

# SERVICE MANUAL

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CASSETTE RECORDER

BASIC TAPE MECHANISM : TN-9XR-112

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This Service Manual is the "Revision Publishing" and replaces "Simple Manual"  
(S/M Code No. 09-995-331-8T1).

## SPECIFICATIONS

<b>Track system</b>	2 tracks 1 channel, monaural (Recording) 4 tracks 2 channels, stereo (Playback)
<b>Frequency response</b>	250 - 8,000 Hz (EIAJ Recording)
<b>Microphone</b>	Electret condenser microphone (monaural)
<b>Maximum output</b>	300 mW (EIAJ 16 ohms/DC) 10 mW+10 mW (EIAJ/6 ohms)
<b>Input jack</b>	EXT MIC jack (monaural mini-jack) (1)
<b>Output jack</b>	PHONES jack (stereo mini-jack) (1)
<b>Other jack</b>	DC 3 V jack
<b>Speaker</b>	Diameter 50 mm, 4 ohms (monaural)
<b>Recording system</b>	AC bias
<b>Erasing system</b>	Magnet erasure
<b>Power sources</b>	DC 3 V using two R6 (size AA) dry cell batteries AC house current using the AC adaptor Aiwa AC-D302

### Battery life

Battery	EIAJ Recording	EIAJ 10 mW
Manganese (R6P) Batteries	Approx. 5 hrs	Approx. 3.5 hrs
Alkaline (LR) batteries	Approx. 18.5 hrs	Approx. 13.5hrs

<b>Dimensions</b>	113.5 (W) x 90 (H) x 38.4 (D) mm (4 <sup>1</sup> / <sub>2</sub> x 3 <sup>5</sup> / <sub>8</sub> x 1 <sup>9</sup> / <sub>16</sub> in.)
<b>Weight</b>	Approx. 171 g, 5.9 oz (excluding batteries)

- Design and specifications are subject to change without notice.

## ACCESSORIES LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
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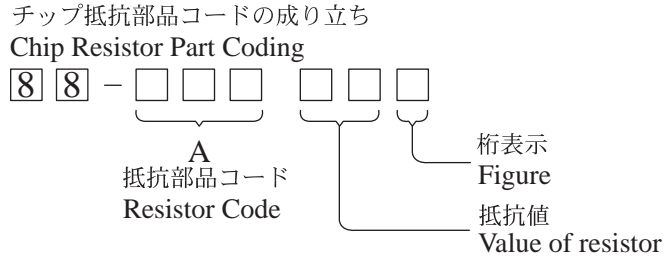
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-HT4-905-010	IB, YH(ECK)C	
2	87-B30-240-010	HEADPHONE, HP-M035	
3	87-PD3-050-010	STRAP, HAND	

