

TCM-4300

SERVICE MANUAL



US Model
Canadian Model
AEP Model
E Model



Model Name	Using Similar Mechanism	CFM-140II
Tape Transport Mechanism	Type	MT-4300

SPECIFICATIONS

Speaker	Full-range 7.7 cm (3 $\frac{1}{8}$ inches) dia.
Maximum power output	500 mW
Input	MIC MIX: monaural minijack
Power requirements	6 V DC --- , size C (R14) x 4
Power consumption	1 W
Battery life	Sony alkaline AM2 (N): approx. 10h Sony SUM-2 (NS): approx. 4 h
Dimensions	Approx. 212 x 271 x 128 mm (w/h/d) (8 $\frac{3}{8}$ x 10 $\frac{3}{4}$ x 5 $\frac{1}{8}$ inches) incl. projecting parts and controls
Mass	Approx. 1 kg (2 lb. 3 oz.) not incl. batteries

Design and specifications are subject to change without notice.

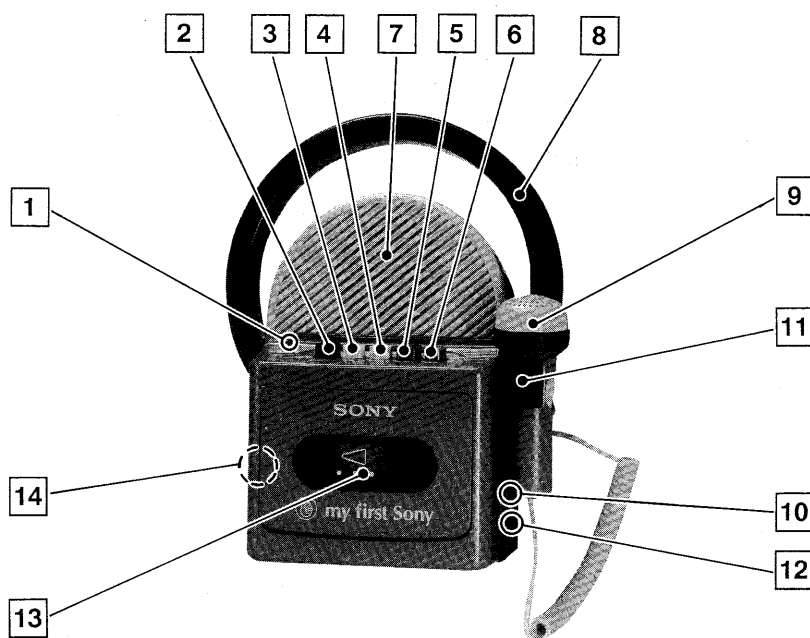
Note on using an AC power adaptor (not supplied)

Use only the AC-E60HG AC power adaptor (not supplied). Do not use any other AC power adaptor.

CASSETTE RECORDER
SONY[®]

SECTION 1 GENERAL

LOCATION AND FUNCTION OF CONTROLS



- 1** OPR/BATT Power light/battery checker
- 2** ■ STOP/EJECT button
- 3** ◀◀ FF (fast forward) button
- 4** ▶▶ REW (rewind) button
- 5** ◀ PLAY button
- 6** ● REC (record) button
- 7** Speaker
- 8** Handle
- 9** Microphone
- 10** MIX MIC (Microphone) jack
- 11** Microphone holder
- 12** DC IN 6V (external power input) jack ⚡
- 13** Cassette holder
- 14** VOLUME control

SECTION 2 MECHANICAL ADJUSTMENTS

PRECAUTION

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

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
6. Power supply voltage : 6V dc.

Torque Measurement

Torque	Meter Reading	Torque Meter
Forward	30 — 70g•cm (0.42 — 0.97oz•inch)	CQ-102C
Fast Forward and Rewind	more than 60g•cm (more than 0.84oz•inch)	CQ-201B
Back Tension	1.5 — 5.5g•cm (0.021 — 0.076oz•inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	more than 100g (3.25oz)

SECTION 3 ELECTRICAL ADJUSTMENTS

● Test Tape

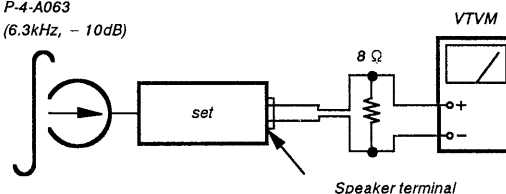
Type	Signal	Use
P-4-A063	6.3kHz, — 10dB	Record/playback head azimuth
WS-48A	3kHz, 0dB	Tape speed

Record/Playback Head Azimuth Adjustment

Procedure :

1. Mode : playback

test tape
P-4-A063
(6.3kHz, — 10dB)

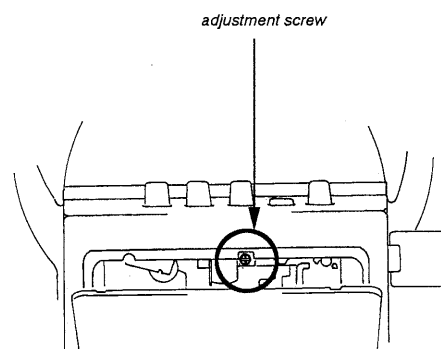


2. Turn the adjustment screw to obtain the maximum reading on VTVM.

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

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

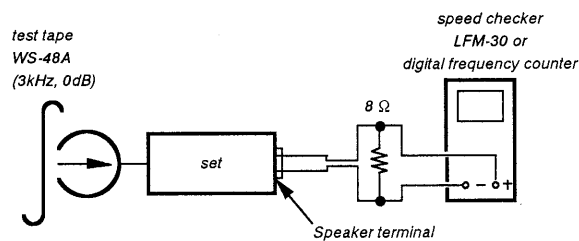
Adjustment Location :



