

ICF-M50RDS

SERVICE MANUAL

AEP Model
UK Model



SPECIFICATIONS

Time display:

UK: 12-hour system

Other countries: 24-hour system

Frequency range:

Band	Frequency range	Channel step
FM	87.5 - 108 MHz	0.05*MHz(fixed)
MW	531 - 1,602 kHz	9kHz(fixed)
LW	153 - 279 kHz	9kHz(fixed)
SW	5,800 - 6,400kHz	5kHz(fixed)

* The frequency display is raised or lowered by a step of 0.1MHz.(Example: Frequency 88.05MHz is displayed as "88.0MHz".)

Intermediate frequency:

FM: 10.7 MHz, MW: 450 kHz

Speaker: Approx. 9.2 cm (3 5/8 inches) dia. 8Ω

Power output: 450 mW (at 10% harmonic distortion)

Output: Earphone jack (minijack)

Power requirements: U.K.:240 V AC,50 Hz

Other countries:220-230 V AC, 50 Hz

6 V DC, four R6(size AA) batteries

Battery life: Approx. 15 hours listening for 4 hours a day at a normal volume using Sony batteries SUM-3 (NS)

Dimensions: Approx. 240 x 116 x 61 mm (w/h/d) (Approx. 9 1/2 x 4 5/8 x 2 1/2 inches) not incl. projecting parts and controls

Mass: Approx. 900 g (2 lb)incl. batteries

Accessories supplied: AC power cord (1)

FM antenna coupler (1) (Models for Netherlands, Switzerland,Belgium and Scandinavia only)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

These instructions cover two models:FM/MW/LW or FW/MW/SW

The band for each model and the area where the model is available are shown below.

Where available	Band
UK	FM/MW/LW
Other countries	FM/MW/LW
	FM/MW/SW

FM/MW/LW 3Band RDS Radio
FM/MW/SW 3Band RDS Radio

SONY®

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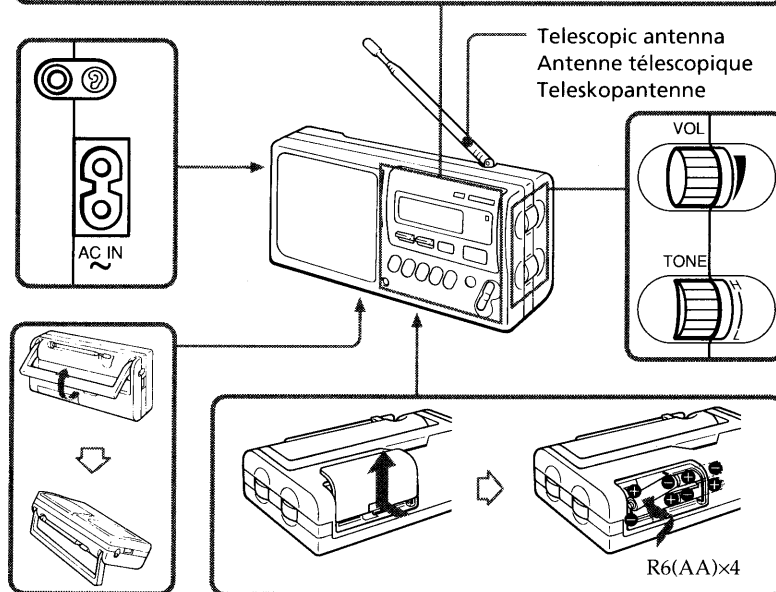
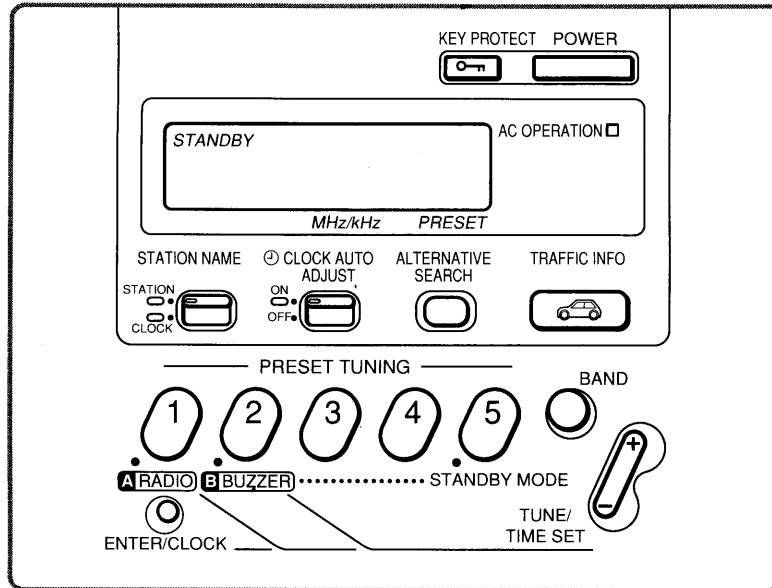
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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

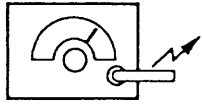
This section is extracted from instruction manual.



SECTION 2 ADJUSTMENTS

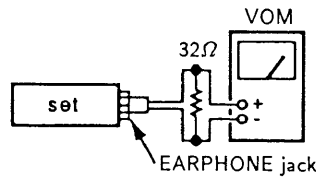
AM SECTION

AM RF signal generator



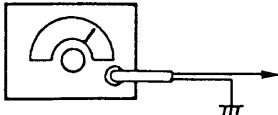
put the lead-wire antenna close to the set

400Hz, 30% AM modulation
Output level: as low as possible



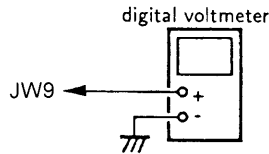
FM SECTION

FM RF signal generator



telescopic antenna input

400Hz, 30% FM modulation
frequency deviation ± 22.5 kHz
Output level: as low as possible



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.

AM IF ADJUSTMENT

Adjust for a maximum reading on VOM.

T1	450 kHz
----	---------

MW VCO ADJUSTMENT

Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L9	531 kHz	2.8 ± 0.1 V
Confirm	1,602 kHz	9.3 ± 1 V

MW TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM.

L10 (MW)	621 kHz
CT3	1,404 kHz

LW VCO ADJUSTMENT

Adjustment Part	Frequency Display	Reading on Digital Voltmeter
CT5	153 kHz	2.3 ± 0.1 V
Confirm	279 kHz	8.3 ± 1 V

LW TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM.

L10 (LW)	162 kHz
CT4	243 kHz

SW VCO ADJUSTMENT

Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L8	5.8 MHz	2.8 ± 0.1 V
Confirm	6.4 MHz	7.3 ± 1 V

SW TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM.