# ELECTRICAL MAIN PARTS LIST

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C183	87-016-462-080		C-CAP,S 1-16 F
				C201	87-016-462-080		C-CAP,S 1-16 F
	87-A20-399-010	IC,LA4168M		C401	87-A10-264-080		C-CAP,S 0.1-16ZF
	87-A20-461-040	IC,MM1336DF		C402	87-A10-264-080		C-CAP,S 0.1-16ZF
				C403	87-016-491-080		C-CAP,S 0.22-16 FZ
TRANSISTOR				C503	87-015-676-010		CAP,E 47-6.3 7L
	89-333-266-080	CHIP TR,2SC3326B		C506	87-015-678-080		CAP,E 22-10
	89-327-125-080	CHIP TR,2SC2712GR		C508	87-015-676-010		CAP,E 47-6.3 7L
	87-A30-288-040	C-TR,DTC114YKA		C511	87-010-067-080		CAP,E 0.1-50
	89-341-165-080	CHIP TRANSISTOR 2SC4116GR		C512	87-016-462-080		C-CAP,S 1-16 F
	89-342-132-080	TR,2SC4213		C517	87-A10-264-080		C-CAP,S 0.1-16ZF
	87-A30-144-080	C-TR,2SC4081		C518	87-016-491-080		C-CAP,S 0.22-16 FZ
	89-508-804-080	CHIP FET 2SK880Y		C519	87-016-491-080		C-CAP,S 0.22-16 FZ
	89-332-654-080	C-TR,2SC3265Y		C520	87-015-678-080		CAP,E 22-10
				C522	87-016-462-080		C-CAP,S 1-16 F
DIODE				C534	87-010-184-080		CHIP CAPACITOR 3300P(K)
	87-A40-529-010	DIODE,1GWJ42		C535	87-015-676-010		CAP,E 47-6.3 7L
	87-020-027-080	CHIP-DIODE 1SS184		J101	84-TM1-630-010		JACK,3.5 HSY1493-05
	87-020-339-080	CHIP DIODE,1SS226		J102	87-A60-849-010		JACK,DC DIA 2.75 BLK
	88-HC6-612-080	C-DIODE,RB411D		J103	87-A61-032-010		JACK,3.5 BLK ST W/SW HSY1494
MAIN C.B				SW101	87-A90-520-010		SW,SL 2-4-2SHORTING
	C101	87-015-676-010	CAP,E 47-6.3 7L	VR202	87-A90-527-010		SFR,5K H VZ066L3
	C102	87-016-462-080	C-CAP,S 1-16 F	SW151	87-031-816-010		SLIDE SWITCH
	C103	87-016-462-080	C-CAP,S 1-16 F	SW181	87-031-816-010		SLIDE SWITCH
	C104	87-010-186-080	CAP,CHIP 4700P	T501	87-007-189-010		AC BIAS COIL,5TAN-0179UH
	C105	87-010-184-080	CHIP CAPACITOR 3300P(K)	TH201	87-A90-855-080		C-THMS,SC20-3K102K
	C107	87-015-677-010	ELECTROLYTIC CAPACITOR, 100U 6	TH202	87-A90-307-080		C-THMS,K39G220
	C108	87-015-677-010	ELECTROLYTIC CAPACITOR, 100U 6	VR101	87-A90-314-010		VR,RTRY 10K H
	C109	87-015-774-010	CAP,E 22-6.3	VR201	87-A90-308-010		VR,RTRY 3KB XV81
	C111	87-015-698-010	ELECTROLYTIC SRA 50V-4.7U	LED C.B			
	C113	87-016-462-080	C-CAP,S 1-16 F	D305	87-017-827-070		C-LED,SEC 1201C RED
	C115	87-015-675-010	ELECTROLYTIC CAPACITOR, 6.3V-3				
	C119	87-010-187-080	CAP CHIP S5600P				
	C121	87-016-462-080	C-CAP,S 1-16 F				
	C122	87-016-462-080	C-CAP,S 1-16 F				
	C123	87-016-462-080	C-CAP,S 1-16 F				
	C151	87-016-462-080	C-CAP,S 1-16 F				
	C152	87-A10-264-080	C-CAP,S 0.1-16ZF				
	C153	87-016-088-040	CAP, 220-6.3V				
	C181	87-015-695-010	CAP,E 1-50 7L				
	C182	87-015-676-010	CAP,E 47-6.3 7L				

