ORDER No.AD9907188C1

Service Manual

Radio

RF-P50

Colour

(S).....Silver Type

Area

P.....Latin America.

SPECIFICATIONS

Specification

Radio frequency range:	**FM: 88.0-108.0MHz**
	AM: 525-1710kHz
Intermediate frequency:	**FM: 10.7MHz**
	AM: 455kHz
Sensitivity:	**FM: 3.55 μ V/50mW output (-3dB lmit sens.)**
	AM: 158.5 μ V/50mW output (Max sens.)
Power requipment:	**Battery: DC 3V (Two R6/LR6, AA,UM-3 batteries)**
Speaker:	**5.7cm (2-1/4")**
Jack:	**Output: EARPHONE 8 Ω**
Dimensions (WxHxD):	**67.0x117.0x28.5mm (2-5/8"x4-5/8"x1-1/8")**
Weight:	**140g (4.9oz.) (without batteries)**

Play time:

[Approximate operating time and in hours (at 25°C<77F>, on a flat, stable surface).]

Panasonic alkaline dry cell batteries: FM: About 50 hours
AM: About 52 hours

-The play time may be less depending on the operating conditions.

Weight and dimentions shown are approximate.

Design and specifications are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

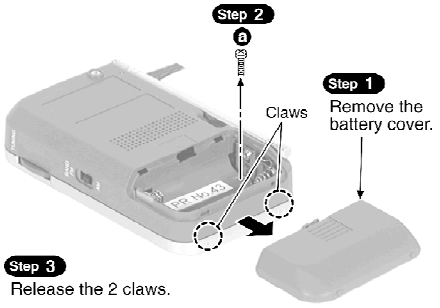
1. Operation Checks and Main Component Replacement Procedures

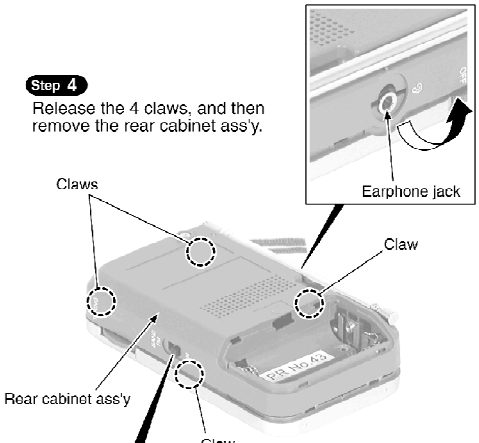
■ Operation Checks and Component Replacement Procedures

NOTE **1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**

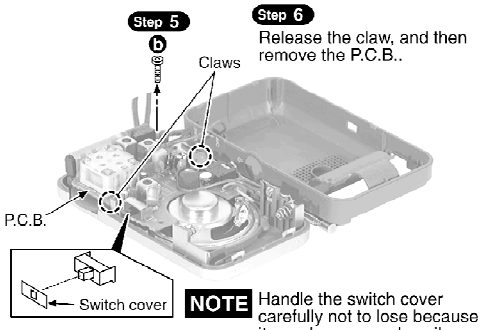
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

1. Checking for the P.C.B.

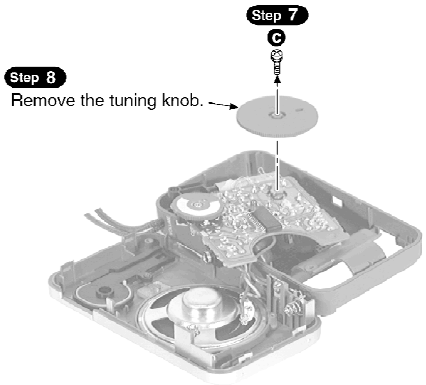




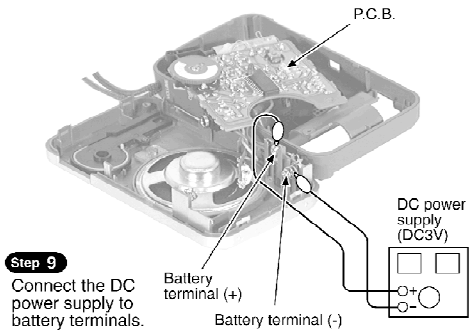
NOTE
Remove the rear cabinet ass'y, using care that the earphone jack and switch boss are interfered with it.

