

TCM-39

SERVICE MANUAL

Tourist Model



Model Name Using Similar Mechanism	TCM-359V
Tape Transport Mechanism Type	MT-359V-118

SPECIFICATIONS

Speaker

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

Power output

130 mW (at 10% harmonic distortion)

Input

Microphone input jack (miniJack) sensitivity 0.2 mV for
3 kilohms or lower impedance microphone

Output

Earphone jack (minijack) for 8 - 300 ohms earphone

Variable range of the tape speed

from + 30% to -20%

Power requirements

- Two size AA(R 6) batteries (not supplied) : 3 V DC
- AC-E 30 HG AC power adaptor (not supplied)
for use on 120 V AC, 60 Hz
- Sony DCC-E 230 XL car battery cord(not supplied)
for use on 12 V/24 V car battery.

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

Approx. 114×91×38 mm
(4 1/2×3 5/8×1 1/2 in.)

Mass (not incl. batteries)

Approx. 185 g (6.6 oz.)

Design and specifications are subject to change without notice.

CASSETTE-CORDER
SONY®

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Flexible Circuit Board Repairing

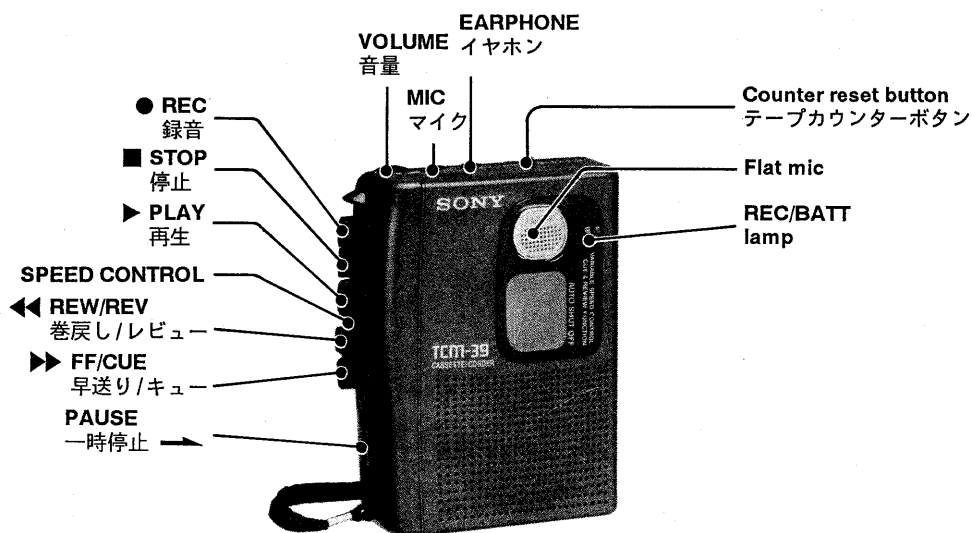
- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

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.