L5	5.8 MHz
CT1	6.4 MHz

FM VCO CHECK

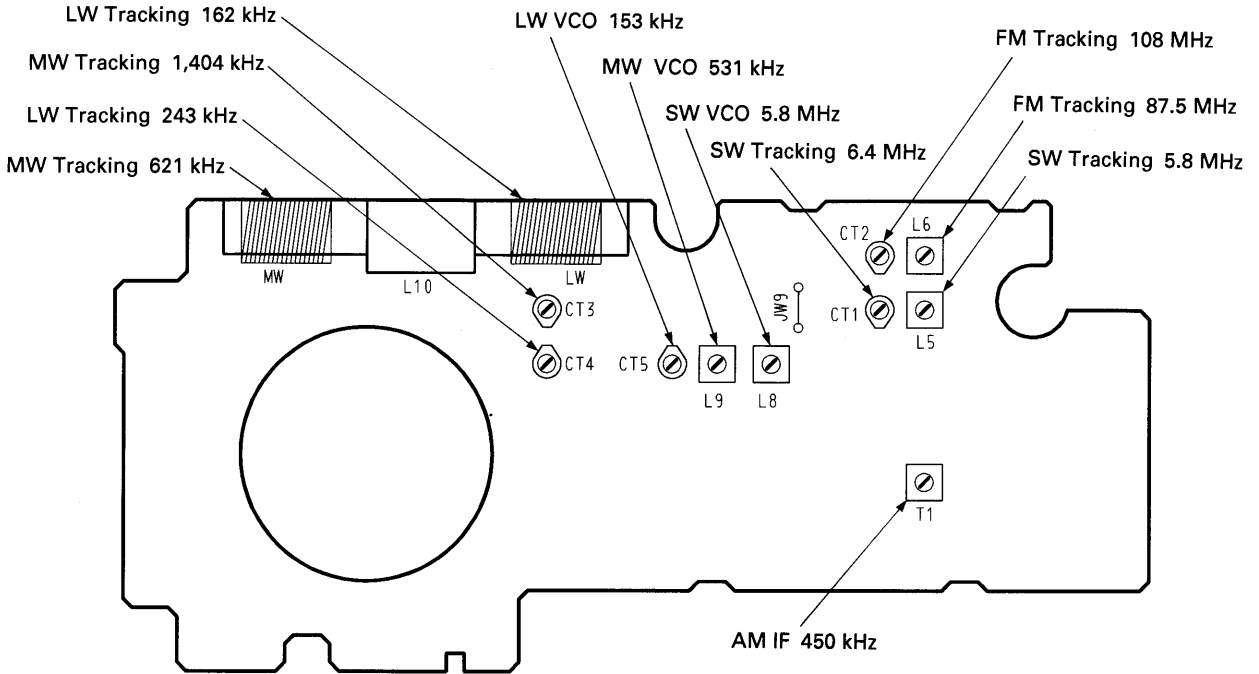
Adjustment Part	Frequency Display	Reading on Digital Voltmeter
Confirm	87.5 MHz	1.5 ± 0.3 V
Confirm	108 MHz	9 ± 1.5 V

FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VOM.

L6	87.5 MHz
CT2	108 MHz

Adjustment Location



SECTION 3 DIAGRAMS

3-1. IC PIN FUNCTION

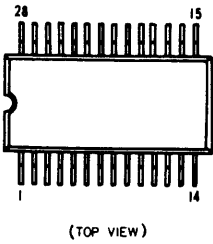
● IC 101 (SYSTEM CONTROL) μ PD75308GF-R90-3B9

Pin No.	Pin Name	I/O	Function
1 to 20	S12 to S20	O	LCD indication segment
21 to 24	COM0 to COM3	O	LCD indication common
25	BIAS	O	BIAS output
26 to 28	VLC0 to VLC2	—	Power supply for LCD driver
29 to 32	KS0 to KS3	O	Key source
33	VSS	—	GND
34	TIMER	O	TIMER (H : Alarm operation at radio, turn up the volume slightly when a traffic infomation is received)
35	KEYTEST	O	L : Under the key test
36	VSS	—	GND
37	HALT	O	H : When HALT operating (Not used)
38	VDET1	I	Reduced voltage detection 1 (L : Reduced voltage)
39	CLK/RX	O	Receiving level output clock (Not used)
40	DTA/RX	O	Receiving level output data (Not used)
41	NC	—	Not used
42	VDET2	I	Reduced voltage detection 2 (L : Reduced voltage)
43	CLK/RDS	I	RDS clock
44	DTA/RDS	I	RDS data
45	SD	I	Station signal (L : A broadcasting station is existed)
46	BUZZER	O	Buzzer output
47	CLK/PLL	O	PLL clock
48	DTA/PLL	O	PLL data
49	LAT/PLL	O	PLL latch
50	POWER	O	Power supply of radio (H : Power on)
51	MUTE	O	Mute (L : Mute on)
52	LAT/RX	O	Receiving level output latch (Not used)
53	FM	O	FM output (H : When FM receiving)
54	VDD	—	Power supply (+5V)
55	XT1	O	} Crystal oscillation (32.768kHz)
56	XT2	I	
57	NC	—	Not used
58	X1	O	} Ceramic oscillation (2.62MHz)
59	X2	I	
60	CT-MODE	I	CT mode switching switch (L : Automatic time setting, H : Non)
61	PS-MODE	I	PS indication switching switch (L : Frequency/station name indication, H : Present time indication)
62 to 67	KR0 to KR5	I	Key return
68	$\overline{\text{RESET}}$	I	Reset
69 to 80	S0 to S11	O	LCD indication segment

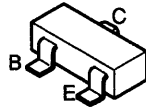
ICF-M50RDS

3-2. SEMICONDUCTOR LEAD LAYOUTS

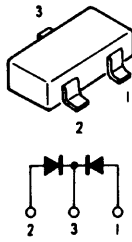
CXA1019M



**2SA1162-G
2SB1295-UL6
2SC2712-YG
2SC2714-Y
2SC3395
DTA144TK
DTC144EK**



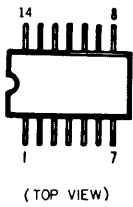
DAN202K



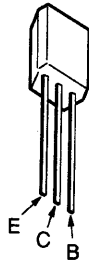
• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D2	B-3	IC104	C-12
D3	B-3	IC105	B-13
D4	C-4	IC106	B-15
D5	B-5		
D6	B-5	Q1	C-6
D7	D-4	Q2	C-4
D8	E-8	Q3	C-5
D9	E-7	Q4	C-5
D10	C-9	Q5	C-5
D11	D-8	Q6	C-2
D12	D-8	Q7	C-2
D101	B-12	Q8	C-3
D102	C-12	Q9	D-4
D103	C-12	Q10	C-5
D104	D-12	Q11	C-5
D105	D-12	Q12	E-8
D106	C-12	Q13	E-8
		Q14	D-5
		Q15	D-5
IC1	C-4	Q16	C-9
IC2	C-4	Q101	B-13
IC3	D-5	Q102	B-12
IC101	C-13	Q103	C-12
IC102	D-12		
IC103	C-12		

