

# SERVICE MANUAL

MICRO CASSETTE RECORDER

BASIC TAPE MECHANISM : M-188

- This Service Manual is the “Revision Publishing” and replaces “Simple Manual” of TP-M440(AU,AEZ), (S/M Code No. 09-014-441-6T1).

## SPECIFICATIONS

<b>Track system</b>	Micro cassette, 2 tracks 1 channel, monaural
<b>Usable tapes</b>	<del>(MICRO CASSETTE)</del> <sup>TM</sup> (Normal position type)
<b>Frequency response</b>	250 - 5,000 Hz (2.4 cm/sec) EIAJ
<b>Tape speed</b>	2.4 cm/sec or 1.2 cm/sec switchable
<b>Microphone</b>	Electret condenser microphone (monaural)
<b>Maximum output</b>	170 mW (EIAJ/DC)
<b>Output jack</b>	EARPHONE jack (monaural mini-jack) (1)
<b>Input jack</b>	EXT MIC jack (monaural mini-jack)
<b>Other jack</b>	DC 3 V jack
<b>Speaker</b>	Diameter 36 mm, 4 ohms
<b>Recording system</b>	DC bias
<b>Erasing system</b>	Magnet erasure
<b>Power sources</b>	DC 3 V using two size AA (R6) batteries DC 2.4 V using two supplied rechargeable batteries AC house current using an optional AC adaptor Aiwa AC-D302
<b>Maximum outside dimensions (W x H x D)</b>	63.8 x 122 x 25.7 mm (2 <sup>5</sup> / <sub>8</sub> x 4 <sup>7</sup> / <sub>8</sub> x 1 <sup>1</sup> / <sub>8</sub> in.)
<b>Weight</b>	Approx. 116 g (excluding batteries)
<b>Battery charger</b>	RB-N03
<b>Rated voltage</b>	AU: AC 120 V 60Hz AEZ: AC 230 V 50Hz

- Design and specifications are subject to change without notice.

## ACCESSORIES / PACKAGE LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8B-HX4-901-010	IB, U (3L) C<AU>	
1	8B-HX4-905-010	IB, EZ (EGF) C<AEZ>	
2	87-B30-453-010	BATTERY CHARGER RB-N03UNC<AU>	
2	87-B30-454-010	BATTERY CHARGER RB-N03ENC<AEZ>	

# ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C21	87-A10-025-080		C-CAP,U 0.22-16Z F
	85-TM5-604-010		IC,LA4165M	C22	87-A11-791-080		C-CAP,TN 10-4 M F93 A
	87-017-643-080		IC,MM1206XF<AEZ>	C23	87-010-494-010		CAP, E 1-50
				C24	87-010-757-080		C-CAP,U 0.047-25F
				C25	87-A11-056-080		C-CAP,U 1-10 Z F
TRANSISTOR				C27	87-012-282-080		CAP, U 4700P-50
	87-026-213-080		C-TR,DTC114YK	J1	85-TM5-605-010		JACK,3.5 MONO W/SW
	87-026-230-080		C-TR,DTA114YK	J2	87-A60-849-010		JACK,DC DIA2.75 BLK TC
	89-327-125-080		CHIP TR,2SC2712GR	J3	85-TM5-605-010		JACK,3.5 MONO W/SW
				LD1	8Z-HX5-601-010		LED, KM2520A01SRC001 RED
DIODE				MIC1	87-A91-891-010		MIC,ECM OBO-54LN-0B
	87-001-167-080		DIODE,1SS302	R75	85-TM5-611-010		RES,220-1/8W J 3900P
	87-A40-822-040		C-DIODE,CRS01	R76	85-TM5-612-010		RES,33K-1/8W J 800P
				S1	8Z-HX5-602-010		SW,PUSH PS42D07
				S2	87-031-816-010		SW,SLIDE 1P2T
				S3	87-031-816-010		SW,SLIDE 1P2T
MAIN C.B				S4	S2-210-211-000		SW,SLIDE 2P2T
C1	87-010-788-080		C-CAP,U 0.033-2.5F	S5	85-TM5-608-010		SW,LEAF LSA-1114P
C2	87-012-282-080		CAP, U 4700P-50	S6	87-A90-453-080		C-SW, SL1-1-3
C3	87-012-281-080		C-CAP,U 3900P-50 B	S7	87-031-816-010		SW,SLIDE 1P2T
C4	87-010-082-010		CAPACITOR, 220MF 4V/87-0	S8	S0-011-140-030		SW,LEAF LSA-111
C5	87-010-072-010		CAP 2.2-50V	SFR1	85-TM5-615-010		SFR,5K V FBR-062
				SFR2	87-A91-282-080		C-SFR,2.0K H RVG3S08
C6	87-012-280-080		CAP, U 3300P-50	SP1	87-A91-612-110		SPKR,DIA36 4OHM 0.4W
C7	87-010-787-080		CAP, U 0.022-25	VR1	87-A91-828-010		VR,RTRY 10KA V VX010702GYPA1N1
C8	87-012-282-080		CAP, U 4700P-50				
C9	87-010-504-080		CAP, CHIP TANTALUM 0.47-25				
C10	87-010-075-010		CAP, 10U-16V H5	LED C.B<AEZ>			
				LED1	87-A40-842-040		C-LED,SML-310MT GREEN
C11	87-010-490-010		CAP,E 0.1-50 GAS	LED2	87-A41-020-080		C-LED,SML-310DT ORG
C12	87-A10-952-080		C-CAP,TN 22-4 M A MCM	LED3	87-A40-841-040		C-LED,SML-310VT RED
C13	87-010-082-010		CAPACITOR, 220MF 4V/87-0				
C14	87-010-082-010		CAPACITOR, 220MF 4V/87-0				
C15	87-010-082-010		CAPACITOR, 220MF 4V/87-0	MIC C.B			
C16	87-012-274-080		CHIP CAP,U 1000P-50B	S9	S1-220-111-020		SW SLIDE 1P2T
C17	87-010-505-080		CAP, CHIP TANTALUM 1-16				
C18	87-010-504-080		CAP, CHIP TANTALUM 0.47-25				
C19	87-A11-056-080		C-CAP,U 1-10 Z F				
C20	87-A10-025-080		C-CAP,U 0.22-16Z F				

## チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

### Chip Resistor Part Coding



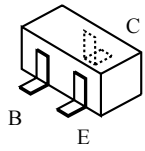
A  
抵抗部品コード  
Resistor Code

桁表示  
Figure  
抵抗値  
Value of resistor

## 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

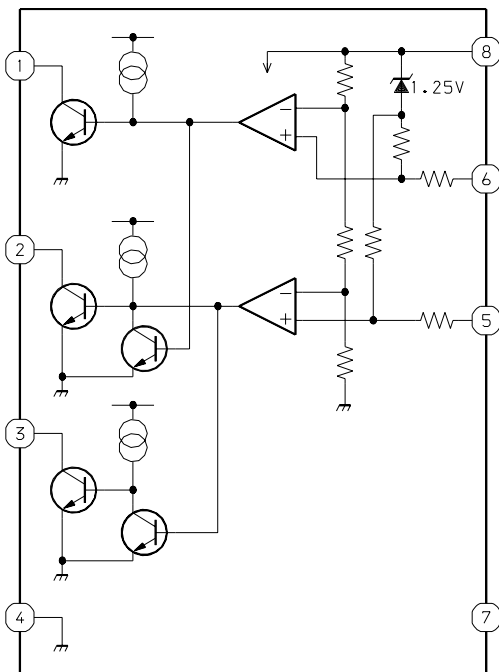
# TRANSISTOR ILLUSTRATION



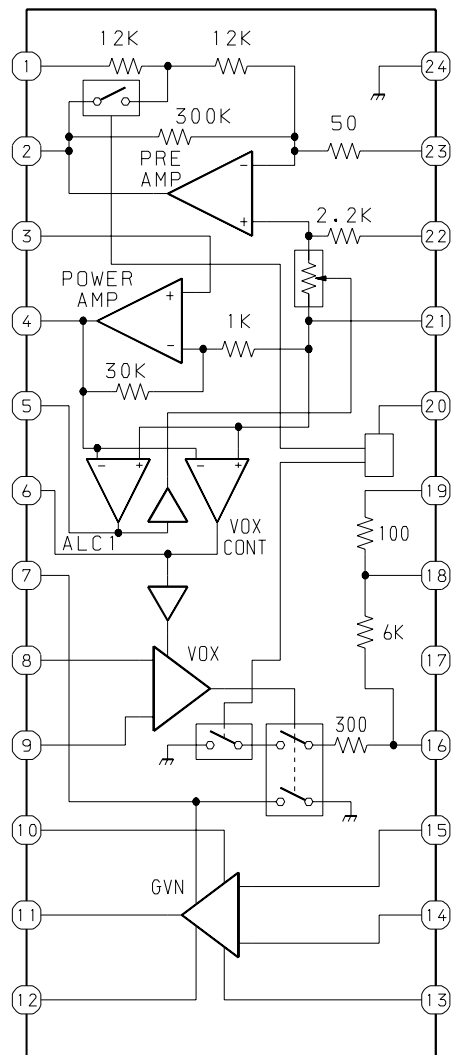
DTA114YK  
DTC114YK  
2SC2712GR

# IC BLOCK DIAGRAM

IC, MM1206XF



IC, LA4165M