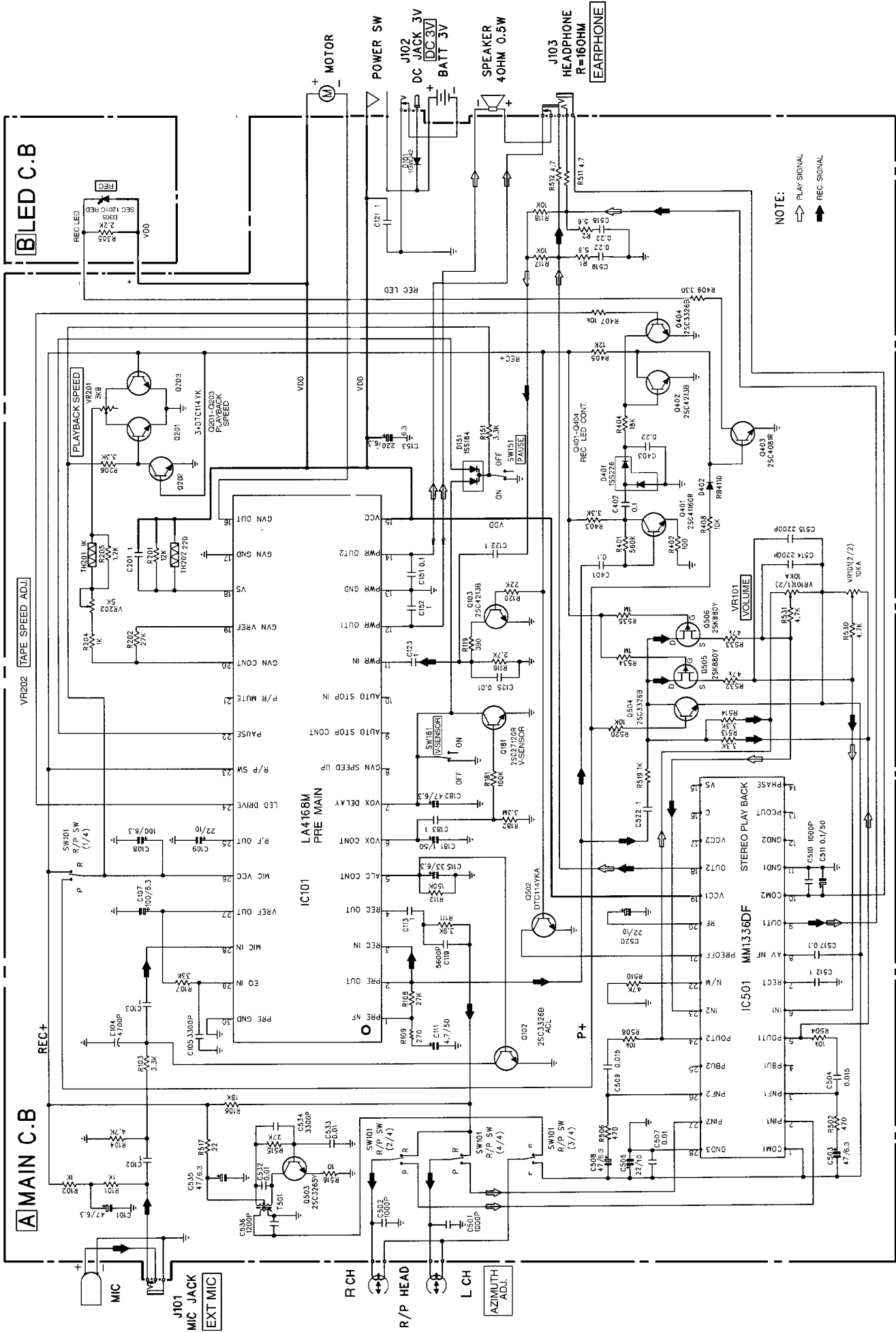
## チップ抵抗部品コード/CHIP RESISTOR PART CODE



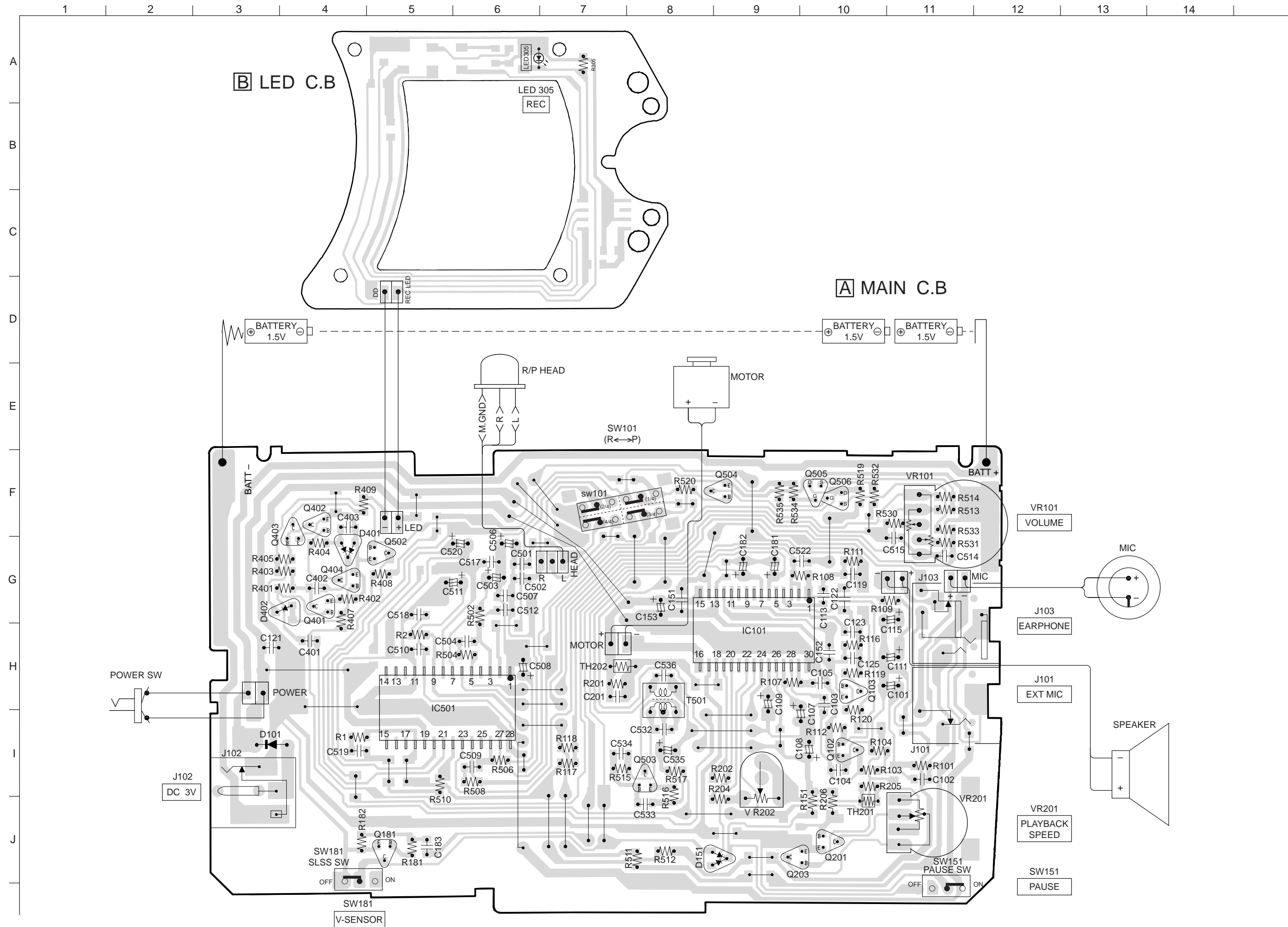
## チップ抵抗 Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法/Dimensions (mm)			抵抗コード : A Resistor Code : A	
				外形/Form	L	W		t
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