Tape Speed Adjustment

Procedure :

Mode : playback

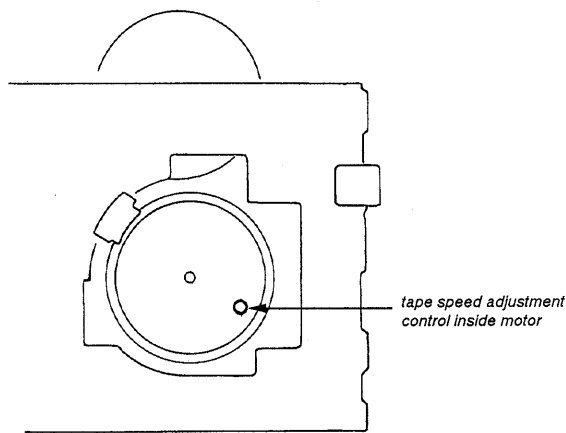


Adjustment Value :

Speed checker	Digital frequency counter
3,000Hz ± 1%	2,970 – 3,030Hz

Adjust at the end of tape and frequency difference between the beginning and the end of the tape should be within 1.5% (45Hz).

Adjustment Location :



SECTION 4
DIAGRAMS

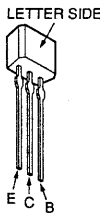
4-1. PRINTED WIRING BOARDS

• SEMICONDUCTOR
LOCATION

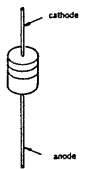
Ref. No.	Location
D101	C-4
D102	B-4
D104	E-5
D105	C-6
D106	A-2
D107	E-5
D108	C-6
D109	E-5
IC101	C-4
Q101	B-5
Q102	E-5
Q103	E-5
Q104	B-2
Q105	E-5
Q106	C-6

