

SERVICE MANUAL

STEREO RADIO CASSETTE PLAYER

BASIC TAPE MECHANISM : 8ZM-3 P2N

aiwa

S/M Code No. 09-994-405-5R1

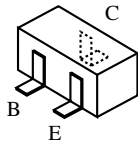
REVISION

SPECIFICATIONS

Frequency range	AM: 530 – 1,710 kHz<YU> AM: 530 – 1,605 kHz<YH,YJ,YZ> FM: 87.5 – 108 MHz
Maximum output	12 mW + 12 mW (EIAJ/32Ω)<YU,YH,YJ> 4 mW + 4 mW (EIAJ/32Ω)<YZ>
Power source	DC 3V using two size AA (R6) batteries AC house current using the optional AC adaptor AIWA AC – D302
Maximum dimensions	112 (W) x 88 (H) x 32.5 (D) mm (4 ¹ / ₂ x 3 ¹ / ₂ x 1 ⁵ / ₁₆ in.)
Weight	Approx.135g (4.7 oz) (excluding batteries)

- Design and specifications are subject to change without notice.

TRANSISTOR ILLUSTRATION



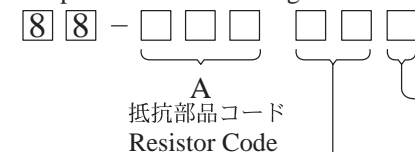
2SC2712
RN1411

ELECTRICAL MAIN PARTS LIST

REF.NO.	PARTNO.	KANRI NO.	DESCRIPTION	REF.NO.	PARTNO.	KANRI NO.	DESCRIPTION
IC				C301	87-010-197-080		CAP, CHIP 0.01 DM
	87-A20-461-040		IC,MM1336DF	C302	87-010-197-080		CAP, CHIP 0.01 DM
	87-A20-851-040		C-IC,TA2111F	C303	87-016-491-080		C-CAP,S 0.22-16 FZ
	87-017-643-080		IC,MM1206XF	C304	87-016-491-080		C-CAP,S 0.22-16 FZ
				C305	87-016-462-080		C-CAP,S 1-16 F
				C306	87-016-462-080		C-CAP,S 1-16 F
				C307	87-010-195-080		C-CAP,S 0.068-25 F
TRANSISTOR				C308	87-010-195-080		C-CAP,S 0.068-25 F
	87-026-264-080		C-TR,RN1411	C309	87-010-198-080		CAP, CHIP 0.022
	89-327-125-080		CHIP TR,2SC2712GR	C310	87-010-198-080		CAP, CHIP 0.022
				C311	87-010-188-080		CAP,CHIP 6800P
				C312	87-010-188-080		CAP,CHIP 6800P
DIODE				C317	87-010-501-040		E/CAP GAS 47-4
	87-A40-630-040		C-DIODE, RB411D	C318	87-016-305-040		CAP,E 470-4 M 5L MA
	87-020-027-080		CHIP-DIODE 1SS184	C319	87-010-198-080		CAP, CHIP 0.022
				C320	87-010-198-080		CAP, CHIP 0.022
MAIN C.B				CD201	87-A91-313-080		C-FLTR,CDACV10.7 MG77-A-TC
BPF201	87-A90-749-010		FLTR,GFMB5	CF201	87-A90-840-010		FLTR,AM IF PFS455A6
C101	87-010-179-080		CAP,CHIP S B1200P	CF202	87-A91-312-010		FLTR,SFE10.7MS 2C10-A
C102	87-010-179-080		CAP,CHIP S B1200P	J101	85-HRL-623-010		JACK,3.5 ST BLK
C105	87-010-501-040		E/CAP GAS 47-4	J102	87-A60-849-010		JACK,DC DIA 2.75 BLK
C106	87-010-501-040		E/CAP GAS 47-4	L101	87-003-231-080		C-COIL 1UH
				L102	87-003-231-080		C-COIL 1UH
C107	87-010-213-080		C-CAP,S 0.015-50 B	L103	87-003-231-080		C-COIL 1UH
C108	87-010-213-080		C-CAP,S 0.015-50 B	L201	8Z-HRG-606-010		BAR-ANT,MW
C109	87-010-178-080		CHIP CAP 1000P	L202	8Z-HRG-602-010		COIL,FM RFEX
C110	87-010-178-080		CHIP CAP 1000P	L203	8Z-HRG-603-010		COIL,FM OSCEX
C111	87-012-141-080		CHIP-CAPACITOR,0.22-16F	L204	8Z-HRG-604-010		COIL,AM OSC<YU>
