

TCM-R3

SERVICE MANUAL

Ver 1.1 2000.10



*US Model
Canadian Model
E Model
Germany Model
Tourist Model*

IC REPEAT

Model Name Using Similar Mechanism	TCM-55
Tape Transport Mechanism Type	MT-R3-101

SPECIFICATIONS

Recording system	2-track, 1-channel, monaural
Frequency response	250—8,000Hz
Speaker	Approx. 3.6 cm
Power output (DC)	120mW (at 10% harmonic distortion)
Input	Microphone input jack (mini-jack) Sensitivity 0.2mV for low impedance microphone
Output	Earphone jack (mini-jack) For 8—300 ohm earphone
Power requirements	3V DC, two R6 (size AA) batteries DC IN 3V jack accepts: Sony AC-E30M AC power adaptor (not supplied) Sony DCC-E130L car battery cord (not supplied)
Battery life (hours)	

Battery	Recording	Repeat play
Sony SUM-3 (NS)	Approx. 2.5	Approx. 2.5
Sony alkaline AM3 (N)	Approx. 6	Approx. 6.5

Dimensions	Approx. 88 x 113 x 36.5 mm (w/h/d), incl. projecting parts and controls
Weight	Approx. 260g, incl. batteries
Supplied accessories	Earphones with remote control (1) Carrying case (1)

Design and specifications subject to change without notice.

The illustration shows the polarity of a DC IN 3 V plug.
Use only a power cord having the same polarity.



CASSETTE-CORDER
SONY®

FEATURES

◆ IC repeat play

Allows you to play a segment of a tape repeatedly. Use this function to listen to the same phrase over and over and improve your foreign language skills.

◆ Zero stop function

Enables you to mark a section of a tape so that when you review or rewind the tape, it stops automatically at the place you want to access.

◆ Earphones with remote control

The control on the supplied earphones allows you to operate repeat play and control volume remotely.

◆ Ear monitor switch

Enables you to listen to sound through the main unit's speaker while operating it by remote control.

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SERVICING NOTE

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

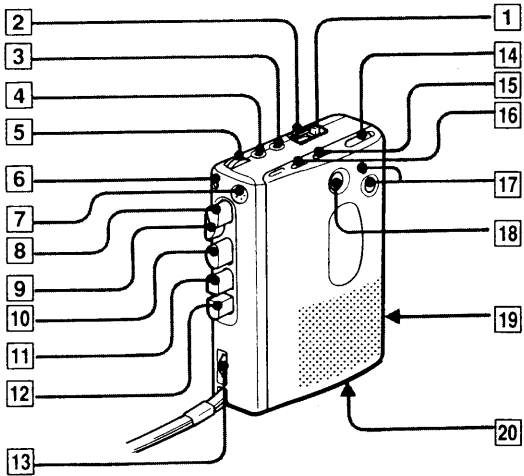
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.



SECTION 1
GENERAL

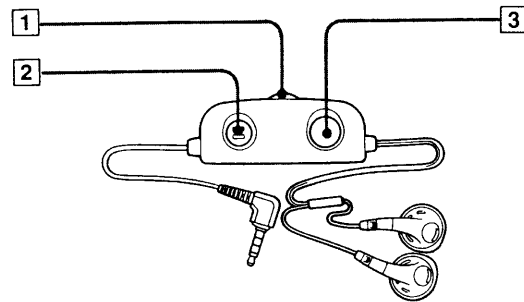
This section is extracted from
instruction manual.

1-1. LOCATION OF CONTROLS



Main Unit

- 1 **TAPE COUNTER and reset button**
- 2 **ZERO STOP switch**
ON: while rewinding, the tape stops when the counter reaches zero.
OFF: zero stop function off
- 3 **EAR (earphone) jack**
- 4 **MIC (PLUG IN POWER) jack**
- 5 **▲VOL (volume) control**
- 6 **REC/BATT (record/battery) indicator**
Lights up during play; blinks according to the recording level while recording; and becomes dimmer as the batteries weaken.
- 7 **Built-in microphone**
- 8 **● REC (record) button**
- 9 **■ STOP button**
- 10 **▶ PLAY button**
- 11 **◀◀ REVIEW/REW (review/rewind) button**
- 12 **▶▶ CUE/FF (cue/fast forward) button**
- 13 **SPEED CONTROL**
Adjusts the tape speed.
S: slower ← → F: faster
- 14 **REPEAT MODE switch**
4, 8, 16: selects the repeat time.
OFF: repeat play off
- 15 **EAR MONITOR switch**
ON: sound is heard through the earphones (when earphones are not connected, sound is heard from the speaker).
OFF: sound is heard from the speaker.
- 16 **REMOTE switch**
ON: remote control on (repeat/pause can only be controlled with the remote control.)
OFF: remote control off (repeat/pause can only be controlled with the main unit.)
- 17 **II PAUSE button and lamp**
Lights up during pause in normal play; flickers during pause in repeat play. (When this indicator is lit, the REC/BATT indicator goes off.)
- 18 **REPEAT button**
- 19 **Battery compartment (side)**
- 20 **DC IN 3V (external power input) jack (bottom)**



Remote control

- 1 **VOL (volume) control**
- 2 **II PAUSE button**
- 3 **REPEAT button**

Note

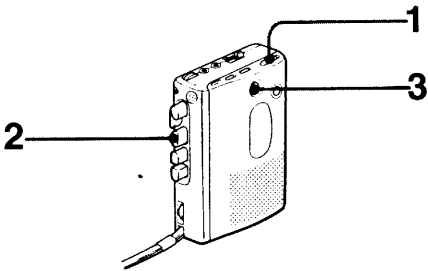
Set ZERO STOP to OFF when you do not want to use the ZERO STOP function. Otherwise, the tape will stop at zero when you rewind it.

Automatic shut-off

When the tape is played (recorded) to the end of one side, the ▶ (●) button is released automatically. (This function does not operate when fast forwarding or rewinding the tape.)

1-2. REPEAT PLAY

The repeat play function allows you to listen to the same segment any number of times. You can select the length you want to repeat from among 3 repeat times: 4, 8, or 16 seconds.



- 1 **Select the repeat time with REPEAT MODE, e.g. 4 seconds.**
- 2 **Depress ▶.**
- 3 **Press REPEAT at the end of the segment you want repeated.**
The last 4 seconds of the tape are played repeatedly.

To resume normal play, press REPEAT again.

To pause during repeat play, press II. Press again to resume repeat play. (If you press REPEAT during pause, the unit resumes normal play.)

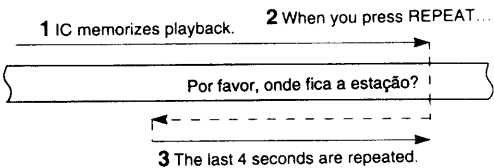
To change the repeat time, re-select REPEAT MODE during normal tape play.

