

# SERVICE MANUAL

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RADIO CASSETTE RECORDER

BASIC TAPE MECHANISM : TN-9ZR-215

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This Service Manual is the "Revision Publishing" and replaces "Simple Manual"  
(S/M Code No. 09-997-333-7T1).

# SPECIFICATIONS

## Tuner section

Frequency range: FM: 87.5 - 108.0 MHz  
 AM: 530 - 1,605 kHz

Antenna: FM: Rod antenna  
 AM :Ferrite bar antenna

## Deck section

Track format 2tracks, 1 channel  
 Frequency range Normal tape: 50 - 8,000 Hz (EIAJ)  
 Recording system AC bias  
 Erasing system Magnet erase  
 Heads Recording playback head (1)  
 Erasure head (1)

## General

Speaker 58 mm cone type (1)  
 Output Earphone jack (monaural mini-jack)  
 Power output 0.5 W (EIAJ 8 ohms, T.H.D. 10%)  
 0.3 W (DIN 1% Rated Power)  
 Power requirements DC 6 V using for size AA (R6P) batteries  
 Domestic AC power using the supplied  
 AC adaptor  
 Dimensions 207 (W) x 93 (H) x 56 (D) mm  
 Weight 480 g (excluding batteries)

## AC adaptor

**<AC-D602 K>** (AHK)  
 Rated input AC 230 V, 50 Hz  
 Rated output DC 6 V, 500 mA

**<AC-D602 H>** (AHR)  
 Rated input AC 110 - 120 V/220 - 240 V, 50/60 Hz  
 Rated output DC 6 V, 500 mA

**<AC-D602 E>** (AEZ)  
 Rated input AC 230 V, 50 Hz  
 Rated output DC 6 V, 500 mA

• 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。  
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-CM3-907-010	IB,H(ECA)A<AHR,AHK>	
1	8Z-CM3-908-010	IB,EZ(9L)A<AEZ>	
2	87-B30-164-010	AC ADAPTOR,AC-D602E<AEZ>	
2	87-B30-165-010	AC ADAPTOR,AC-D602K<AHK>	
2	87-B30-166-010	AC ADAPTOR,AC-D602H<AHR>	