				L204	8Z-A50-462-080		C-COIL,AM OSC<YH,YJ,YZ>
C112	87-012-141-080		CHIP-CAPACITOR,0.22-16F	L205	87-A90-177-010		IFT,AM IF 5P
C115	87-010-503-040		CAP,E 220-4 M 5L SRE	LED451	87-017-828-070		C-LED,SEL 1401C GRN
C116	87-010-196-080		CHIP CAPACITOR,0.1-25	LED452	87-017-829-070		C-LED,SEC 1901C ORN
C117	87-016-462-080		C-CAP,S 1-16 F	LED453	87-017-827-070		C-LED,SEC 1201C RED
C118	87-010-178-080		C-CAP,S 1000P-50 KB C2012	PVC001	87-A91-194-010		TUN-CAP, 20P-160P HP-22125
				R127	87-016-462-080		C-CAP,S 1-16 ZF
C119	87-010-196-080		CHIP CAPACITOR,0.1-25	S101	8Z-HRB-607-010		SW,SL 2-2-2 SSZZ-S-502(S)
C120	87-010-499-040		CAP,E 22-6.3 GAS	S102	87-A91-077-010		SW,LEAF
C121	87-010-503-040		CAP,E 220-4 GAS	S103	87-A91-286-010		C-SW,SL 1-2-2 SS-350-B22B
C122	87-010-502-080		CAP,E 100-4 M 5L SRE	S104	87-A90-918-010		C-SW,SL 1-1-3 SS-350-B13B
C123	87-010-178-080		C-CAP,S 1000P-50 KB C2012	SFR101	87-024-050-010		SEMI-FIXED RESISTOR, 1K
				TH101	87-026-256-090		THERMISTOR, HT-100
C124	87-010-196-080		CHIP CAPACITOR,0.1-25	VR101	87-A91-193-010		VR,RTRY 20KCK2 1 H RK08H1210
C126	87-010-196-080		CHIP CAPACITOR,0.1-25				
C127	87-010-196-080		CHIP CAPACITOR,0.1-25	W1	87-A80-115-010		F-CABLE, 5P P2
C131	87-010-179-080		CAP,CHIP S B1200P				
C132	87-010-179-080		CAP,CHIP S B1200P				
C133	87-016-462-080		C-CAP,S 1-16 F				
C134	87-016-462-080		C-CAP,S 1-16 F				
C135	87-016-462-080		C-CAP,S 1-16 F				
C136	87-016-462-080		C-CAP,S 1-16 F				
C140	87-016-461-080		C-CAP,S 0.47-16 ZF				
C201	87-010-146-080		CHIP CAP 2PF<YU>				
C201	87-010-149-080		C-CAP,5P-50 CH GRM<YH,YJ,YZ>				
C202	87-010-312-080		C-CAP,S 15P-50 CH				
C203	87-010-147-080		C-CAP,S 3P-50 CH<YU>				
C204	87-010-314-080		C-CAP,S 22P-50V<YU>				
C204	87-010-315-080		C-CAP,S 27P-50V<YH,YJ,YZ>				
C205	87-010-147-080		C-CAP,S 3P-50 CH<YU>				
C205	87-010-150-080		C-CAP,S 6P-50 CH<YH,YJ,YZ>				
C206	87-010-197-080		CAP, CHIP 0.01 DM				
C209	87-010-178-080		CHIP CAP 1000P				
C212	87-010-497-040		CAP,E 4.7-35 GAS				
C213	87-010-194-080		CAP, CHIP 0.047				
C215	87-010-197-080		CAP, CHIP 0.01 DM				
C216	87-010-197-080		CAP, CHIP 0.01 DM				
C217	87-010-197-080		CAP, CHIP 0.01 DM				
C218	87-010-197-080		CAP, CHIP 0.01 DM				
C219	87-010-196-080		CHIP CAPACITOR,0.1-25				
C220	87-010-195-080		C-CAP,S 0.068-25 F				
C221	87-010-196-080		CHIP CAPACITOR,0.1-25				
C222	87-016-462-080		C-CAP,S 1-16 F				
C223	87-012-157-080		C-CAP,S 330P-50 CH				
C224	87-010-503-080		VAP,E 220-4 GAS				
C233	87-016-461-080		C-CAP,S 0.47-16F				
C241	87-010-178-080		CHIP CAP 1000P				
C242	87-010-178-080		CHIP CAP 1000P				