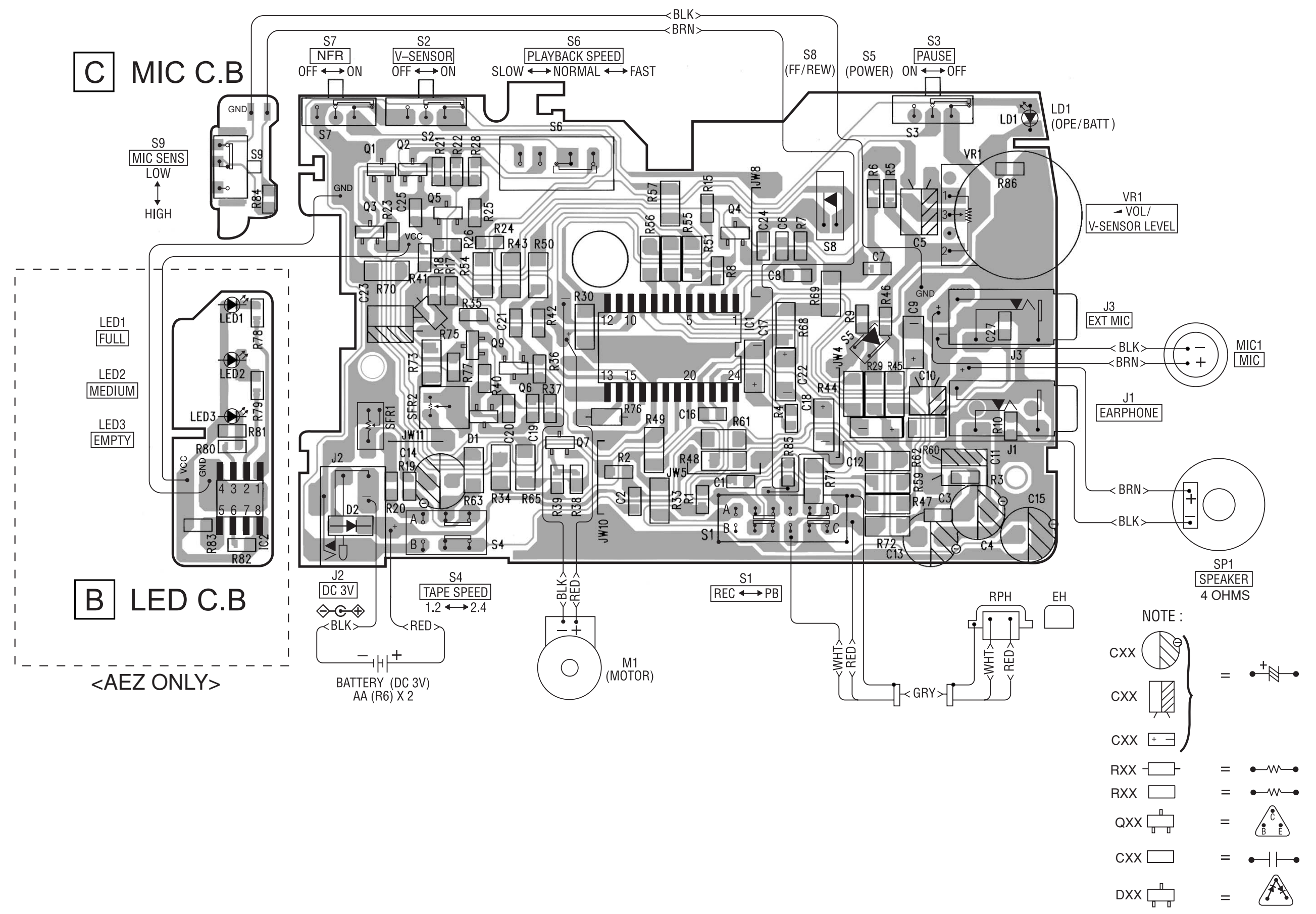


**A MAIN C.B**

**C MIC C.B**

**B LED C.B**

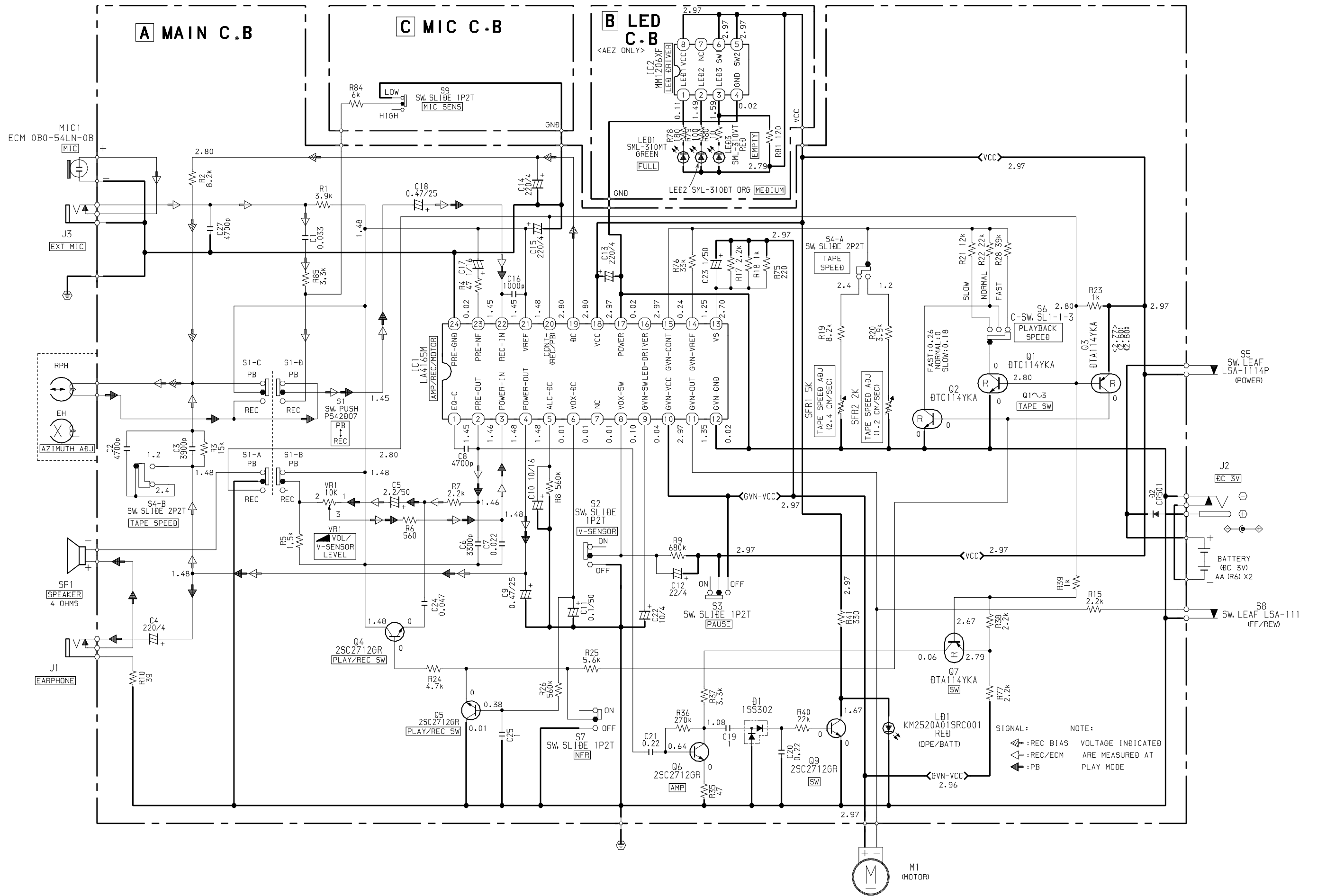
<AEZ ONLY>



- NOTE :
- CXX =
  - CXX =
  - CXX =
  - RXX =
  - RXX =
  - QXX =
  - CXX =
  - DXX =

A  
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SCHEMATIC DIAGRAM (MAIN/LED/MIC)



SIGNAL:   
 ▲ : REC BIAS   
 ▼ : REC/ECM   
 ▲ : PB

NOTE:   
 VOLTAGE INDICATED   
 ARE MEASURED AT   
 PLAY MODE

## ADJUSTMENT

### 1. Head Azimuth Adjustment

Settings : • Test tape : TTS-930

- Test point : Phone Jack (J1)
- Tape speed : 2.4cm/sec
- Adjustment location : Head azimuth adjustment screw

Method : Play back the 5kHz signal of the test tape (TTS-930) and adjust screw so that the output becomes maximum.

### 2. Tape Speed Adjustment (2.4cm/sec)

Settings : • Test tape : TTS-900

- Test point : Phone Jack (J1)
- Tape speed : Normal (2.4cm/sec)
- Volume : MAX
- Adjustment location : SFR1