SECTION 1 GENERAL

Parts Identification

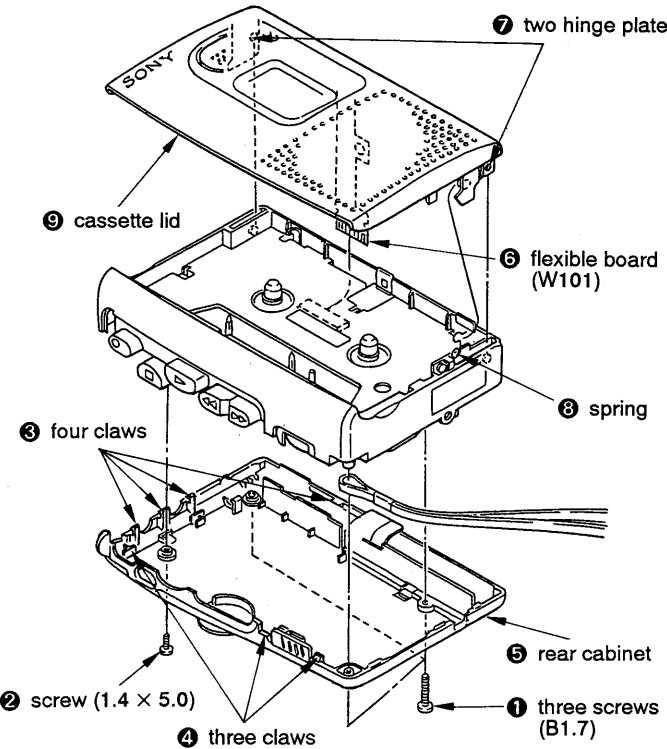


SECTION 2

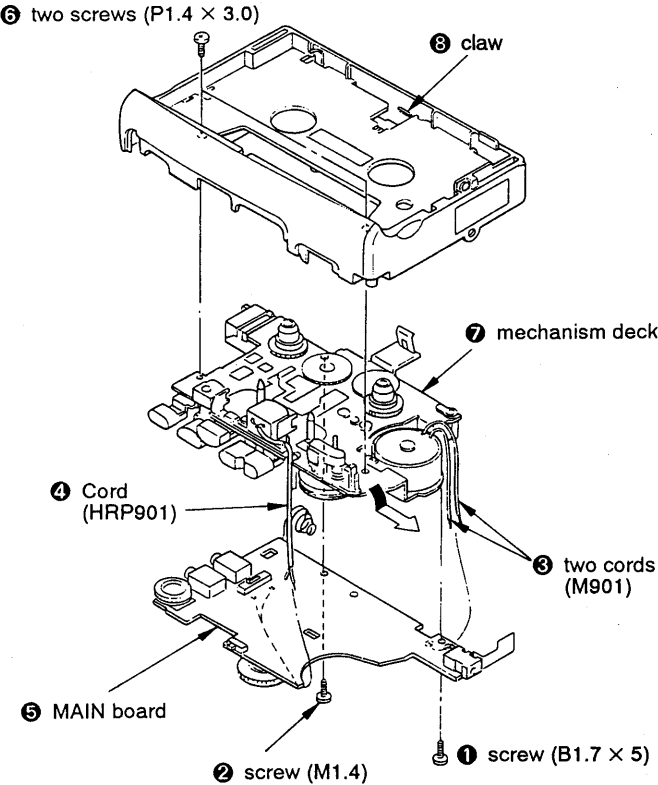
DISASSEMBLY

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

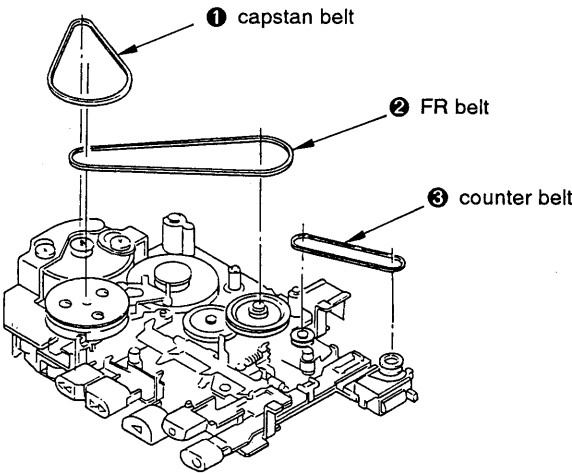
REAR CABINET, CASSETTE LID



MAIN BOARD, MECHANISM DECK

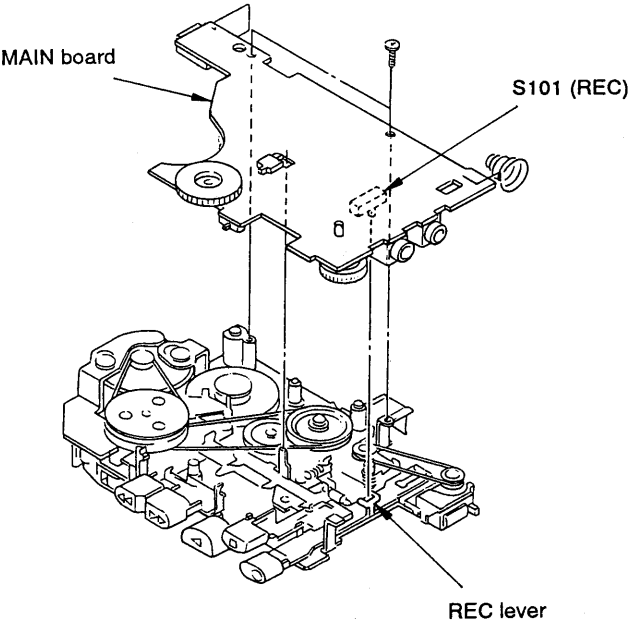


BELT



INSTALLATION MAIN BOARD

On installation MAIN board, adjust to the S101 and the REC lever.



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:
 record/playback head pinch roller
 erase head rubber belts
 capstan idlers
- Demagnetize the record/playback head with a head demagnetizer.
 (Do not bring the head demagnetizer close to the erase head.)
- 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 (2.5 V) unless otherwise noted.

Torque Measurement

Torque	Torque Meter	Meter Reading
FWD	CQ-102C	more than 20 g•cm (more than 0.28 oz•inch)
Forward Back Tension		0.5 – 3 g•cm (0.007 – 0.04 oz•inch)
FF	CQ-201B	more than 50 g•cm (more than 0.69 oz•inch)
REW		

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 50 g (more than 1.76 oz)

SECTION 4 ELECTRICAL ADJUSTMENTS

• Test Tape

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	tape speed adjustment
P-4-A063	6.3 kHz, – 10 dB	head azimuth adjustment

REC/PB Head Azimuth Adjustment

Setting:

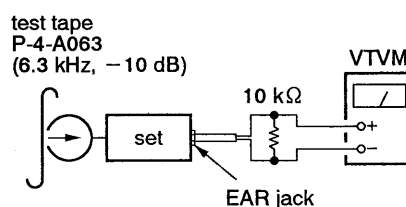
VOLUME (RV101) : mechanical mid

PAUSE (S601) : off

SPEED CONTROL (RV602) : mechanical center

Procedure:

- Mode: playback

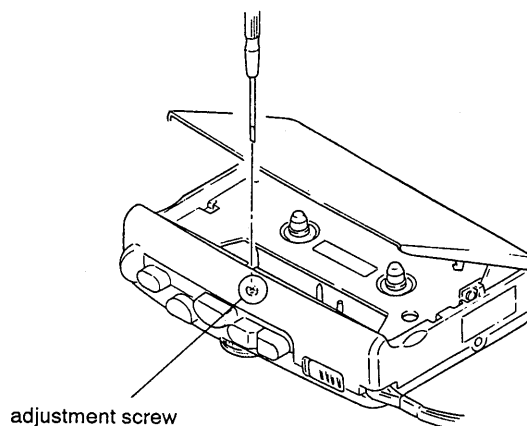


- Turn the adjustment screw to obtain the maximum reading on VTVM.

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

- After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location:



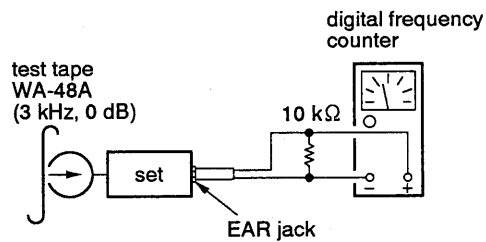
Tape Speed Adjustment

Setting:

SPEED CONTROL (RV602): mechanical center

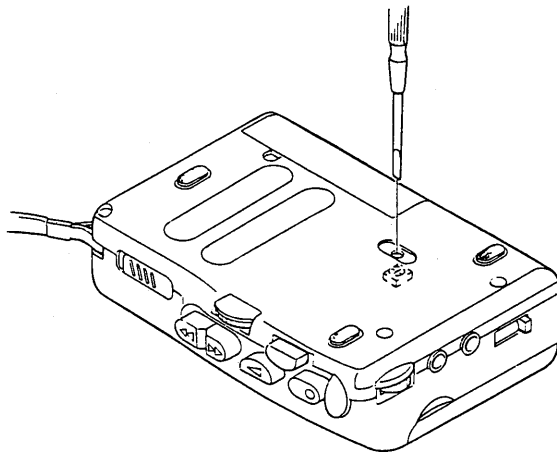
Procedure:

Mode: FWD playback



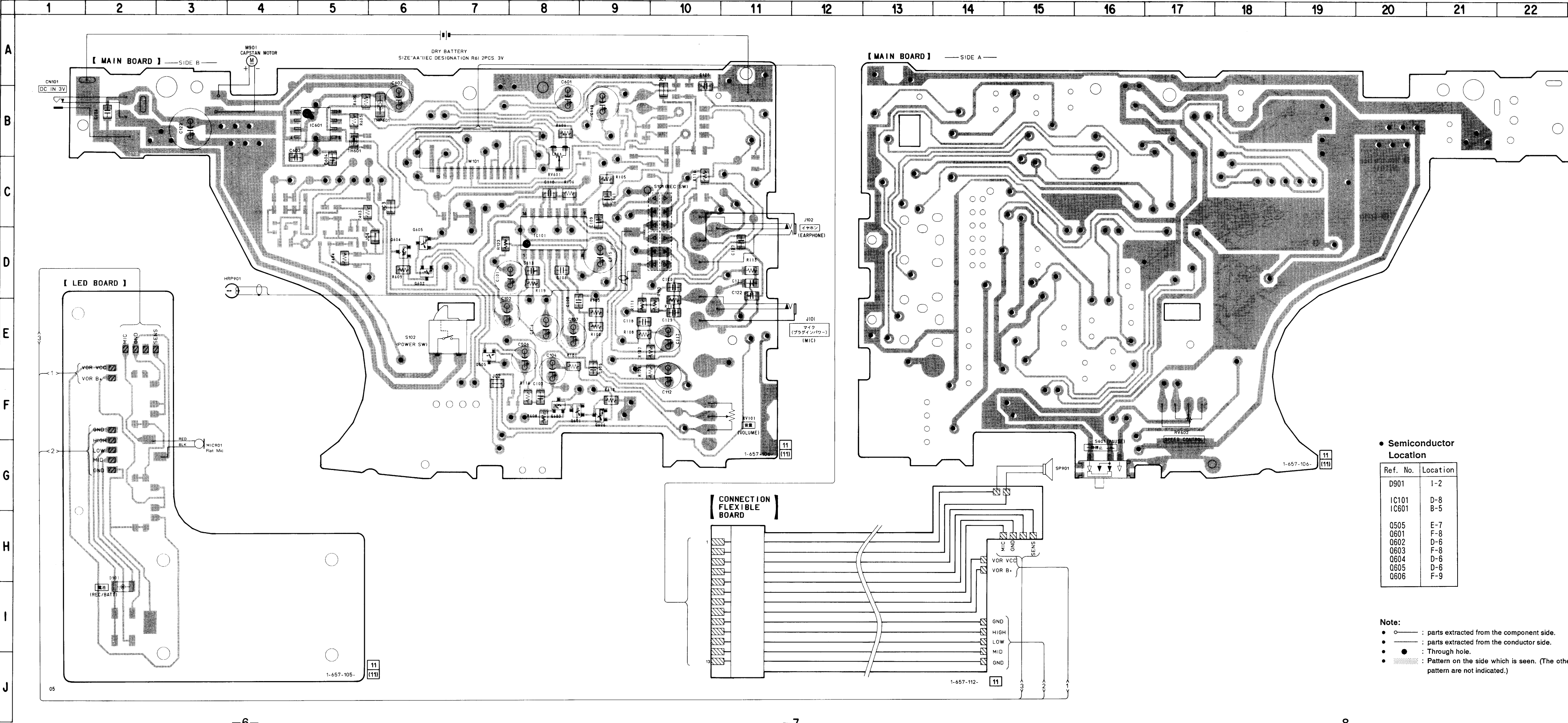
1. Adjust RV601 so that the reading of the frequency counter becomes $3,000 \pm 30$ Hz.