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



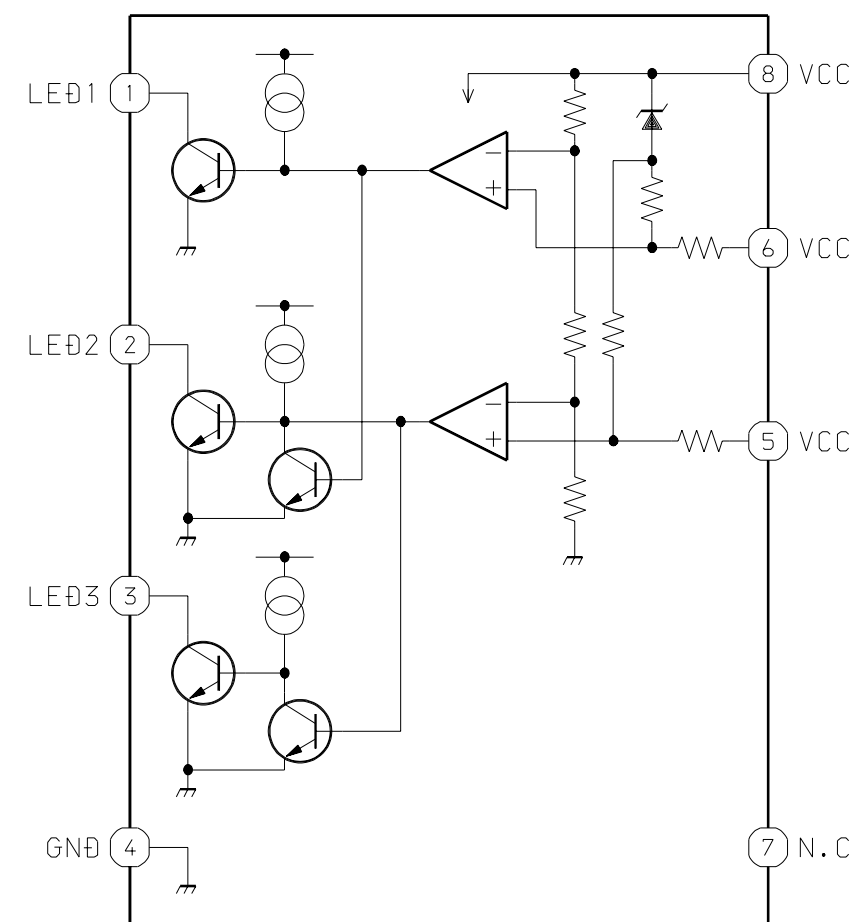
桁表示 Figure
抵抗値 Value of resistor

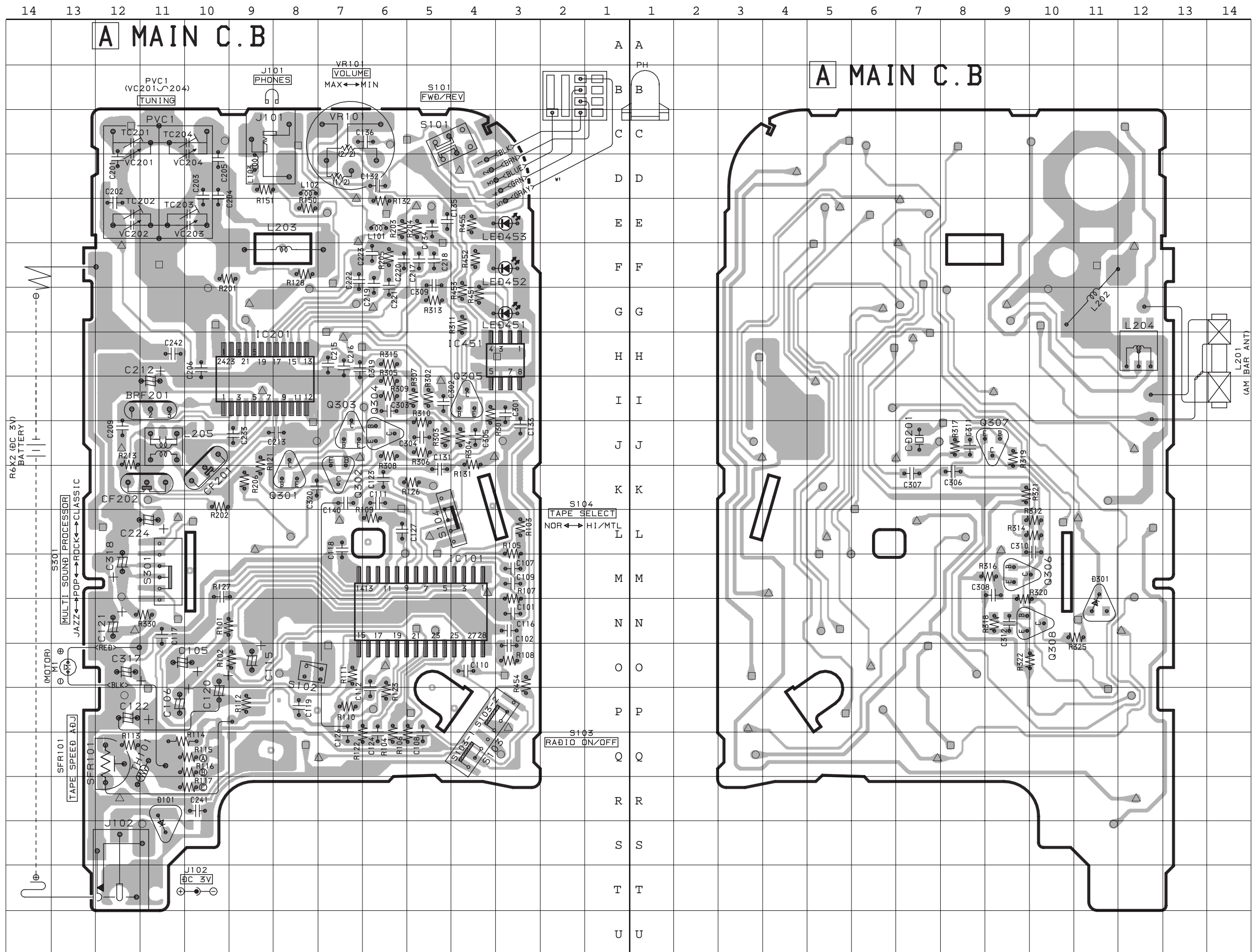
チップ抵抗 Chip resistor

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

IC BLOCK DIAGRAM

IC, MM1206XF

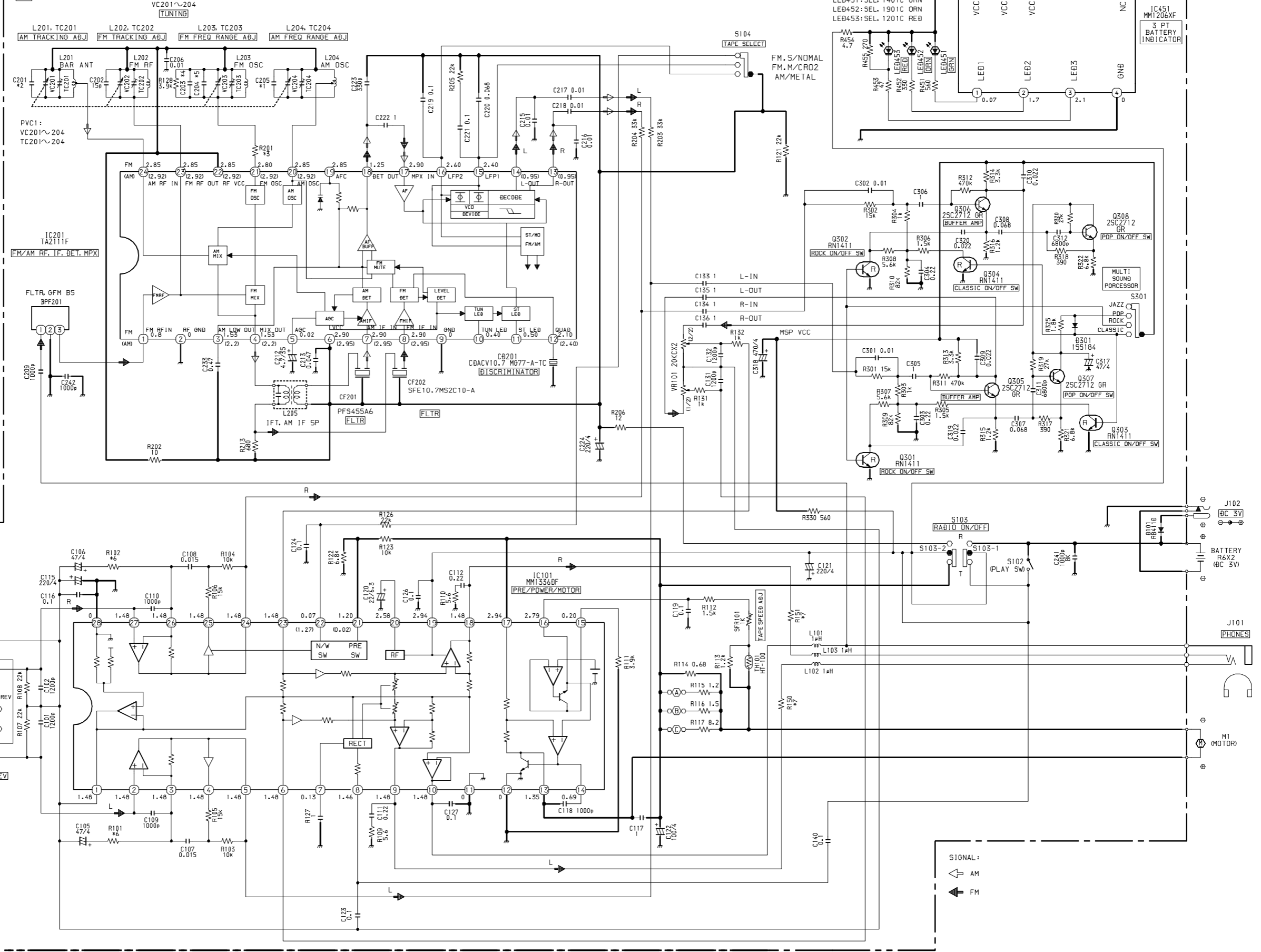




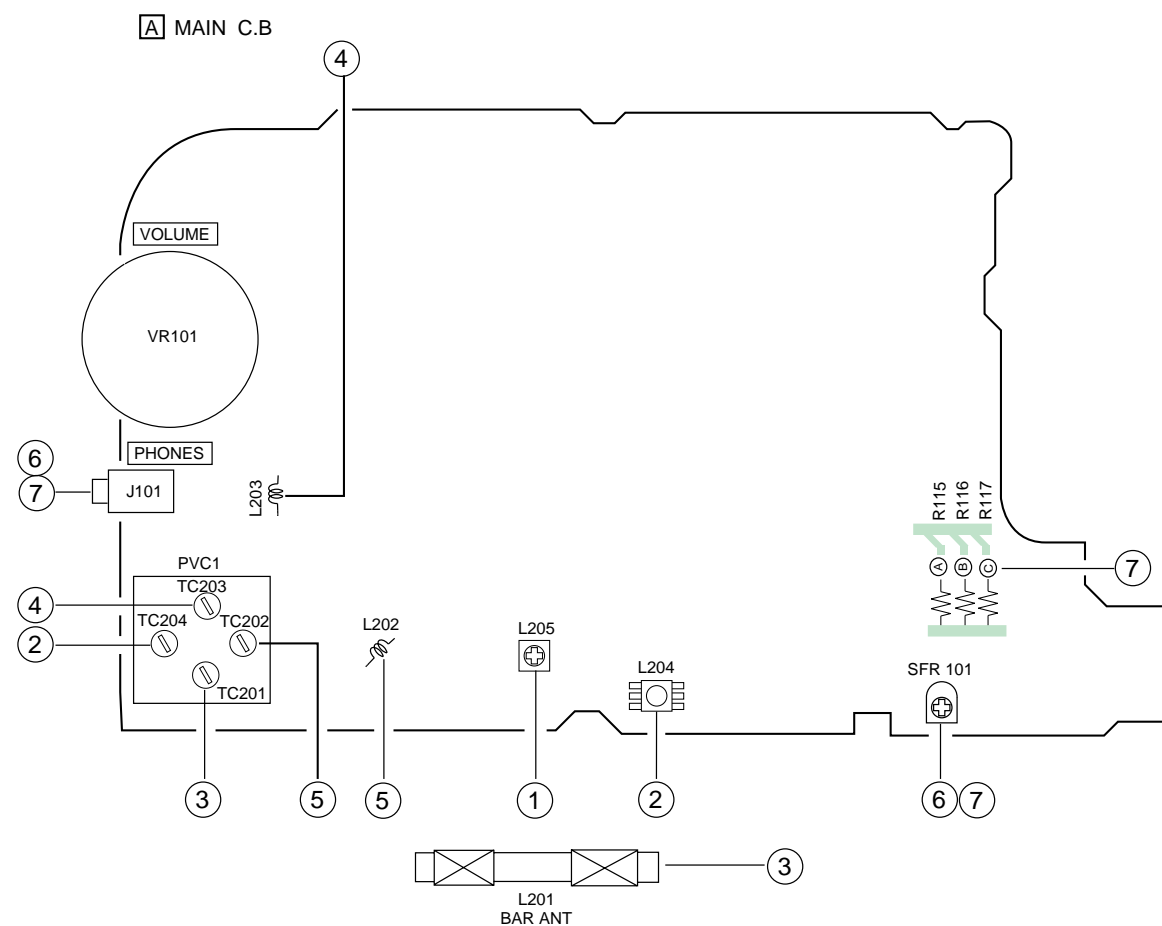
SCHEMATIC DIAGRAM - 1 (MAIN)

	YU	YJ	YH	YZ
*1	C205	5P	6P	6P
*2	C201	2P	5P	5P
*3	R201	55Ω	33Ω	33Ω
*4	C203	3P	—	—
*5	C204	22P	27P	27P
*6	R102	120Ω	120Ω	150Ω
*7	R150	3.3Ω	3.3Ω	33Ω

A MAIN C.B



ADJUSTMENT



<TUNER SECTION>

1. AM IF Adjustment
L205..... 450kHz
2. AM Frequency Range Adjustment
L204..... 517kHz±5kHz
TC204..... 1750kHz±10kHz
3. AM Tracking Adjustment
L201..... 600kHz
TC201..... 1400kHz
4. FM Frequency Range Adjustment
L203..... 87MHz±0.1MHz
TC203..... 109MHz±0.1MHz
