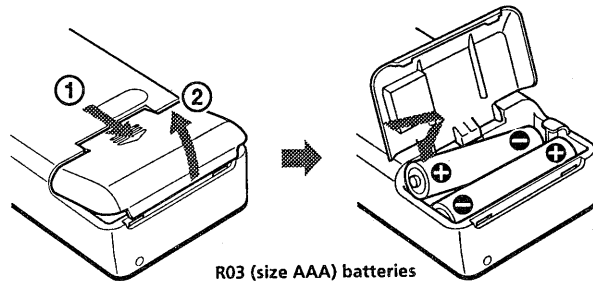
► Getting Started

Preparing a Power Source

Choose one of the following power sources

Dry Batteries

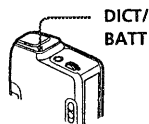
Make sure that nothing is connected to the DC IN 3V jack.



- 1 Open the battery compartment lid.
- 2 Insert two size AAA (R03) batteries.

When to replace the batteries

Replace the batteries with new ones when the DICT/BATT lamp dims.



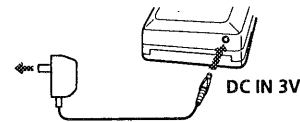
Notes on the DICT/BATT lamp

- After the batteries have been used for a while, the DICT/BATT lamp may flicker with the playback sound when you turn up the volume; however, this does not mean that you need to change the batteries.
- The unit will play back normally for a while even after the DICT/BATT lamp dims. However, replace the batteries as soon as you can. If you do not, subsequent recording will not be done correctly.

Notes on batteries

- Do not charge a dry battery.
- Do not use a new battery with an old one.
- Do not use different types of batteries.
- When you do not use the unit for a long time, remove the batteries to avoid any damage caused by battery leakage and subsequent corrosion.
- Dry batteries will not be expended when another power source is connected.

House Current



Use the AC-E30HG AC power adaptor (not supplied). Connect the adaptor to the DC IN 3V jack and to a wall outlet. Do not use any other AC power adaptor.

Polarity of the plug

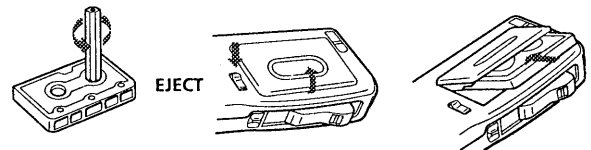


Car Battery

Use the DCC-E130L car battery cord (not supplied).

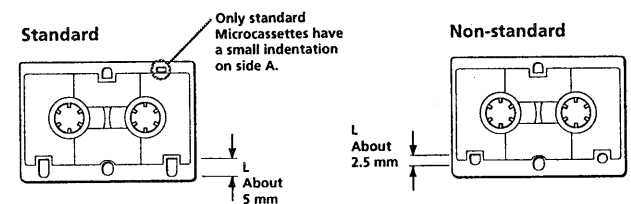
Inserting a Cassette

Before inserting the cassette, take up any slack in the tape with a thick pencil.



Use only standard Microcassettes with this unit.

Non-standard microcassettes cannot be used because their "L" dimension (see illustration) is different.



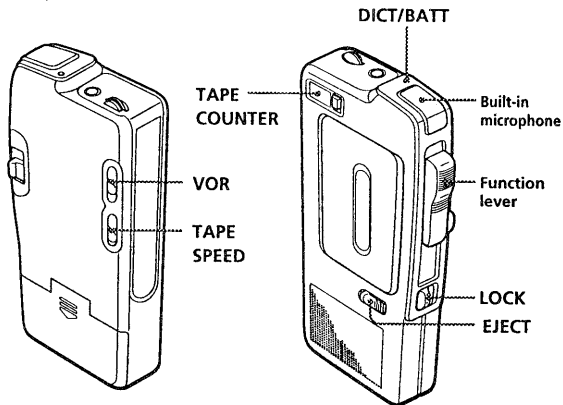
▶ Operating the Unit

Dictating with the Built-in Microphone

You can start and stop dictating simply by sliding the function lever.

Before operating, make sure the following points.

- The LOCK switch is set to the opposite direction of the arrow.
- Set the VOR (Voice Operated Recording) switch to H or L, if necessary.



- 1 Slide the EJECT lever to open the cassette compartment lid.
- 2 Insert a cassette with the side to start dictating facing the lid.
- 3 Set the TAPE SPEED selector to the desired tape speed.

| Recording time* | Set to |
|-----------------|----------|
| 60 minutes | 2.4 cm** |
| 120 minutes | 1.2 cm |

* Using both sides of the MC-60BM Microcassette.

** For optimum sound (recommended for normal use), set to 2.4 cm.

- 4 Slide up the function lever to DICT (dictation).
The DICT/BATT lamp flashes depending on the strength of the sound during recording.
- 5 Speak into the microphone.
- 6 To stop dictating, slide down the function lever to STOP.
To eject a cassette, slide the EJECT lever.

To economize the tapes and batteries

Set the VOR switch to H or L. The tape moves only when sound is picked up, and stops automatically when sound is no longer detected (The DICT/BATT indicator goes out.), thus the minimum amount of tape is used.

| If you want recording to start | Set to |
|--------------------------------|--------|
| even with small sound | H |
| only with a loud sound | L |

To index the tape contents

Set the TAPE COUNTER to 000 by pushing the reset button before dictating.

To monitor the recording

Connect an earphone to the EAR (earphone) jack.

To listen to the just-recorded contents while dictating

Slide down the function lever to B. SPACE (back space), and release it at the desired point.

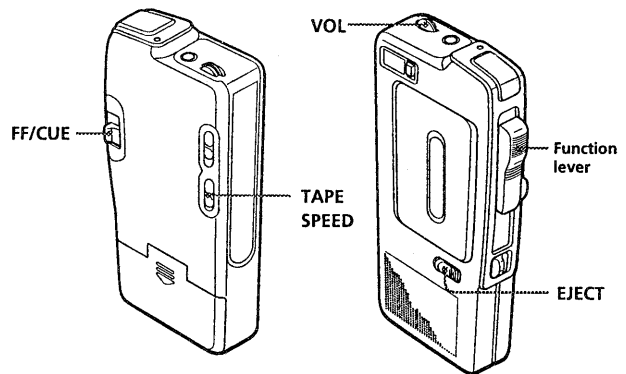
When a beep sounds and the DICT/BATT lamp goes out

The tape reaches the end. Slide the function lever to STOP.

To erase the entire tape contents

Use the BE-9H cassette eraser (not supplied).

Listening to the Dictation



Make sure that the LOCK switch is set to the opposite direction of the arrow.

- 1 Slide the EJECT lever to open the cassette compartment lid.
- 2 Insert a cassette with the side to start listening facing the lid.
- 3 Set the TAPE SPEED selector to the same position as that in recording.
- 4 Slide down the function lever to LISTEN.
- 5 Adjust VOL (volume).
- 6 To stop playback, slide up the function lever to STOP.

To rewind the tape

Slide down the function lever at the B. SPACE (back space) and release it at the desired point.

To rapidly advance the tape

Slide the FF/CUE lever in the direction of the arrow, with the function lever set to STOP. To stop the tape, release the FF/CUE lever.

To skip over unnecessary portions

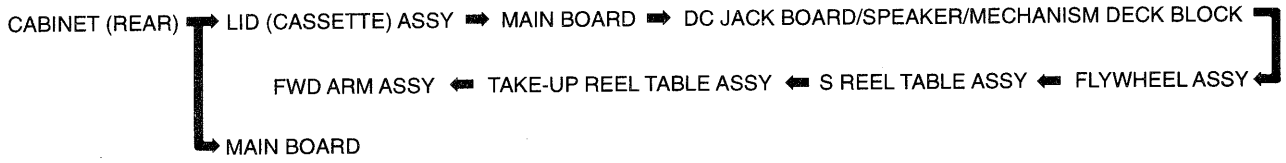
During playback, slide the FF/CUE lever in the direction of the arrow. When you release the lever, the unit will automatically return to the playback mode.

For private listening

Connect the earphone to the EAR jack and the sound does not come out through the speaker.

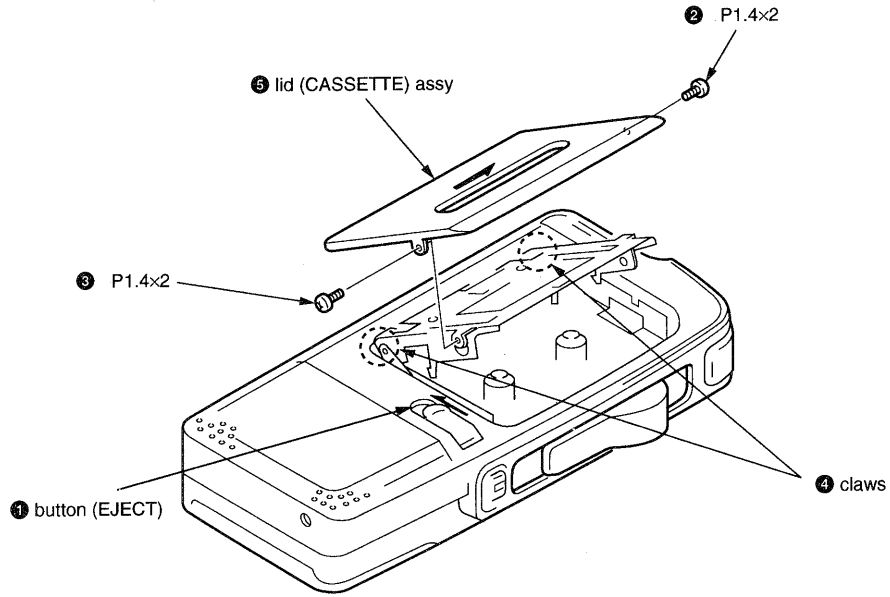
SECTION 2 DISASSEMBLY

Note : This set can be disassemble according to the following sequence.