Notes

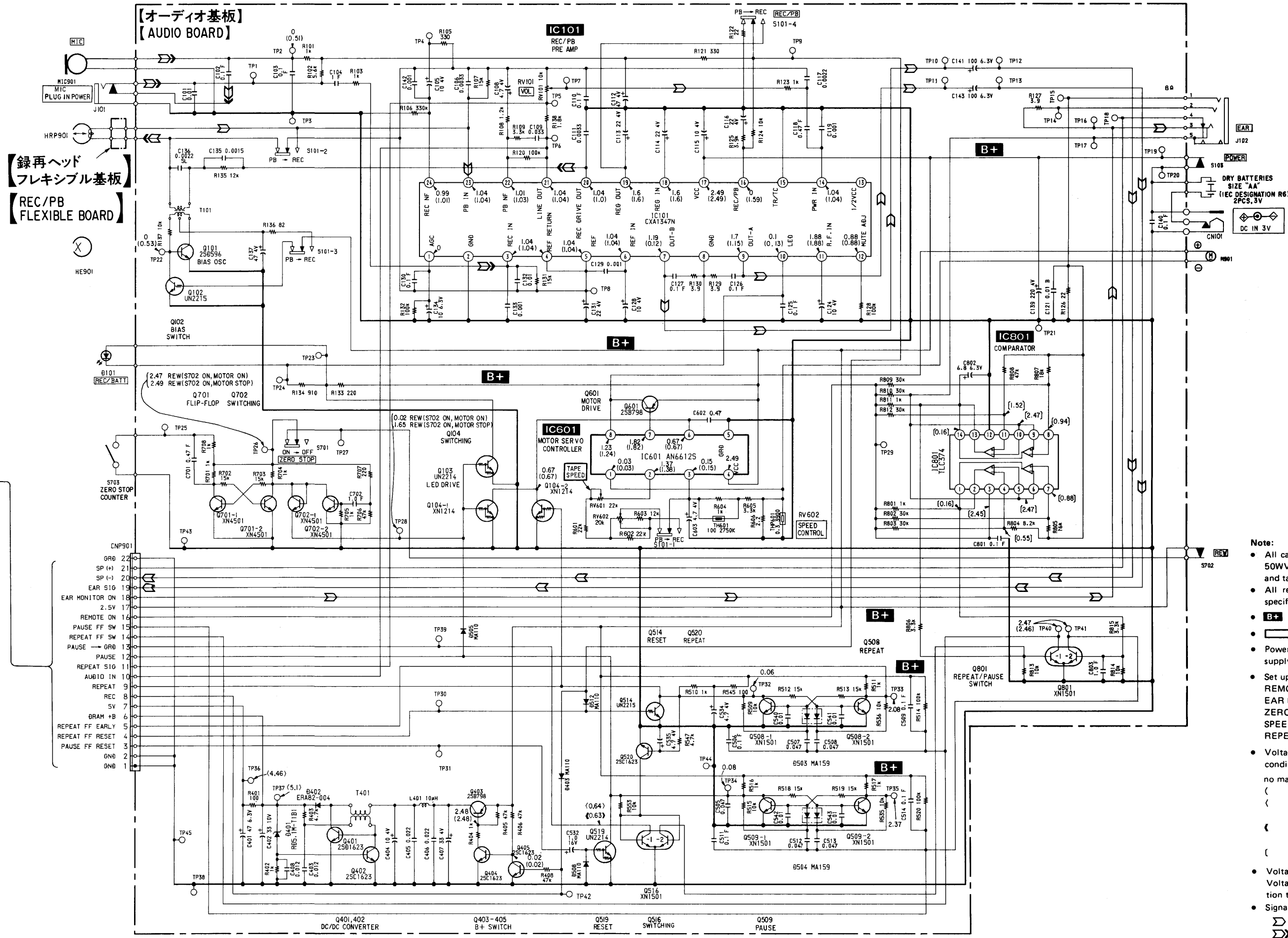
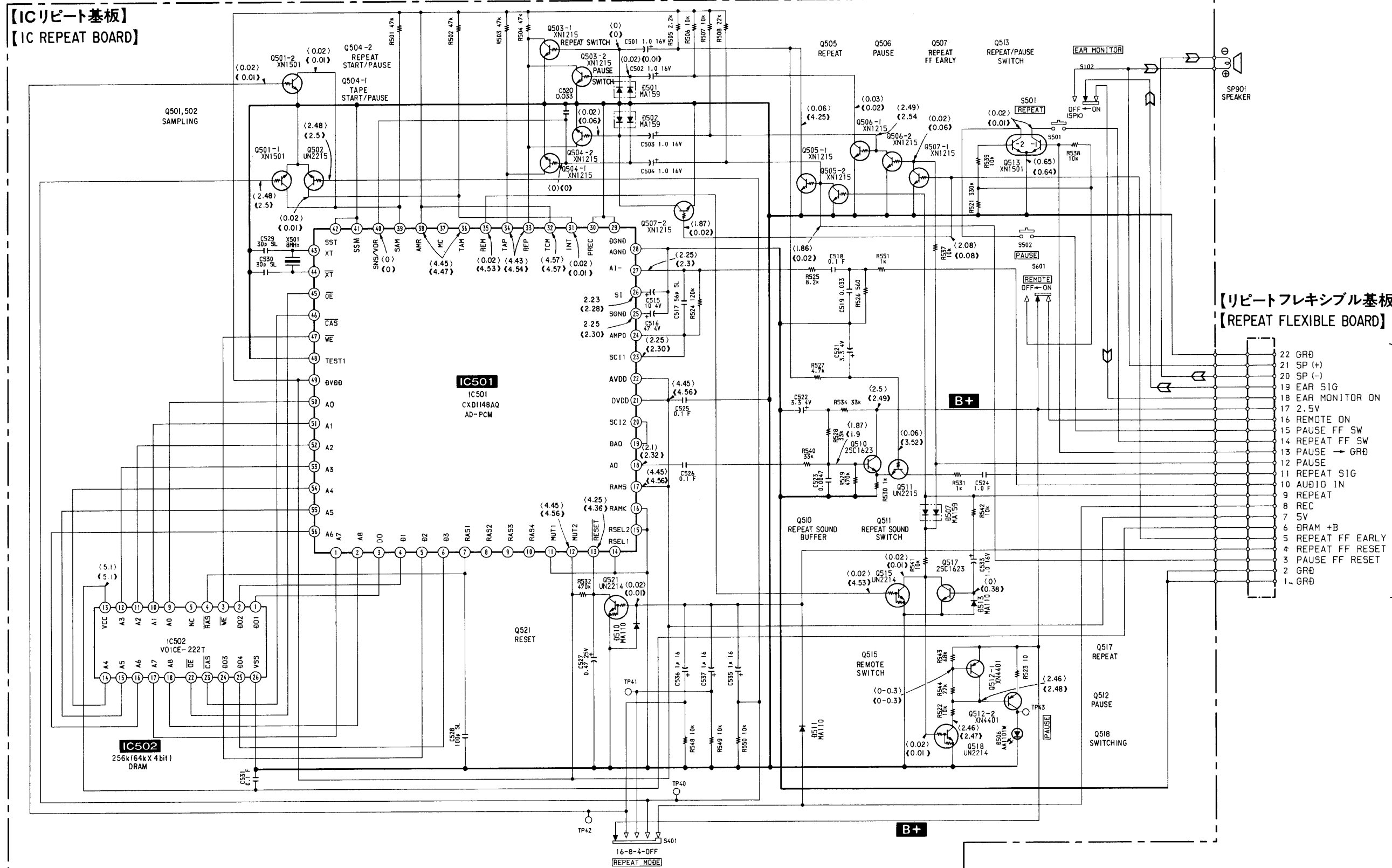
- Press REPEAT when the tape is playing. Pressing REPEAT during pause will not start repeat play.
- If you re-select REPEAT MODE during repeat play, repeat play is cancelled and the tape resumes normal play.
- If you press REPEAT before the tape is played for as long as the repeat time, the unit repeats only the portion that has been played.
- The unit repeats only what it has played. If you cue or review the tape and then press REPEAT, those high speed sounds will be repeated. If you pause, fast forward, or rewind the tape, those portions will be repeated as blanks.
- We recommend that you set REPEAT MODE to OFF when you do not use the repeat play function. This helps prevent unnecessary battery consumption.

How IC repeat works

- 1 The IC (memory) records what is being played. At any given point, it retains the last 4, 8, or 16 seconds of the tape.
- 2 When you press REPEAT...
- 3 The unit plays back what is retained in the IC.