# ELECTRICAL MAIN PARTS LIST

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C326	87-A10-164-010		CAP,CER 100P-50V
	8Z-CM2-646-010	IC,TA2132P		C327	87-A10-164-010		CAP,CER 100P-50V
	88-CM2-608-010	IC,TA7628 HP		C328	87-A10-168-010		CAP,CER 220P-50V
	88-CS7-613-010	IC,KA2402		CF201	87-008-261-010		FILTER, SFE10.7MA5-A
				CF202	88-CS8-632-010		FLTR,CERAMIC CFAL-455(TOKO)
TRANSISTOR				CF203	87-008-261-010		FILTER, SFE10.7MA5-A
	87-CD7-603-080	TR,SS8050C		D302	88-CS8-644-010		LED,SE-3001DT,3MM BRIGHT ,REDL
	86-NFZ-657-080	TR,2SC1923(O)		HJ301	88-CL5-608-010		JACK,3.6 S W/SW
				JK1	88-CS7-618-010		JACK,DC 6
				L201	88-CS8-610-010		COIL,BAR ANTICOIL ASSY A192674W
DIODE				L202	88-CS8-612-010		COIL,FM RF 3.0-7T
	87-070-345-080	DIODE,IN4148		L203	8Z-CM3-607-010		COIL,FM OSC3T 5.5MM
	87-A40-574-080	ZENER,MTZJ3.0A		L204	88-CS8-611-010		COIL,FM ANT 4.5-4T
	88-CD6-665-010	DIODE,IN60P		L205	8Z-CM3-606-010		COIL,FM ANT3.0 9T LOD
	86-CM3-601-080	DIODE,CDG-24		L206	87-005-847-080		COIL,2.2UH(CECS)
	87-A40-375-010	ZENER,HZ5BLL		PVC1	87-A90-913-010		TUN-CAP,20P-140P 16*16
	88-CM2-609-010	DIODE,IN4001 B		R301	87-029-105-010		RESISTOR, 1/2W 10
				SW2	88-CM2-604-010		SW,2P-6T (R/P)
				SW101	8Z-CS1-602-010		SW,SK43D01 (MONO/ST)
				T201	88-CS7-605-010		COIL,AM IFT
MAIN C.B				T202	88-CM2-603-010		COIL,AM OSC-1481
C101	87-010-404-080	CAP, ELECT 4.7-50V		T203	88-CM2-601-010		COIL,FM DET1529
C102	87-010-380-080	CAP, ELECT 47-16V		T306	87-007-342-010		COIL,OSC 85K BIAS
C104	87-010-405-080	CAP, ELECT 10-50V		VR301	86-SP4-615-010		VR,50KA
C107	87-A10-578-080	CAP,CER 0.047-50 Z YF		VR302	87-A90-309-010		SFR,2K H 6.3
C109	87-010-248-080	CAP, ELECT 220-10V					
C114	87-A10-173-010	CAP,CER 560P-50V					BATT.-1 C.B
C115	87-010-405-080	CAP, ELECT 10-50V					
C116	87-010-404-080	CAP, ELECT 4.7-50V					BATT.-2 C.B
C117	87-010-401-080	CAP, ELECT 1-50V					
C118	87-010-382-080	CAP, ELECT 22-25V					BATT.-3 C.B
C119	87-010-380-080	CAP, ELECT 47-16V					
C122	87-A10-173-010	CAP,CER 560P-50V					
C123	87-A10-173-010	CAP,CER 560P-50V					
C124	87-A10-164-010	CAP,CER 100P-50V					
C201	87-A10-159-010	CAP,CER 39P-50					
C203	87-A10-159-010	CAP,CER 39P-50					
C204	87-A10-139-010	CAP,CER 18P-50					
C205	88-RU7-634-010	CAP, CER 20P-50					
C207	87-010-405-080	CAP, ELECT 10-50V					
C208	87-A10-577-010	CAP,CER 0.02-50					
C210	87-010-400-080	CAP, ELECT 0.47-50V					
C211	87-A10-139-010	CAP,CER 18P-50					
C212	87-010-265-010	CAP,E 33-16M SME					
C213	87-A10-577-010	CAP,CER 0.02-50					
C219	87-A10-577-010	CAP,CER 0.02-50					
C226	87-010-401-080	CAP, ELECT 1-50V					
C231	87-010-248-080	CAP, ELECT 220-10V					
C232	87-A10-577-010	CAP,CER 0.02-50					
C233	87-A10-168-010	CAP,CER 220P-50 K B					
C235	87-A11-135-080	CAP,TC U 0.018-50KB					
C301	87-A10-168-010	CAP,CER 220P-50 K B					
C302	87-A10-173-010	CAP,CER 560P-50V					
C303	87-010-402-080	CAP, ELECT 2.2-50V					
C304	87-010-263-080	CAP, ELECT 100-10V					
C305	87-010-248-080	CAP, ELECT 220-10V					
C306	87-010-380-080	CAP, ELECT 47-16V					
C308	87-010-221-080	CAP, ELECT 470-10V					
C309	87-010-248-080	CAP, ELECT 220-10V					
C310	87-010-221-080	CAP, ELECT 470-10V					
C311	87-010-263-080	CAP, ELECT 100-10V					
C312	87-010-380-080	CAP, ELECT 47-16V					
C313	87-010-380-080	CAP, ELECT 47-16V					
C314	87-A10-578-080	CAP,CER 0.047-50 Z YF					
C315	87-010-400-080	CAP, ELECT 0.47-50					
C321	87-A10-579-080	CAP,CER 0.1-16V					
C322	87-A11-836-010	CAP,CER 3P-50V					
C323	87-A10-579-080	CAP, CER 0.1-16V					
C324	87-A10-164-010	CAP,CER 100P-50V					