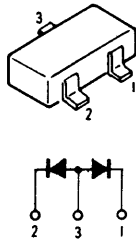
CXD1118M



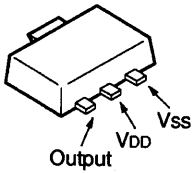
2SC2001TP



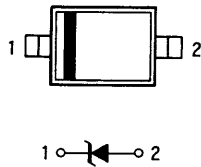
DAP202K



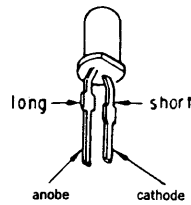
**S-80728AN
S-80736AN
S-80745AN**



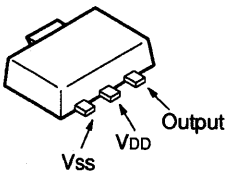
02DZ13-TPH3



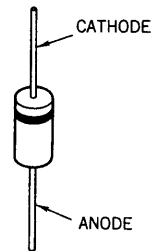
GL3PR8



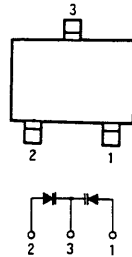
**S-81230PG
S-81240PG**



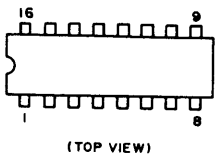
10E2



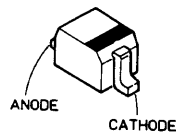
KV1560



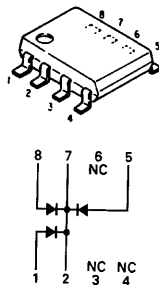
SAA6579T



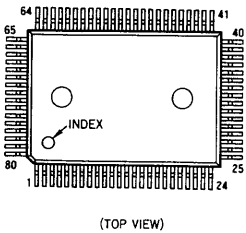
**1SS355
1T362**



KV1563MTL



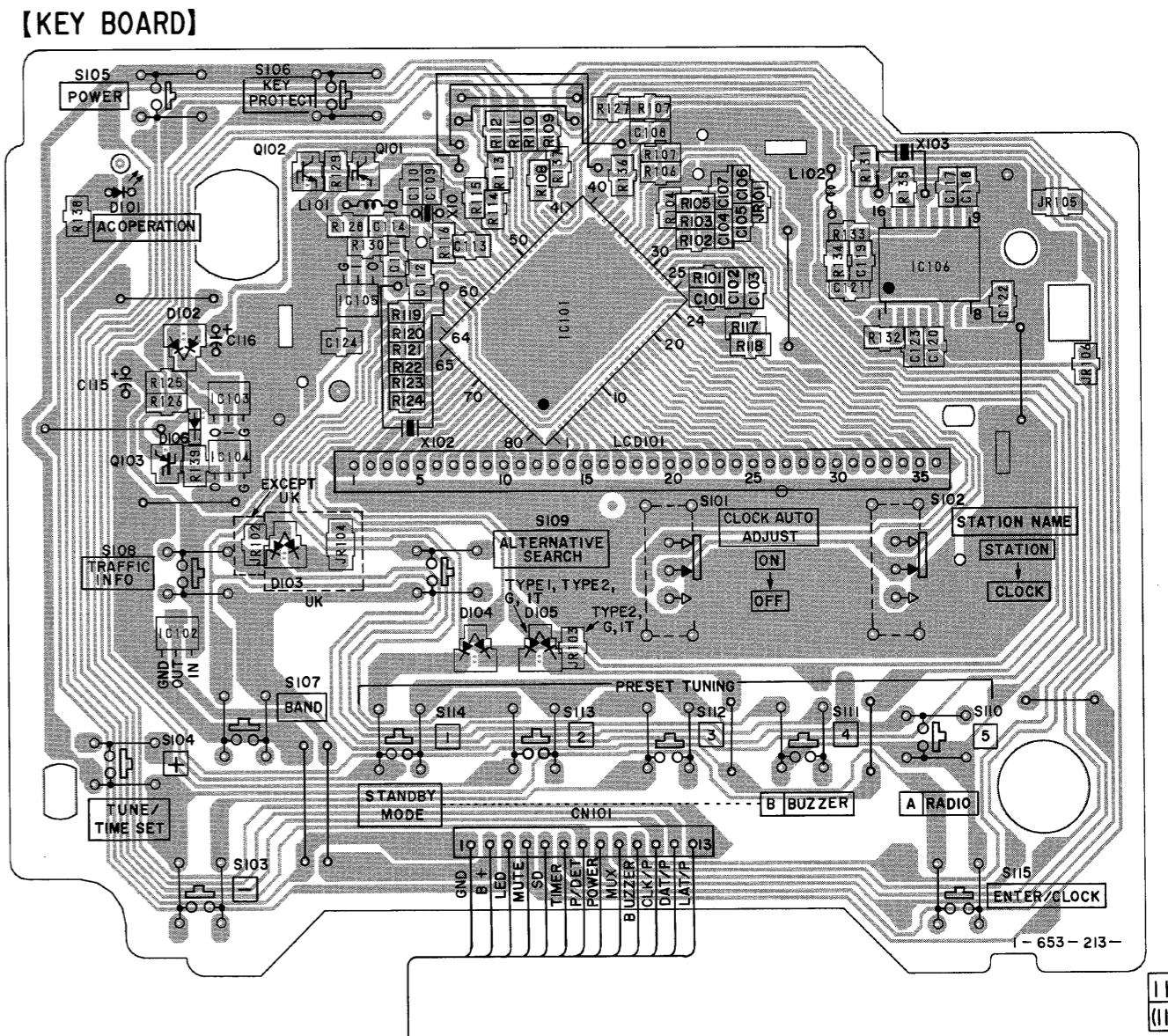
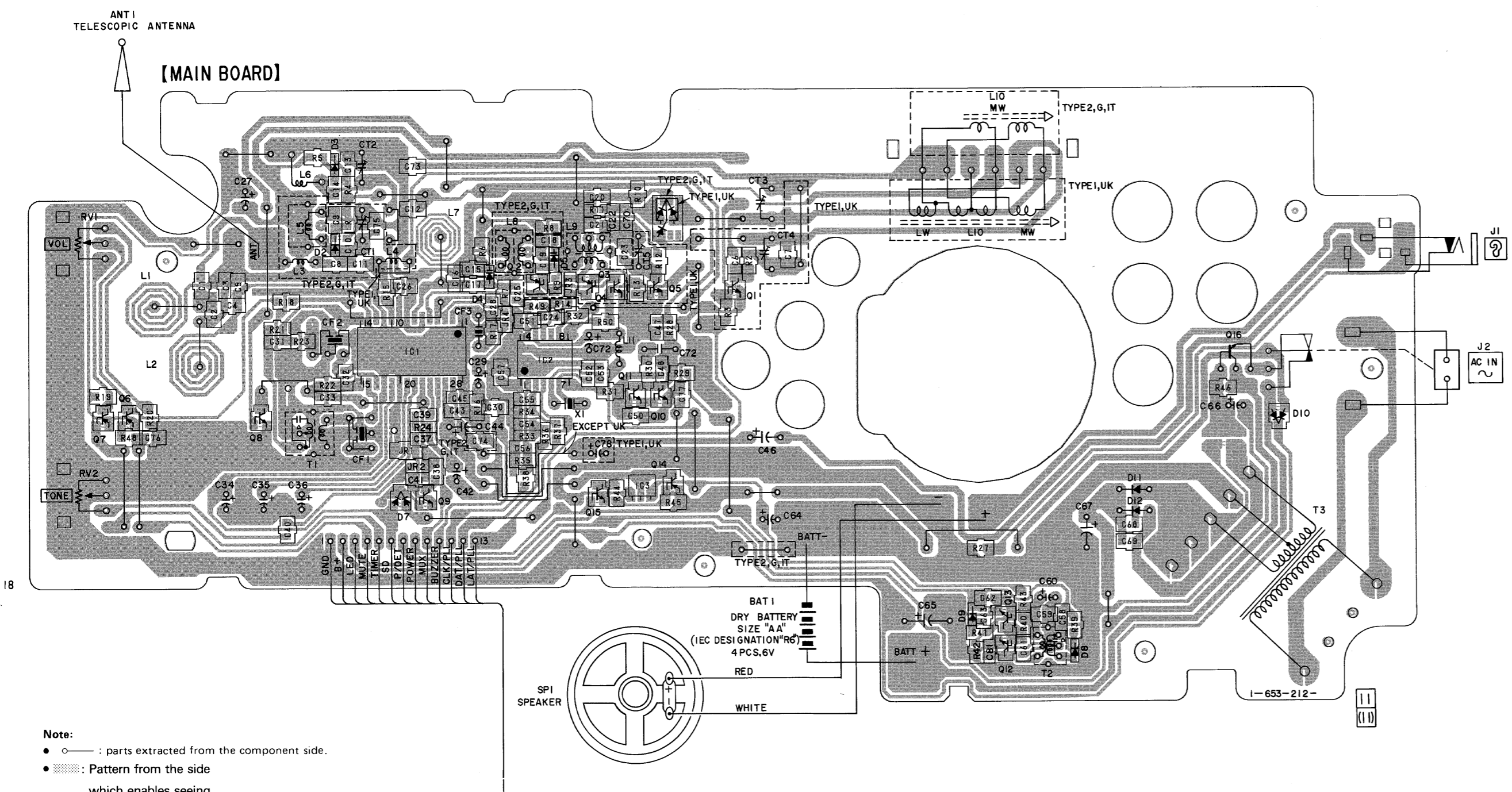
μPD75308GF-R90-3B9