# SCHEMATIC DIAGRAM

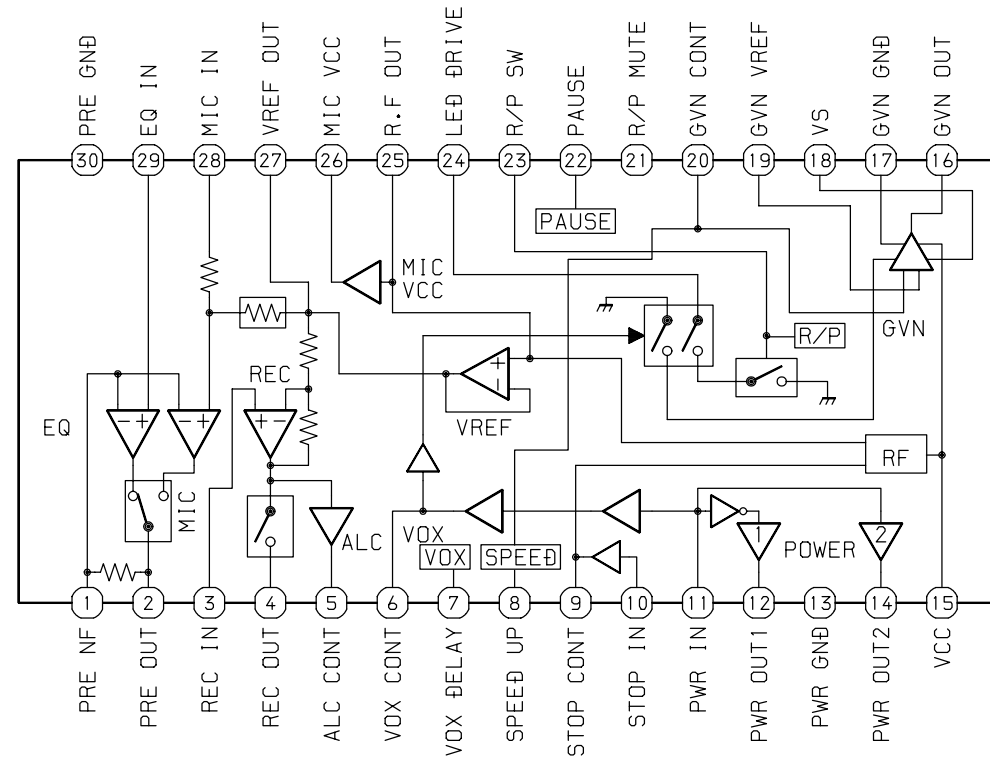


WIRING-1 (MAIN C.B)