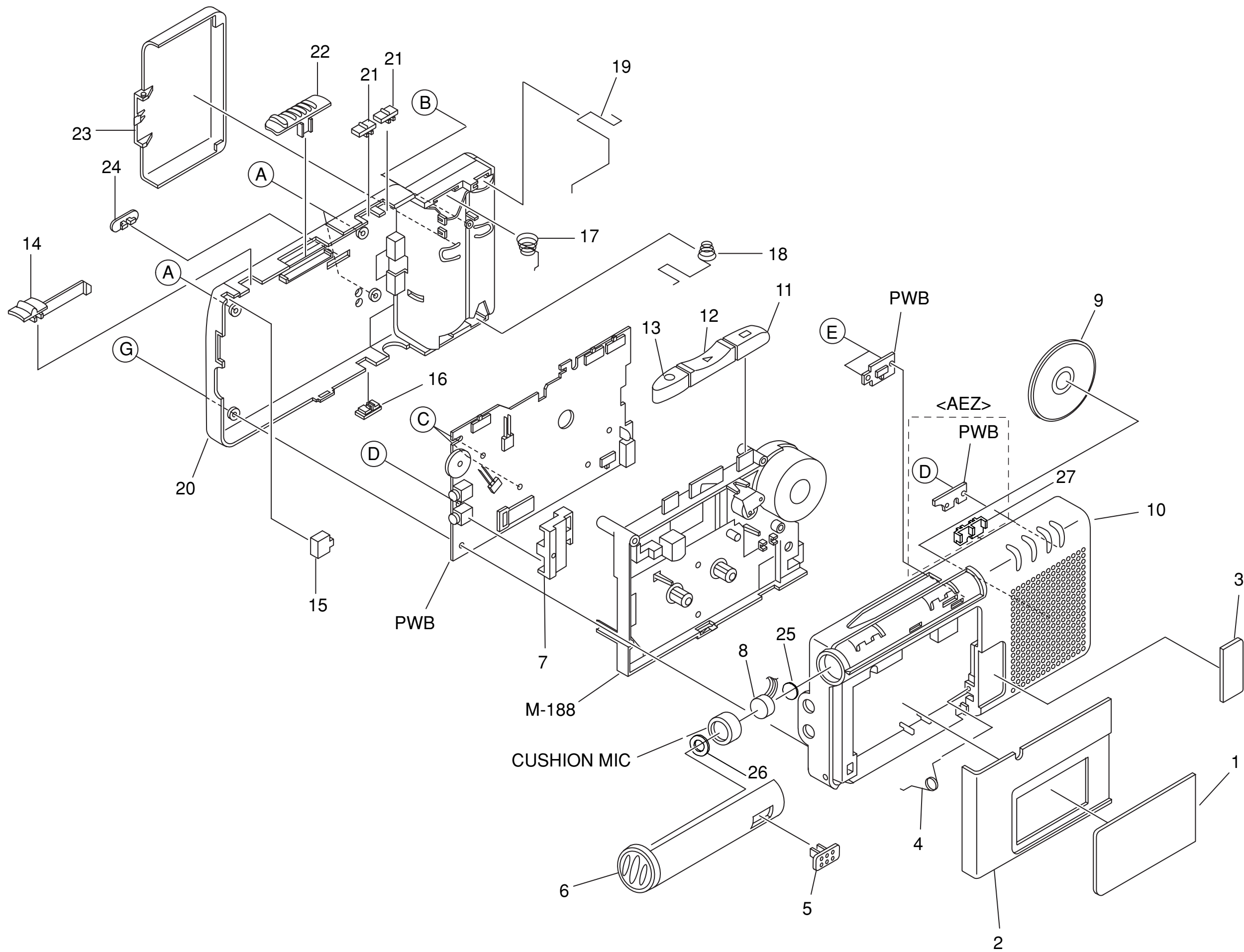
Method : Play back the test tape (TTS-900) and adjust SFR1 so that the tape speed becomes  $3000\text{Hz} \pm 10\text{Hz}$ .

### 3. Tape Speed Adjustment (1.2cm/sec)

Settings : • Test tape : TTS-910

- Test point : Phone Jack (J1)
- Tape speed : 1.2cm/sec
- Volume : MAX
- Adjustment location : SFR2

Method : Play back the test tape (TTS-910) and adjust SFR2 so that the tape speed becomes  $3000\text{Hz} \pm 90\text{Hz}$ .