• SEMICONDUCTOR LEAD LAYOUTS

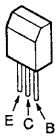
2SC2785-HFE



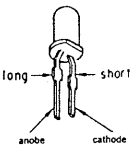
1SS133
RD2.4ES-B2



2SB733-34



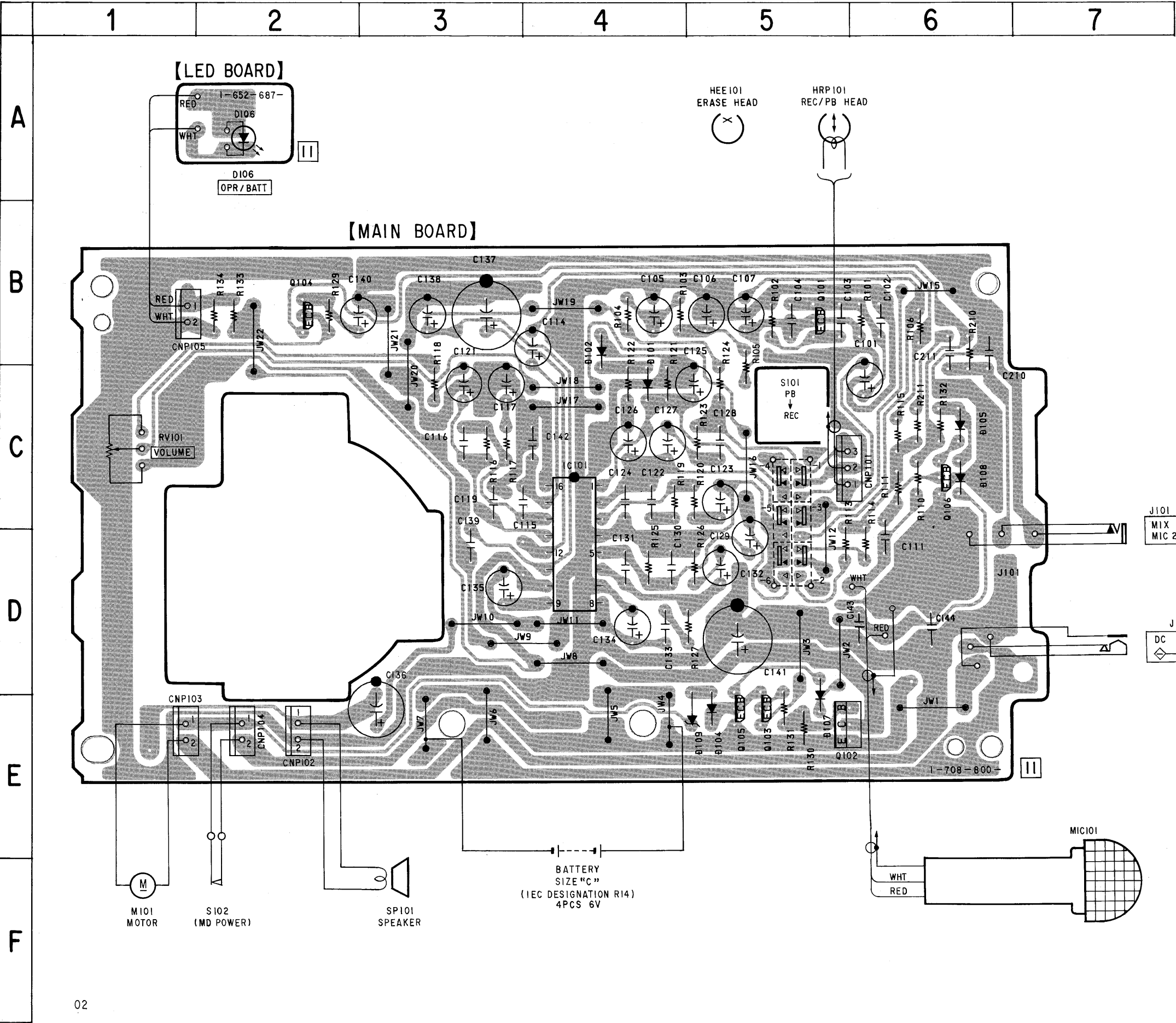
TLR124



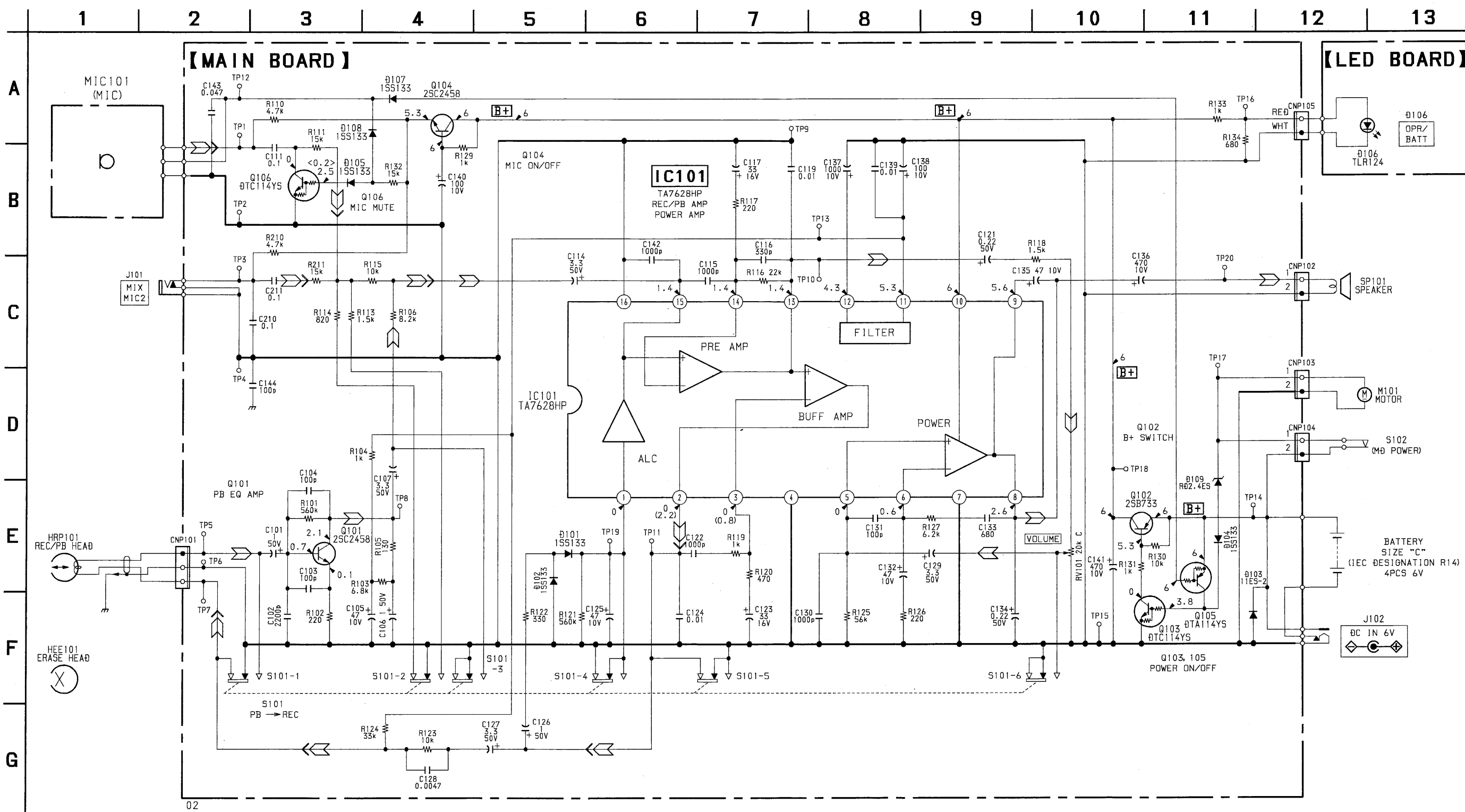
DTA114YS
DTC114YS



Note:
• ○ — : parts extracted from the component side.
• ■■■■ : Pattern on the side which is seen.



02



Note :

- All capacitors are in μF unless otherwise noted. pF: $\mu \mu F$ 50WV 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.
- % : indicates tolerance.
- **B+** : B+ Line
- Power voltage is dc 6V and fed with regulated dc power supply from external power voltage jack.

