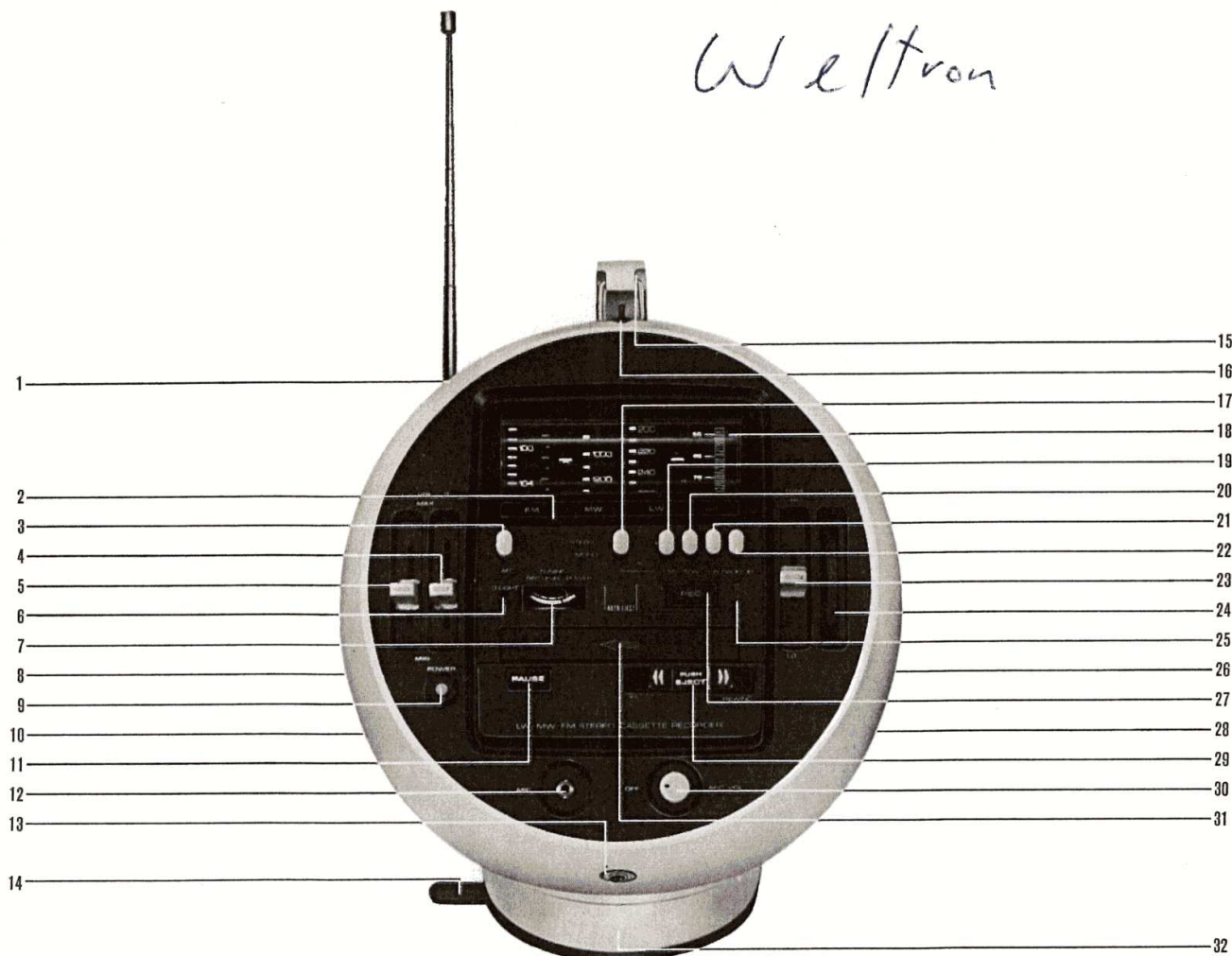


## SERVICE MANUAL

# MODEL 2004



## SPECIFICATIONS

### FM

Frequency range: 88-108MHz  
 Sensitivity: 30 $\mu$ V  
 Intermediate frequency: 10.7MHz  
 IF-suppression: 50dB  
 Channel separation: 26dB(1KHz)  
 Antenna: telescopic, 75 $\Omega$   
 (\* 240 $\Omega$  balanced)

### MW

Frequency range: 525-1600KHz  
 Sensitivity: 300 $\mu$ V  
 Intermediate frequency: 455KHz  
 IF-suppression: 25dB  
 Antenna: built-in ferrite bar

### LW

Frequency range: 150-285KHz  
 Sensitivity: 350 $\mu$ V  
 IF-suppression: 20dB  
 Antenna: ferrite bar

### SW(MB)

Frequency range: 4-12MHz  
 (1.6~4.4MHz)  
 Sensitivity: 1000 $\mu$ V(1000 $\mu$ V)  
 IF-suppression: 50dB  
 Antenna: ferrite bar

### SW<sub>1</sub>

Frequency range: 3.5-10MHz  
 Sensitivity: 500 $\mu$ V  
 IF-suppression: 50dB  
 Antenna: ferrite bar

### SW<sub>2</sub>

Frequency range: 10-22 MHz  
 Sensitivity: 500 $\mu$ V  
 IF-suppression: 50dB  
 Antenna: telescopic

### Cassette recorder

Frequency range: 100-8000Hz  
 Signal-to-noise ratio: over 30dB  
 cross-talk suppression: over 25dB  
 tape speed: 4.75cm/sec $\pm$ 4%  
 distortion: under 0.35 (WRMS)

### Power requirements

117V, 220~240V 50/60Hz 12.5W  
 12V DC (8dry cells, UM1)  
 Car battery operation 12V, 9.5W  
 (negative chassis)  
 Output 2 $\times$ 1.5W  
 Dimensions: 28.5cm $\phi$ (11.2")  
 Overall height: 31cm(12.2")  
 Weight: 6.8kg(15lb)

NOTE : ( \* ) For LW/MW/FM only

The exterior and standards of the product are subject to changes for improvement without notice.