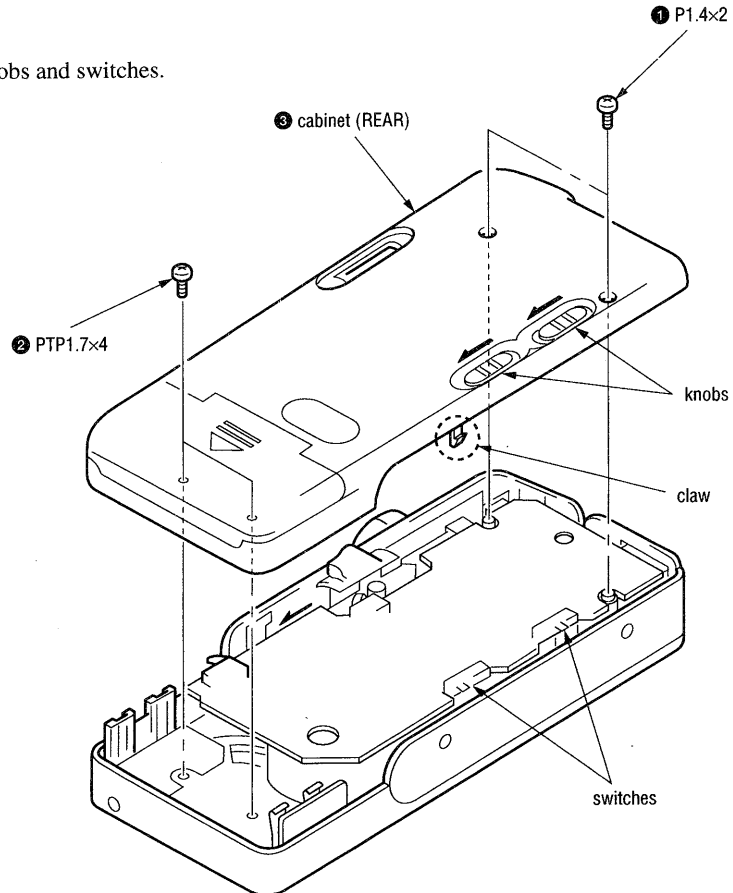
Note : Following the disassembly procedure in the numerical order given.

2-1. LID (CASSETTE) ASSY

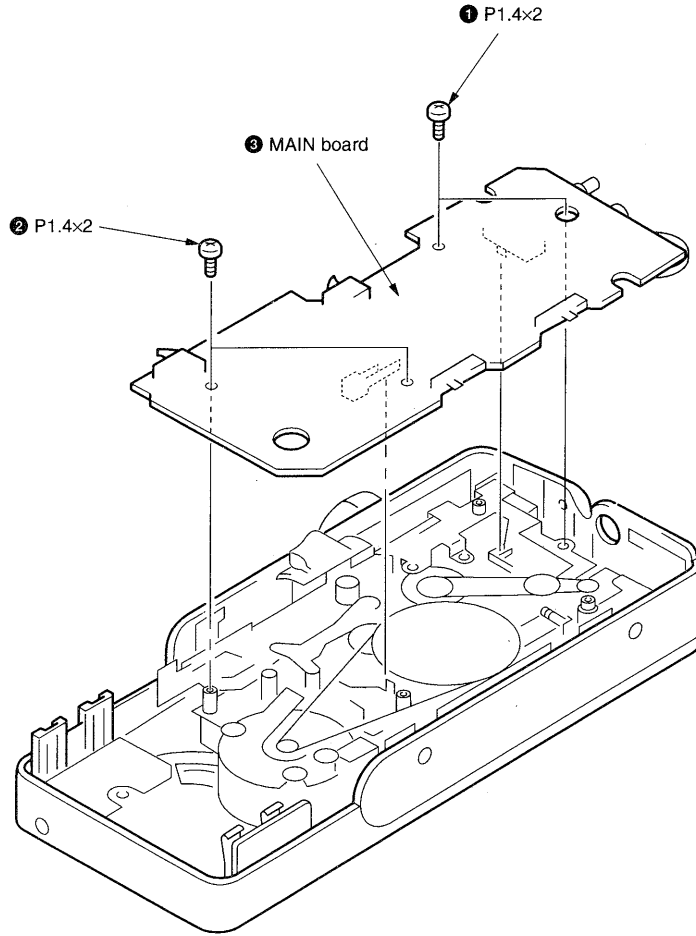


2-2. CABINET (REAR)

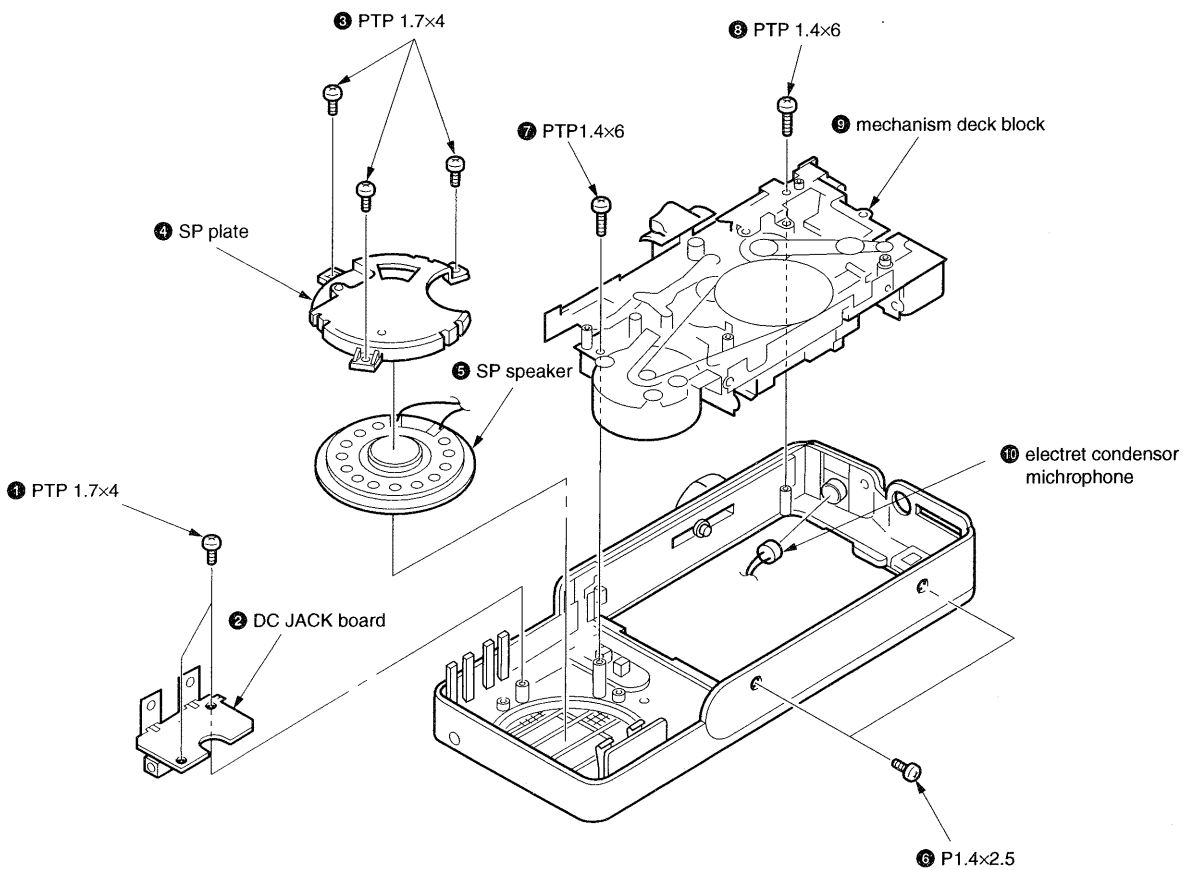
Note: On install, set to the knobs and switches.



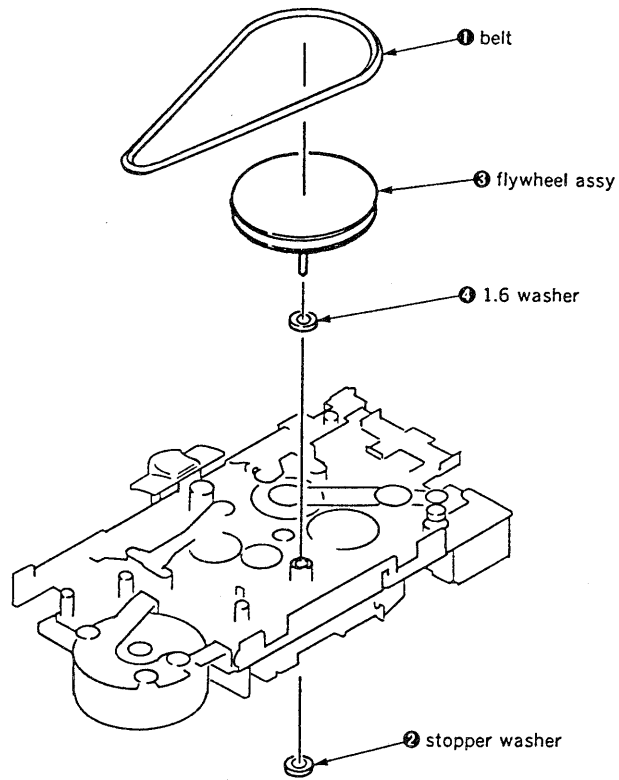
2-3. MAIN BOARD



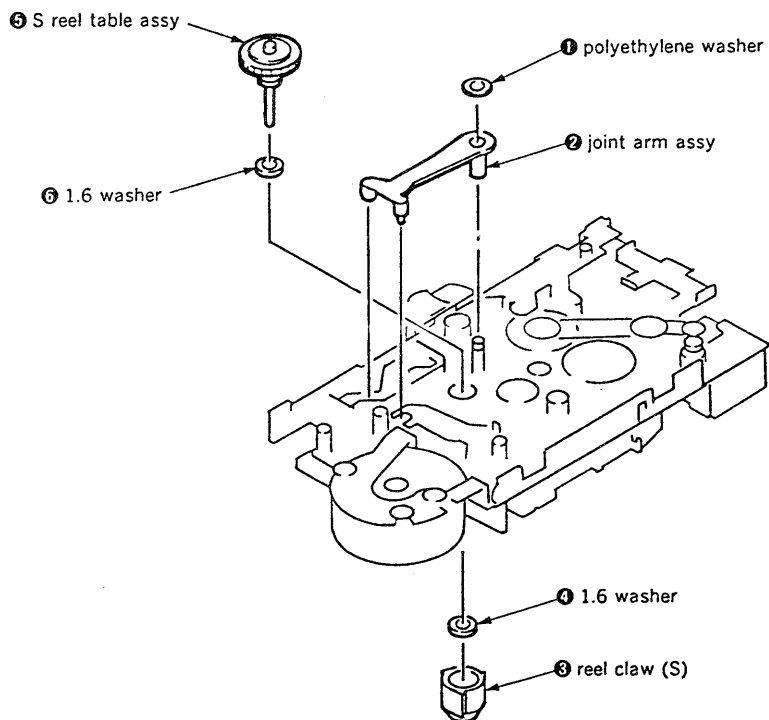
2-4. DC JACK BOARD/SPEAKER/MECHANISM DECK BLOCK