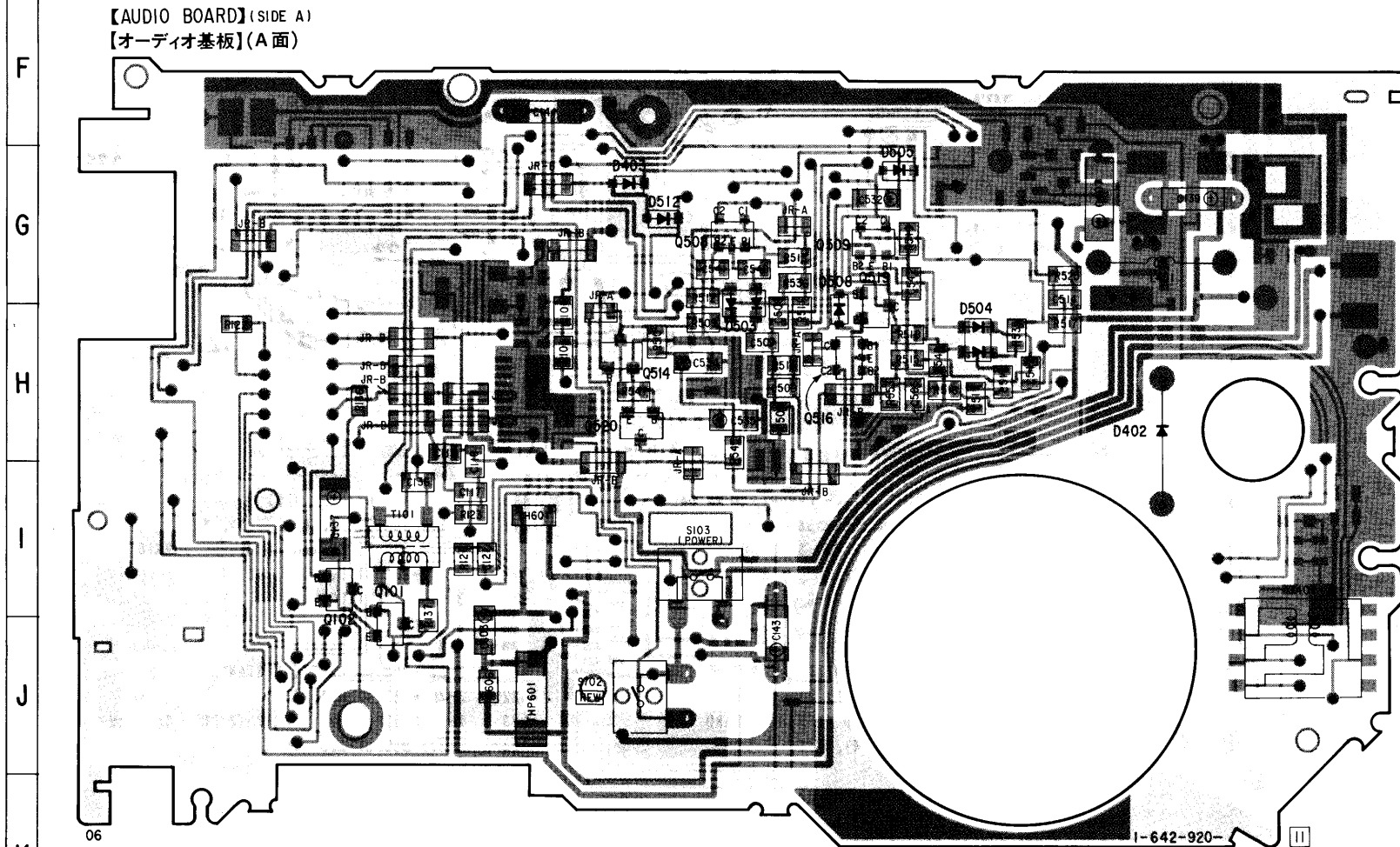
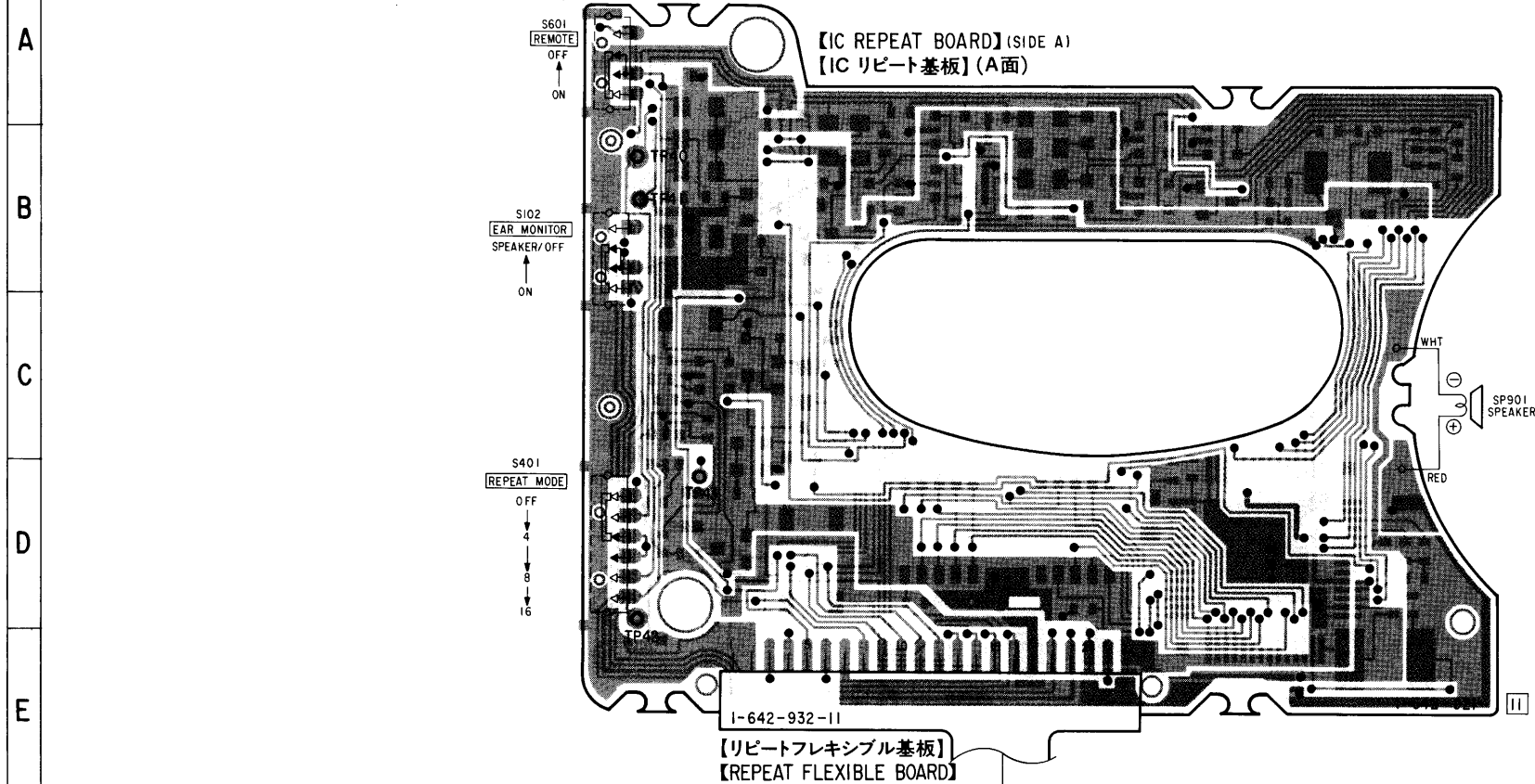


5-2. SCHEMATIC DIAGRAM ● See page 8 for ICBlock Diagrams.