Adjustment Location: MAIN board



SECTION 5
DIAGRAMS

5-1. PRINTED WIRING BOARDS

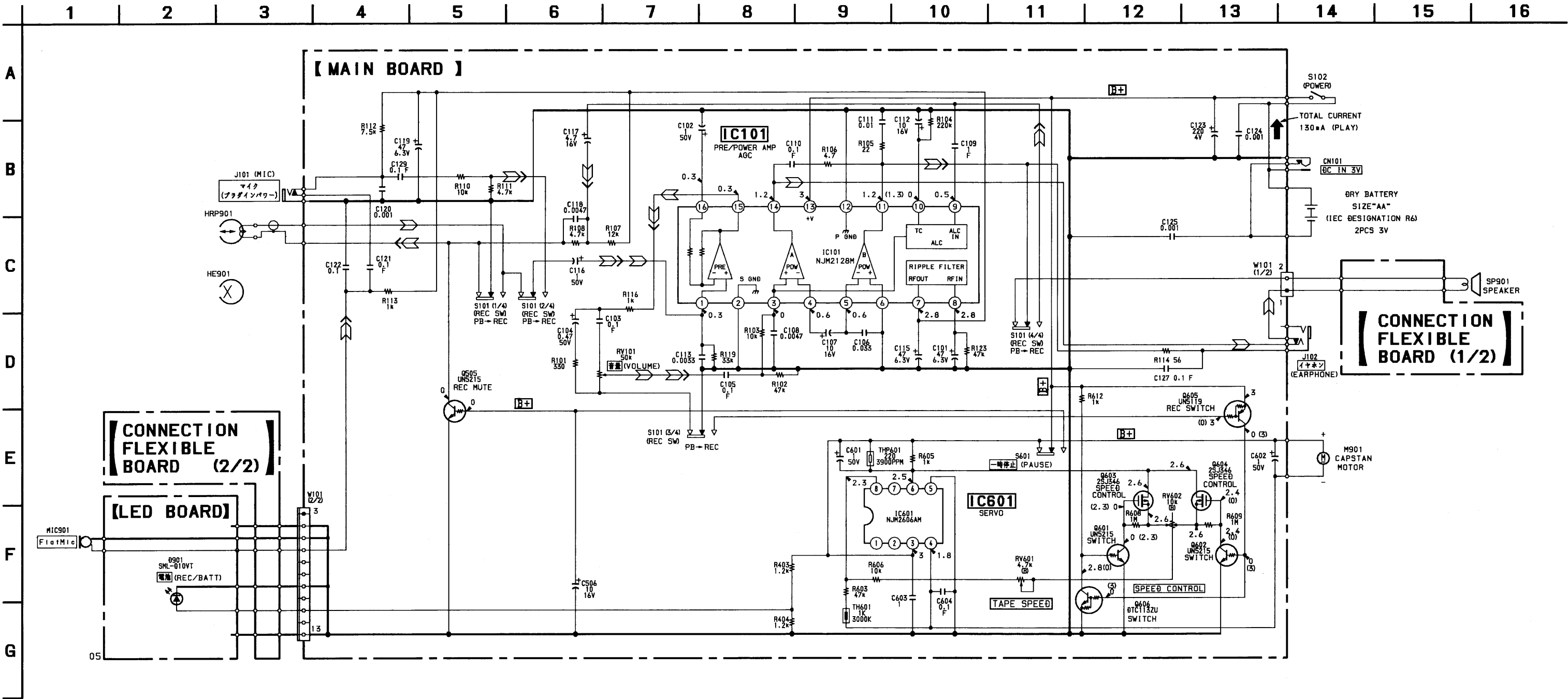


● Semiconductor Location

Ref. No.	Location
D901	I-2
IC101	D-8
IC601	B-5
Q505	E-7
Q601	F-8
Q602	D-6
Q603	F-8
Q604	D-6
Q605	D-6
Q606	F-9

Note:
○ : parts extracted from the component side.
● : parts extracted from the conductor side.
● : Through hole.
● : Pattern on the side which is seen. (The other layer's pattern are not indicated.)

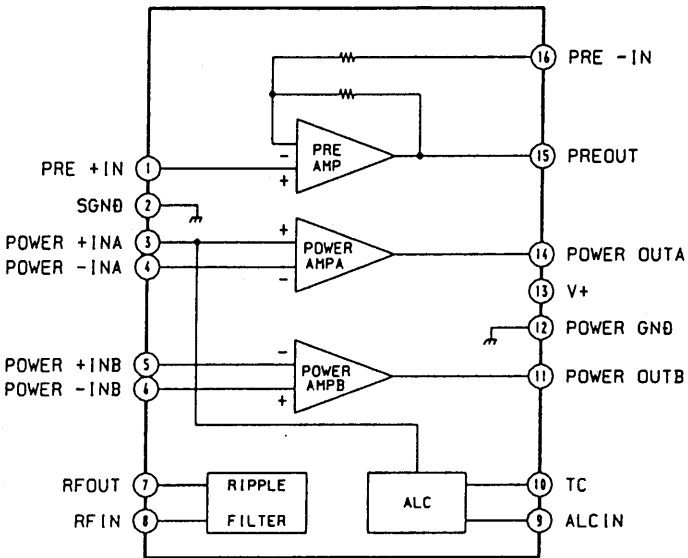
5-2. SCHEMATIC DIAGRAM



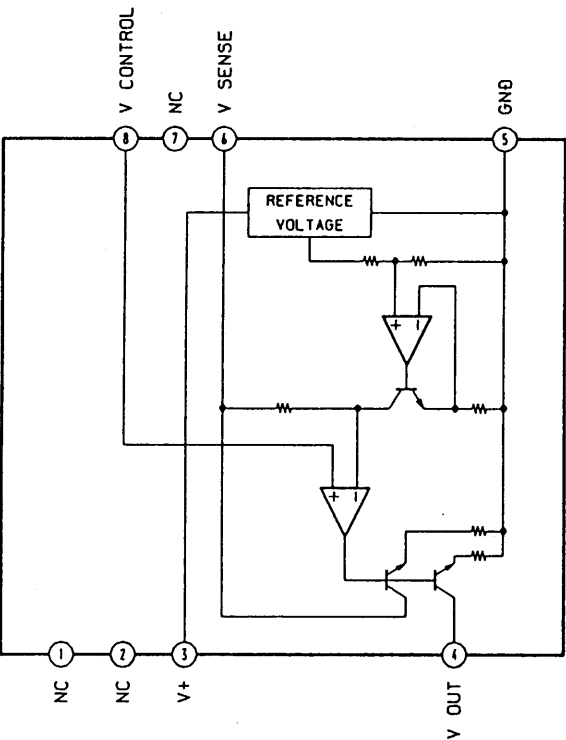
- Note:**
- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}$ W or less unless otherwise specified.
 - **B+** : B + Line.
 - **□** : panel designation.
 - **□** : adjustment for repair.
 - Total current is measured with cassette installed.
 - Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
 - Voltage is dc with respect to ground under no-signal (detuned) conditions.
no mark : PLAY
() : REC
 - Voltages are taken with a VOM (10 M Ω /V).
Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 Σ : PB
 Σ : REC