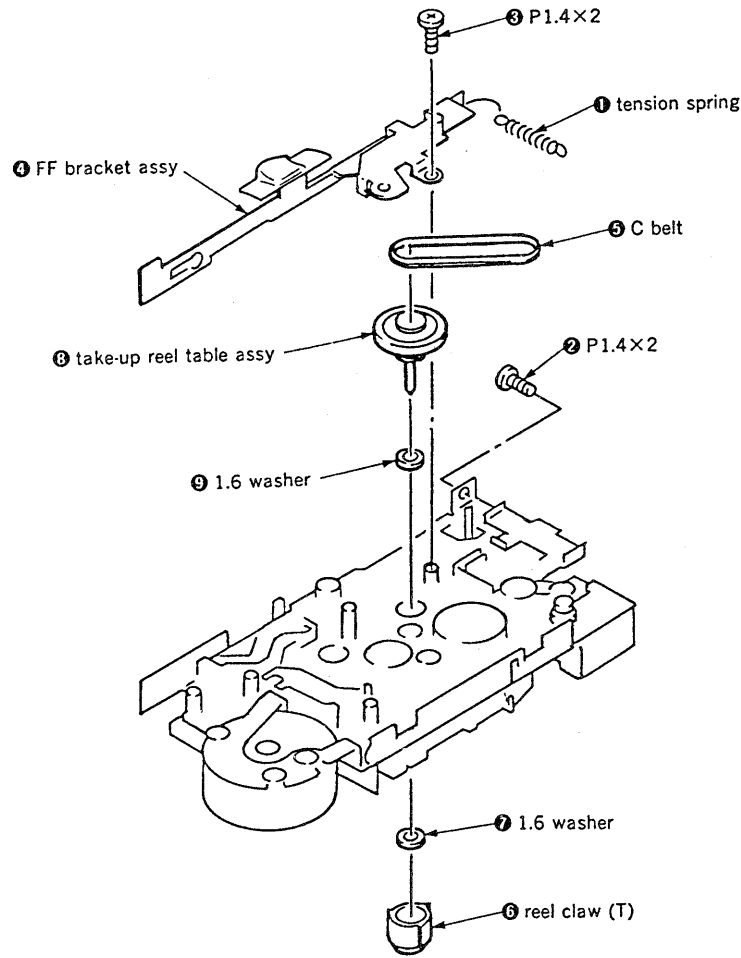
2-5. FLYWHEEL ASSY



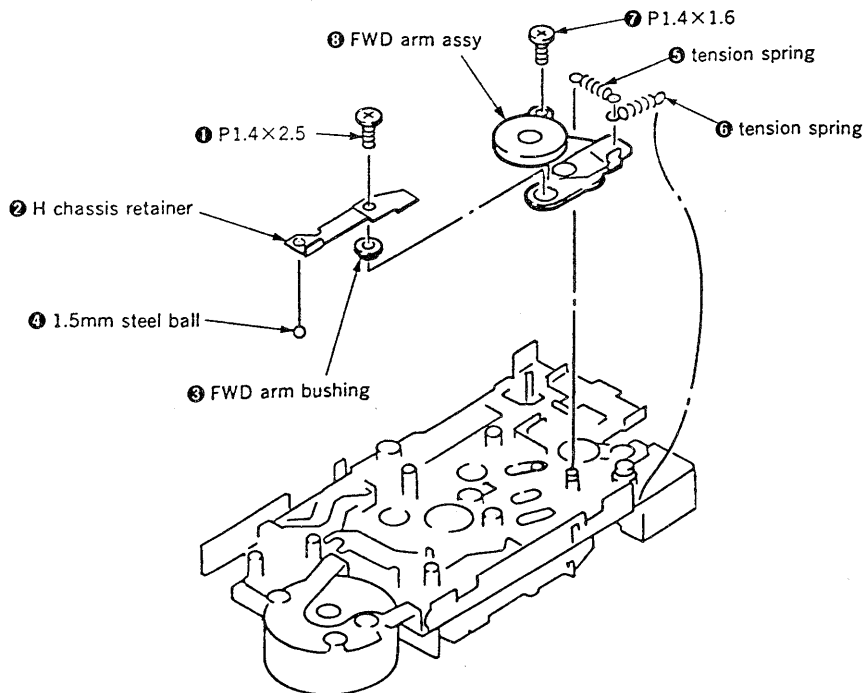
2-6. S REEL TABLE ASSY



2-7. TAKE-UP REEL TABLE ASSY



2-8. FWD ARM ASSY



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

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

| | |
|----------------------------|----------------|
| record/playback/erase head | pinch roller |
| rubber belts | capstan idlers |
 - Demagnetize the record/playback/erase head with a head demagnetizer.
 - Do not use a magnetized screwdriver for the adjustments.
 - After the adjustments, apply suitable locking compound to the parts adjusted.
 - The adjustments should be performed with the rated power supply voltage (dc 2.5V) unless otherwise noted.
- Switches and control should be set as follows unless otherwise specified.

TAPE SPEED selector : 2.4cm
 VOR switch : OFF
 VOL control : mechanical center

Torque Measurement

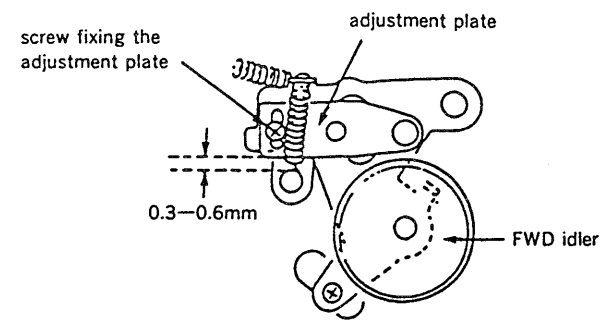
| Mode | Torque meter (Cassette type) | Meter reading |
|----------|------------------------------|---|
| LISTEN | CQ-103M | 5-12g·cm (0.069-0.167 oz·inch) |
| FF/CUE | CQ-201M | more than 5g·cm (more than 0.069 oz·inch) |
| B. SPACE | CQ-201M | more than 14g·cm (more than 0.194 oz·inch) |

Tape Tension Measurement

| Mode | Tension meter (Cassette type) | Meter reading |
|--------|-------------------------------|--------------------------|
| LISTEN | CQ-403M | 25-55g (0.88-1.94 oz) |

Timing Adjustment

- Take-up reel spindle should rotate at the same time as pinch roller or earlier than pinch roller in STOP to LISTEN/DICT mode.
Confirm that the pinch roller presses to capstan and they rotate.
- When they are not correctly rotate, adjust the place of adjustment plate so that it is wide.



SECTION 4 ELECTRICAL ADJUSTMENTS

PRECAUTION

- Demagnetize the record/playback/erase head with a head demagnetizer.
 - Do not use a magnetized screwdriver for the adjustments.
 - After the adjustments, apply suitable locking compound to the parts adjusted.
 - The adjustments should be performed with the rated power supply voltage (dc 2.5V) unless otherwise noted.
 - The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
- Switches and control should be set as follows unless otherwise specified.

TAPE SPEED selector : 2.4cm
 VOR switch : OFF
 VOL control : mechanical center

Test Tape

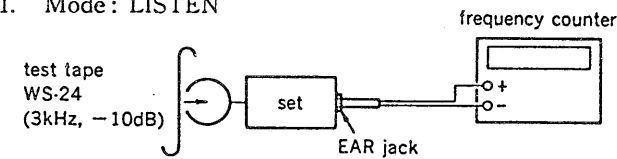
| Type | Signal | Used for |
|----------|-------------|-------------------------------|
| WS-24 | 3kHz, -10dB | Tape Speed (2.4cm) Adjustment |
| WS-12 | 3kHz, -10dB | Tape Speed (1.2cm) Adjustment |
| S-2-A030 | 3kHz, -20dB | Head Azimuth Adjustment |

Tape Speed (2.4cm) Adjustment

Setting :
 TAPE SPEED selector : 2.4cm

Procedure :

- Mode : LISTEN



- Adjust RV102 so that the frequency counter reads 2,990 to 3,010Hz.

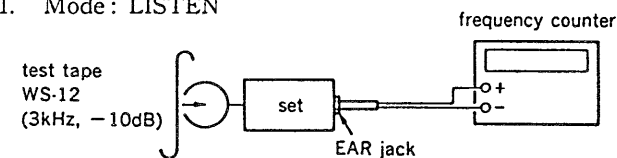
Adjustment Location : See page 10.

Tape Speed (1.2cm) Adjustment

Setting :
 TAPE SPEED selector : 1.2cm

Procedure :

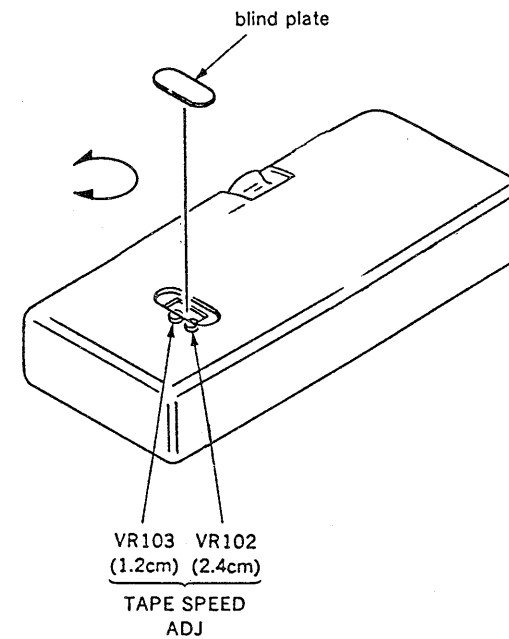
- Mode : LISTEN



- Adjust RV103 so that the frequency counter reads 2,990 to 3,010Hz.

Adjustment Location : See page 10.

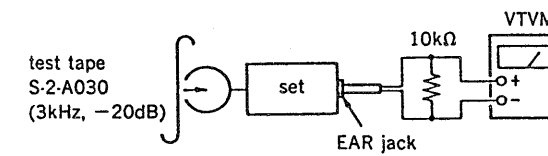
Adjustment Location :



Record/playback Head Azimuth Adjustment

Procedure :

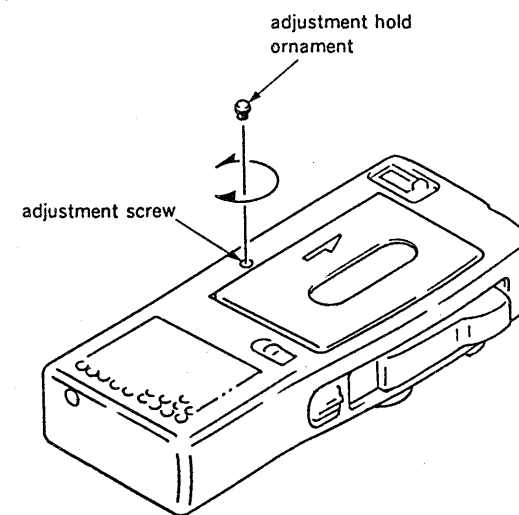
- Mode : LISTEN



- Turn the adjustment screw for maximum VTVM reading.