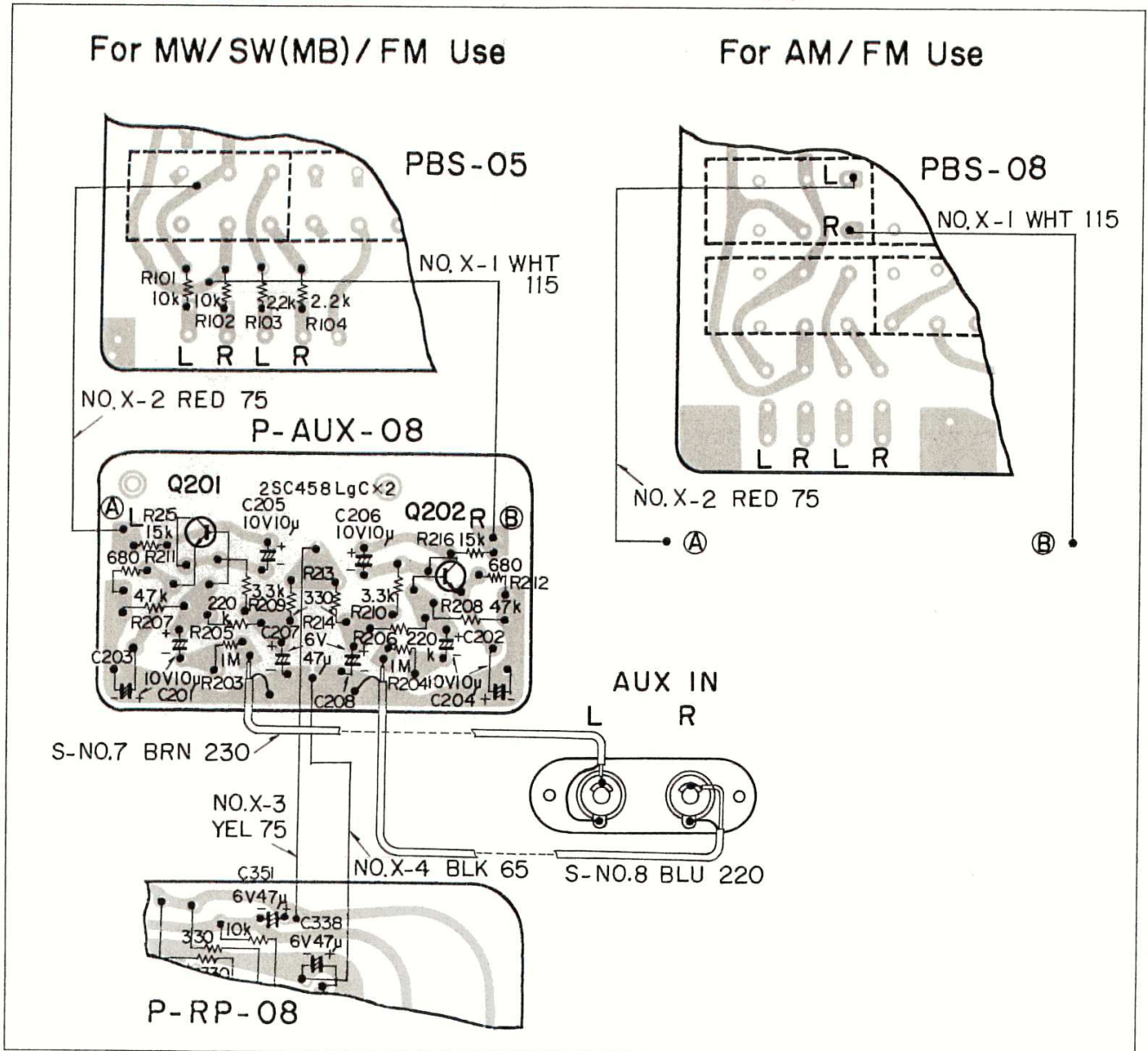
# ALIGNMENT

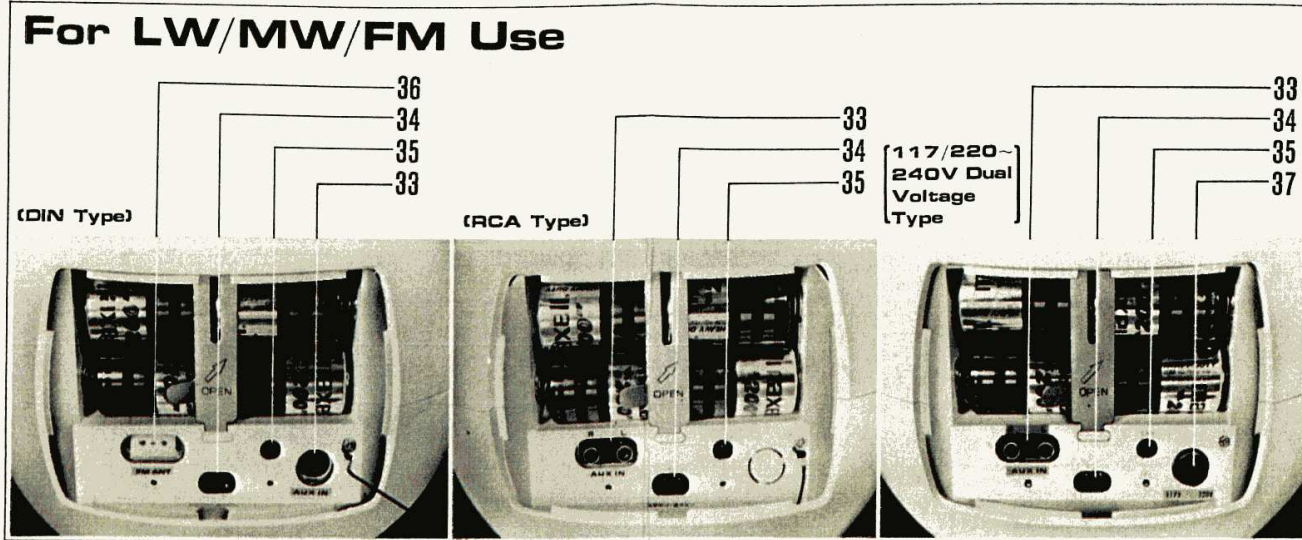
Step	Connect Signal Source To—	Connect Output Indicator To—	Set Signal To— Insert Markers	Set Radio Dial To—	Adjust—	Adjust For—	Step
<b>Set Function Switch to MW (AM) [MW]</b>							
1	Gang (ant.) (Marked with ⊙)	V.T.V.M. across D18 (Marked with □)	455 KHz	Gang open	AM IFT1 IFT2 IFT3	Maximum output	1
2	Loop	V.T.V.M. across voice coil	525 KHz	Gang closed	L8 ( L9 ) [ L18 ] MW, osc. ( AM, " ) [ MW, " ]	Maximum output	2
3	Loop	V.T.V.M. across voice coil	1700 KHz [1650 KHz]	Gang open	C74 ( C78 ) [ C137 ] trimmer ( " ) [ " ]	Maximum output	3
4	Repeat Steps 2 and 3						4
5	Loop	V.T.V.M. across voice coil	600 KHz	Tune for signal	L7 ( L7 ) [ L17 ] MW, ant. ( AM, " ) [ MW, " ]	Maximum output	5
6	Loop	V.T.V.M. across voice coil	1400 KHz	Tune for signal	C67 ( C70 ) [ C112 ] trimmer ( " ) [ " ]	Maximum output	6
7	Repeat Steps 5 and 6						7
NOTE: ( ) For AM/FM only [ ] For MW/SW1/SW2 only							
<b>Set Function Switch to SW (MB)</b>							
1	Loop	V.T.V.M. across voice coil	3.77 MHz (1.5 MHz)	Gang closed	L9 ( L9 ) SW, osc. ( MB, " )	Maximum output	1
2	Loop	V.T.V.M. across voice coil	12.5 MHz ( 4.8 MHz)	Gang open	C78 ( C78 ) trimmer ( " )	Maximum output	2
3	Repeat Steps 1 and 2						3
4	Loop	V.T.V.M. across voice coil	4.5 MHz ( 1.8 MHz)	Tune for signal	L7 ( L7 ) SW, ant. ( MB, " )	Maximum output	4
5	Loop	V.T.V.M. across voice coil	10 MHz ( 4.2 MHz)	Tune for signal	C70 ( C70 ) trimmer ( " )	Maximum output	5
6	Repeat Steps 4 and 5						6
NOTE: ( ) For MW/MB/FM only							
<b>Set Function Switch to SW1 (SW2)</b>							
1	Loop (TP1)	V.T.V.M. across voice coil	3.73 MHz (11 MHz)	Gang closed	L19 ( L16 ) SW1, osc. ( SW2, " )	Maximum output	1
2	Loop (TP1)	V.T.V.M. across voice coil	12.4 MHz (27 MHz)	Gang open	C136 ( C135 ) trimmer ( " )	Maximum output	2
3	Repeat Steps 1 and 2						3
4	Loop (TP1)	V.T.V.M. across voice coil	4.3 MHz (13 MHz)	Tune for signal	L17 ( L15 ) SW1, ant. ( SW2, " )	Maximum output	4
5	Loop (TP1)	V.T.V.M. across voice coil	10 MHz (24 MHz)	Tune for signal	C113 ( C114 ) trimmer ( " )	Maximum output	5
6	Repeat Steps 4 and 5						6
NOTE: ( ) For SW2 only							
<b>Set Function Switch to LW</b>							
1	Loop	V.T.V.M. across voice coil	140 KHz	Gang closed	L9 LW, osc.	Maximum output	1
2	Loop	V.T.V.M. across voice coil	300 KHz	Gang open	C78 trimmer	Maximum output	2
3	Repeat Steps 1 and 2						3
4	Loop	V.T.V.M. across voice coil	180 KHz	Tune for signal	L7 LW, ant.	Maximum output	4
5	Loop	V.T.V.M. across voice coil	270 KHz	Tune for signal	C70 trimmer	Maximum output	5
6	Repeat Steps 4 and 5						6
NOTE:							
<b>Set Function Switch to FM (M.P.X)</b>							
1	TP1 (*240 Ω Ant. terminal)	V.T.V.M. across D13 (TP4)	(SSG98MHz output 60dB) 67 KHz		L10 Trap coil	Minimum output Less than 3 mV	1
2	TP1 (*240 Ω Ant. terminal)	V.T.V.M. across D11, D12 (TP3)	19 KHz		T1, T2	Maximum output More than 180 mV	2
3	TP1 (*240 Ω Ant. terminal)	V.T.V.M. across D13 (TP4)	38 KHz		T3	Maximum output More than 800 mV	3
4	TP1 (*240 Ω Ant. terminal)	V.T.V.M. across voice coil	1 KHz		T3	Stereo right (Left chan. output) (Increase signal input) Stereo left (Right chan. output) (Increase signal input)	4
NOTE: (* ) For LW/MW/FM only							

## ALIGNMENT

Step	Connect Signal Source To—	Connect Output Indicator To—	Set Signal To— Insert Markers	Set Radio Dial To—	Adjust—	Adjust For—	Step	
<b>Set Function Switch to FM</b>								
1	TP2	AC probe across R30 or R31 (Marked with ⊙)	10.7 MHz	Gang closed	FM IFT1A, IFT1B IFT2, IFT3 IFT4, IFT5	Maximum output	1	
2	TP2	AC probe across R30 or R31	10.7 MHz	Gang closed	L5 (Trap)	Minimum output	2	
3	TP2	DC probe to R29 (Marked with △)	10.7 MHz	Gang closed	FM IFT5	Zero reading apositive or negative reading on either side of correct setting	3	
4	TP1 (*240 Ω Ant. terminal)	AC probe across voice coil	86 MHz	Gang closed	L6 (osc. coil)	Maximum output	4	
5			110 MHz	Gang open	C15 (osc. trimmer)		5	
6	Repeat Steps 4 and 5							6
7	TP1 (*240 Ω Ant. terminal)	AC probe across voice coil	86 MHz	Tune for signal	L2, L3, L4	Maximum output	7	
8			110 MHz		C5, C10		8	
9	Repeat Steps 7 and 8							9
NOTE: ( * ) For LW/MW/FM only								