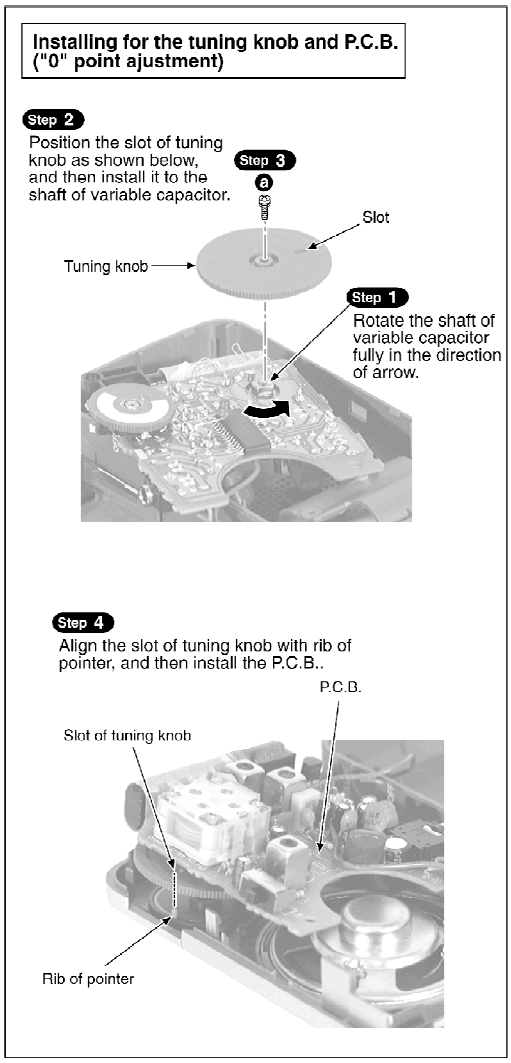


NOTE Handle the switch cover carefully not to lose because it may be removed easily.



· Check the P.C.B. as shown below.





2. Schematic Diagram

Notes:

- S1: BAND Selector switch in “FM” position.
- S2: Power ON/OFF switch in “ON” position.
- VR1: Volume control VR.

- Battery current

Vol.min. ...4.5mA (FM) Vol.max. ...92mA (FM)

6.9mA (AM) 92mA (AM)

(Measurement condition
Radio : FM 60 dB, 30%, mod. , AM 74dB, 30%, mod.)

- The voltage value and waveformes are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal.
Accordingly, there may arise some errors in voltage values and waveforms depending upon the internal impedance of the tester or measuring unit. No mark.....FM, ( ).....AM

3. Printed Circuit Board and Wiring Connection Diagram

4. Measurements and Adjustments

■ Alignment Instructions

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1.Set volume control to maximum. 2.Set band switch to FM or AM.	3.Set power source voltage to 3V DC. 4.Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM-IF Alignment

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT (Shown in Fig.1)	REMARKS
CONNECTIONS	FREQUENCY				
Fashion on a loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30%Mod. at 400Hz	Point of noninterfer-ence. (on/ about 550 kHz ...AM Band)	Earphones Jack (8 Ω) Fabricate the plug as shown in Fig.2 and then connect in lead wires of the plug to the measuring instrument.	T1 (AM IFT)	Adjust for maximum output.

■ AM-RF Alignment

Fashion on a loop of several turns of wire and radiate signal into loop of receiver.	511kHz	Tuning capacitor fully closed.	〃	L5 (AM OSC Coil)	Adjust for maximum output.
	1750 kHz	Tuning capacitor fully closed.	〃	CT1 (AM OSC Trimmer)	Adjust for maximum output.
	600 kHz	Tune to signal.	〃	L8 (AM ANT Coil) [*1]	Adjust for maximum output. Adjust L8 by moving coil bobbin along ferrite core.
	1500 kHz	Tune to signal.	〃	CT2 (AM ANT Trimmer)	Adjust for maximum output.
[*1] Fix antenna					

■ FM-IF Alignment

SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT (Shown in Fig.3)	REMARKS
CONNECTIONS	FREQUENCY				
Connect to test point TP1 through ceramic capacitor. Negative side to test point TP2.	10.7 MHz (Sweep)	Point of noninterfer-ence. (on/ about 65 MHz ...FM Band)	Connect vert. amp. of scope to test point TP3 . Negative side to test point TP2 .	T2 (FM IFT)	Waveform is shown in Fig.3.