Note : Several peaks may appear, but take the maximum.

Adjustment Location :



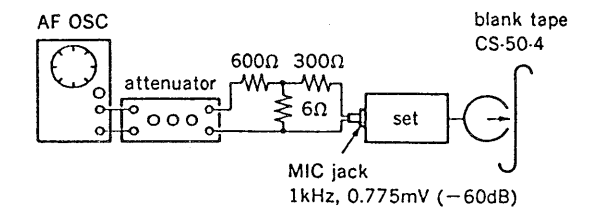
Record Bias Adjustment

Setting :

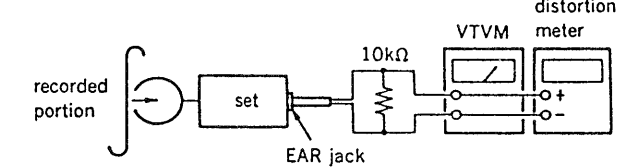
TAPE SPEED selector : 2.4cm

Procedure :

- Mode : DICT (record)



- Mode : LISTEN (playback)



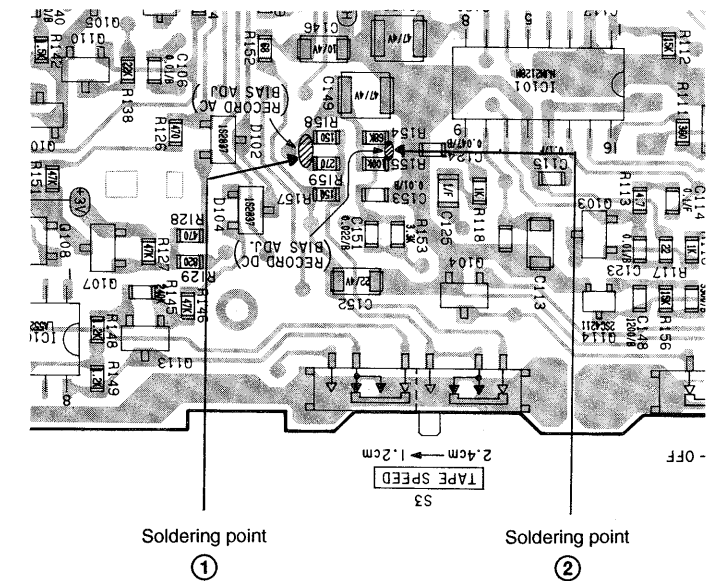
- LISTEN (playback) the signal recorded in step 1.
- Turn the VOL control so that the VTVM reads within 0dB.
Confirm that the distortion meter reads within adjustment limits.
- Set the TAPE SPEED selector to 1.2cm and repeat steps 1 to 4.
- If the adjustment limits are not satisfied, solder the tap ①.

- If still not satisfied, solder the tap ②.

Adjustment limits :

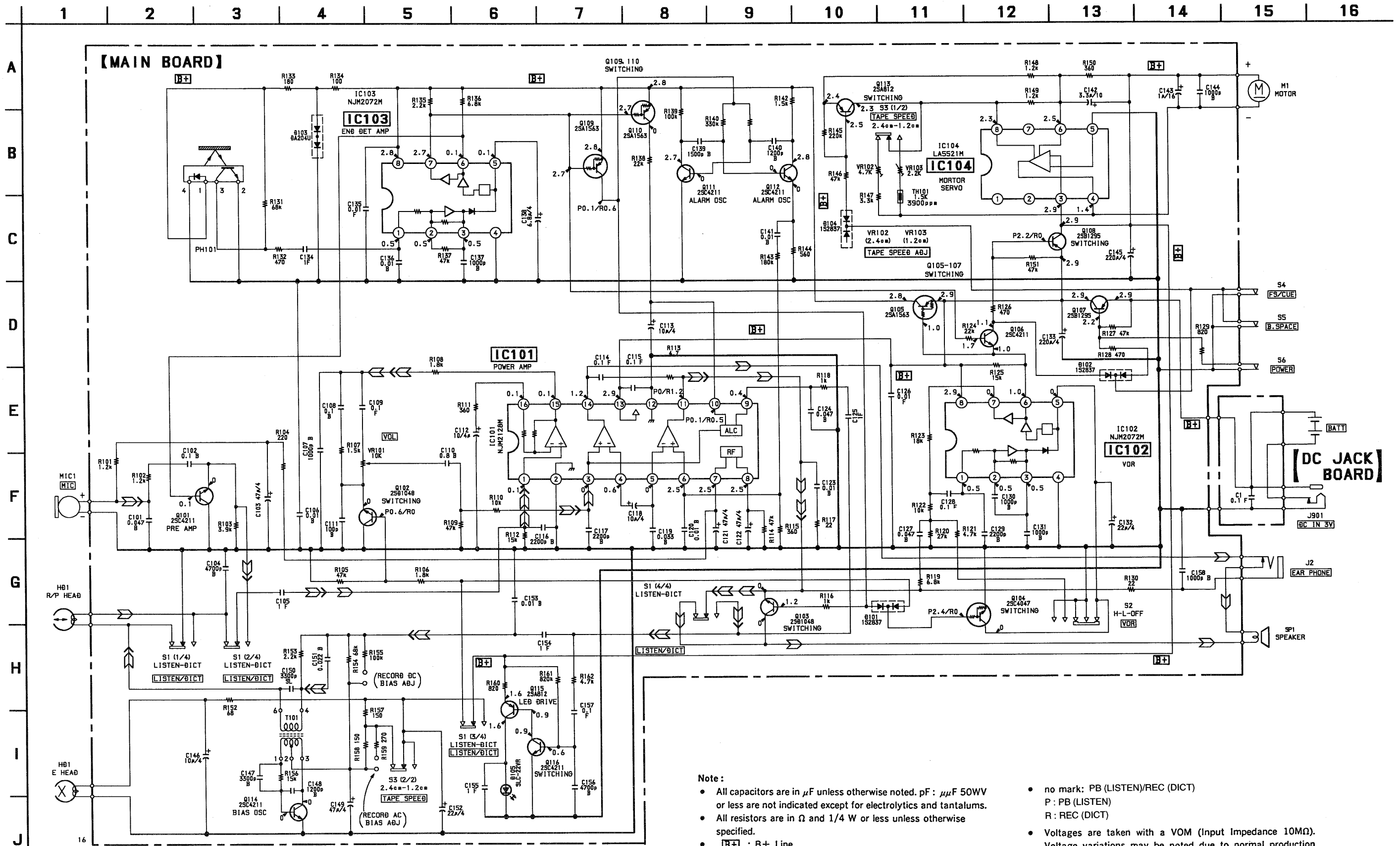
| tape speed | distortion |
|------------|------------|
| 2.4cm/s | within 12% |
| 1.2cm/s | within 14% |

Soldering Point : main board (conductor side)



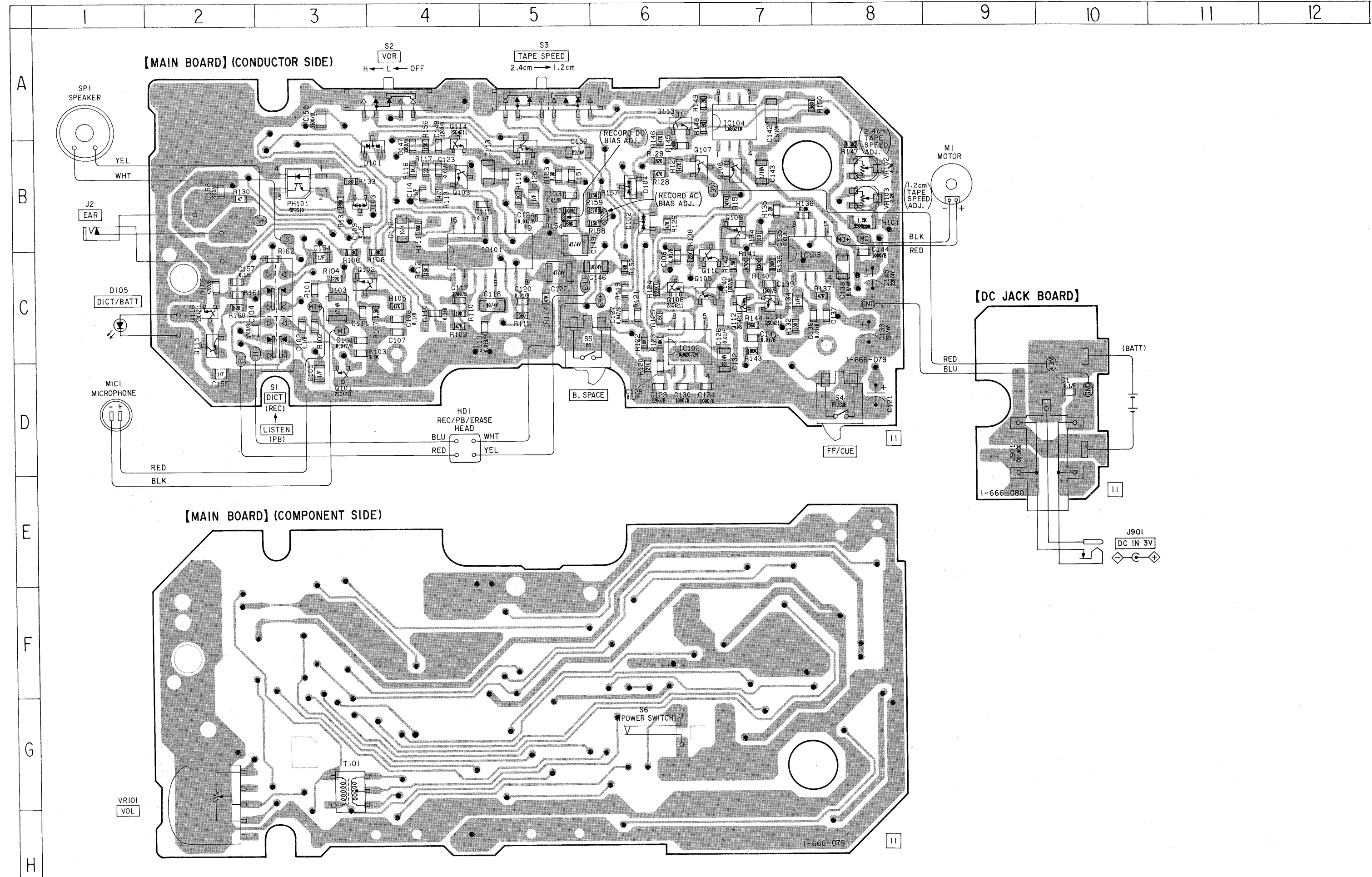
SECTION 5
DIAGRAMS

5-1. SCHEMATIC DIAGRAM



- Note:**
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and 1/4 W or less unless otherwise specified.
 - **B+** : B+ Line
 - **⏏** : adjustment for repair.
 - Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
 - Voltage is dc with respect to ground under no-signal conditions.
 - no mark: PB (LISTEN)/REC (DICT)
 - P : PB (LISTEN)
 - R : REC (DICT)
 - Voltages are taken with a VOM (Input Impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 - ⏏** : PB (LISTEN)
 - ⏏** : REC (DICT)