## P.C BOARD BOTTOM VIEW (AUX)





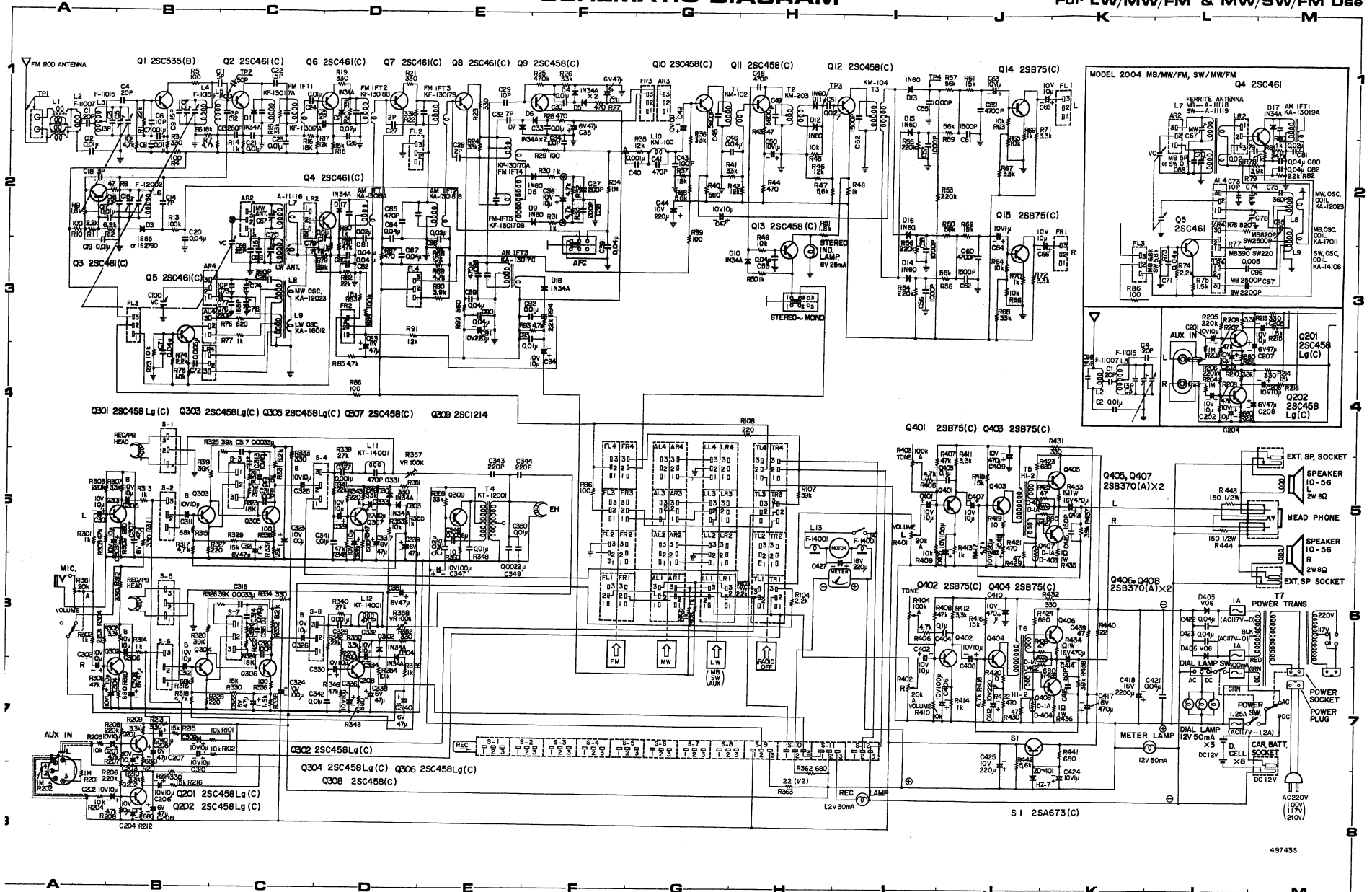
## CONTROLS

	LW/MW/FM	MW/SW(MB)/FM	AM/FM	MW/SW <sub>1</sub> /SW <sub>2</sub>	
1	FM antenna	FM antenna	FM antenna	SW antenna	1
2	FM stereo indicator	FM stereo indicator	FM stereo indicator	NON	2
3	AFC	AFC	AFC	DX-Local	3
4	Volume control R	Volume control R	Volume control R	Volume control R	4
5	Volume control L	Volume control L	Volume control L	Volume control L	5
6	Dial light switch(battery)	Dial light switch (battery)	Dial light switch (battery)	Dial light switch (battery)	6
7	Indicating instrument	Indicating instrument	Indicating instrument	Indicating instrument	7
8	Loudspeaker L	Loudspeaker L	Loudspeaker L	Loudspeaker L	8
9	Push button on/off	Push button on/off	Push button on/off	Push button on/off	9
10	Jack for additional speaker	Jack for additional speaker	Jack for additional speaker	Jack for additional speaker	10
11	Pause button	Pause button	Pause button	Pause button	11
12	Microphone jack	Microphone jack	Microphone jack	Microphone jack	12
13	Stereo headest jack	Stereo headest jack	Stereo headest jack	Stereo headest jack	13
14	Tab for base release	Tab for base release	Tab for base release	Tab for base release	14
15	Carrying handle	Carrying handle	Carrying handle	Carrying handle	15
16	Provision for hanging unit	Provision for hanging unit	Provision for hanging unit	Provision for hanging unit	16
17	Mono/Stereo switch	Mono/Stereo switch	Mono/Stereo switch	AUX	17
18	Tuning dial, illuminated	Tuning dial, illuminated	Tuning dial, illuminated	Tuning dial, illuminated	18
19	Push buttons for: FM	Push buttons for: FM	Push buttons for: FM	Push buttons for: SW <sub>2</sub>	19
20	" MW	" MW	" AM	" SW <sub>1</sub>	20
21	" LW	" SW(MB)	" AUX	" AM	21
22	" RADIO OFF	" RADIO OFF	" RADIO OFF	" RADIO OFF	22
23	Bass/Treble control	Bass/Treble control	Bass/Treble control	Bass/Treble control	23
24	Tuning	Tuning	Tuning	Tuning	24
25	Recording level	Recording level	Recording level	Recording level	25
26	Loudspeaker R	Loudspeaker R	Loudspeaker R	Loudspeaker R	26
27	Record button	Record button	Record button	Record button	27
28	Jack for additional speaker	Jack for additional speaker	Jack for additional speaker	Jack for additional speaker	28
29	Fast forward/fast rewind	Fast forward/fast rewind	Fast forward/fast rewind	Fast forward/fast rewind	29
30	Microphone volume control	Microphone volume control	Microphone volume control	Microphone volume control	30
31	Cassette insert	Cassette insert	Cassette insert	Cassette insert	31
32	Base	Base	Base	Base	32
33	AUX IN	AUX IN	AUX IN	AUX IN	33
34	Power input AC	Power input AC	Power input AC	Power input AC	34
35	Power input 12V car battery	Power input 12V car battery	Power input 12V car battery	Power input 12V car battery	35
36	FM ANT. input	NON	NON	NON	36
37	NON	★Change over switch for AC	★Change over switch for AC	★Change over switch for AC	37