• IC Block Diagrams

IC101 NJM2128M



IC601 NJM2606AM



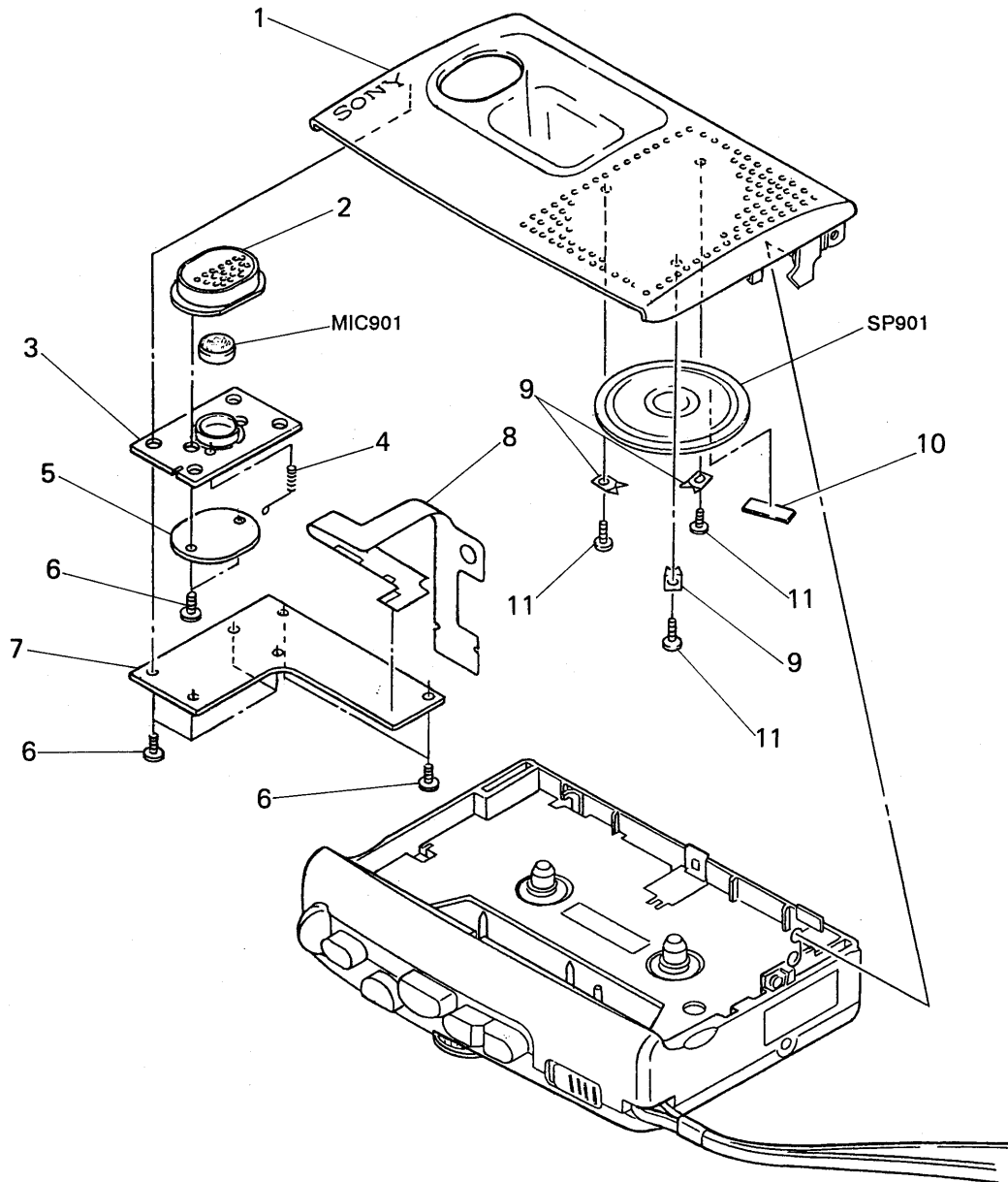
SECTION 6

EXPLODED VIEWS

NOTE:

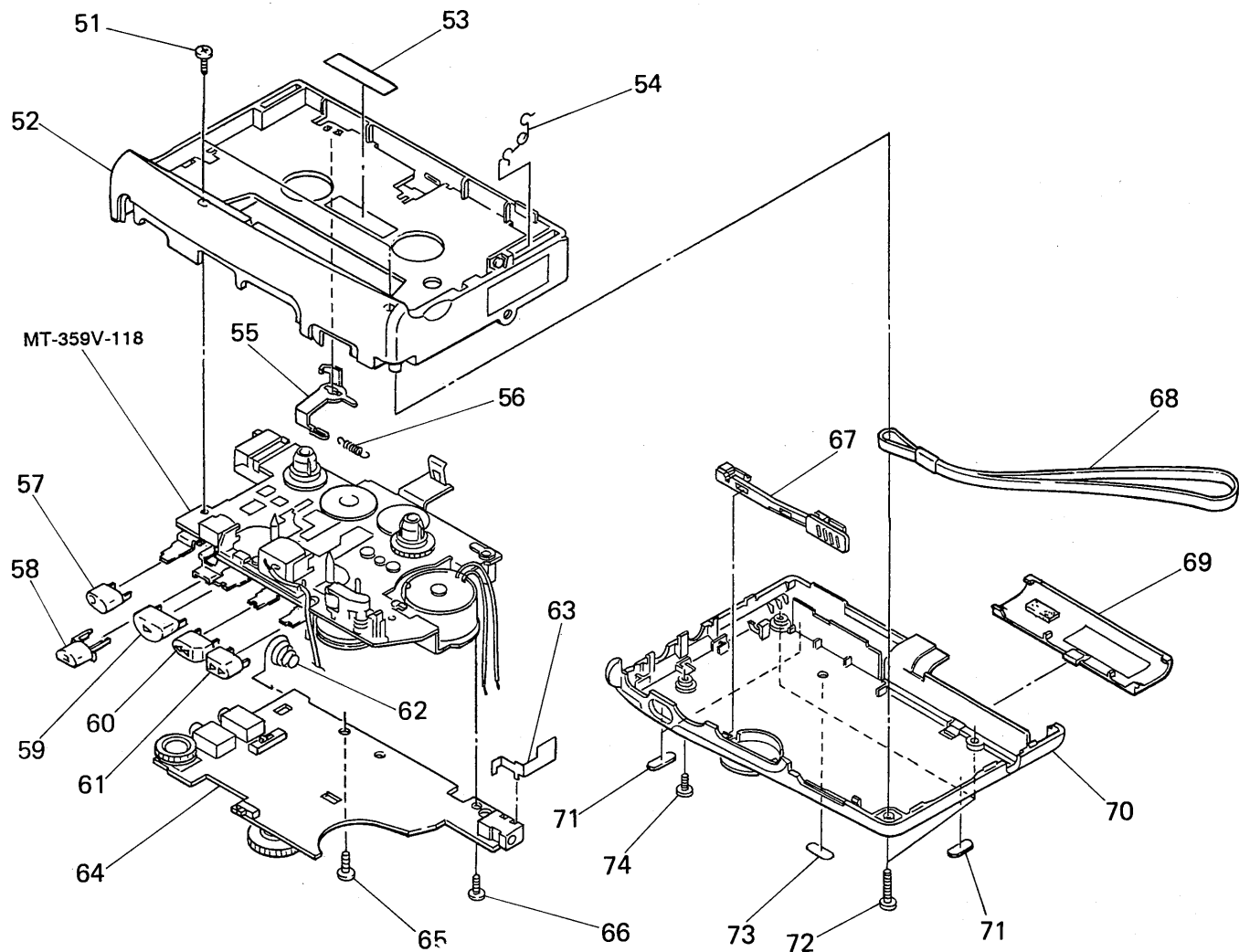
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