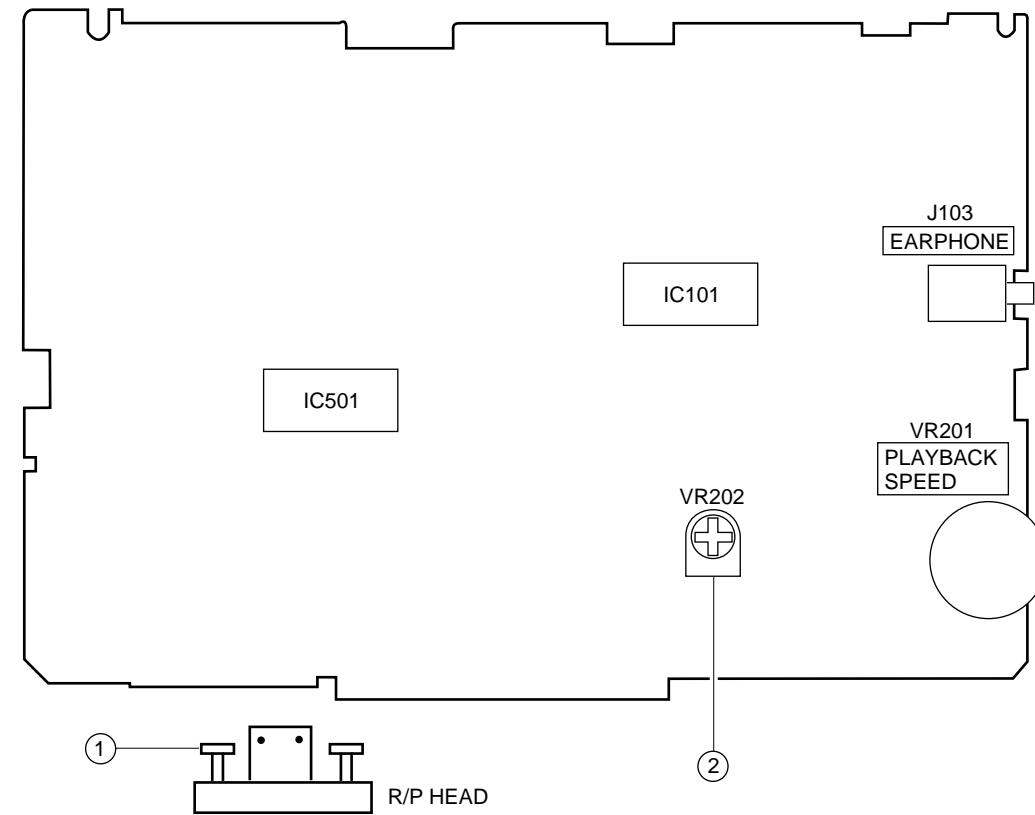
## IC BLOCK DIAGRAM

IC, LA4168M

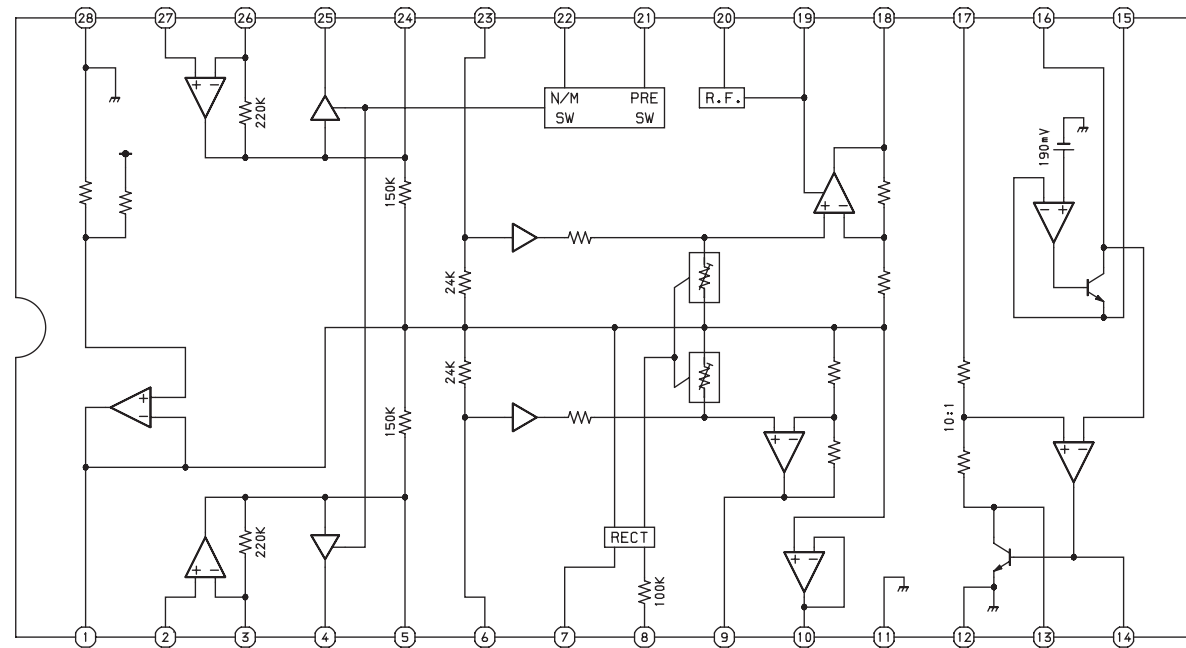


## ELECTRICAL ADJUSTMENT

A MAIN C.B



IC, MM1336DF



### 1. Azimuth Adjustment

- Settings:
- Test tape: TTA-330
  - Test point: EARPHONE JACK (J103)
  - Adjustment location: Azimuth adjustment screw
  - PAUSE: OFF
  - VOLUME: Maximum.

Method: Play back the test tape, and adjust so that the output (8 kHz) becomes maximum.