- Note:**
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
 - **B+** : B+ line.
 - : adjustment for repair.
 - Power voltage is dc 2.5V and fed with regulated dc power supply from battery terminal.
 - Set up Switch Position
REMOTE OFF
EAR MONITOR ON
ZERO STOP OFF
SPEED CONTROL CENTER
REPEAT MODE OFF
 - Voltage are dc with respect to ground under no-signal conditions.
no mark: PB
() : REC
() : REPEAT MODE Switch at 4 Position with Playback.
() : REPEAT MODE Switch at 4 Position with Repeat Playback.
() : REMOTE ON with Playback.
 - Voltages are taken with a VOM. (Input impedance 10M Ω)
Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 : PB
 : REC

5-3. PRINTED WIRING BOARDS



SECTION 6 EXPLODED VIEWS

NOTE:

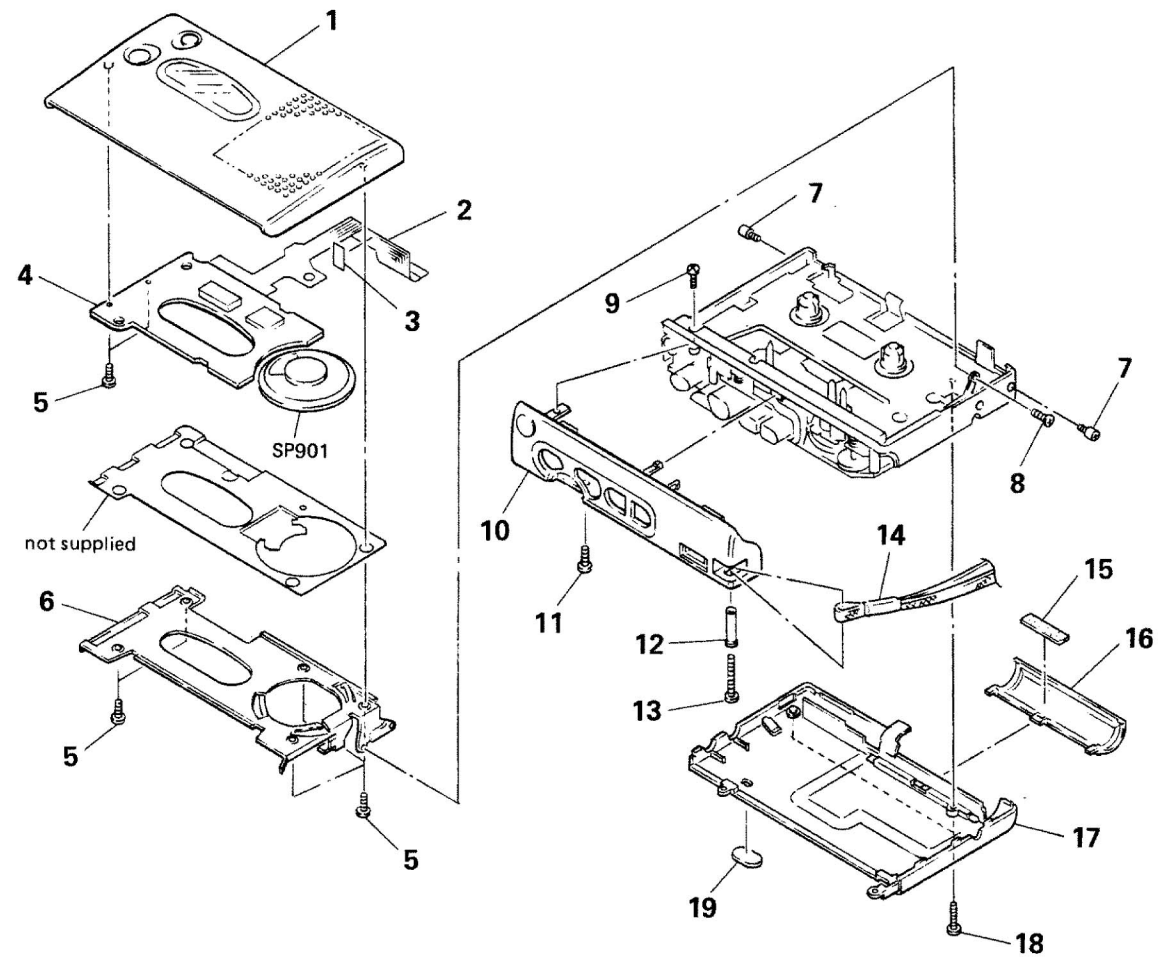
- -XX, -X mean standardized parts, so they may have some differences from the original one.

- Color Indication of Appearance Parts
Example:

KNOB, BALANCE (WHITE)... (RED)
 ↑ ↑
 Parts Cabinet's
 color color

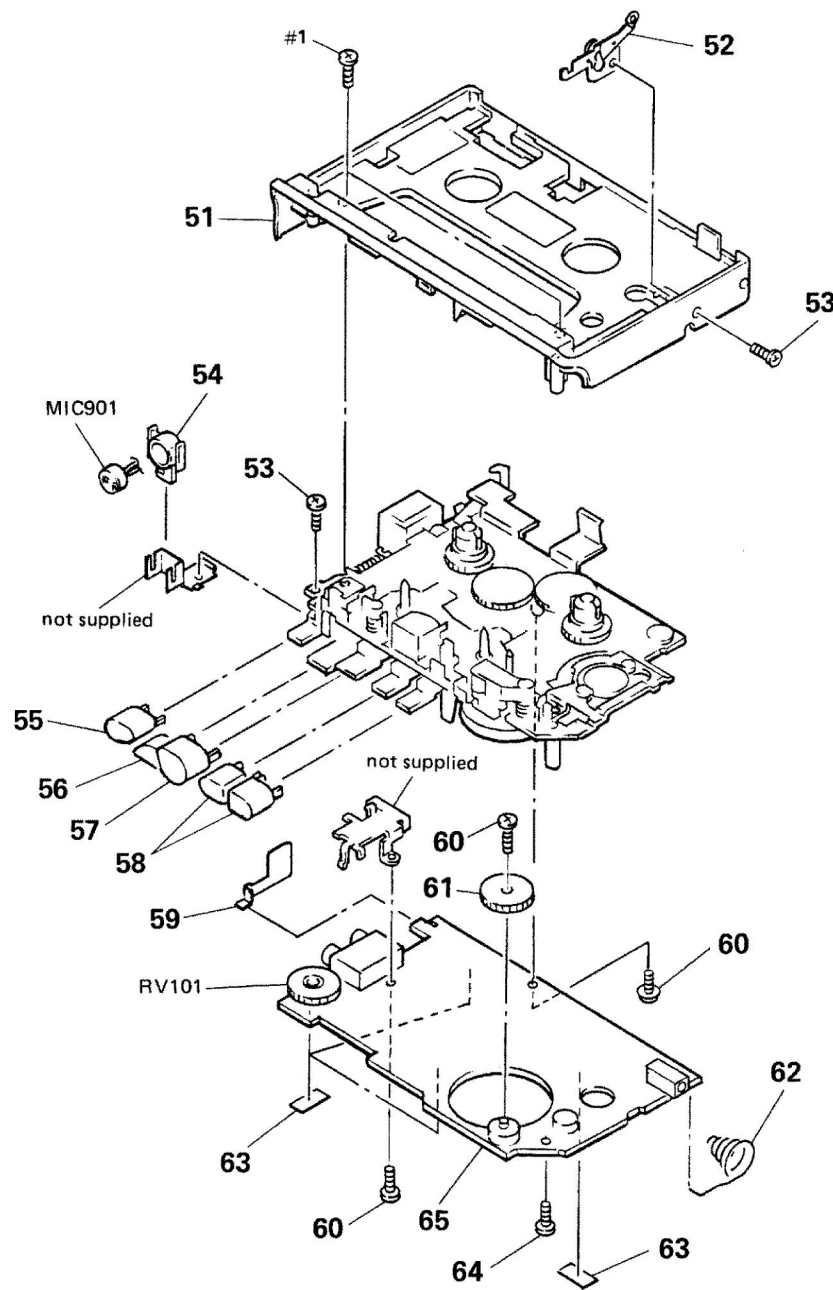
- Items marked "※" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