(1) CABINET SECTION-1



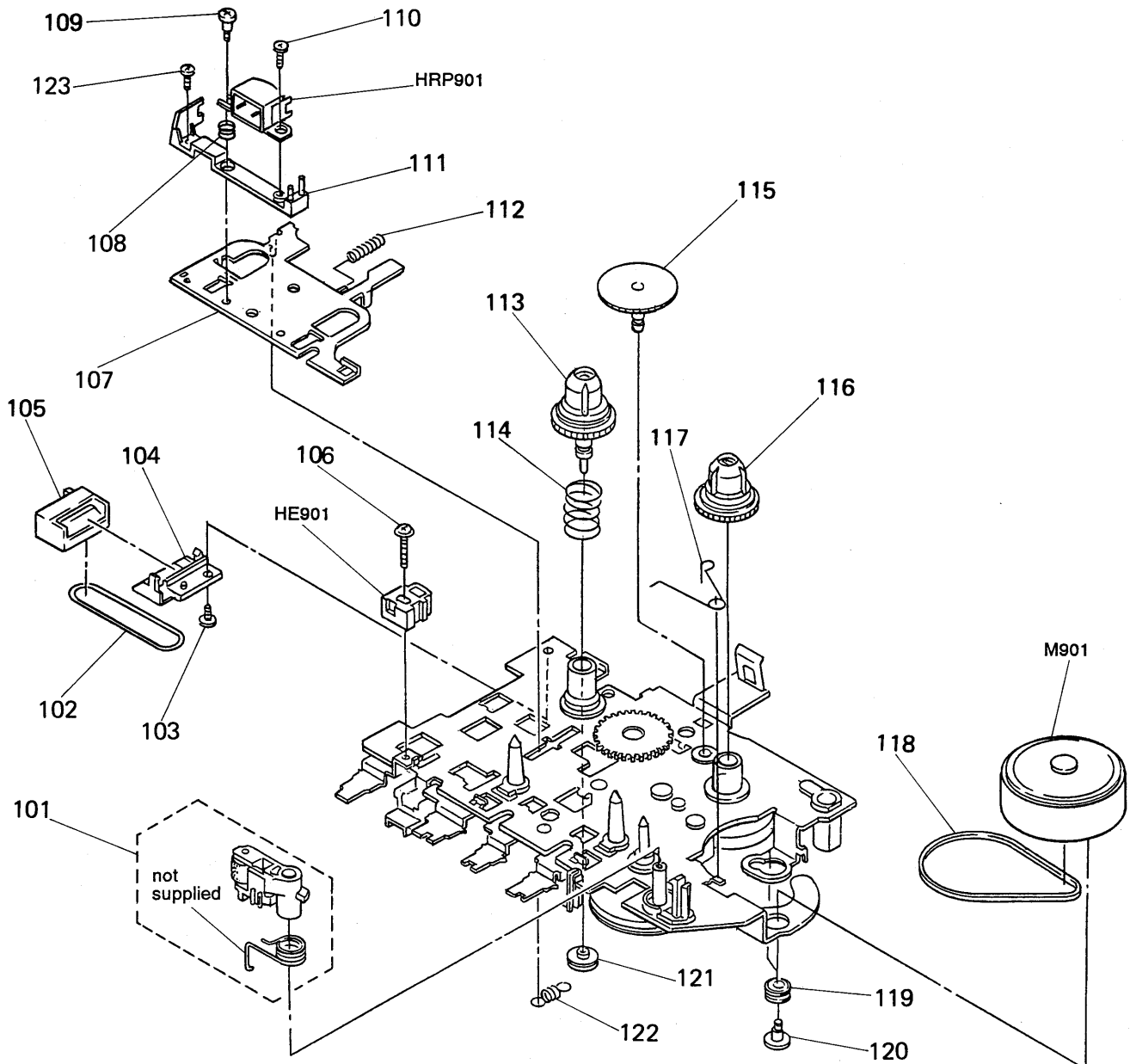
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3370-819-1	LID SUB ASSY, CASSETTE		* 8	1-657-112-11	CONNECTION FLEXIBLE BOARD	
2	X-3370-419-1	MIC SUB ASSY		* 9	3-924-757-01	BRACKET	
3	3-924-752-01	CUSHION (MIC)		10	4-017-441-01	CUSHION (B)	
4	3-924-760-01	SPRING, COMPRESSION		11	3-318-382-31	SCREW (1.7), TAPPING	
5	3-924-753-01	RETAINER, MICROPHONE		MIC901	1-542-124-31	MICROPHONE, ELECTRET CONDENSER	
6	3-318-382-51	SCREW (1.7), TAPPING		SP901	1-544-657-11	SPEAKER (3.6CM)	
* 7	1-657-105-11	LED BOARD					