### 2. Tape Speed Adjustment

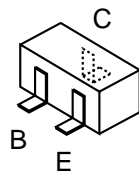
- Settings:
- Test tape: TTA-100 (TAPE CENTER)
  - Test point: EARPHONE JACK (J103)
  - Adjustment location: VR202
  - PAUSE: OFF
  - VOLUME: Maximum
  - PLAYBACK SPEED: Normal  
(Speed volume center)

Method: Play back the test tape, and adjust for 3000 Hz  $\pm 10$ Hz

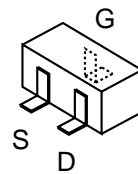
## PRACTICAL SERVICE FIGURE

Tape speed:	3000 Hz $\pm$ 60 Hz
Wow & flutter:	Less than 0.55%
Take-up torque:	20 ~ 50 g-cm (FWD)
F.F torque:	More than 55 g-cm
REW torque:	More than 55 g-cm
S/N ratio:	More than 56 dB (DC, PB) More than 26 dB (DC, R/PB)
Distortion:	Less than 3.0% (DC, PB) Less than 7.0% (DC, R/PB)
Noise level:	Less than 2.0 mV (PB, Vol Max., DC) Less than 16 mV (R/PB, Vol Max., DC) Less than 0.3 mV (PB, Vol Min, DC)
Erasing ratio:	More than 44 dB (1kHz)
Test tape	TTA-100 TTA-330