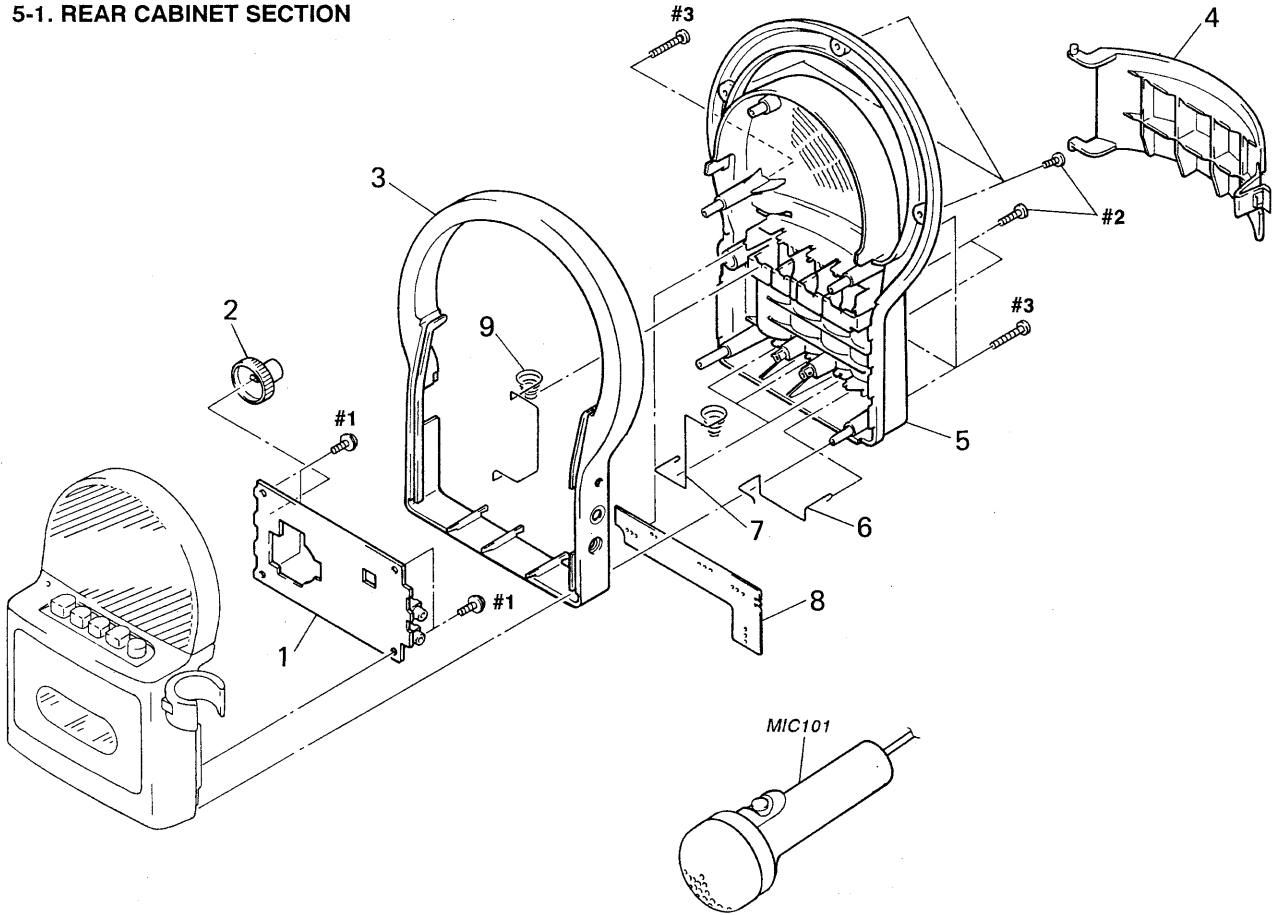
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
no mark : P.B
() : REC
- Voltages are taken with a VOM (Input impedance $10\text{M } \Omega$).
Voltage variations may be noted due to normal production tolerances.
- Signal path.
 : PB
 : REC

SECTION 5
EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- 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 and accessories and packing materials are given in the last of this parts list.