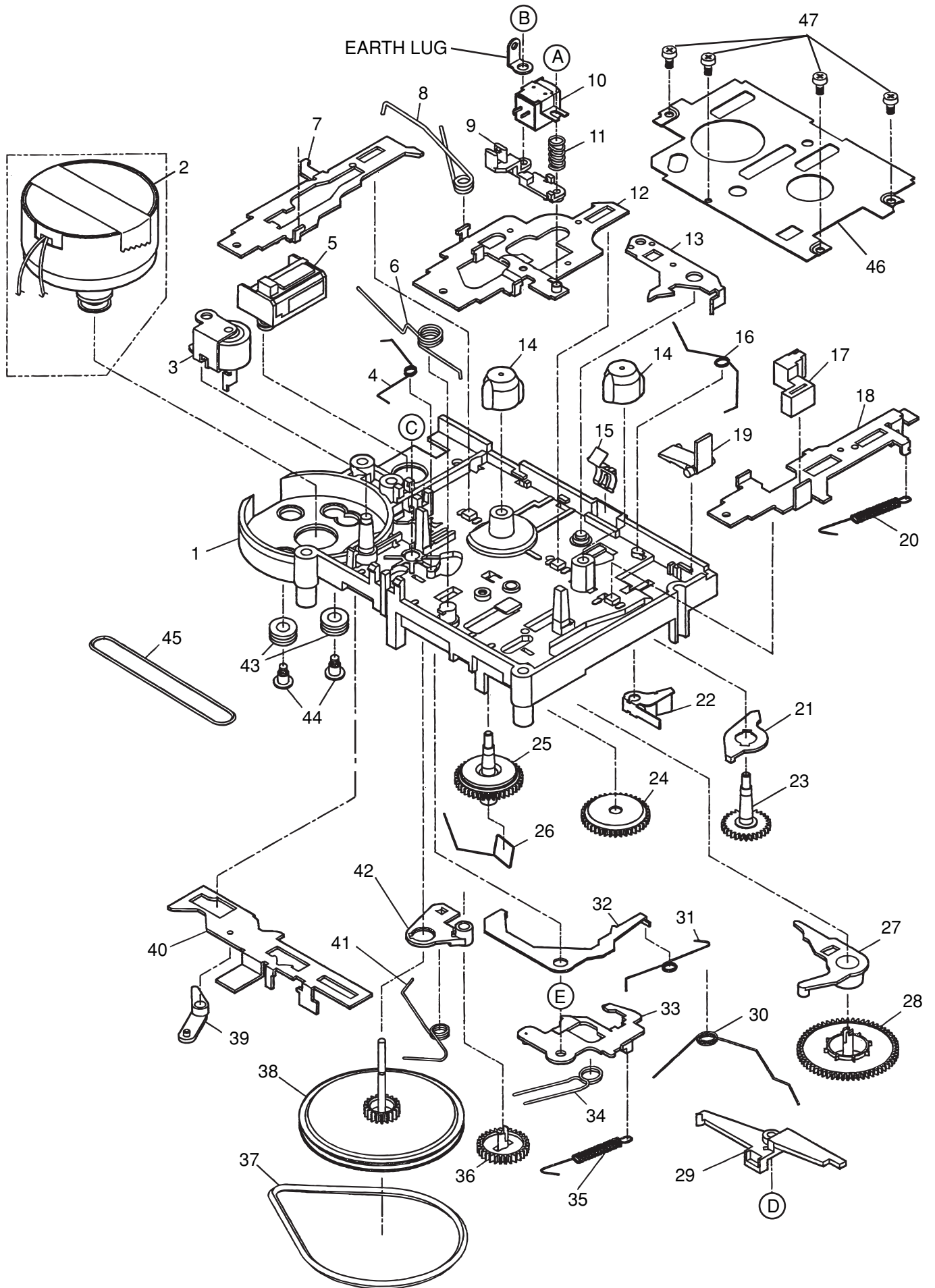
# MECHANICAL PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8B-HX4-004-010		WINDOW, CASSETTE
2	8B-HX6-002-010		LID, CASSETTE M340
3	8B-HX4-005-010		LENS, COUNTER
4	8Z-HX5-201-010		SPR, CASS
5	8B-HX4-007-010		KNOB, SL MIC
6	8B-HX6-004-010		COVER, MIC
7	8Z-HX5-200-010		HLLDR, JACK
8	87-A91-891-010		MIC, ECM OBO-54LN-0B
9	87-A91-612-110		SPKR, DIA36 4OHM 0.4W
10	8B-HX6-001-010		CABI, FRONT
11	8Z-HX5-014-010		BTN, CASS STOP
12	8Z-HX5-013-010		BTN, CASS PLAY
13	8Z-HX5-012-010		BTN, CASS REC
14	8Z-HX5-016-010		KNOB, SL PAUSE
15	8Z-HX5-020-010		LENS, LED
16	8Z-HX5-017-010		KNOB, SL 1.2/2.4
17	85-TM5-205-010		SPR, BAT (-)
18	85-TM5-203-010		SPR, BAT (+/-)
19	85-TM5-204-010		SPR, BAT (+)
20	8Z-HX5-003-110		CABI, REAR
21	8Z-HX5-019-010		KNOB, SL V-SENSOR
22	8Z-HX5-015-010		KNOB, SL FF/REW
23	8Z-HX5-006-010		LID, BATT
24	8Z-HX5-018-010		KNOB, SL SLOW/FAST
25	SB-HX4-230-000		HOLDER MIC 11-1 (RUBBER)
26	SB-HX4-220-000		HOLDER MIC 11-5-1 (RUBBER)
27	8B-HX4-006-010		LENS, BATT<AEZ>
A	8Z-HX5-206-010		UT2+2-20 CR S
B	8Z-HX5-204-010		VT2+2-6 CR S
C	8Z-HX5-205-010		VT2+1.7-6 CR S
D	8Z-HX5-204-010		VT2+2-6 CR S
E	87-B10-048-010		VT2+1.4-3
F	87-B10-196-010		VT2+1.4-4<AEZ>
G	8Z-HX5-208-010		UT2+2-20

## COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange	GM	Metallic Green
YM	Metallic Yellow	DM	Metallic Orange	PT	Transparent Pink
LA	Aqua Blue	GL	Light Green	HT	Transparent Gray

TAPE MECHANISM EXPLODED VIEW 1 / 1



# TAPE MECHANISM PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S1-800-01K-000		CHASSIS ASSY
2	SR-F30-0C1-427		MOTOR ASSY
3	S1-800-13K-000		PINCH ARM ASSY
4	S1-800-100-000		EARTH SP
5	SM-MP3-900-490		COUNTER
6	S1-800-080-000		HEAD BASE SP
7	S1-800-060-000		STOP LAVER
8	S1-800-120-000		PINCH ARM SP
9	S1-800-150-000		AZ SPACER
10	ST-MC2-13E-000		R/P-HEAD
11	S1-800-160-000		AZIMUTH SP
12	S8-000-700-000		HEAD BASE
13	S1-800-040-000		LOCK PLATE
14	S1-800-290-000		REEL CAP
15	S1-800-730-000		CST HOLDER SP
16	S1-800-050-000		LOCK PLATE SP
17	SE-695-100-000		E HEAD
18	S1-800-090-000		REC LEVER
19	S1-800-030-000		REC LOCK LEVER
20	S1-800-760-200		REC LEVER SP
21	S1-800-450-000		RESET ARM
22	S1-800-720-000		REC SW LEVER
23	S1-800-280-000		REEL (S) GEAR
24	S1-800-410-000		SHUT OFF GEAR
25	S1-800-30K-000		REEL (T) ASSY
26	S1-800-510-000		SHUT OFF SP
27	S1-800-780-000		REW ARM
28	S1-800-270-000		REW GEAR
29	S1-800-390-000		SHUT OFF ARM
30	S1-800-800-000		THRUST SP
31	S1-800-440-000		REC LOCK SP
32	S1-800-430-000		REC LOCK PLATE
33	S1-800-170-000		SW ARM
34	S1-800-220-000		FR LEVER SP
35	S1-800-180-000		SW ARM SP
36	S1-800-260-000		CENTER GEAR
37	SV-400-000-000		MAIN BELT
38	S1-800-35K-000		FW CP ASSY
39	S1-800-740-000		RESET ARM(A)
40	S1-800-210-000		FR LEVER
41	S1-800-250-000		CENTER ARM SP
42	S1-800-240-000		CENTER ARM
43	S3-741-150-000		RUBBER CUSHION
44	SM-100-075-000		MOTOR SCREW
45	SV-410-000-000		COUNTER BELT
46	S1-800-770-100		MECHA COVER
47	S1-800-790-000		HEADER SCREW
A	S3-PB1-4X6-500		SCREW, 1.4-6.5
B	S3-PB1-4X2-500		SCREW, 1.4-2.5
C	S1-0X2-4X0-5LC		L-CUT-W-W
D	S1-2X3-0X0-188		L-CUT-W-Y
E	S2-1X4-X02-LWR		L,W(RED)

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