## TRANSISTOR ILLUSTRATION

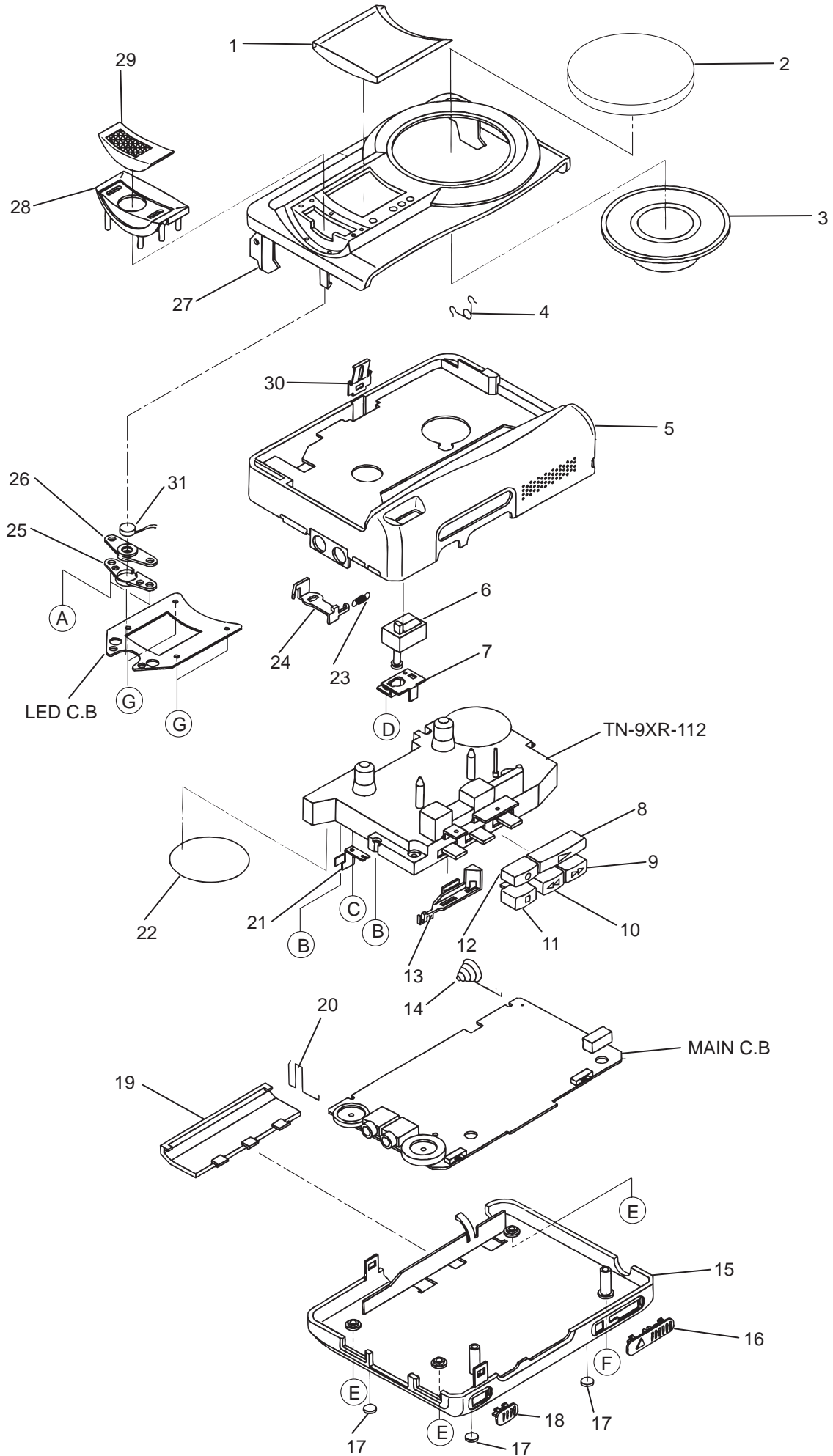


2SC2712  
2SC3265  
2SC3326  
2SC4081  
2SC4116  
2SC4213  
DTC114YKA



2SK880

# MECHANICAL EXPLODED VIEW



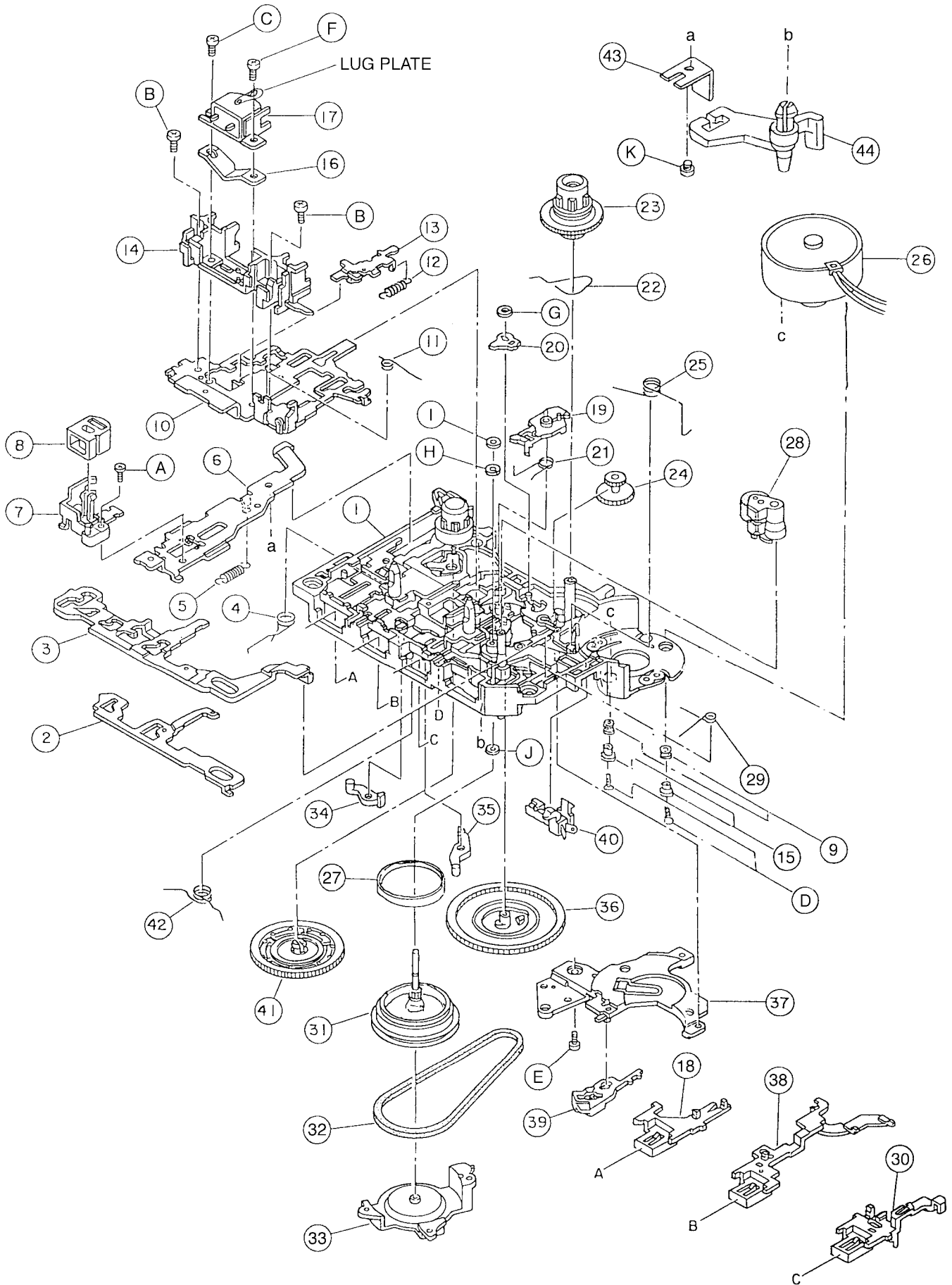


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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-HT4-003-010		WINDOW, CASS	21	87-HT8-204-010		LEVER, REC ACTUATOR
2	8Z-HT7-010-010		GRILLE, SPEAKER	22	87-HT8-210-010		BELT, COUNTER
3	87-A91-158-110		SPKR, DIA 50 4OHM 1.0W K050NA50	23	87-HT8-209-010		SPR-E, REC SAFETY
4	87-HT8-208-010		SPR-T, LID CASS	24	87-HT8-205-010		LEVER, REC SAFETY
5	8Z-HT4-004-010		FRAME, CENTER YH	25	8Z-HT7-204-010		COVER, MIC
6	87-040-196-010		COUNTER	26	8Z-HT7-201-010		HLDR, MIC
7	87-HT8-202-010		HLDR, COUNTER	27	8Z-HT4-001-010		LID, CASS YH
8	8Z-HT6-010-010		BTN, PLAY	28	8Z-HT7-005-010		PANEL, MIC
9	8Z-HT6-012-010		BTN, FF	29	8Z-HT7-004-010		GRILLE, MIC
10	8Z-HT6-013-010		BTN, REW	30	87-HT8-203-010		SPR-P, CASS
11	8Z-HT6-014-010		BTN, STOP	31	82-TP3-609-010		ECM
12	8Z-HT6-011-010		BTN, REC	A	87-B10-234-010		QT2+1.4-3 BLK
13	8Z-HT7-203-010		LEVER, PAUSE	B	87-067-271-010		SCREW VFT2+1.7-4
14	8Z-HT7-206-010		BAT-CONTACT, (-)	C	87-264-521-310		V+1.7-1.6 CR
15	8Z-HT9-003-010		CABI, REAR	D	87-354-529-310		VT2+1.7-4
16	8Z-HT7-009-010		KNOB, SL SLSS	E	87-067-769-010		VT2+1.7-8(3) BLK
17	8Z-HT7-012-010		FOOT, RUBBER	F	87-HT8-211-010		VT2+2-18 S-SCREW BLK
18	8Z-HT7-008-010		KNOB, SL PAUSE	G	87-268-527-310		W HEAD SCREW D1.7-3
19	8Z-HT7-007-010		LID, BATT				
20	8Z-HT7-205-010		BAT-CONTACT, (+)				

# TAPE MECHANISM EXPLODED VIEW 1/1



# TAPE MECHANISM PARTS LIST 1/1

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S1-909-013-040		CHASSIS ASSY	31	S1-909-053-040		FLYWHEEL ASSY
2	S1-909-020-190		FR PLATE	32	S1-909-080-100		MAIN BELT