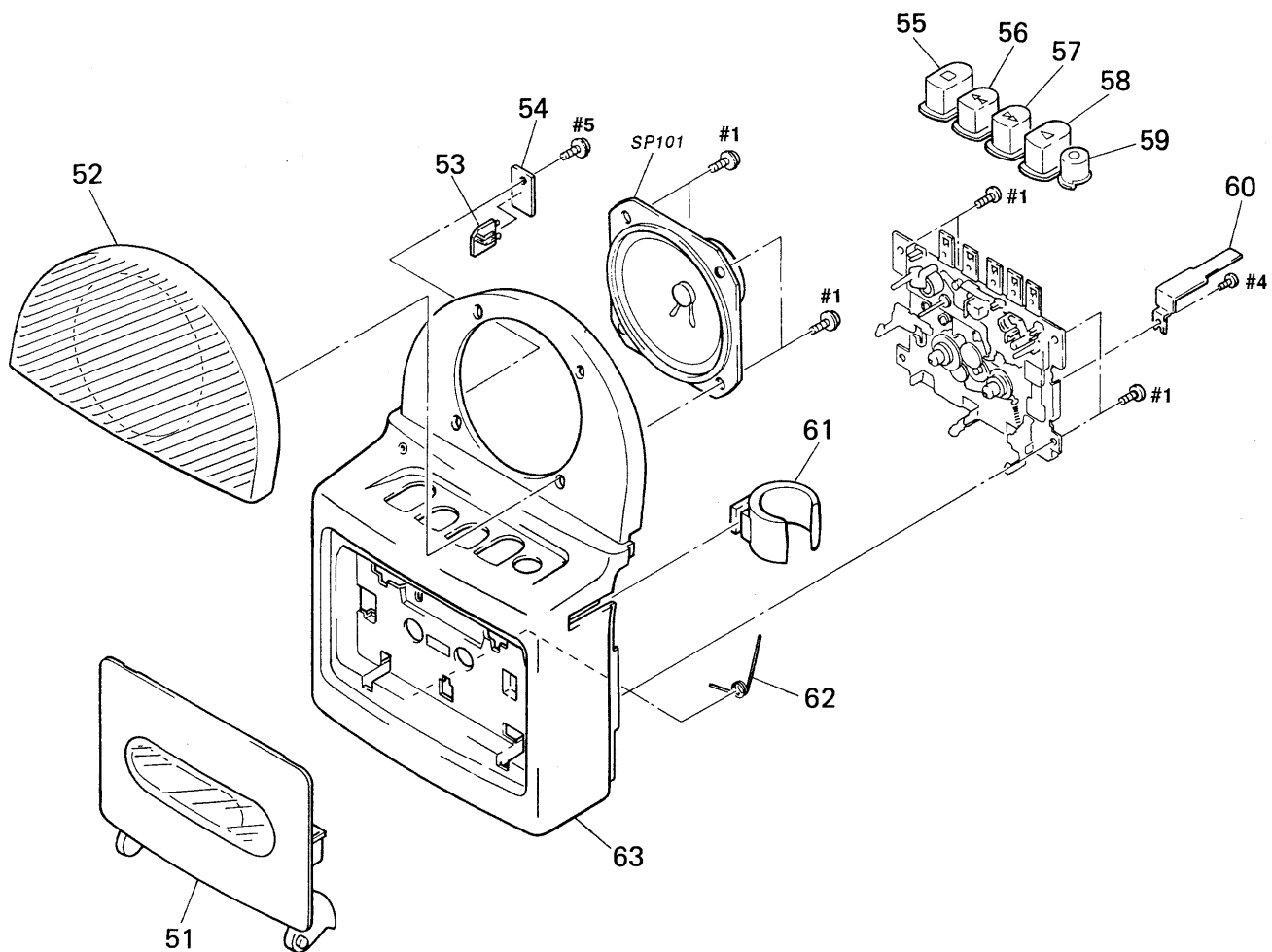
5-1. REAR CABINET SECTION



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
* 1	A-4542-209-A	MAIN BOARD, COMPLETE		6	3-913-646-01	TERMINAL (+), BATTERY	
2	3-913-630-01	KNOB (VOL)		7	3-913-648-01	TERMINAL (+,-), BATTERY	
3	3-913-640-01	HANDLE		8	3-913-650-01	SHEET	
4	3-913-649-01	LID, BATTERY CASE		9	3-913-647-01	TERMINAL (-), BATTERY	
5	3-913-651-01	CABINET, REAR		MIC101	A-4540-292-A	MICROPHONE ASSY	