■ FM-RF Alignment

Connect to test point TP1 through FM dummy . Negative side to test point TP2 .	86.2 MHz	Variable capacitor fully closed.	Earphones Jack (8 Ω) Fabricate the plug as shown in Fig.2 and then connect in lead wires of the plug to the measuring instrument.	L3 (FM OSC Coil)	Adjust for maximum output. [*2]
	109.2 MHz	Variable capacitor fully open.	〃	FC2 (FM OSC Trimmer)	〃
	90.0 MHz	Tune to signal.	〃	L2 (FM ANT Coil) [*1]	〃
	106.0 MHz	Tune to signal.	〃	FC1 (FM ANT Trimmer)	〃
[*2] Three output response will be present; proper tuning is the centre frequency.					

- Alignment Points

Fig.1

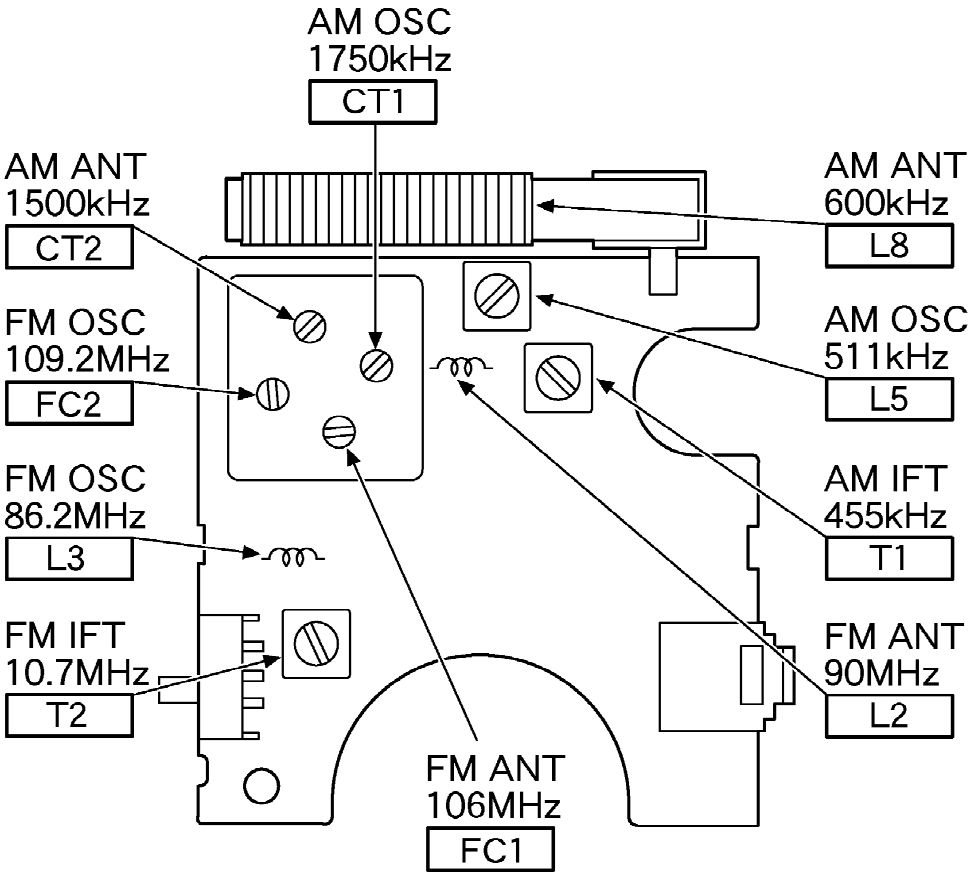


Fig.2

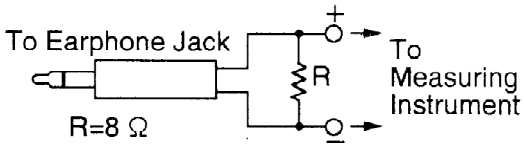
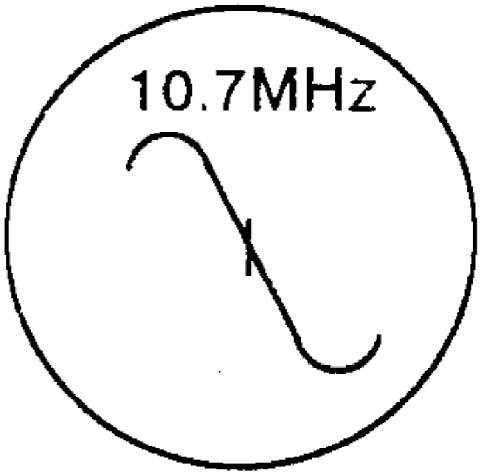


Fig.3



5. Type Illustration of IC's and Diodes

6. Replacement Parts List

6.1. Replacement Parts List

- Capacity values are in microfarads (μ F) unless specified otherwise, p=Pico-farads (pF) F=Farads (F)

- Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (ohm) 1M=1,000 (ohm)

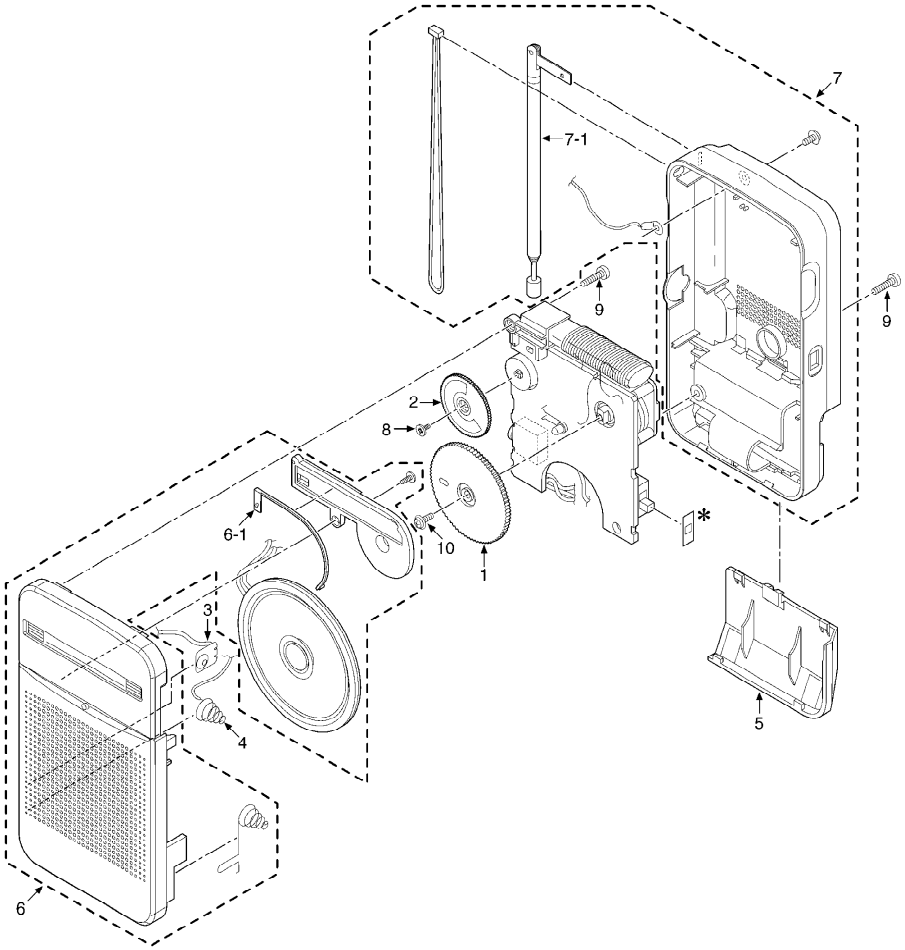
- The "<IA>" marks in Remarks indicate language of instruction manual.
<IA> : English