3	S1-909-020-090		LOCK PLATE	33	S1-909-050-100		FL BRACKET
4	S1-909-020-140		STOP SPRING	34	S1-909-020-150		R/C LEVER(R)
5	S1-909-120-030		REC LEVER SPRING	35	S1-909-020-160		R/C LEVER(F)
6	S1-909-120-070		REC LEVER	36	S1-909-060-120		CAM GEAR
7	S1-909-120-020		MG GUIDE	37	S1-909-020-170		R/C BRACKET
8	S6-207-100-020		HEAD E TC-230AN(SL)	38	S1-909-020-110		RWD LEVER
9	S1-852-140-020		M LUBBER	39	S1-909-020-180		FF STOPPER
10	S1-909-030-050		HEAD PANEL	40	S6-401-011-630		LEAF SW MSW-1541TA
11	S1-909-040-020		P/R SPRING	41	S1-909-077-010		RWD GEAR
12	S1-909-030-080		R/C SPRING	42	S1-909-020-130		FR SPRING
13	S1-909-030-070		R/C PLATE	43	S1-909-120-090		REC SPRING PLATE
14	S1-909-030-060		TAPE GUIDE	44	S1-909-120-100		REC SW LEVER
15	S1-852-140-030		M COLLOR	A	S9-C01-174-030		CAMERA 1.7-4
16	S1-944-030-020		HEAD SPRING PLATE	B	S9-C01-173-530		CAMERA 1.7-3.5
17	S6-202-030-410		RP HEAD MS15R-BA2N1	C	S9-P14-203-310		+/- SCREW M2-3.3
18	S1-909-020-100		STOP LEVER	D	S9-C18-300-100		CAMERA 1.7-3
19	S1-909-110-040		AUTO LEVER	E	S9-P08-173-410		PST 1.7-3.4
20	S1-909-110-020		A PUSH ARM	F	S9-P14-206-320		+/- SCREW M2-3.6
21	S1-909-110-050		M CONTROL SPRING	G	S9-W02-300-100		P WASHER CUT 1.2-3.8-0.3
22	S1-909-060-150		SENSOR SPRING C	H	S9-W08-350-200		LUMILER WASHER CUT 0.98-3-0.3
23	S1-909-063-030		T REEL ASSY	I	S9-W05-200-600		HL WASHER 1.16-3-0.2
24	S1-909-060-130		TAKE UP GEAR	J	S9-W05-200-100		HL WASHER 1.55-3-0.13
25	S1-909-030-090		HP SPRING	K	S9-C16-171-410		CAMERA 1.7-1.4
26	S1-909-083-050		MOTOR ASSY				
27	S1-909-050-130		BRAKE BELT				
28	S1-909-043-020		PINCH ROLLER ASSY				
29	S1-909-020-200		FR PLATE SPRING				
30	S1-909-020-120		FF LEVER				



サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

**アイワ株式会社** 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)  
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