6-1. CABINET SECTION

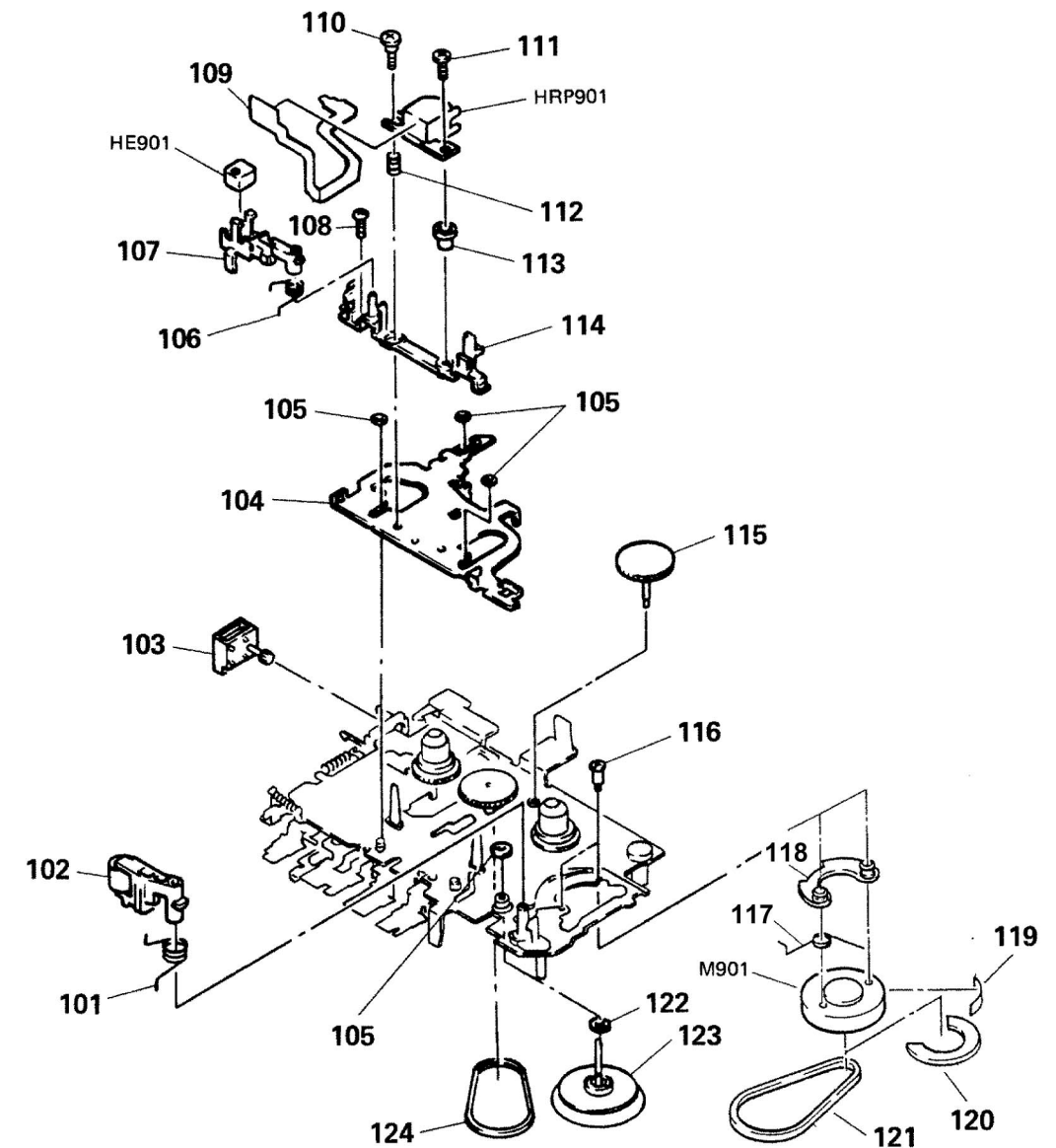


Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
1	X-3364-660-1	LID ASSY, CASSETTE		11	3-704-197-82	SCREW (M1.4X5.0), LOCKING	
2	1-642-932-11	REPEAT FLEXIBLE BOARD		※ 12	3-372-901-01	COLLAR	
3	3-831-441-XX	CUSHION		13	3-357-509-01	SCREW +B 1.7X10 TAPPING	
※ 4	A-3060-503-A	IC REPEAT BOARD, COMPLETE		14	3-371-849-01	STRAP, HAND	
5	3-318-382-01	SCREW (1.7X3), TAPPING		15	9-911-815-01	CUSHION, MICROPHONE	
6	3-376-720-01	BRACKET (CASSETTE HOLDER)		16	X-3364-659-1	LID ASSY, BATTERY CASE	
7	3-315-989-11	SCREW, ORNAMENTAL		17	X-3364-673-1	CABINET (REAR) ASSY	
8	3-311-772-11	SHAFT (A), STOPPER		18	3-334-565-11	SCREW (B1.7X10), TAPPING	
9	3-318-203-71	SCREW (B1.7X5), TAPPING		19	3-342-155-11	PLATE, BLIND	
10	X-3364-661-1	CABINET (CONTROL PANEL) ASSY		SP901	1-544-328-11	SPEAKER	

6-2. CONTROL SECTION



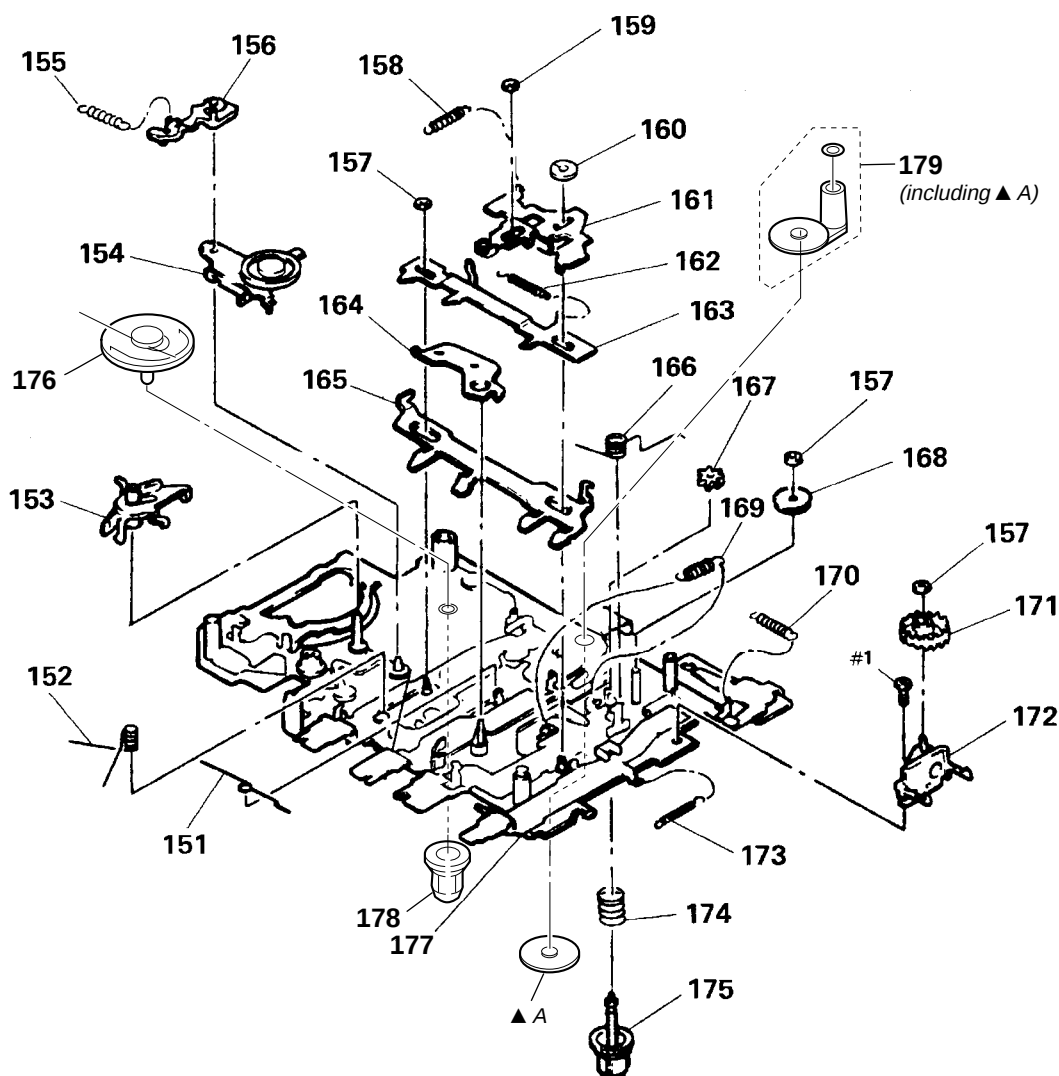
Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
51	X-3364-658-1	CABINET (FRONT) ASSY		60	3-345-648-03	SCREW (M1.4X4.0), TOOTHED LOCK	
52	X-3363-570-1	TOGGLE ASSY		61	3-376-713-01	KNOB (SPEED CONTROL)	
53	3-704-197-32	SCREW (M1.4X3.0)		62	3-379-529-01	SPRING, BATTERY COIL	
※ 54	3-376-711-01	HOLDER (MICROPHONE)		63	3-831-441-XX	CUSHION	
55	3-371-829-01	BUTTON (REC)		64	3-318-203-71	SCREW (B1.7X5), TAPPING	
56	3-371-841-01	BUTTON (STOP)		※ 65	A-3016-179-A	AUDIO BOARD, COMPLETE	
57	3-371-830-01	BUTTON (PLAY)		MIC901	1-542-142-11	MICROPHONE, BUILT-IN	
58	3-371-840-01	BUTTON (FF REW)		RV101	1-241-583-11	RES, VAR, CARBON 10K/10K	
59	3-371-845-01	TERMINAL BOARD, BATTERY				(With VOLUME KNOB)	