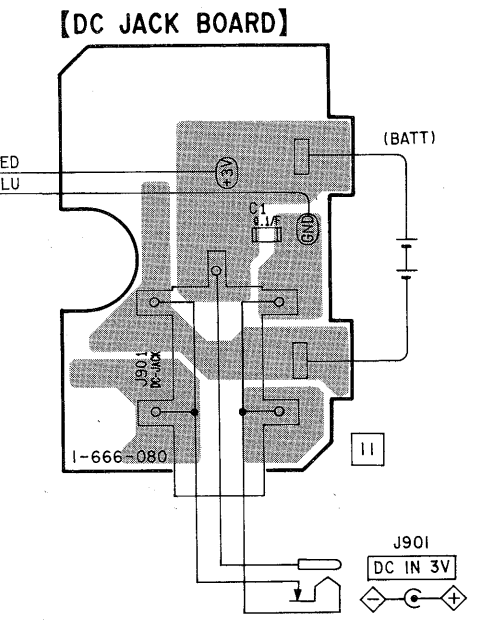
5-2. PRINTED WIRING BOARDS



• Semiconductor Location

| Ref. No. | Location |
|----------|----------|
| D101 | B-4 |
| D102 | B-6 |
| D103 | B-3 |
| D104 | B-6 |
| D105 | C-1 |
| IC101 | C-5 |
| IC102 | C-6 |
| IC103 | C-7 |
| IC104 | A-7 |
| Q101 | D-3 |
| Q102 | C-3 |
| Q103 | B-4 |
| Q104 | B-5 |
| Q105 | C-7 |
| Q106 | C-6 |
| Q107 | B-7 |
| Q108 | B-7 |
| Q109 | B-7 |
| Q110 | C-7 |
| Q111 | C-7 |
| Q112 | C-7 |
| Q113 | A-6 |
| Q114 | B-4 |
| Q115 | C-2 |
| Q116 | C-2 |

- Note:
- : parts extracted from the conductor side.
 - ▨ : Pattern on the side which is seen.
 - : Through hole.



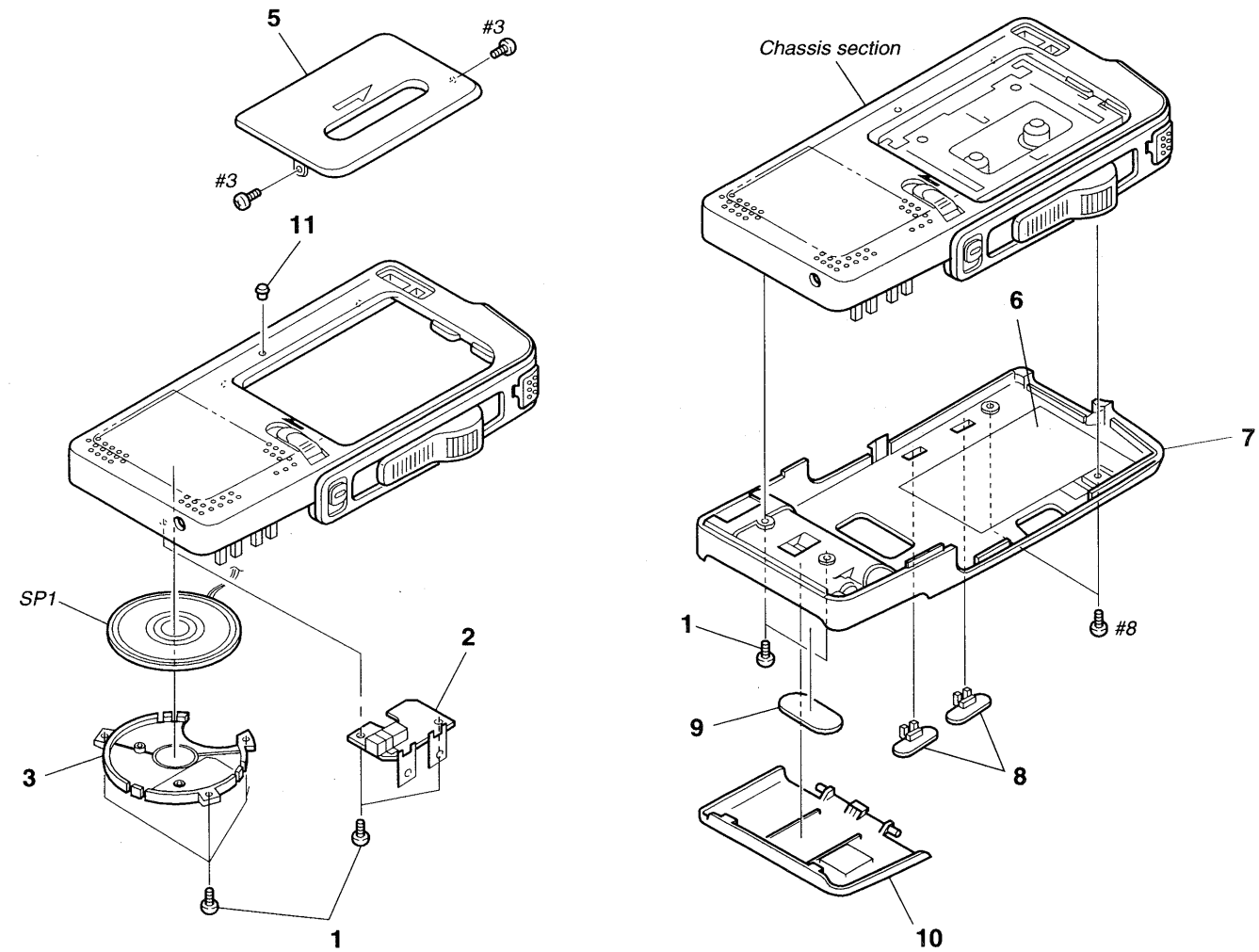
SECTION 6 EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Color Indication of Appearance Parts Example: KNOB, BALANCE (WHITE) . . . (RED)
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