3-3. PRINTED WIRING BOARDS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A
B
C
D
E
F

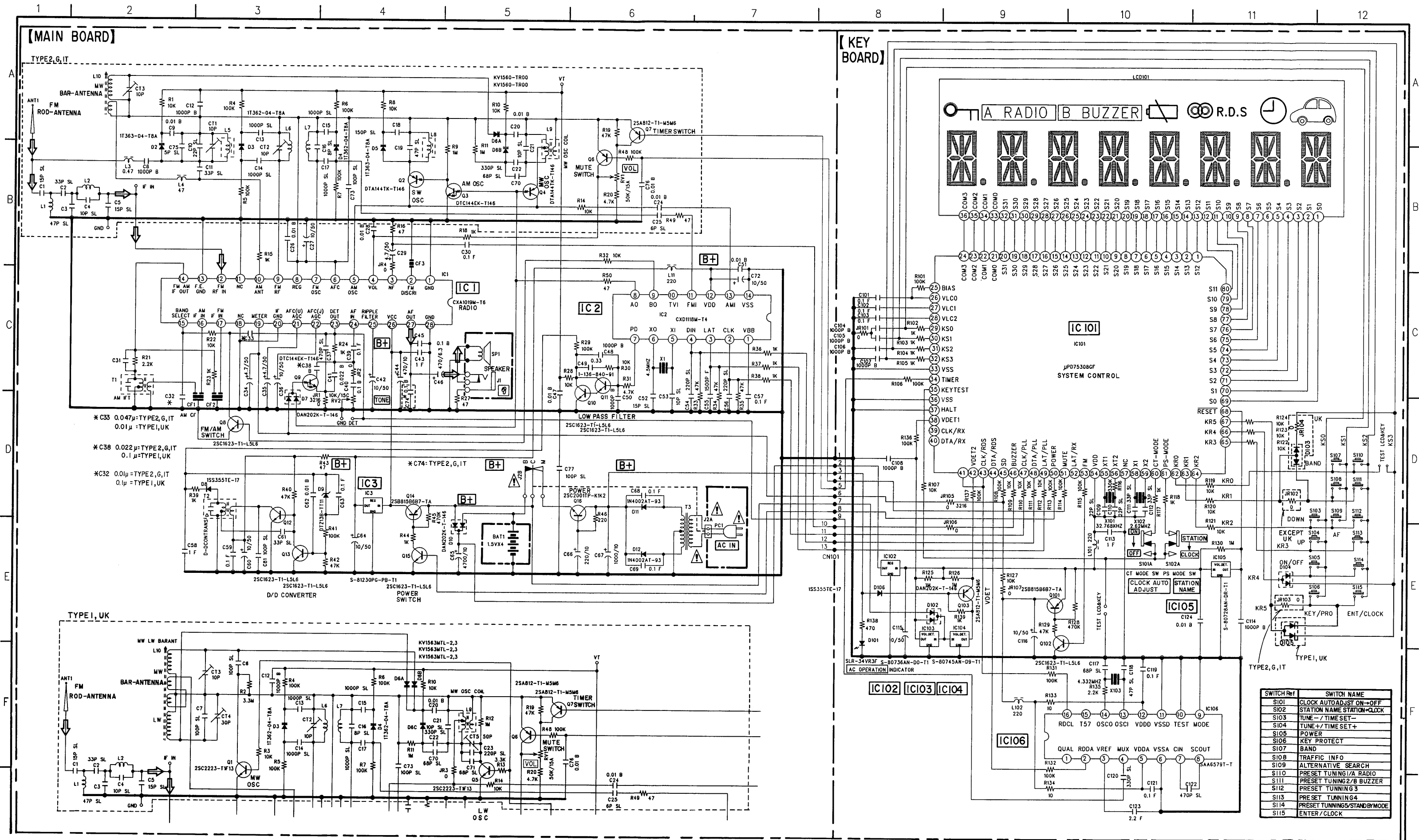


Note:
 ○ — : parts extracted from the component side.
 ● : Pattern from the side which enables seeing.
 (The other layers' patterns are not indicated.)

Caution:
 Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
 Parts face side: Parts on the parts face side seen from the (Component Side) parts face are indicated.

Abbreviations
 G: German AEP TYPE 1: FM, MW, LW
 IT: Italian TYPE 2: FM, MW, SW

3-4. SCHEMATIC DIAGRAM



● Voltages of Semiconductors

IC1

Pin No.	MODE	
	FM	MW
1	0	0
2	5	5.4
3	3	3
4	1.3	1.3
5	1.3	1.3
6	1.3	1.3
7	1.3	1.3
8	1.3	1.3
9	1.3	1.3
10	1.3	1.3
11	0	0
12	0.4	0
13	0	0
14	1.3	0.2
15	1.3	0.4
16	0	0
17	1.3	0.4
18	0	0
19	3.5	0.2
20	0	0
21	0.9	1.5
22	1.5	1.1
23	1.6	1
24	0	0
25	5.4	5.4
26	6	6
27	3	3
28	0	0

IC2

Pin No.	MODE			
	FM	MW	LW	SW
1	1.5	1.5	1.5	1.5
2	3.3	3.3	3.3	3.3
3	0	0	0	0
4	3.3	3.3	3.3	3.3
5	1.2	1.2	1.2	1.2
6	0.8	0.8	0.8	0.8
7	1	1	1	1
8	0	0	1.7	1.7
9	0	1.9	1.9	1.9
10	0.1	0.1	0.1	0.1
11	1.4	2.1	2.1	0.3
12	2.8	2.8	2.8	2.8
13	2.4	1.2	1.2	1.2
14	0	0	0	0

Ref No.	IN	OUT
IC3	6	3
IC102	5.4	4
IC103	5.7	3.7
IC104	5.7	3.3
IC105	4	3.7

IC101

Pin No.	MODE	
	FM	MW
25	4	4
26	3	3
27	2	2
28	1	1
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	3.7	3.7
39	0.9	0.9
40	0.9	0.9
41	2	0.2
42	3.7	3.7
43	2	0.2
44	2	0.2
45	3.4	0.2
46	0	0
47	4	4
48	4	4
49	0	0
50	4	4
51	4	4
52	0	0
53	4	0
54	4	4
55	1	1
56	2	2
57	0	0
58	1.7	1.7
59	2	2
60	1.5	1.5
61	1.5	1.5
62	4	4
63	4	4
64	4	4
65	4	4
66	4	4
67	4	4
68	3.7	3.7

IC106

Pin No.	MODE	
	FM	MW
1	0	0.1
2	2	0.1
3	2	0.1
4	2	0.1
5	4	0
6	0	0
7	2	0
8	2	0
9	0	0
10	0	0
11	0	0
12	4	0
13	1.7	0
14	2	0.2
15	2	0.2
16	2	0.2

Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
- 50WV or less are not indicated except for electrolytics and tantalums.

Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

- $\boxed{B+}$: B+ Line
- Power voltage is dc V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 \Rightarrow : FM
- Abbreviations
 G : German AEP — TYPE 1 : FM, MW, LW
 IT : Italian — TYPE 2 : FM, MW, SW

Ref No.	B			E			C		
	FM	MW	LW	FM	MW	LW	FM	MW	LW
Q1	0		0.7	0			1		0
Q5	0		0.7	0			1.2		0

Ref No.	B				E				C			
	FM	MW	LW	SW	FM	MW	LW	SW	FM	MW	LW	SW
Q6		4				4				4		
Q7		0.7				1.3				1.2		
Q8	0		0.6			0			1.3		0	
Q9	3	0	1.3	1.5		0				0		
Q10		0.6				0			1.4	2.8	2.3	2.8
Q11		0										

Ref No.	B	E	C
Q12	0.4	0	2.9
Q13	0.6	0	
Q14	5.3	6	6
Q15	0.7	0	0.2
Q16	0.3	2	0.3

Ref No.	B		E		C	
	FM	MW	FM	MW	FM	MW
Q101	3.4	3.4	4		4	0.2
Q102	0.6	0	0		0	4
Q103	3.3		3.7			

● IC Block Diagrams

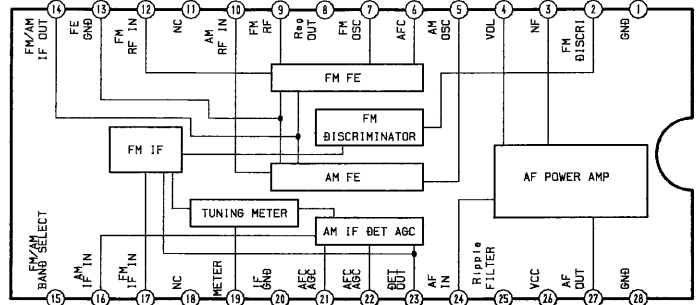
IC101

Pin No.	MODE	
	FM	MW
25	4	4
26	3	3
27	2	2
28	1	1
29	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	3.7	3.7
39	0.9	0.9
40	0.9	0.9
41	2	0.2
42	3.7	3.7
43	2	0.2
44	2	0.2
45	3.4	0.2
46	0	0
47	4	4
48	4	4
49	0	0
50	4	4
51	4	4
52	0	0
53	4	0
54	4	4
55	1	1
56	2	2
57	0	0
58	1.7	1.7
59	2	2
60	1.5	1.5
61	1.5	1.5
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64	4	4
65	4	4
66	4	4
67	4	4
68	3.7	3.7

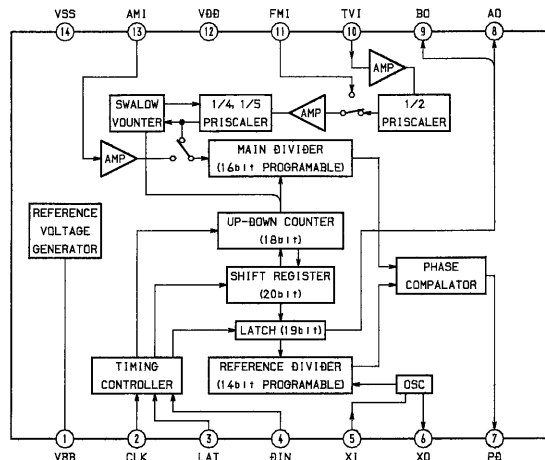
IC106

Pin No.	MODE	
	FM	MW
1	0	0.1
2	2	0.1
3	2	0.1
4	2	0.1
5	4	0
6	0	0
7	2	0
8	2	0
9	0	0
10	0	0
11	0	0
12	4	0
13	1.7	0
14	2	0.2
15	2	0.2
16	2	0.2

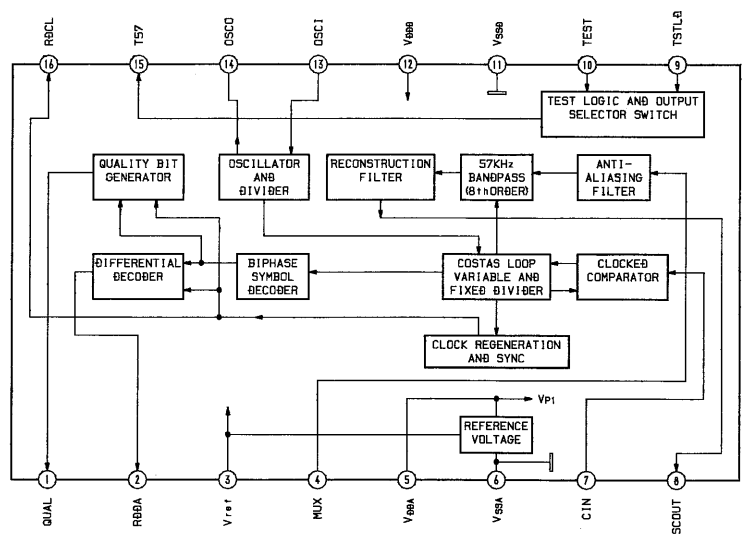
IC1 CXA1019M



IC2 CXD1118M



IC106 SAA6579T



Ref No.	B			E			C		
	FM	MW	LW	FM	MW	LW	FM	MW	LW
Q1	0		0.7	0			1		0
Q5	0		0.7	0			1.2		0

Ref No.	B				E				C			
	FM	MW	LW	SW	FM	MW	LW	SW	FM	MW	LW	SW
Q6		4				4				4		
Q7		0.7				1.3				1.2		
Q8	0		0.6		0				1.3		0	
Q9	3	0	1.3	1.5	0				0			
Q10		0.6			0				1.4	2.8	2.3	2.8
Q11		0										

Ref No.	B	E	C
Q12	0.4	0	2.9
Q13	0.6	0	
Q14	5.3	6	6
Q15	0.7	0	0.2
Q16	0.3	2	0.3

Ref No.	B		E		C	
	FM	MW	FM	MW	FM	MW
Q101	3.4	3.4	4		4	0.2
Q102	0.6	0	0		0	4
Q103	3.3		3.7			

SECTION 4 EXPLODED VIEW

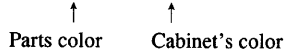
NOTE:

● -XX, -X mean standardized parts, so they may have some differences from the original one.

● Color Indication of Appearance Parts

Example:

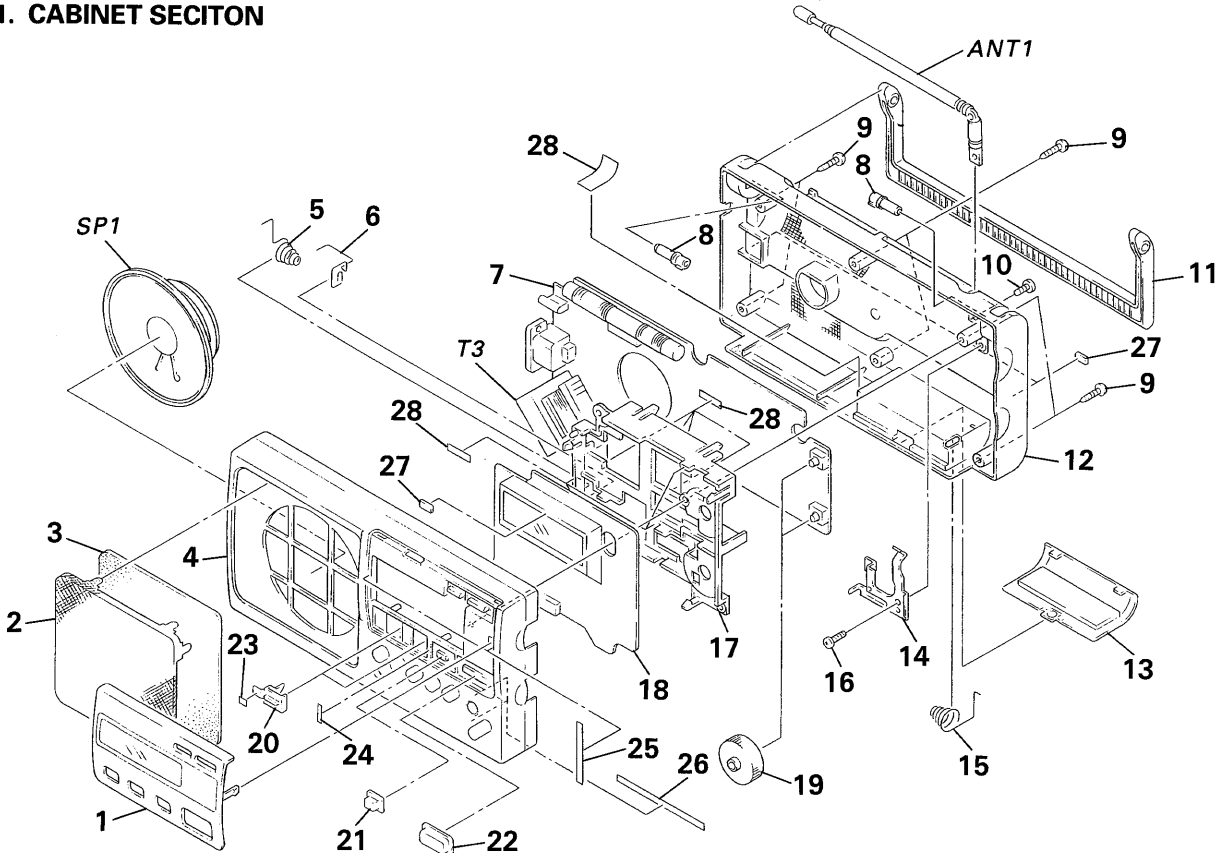
KNOB, BALANCE (WHITE)...(RED)



- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviations
 G : German AEP — TYPE 1 : FM, MW, LW
 IT : Italian TYPE 2 : FM, MW, SW

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

4-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	3-915-728-01	PANEL, FRONT	
2	3-915-736-01	PANEL (SP)	
3	3-915-737-01	SHEET (SP)	
4	X-3369-589-1	CABINET (FRONT) ASSY (AEP:TYPE1,UK)	
4	X-3369-589-2	CABINET (FRONT) ASSY (AEP:TYPE2, G, IT)	
5	3-380-359-01	SPRING (-), BATTERY COIL	
6	3-380-358-01	SPRING (+), BATTERY COIL	
* 7	A-3662-072-A	MAIN BOARD, COMPLETE (AEP:TYPE1)	
* 7	A-3662-080-A	MAIN BOARD, COMPLETE (UK)	
* 7	A-3662-086-A	MAIN BOARD, COMPLETE (AEP:TYPE2, G, IT)	
8	3-380-352-01	SHAFT (HANDLE)	
9	7-685-649-79	SCREW +P 3X14 TYPE2 NON-SLIT	
10	3-370-475-01	SCREW (NYLOCK +B 3X6)	
11	3-380-361-01	HANDLE	
12	3-380-345-41	CABINET (REAR) (UK)	
12	3-380-345-51	CABINET (REAR) (AEP:TYPE1)	
12	3-380-345-61	CABINET (REAR) (AEP:TEPE2, G, IT)	
13	3-380-351-01	LID, BATTERY CASE	
14	3-380-356-01	PLATE (ANT), CONTACT	

Ref. No.	Part No.	Description	Remark
15	3-380-360-01	SPRING (+-), BATTERY COIL	
16	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	
* 17	3-380-346-01	CHASSIS	
* 18	A-3662-077-A	KEY BOARD, COMPLETE (AEP:TYPE1)	
* 18	A-3662-083-A	KEY BOARD, COMPLETE (UK)	
* 18	A-3662-089-A	KEY BOARD, COMPLETE (AEP:TYPE2, G, IT)	
19	3-380-349-01	KNOB	
20	3-915-732-01	KNOB (RDS)	
21	3-915-730-01	BUTTON (AF)	
22	3-915-731-01	BUTTON (TR)	
* 23	3-915-738-01	LABEL (RDS)	
24	3-847-537-01	CUSHION (5)	
25	3-918-369-01	SHEET, ADHESIVE	
26	4-884-058-01	CUSHION	
27	9-911-844-XX	RUBBER, BRAKE	
28	3-831-441-XX	CUSHION, SPEAKER	
ANT1	1-501-222-71	ANTENNA, TELESCOPIC (FM)	
SP1	1-544-761-11	SPEAKER (9CM)	
Δ T3	1-450-324-11	TRANSFORMER, POWER	

SECTION 5 ELECTRICAL PARTS LIST

KEY

NOTE:

● Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

● -XX and -X mean standardized parts, so they may have some difference from the original one.

● **RESISTORS**

All resistors are in ohms.

METAL: Metal-film resistor.

METAL OXIDE: Metal oxide-film resistor.

F: nonflammable

● Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

● **SEMICONDUCTORS**

In each case, u : μ , for example:

uA... : μ A..., uPA... : μ PA..., uPB... : μ PB...,

uPC... : μ PC..., uPD... : μ PD...

● **CAPACITORS**

uF : μ F

● **COILS**

uH : μ H

● **Abbreviations**

G : German

IT : Italian

AEP — TYPE 1 : FM, MW, LW

TYPE 2 : FM, MW, SW

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	A-3662-077-A	KEY BOARD, COMPLETE (AEP:TYPE1)	
*	A-3662-083-A	KEY BOARD, COMPLETE (UK)	
*	A-3662-089-A	KEY BOARD, COMPLETE (AEP:TYPE2, G, IT)	

< CAPACITOR >			
C101	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C102	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C105	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C106	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C107	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C108	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C109	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C110	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C111	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C112	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C113	1-164-346-11	CERAMIC CHIP 1uF	16V
C114	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C115	1-124-907-11	ELECT 10uF	20% 50V
C116	1-124-907-11	ELECT 10uF	20% 50V
C117	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C118	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C119	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C120	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C121	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C122	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C123	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C124	1-164-232-11	CERAMIC CHIP 0.01uF	50V
< CONNECTOR >			
CN101	1-766-697-11	SOCKET, CONNECTOR 13P	
< DIODE >			
D101	8-719-938-69	LED GL3PR8 (AC OPERATION)	
D102	8-719-914-43	DIODE DAN202K	
D103	8-719-914-44	DIODE DAP202K (UK)	
D104	8-719-914-44	DIODE DAP202K	
D105	8-719-914-44	DIODE DAP202K (AEP:TYPE1, UK)	