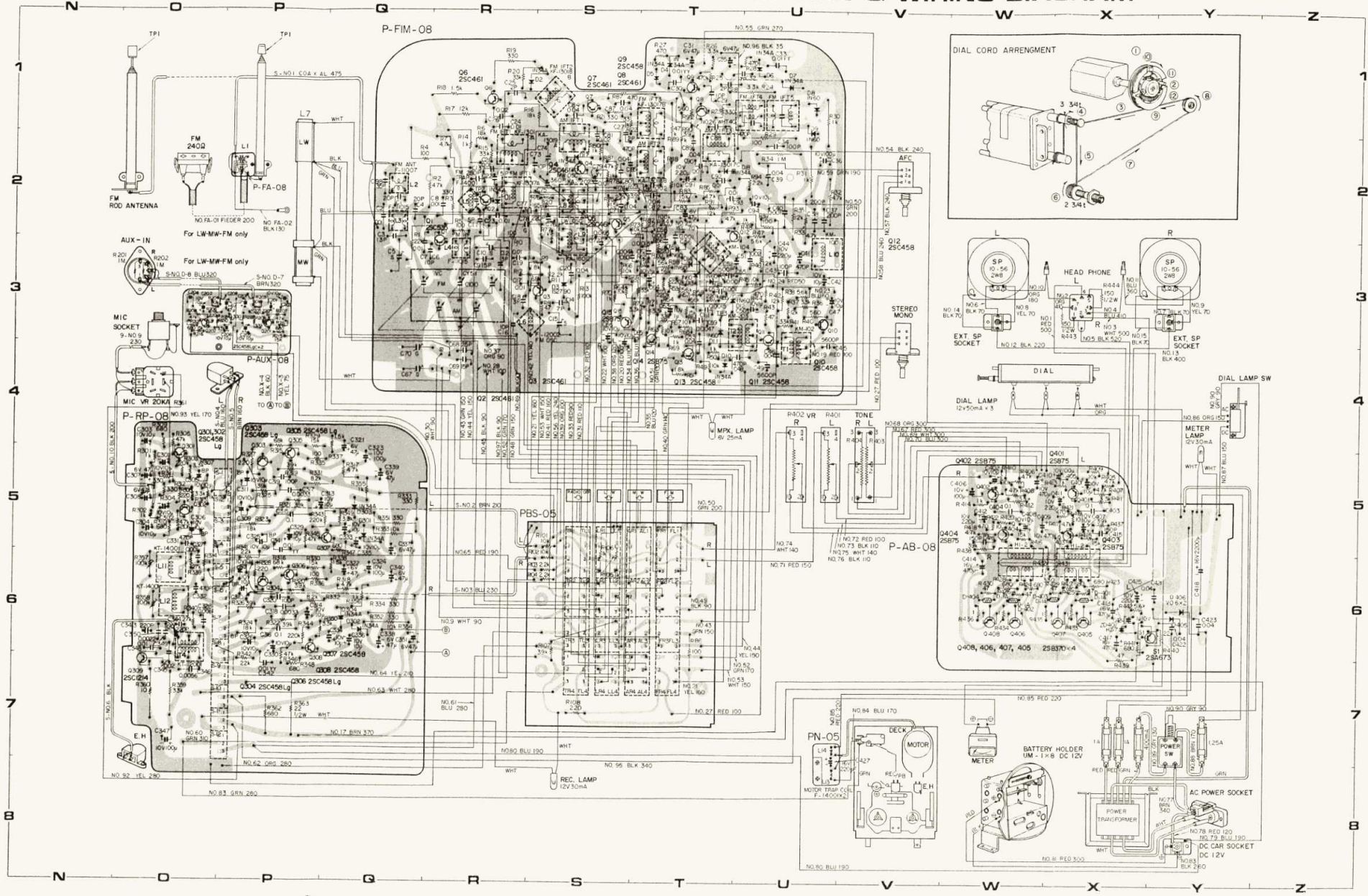
NOTE: ★ For Dual Voltage Type only

# SCHEMATIC DIAGRAM

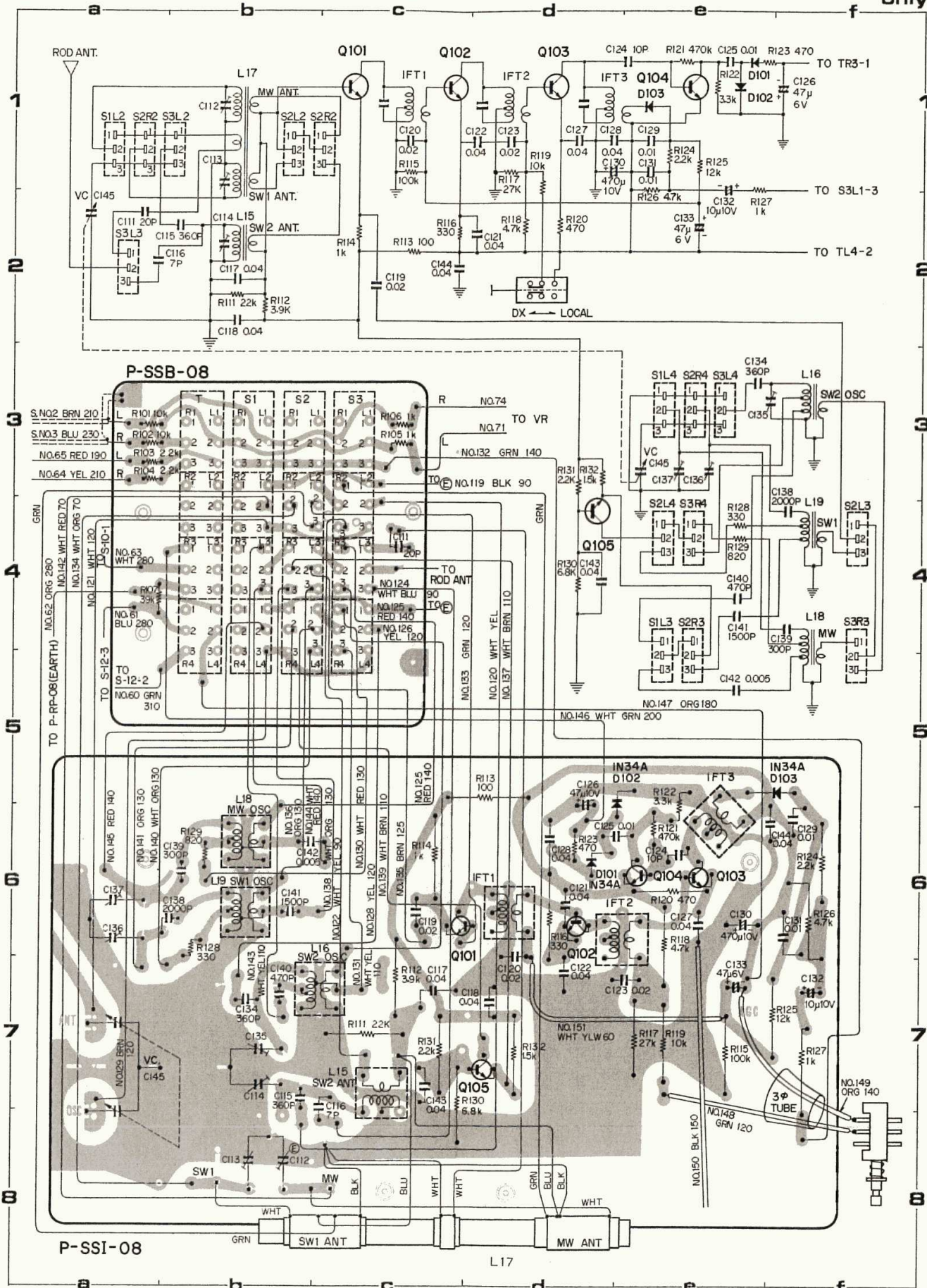
For LW/MW/FM & MW/SW/FM Use



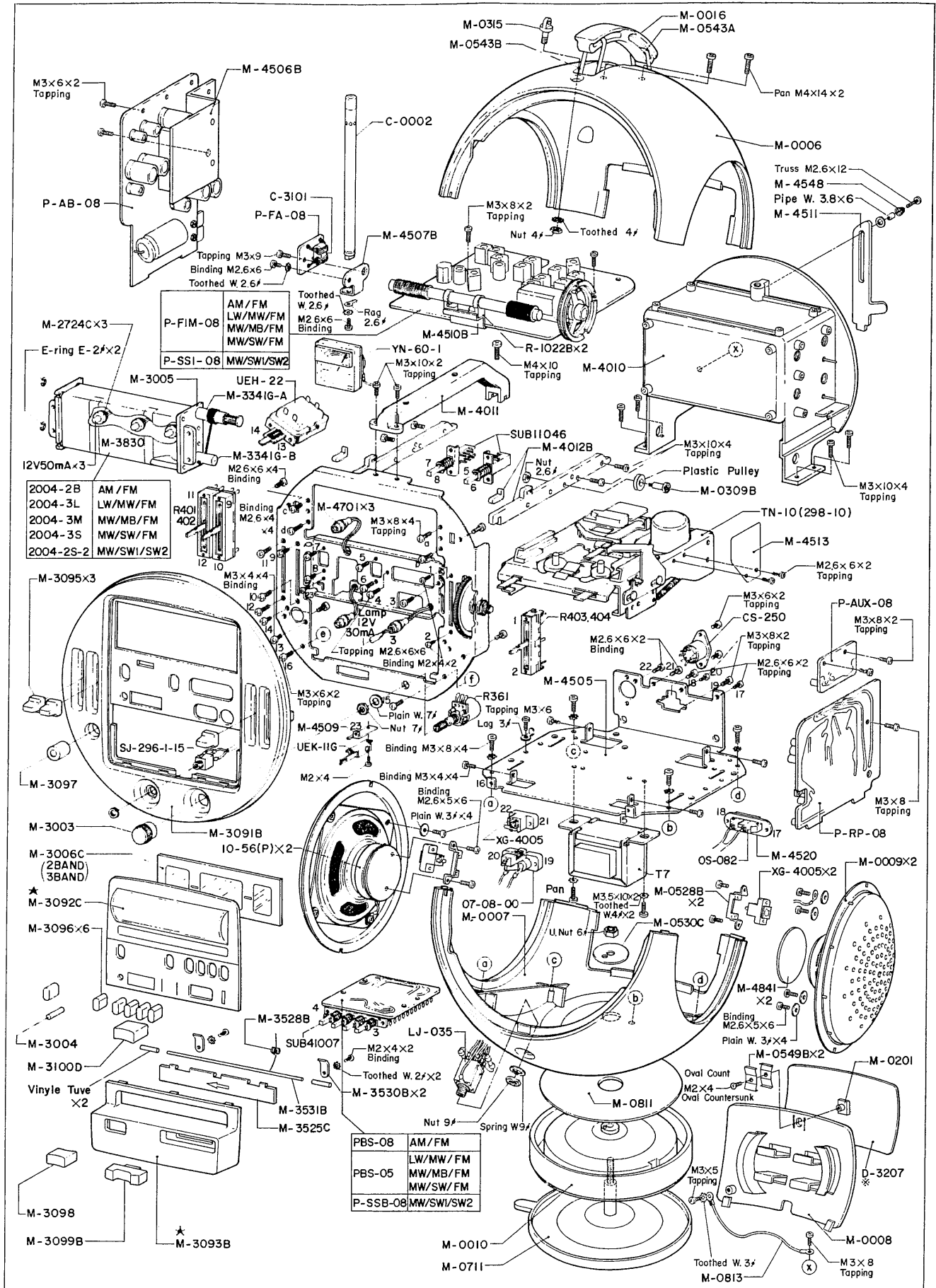
### P.C BOARD BOTTOM VIEW PARTS LOCATION & WIRING DIAGRAM



# SCHEMATIC & WIRING DIAGRAM For MW/SW1/SW2 only

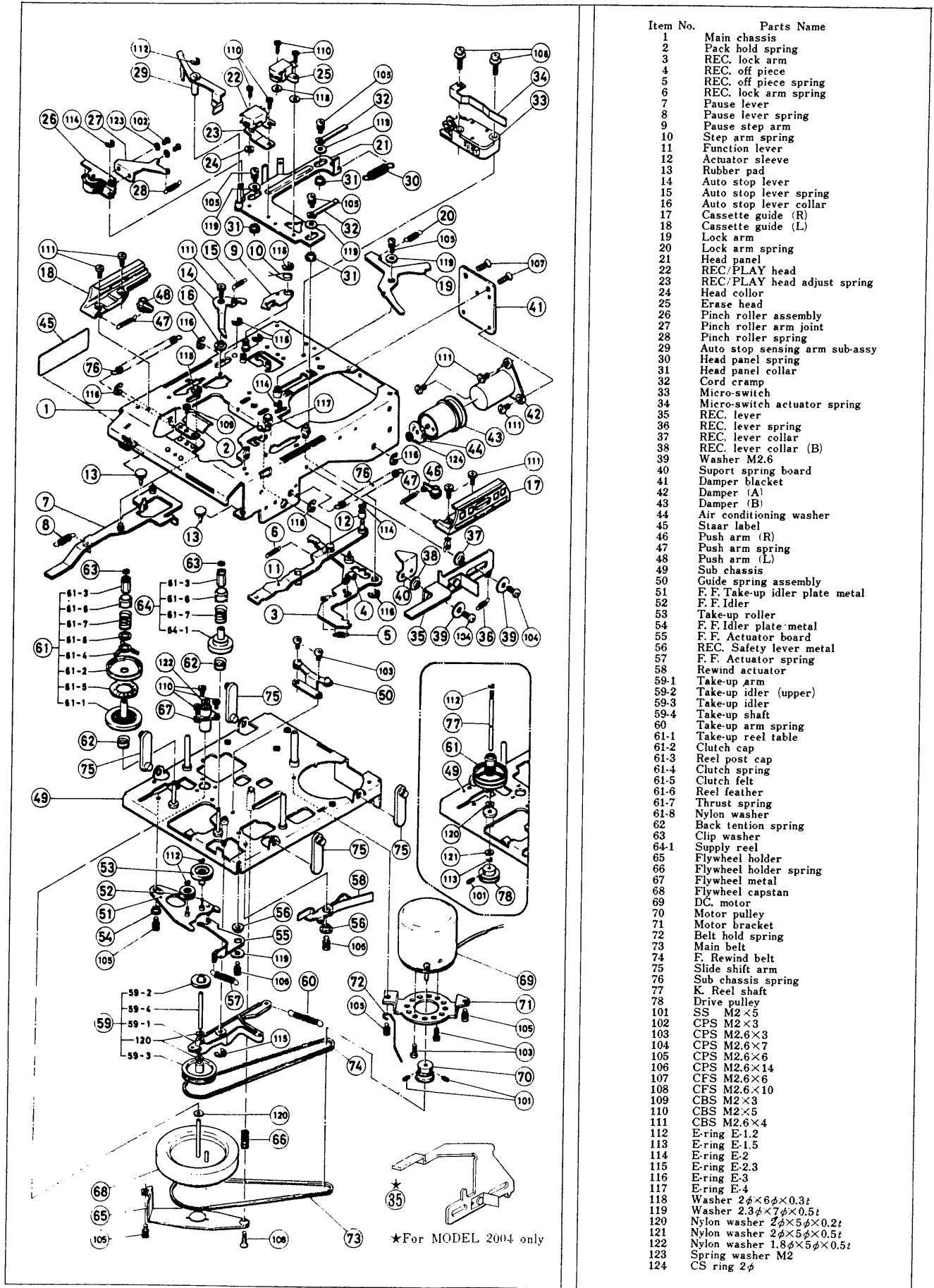


# EXPLODED VIEW CASE ASSEMBLY





# EXPLODED VIEW TN-10 MECHANISM



Item No.	Parts Name
1	Main chassis
2	Pack hold spring
3	REC. lock arm
4	REC. off piece
5	REC. off piece spring
6	REC. lock arm spring
7	Pause lever
8	Pause lever spring
9	Pause step arm
10	Step arm spring
11	Function lever
12	Actuator sleeve
13	Rubber pad
14	Auto stop lever
15	Auto stop lever spring
16	Auto stop lever collar
17	Cassette guide (R)
18	Cassette guide (L)
19	Lock arm
20	Lock arm spring
21	Head panel
22	REC/PLAY head
23	REC/PLAY head adjust spring
24	Head collar
25	Erase head
26	Pinch roller assembly
27	Pinch roller arm joint
28	Pinch roller spring
29	Auto stop sensing arm sub-assy
30	Head panel spring
31	Head panel collar
32	Cord clamp
33	Micro-switch
34	Micro-switch actuator spring
35	REC. lever
36	REC. lever spring
37	REC. lever collar
38	REC. lever collar (B)
39	Washer M2.6
40	Support spring board
41	Damper blacket
42	Damper (A)
43	Damper (B)
44	Air conditioning washer
45	Staar label
46	Push arm (R)
47	Push arm spring
48	Push arm (L)
49	Sub chassis
50	Guide spring assembly
51	F. F. Take-up idler plate metal
52	F. F. Idler
53	Take-up roller
54	F. F. Idler plate metal
55	F. F. Actuator board
56	REC. Safety lever metal
57	F. F. Actuator spring
58	Rewind actuator
59-1	Take-up arm
59-2	Take-up idler (upper)
59-3	Take-up idler
59-4	Take-up shaft
60	Take-up arm spring
61-1	Take-up reel table
61-2	Clutch cap
61-3	Reel post cap
61-4	Clutch spring
61-5	Clutch felt
61-6	Reel leather
61-7	Thrust spring
61-8	Nylon washer
62	Back tention spring
63	Clip washer
64-1	Supply reel
65	Flywheel holder
66	Flywheel holder spring
67	Flywheel metal
68	Flywheel capstan
69	DC. motor
70	Motor pulley
71	Motor bracket
72	Belt hold spring
73	Main belt
74	F. Rewind belt
75	Slide shift arm
76	Sub chassis spring
77	K. Reel shaft
78	Drive pulley
101	SS M2×5
102	CPS M2×3
103	CPS M2.6×3
104	CPS M2.6×7
105	CPS M2.6×6
106	CPS M2.6×14
107	CFS M2.6×6
108	CFS M2.6×10
109	CBS M2×3
110	CBS M2×5
111	CBS M2.6×4
112	E-ring E-1.2
113	E-ring E-1.5
114	E-ring E-2
115	E-ring E-2.3
116	E-ring E-3
117	E-ring E-4
118	Washer 2φ×6φ×0.3t
119	Washer 2.3φ×7φ×0.5t
120	Nylon washer 2φ×5φ×0.2t
121	Nylon washer 2φ×5φ×0.5t
122	Nylon washer 1.8φ×5φ×0.5t
123	Spring washer M2
124	CS ring 2φ