6-3. MECHANISM SECTION (1)
(MT-R3-101)

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
101	3-371-822-01	SPRING (PINCH LEVER), TORSION		115	3-371-854-01	GEAR (FF)	
102	X-3363-573-1	PINCH ROLLER ASSY		116	3-371-886-01	SCREW (MOTOR), STEP	
103	1-548-614-11	COUNTER, TAPE (SMALL TYPE) (S703)		117	3-374-119-02	SPRING (GROUND), TORSION	
※ 104	3-371-838-01	LEVER (HEAD)		※ 118	3-371-885-01	CUSHION, MOTOR	
105	3-321-483-11	RING, RETAINING		119	3-831-441-XX	CUSHION	
106	3-371-873-01	SPRING (E HEAD), TORSION		※ 120	3-372-991-01	DAMPER	
107	3-371-851-01	BRACKET (E HEAD)		121	3-371-868-01	BELT (FR)	
108	3-704-197-91	SCREW (M1.4X1.8), LOCKING		122	3-701-437-41	WASHER	
109	1-641-529-11	REC/PB HEAD FLEXIBLE BOARD		123	X-3363-571-1	WHEEL ASSY (ZNDC), CAPSTAN	
110	3-375-135-01	SCREW (1.4), SPECIAL		124	3-371-869-01	BELT (CAPSTAN)	
111	3-376-177-01	SCREW (M1.4X3.8)		HE901	8-658-096-02	HEAD, ERASE EBF5-36	
112	3-371-882-01	SPRING (AZIMUTH), COMPRESSION		HRP901	1-500-073-11	HEAD, MAGNETIC (REC/PB)	
113	3-375-045-01	COLLAR (HEAD)		M901	1-541-921-11	MOTOR	
114	3-371-839-01	BRACKET (HEAD)					

6-4. MECHANISM SECTION (2) (MT-R3-101)

▲ A : GEAR (FR)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-371-871-01	SPRING (IDLER), TORSION		* 164	3-371-858-01	LEVER, CR	
152	3-371-872-01	SPRING (FR), TORSION		* 165	3-371-856-01	PLATE, LOCK	
* 153	3-371-863-01	LEVER (DETECTION)		166	3-907-942-01	SPRING (PLAY LEVER), TORSION	
154	X-3363-568-1	LEVER ASSY, IDLER		167	3-371-850-01	GEAR (COUNTER S)	
155	3-371-877-01	SPRING, TENSION		168	3-371-867-01	GEAR (MIDWAY)	
* 156	3-371-864-01	LEVER (SHUT OFF)		169	3-371-874-01	SPRING (POWER TENSION), TENSION	
157	3-321-483-11	RING, RETAINING		170	3-371-876-01	SPRING, TENSION	
158	3-907-947-01	SPRING (STOP LEVER), TENSION		171	3-371-853-01	GEAR (FACE)	
159	3-371-883-01	WASHER (STOP LEVER)		172	3-371-852-01	BRACKET (COUNTER)	
160	3-371-884-01	WASHER (P-S-R)		173	3-371-878-01	SPRING, TENSION	
* 161	3-371-855-11	LEVER (STOP)		174	3-371-881-01	SPRING (B.T), COMPRESSION	
162	3-371-875-01	SPRING, TENSION		175	3-371-866-01	GEAR (S REEL)	
* 163	3-371-857-01	LEVER (SW)		176	X-3363-576-1	TABLE ASSY, FELT	
				* 177	X-3369-449-1	SHASSIS ASSY	
				178	3-371-865-01	GEAR (T REEL)	
				179	X-3371-100-1	PULLEY (FR) ASSY	

AUDIO**SECTION 7
ELECTRICAL PARTS LIST****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, —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

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

- **Abbreviations**
CND: Canadian model
G: Germany model
JE: Tourist model
EA: Saudi Arabia model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3016-179-A	AUDIO BOARD, COMPLETE *****		C132	1-164-232-11	CERAMIC CHIP 0.01uF	50V
	3-345-648-03	SCREW (M1.4X4.0), TOOTHED LOCK		C133	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
	3-376-713-01	KNOB (SPEED CONTROL)		C134	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3V
	3-704-197-32	SCREW (M1.4X3.0)		C135	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
		< CAPACITOR >		C136	1-164-695-11	CERAMIC CHIP 0.0022uF 5%	50V
C101	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C137	1-135-163-21	TANTAL. CHIP 47uF 20%	4V
C102	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C139	1-126-246-11	ELECT CHIP 220uF 20%	4V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C140	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-164-346-11	CERAMIC CHIP 1uF	16V	C141	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C105	1-135-201-11	TANTALUM CHIP 10uF 20%	4V	C142	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C106	1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V	C143	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C108	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V	C401	1-135-166-21	TANTALUM CHIP 47uF 10%	10V
C109	1-163-989-11	CERAMIC CHIP 0.033uF 10%	25V	C402	1-135-125-21	TANTAL. CHIP 33uF 20%	10V
C110	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C403	1-163-022-00	CERAMIC CHIP 0.012uF 10%	50V
C111	1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V	C404	1-135-201-11	TANTALUM CHIP 10uF 20%	4V
C112	1-135-163-21	TANTAL. CHIP 47uF 20%	4V	C405	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C113	1-135-202-21	TANTAL. CHIP 22uF 20%	4V	C406	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C114	1-135-202-21	TANTAL. CHIP 22uF 20%	4V	C407	1-135-162-21	TANTALUM CHIP 33uF 20%	6.3V
C115	1-135-201-11	TANTALUM CHIP 10uF 20%	4V	C408	1-163-022-00	CERAMIC CHIP 0.012uF 10%	50V
C116	1-135-202-21	TANTAL. CHIP 22uF 20%	4V	C505	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C117	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V	C506	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C118	1-164-005-11	CERAMIC CHIP 0.47uF	25V	C507	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C119	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C508	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C121	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C509	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C124	1-135-201-11	TANTALUM CHIP 10uF 20%	4V	C511	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C125	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C512	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C126	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C513	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C127	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C514	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C128	1-135-201-11	TANTALUM CHIP 10uF 20%	4V	C532	1-135-091-00	TANTALUM CHIP 1uF 20%	16V
C129	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C534	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V
C130	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C535	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V
C131	1-135-202-21	TANTAL. CHIP 22uF 20%	4V	C540	1-163-031-11	CERAMIC CHIP 0.01uF	50V
				C541	1-163-031-11	CERAMIC CHIP 0.01uF	50V
				C542	1-163-031-11	CERAMIC CHIP 0.01uF	50V
				C543	1-163-031-11	CERAMIC CHIP 0.01uF	50V

AUDIO

Ref. No.	Part No.	Description	Remark
C602	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C603	1-135-151-21	TANTALUM CHIP 4.7uF	20% 4V
C701	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C702	1-164-346-11	CERAMIC CHIP 1uF	16V
C801	1-163-038-00	CERAMIC CHIP 0.1uF	25V