Ref. No.	Part No.	Description	Remark
D106	8-719-988-62	DIODE 1SS355	
< IC >			
IC101	8-759-278-22	IC uPD75308GF-R90-3B9	
IC102	8-759-161-50	IC S-81240PG-PJ-S	
IC103	8-759-196-22	IC S-80736AN-D0-T1	
IC104	8-759-087-73	IC S-80745AN-D9-S	
IC105	8-759-096-23	IC S-80728AN-DR-T1	
IC106	8-759-065-98	IC SAA6579T	
< JUMPER RESISTOR >			
JR101	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR102	1-216-295-91	METAL GLAZE 0 5% 1/10W (EXCEPT UK)	
JR103	1-216-295-91	METAL GLAZE 0 5% 1/10W	(AEP:TYPE2, G, IT)
JR104	1-216-296-91	METAL GLAZE 0 5% 1/8W (UK)	
JR105	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR106	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR107	1-216-295-91	METAL GLAZE 0 5% 1/10W	
< COIL >			
L101	1-410-336-11	INDUCTOR 220uH	
L102	1-410-336-11	INDUCTOR 220uH	
< LIQUID CRYSTAL DISPLAY >			
LCD101	1-810-640-11	DISPLAY PANEL, LIQUID CRYSTAL	
< TRANSISTOR >			
Q101	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q102	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q103	8-729-216-22	TRANSISTOR 2SA1162-G	
< RESISTOR >			
R101	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R102	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R103	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R104	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R105	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R106	1-216-097-00	METAL CHIP 100K 5%	1/10W
R107	1-216-073-00	METAL CHIP 10K 5%	1/10W
R108	1-216-097-00	METAL CHIP 100K 5%	1/10W
R109	1-216-073-00	METAL CHIP 10K 5%	1/10W
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W
R111	1-216-073-00	METAL CHIP 10K 5%	1/10W
R112	1-216-073-00	METAL CHIP 10K 5%	1/10W
R113	1-216-097-00	METAL CHIP 100K 5%	1/10W
R114	1-216-097-00	METAL CHIP 100K 5%	1/10W
R115	1-216-097-00	METAL CHIP 100K 5%	1/10W
R116	1-216-109-00	METAL CHIP 330K 5%	1/10W
R117	1-216-049-00	METAL CHIP 1K 5%	1/10W
R118	1-216-049-00	METAL CHIP 1K 5%	1/10W
R119	1-216-073-00	METAL CHIP 10K 5%	1/10W
R120	1-216-073-00	METAL CHIP 10K 5%	1/10W
R121	1-216-073-00	METAL CHIP 10K 5%	1/10W
R122	1-216-073-00	METAL CHIP 10K 5%	1/10W
R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
R124	1-216-073-00	METAL CHIP 10K 5%	1/10W
R125	1-216-121-00	METAL CHIP 1M 5%	1/10W
R126	1-216-121-00	METAL CHIP 1M 5%	1/10W
R127	1-216-073-00	METAL CHIP 10K 5%	1/10W
R128	1-216-113-00	METAL CHIP 470K 5%	1/10W
R129	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R130	1-216-121-00	METAL CHIP 1M 5%	1/10W
R131	1-216-097-00	METAL CHIP 100K 5%	1/10W
R132	1-216-097-00	METAL CHIP 100K 5%	1/10W
R133	1-216-001-00	METAL CHIP 10 5%	1/10W
R134	1-216-001-00	METAL CHIP 10 5%	1/10W
R135	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R136	1-216-097-00	METAL CHIP 100K 5%	1/10W
R137	1-216-097-00	METAL CHIP 100K 5%	1/10W
R138	1-216-041-00	METAL CHIP 470 5%	1/10W
R139	1-216-049-00	METAL CHIP 1K 5%	1/10W
< SWITCH >			
S101	1-552-370-00	SWITCH, SLIDE (CLOCK AUTO ADJUST)	
S102	1-552-370-00	SWITCH, SLIDE (STATION NAME)	
S103	1-554-937-11	SWITCH, KEY BOARD (TUNE -/TIME SET -)	
S104	1-554-937-11	SWITCH, KEY BOARD (TUNE +/TIME SET +)	
S105	1-554-937-11	SWITCH, KEY BOARD (POWER)	
S106	1-554-937-11	SWITCH, KEY BOARD (KEY PROTECT)	
S107	1-554-937-11	SWITCH, KEY BOARD (BAND)	
S108	1-554-937-11	SWITCH, KEY BOARD (TRAFFIC INFO)	
S109	1-554-937-11	SWITCH, KEY BOARD (ALTERNATIVE SEAECH)	
S110	1-554-937-11	SWITCH, KEY BOARD (PRESET TUNING 1/A RADIO)	
S111	1-554-937-11	SWITCH, KEY BOARD (PRESET TUNING 2/B BUZZER)	

Ref. No.	Part No.	Description	Remark
S112	1-554-937-11	SWITCH, KEY BOARD (PRESET TUNING 3)	
S113	1-554-937-11	SWITCH, KEY BOARD (PRESET TUNING 4)	
S114	1-554-937-11	SWITCH, KEY BOARD (PRESET TUNING 5/STANDBY MODE)	
S115	1-554-937-11	SWITCH, KEY BOARD (ENTER/CLOCK)	
< VIBRATOR >			
X101	1-567-098-41	VIBRATOR, CRYSTAL (32.768MHz)	
X102	1-579-825-11	VIBRATOR, CERAMIC (2.62MHz)	
X103	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)	

*	A-3662-072-A	MAIN BOARD, COMPLETE (AEP:TYPE1)	
*	A-3662-080-A	MAIN BOARD, COMPLETE (UK)	
*	A-3662-086-A	MAIN BOARD, COMPLETE (AEP:TYPE2, G, IT)	

1-765-698-11		CORD, CONNECTION 13P	
< CAPACITOR >			
C1	1-163-097-00	CERAMIC CHIP 15PF 5%	50V
C2	1-163-105-00	CERAMIC CHIP 33PF 5%	50V
C3	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C4	1-163-093-00	CERAMIC CHIP 10PF 5%	50V
C5	1-163-097-00	CERAMIC CHIP 15PF 5%	50V
C6	1-163-117-00	CERAMIC CHIP 100PF 5%	50V (AEP:TYPE1, UK)
C7	1-163-117-00	CERAMIC CHIP 100PF 5%	50V (AEP:TYPE1, UK)
C8	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (AEP:TYPE2, G, IT)
C9	1-164-232-11	CERAMIC CHIP 0.01uF 10%	50V (AEP:TYPE2, G, IT)
C10	1-163-101-00	CERAMIC CHIP 22PF 5%	50V (AEP:TYPE2, G, IT)
C11	1-163-105-00	CERAMIC CHIP 33PF 5%	50V (AEP:TYPE2, G, IT)
C12	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C13	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C14	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C15	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C16	1-163-091-00	CERAMIC CHIP 8PF 0.25pF	50V
C17	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C18	1-163-121-00	CERAMIC CHIP 150PF 5%	50V (AEP:TYPE2, G, IT)
C19	1-163-109-00	CERAMIC CHIP 47PF 5%	50V (AEP:TYPE2, G, IT)
C20	1-164-232-11	CERAMIC CHIP 0.01uF 10%	50V
C21	1-163-093-00	CERAMIC CHIP 10PF 5%	50V
C22	1-163-129-00	CERAMIC CHIP 330PF 5%	50V