# TRANSISTOR ILLUSTRATION

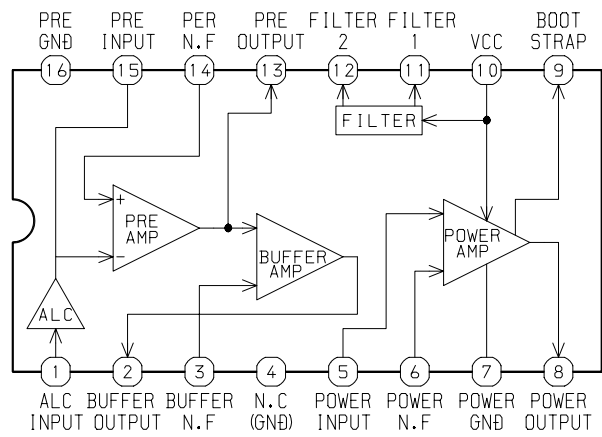


E C B

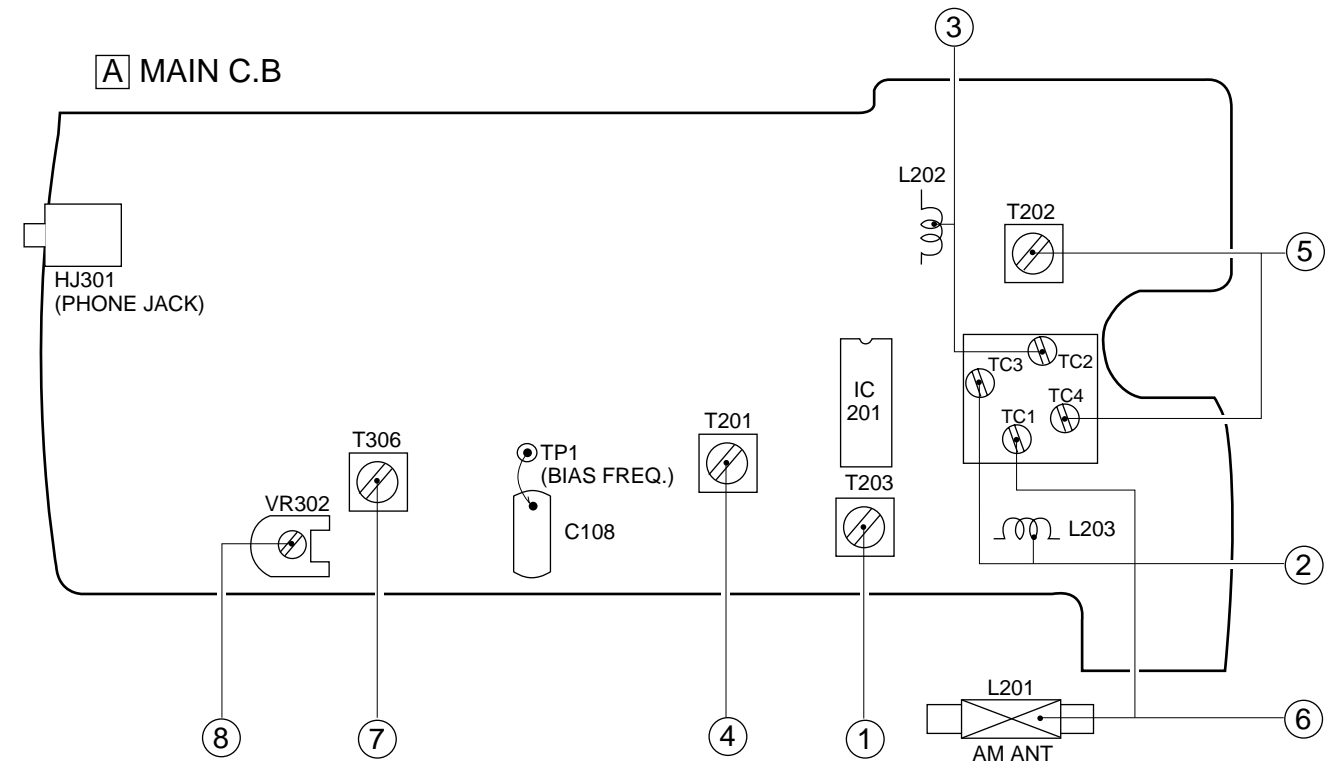
2SC1923  
SS8050

# IC BLOCK DIAGRAM

IC, TA7628HP



# ADJUSTMENT



# PRACTICAL SERVICE FIGURE

## <TUNER SECTION>

Sensitivity:

FM (IHF, THD 3%)	Less than 20 dB (at 88 MHz)
	Less than 19 dB (at 98, 108 MHz)
AM (S/N 10 dB)	Less than 51 dB (at 600 kHz)
	Less than 49 dB (at 1,000, 1,400 kHz)
Intermediate Frequency:	FM 10.7 MHz
	AM 455 kHz