(2) CABINET SECTION-2



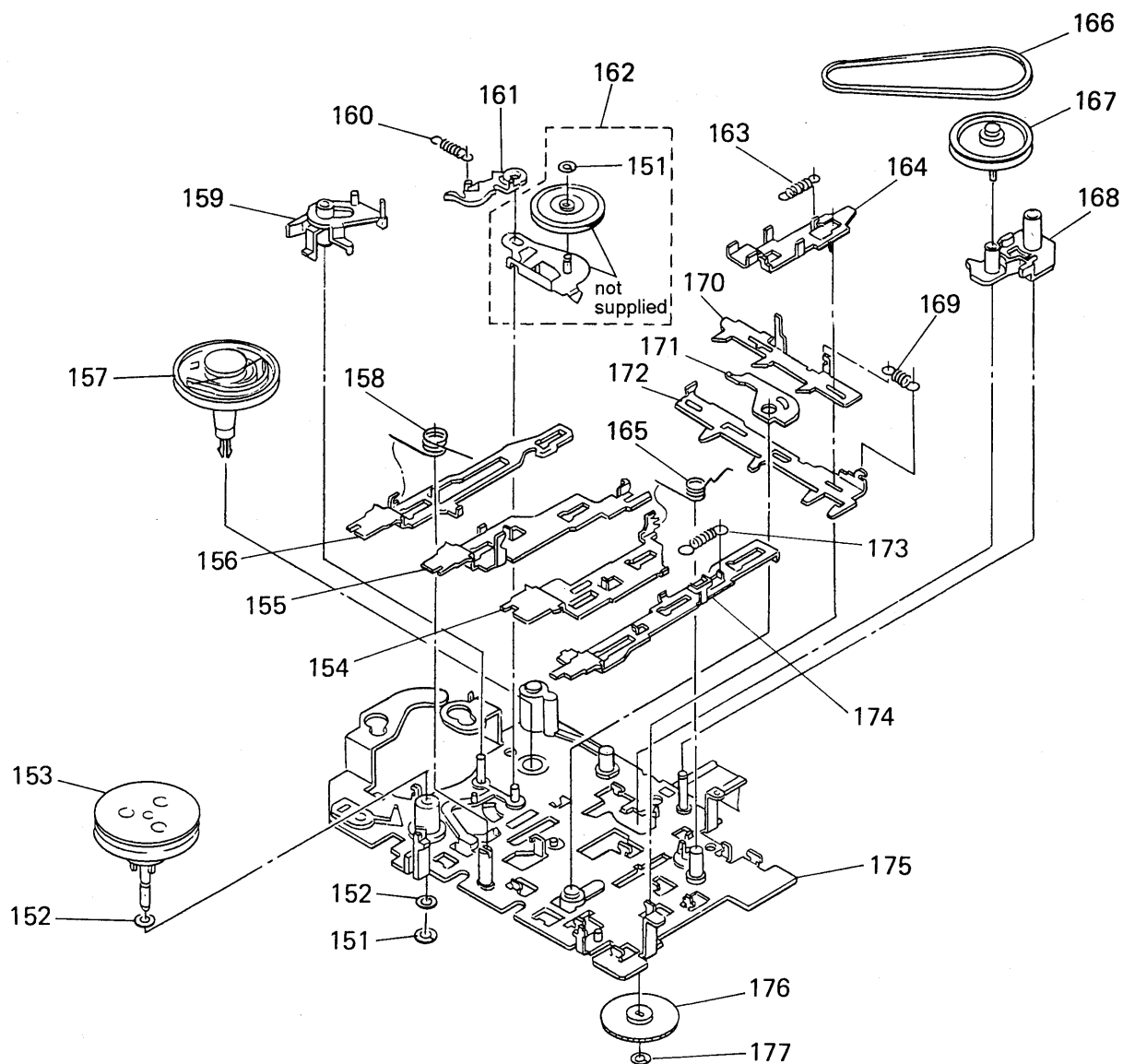
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-704-245-42	SCREW (P1. 4X3. 0)		63	3-924-741-01	TERMINAL, PLUS	
52	3-922-965-91	CABINET (FRONT)		* 64	A-3016-721-A	MAIN BOARD, COMPLETE	
53	3-578-101-31	PLATE, ORNAMENTAL		65	3-345-648-51	SCREW (M1. 4), TOOTHED LOCK	
54	3-924-739-01	SPRING, CASSETTE		66	3-318-203-71	SCREW (B1. 7X5), TAPPING	
55	3-924-743-01	CLAW, ERASING PROTECTION		67	3-924-747-01	KNOB (PAUSE)	
56	3-924-744-01	SPRING, TENSION		68	3-924-761-01	STRAP	
57	3-925-145-11	BUTTON (REC)		69	A-3042-738-A	LID ASSY, BATTERY CASE	
58	3-924-738-01	BUTTON (STOP)		70	3-924-748-41	CABINET (REAR)	
59	3-925-148-01	BUTTON (PLAY)		71	3-925-301-01	FOOT	
60	3-925-147-01	BUTTON (REW)		72	3-334-565-31	SCREW (B1. 7), TAPPING	
61	3-925-146-01	BUTTON (FF)		73	3-924-762-01	PLATE, BLIND	
62	3-924-750-01	TERMINAL, MINUS		74	3-704-197-82	SCREW (1. 4X5. 0)	

(3) MECHANISM SECTION-1
(MT-359V-118)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3370-386-1	PINCH ROLLER ASSY		114	3-924-674-01	SPRING (B. T), COMPRESSION	
102	3-924-683-01	BELT (COUNTER)		115	3-924-637-01	GEAR (FF)	
103	3-704-197-01	SCREW (M1.4X1.6), LOCKING		116	3-924-641-01	GEAR (T REEL)	
104	3-924-616-01	BRACKET (COUNTER)		117	3-924-726-01	SPRING (M GROUND), TORSION	
105	1-548-582-11	COUNTER, TAPE (SMALL TYPE)		118	3-924-681-01	BELT (CAPSTAN)	
106	3-703-925-21	SCREW (M1.4)		119	3-925-109-01	CUSHION (MOTOR)	
107	3-924-625-01	LEVER (HEAD)		120	3-925-108-01	SCREW (MOTOR)	
108	3-924-685-01	SPRING (AZIMUTH), COMPRESSION		121	3-924-675-01	PULLEY (S REEL)	
109	3-375-135-01	SCREW (1.4), SPECIAL		122	3-924-644-01	SPRING (POWER TENSION), TENSION	
110	3-376-177-01	SCREW (M1.4X3.8)		123	3-704-197-91	SCREW (M1.4X1.8), LOCKING	
111	3-924-645-01	BRACKET (HEAD)		HE901	1-500-232-11	HEAD, MAGNETIC (ERASE)	
112	3-925-107-01	SPRING (IDLER), COMPRESSION		HRP901	1-500-073-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
113	3-924-673-01	GEAR (S REEL)		M901	1-698-588-11	MOTOR, DC (CAPSTAN)	

(4) MECHANISM SECTION-2
(MT-359V-118)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-321-483-11	RING, RETAINING		165	3-924-643-01	SPRING (PR), TORSION	
152	3-315-495-31	WASHER		166	3-924-682-01	BELT (FR)	
153	X-3370-384-1	FLYWHEEL ASSY		167	X-3370-385-1	PULLEY (FR) ASSY	
154	3-924-623-01	LEVER (PLAY)		168	3-924-628-01	LEVER (FR)	
155	3-924-621-01	LEVER (REW)		169	3-924-684-01	SPRING (LOCK PLATE), TENSION	
156	3-924-620-01	LEVER (FF)		170	3-924-619-01	LEVER (SW)	
157	X-3370-388-1	TABLE ASSY, FELT		171	3-924-639-01	LEVER (CR)	
158	3-924-642-01	SPRING (FR), TORSION		172	3-924-618-01	LEVER (LOCK)	
159	3-924-629-01	LEVER (DETECTION)		173	3-925-208-01	SPRING (REC), TENSION	
160	3-925-207-01	SPRING (SHUT-OFF), TENSION		174	3-924-624-01	LEVER (REC)	
161	3-924-630-01	LEVER (S-OFF)		175	X-3370-227-1	CHASSIS ASSY	
162	X-3370-387-1	LEVER ASSY, IDLER		176	3-924-613-01	GEAR (FR)	
163	3-924-633-01	SPRING (STOP), TENSION		177	3-321-483-01	RING, RETAINING	
164	3-924-622-01	LEVER (STOP)					