5. FM Tracking Adjustment
L202..... 88.0MHz
TC202 108.0MHz

<TAPE PLAYER SECTION>

6. Tape Speed Adjustment
Settings : • Test tape : TTA-100 (Tape center)
• Test point : PHONES (J101)
• Adjustment location : SFR101
• MSP : CLASSIC
• TAPE SELECTOR : NORM
• VOLUME : MAX
Method : Play back (FWD) the test tape and adjust SFR101 so that the frequency becomes 3010Hz±10Hz. Then confirm WOW is less than 0.50%.

7. GOVERNOR Adjustment
Perform the STOP → PLAY and REVERSE operations (or PAUSE ON → OFF) after the motor is replaced. When the tape starts running smooth, this adjustment is not necessary. If wow is conspicuous at the beginning of the tape-run, perform this adjustment following the procedures below.
 - 1) Solder resistor pattern (A) of the MOTOR AND GOVERNOR MATCHING ADJ. resistor group.
 - 2) Set the tape speed (using speed adjustment SFR101).
 - 3) Restrict the motor rotation by hand (or turn PAUSE ON).
 - 4) Remove your hand and listen to the beginning of the tape-run.
 - 5) When the rise of tape running is smooth, no more adjustment is necessary.
If wow continues for 1 to 2 seconds at the rise time, change the combined resistance according to procedure 6 and check that the tape starts running smooth.
 - 6) Solder the resistor pattern according to the table below

Pattern	Low resistance (A)	Medium resistance (B)	High resistance (C)
(Procedure 1 above)	Solder	Open	Solder
Step (1)	Solder	Solder	Open
Step (2)	Solder	Solder	Solder

(NOTE : Ⓐ =1.2ohm , Ⓑ =1.5ohm , Ⓒ =8.2ohm)

- 7) Finally re-check the tape speed.
Caution : Cool the patterns down to normal temperature after soldering. If the pattern remains heated, the governor circuit does not operate normally.