## <TAPE SECTION>

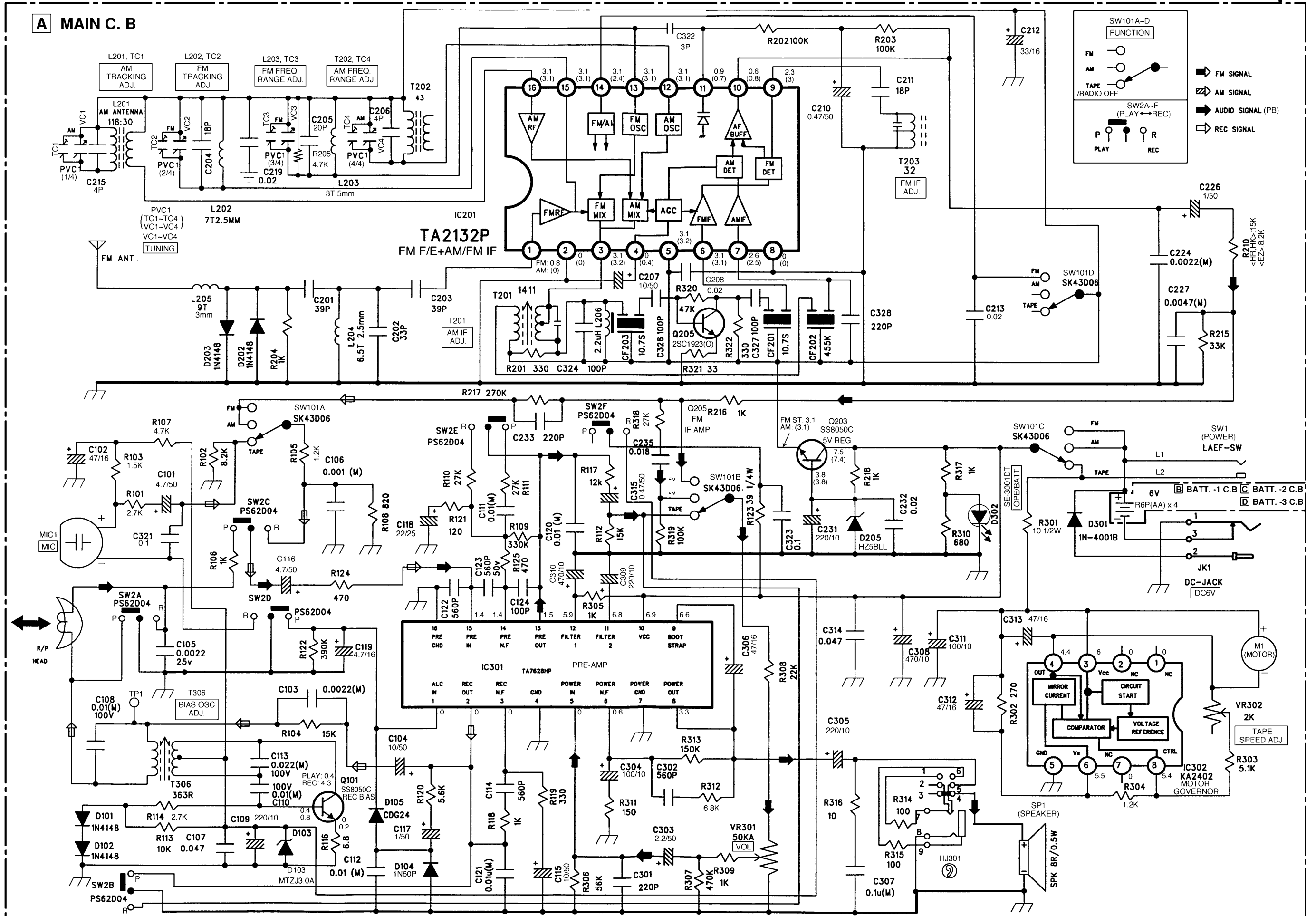
Distortion:	Less than 3.0% (PB)
S/N Ratio:	More than 45 dB
Nose Level:	Less than 15 mV (PB, DC)
	Less than 20 mV (PB, AC)
Tape Speed:	3000 Hz + 90% - 60%
Wow & Flutter:	Less than 0.45% (RMS)