\*For MODEL 2004 only

# SERVICE PARTS LIST

For LW/MW/FM Use

Symbol No.	Description	Location	Symbol No.	Description	Location	Symbol No.	Description	Location	
<b>RESISTORS</b>									
R1	Carbon 1/4W 22K ohm	B1 Q3	R101,102	Carbon 1/4W 10K ohm	C7 S5	C7,8	Ceramic	0.01µF B1 Q3	
R2	" " 4.7K "	B2 Q2	R103,104	" " 2.2K "	H6 S6	C9	"	15pF " R3	
R3	" " 330 "	" R2	R105,106	" " 1K "	G6 "	C10	Trimmer	S-8P " "	
R4,5	" " 100 "	" Q2	R107	" " 39K "	H5 "	C11	Ceramic	5pF " R2	
R6	" " 18K "	" R2	R108	" " 220 "	H4 S7	C12	"	3pF C1 R3	
R7	" " 4.7K "	" "	R201,202	" " 1M "	A8 O3	C13	"	280pF C2 R2	
R8	" " 47 "	" S3	R203,204	" " 10K "	A7 P3	C14	"	7pF B2 S3	
R9	" " 1.8K "	A2 "	R205,206	" " 220K "	B7 "	C15	Trimmer	S-8P " "	
R10	" " 100 "	" R3	R207,208	" " 47K "	" "	C16	Ceramic	10pF " R3	
R11	" " 2.2K "	" "	R209,210	" " 3.3K "	" "	C17	"	0.01µF A2 "	
R12	" " 6.9K "	" "	R211,212	" " 680 "	" "	C18	"	3pF " R2	
R13	" " 100K "	B2 S3	R213,214	" " 330 "	" "	C19	"	0.01µF A3 R3	
R14	" " 1K "	C2 R2	R215,216	" " 15K "	" "	C20	"	0.04µF B3 S3	
R15	" " 33K "	C1 "	R301,302	" " 1K "	A5 O5	C21	"	0.01µF C2 R2	
R16	" " 18K "	C2 S1	R303,304	" " 220K "	" "	C22	"	1.5pF C1 "	
R17	" " 12K "	" R1	R305,306	" " 47K "	" "	C23,24	"	0.01µF C2 "	
R18	" " 15K "	D2 "	R307,308	" " 3.3K "	B5 O3	C25	"	2pF D1 R1	
R19	" " 330 "	D1 "	R309,310	" " 680 "	" O4	C26	"	0.02µF D2 "	
R20	" " 33K "	" "	R311,312	" " 330 "	O5	C27,28	"	2pF D1 S2	
R21	" " 330 "	" S1	R313,314	" " 1K "	" "	C29	"	10pF E1 T1	
R22	" " 33K "	" "	R315,316	" " 68K "	" P5	C30	"	0.01µF F1 "	
R23	" " 330 "	E1 T1	R317,318	" " 4.7K "	" Q5	C31	Electrolytic	47µF6V " "	
R24	" " 33K "	E2 U1	R319,320	" " 39K "	" P5	C32	Ceramic	7pF E1 U1	
R25	" " 470K "	F1 T1	321,322	" " "	" "	C33	"	0.01µF F1 "	
R26	" " 33K "	" "	R323,324	" " 18K "	C5	C34	"	100pF F2 U2	
R27,28	" " 470 "	" "	R325,326	" " 39K "	" P5	C35	Electrolytic	47µF6V F1 T1	
R29	" " 100 "	F2 U2	R327,328	" " 220 "	B5 "	C36	"	10µF10V F2 U2	
R30,31	" " 1K "	" U1	R329,330	" " 15K "	C5 "	C37,38	Ceramic	200pF " "	
R32,33	" " 4.7K "	" U2	R331,332	" " 8.2K "	" "	C39	"	0.04µF F3 "	
R34	" " 1M "	" "	R333,334	" " 330 "	" Q5	C40	Mylar	0.001µF G2 "	
R35	" " 12K "	G2 "	R335,336	" " 100 "	" P5	C41	Styrol	470pF " U3	
R36	" " 33K "	" U3	R337,338	" " 1.5K "	" Q4	C42	Electrolytic	10µF10V G1 "	
R37	" " 12K "	" "	R339,340	" " 27K "	D5 Q6	C43	Ceramic	100pF G2 "	
R38	" " 5.6K "	" "	R341,342	" " 22K "	" P6	C44	Electrolytic	220µF10V " "	
R39	" " 100 "	" U2	R343,344	" " 220K "	" Q5	C45	Styrol	5600pF " U4	
R40	" " 560 "	" U3	R345,346	" " 47K "	" P5	C46	Ceramic	0.04 " "	
R41	" " 33K "	" "	R347,348	" " 680 "	" Q6	C47	Electrolytic	10µF10V " U3	
R42	" " 12K "	H2 "	R349,350	" " 3.3K "	" Q5	C48	Styrol	470pF H1 T4	
R43	" " 47 "	H1 "	R351,352	" " 330 "	" "	C49	"	5600pF " U4	
R44	" " 470 "	H2 "	R353,354	" " 10K "	" "	C50	Electrolytic	1µF10V H2 U3	
R45	" " 10K "	" "	R355,356	" " 1K "	" "	C51	Ceramic	0.02µF H1 "	
R46	" " 12K "	" "	R357,358	Semi fixed 100K "	" O6	C52	Styrol	1500pF I1 T3	
R47	" " 5.6K "	" U2	R359	Carbon 1/2W 33K "	E5 O7	C53	Ceramic	0.04µF H3 "	
R48	" " 1K "	I2 "	R360	" " 10 "	" "	C54	"	NON	
R49	" " 10K "	H3 T4	R361	Mic (VM-11A) 20K "	A6 O4	C55,56	Mylar	1000pF I1 T3	
R50	" " 1K "	" "	R362	Carbon 1/2W 680 "	H8 P7	57,58	"	4700pF J1 "	
R51	" " 1.8K "	H2 "	R363	Metal 1/2W 22 "	" "	C59,60	"	1500pF " "	
R52	" " NON	" "	R401,402	VR (LF-14T) 20K A I5	U4	C61,62	"	4700pF " "	
R53,54	" " 220K "	I2 T2	R403,404	STONE (MF-57R) 100K "	" V4	C63,64	Electrolytic	1µF10V " "	
55,56	" " "	" "	R405,406	Carbon 1/2W 4.7K ohm "	X5	C65,66	"	10µF10V " S3	
R57,58	" " 56K "	J1 T3	R407,408	" " 47K "	" "	C67	Trimmer	S-15P C2 Q4	
59,60	" " "	" "	R409,410	" " 10K "	" "	C68	Ceramic	25pF C3 R4	
R61,62	" " 15K "	" "	R411,412	" " 3.3K "	J5 "	C69	"	15pF " "	
R63,64	" " 10K "	" "	R413,414	" " 1K "	" "	C70	Trimmer	S-15P " Q4	
65,66	" " "	" "	R415,416	" " 15K "	" "	C71	Ceramic	0.04µF B4 S2	
R67,68	" " 33K "	J2 "	R417,418	" " 4.7K "	" "	C72	"	0.005µFYY " S3	
R69,70	" " 1K "	J1 "	R419,420	" " 10 "	" "	C73	"	10pF C3 R2	
R71,72	" " 3.3K "	" "	R421,422	" " 470 "	" "	C74	Trimmer	S-15P " S2	
R73	" " 10K "	B4 S2	R423,424	" " 680 "	X6	C75	Styrol 5%	360pF " "	
R74	" " 2.2K "	" "	R425,426	" " 47 "	" "	C76	"	220pF " "	
R75	" " 1.5K "	" "	R427,428	" " 680 "	" "	C77	Ceramic	165pF " R2	
R76	" " 820 "	C3 "	R429,430	" " 47 "	" "	C78	Trimmer	S-15P " "	
R77,78	" " 1K "	" "	R431,432	" " 330 "	K4 "	C79	Ceramic	0.01µF D2 S2	
R79	" " 3.9K "	D3 T2	R433,434	Metal 1W 1 "	K5 "	C80	"	0.04µF D3 "	
R80	" " 1K "	D2 S2	R435,436	" " "	" "	C81	"	0.02µF D2 "	
R81	" " 47K "	D3 "	R437,438	Carbon 1/4W 39K "	" X5	C82	"	0.04µF D3 T2	
R82	" " 22K "	" T2	R439	" " 47 "	K6 X6	C83	Electrolytic	47µF6V D4 "	
R83	" " 15K "	" "	R440	" " 22 "	" Y6	C84	Ceramic	0.04µF D2 S1	
R84	" " 100K "	" "	R441	" " 680 "	K7 X6	C85	"	470pF " S2	
R85	" " 4.7K "	D4 "	R442	" " 5.6K "	J7 "	C86	"	0.02µF E2 T2	
R86	" " 100 "	" T6	R443,444	Metal 1/2W 150 "	L5 X3	C87,89,90	"	0.04µF D3 S1	
R87	" " 470 "	D3 S2				C88	"	470pF E3 T1	
R88	" " 10K "	E3 T2	<b>CAPACITORS</b>						
R89	" " 4.7K "	" T1	C1	Ceramic	20pF	A1 Q2	C91	Electrolytic	220µF10V " T2
R90	" " 3.9K "	" T2	C2	"	0.01µF	A2 "	C92,93	Ceramic	0.02µF F3 "
R91	" " 12K "	D3 "	C3	"	13pF	A1 "	C94	Electrolytic	10µF10V F4 U2
R92	" " 560 "	E3 T1	C4	"	20pF	B1 "	C95	"	NON
R93	" " 4.7K "	F3 T2	C5	Trimmer	S-8P	" Q3	C96	"	"
R94	" " 2.2K "	" U2	C6	Ceramic	10pF	" R3	C97	"	"
							C98	"	"

# SERVICE PARTS LIST

For LW/MW/FM Use

Symbol No.	Description	Location	Symbol No.	Description	Location	Description	Parts No.		