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

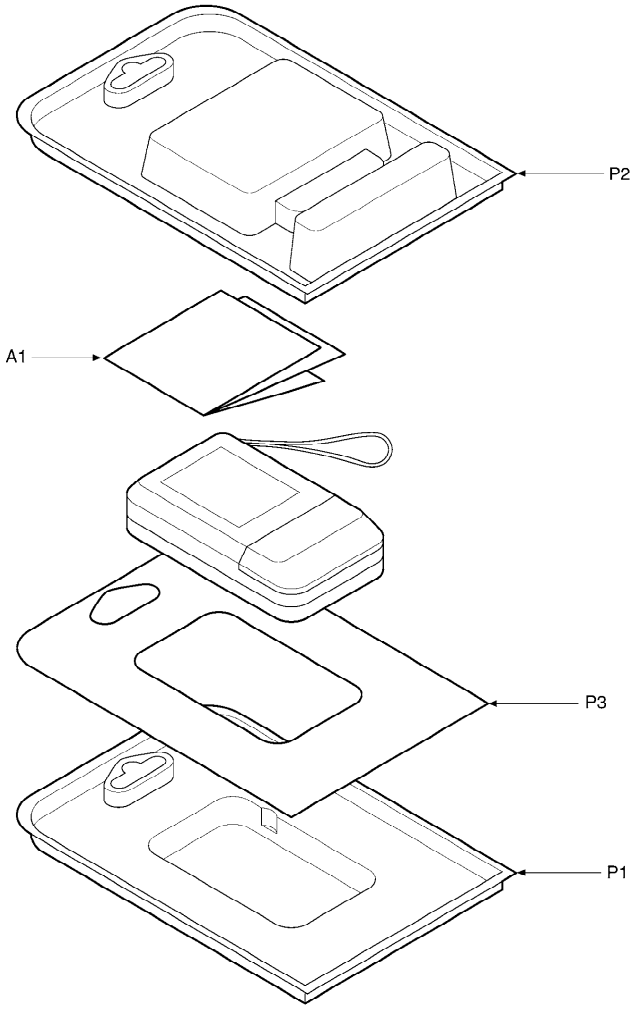
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RGWW0001-H	KNOB,TUNING	1	
2	RGWW0002-H	KNOB,VOLUME	1	
3	RJCW30001	BATT. TERMINAL(+)	1	
4	RJCW70001	BATT. TERMINAL(-)	1	
5	RKKW0001-H	BATT COVER	1	
6	RYKW0028-S	FRONT CABINET ASS'Y	1	
6-1	RGJW0001-Y	POINTER	1	
7	RYKW0029-H	REAR CABINET ASS'Y	1	
7-1	XEARK085EA-C	ROD ANTENNA	1	
8	XSH17+3.5	SCREW	1	
9	XTNR2+8CFZ	SCREW	2	
10	XYN26+C6	SCREW	1	
A1	RQT5096-1P	O/I BOOK	1	<IA>
C1	ECBT1H330J5	50V 33P	1	
C2	ECBT1H180JC5	50V 18P	1	
C3	ECBT1H390J5	50V 39P	1	
C4	ECBT1H150JC5	50V 15P	1	
C5	ECBT1H270JC5	50V 27P	1	
C6	ECCR1H131JC5	50V 130P	1	
C7	ECEA1CKS100	16V 10U	1	
C8	ECBT1E103ZF	25V 0.01U	1	
C10	ECEA1EKS4R7	25V 4.7U	1	
C11	ECEA1HKS0R1	50V 0.1U	1	
C12	ECBT1H101KB5	50V 100P	1	
C13	ECBT1E103ZF	25V 0.01U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C14	ECEA1CKS100	16V 10U	1	
C15	ECEA1EKS4R7	25V 4.7U	1	
C16	ECEA1CKS100	16V 10U	1	
C17	ECBT1E223ZF	25V 0.022U	1	
C18	ECFR1C473MR	16V 0.047U	1	
C19	ECFR1C104MR	16V 0.1U	1	
C20	ECEA1CKS100	16V 10U	1	
C21	ECEA1AKS221	6.3V 220U	1	
C22	RCQB2A104KM	100V 0.1U	1	
C23	ECEA1AKS221	6.3V 220U	1	
C24	ECBT1H150J5	50V 15P	1	
CF1	RVFSFU455B	CERAMIC FILTER	1	
CF2	RVF107WDZT	CERAMIC FILTER	1	
IC1	CXA1619AM	IC	1	
ICP1	SRUN25	IC PROTECTOR	1	
JK1	RJJ34TK04-P	JK,EARPHONE	1	
L1	RLQY18S3W-F	COIL	1	
L2	RL04Y15-F	COIL	1	
L3	RL04Y93W-F	COIL	1	
L4	RLQY18S3W-F	COIL	1	
L5	RL02B133-F	COIL	1	
L7	RLQZR470KT-Y	COIL	1	
L8	REKW0001	BAR ANTENNA UNIT	1	
LED1	SLR332VRTJ7	LED	1	
P1	RPN1217	CLAM SHELL(FRONT)	1	
P2	RPN1218	CLAM SHELL(REAR)	1	
P3	RPQ0988	PAD	1	
PCB1	REPW0004A	PCB ASS'Y	1	(RTL)
R1	ERDS2FJ122	1/4W 1.2K	1	
R2	ERDS2FJ822	1/4W 8.2K	1	
R3	ERDS2FJ562	1/4W 5.6K	1	
R4	ERDS2FJ222	1/4W 2.2K	1	
R5,R6	ERDS2FJ331	1/4W 330	2	
S1	RSS2A019-B	SW	1	
S2	RRV16G01B54Z	SW(VR1)	1	
T1	RLI2B251-F	I.F.T.	1	
T2	RLI4B153-F	I.F.T.	1	
VC1	RCV4GCT0V-M	VC	1	
VR1	RRV16G01B54Z	VR,VOLUME(S2)	1	