C802	1-135-211-11	TANTAL. CHIP 6.8uF	20% 6.3V
C803	1-164-346-11	CERAMIC CHIP 1uF	16V

< CONNECTOR >

CN101	1-580-372-11	JACK, OUTER POWER (DC IN 6V)
* CNP901	1-691-798-11	HOUSING, CONNECTOR 22P

< DIODE >

D101	8-719-421-00	LED LN230RPP (REC/BATT)
D401	8-719-105-82	DIODE RD5.1M-B2
D402	8-719-913-44	DIODE ERA82-004
D403	8-719-404-46	DIODE MA110
D503	8-719-940-45	DIODE DWA010
D504	8-719-940-45	DIODE DWA010
D505	8-719-404-46	DIODE MA110
D508	8-719-404-46	DIODE MA110
D512	8-719-404-46	DIODE MA110

< IC >

IC101	8-752-034-90	IC CXA1347N
IC601	8-759-400-12	IC AN6612S
IC801	8-759-064-68	IC TLC374CNS

< JACK >

J101	1-569-215-21	JACK (MIC/PLUG IN POWER)
J102	1-691-694-12	JACK (EAR)

< JUMPER RESISTOR >

JR-A	1-216-295-00	METAL CHIP 0 5% 1/10W
JR-B	1-216-296-00	METAL CHIP 0 5% 1/8W

< COIL >

L401	1-410-509-11	INDUCTOR 10uH
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< TRANSISTOR >

Q101	8-729-141-75	TRANSISTOR 2SD596DV345
Q102	8-729-902-99	TRANSISTOR DTC114TK
Q103	8-729-900-52	TRANSISTOR DTC114YK
Q104	8-729-420-16	TRANSISTOR XN1214
Q401	8-729-807-51	TRANSISTOR 2SD1623-S
Q402	8-729-120-28	TRANSISTOR 2SC1623-L5L6
Q403	8-729-101-07	TRANSISTOR 2SB798-DL

Ref. No.	Part No.	Description	Remark
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Q404	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q405	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q508	8-729-402-13	TRANSISTOR	XN1501
Q509	8-729-402-13	TRANSISTOR	XN1501
Q514	8-729-902-99	TRANSISTOR	DTC114TK

Q516	8-729-402-13	TRANSISTOR XN1501
Q519	8-729-900-52	TRANSISTOR DTC114YK
Q520	8-729-120-28	TRANSISTOR 2SC1623-L5L6
Q601	8-729-101-07	TRANSISTOR 2SB798-DL
Q701	8-729-402-81	TRANSISTOR XN4501

Q702	8-729-402-81	TRANSISTOR XN4501
Q801	8-729-402-13	TRANSISTOR XN1501

< RESISTOR >

R101	1-216-049-00	METAL CHIP 1K 5% 1/10W
R102	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R103	1-216-049-00	METAL CHIP 1K 5% 1/10W
R105	1-216-037-00	METAL CHIP 330 5% 1/10W
R106	1-216-109-00	METAL CHIP 330K 5% 1/10W

R107	1-216-077-00	METAL CHIP 15K 5% 1/10W
R108	1-216-051-00	METAL CHIP 1.2K 5% 1/10W
R109	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R120	1-216-097-00	METAL CHIP 100K 5% 1/10W
R121	1-216-037-00	METAL CHIP 330 5% 1/10W

R122	1-216-009-00	METAL CHIP 22 5% 1/10W
R123	1-216-049-00	METAL CHIP 1K 5% 1/10W
R124	1-216-073-00	METAL CHIP 10K 5% 1/10W
R125	1-216-063-00	METAL CHIP 3.9K 5% 1/10W
R126	1-216-611-11	METAL CHIP 22 0.5% 1/10W

R127	1-216-306-11	METAL CHIP 3.9 5% 1/10W
R128	1-216-097-00	METAL CHIP 100K 5% 1/10W
R129	1-216-306-11	METAL CHIP 3.9 5% 1/10W
R130	1-216-306-11	METAL CHIP 3.9 5% 1/10W
R131	1-216-077-00	METAL CHIP 15K 5% 1/10W

R132	1-216-097-00	METAL CHIP 100K 5% 1/10W
R133	1-216-033-00	METAL CHIP 220 5% 1/10W
R134	1-216-048-00	METAL CHIP 910 5% 1/10W
R135	1-216-075-00	METAL CHIP 12K 5% 1/10W
R136	1-216-023-00	METAL CHIP 82 5% 1/10W

R137	1-216-073-00	METAL CHIP 10K 5% 1/10W
R138	1-216-055-00	METAL CHIP 1.8K 5% 1/10W
R401	1-216-025-00	METAL CHIP 100 5% 1/10W
R402	1-216-049-00	METAL CHIP 1K 5% 1/10W
R403	1-216-065-00	METAL CHIP 4.7K 5% 1/10W

R404	1-216-049-00	METAL CHIP 1K 5% 1/10W
R405	1-216-089-00	METAL CHIP 47K 5% 1/10W
R406	1-216-089-00	METAL CHIP 47K 5% 1/10W
R408	1-216-089-00	METAL CHIP 47K 5% 1/10W
R509	1-216-073-00	METAL CHIP 10K 5% 1/10W

AUDIO

IC REPEAT

Ref.No.	Part No.	Description	Remark		
R510	1-216-049-00	METAL CHIP	1K	5%	1/10W
R511	1-216-049-00	METAL CHIP	1K	5%	1/10W
R512	1-216-077-00	METAL CHIP	15K	5%	1/10W
R513	1-216-077-00	METAL CHIP	15K	5%	1/10W
R514	1-216-097-00	METAL CHIP	100K	5%	1/10W
R515	1-216-073-00	METAL CHIP	10K	5%	1/10W
R516	1-216-049-00	METAL CHIP	1K	5%	1/10W
R517	1-216-049-00	METAL CHIP	1K	5%	1/10W
R518	1-216-077-00	METAL CHIP	15K	5%	1/10W
R519	1-216-077-00	METAL CHIP	15K	5%	1/10W
R520	1-216-097-00	METAL CHIP	100K	5%	1/10W
R535	1-216-073-00	METAL CHIP	10K	5%	1/10W
R536	1-216-073-00	METAL CHIP	10K	5%	1/10W
R545	1-216-025-00	METAL CHIP	100	5%	1/10W
R547	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R553	1-216-073-00	METAL CHIP	10K	5%	1/10W
R601	1-216-081-00	METAL CHIP	22K	5%	1/10W
R602	1-216-081-00	METAL CHIP	22K	5%	1/10W
R603	1-216-075-00	METAL CHIP	12K	5%	1/10W
R604	1-216-049-00	METAL CHIP	1K	5%	1/10W
R605	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R606	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R701	1-216-049-00	METAL CHIP	1K	5%	1/10W
R702	1-216-077-00	METAL CHIP	15K	5%	1/10W
R703	1-216-077-00	METAL CHIP	15K	5%	1/10W
R704	1-216-049-00	METAL CHIP	1K	5%	1/10W
R705	1-216-049-00	METAL CHIP	1K	5%	1/10W
R706	1-216-089-00	METAL CHIP	47K	5%	1/10W
R707	1-216-033-00	METAL CHIP	220	5%	1/10W
R708	1-216-049-00	METAL CHIP	1K	5%	1/10W
R801	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R802	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R803	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R804	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W
R805	1-216-680-11	METAL CHIP	16K	0.5%	1/10W
R806	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R807	1-216-681-11	METAL CHIP	18K	0.5%	1/10W
R808	1-216-691-11	METAL CHIP	47K	0.5%	1/10W
R809	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R810	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R811	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R812	1-216-686-11	METAL CHIP	30K	0.5%	1/10W
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W
R814	1-216-073-00	METAL CHIP	10K	5%	1/10W
R815	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-241-583-11	RES, VAR, CARBON 10K/10K	(with VOLUME KNOB)		