<b>CAPACITORS</b>			<b>COILS &amp; TRANSFORMERS</b>						
C99	NON		L1	FM Baloon	C-3101	A1	P2	Front Panel	M-3091B
C100	V.C.	CY-51C121	B3	R3				Dial Cover	M-3092C
C201,202			L3,4	FM RF	F-11015	"	"	Dial Scale Mask	M-3006C
203,204	Electrolytic	10 $\mu$ F10V	B7	P3				Dial Scale Film (LW-MW-FM)	M-3830
205,206	"		L5	FM Trap	F-14001	B1	R2	Dial Case	M-3005
C207,208	"	47 $\mu$ F6V	"	"		B2	R3	Dial Shaft A	M-3341G-A
C301,302	"	10 $\mu$ F10V	A5	O5		B2	R3	Dial Shaft B	M-3341G-B
303,304	"		"	"		"	"	Dial Roller	M-3341G-C
C305,306	" (B.P)	10 $\mu$ F10V	B5	"		C3	S2	Cassette Deck Cover	M-3093B
C307,308	Electrolytic	47 $\mu$ F6V	"	"		"	"	Dust Cover	M-3525C
C309,310	"	10 $\mu$ F10V	B7	P5		H5	U8	" " Spring	M-3528B
C311,312	" (B.P)	10 $\mu$ F10V	B5	"		"	"	" " Shaft	M-3531B
C313,314	Electrolytic	10 $\mu$ F10V	C5	"		"	"	" " Fit Metal	M-3530B
C315,316	Mylar	0.1 $\mu$ F	"	"		"	"	Mic VR Knob	M-3003C
C317,318	"	0.0033 $\mu$ F	"	"		"	"	Lamp SW. Button	M-3004B
C319,320	Ceramic	100pF	"	"		"	"	Tuning Knob	M-3094
C321,322	Electrolytic	47 $\mu$ F6V	"	Q5		"	"	Slide VR. Knob	M-3095
C323,324	"	100 $\mu$ F10V	"	"		"	"	Push Button	M-3096
C325,326	" (B.P)	10 $\mu$ F10V	"	P5		"	"	Power SW. Button	M-3097B
C327,328	Mylar	0.001 $\mu$ F	D5	O5		"	"	Pouse Button	M-3098B
C329,330	Electrolytic	10 $\mu$ F10V	"	P5		"	"	Eject Button	M-3099C
C331,332	Styrol 10%	470pF	"	O5		"	"	REC Button	M-3100D
C333,334	Electrolytic	10 $\mu$ F10V	"	Q5		"	"	Front Chassies	M-4508
335,336	"		"	"		"	"	Bottom Chassies	M-4505
C337,338	"	47 $\mu$ F6V	"	"		"	"	Plastic Chassies	M-4010
339,340	"		"	"		"	"	Center Beam	M-4011
C341,342	Ceramic	0.01 $\mu$ FYY	"	P6		"	"	Side Beam	M-4012B
C343,344	Styrol 5%	220pF	E5	O6		"	"	Wedge for Side Beam	M-4012B
C345	Mylar	0.02 $\mu$ F	"	O7		"	"	Battery Stoper	M-4511
C346	"	0.0056 $\mu$ F	"	"		"	"	" " Spring	M-4548
C347	Electrolytic	100 $\mu$ F10V	E6	"		"	"	" " Pipe Washer	3.8 · 6
C348	Mylar	0.01 $\mu$ F	E5	O6		"	"	Radiator Board	M-4506
C349	"	0.0033 $\mu$ F	"	"		"	"	Rod ANT. Fit Metal	M-4507B
C350	"	0.01 $\mu$ F	"	"		"	"	Bar ANT. Metal	M-4510B
C351	Electrolytic	47 $\mu$ F6V	D6	Q6		"	"	Bar ANT. Holder	R-1022B
C401,402	Electrolytic	10 $\mu$ F10V	I5	X5		"	"	Tuning Shaft	M-3342
C403,404	Mylar 20%	0.1 $\mu$ F	J5	"		"	"	V.C. Joint	M-2332
C405,406	Electrolytic	100 $\mu$ F10V	"	"		"	"	V.C. Pulley	NO.10
C407,408	"	10 $\mu$ F10V	"	"		"	"	Dial String	0.6 < 1m
C409,410	"	470 $\mu$ F10V	"	W5		"	"	" Rubber String	120mm
C411,412	"	220 $\mu$ F10V	"	X5		"	"	" Coil Spring	M-2597
C413,414	"	470 $\mu$ F16V	K5	X6		"	"	" Plastic Pulley	
C415,416	Ceramic	150pF	"	X5		"	"	" Pulley Shaft	M-0309B
C417	Electrolytic	470 $\mu$ F16V	K7	X6		"	"	" Lamp Holder	M-2724C
C418	" (NEW)	2200 $\mu$ F16V	"	Y6		"	"	Stereo, Meter & REC. Lamp Holder	M-4701
(C419,420)	" (OLD)	1000 $\mu$ F16V	"	"		"	"	Shield Plat for Tape Deck	M-4513
C421,422	Ceramic	0.04 $\mu$ F	L7	"		"	"	Himeron for V.R.	M-3825
423	"		"	"		"	"	" " Tone-Tuning	M-3826B
C424	Electrolytic	1 $\mu$ F10V	K8	X6		"	"	" " Uni-SW. A	M-3827
C425	"	220 $\mu$ F10V	J7	"		"	"	" " Uni-SW. B	M-3828
C427	"	220 $\mu$ F16V	I6	U7		"	"	SP. Insulator Sheet	M-4841
<b>TRANSISTORS &amp; DIODES</b>			<b>MISCELLANEOUS</b>						
Q1	2SC-535 (B)	B1	R3	Power Switch	UEH-22			FM. ANT. Terminal Board	M-4520
Q2,3,4,5,6,7,8	2SC-461 (C)	C1	R2	Pilot Switch	UEK-11G				
Q9,10,11,12,13	2SC-458 (C)	F1	T1	AFC Switch	SUB11046				
Q14,15	2SB-75 (C)	J1	T3	Mono/Stereo Switch	"				
Q201,202,301,302	2SC-458LG (C)	B7	P3	Function Switch	SUB41007				
303,304,305,306	"			Headphone Jack	LJ-035				
Q307,308	2SC-458 (C)	D5	Q5	Mic Socket	SJ-296-1-15				
Q309	2SC-1214	E5	O7	EXT. SP. Sockets	XG-4005				
Q401,402,403,404	2SB-75 (C)	J5	X5	DC CAR Socket	XG-4005				
Q405,406,407,408	2SB-370 (A)	K5	X6	AC Power Socket (SEMKO)	07-08-00				
S1	2SA-673 (C)	J7	Y6	Tuning/REC Meter	YN-60-1				
D1,2	Diode 1N34A	C1	R2	FM Terminal	OS-082				
D3	Varicap 1S85 or 1S2790	B2	S3	AUX Terminal	CS-250				
D4,5,6,7	Diode 1N34A	F1	T1	Lamp for Dial	12V50mA				
D8,9	" 1N60	F2	U1	Lamp for Rec. and Rec. Meter	12V30mA				
D10	" 1N34A	H3	T4	Lamp for MPX.	6V25mA				
D11,12,13	" 1N60	H1	T3	Speakers	10-56(P)				
14,15,16	"	"	"	Microphone					
D17,18	" 1N34A	D2	S2	Cassette Tape Deck	TN-10 (298-10)				
D301,302	"	"	"	Rod Antenna	C-0002				
303,304	" 1N34A	D5	Q5						
D401,402	Thermistor D-1A	J5	X6						
403,404	"	"	"						
D405,406	Rectifier V06B	L6	Y6						
ZD-401	Zener Diode HZ-7	J8	X6						
			<b>MECHANICAL</b>						
			Carrying Handle					M-0016	
			Handle Metal (A)					M-0543B (A)	
			" " (B)					" (B)	
			Hanging Metal					M-0315	
			Upper Case					M-0006	
			Speaker Grill					M-0009	
			SP Socket Fit Metal					M-0528B	
			Bottom Case					M-0007	
			Base Mount Washer					M-0530B	
			Base Round Felt					M-0811	
			Base					M-0010	
			Suction Rubber					M-0711	
			Rear Cover					M-0008	
			Metal Knob for Rear Cover					M-0201	
			Spring Plat					M-0549B	
			Rating Plat (SEMKO)					D-3207	
						<b>For MW/SW/FM Use</b>			
Symbol No.	Description	Location							
<b>RESISTORS</b>									
R73	Carbon	1/4W	5.8K ohm	L3					
R77	"	"	220 "	"					
R201,202	NON								
R203,204	Carbon	1/4W	1M ohm	L3					
<b>CAPACITORS</b>									
C68	NON								
C69	NON								
C72	NON								
C76	NON								
C77	NON								
C68	NON								
C69	NON								
C72	NON								
C76	NON								
C77	NON								
C95	Styrol	2500pF	M2						
C96	Ceramic	0.005 $\mu$ F	L3						
C97	Styrol	2200pF	"						
C98	Ceramic	35pF	K4						