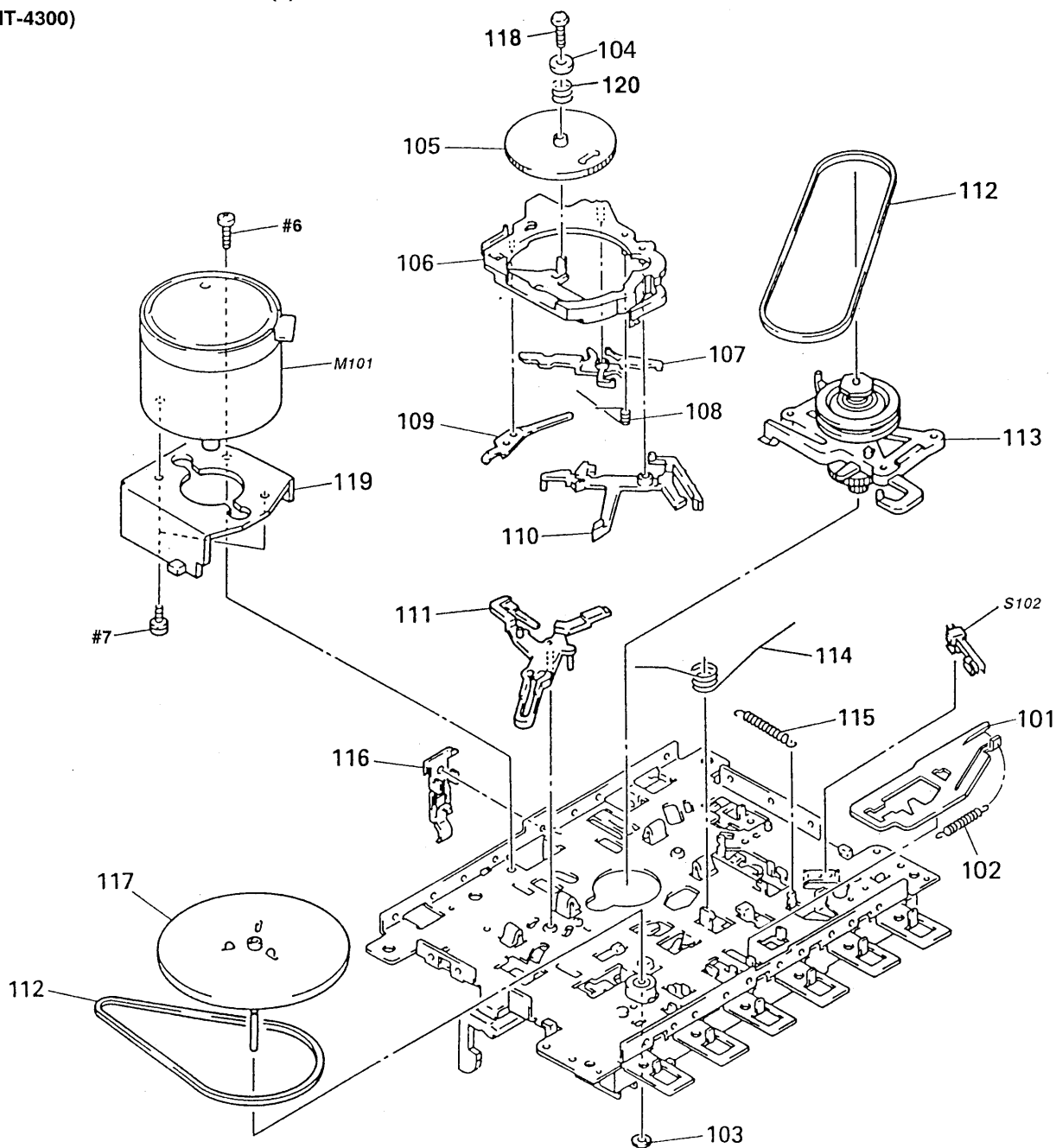
REVISED

5-2. FRONT CABINET SECTION



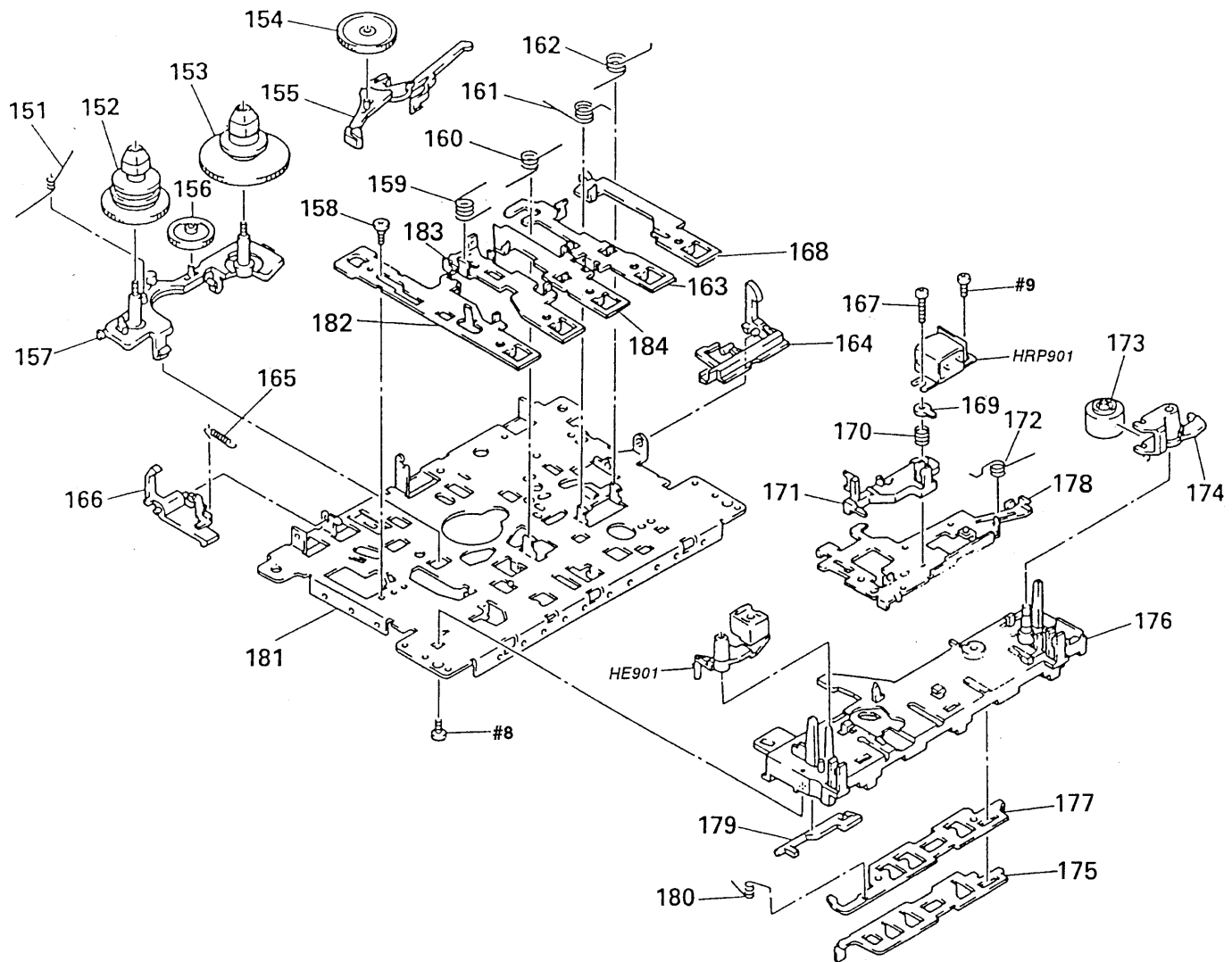
Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
51	A-3052-054-A	LID ASSY, CASSETTE		58	3-913-628-01	BUTTON (PLAY)	
52	3-913-631-01	GRILLE, SP		59	3-913-627-01	BUTTON (REC)	
* 53	3-913-754-01	HOLDER (LED)		60	3-913-639-01	LEVER, REC	
* 54	1-652-687-11	LED BOARD		61	3-913-634-01	HOLDER, MICROPHONE	
55	3-913-637-01	BUTTON (STOP)		62	3-913-632-01	SPRING, CASSETTE OPEN	
56	3-913-629-01	BUTTON (FF)		63	3-913-633-01	CABINET, FRONT	
57	3-913-638-01	BUTTON (REW)		SP101	1-504-581-11	SPEAKER	