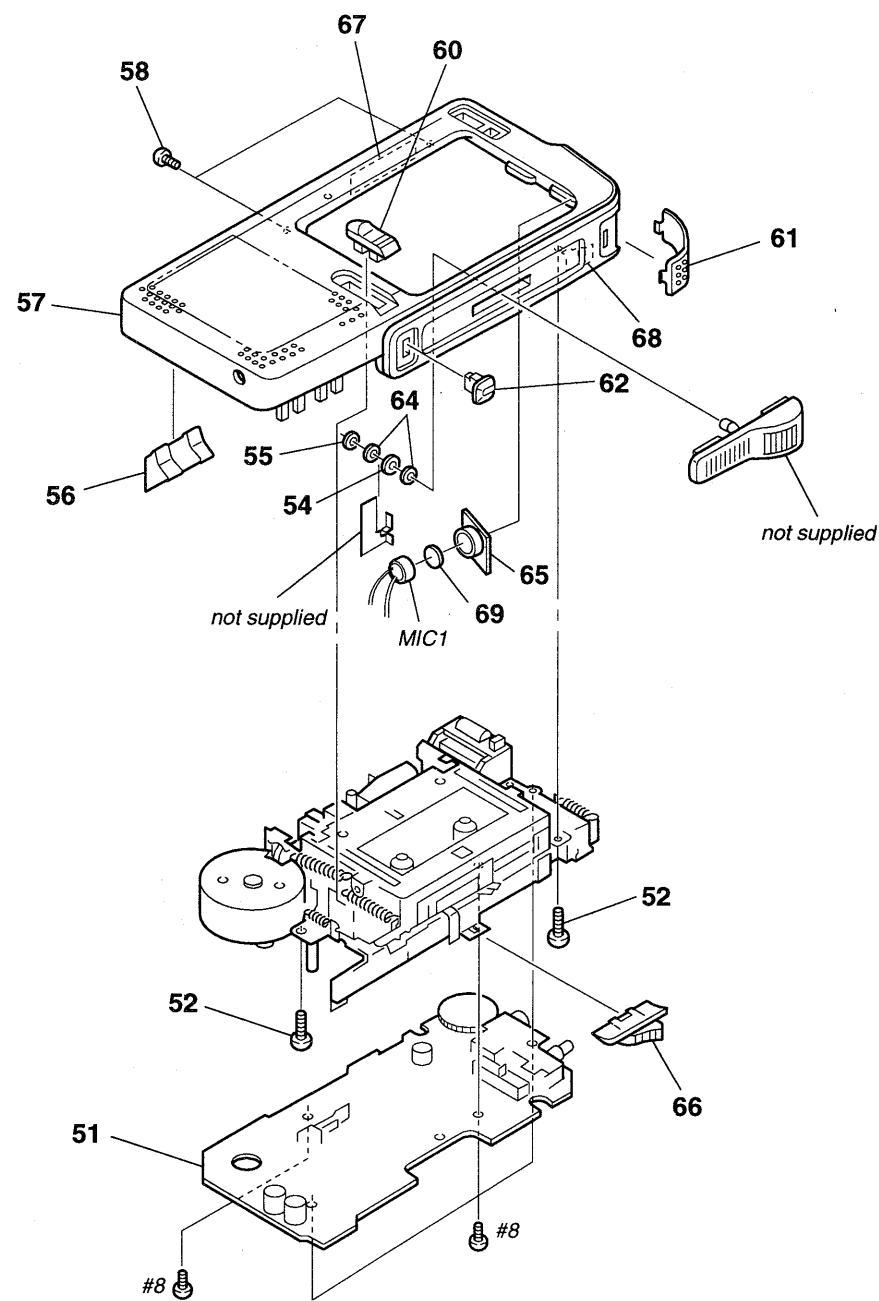
↑ ↑
Parts of Color Cabinet's Color

6-1. CABINET SECTION



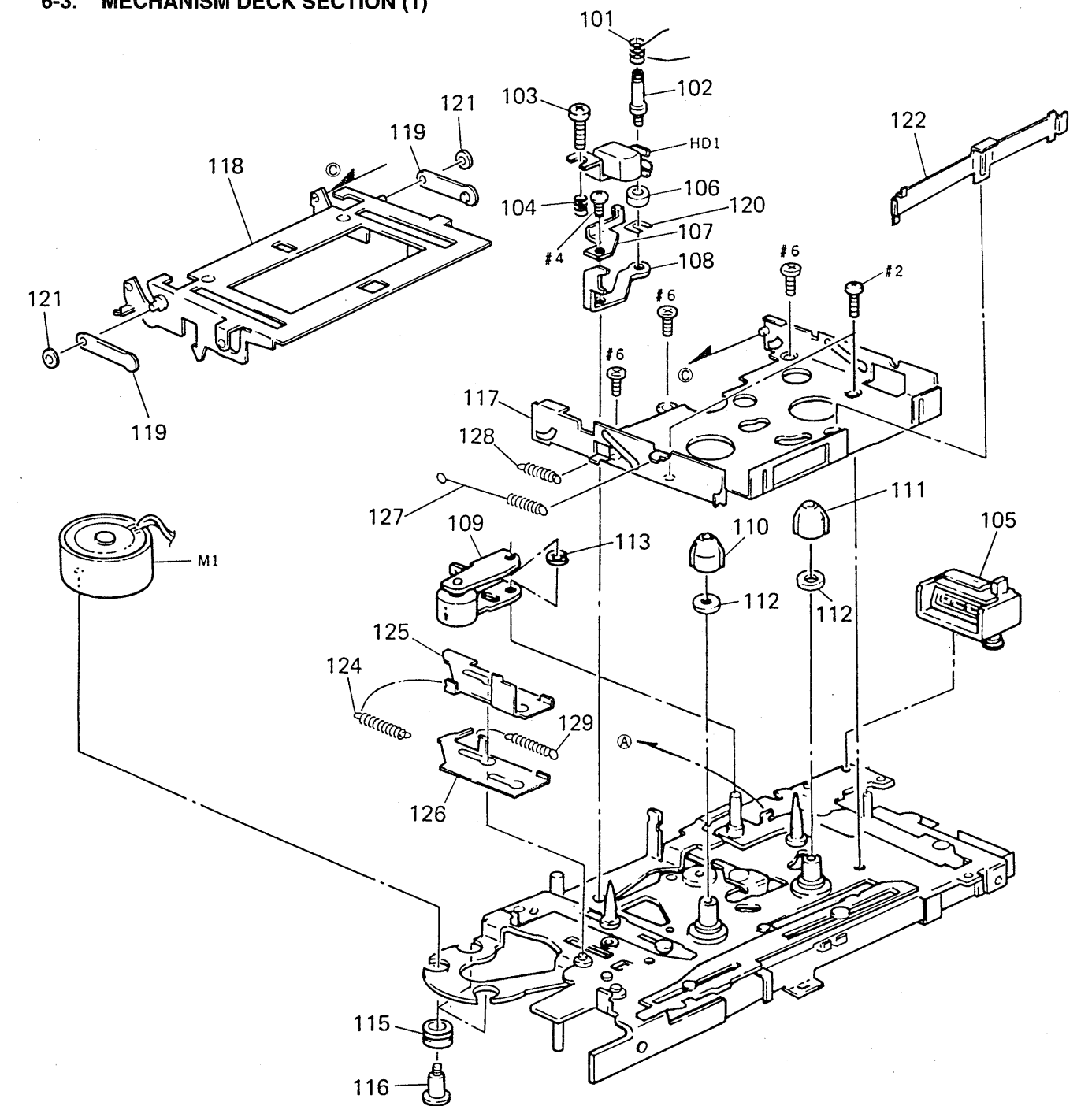
| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|----------------------------|---------|----------|--------------|---------------------------|---------|
| 1 | 3-947-677-01 | SCREW (1.7X4), TAPPING (B) | | 8 | 3-013-867-01 | KNOB (VOR) | |
| * 2 | 1-666-080-11 | DC JACK BOARD | | 9 | 3-927-400-01 | PLATE, BLIND | |
| * 3 | 3-014-339-01 | PLATE, SP | | 10 | 3-013-871-01 | LID, BATTERY CASE | |
| 5 | X-3373-822-1 | LID ASSY, CASSETTE | | 11 | 3-578-232-21 | ORNAMENT, ADJUSTMENT HOLE | |
| 6 | 3-014-385-01 | PLATE (CABINET), SHIELD | | SP1 | 1-505-384-11 | SPEAKER (3.6CM) | |
| 7 | 3-013-865-01 | CABINET (REAR) | | | | | |

6-2. CHASSIS SECTION



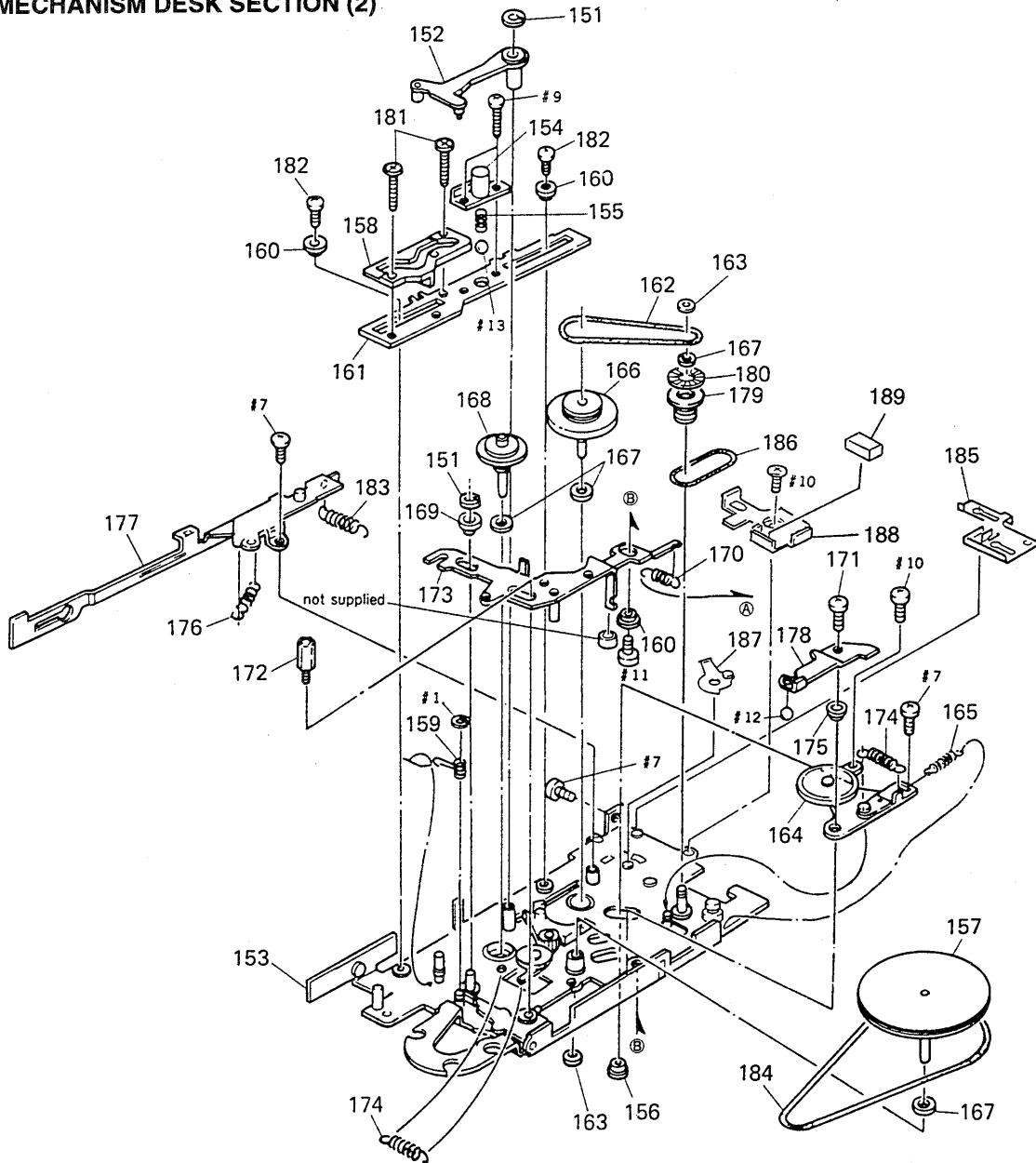
| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|-------------------------------|---------|----------|--------------|----------------------------|---------|
| * 51 | A-3016-953-A | MAIN BOARD, COMPLETE | | 62 | 3-927-392-01 | BUTTON (LOCK) | |
| 52 | 3-309-597-61 | SCREW (1.4X6), TAPPING | | 64 | 3-701-437-01 | WASHER | |
| * 54 | 3-557-857-01 | CUSHION, VIBRATION PREVENTION | | 65 | 3-306-145-01 | HOLDER (MICROPHONE) | |
| 55 | 3-321-813-01 | WASHER, COTTER POLYETHYLENE | | 66 | 3-013-868-01 | KNOB (FF) | |
| * 56 | 3-014-335-01 | SPRING, BATTERY | | 67 | 3-014-336-01 | PLATE (HEAD), SHIELD | |
| 57 | 3-013-864-01 | CABINET (FRONT) | | 68 | 3-014-338-01 | PLATE (MICROPHONE), GROUND | |
| 58 | 3-014-346-01 | SCREW (+P 1.4X2.5), PRECISION | | 69 | 3-929-290-01 | COVER (MICROPHONE) | |
| 60 | 3-013-866-01 | BUTTON (EJECT) | | MIC1 | 1-542-197-11 | MICROPHONE, ELECTRET | |
| * 61 | 3-013-872-01 | GRILLE, MICROPHONE | | | | | |