Ref. No.	Part No.	Description	Remark		
RV601	1-238-665-11	RES, ADJ, CERMET 22K			
RV602	1-230-888-11	RES, VAR, CARBON 20K			
< SWITCH >					
S101	1-572-214-11	SWITCH, SLIDE (REC/PB)			
S103	1-572-288-11	SWITCH, PUSH (POWER)			
S701	1-571-275-31	SWITCH, SLIDE (ZERO STOP)			
S702	1-572-288-11	SWITCH, PUSH (REW)			
S703	1-548-614-11	COUNTER, TAPE (SMALL TYPE)	(ZERO STOP COUNTER)		
< TRANSFORMER >					
T101	1-433-286-11	TRANSFORMER, BIAS OSCILLATION			
T401	1-450-828-21	TRANSFORMER, DC-DC CONVERTER			
< THERMISTOR >					
TH601	1-809-545-11	THERMISTOR			
< THERMISTOR(POSITIVE) >					
THP601	1-809-342-11	THERMISTOR, POSITIVE			

*	A-3060-503-A	IC REPEAT BOARD, COMPLETE	*****		
	1-642-932-11	REPEAT FLEXIBLE BOARD			
*	3-379-528-01	SPRING, ELECTROSTATIC			
< CAPACITOR >					
C501	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C502	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C503	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C504	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C515	1-135-201-11	TANTALUM CHIP 10uF	20%	4V	
C516	1-135-163-21	TANTAL. CHIP 47uF	20%	4V	
C517	1-162-950-11	CERAMIC CHIP 56PF	5%	50V	
C518	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C519	1-164-677-11	CERAMIC CHIP 0.033uF	10%	16V	
C520	1-164-677-11	CERAMIC CHIP 0.033uF	10%	16V	
C521	1-135-180-21	TANTALUM CHIP 3.3uF	20%	6.3V	
C522	1-135-180-21	TANTALUM CHIP 3.3uF	20%	6.3V	
C523	1-162-968-11	CERAMIC CHIP 0.0047uF	10%	50V	
C524	1-164-346-11	CERAMIC CHIP 1uF		16V	
C525	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C526	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C527	1-135-145-11	TANTALUM CHIP 0.47uF	10%	35V	
C528	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C529	1-164-457-11	CERAMIC CHIP 30PF	5%	50V	
C530	1-164-457-11	CERAMIC CHIP 30PF	5%	50V	

IC REPEAT

Ref. No.	Part No.	Description	Remark
C531	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C533	1-135-091-00	TANTALUM CHIP 1uF	20% 16V
C535	1-135-091-00	TANTALUM CHIP 1uF	20% 16V
C536	1-135-091-00	TANTALUM CHIP 1uF	20% 16V
C537	1-135-091-00	TANTALUM CHIP 1uF	20% 16V

< DIODE >

D501	8-719-940-45	DIODE DWA010	
D502	8-719-940-45	DIODE DWA010	
D506	8-719-951-14	LED AA1101W (PAUSE)	
D507	8-719-940-45	DIODE DWA010	
D510	8-719-404-46	DIODE MA110	
D511	8-719-404-46	DIODE MA110	
D513	8-719-404-46	DIODE MA110	

< IC >

IC501	8-759-972-80	IC CXD1148AQ	
IC502	8-759-064-70	IC VOICE-222	

< TRANSISTOR >

Q501	8-729-403-17	TRANSISTOR XN1215	
Q502	8-729-902-99	TRANSISTOR DTC114TK	
Q503	8-729-403-17	TRANSISTOR XN1215	
Q504	8-729-403-17	TRANSISTOR XN1215	
Q505	8-729-403-17	TRANSISTOR XN1215	
Q506	8-729-403-17	TRANSISTOR XN1215	
Q507	8-729-403-17	TRANSISTOR XN1215	
Q510	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q511	8-729-902-99	TRANSISTOR DTC114TK	
Q512	8-729-403-27	TRANSISTOR XN4401	
Q513	8-729-402-13	TRANSISTOR XN1501	
Q515	8-729-900-52	TRANSISTOR DTC114YK	
Q517	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q518	8-729-900-52	TRANSISTOR DTC114YK	
Q521	8-729-900-52	TRANSISTOR DTC114YK	

< RESISTOR >

R501	1-216-841-11	METAL CHIP	47K 5% 1/16W
R502	1-216-841-11	METAL CHIP	47K 5% 1/16W
R503	1-216-841-11	METAL CHIP	47K 5% 1/16W
R504	1-216-841-11	METAL CHIP	47K 5% 1/16W
R505	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R506	1-216-833-11	METAL CHIP	10K 5% 1/16W
R507	1-216-833-11	METAL CHIP	10K 5% 1/16W
R508	1-216-837-11	METAL CHIP	22K 5% 1/16W
R521	1-216-851-11	METAL CHIP	330K 5% 1/16W
R522	1-216-833-11	METAL CHIP	10K 5% 1/16W
R523	1-216-797-11	METAL CHIP	10 5% 1/16W
R524	1-216-846-11	METAL CHIP	120K 5% 1/16W

Ref. No.	Part No.	Description	Remark
R525	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
R526	1-216-818-11	METAL CHIP	560 5% 1/16W
R527	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R528	1-216-839-11	METAL CHIP	33K 5% 1/16W
R529	1-216-853-11	METAL CHIP	470K 5% 1/16W

R530	1-216-821-11	METAL CHIP	1K 5% 1/16W
R531	1-216-821-11	METAL CHIP	1K 5% 1/16W
R532	1-216-853-11	METAL CHIP	470K 5% 1/16W
R534	1-216-839-11	METAL CHIP	33K 5% 1/16W
R537	1-216-833-11	METAL CHIP	10K 5% 1/16W

R538	1-216-833-11	METAL CHIP	10K 5% 1/16W
R539	1-216-833-11	METAL CHIP	10K 5% 1/16W
R540	1-216-839-11	METAL CHIP	33K 5% 1/16W
R541	1-216-833-11	METAL CHIP	10K 5% 1/16W
R542	1-216-833-11	METAL CHIP	10K 5% 1/16W

R543	1-216-843-11	METAL CHIP	68K 5% 1/16W
R544	1-216-837-11	METAL CHIP	22K 5% 1/16W
R548	1-216-833-11	METAL CHIP	10K 5% 1/16W
R549	1-216-833-11	METAL CHIP	10K 5% 1/16W
R550	1-216-833-11	METAL CHIP	10K 5% 1/16W

R551	1-216-821-11	METAL CHIP	1K 5% 1/16W
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< SWITCH >

S102	1-571-275-31	SWITCH, SLIDE (EAR MONITOR)	
S401	1-572-487-21	SWITCH, SLIDE (REPEAT MODE)	
S501	1-572-921-11	SWITCH, KEY BOARD (REPEAT)	
S502	1-572-921-11	SWITCH, KEY BOARD (PAUSE)	
S601	1-571-275-31	SWITCH, SLIDE (REMOTE)	

< VIBRATOR >

X501	1-579-572-21	VIBRATOR, CERAMIC (8.0MHz)	
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MISCELLANEOUS

HE901	8-658-096-02	HEAD, ERASE EBF5-36	
HRP901	1-500-073-11	HEAD, MAGNETIC (REC/PB)	
M901	1-541-921-11	MOTOR	
MIC901	1-542-142-11	MICROPHONE, BUILT-IN	
SP901	1-544-328-11	SPEAKER	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	

*	3-373-550-01	CUSHION	
*	3-378-775-01	INDIVIDUAL CARTON (JE, E)	
	3-379-305-01	CASE, CARRYING	
*	3-386-346-01	INDIVIDUAL CARTON (US, CND, G)	
	3-754-870-01	MANUAL, INSTRUCTION (JE) (JAPANESE)	
	3-754-870-41	MANUAL, INSTRUCTION (US, CND, E, G, JE, EA)	
		(ENGLISH, FRENCH, SPANISH, PORTUGUESE)	
	3-754-870-51	MANUAL, INSTRUCTION (G) (GERMAN, DUTCH,	
		SWEDISH, ITALIAN)	
	8-953-478-90	HEADPHONE MDR-E515RV SET	
	X-3329-657-1	ATTACHMENT ASSY	

		HARDWARE LIST	

#1	7-627-850-58	SCREW, PRECISION +P 1.4X3.5	