5-3. MECHANISM DECK SECTION (1)
(MT-4300)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-379-844-01	PLATE, STOP, FR		112	3-907-721-01	BELT	
102	3-379-843-01	SPRING		113	3-362-969-01	IDLER ASSY, PF	
103	3-362-980-01	WASHER		114	3-362-970-01	SPRING	
104	3-369-961-01	WASHER		115	3-362-971-01	SPRING	
105	3-362-974-01	GEAR, CAM		116	3-908-176-01	SPRING, CASSETTE	
106	3-362-973-01	AS (BASE)		117	3-907-720-01	FW ASSY	
107	3-362-976-01	LEVER, CONTROL		118	3-366-352-01	SCREW	
108	3-362-977-01	SPRING		* 119	3-362-988-01	HOLDER, MOTOR	
109	3-362-978-01	SPRING, PLATE		120	3-369-962-01	SPRING, COMPRESSION	
110	3-362-975-01	LEVER, SENSOR		M101	3-383-389-01	MOTOR ASSY	
111	3-907-719-01	SENSOR		S102	1-572-538-11	SWITCH, LEAF (MD POWER)	

5-4. MECHANISM DECK SECTION (2)
(MT-4300)



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
151	3-372-120-01	SPRING		169	3-363-230-01	LUG	
152	X-3363-611-1	REEL, S		170	3-362-985-01	SPRING	
153	3-362-962-01	REEL ASSY, T		171	3-362-986-01	HOLDER, HEAD	
154	3-362-960-01	PULLEY, IDLER		172	3-362-983-01	SPRING	
155	3-362-959-01	ARM, IDLER		173	3-362-982-01	PINCH ROLLER	
156	3-362-965-01	IDLER, FF		174	3-362-981-01	PINCH ARM	
157	3-362-961-01	SPINDLE (BASE)		* 175	3-362-946-01	LEVER, SW	
158	3-362-958-01	SCREW		176	3-362-942-01	FRAME ASSY	
159	3-362-954-01	SPRING		* 177	3-362-943-01	PLATE, FUNCTION	
160	3-362-955-01	SPRING		* 178	3-362-984-01	HEAD (BASE)	
161	3-362-956-01	SPRING		179	3-362-944-01	STOPPER, REC	
162	3-907-718-01	SPRING		180	3-362-945-01	SPRING	
* 163	3-362-950-01	LEVER, FF		* 181	3-362-941-01	CHASSIS	
164	3-362-968-01	LEVER, EJECT		* 182	3-362-947-01	LEVER, REC	
165	3-907-722-01	SPRING		* 183	3-362-948-01	LEVER, PLAY	
166	3-362-966-01	INTER LOCK		* 184	3-362-949-01	LEVER, REW	
167	3-363-229-01	SCREW		HE901	1-543-777-11	HEAD, MAGNETIC (ERASING)	
* 168	3-362-951-01	LEVER, SE		HRP901	1-543-424-21	HEAD (RECORD/PLAYBACK)	

SECTION 6 ELECTRICAL PARTS LIST

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, -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.

- Abbreviation
IT : Italian

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-652-687-11	LED BOARD *****		C129	1-126-962-11	ELECT 3.3uF	20% 50V
*	3-913-754-01	HOLDER (LED) < DIODE >		C130	1-162-827-11	CERAMIC 0.001uF	10% 16V
	D106	8-719-812-41 LED TLR124(OPR/BATT)		C131	1-102-106-00	CERAMIC 100PF	10% 50V
*****				C132	1-124-126-00	ELECT 47uF	20% 10V
*	A-4542-209-A	MAIN BOARD, COMPLETE ***** < CAPACITOR >		C133	1-102-116-00	CERAMIC 680PF	10% 50V
C101	1-124-903-11	ELECT 1uF	20% 50V	C134	1-124-464-11	ELECT 0.22uF	20% 50V
C102	1-161-043-00	CERAMIC 0.0022uF	10% 50V	C135	1-124-126-00	ELECT 47uF	20% 10V
C103	1-102-106-00	CERAMIC 100PF	10% 50V	C136	1-124-472-11	ELECT 470uF	20% 10V
C104	1-102-106-00	CERAMIC 100PF	10% 50V	C137	1-124-473-11	ELECT 1000uF	20% 10V
C105	1-124-126-00	ELECT 47uF	20% 10V	C138	1-124-443-00	ELECT 100uF	20% 10V
C106	1-124-903-11	ELECT 1uF	20% 50V	C139	1-162-839-11	CERAMIC 0.01uF	10% 16V
C107	1-126-962-11	ELECT 3.3uF	20% 50V	C140	1-124-443-00	ELECT 100uF	20% 10V
C111	1-162-851-11	CERAMIC 0.1uF	10% 16V	C141	1-124-472-11	ELECT 470uF	20% 10V
C114	1-126-962-11	ELECT 3.3uF	20% 50V	C142	1-162-827-11	CERAMIC 0.001uF	10% 16V
C115	1-162-827-11	CERAMIC 0.001uF	10% 16V	C143	1-162-847-11	CERAMIC 0.047uF	10% 16V
C116	1-102-112-00	CERAMIC 330PF	10% 50V	C144	1-102-106-00	CERAMIC 100PF	10% 50V
C117	1-104-792-51	ELECT 33uF	20% 16V	C210	1-162-851-11	CERAMIC 0.1uF	10% 16V
C119	1-162-839-11	CERAMIC 0.01uF	10% 16V	C211	1-162-851-11	CERAMIC 0.1uF	10% 16V
C121	1-124-464-11	ELECT 0.22uF	20% 50V	< CONNECTOR >			
C122	1-162-827-11	CERAMIC 0.001uF	10% 16V	CNP101	1-569-596-11	PLUG, CONNECTOR (2.5MM) 3P	
C123	1-104-792-51	ELECT 33uF	20% 16V	CNP102	1-566-690-11	PLUG, CONNECTOR (2.5MM) 2P	
C124	1-162-839-11	CERAMIC 0.01uF	10% 16V	CNP103	1-566-690-11	PLUG, CONNECTOR (2.5MM) 2P	
C125	1-124-126-00	ELECT 47uF	20% 10V	CNP104	1-566-690-11	PLUG, CONNECTOR (2.5MM) 2P	
C126	1-124-903-11	ELECT 1uF	20% 50V	* CNP105	1-564-777-41	PLUG, CONNECTOR (2.5MM) 2P	
C127	1-126-962-11	ELECT 3.3uF	20% 50V	< DIODE >			
C128	1-162-835-11	CERAMIC 0.0047uF	10% 16V	D101	8-719-901-33	DIODE 1SS133	
				D102	8-719-901-33	DIODE 1SS133	
				D104	8-719-901-33	DIODE 1SS133	
				D105	8-719-901-33	DIODE 1SS133	
				D107	8-719-901-33	DIODE 1SS133	
				D108	8-719-901-33	DIODE 1SS133	
				D109	8-719-109-57	DIODE RD2.4ES-B2	