6-3. MECHANISM DECK SECTION (1)



| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|-----------------------------------|---------|----------|--------------|-------------------------------|---------|
| 101 | 3-306-149-01 | SPRING, TORSION | | 117 | X-3370-774-1 | PANEL ASSY, SUB | |
| 102 | 3-306-165-01 | SHAFT (HEAD FITTING) | | 118 | X-3370-775-1 | HOLDER ASSY, LID | |
| 103 | 3-704-375-01 | SCREW, (1.7X5.5), (+P), PRECISION | | * 119 | X-3370-773-1 | ARM ASSY | |
| 104 | 3-570-558-00 | SPRING, COMPRESSION | | 120 | 3-578-138-01 | SHIM (0.1MM) | |
| 105 | 1-548-516-00 | TIMER, TAPE | | 120 | 3-578-138-11 | SHIM (0.2MM) | |
| 106 | 3-306-164-01 | SPACER (HEAD) | | 121 | 3-315-384-11 | WASHER, STOPPER | |
| * 107 | 3-302-476-01 | CLAMP | | * 122 | 3-927-428-01 | RETAINER (A), CASSETTE | |
| * 108 | 3-302-464-02 | GUIDE, TAPE | | 124 | 3-927-425-01 | SPRING, TENSION | |
| 109 | X-3302-409-0 | PINCH LEVER ASSY | | * 125 | 3-924-116-01 | LEVER, EJECT | |
| 110 | 3-302-459-00 | CLAW (S), REEL | | * 126 | 3-924-115-01 | LEVER, LOCK | |
| 111 | 3-302-460-00 | CLAW (T), REEL | | 127 | 3-927-427-01 | SPRING, TENSION | |
| 112 | 3-701-436-01 | WASHER, 1.6 | | 128 | 3-927-426-01 | SPRING, TENSION | |
| 113 | 3-578-255-11 | RING (E1.5), RETAINING | | 129 | 3-927-424-01 | SPRING, TENSION | |
| 115 | 3-309-836-01 | SHAFT, FITTING, MOTOR | | HD1 | 1-500-271-11 | HEAD, MAGNETIC (REC/PB/ERASE) | |
| 116 | 3-570-770-00 | CUSHION (A), MOTOR | | M1 | A-3042-785-A | MOTOR ASSY | |

6-4. MECHANISM DESK SECTION (2)



| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|--------------------------------|---------|----------|--------------|--------------------------------|---------|
| 151 | 3-311-815-11 | WASHER, POLYETHYLENE | | 171 | 3-704-374-01 | SCREW (1.4X2.5),(+P),PRECISION | |
| 152 | X-3306-122-1 | ARM ASSY, JOINT | | * 172 | 3-306-186-01 | SHAFT (PC BOARD GUIDE) | |
| 153 | X-3370-769-1 | CHASSIS ASSY, MECHANICAL | | * 173 | X-3370-771-1 | CHASSIS ASSY, HEAD | |
| * 154 | 3-302-461-00 | RETAINER, SPRING | | 174 | 3-561-634-00 | SPRING, TENSION | |
| 155 | 3-302-567-01 | SPRING(STEEL BALL),COMPRESSION | | * 175 | 3-302-541-00 | BUSHING, FWD ARM | |
| 156 | 3-302-495-00 | GUIDE, ARM, FWD | | 176 | 3-527-188-00 | SPRING, TENSION | |
| 157 | X-3306-111-1 | FLYWHEEL ASSY | | * 177 | X-3370-770-1 | BRACKET ASSY, FF | |
| * 158 | 3-306-197-01 | GUIDE (B), CONTROL | | * 178 | 3-302-462-02 | RETAINER, H CHASSIS | |
| 159 | 3-302-490-00 | SPRING, BS RETURN | | 179 | 3-927-429-01 | PULLEY, RELAY | |
| 160 | 3-302-536-00 | GUIDE, CONTROL LEVER | | 180 | 3-927-430-01 | REFLECTOR | |
| * 161 | 3-924-114-01 | LEVER, CONTROL | | 181 | 3-704-245-51 | SCREW (1.4) | |
| 162 | 3-561-645-00 | BELT, C | | 182 | 3-704-246-31 | SCREW (P1.4X2.5) | |
| 163 | 3-315-384-11 | WASHER, STOPPER | | 183 | 3-927-421-01 | SPRING, TENSION | |
| 164 | X-3302-412-0 | ARM ASSY, FWD | | 184 | 3-927-423-01 | BELT | |
| 165 | 3-927-420-01 | SPRING, TENSION | | * 185 | 3-924-113-01 | SPRING, DICT | |
| 166 | X-3302-424-1 | TABLE ASSY, REEL, TAKE-UP | | 186 | 3-927-422-01 | BELT | |
| 167 | 3-701-436-01 | WASHER, 1.6 | | * 187 | X-3370-772-1 | ARM ASSY, DICT | |
| 168 | X-3302-414-0 | TABLE ASSY, REEL, S | | 188 | 3-014-333-01 | PLATE, JACK, PROTECTION | |
| * 169 | 3-302-559-00 | ROLLER, GUIDE, H PC BOARD | | 189 | 3-014-340-01 | CUSHON | |
| 170 | 3-570-552-00 | SPRING, TENSION | | | | | |

SECTION 7

ELECTRICAL PARTS LIST

DC JACK

MAIN

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
uF: μF
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μH
- SEMICONDUCTORS
In each case, u: μ, for example:
uA..., μA..., uPA..., μPA...,
uPB..., μPB..., uPC..., μPC...,
uPD..., μPD...

| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|--|---------|----------|--------------|----------------------------|---------|
| * | 1-666-080-11 | DC JACK BOARD ***** | | C131 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% | 50V |
| | 3-014-334-01 | TERMINAL, BATTERY < CAPACITOR > | | C132 | 1-104-847-11 | TANTAL. CHIP 22uF 20% | 4V |
| C1 | 1-164-156-11 | CERAMIC CHIP 0.1uF < JACK > | 25V | C133 | 1-126-781-11 | ELECT 220uF 20% | 4V |
| J901 | 1-764-628-11 | JACK,DC(POLARITY UNIFIED TYPE) (DC IN 3V) ***** | | C134 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V |
| * | A-3016-953-A | MAIN BOARD, COMPLETE ***** < CAPACITOR > | | C135 | 1-162-974-11 | CERAMIC CHIP 0.01uF | 50V |
| C101 | 1-165-176-11 | CERAMIC CHIP 0.047uF | 10% 16V | C136 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C102 | 1-107-826-11 | CERAMIC CHIP 0.1uF | 10% 16V | C137 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% | 50V |
| C103 | 1-104-908-11 | TANTAL. CHIP 47uF | 20% 4V | C138 | 1-135-170-21 | TANTALUM CHIP 6.8uF 20% | 4V |
| C104 | 1-162-968-11 | CERAMIC CHIP 0.0047uF | 10% 50V | C139 | 1-162-965-11 | CERAMIC CHIP 0.0015uF 10% | 50V |
| C105 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V | C140 | 1-164-730-11 | CERAMIC CHIP 0.0012uF 10% | 50V |
| C106 | 1-162-970-11 | CERAMIC CHIP 0.01uF | 10% 25V | C141 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C107 | 1-162-964-11 | CERAMIC CHIP 0.001uF | 10% 50V | C142 | 1-135-180-21 | TANTALUM CHIP 3.3uF 20% | 6.3V |
| C108 | 1-107-826-11 | CERAMIC CHIP 0.1uF | 10% 16V | C143 | 1-135-091-00 | TANTALUM CHIP 1uF 20% | 16V |
| C109 | 1-164-156-11 | CERAMIC CHIP 0.1uF | 25V | C144 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% | 50V |
| C110 | 1-107-826-11 | CERAMIC CHIP 0.1uF | 10% 16V | C145 | 1-126-781-11 | ELECT 220uF 20% | 4V |
| C111 | 1-162-927-11 | CERAMIC CHIP 100PF | 5% 50V | C146 | 1-135-201-11 | TANTALUM CHIP 10uF 20% | 4V |
| C112 | 1-135-201-11 | TANTALUM CHIP 10uF | 20% 4V | C147 | 1-162-967-11 | CERAMIC CHIP 0.0033uF 10% | 50V |
| C113 | 1-135-201-11 | TANTALUM CHIP 10uF | 20% 4V | C148 | 1-164-730-11 | CERAMIC CHIP 0.0012uF 10% | 50V |
| C114 | 1-164-156-11 | CERAMIC CHIP 0.1uF | 25V | C149 | 1-104-908-11 | TANTAL. CHIP 47uF 20% | 4V |
| C115 | 1-164-156-11 | CERAMIC CHIP 0.1uF | 25V | C150 | 1-164-699-11 | CERAMIC CHIP 0.0033uF 5% | 50V |
| C116 | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C151 | 1-164-227-11 | CERAMIC CHIP 0.022uF 10% | 25V |
| C117 | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C152 | 1-104-847-11 | TANTAL. CHIP 22uF 20% | 4V |
| C118 | 1-135-201-11 | TANTALUM CHIP 10uF | 20% 4V | C153 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C119 | 1-164-677-11 | CERAMIC CHIP 0.033uF | 10% 16V | C154 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V |
| C120 | 1-162-970-11 | CERAMIC CHIP 0.01uF | 10% 25V | C155 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V |
| C121 | 1-104-908-11 | TANTAL. CHIP 47uF | 20% 4V | C156 | 1-162-968-11 | CERAMIC CHIP 0.0047uF 10% | 50V |
| C122 | 1-104-908-11 | TANTAL. CHIP 47uF | 20% 4V | C157 | 1-164-156-11 | CERAMIC CHIP 0.1uF | 25V |
| C123 | 1-162-970-11 | CERAMIC CHIP 0.01uF | 10% 25V | C158 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% | 50V |
| C124 | 1-165-176-11 | CERAMIC CHIP 0.047uF | 10% 16V | | | < DIODE > | |
| C125 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V | D101 | 8-719-801-78 | DIODE 1SS184 | |
| C126 | 1-162-974-11 | CERAMIC CHIP 0.01uF | 50V | D102 | 8-719-801-78 | DIODE 1SS184 | |
| C127 | 1-165-176-11 | CERAMIC CHIP 0.047uF | 10% 16V | D103 | 8-719-941-23 | DIODE DA204U | |
| C128 | 1-164-156-11 | CERAMIC CHIP 0.1uF | 25V | D104 | 8-719-801-78 | DIODE 1SS184 | |
| C129 | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V | D105 | 8-719-941-07 | DIODE SLC22VR3 (DICT/BATT) | |
| C130 | 1-162-964-11 | CERAMIC CHIP 0.001uF | 10% 50V | | | < IC > | |
| | | | | IC101 | 8-759-339-54 | IC NJM-2128M-TE2 | |
| | | | | IC102 | 8-759-701-51 | IC NJM2072M | |
| | | | | IC103 | 8-759-701-51 | IC NJM2072M | |
| | | | | IC104 | 8-759-804-43 | IC LA5521M | |
| | | | | | | < JACK > | |
| J2 | 1-766-156-11 | JACK (EAR) | | | | | |