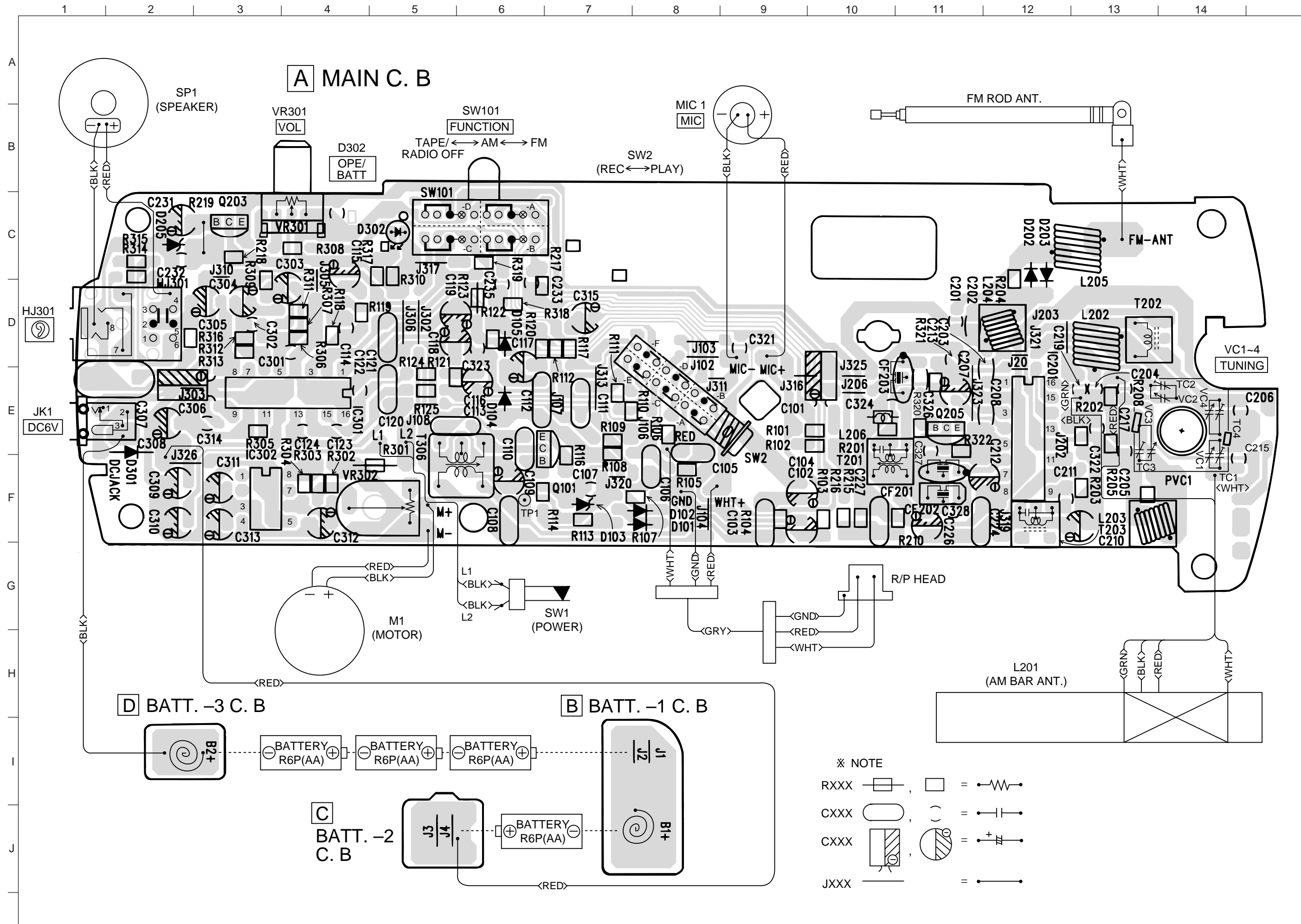
## <TUNER SECTION>

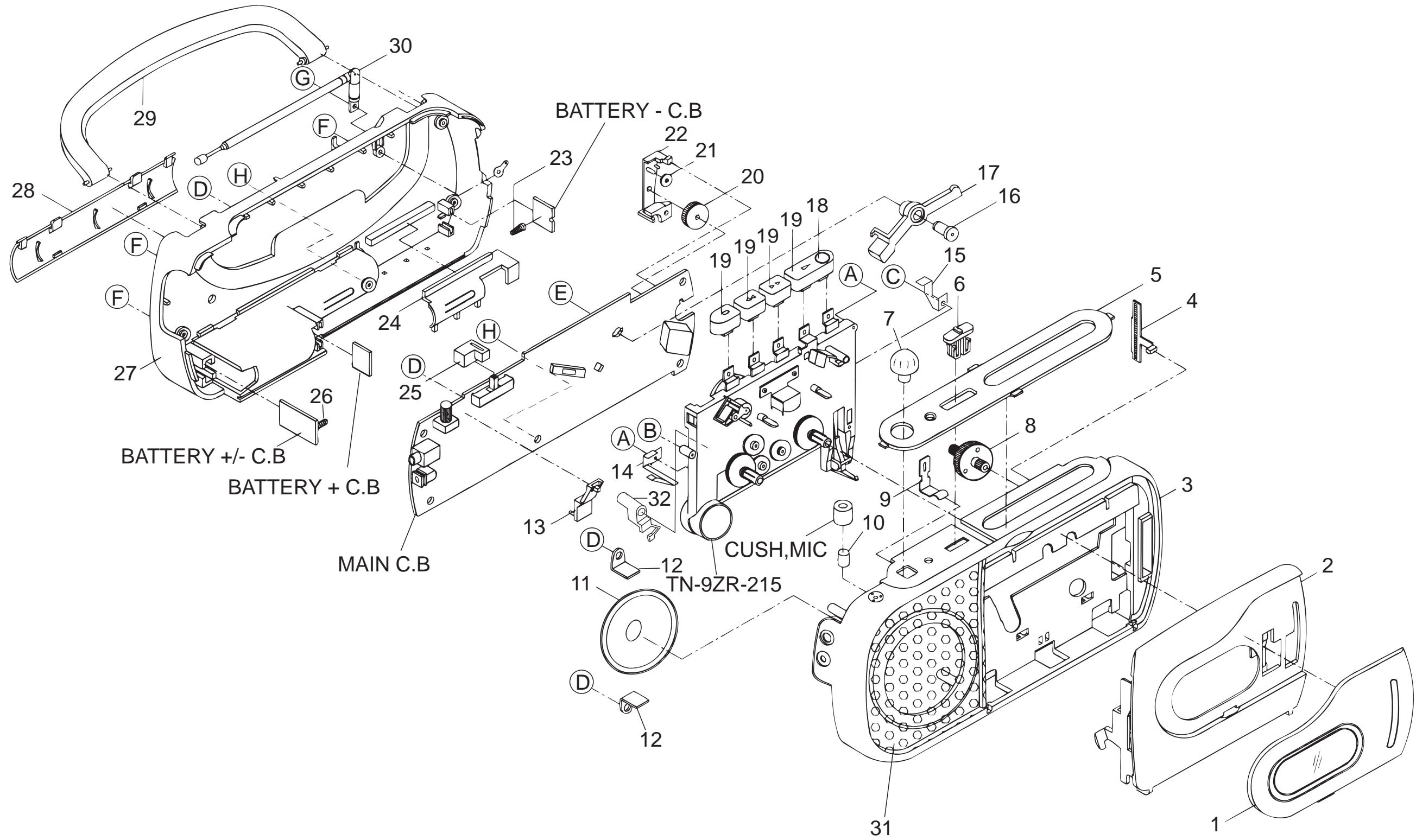
1. FM IF Adjustment	
T203 .....	10.7 MHz
2. FM Freq. Range Adjustment (AHR, AHK)	
L203 .....	87 MHz
TC3 .....	109 MHz
(AEZ)	
L203 .....	87.3 MHz
TC3 .....	108.4 MHz
3. FM Tracking Adjustment	
L202 .....	88 MHz
TC2 .....	108 MHz
4. AM IF Adjustment	
T201 .....	455 kHz
5. AM Freq. Range Adjustment	
T202 .....	515 kHz
TC4 .....	1635 kHz
6. AM Tracking Adjustment	
L201 .....	600 kHz
TC1 .....	1400 kHz

## <TAPE DECK SECTION>

7. Bias Freq. Adjustment	
T306 .....	37 kHz
8. Tape Speed Adjustment	
Conditions: • Test tape: TTA-100	
• Test point: HJ301 (PHONE jack)	
• Adjustment location: VR302	
Method: Playback the test tape and adjust so that the output frequency is 3000 Hz.	