6.2. Cabinet Parts Location



6.3. Packaging



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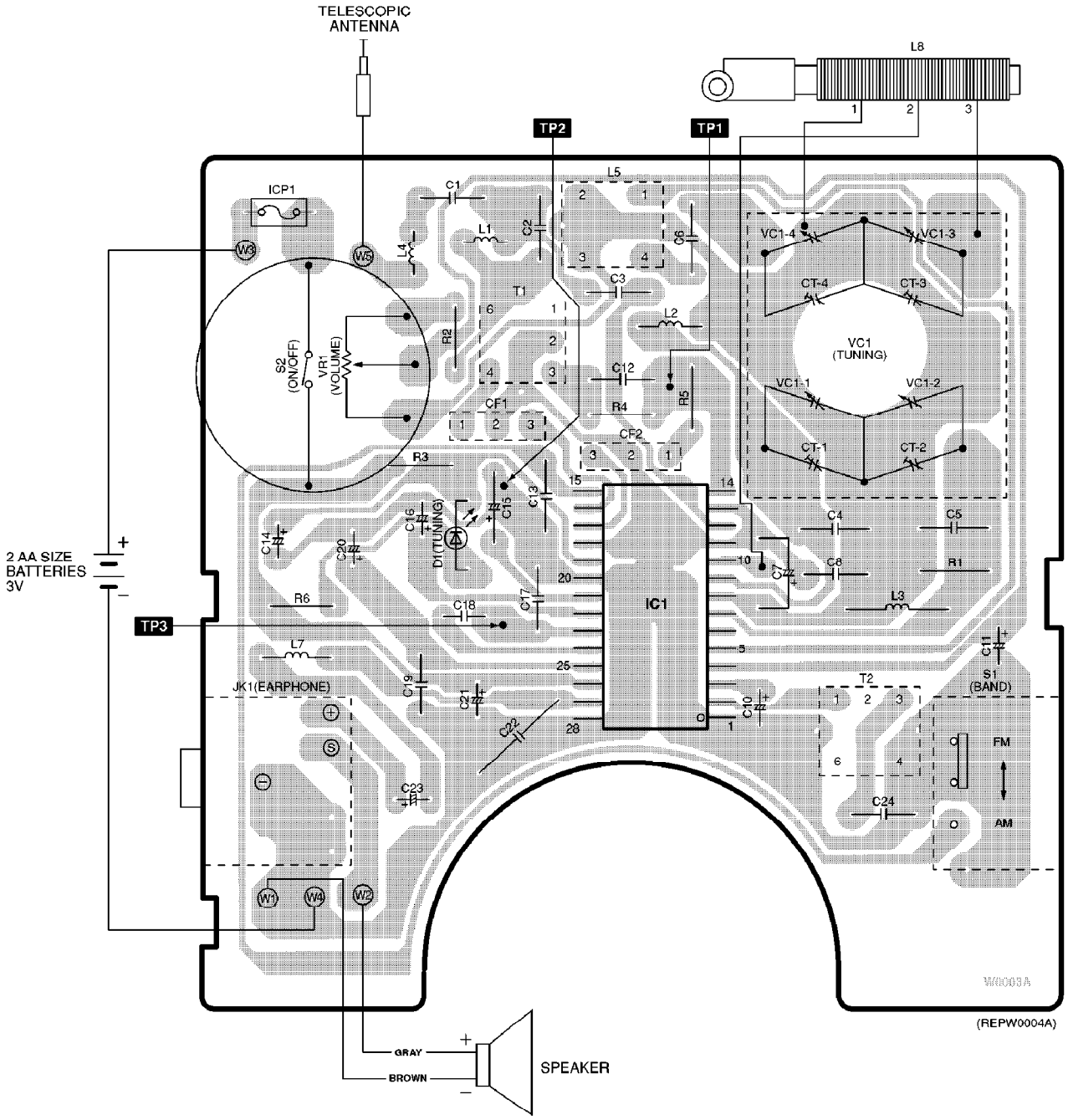
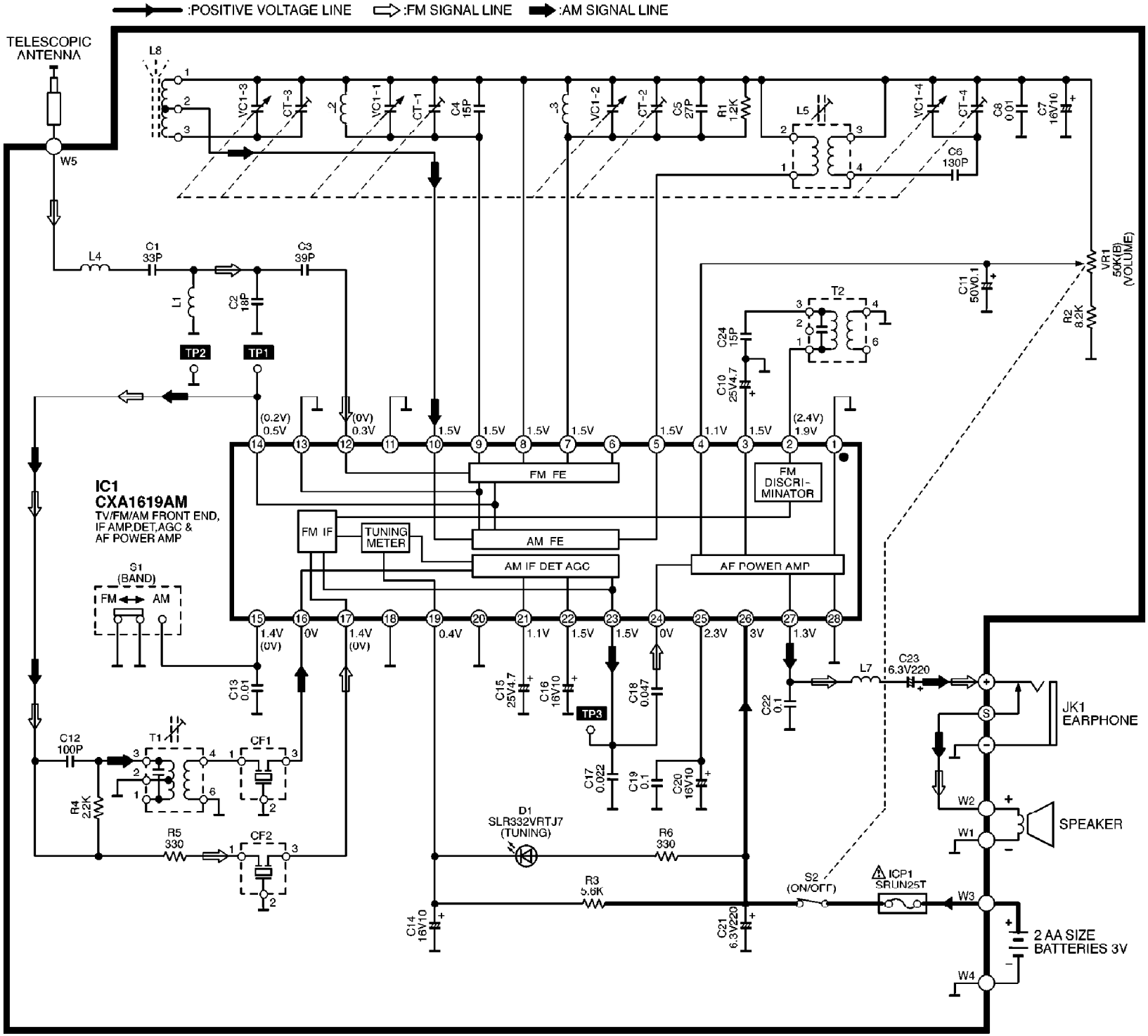
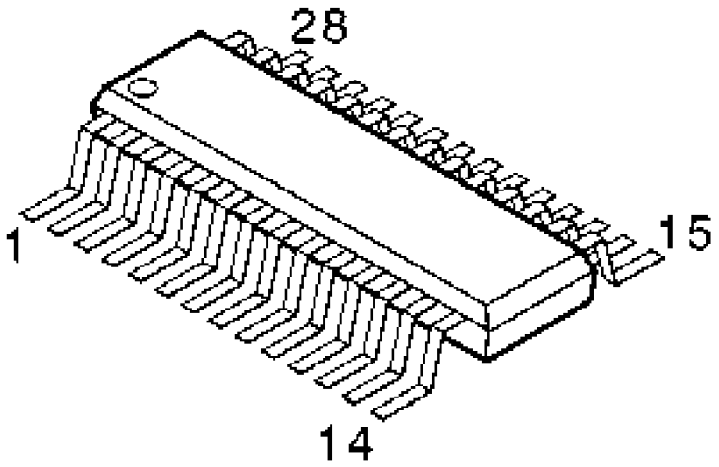