MAIN

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C23	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	C67	1-124-473-11	ELECT	1000uF	20%	10V
C24	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	C68	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C25	1-163-089-00	CERAMIC CHIP	6PF	0.25pF	50V	C69	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C26	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	C70	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C27	1-124-907-11	ELECT	10uF	20%	50V	C71	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C28	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V						(AEP:TYPE1, UK)
C29	1-124-927-11	ELECT	4.7uF	20%	50V	C72	1-124-907-11	ELECT	10uF	20%	50V
C30	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C73	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C32	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C74	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
					(AEP:TYPE1, UK)						(AEP:TYPE2, G, IT)
C32	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	C75	1-163-088-00	CERAMIC CHIP	5PF	0.25pF	50V
					(AEP:TYPE2, G, IT)						(AEP:TYPE2, G, IT)
C33	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	C76	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V
					(AEP:TYPE1, UK)	C77	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C33	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	C78	1-124-927-11	ELECT	4.7uF	20%	50V
					(AEP:TYPE2, G, IT)	C81	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C38	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V						(AEP:TYPE1, UK)
					(AEP:TYPE2, G, IT)						(AEP:TYPE2, G, IT)
C34	1-124-927-11	ELECT	4.7uF	20%	50V						< FILTER >
C35	1-124-927-11	ELECT	4.7uF	20%	50V	CF1	1-578-677-21	FILTER, CRYSTAL			(AEP:TYPE1, UK)
C36	1-124-907-11	ELECT	10uF	20%	50V	CF1	1-567-777-11	FILTER, CERAMIC			(AEP:TYPE2, G, IT)
C37	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	CF2	1-579-632-11	FILTER, CERAMIC			
C38	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	CF3	1-579-632-11	FILTER, CERAMIC			
					(AEP:TYPE1, UK)						< TRIMMER >
C39	1-163-038-00	CERAMIC CHIP	0.1uF		25V	CT1	1-141-304-21	CAP, TRIMMER	10PF		(AEP:TYPE2, G, IT)
C40	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	CT2	1-141-304-21	CAP, TRIMMER	10PF		
C41	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	CT3	1-141-304-21	CAP, TRIMMER	10PF		
C42	1-124-907-11	ELECT	10uF	20%	50V	CT4	1-141-443-11	TRIMMER, CERAMIC			(AEP:TYPE1, UK)
C43	1-164-346-11	CERAMIC CHIP	1uF		16V	CT5	1-141-444-11	TRIMMER, CERAMIC			(AEP:TYPE1, UK)
C44	1-124-472-11	ELECT	470uF	20%	10V						< DIODE >
C45	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	D2	8-719-002-81	DIODE	1T363		(AEP:TYPE2, G, IT)
C46	1-124-472-11	ELECT	470uF	20%	10V	D3	8-719-002-79	DIODE	1T362		
C47	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	D4	8-719-002-79	DIODE	1T362		
C48	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D5	8-719-002-81	DIODE	1T363		(AEP:TYPE2, G, IT)
C49	1-136-171-00	FILM	0.33uF	5%	50V	D6	8-719-023-XX	DIODE	KV1563-3		(AEP:TYPE1, UK)
C50	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	D6	8-719-951-05	DIODE	KV1560		(AEP:TYPE2, G, IT)
C51	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	D7	8-719-914-43	DIODE	DAN202K		
C52	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	D8	8-719-988-62	DIODE	1SS355		
C53	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	D9	8-719-017-25	DIODE	O2D213-TPH3		
C55	1-163-026-11	CERAMIC CHIP	0.0015uF		50V	D10	8-719-914-43	DIODE	DAN202K		
C57	1-163-038-00	CERAMIC CHIP	0.1uF		25V	D11	8-719-200-02	DIODE	10E2		
C58	1-164-346-11	CERAMIC CHIP	1uF		16V	D12	8-719-200-02	DIODE	10E2		
C59	1-163-038-00	CERAMIC CHIP	0.1uF		25V						< IC >
C60	1-124-907-11	ELECT	10uF	20%	50V	IC1	8-752-050-16	IC	CXA1019M		
C61	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	IC2	8-752-323-84	IC	CXD1118M		
C62	1-164-232-11	CERAMIC CHIP	0.01uF	10%	50V	IC3	8-759-176-96	IC	S-81230PG-PB-T1		
C63	1-163-038-00	CERAMIC CHIP	0.1uF		25V						
C64	1-124-907-11	ELECT	10uF	20%	50V						
C65	1-124-762-00	ELECT	4700uF	20%	10V						
C66	1-126-176-11	ELECT	220uF	20%	10V						

Ref. No.	Part No.	Description	Remark
		< JACK >	
J1	1-563-836-21	JACK (EARPHONE ☉)	
△J2	1-526-838-11	INLET, AC 2P (AC IN)	
		< JUMPER RESISTOR >	
JR1	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR2	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR3	1-216-295-91	METAL GLAZE 0 5% 1/10W (AEP:TYPE1, UK)	
JR4	1-216-295-91	METAL GLAZE 0 5% 1/10W	
		< COIL >	
L3	1-410-750-41	INDUCTOR 0.47uH (AEP:TYPE2, G, IT)	
L4	1-410-517-11	INDUCTOR 47uH (AEP:TYPE2, G, IT)	
L5	1-426-613-11	COIL (SW RF) (AEP:TYPE2, G, IT)	
L6	1-406-545-11	COIL, AIR-CORE	
L8	1-426-613-11	COIL (SW RF) (AEP:TYPE2, G, IT)	
L9	1-406-485-11	COIL (OSC)	
L10	1-501-723-11	ANTENNA, FERRITE-ROD(LW/MW) (AEP:TYPE1, UK)	
L10	1-501-722-11	ANTENNA, FERRITE-ROD(MW) (AEP:TYPE2, G, IT)	
L11	1-410-336-11	INDUCTOR 220uH	
		< TRANSISTOR >	
Q1	8-729-200-87	TRANSISTOR 2SC2714-Y (AEP:TYPE1, UK)	
Q2	8-729-903-29	TRANSISTOR DTA144TK (AEP:TYPE2, G, IT)	
Q3	8-729-901-01	TRANSISTOR DTC144EK (AEP:TYPE2, G, IT)	
Q4	8-729-903-29	TRANSISTOR DTA144TK (AEP:TYPE2, G, IT)	
Q5	8-729-200-87	TRANSISTOR 2SC2714-Y (AEP:TYPE1, UK)	
Q6	8-729-216-22	TRANSISTOR 2SA1162-G	
Q7	8-729-216-22	TRANSISTOR 2SA1162-G	
Q8	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q9	8-729-805-45	TRANSISTOR 2SC3395	
Q10	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q11	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q12	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q13	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q14	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q15	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q16	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2	
		< RESISTOR >	
R1	1-216-073-00	METAL CHIP 10K 5% 1/10W (AEP:TYPE2, G, IT)	
R2	1-216-133-00	METAL CHIP 3.3M 5% 1/10W (AEP:TYPE1, UK)	
R3	1-216-073-00	METAL CHIP 10K 5% 1/10W (AEP:TYPE1, UK)	
R4	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R5	1-216-097-00	METAL CHIP 100K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R6	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R7	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R8	1-216-073-00	METAL CHIP 10K 5% 1/10W (AEP:TYPE2, G, IT)	
R9	1-216-121-00	METAL CHIP 1M 5% 1/10W (AEP:TYPE2, G, IT)	
R10	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R11	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R12	1-216-121-00	METAL CHIP 1M 5% 1/10W (AEP:TYPE1, UK)	
R13	1-216-061-00	METAL CHIP 3.3K 5% 1/10W (AEP:TYPE1, UK)	
R14	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R15	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R16	1-216-017-00	METAL CHIP 47 5% 1/10W	
R18	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R19	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R20	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R21	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R22	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R23	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R24	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R27	1-216-017-00	METAL CHIP 47 5% 1/10W	
R28	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R29	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R30	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R31	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R32	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R33	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R34	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R35	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R36	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R37	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R38	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R39	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R40	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R41	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R42	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R43	1-216-017-00	METAL CHIP 47 5% 1/10W	
R44	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R45	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R46	1-216-033-00	METAL CHIP 220 5% 1/10W	
R48	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R49	1-216-017-00	METAL CHIP 47 5% 1/10W	
R50	1-216-017-00	METAL CHIP 47 5% 1/10W	
		< VARIABLE RESISTOR >	
RV1	1-241-946-11	RES, VAR, CARBON 50K (VOL)	
RV2	1-241-947-11	RES, VAR, CARBON 10K (TONE)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

ICF-M50RDS

MAIN

Ref. No.	Part No.	Description	Remark
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< TRANSFORMER >

T1	1-404-902-21	TRANSFORMER, IF	
T2	1-449-138-11	TRANSFORMER, DC-DC CONVERTER	
△T3	1-450-324-11	TRANSFORMER, POWER	

< VIBRATOR >

X1	1-578-785-11	VIBRATOR, CRYSTAL (4.5MHz)	
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MISCELLANEOUS

ANT1	1-501-222-71	ANTENNA, TELESCOPIC (FM)	
SP1	1-544-761-11	SPEAKER (9CM)	
△T3	1-450-324-11	TRANSFORMER, POWER	

ACCESSORIES & PACKING MATERIALS

	1-501-499-11	COUPLER, ANTENNA (AEP)	
△	1-696-562-11	CORD, POWER (AEP, G, IT)	
△	1-751-115-12	CORD, POWER (UK)	
	3-759-164-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN)	
	3-759-164-41	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN) (AEP, IT)	
	3-759-164-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH, PORTUGUESE) (AEP)	
	3-896-108-01	BAG, PROTECTION	
*	3-916-745-01	INDIVIDUAL CARTON (UK)	
*	3-916-752-01	INDIVIDUAL CARTON (AEP)	
*	3-917-259-01	CUSHION	
*	3-918-300-01	INDIVIDUAL CARTON (AEP, G, IT)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.