MAIN

Ref.No.	Part No.	Description	Remark
< IC >			
IC101	8-759-230-04	IC TA7628HP	
< JACK >			
J101	1-566-740-11	JACK(MIX MIC2)	
J102	1-568-907-21	JACK, DC(POLARITY UNIFIED TYPE)(DC IN 6V)	
< TRANSISTOR >			
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q102	8-729-140-93	TRANSISTOR 2SB733-34	
Q103	8-729-904-36	TRANSISTOR DTC114YS	
Q104	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q105	8-729-902-80	TRANSISTOR DTA114YS	
Q106	8-729-904-36	TRANSISTOR DTC114YS	
< RESISTOR >			
R101	1-247-897-11	CARBON 560K 5% 1/4W	
R102	1-249-409-11	CARBON 220 5% 1/4W	
R103	1-249-427-11	CARBON 6.8K 5% 1/4W	
R104	1-249-417-11	CARBON 1K 5% 1/4W	
R105	1-247-810-11	CARBON 130 5% 1/4W	
R106	1-249-428-11	CARBON 8.2K 5% 1/4W	
R110	1-249-425-11	CARBON 4.7K 5% 1/4W	
R111	1-249-431-11	CARBON 15K 5% 1/4W	
R113	1-249-419-11	CARBON 1.5K 5% 1/4W	
R114	1-249-416-11	CARBON 820 5% 1/4W	
R115	1-249-429-11	CARBON 10K 5% 1/4W	
R116	1-249-433-11	CARBON 22K 5% 1/4W	
R117	1-249-409-11	CARBON 220 5% 1/4W	
R118	1-249-419-11	CARBON 1.5K 5% 1/4W	
R119	1-249-417-11	CARBON 1K 5% 1/4W	
R120	1-249-413-11	CARBON 470 5% 1/4W	
R121	1-247-897-11	CARBON 560K 5% 1/4W	
R122	1-249-411-11	CARBON 330 5% 1/4W	
R123	1-249-429-11	CARBON 10K 5% 1/4W	
R124	1-249-435-11	CARBON 33K 5% 1/4W	
R125	1-249-438-11	CARBON 56K 5% 1/4W	
R126	1-249-409-11	CARBON 220 5% 1/4W	
R127	1-247-850-11	CARBON 6.2K 5% 1/4W	
R129	1-249-417-11	CARBON 1K 5% 1/4W	
R130	1-249-429-11	CARBON 10K 5% 1/4W	
R131	1-249-417-11	CARBON 1K 5% 1/4W	
R132	1-249-431-11	CARBON 15K 5% 1/4W	
R133	1-249-417-11	CARBON 1K 5% 1/4W	
R134	1-249-415-11	CARBON 680 5% 1/4W	
R210	1-249-425-11	CARBON 4.7K 5% 1/4W	
R211	1-249-431-11	CARBON 15K 5% 1/4W	

Ref.No.	Part No.	Description	Remark
< VARIABLE RESISTOR >			
RV101	1-223-513-11	RES, VAR, CARBON 20K(VOLUME)	
< SWITCH >			
S101	1-571-720-11	SWITCH, SLIDE (REC/PB)	

MISCELLANEOUS			

HE901	1-543-777-11	HEAD, MAGNETIC (BRASING)	
HRP901	1-543-424-21	HEAD (RECORD/PLAYBACK)	
M101	3-383-389-01	MOTOR ASSY	
S102	1-572-538-11	SWITCH, LEAF (MD POWER)	
SP101	1-504-581-11	SPEAKER	

ACCESSORIES & PACKING MATERIALS			

	3-758-618-11	MANUAL, INSTRUCTION(ENGLISH/FRENCH/ SPANISH/ITALIAN)(Canadian, AEP, E, IT)	
	3-758-618-21	MANUAL, INSTRUCTION(ENGLISH)(US)	
	3-758-618-41	MANUAL, INSTRUCTION(GERMAN/DUTCH/ SWEDISH/PORTUGUESE)(AEP)	
*	3-911-588-01	CUSHION	
*	3-911-590-01	INDIVIDUAL CARTON(US)	
*	3-911-592-01	INDIVIDUAL CARTON(Canadian, AEP, E, IT)	

HARDWARE LIST			

#1	7-685-903-21	SCREW +PTPH 3X8 (TYPE2)	
#2	7-685-149-29	SCREW +P 3X14 TYPE2 SLIT	
#3	7-685-153-19	SCREW +P 3X30 TYPE2 SLIT	
#4	7-621-255-10	SCREW +PTT 2X3 (S)	
#5	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
#6	7-685-861-01	SCREW +BVTT 2.6X5 (S)	
#7	7-628-254-05	SCREW +PS 2.6X5	
#8	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
#9	7-621-255-25	SCREW +PTT 2X4 (S)	

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