# MECHANICAL MAIN PARTS LIST

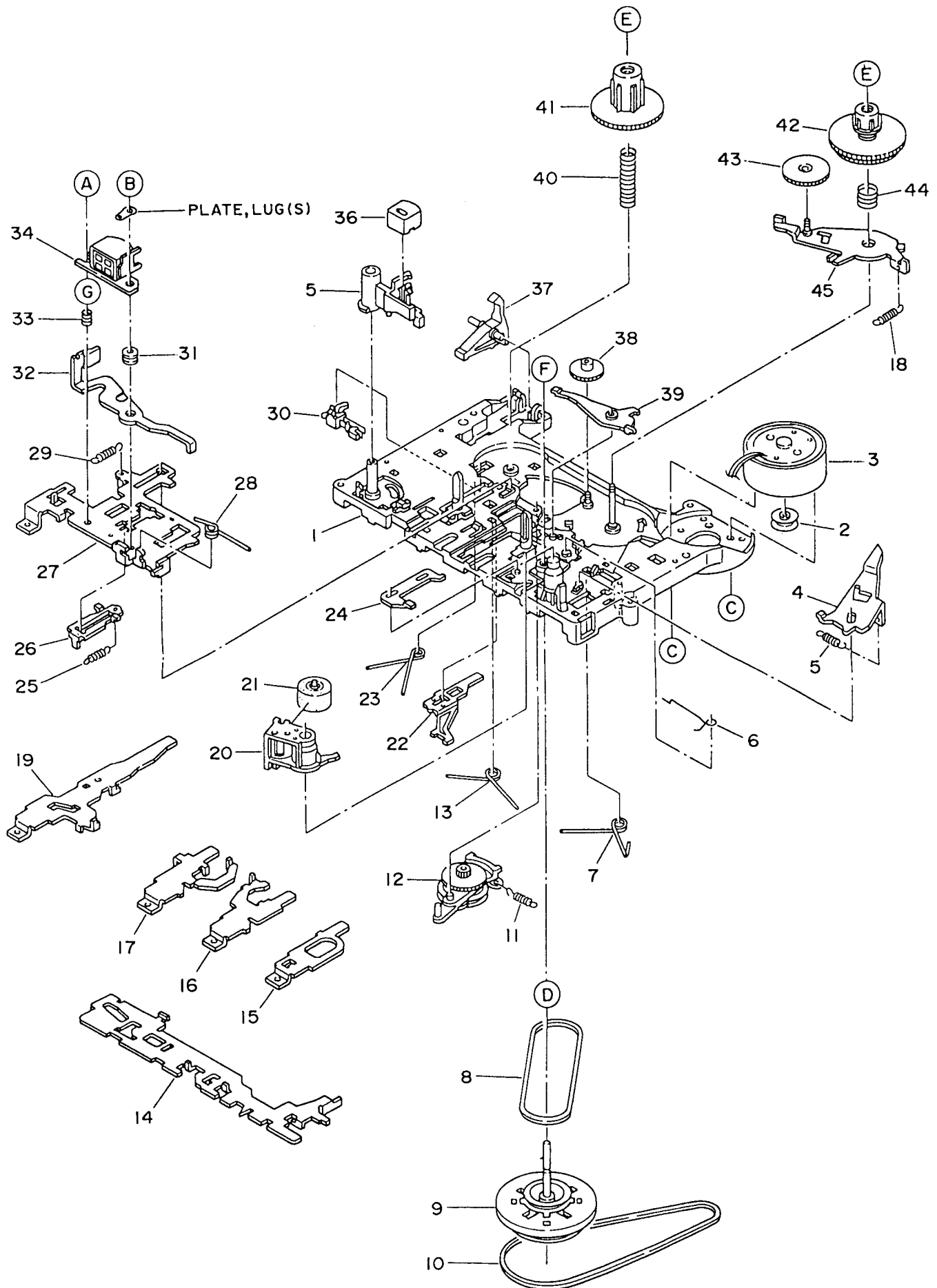
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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-CM3-017-010		WINDOW,CASS HR	21	86-CM3-214-010		GEAR,MIDDLE
2	8Z-CM3-003-010		LID,CASS	22	8Z-CM3-201-010		CHAS,GEAR
3	8Z-CM3-015-010		CABI,FRONT EX	23	88-CM2-211-010		SPR,BATT B(-)
4	8Z-CM3-009-010		POINTER,	24	8Z-CM3-203-010		BOX,BATTERY
5	8Z-CM3-019-010		PLATE, TOP EX	25	8Z-CM3-204-010		HLDR,KNOB FUNCTION
6	8Z-CM3-010-010		KNOB,SL FUNCTION	26	88-CM2-210-010		SPR,BATT A(-)
7	8Z-CM3-011-010		KNOB,RTRY VOLUME	27	8Z-CM3-016-010		CABI,REAR EX
8	8Z-CM3-008-010		KNOB,RTRY TUNING	28	8Z-CM3-006-010		LID,BATTERY
9	8Z-CM3-207-010		SPR-P,CASS	29	8Z-CM3-005-010		HANDL,
10	88-CS8-625-010		MIC	30	86-CM3-609-010		ANT,ROD
11	86-CM3-605-010		SPKR	31	8Z-CM3-014-010		GRILLE,SPKR
12	88-CM2-204-010		HLDR,SPKR	32	8Z-CM3-206-010		HLDR,PWB
13	8Z-CM3-202-010		HLDR,LED	A	87-751-035-410		VT2+2-6W/0 SLOT
14	88-CM2-206-010		SPR-P,DOOR CASS	B	8Z-CM3-208-010		UT2+1.7-10 W/O
15	86-CM3-213-010		SPR-P,REC	C	87-B10-114-010		VT2+2-12 CR
16	86-CM3-204-010		SHAFT,REC	D	87-741-095-410		UT2+3-8 GLD
17	8Z-CM3-205-010		LEVER,REC	E	87-267-527-310		SCREW, V+1.7-3
18	8Z-CM3-013-010		KEY,CASS REC	F	87-751-099-410		VT2+3-15 W/O SLOT
19	8Z-CM3-012-010		KEY,CASS SET	G	87-264-073-410		V+2.6-4 CR
20	86-CM3-202-010		GEAR,VC	H	87-741-096-410		UT2+3-10