| Ref. No. | Part No. | Description | Remarks | Ref. No. | Part No. | Description | Remarks |
|----------|--------------|------------------------------|----------|----------|--------------|--------------------------------|----------|
| | | < PHOTO INTERRUPTER > | | | | | |
| PH101 | 8-749-011-74 | PHOTO REFLECTOR SPI-335-74BC | | R131 | 1-216-843-11 | METAL CHIP 68K | 5% 1/16W |
| | | < TRANSISTOR > | | R132 | 1-216-817-11 | METAL CHIP 470 | 5% 1/16W |
| Q101 | 8-729-117-32 | TRANSISTOR 2SC4177 | | R133 | 1-216-812-11 | METAL CHIP 180 | 5% 1/16W |
| Q102 | 8-729-800-37 | TRANSISTOR 2SD1048-X7 | | R134 | 1-216-809-11 | METAL CHIP 100 | 5% 1/16W |
| Q103 | 8-729-800-37 | TRANSISTOR 2SD1048-X7 | | R135 | 1-216-825-11 | METAL CHIP 2.2K | 5% 1/16W |
| Q104 | 8-729-900-52 | TRANSISTOR DTC114YK | | | | | |
| Q105 | 8-729-901-46 | TRANSISTOR DTA114YK | | R136 | 1-216-831-11 | METAL CHIP 6.8K | 5% 1/16W |
| Q106 | 8-729-117-32 | TRANSISTOR 2SC4177 | | R137 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W |
| Q107 | 8-729-807-87 | TRANSISTOR 2SB1295-UL6 | | R138 | 1-216-837-11 | METAL CHIP 22K | 5% 1/16W |
| Q108 | 8-729-807-87 | TRANSISTOR 2SB1295-UL6 | | R139 | 1-216-845-11 | METAL CHIP 100K | 5% 1/16W |
| Q109 | 8-729-901-46 | TRANSISTOR DTA114YK | | R140 | 1-216-851-11 | METAL CHIP 330K | 5% 1/16W |
| Q110 | 8-729-901-46 | TRANSISTOR DTA114YK | | | | | |
| Q111 | 8-729-117-32 | TRANSISTOR 2SC4177 | | R141 | 1-216-853-11 | METAL CHIP 470K | 5% 1/16W |
| Q112 | 8-729-117-32 | TRANSISTOR 2SC4177 | | R142 | 1-216-823-11 | METAL CHIP 1.5K | 5% 1/16W |
| Q113 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R143 | 1-216-848-11 | METAL CHIP 180K | 5% 1/16W |
| Q114 | 8-729-117-32 | TRANSISTOR 2SC4177 | | R144 | 1-216-818-11 | METAL CHIP 560 | 5% 1/16W |
| Q115 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | R145 | 1-216-849-11 | METAL CHIP 220K | 5% 1/16W |
| Q116 | 8-729-117-32 | TRANSISTOR 2SC4177 | | | | | |
| | | < RESISTOR > | | R146 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W |
| R101 | 1-216-822-11 | METAL CHIP 1.2K | 5% 1/16W | R147 | 1-216-827-11 | METAL CHIP 3.3K | 5% 1/16W |
| R102 | 1-216-822-11 | METAL CHIP 1.2K | 5% 1/16W | R148 | 1-216-822-11 | METAL CHIP 1.2K | 5% 1/16W |
| R103 | 1-216-828-11 | METAL CHIP 3.9K | 5% 1/16W | R149 | 1-216-822-11 | METAL CHIP 1.2K | 5% 1/16W |
| R104 | 1-216-813-11 | METAL CHIP 220 | 5% 1/16W | R150 | 1-218-269-11 | METAL GLAZE 360 | 5% 1/16W |
| R105 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W | | | | |
| R106 | 1-216-824-11 | METAL CHIP 1.8K | 5% 1/16W | R151 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W |
| R107 | 1-216-823-11 | METAL CHIP 1.5K | 5% 1/16W | R152 | 1-216-807-11 | METAL CHIP 68 | 5% 1/16W |
| R108 | 1-216-824-11 | METAL CHIP 1.8K | 5% 1/16W | R153 | 1-216-825-11 | METAL CHIP 2.2K | 5% 1/16W |
| R109 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W | R154 | 1-216-843-11 | METAL CHIP 68K | 5% 1/16W |
| R110 | 1-216-833-11 | METAL CHIP 10K | 5% 1/16W | R155 | 1-216-845-11 | METAL CHIP 100K | 5% 1/16W |
| R111 | 1-218-269-11 | METAL GLAZE 360 | 5% 1/16W | | | | |
| R112 | 1-216-835-11 | METAL CHIP 15K | 5% 1/16W | R156 | 1-216-835-11 | METAL CHIP 15K | 5% 1/16W |
| R113 | 1-216-793-11 | METAL GLAZE 4.7 | 5% 1/16W | R157 | 1-216-811-11 | METAL CHIP 150 | 5% 1/16W |
| R114 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W | R158 | 1-216-811-11 | METAL CHIP 150 | 5% 1/16W |
| R115 | 1-218-269-11 | METAL GLAZE 360 | 5% 1/16W | R159 | 1-216-814-11 | METAL CHIP 270 | 5% 1/16W |
| R116 | 1-216-821-11 | METAL CHIP 1K | 5% 1/16W | R160 | 1-216-820-11 | METAL CHIP 820 | 5% 1/16W |
| R117 | 1-216-801-11 | METAL CHIP 22 | 5% 1/16W | | | | |
| R118 | 1-216-821-11 | METAL CHIP 1K | 5% 1/16W | R161 | 1-216-856-11 | METAL CHIP 820K | 5% 1/16W |
| R119 | 1-216-831-11 | METAL CHIP 6.8K | 5% 1/16W | R162 | 1-216-829-11 | METAL CHIP 4.7K | 5% 1/16W |
| R120 | 1-216-838-11 | METAL CHIP 27K | 5% 1/16W | | | | |
| R121 | 1-216-829-11 | METAL CHIP 4.7K | 5% 1/16W | | | | |
| R122 | 1-216-833-11 | METAL CHIP 10K | 5% 1/16W | | | | |
| R123 | 1-216-836-11 | METAL CHIP 18K | 5% 1/16W | | | | |
| R124 | 1-216-837-11 | METAL CHIP 22K | 5% 1/16W | | | | |
| R125 | 1-216-835-11 | METAL CHIP 15K | 5% 1/16W | | | | |
| R126 | 1-216-817-11 | METAL CHIP 470 | 5% 1/16W | | | | |
| R127 | 1-216-841-11 | METAL CHIP 47K | 5% 1/16W | | | | |
| R128 | 1-216-817-11 | METAL CHIP 470 | 5% 1/16W | | | | |
| R129 | 1-216-820-11 | METAL CHIP 820 | 5% 1/16W | | | | |
| R130 | 1-216-801-11 | METAL CHIP 22 | 5% 1/16W | | | | |
| | | < SWITCH > | | | | | |
| | | | | S1 | 1-762-456-11 | SWITCH, SLIDE (LISTEN/DICT) | |
| | | | | S2 | 1-692-605-11 | SWITCH, SLIDE (VOR) | |
| | | | | S3 | 1-571-277-31 | SWITCH, SLIDE (TAPE SPEED) | |
| | | | | S4 | 1-572-288-11 | SWITCH, PUSH (FF/CUE) | |
| | | | | S5 | 1-572-688-11 | SWITCH, PUSH (1 KEY) (B.SPACE) | |
| | | | | S6 | 1-571-149-11 | SWITCH, LEAF (POWER) | |
| | | < TRANSFORMER > | | | | | |
| | | | | T101 | 1-433-286-11 | TRANSFORMER, BIAS OSCILLATION | |
| | | < THERMISTOR(POSITIVE) > | | | | | |
| | | | | THP101 | 1-808-956-11 | THERMISTOR, POSITIVE | |
| | | < VARIABLE RESISTOR > | | | | | |
| | | | | VR101 | 1-223-749-11 | RES, VAR, CARBON 10K/10K (VOL) | |
| | | | | VR102 | 1-238-089-11 | RES, ADJ, CERMET 4.7K | |
| | | | | VR103 | 1-238-088-11 | RES, ADJ, CERMET 2.2K | |

| Ref. No. | Part No. | Description | Remarks |
|----------|--------------|-------------------------------|---------|
| | | MISCELLANEOUS ***** | |
| 105 | 1-548-516-00 | TIMER, TAPE | |
| HD1 | 1-500-271-11 | HEAD, MAGNETIC (REC/PB/ERASE) | |
| M1 | A-3042-785-A | MOTOR ASSY | |
| MIC1 | 1-542-197-11 | MICROPHONE, ELECTRET | |
| SP1 | 1-505-384-11 | SPEAKER (3.6CM) | |

ACCESSORIES & PACKING MATERIALS

| | | | |
|---|--------------|--------------------------------------|--|
| * | 3-014-310-01 | INDIVIDUAL CARTON | |
| | 3-859-784-11 | MANUAL, INSTRUCTION (ENGLISH) | |
| | 3-859-784-21 | MANUAL, INSTRUCTION (ENGLISH/FRENCH) | |
| | 3-859-784-31 | MANUAL, INSTRUCTION (GERMAN/DUTCH) | |

HARDWARE LIST

| | | |
|-----|--------------|----------------------------|
| #1 | 7-624-101-04 | STOP RING 1.2 (E TYPE) |
| #2 | 7-627-451-07 | SCREW,PRECISION +K 1.4X1.6 |
| #3 | 7-627-850-08 | SCREW,PRECISION +P 1.4X2 |
| #4 | 7-627-551-17 | SCREW,PRECISION +P 1.4X2 |
| #6 | 7-627-551-47 | SCREW,PRECISION +P 1.4X1.4 |
| #7 | 7-627-850-07 | SCREW,PRECISION +P 1.4X2 |
| #8 | 7-627-850-08 | SCREW,PRECISION +P 1.4X2 |
| #9 | 7-627-850-17 | SCREW,PRECISION +P 1.4X2.5 |
| #10 | 7-627-850-47 | SCREW,PRECISION +P 1.4X1.6 |
| #11 | 7-627-850-97 | SCREW,PRECISION +P 1.4X2.2 |
| #12 | 7-671-111-11 | STEEL, BALL 1.5MM |
| #13 | 7-671-155-01 | BALL, STEEL 3MM |