PRACTICAL SERVICE FIGURE

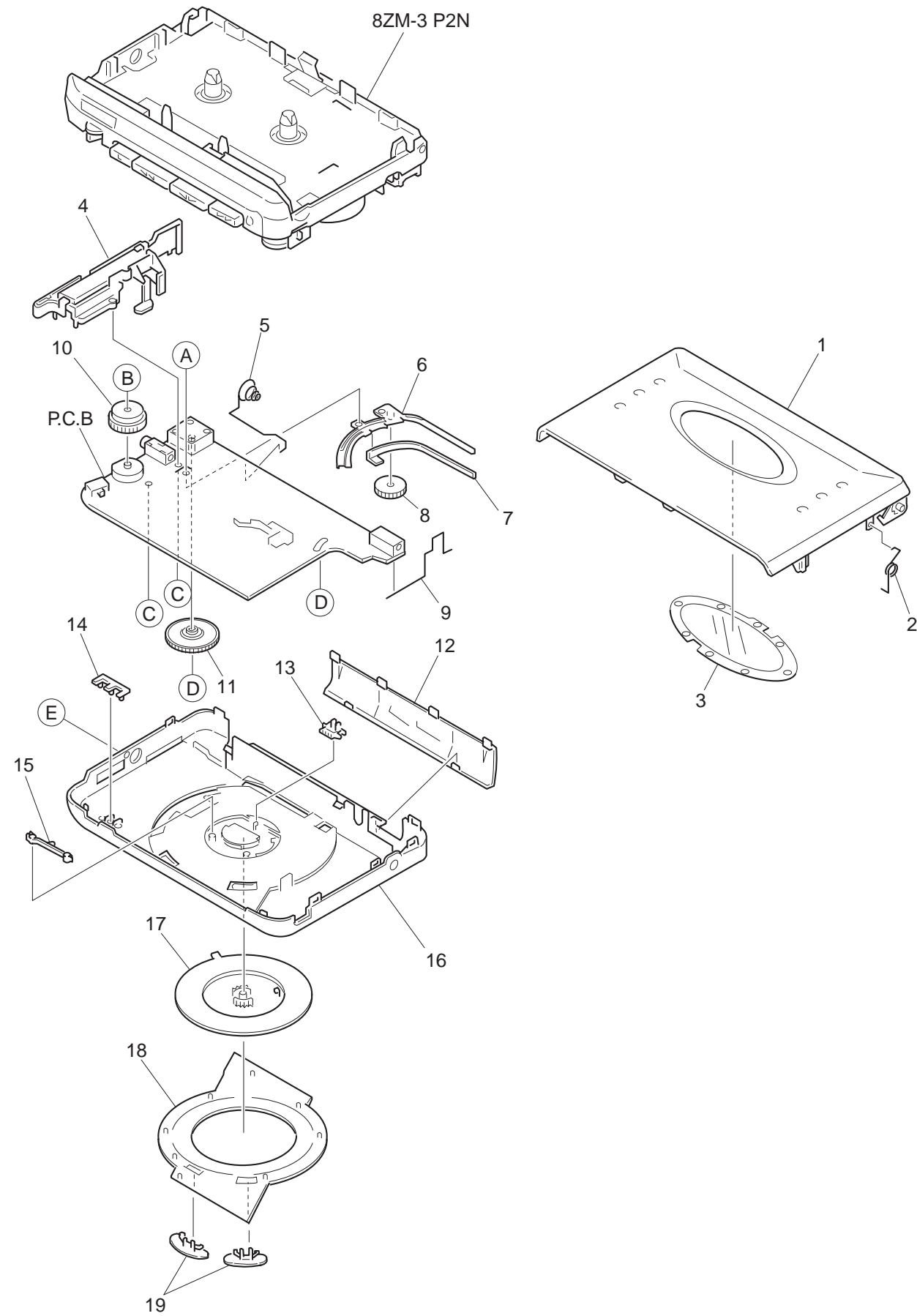
<TUNER SECTION>

Sensitivity : (IHF, THD 3%)	FM Less than 17dB [at 88.0MHz] Less than 17dB [at 98.0MHz] Less than 17dB [at 108.0MHz]
(S/N 10dB)	AM Less than 57dB [at 600kHz] Less than 56dB [at 1000kHz] Less than 56dB [at 1440kHz]
S/N Ratio :	FM More than 53dB [at 88.0MHz] More than 53dB [at 98.0MHz] More than 53dB [at 108.0MHz] AM More than 25dB [at 600kHz] More than 27dB [at 1000kHz] More than 27dB [at 1440kHz]
Intermediate frequency :	FM 10.7MHz ± 0.1MHz AM 455kHz ± 3kHz
FM stereo separation :	More than 17dB [at 98.0MHz]

<TAPE SECTION>

Tape speed :	3015Hz ± 60Hz
Wow & flutter :	Less than 0.5% (RMS)
Take-up torque :	24 ~ 45g-cm (FWD)
F.F torque :	70 ~ 150g-cm
Rew torque :	70 ~ 150g-cm
Back tension :	1.5 ~ 4.0g-cm (FWD)
S/N ratio :	More than 40dB
Distortion :	Less than 3.0%
Noise level :	Less than 5.0mV (Vol MAX, without tape) Less than 0.3mV (Vol MIN, without tape)
Frequency response :	63Hz + 0.5/- 7.5dB ~ 8kHz + 4/- 4dB (NORM) 63Hz + 2/- 6dB ~ 10kHz + 4/- 5dB (METAL)
Test tape :	TTA- 100 TTA- 210 TTA- 310 (METAL) TTA- 320 (NORM)