SECTION 7

ELECTRICAL PARTS LIST

CONNECTION FLEXIBLE

LED

MAIN

NOTE:

- 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 and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A.. uPA...: μ PA..
uPB...: μ PB.. uPC...: μ PC.. uPD...: μ PD..
- CAPACITORS
uF: μ F
- COILS
uH: μ H

Ref.No.	Part No.	Description	Remark
*	1-657-112-11	CONNECTION FLEXIBLE BOARD *****	

*	1-657-105-11	LED BOARD *****	
< DIODE >			
D901	8-719-051-89	DIODE SML-010VT-T87 (REC/BATT)	

*	A-3016-721-A	MAIN BOARD, COMPLETE *****	
3-924-741-01 TERMINAL, PLUS			
< CAPACITOR >			
C101	1-126-154-11	ELECT 47uF	20% 6.3V
C102	1-126-160-11	ELECT 1uF	20% 50V
C103	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C104	1-124-465-00	ELECT 0.47uF	20% 50V
C105	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C106	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C107	1-126-157-11	ELECT 10uF	20% 16V
C108	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C109	1-164-346-11	CERAMIC CHIP 1uF	16V
C110	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C111	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C112	1-126-157-11	ELECT 10uF	20% 16V
C113	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C115	1-126-154-11	ELECT 47uF	20% 6.3V
C116	1-126-160-11	ELECT 1uF	20% 50V
C117	1-126-163-11	ELECT 4.7uF	20% 50V
C118	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C119	1-126-154-11	ELECT 47uF	20% 6.3V
C120	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C121	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C122	1-163-038-91	CERAMIC CHIP 0.1uF	25V

Ref.No.	Part No.	Description	Remark
C123	1-124-434-00	ELECT 220uF	20% 4V
C124	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C125	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C127	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C129	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C506	1-126-157-11	ELECT 10uF	20% 16V
C601	1-126-160-11	ELECT 1uF	20% 50V
C602	1-126-160-11	ELECT 1uF	20% 50V
C603	1-164-346-11	CERAMIC CHIP 1uF	16V
C604	1-163-038-91	CERAMIC CHIP 0.1uF	25V
< JACK >			
CN101	1-580-919-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 3V)	
< IC >			
IC101	8-759-339-54	IC NJM-2128M-TE2	
IC601	8-759-345-42	IC NJM2606AM-TE2	
< JACK >			
J101	1-766-847-11	JACK (マタ)	
J102	1-766-847-11	JACK (イサ)	
< CHIP CONDUCTOR >			
JC1	1-216-295-91	CONDUCTOR, CHIP (2012)	
JC2	1-216-295-91	CONDUCTOR, CHIP (2012)	
JC3	1-216-295-91	CONDUCTOR, CHIP (2012)	
JC4	1-216-295-91	CONDUCTOR, CHIP (2012)	
< TRANSISTOR >			
Q505	8-729-420-50	TRANSISTOR UN5215	
Q601	8-729-420-50	TRANSISTOR UN5215	
Q602	8-729-420-50	TRANSISTOR UN5215	
Q603	8-729-026-30	TRANSISTOR 2SJ346-TE85L	
Q604	8-729-026-30	TRANSISTOR 2SJ346-TE85L	
Q605	8-729-425-22	TRANSISTOR UN5119-TX	
Q606	8-729-924-62	TRANSISTOR DTC113ZU	

Ref.No.	Part No.	Description	Remark
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< RESISTOR >

R101	1-216-037-00	METAL CHIP	330 5% 1/10W
R102	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R103	1-216-073-00	METAL CHIP	10K 5% 1/10W
R104	1-216-105-91	METAL GLAZE	220K 5% 1/10W
R105	1-216-009-00	METAL CHIP	22 5% 1/10W

R106	1-216-308-00	METAL CHIP	4.7 5% 1/10W
R107	1-216-075-00	METAL CHIP	12K 5% 1/10W
R108	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R110	1-216-073-00	METAL CHIP	10K 5% 1/10W
R111	1-216-065-00	METAL CHIP	4.7K 5% 1/10W

R112	1-216-070-00	METAL CHIP	7.5K 5% 1/10W
R113	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R114	1-216-019-00	METAL CHIP	56 5% 1/10W
R116	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R119	1-216-085-00	METAL CHIP	33K 5% 1/10W

R123	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R403	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R404	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R603	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R605	1-216-049-91	METAL GLAZE	1K 5% 1/10W

R606	1-216-073-00	METAL CHIP	10K 5% 1/10W
R608	1-216-121-91	METAL GLAZE	1M 5% 1/10W
R609	1-216-121-91	METAL GLAZE	1M 5% 1/10W
R612	1-216-049-91	METAL GLAZE	1K 5% 1/10W

< VARIABLE RESISTOR >

RV101	1-223-293-11	RES, VAR, CARBON 50K (音量)
RV601	1-223-258-21	RES, ADJ, CERMET 4.7K
RV602	1-223-928-11	RES, VAR, CARBON 10K (SPEED CONTROL)

< SWITCH >

S101	1-572-964-11	SWITCH, SLIDE
S102	1-572-688-11	SWITCH, PUSH (1 KEY)
S601	1-572-922-11	SWITCH, SLIDE (一時停止)

< THERMISTOR >

TH601	1-808-819-11	THERMISTOR, NTC (2125)
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< THERMISTOR(POSITIVE) >

THP601	1-810-007-11	THERMISTOR, POSITIVE
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< FLAT CABLE >

* W101	1-750-512-21	CONNECTOR, FPC 13P
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Ref.No.	Part No.	Description	Remark
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MISCELLANEOUS

105	1-548-582-11	COUNTER, TAPE (SMALL TYPE)
HE901	1-500-232-11	HEAD, MAGNETIC (ERASE)
HRP901	1-500-073-11	HEAD, MAGNETIC (RECORD/PLAYBACK)
M901	1-698-588-11	MOTOR, DC (CAPSTAN)
MIC901	1-542-124-31	MICROPHONE, ELECTRET CONDENSER

SP901	1-544-657-11	SPEAKER (3.6CM)
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ACCESSORIES & PACKING MATERIALS

3-798-900-01	MANUAL, INSTRUCTION (JAPANESE, ENGLISH)
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* 3-926-522-01	INDIVIDUAL CARTON
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