# SERVICE PARTS LIST

Symbol No.	Description	Parts No.	Symbol No.	Description	Location	Symbol No.	Description	Location
<b>COILS</b>								
L1	FM Baloon	NON	C68	Ceramic 10pF	C3 R4	C124	Ceramic 10pF	e1 e6
L7	MW SW Bar	A-11119	C69	" NON		C125	" 0.01µF	" d6
L9	SW OSC	KA-14108	C73	" "		C126	Electrolytic 47µF6V	f1 d5
			C74	Trimmer "		C127,128	Ceramic 0.04µF	d1 e6
Description		Parts No.	C75	" "		C129	" 0.01µF	e1 f6
			C76	Styrol 360pF	C3 S2	C130	Electrolytic 470µF10V	d1 e6
			C77	Ceramic 15pF	" R2	C131	Ceramic 0.01µF	e1 f6
Baloon	P-FA-08	NON	C98	" 35pF	K4 —	C132	Electrolytic 10µF10V	e2 f7

<b>PRINT CIRCUIT BOARD</b>		
Baloon	P-FA-08	NON

<b>MISCELLANEOUS</b>		
Dial Cover	(For MW/SW/FM only)	
Dial Scale Film	"	
Cassette Deck Cover	"	
Rating Plat	"	
FM ANT. Terminal Board	M-4520	NON
FM Terminal	OS-082	NON
AUX. Terminal	CS-250	NON
" "	4A-1350	
AC Power Socket	MA-25U	

**For MW/MB/FM Use**

Symbol No.	Description	Location
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<b>RESISTORS</b>		
R73	Carbon 1/4W 6.8K ohm	L3 —
R77	" " 390 " "	—
R201,202	" " NON	
R203,204	Carbon 1/4W 1M ohm	L3 —

<b>CAPACITORS</b>		
C68	Ceramic 5pF	L2 —
C69	" NON	
C72	" NON	
C76	" NON	
C77	" NON	
C95	Styrol 820pF	M2 —
C96	Ceramic 0.005µF	L3 —
C97	Styrol 2500pF	" —
C98	Ceramic 35pF	K4 —

Symbol No.	Description	Parts No.
<b>COILS</b>		
L1	FM Baloon	NON
L7	MW/MB Bar	A-11118
L9	MB OSC	KA-17011

<b>PRINT CIRCUIT BOARD</b>		
Baloon	P-FA-08	NON

<b>MISCELLANEOUS</b>		
Dial Cover	(For MW/MB/FM only)	
Dial Scale Film	"	
Cassette Deck Cover	"	
Rating Plat	"	
FM ANT. Terminal Board	M-4520	NON
FM Terminal	OS-082	NON
AUX Terminal	CS-250	NON
" "	4A-1350	
AC Power Socket	MA-25U	

**For AM/FM Use**

Symbol No.	Description	Location
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<b>RESISTORS</b>		
R76	" NON	
R77	Carbon 1/4W 820 ohm	C3 S2
R90	" " 3.3K ohm	E3 T2
R201,202	" " NON	
R203,204	Carbon 1/4W 1M ohm	L3 —

<b>CAPACITORS</b>		
C67	Trimmer NON	

Symbol No.	Description	Parts No.
<b>COILS</b>		
L1	FM Baloon	NON
L7	AM Bar ANT.	A-11216
L8	" "	NON
L9	AM OSC.	A-12023

Description	Parts No.
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**PRINT CIRCUIT BOARD**

Baloon	P-FA-08	NON
Function	PBS-05	NON
"	"	PBS-08

**MISCELLANEOUS**

Dial Cover	(For AM/FM only)	
Dial Scale Mask	(For 2BAND only)	
Dial Scale Film	(For AM/FM only)	
Cassette Deck Cover	"	
Rating Plat	"	
FM ANT. Terminal Board	M-4520	NON
FM Terminal	OS-082	NON
AUX Terminal	CS-250	NON
" "	4A-1350	
AC Power Socket	MA-25U	

**For MW/SW1/SW2 Use**

Symbol No.	Description	Location
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<b>RESISTORS</b>		
R1~94	" NON	
R108	" "	
R111	Carbon 1/4W 22K ohm	b2 c7
R112	" " 3.9K " "	" "
R113	" " 100 " "	e2 d5
R114	" " 1K " "	" e6
R115	" " 100K " "	c1 e7
R116	" " 330 " "	e2 d6
R117	" " 27K " "	d1 e7
R118	" " 4.7K " "	d2 e6
R119	" " 10K " "	d1 e7
R120	" " 470 " "	d2 e6
R121	" " 470K " "	e1 " "
R122	" " 3.3K " "	" e5
R123	" " 470 " "	" d6
R124	" " 2.2K " "	" f6
R125	" " 12K " "	" f7
R126	" " 4.7K " "	e2 f6
R127	" " 1K " "	" f7
R128	" " 330 " "	e4 b6
R129	" " 820 " "	" " "
R130	" " 6.8K " "	d4 c7
R131	" " 2.2K " "	d3 " "
R132	" " 1.5K " "	" d7

**CAPACITORS**

C1~100	" NON	
C111	Ceramic 20pF	a2 c4
C112,113	114 Trimmer S-15P	b1 c7
C115	Styrol 360pF	b2 d7
C116	Ceramic 7pF	a2 c7
C117,118	" 0.04µF	b2 " "
C119,120	" 0.02µF	c2 e6
C121,122	" 0.04µF	d2 d6
C123	" 0.02µF	d1 e7