MECHANICAL EXPLODED VIEW 1/1



MECHANICAL PARTS LIST 1/1

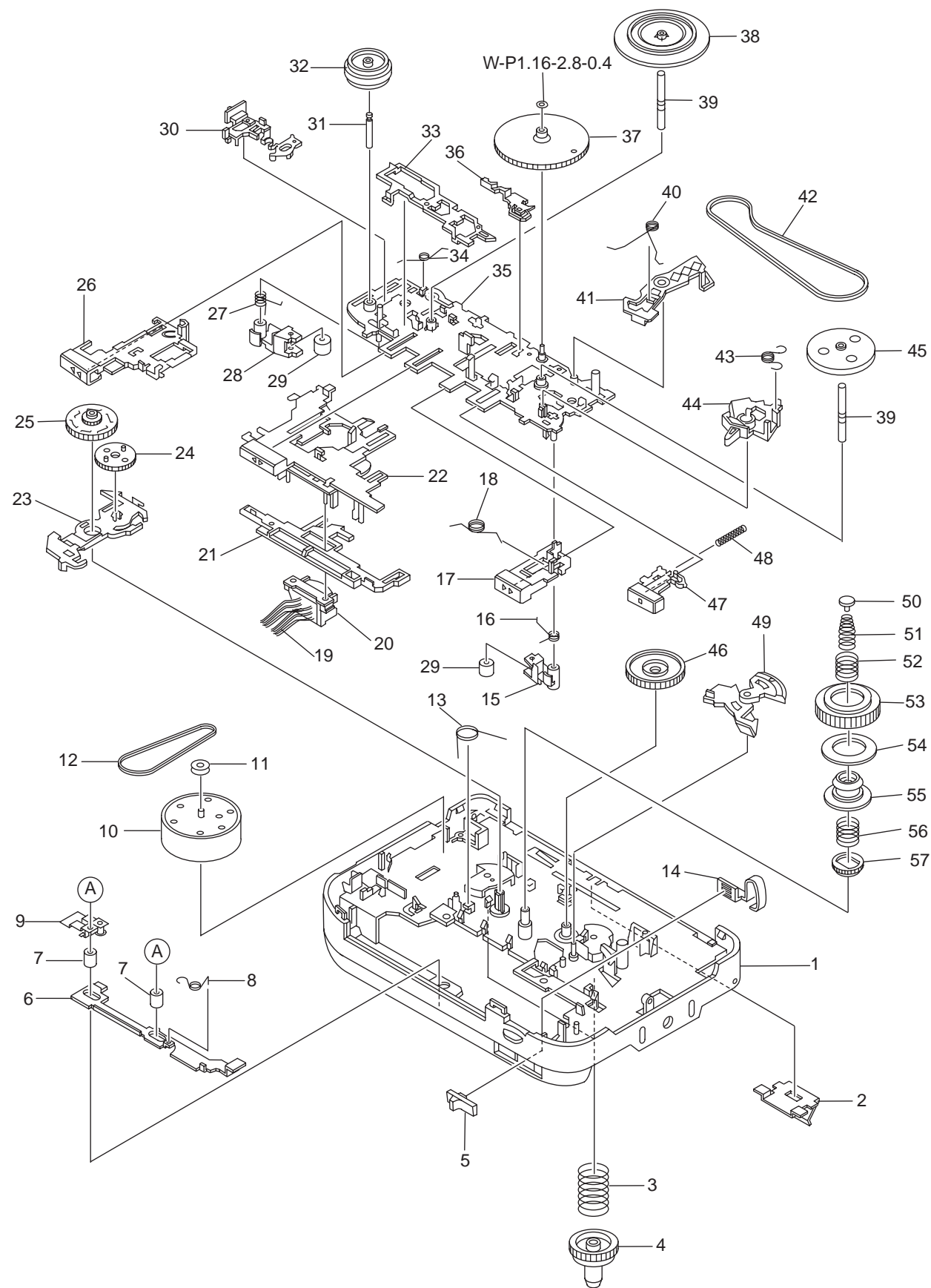
REF.NO.	PARTNO.	KANRI NO.	DESCRIPTION
1	8Z-HRB-001-010		LID,CASS R GRY<EXCEPT YZ>
1	8Z-HRB-018-010		LID,CASS R GRY EG<YZ>
2	8Z-HRB-217-010		SPR-T,CASS
3	8Z-HRB-002-010		WINDOW,CASS
4	8Z-HRG-201-010		HLDR,ANT
5	8Z-HRG-203-010		BAT-CONTACT,M
6	8Z-HRG-204-010		HLDR, POINTER
7	8Z-HRG-009-010		POINTER,TUN
8	8Z-HRG-205-010		GEAR,TUN
9	8Z-HRB-208-010		BAT-CONTACT,P
10	8Z-HRG-008-010		KNOB,RTRY VOL SIL
11	8Z-HRG-007-010		KNOB,RTRY TUN SIL
12	8Z-HRG-003-010		LID,BAT SIL
13	8Z-HRG-202-010		RACK,MSP
14	8Z-HRG-010-010		LENS,LED
15	85-HG8-203-010		SPR,CLICK
16	8Z-HRG-014-010		CABI,REAR SIL Y<EXCEPT YU>
16	8Z-HRG-001-010		CABI,REAR SIL YU<YU>
17	8Z-HRG-006-010		KNOB,RTRY MSP SIL
18	8Z-HRG-002-010		PANEL,MSP SIL
19	8Z-HRG-004-010		KNOB,SL TR SIL
A	87-067-732-010		TAPPING SCREW, VT1.4-3
B	87-262-505-310		SCREW, V+1.4-2.5
C	87-B10-196-010		VT2+1.4-4 BLK (3) HL
D	87-264-527-310		V 1.7-3 SCREW
E	87-B10-048-010		VT2+1.4-3 (3) CR HL