## 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

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REF.NO	PART NO.	KANRI NO.	DESCRIPTION
1	S1-877-013-120		CHASSIS ASSY
2	S1-877-120-010		MOTOR PULLEY
3	S6-002-070-100		MOTOR FR-410CA-12250T
4	S1-877-010-170		AUTO LEVER
5	S1-877-010-190		AUTO LEVER SPR
6	S1-877-030-090		SPR,EARTH
7	S1-877-010-370		SPR,LEVER BTN STOP
8	S1-867-050-040		BELT,RF
9	S1-877-093-050		FLYWHEEL ASSY
10	S1-877-090-070		BELT,MAIN
11	S1-877-070-060		SPR,ARM PULLEY RF
12	S1-877-073-030		RF PULLEY ARM ASSY
13	S1-877-010-110		FR BUTTON LEVER SPR
14	S1-877-010-260		BTN,ACTUATOR
15	S1-877-010-060		STOP BUTTON LEVER
16	S1-877-010-230		LEVER,BTN FF
17	S1-877-010-240		LEVER,BTN RWD
18	S1-877-010-320		SPR,PLATE T GEAR
19	S1-877-010-250		LEVER,BTN REC
20	S1-877-040-010		PINCH ROLLER ARM
21	S1-877-040-070		PINCH ROLLER ASSY
22	S1-877-010-270		PLATE,SW
23	S1-877-010-310		SPR,ACTUATOR
24	S1-877-190-020		PLATE TIMING
25	S1-877-030-080		SPR,RC
26	S1-877-030-040		P,PLATE
27	S1-877-030-030		PANEL,HEAD
28	S1-877-040-080		PINCH ROLLER ARM SPR
29	S1-877-030-070		SPR,PANEL HEAD
30	S6-401-011-490		SW,LEAF MSW-1541T
31	S1-867-020-040		RPH COLLAR
32	S1-877-033-010		SENSING PLATE ASSY
33	S9-400-312-000		SPR,HEAD
34	S6-201-011-170		HEAD,RP-7442FS-1251
35	S1-877-030-050		ARM MG
36	S6-207-100-020		HEAD E TC-230AN(SL)
37	S1-877-020-010		LEVER,SAFETY REC
38	S1-821-100-700		GEAR,FF
39	S1-877-190-010		ARM RC
40	S1-877-060-020		BACK TENSION SPR
41	S1-877-060-010		S REEL
42	S1-877-053-040		TAKE UP REEL ASSY
43	S1-821-103-4A0		GEAR T ROLLER
44	S1-821-100-460		BACK TENSION SPR
45	S1-877-015-030		T ROLLER GEAR PLATE ASSY
A	S9-817-000-000		SCREW AZIMUTH M2-4.3
B	S9-210-000-000		SCREW M2-5
C	S9-C33-172-030		CAMERA(SPECIAL) SCREW M2-1.7
D	S9-999-000-010		P.WASHER 1.85-3.2-0.2
E	S9-888-000-000		P.WASHER CUT 1.2-3-0.4
F	S9-999-030-010		P.WASHER CUT 1.5-3.2-0.5
G	S9-316-000-000		FH WASHER 2.1-5-0.2



サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

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