■ELECTRICAL PARTS LOCATION

Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.
IC1	4D	VC1-3	2E	CF1	3C	R2	3C	C7	4E	C19	4C
D1	4C	VC1-4	2E	CF2	3D	R3	3C	C8	4E	C20	4B
ICP1	2B	L1	2C	S1	5F	R4	3D	C10	4D	C21	4C
VR1	3B	L2	3D	S2	3B	R5	3D	C11	4F	C22	5C
CT-1	3E	L3	4E	W1	5B	R6	4B	C12	3D	C23	5C
CT-2	3E	L4	2C	W2	5B	C1	2C	C13	3C	C24	5E
CT-3	2E	L5	2D	W3	2B	C2	2C	C14	4B		
CT-4	2E	L7	4B	W4	5B	C3	2D	C15	3C		
VC1	3E	L8	1E	W5	2B	C4	4E	C16	4C		
VC1-1	3E	T1	3C	JK1	5B	C5	4E	C17	4C		
VC1-2	3E	T2	5E	R1	4E	C6	2D	C18	4C		


:POSITIVE VOLTAGE LINE
:FM SIGNAL LINE
:AM SIGNAL LINE
TELESCOPIC ANTENNA
W5
L8
VC1-3
CT-3
VC1-1
CT-1
C4 15P
VC1-2
CT-2
C5 27P
R1 1.2K
L5
VC1-4
CT-4
C8 0.01
C7 16V10
C6 130P
L4
C1 33P
C3 39P
L1
C2 18P
TP2
TP1
VR1 50K(B) (VOLUME)
C11 50V0.1
R2 8.2K
T2
C24 15P
C10 25V4.7
IC1
CXA1619AM
TV/FM/AM FRONT END, IF AMP,DET,AGC & AF POWER AMP
FM FE
FM DISCRI-MINATOR
FM IF
TUNING METER
AM FE
AM IF DET AGC
AF POWER AMP
S1 (BAND)
FM
AM
C13 0.01
C15 25V4.7
C16 16V10
TP3
C18 0.047
C22 0.1
L7
C23 6.3V220
JK1 EARPHONE
C12 100P
T1
CF1
R4 2.2K
C17 0.022
C19 0.1
C20 16V10
D1 SLR332VRTJ7 (TUNING)
R5 330
CF2
R6 330
R3 5.6K
S2 (ON/OFF)
ICP1 SRUN25T
C14 16V10
C21 6.3V220
W2
W1
W3
W4
SPEAKER
2 AA SIZE BATTERIES 3V

CXA1619AM



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