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		

TAPE MECHANISM EXPLODED VIEW 1/1

TAPE MECHANISM PARTS LIST 1/1



REF. NO.	PARTNO.	KANRI NO.	DESCRIPTION	REF. NO.	PARTNO.	KANRI NO.	DESCRIPTION
1	8Z-HRB-003-010		FRAME, CENTER GRY	31	88-ZM3-267-010		SHAFT, PULLEY TWIN
2	8Z-HRB-207-110		SPR-P, CASS	32	88-ZM3-234-010		PULLEY, BELT TWIN
3	88-ZM3-253-110		SPR-C, BT L	33	88-ZM3-212-010		LEVER, LOCK
4	88-ZM3-274-010		GEAR, REEL A	34	88-ZM3-245-110		SPR-T, LOCK
5	8Z-HRB-014-010		KNOB, SL OPEN	35	88-ZM3-201-110		CHAS ASSY, OUTSERT P
6	8Z-HRB-204-110		LEVER, EJECT	36	88-ZM3-216-010		LEVER, SW
7	8Z-HRB-216-110		CAP, EJECT	37	88-ZM3-221-110		GEAR, AUTO
8	8Z-HRB-205-010		SPR-T, EJECT	38	88-ZM3-240-010		FLY-WHL, R S
9	8Z-HRB-215-010		SHAFT, ASSY	39	88-ZM3-266-010		CAPSTAN, 1.5-NS
10	87-A91-379-010		MOT, BCY3B-13	40	88-ZM3-248-010		SPR-T, AUTO CHOOSE
11	88-ZM3-236-010		PULLEY, MOT S	41	88-ZM3-215-010		LEVER, AUTO KICK
12	88-ZM3-263-210		BELT, S	42	88-ZM3-262-010		BELT, L
13	88-ZM3-243-010		SPR-T, PLAY BACK	43	88-ZM3-244-010		SPR-T, DIR
14	8Z-HRB-206-010		PLATE, EJECT	44	88-ZM3-219-010		BTN, DIR KNOB
15	88-ZM3-217-110		ARM, PINCH L	45	88-ZM3-239-010		FLY-WHL, L S
16	88-ZM3-241-010		SPR-T, PINCH L	46	88-ZM3-226-010		GEAR, IDLE
17	88-ZM3-003-110		LEVER, REW	47	88-ZM3-004-110		LEVER, STOP
18	88-ZM3-246-110		SPR-T, FF REW	48	88-ZM3-255-110		SPR-C, STOP
19	87-A80-115-010		F-CABLE, 5P P2	49	88-ZM3-214-010		LEVER, AUTO FIND
20	87-A91-019-010		HEAD ASSY, PH 8ZM-3	50	88-ZM3-238-010		CAP, SLIP
21	88-ZM3-211-010		LEVER, DIR	51	88-ZM3-252-010		SPR-C, SHIFT
22	88-ZM3-001-110		LEVER, PLAY	52	88-ZM3-251-210		SPR-C, SLIP
23	88-ZM3-213-110		LEVER, T-UP	53	88-ZM3-222-010		GEAR, SLIP FAST
24	88-ZM3-225-110		GEAR, PLAY	54	88-ZM3-269-010		FELT, SLIP
25	88-ZM3-224-110		GEAR, TRANSMIT	55	88-ZM3-237-010		CLR, SLIP
26	88-ZM3-002-010		LEVER, FF	56	88-ZM3-247-010		SPR-T, AUTO FIND
27	88-ZM3-242-110		SPR-T, PINCH R	57	88-ZM3-223-010		GEAR, SLIP SLOW
28	88-ZM3-218-010		ARM, PINCH R	A	87-067-384-010		SCREWVT1.4-3.5HL
29	88-ZM3-271-010		ROLLER ASSY, PINCH				
30	88-ZM3-220-010		BTN, MODE SEL				

ACCESSORIES / PACKAGE LIST

REF.NO.	PARTNO.	KANRI NO.	DESCRIPTION
1	8Z-HRG-903-010	IB,YU(3L)	S<YU>
1	8Z-HRG-904-010	IB,YHJ(ECC)	S<YH,YJ>
1	8Z-HRG-907-010	IB,YZ(EGF)	S<YZ>
1	8Z-HRG-908-010	IB,YZ(SID)	S<YZ>
1	8Z-HRG-909-010	IB,YZ(PHNCZ)	S<YZ>
2	8Z-HRB-050-010		CLIP,BELT ASSY
3	87-B30-080-110		HEADPHONE,HP-M009(F)<YU>
3	87-B30-254-010		HEADPHONE,HP-M007B(T)<YH,YJ,YZ>
4	87-080-027-010		SCREW CUP-BELT

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A4▶

サービス技術ニュース	
番号	連絡内容
G-	-
G-	-
G-	-

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