C134	Styrol 360pF	e3 b7
C135,136	137 Trimmer S-15P	" "
C138	Styrol 2000pF	f4 b6
C139	" 300pF	" "
C140	" 470pF	e4 b7
C141	" 1500pF	" b6
C142	Ceramic 0.005µF	e5 " "
C143	" 0.04µF	d4 c7
C144	" "	c2 f6
C145	VC. 05B	a2 a7

**TRANSISTORS & DIODES**

Q1~15	" NON	
Q101,102,103	2SC-461(C)	c1 c6
Q104	2SC-458(C)	e1 e6
Q105	2SC-461(C)	d4 d7
D1~18	" NON	
D101,102,103	IN34A	e1 d6

**COILS & TRANSFORMERS**

L1~14	" NON	
L15	SW2 ANT A-11221	b2 c7
L16	" OSC A-19109	f3 " "
L17	MW-SW1 Bar A-11220	b1 d8
L18	MW OSC KA-12006	f4 b6
L19	SW1 OSC KA-18004	" " "
FM IFT1	" NON	
~IFT5	" "	
AM IFT1	KA-13019A	c1 d6
IFT2	KA-13019A	d1 e6
IFT3	KA-13019C	" " "
T1,2,3	" NON	

Description	Parts No.
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**PRINT CIRCUIT BOARD**

Baloon	P-FA-08	NON
RF. IF. MPX	P-FIM-08	NON
RF. IF	"	P-SSI-08
Function	PBS-05	NON
"	"	P-SSB-08

**MISCELLANEOUS**

Dial Cover	(For MW/SW1/SW2 only)	
Dial Scale Film	"	
Cassette Deck Cover	"	
Rating Plat	"	
FM ANT. Terminal Board	M-4520	NON
FM Terminal	OS-082	NON
AUX Terminal	CS-250	NON
" "	4A-1350	
AC Power Socket		
VC Fit Metal	M-4519	

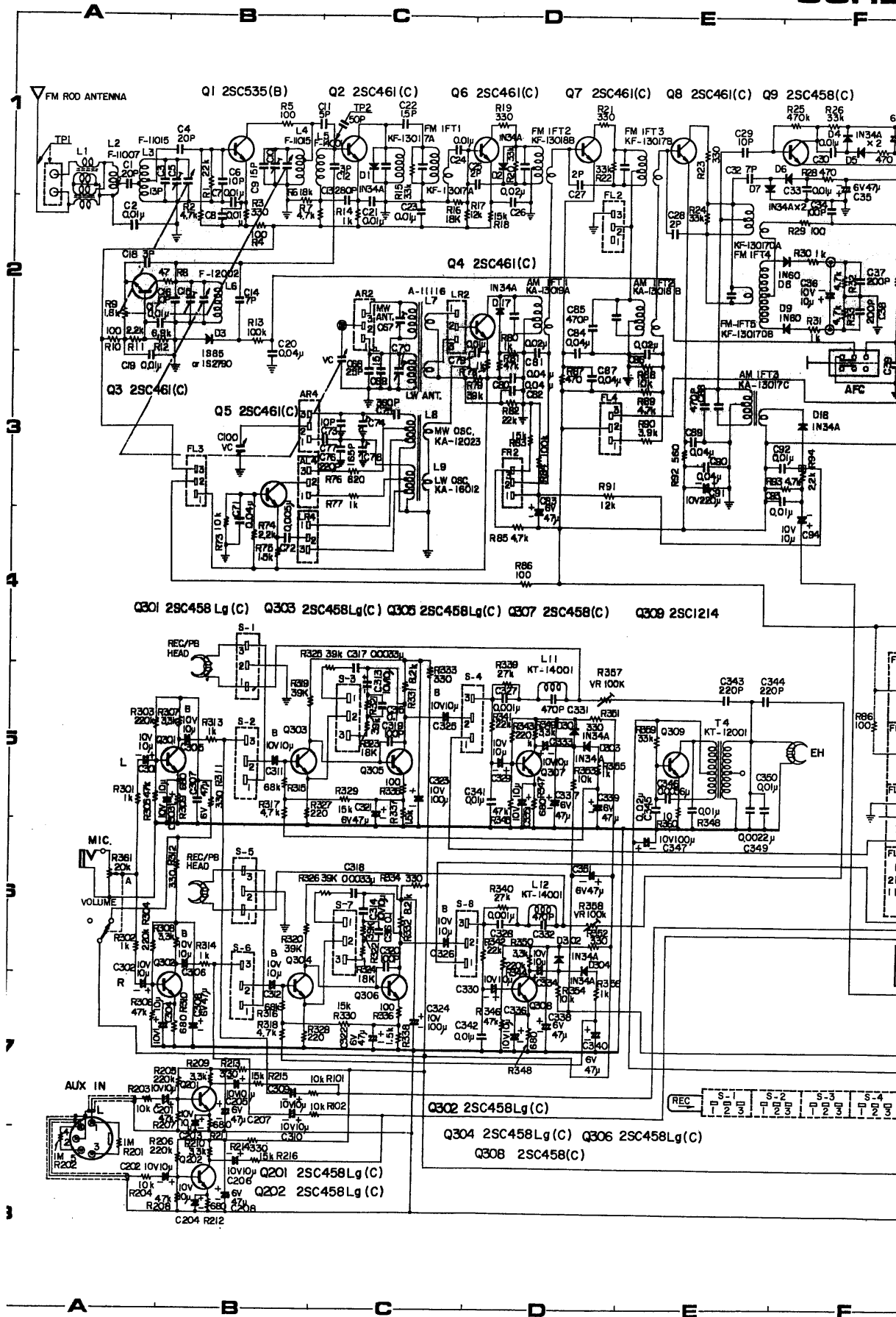
**For Dual Voltage Type Use**

Symbol No.	Description	Parts No.
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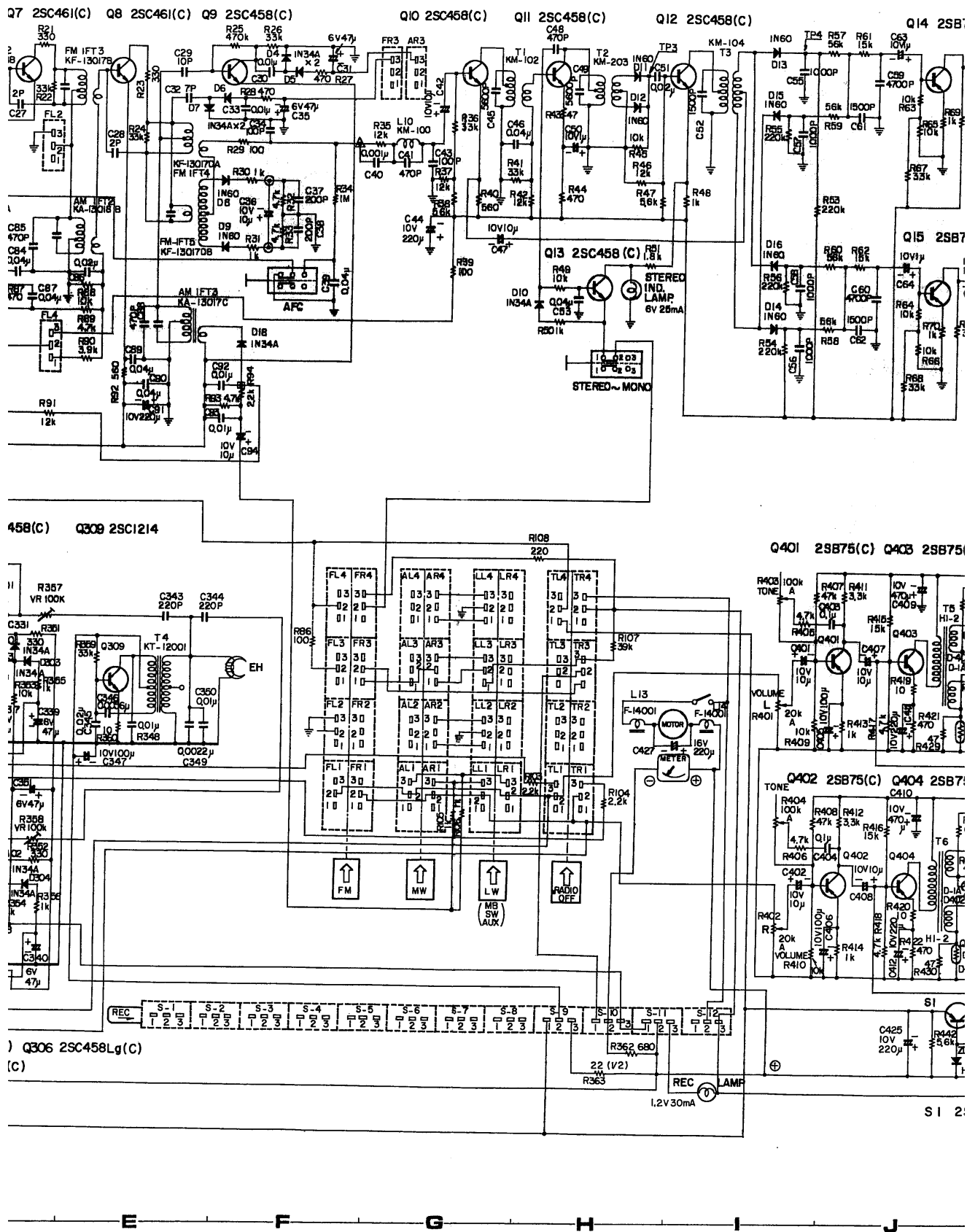
<b>TRANSFORMERS</b>		
T7	117/220V	T-12BCP

Description	Parts No.
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<b>MISCELLANEOUS</b>	
7 pin Socket	S7-201Y
7 pin Plug	



# SCHEMATIC DIAGRAM



3RAM

For LW/MW/FM & MW/SW/FM Use

