

# SERVICE MANUAL

## AWA B106

### AM/FM DIGITAL CLOCK RADIO



#### SPECIFICATIONS

Circuit	1 transistor, 6 diodes, superheterodyne
Frequency	FM 88 MHz to 108 MHz AM 540 KHz to 1,605 KHz
Sensitivity	FM 10 micro volts 50 mW output AM 300 micro volts 50 mW output
IF Frequency	FM 10.7 MHz AM 455 KHz
Power Output	500 mW (max.)
Speaker	89 mm 8 ohms
Power	240 V a.c. 50 Hz

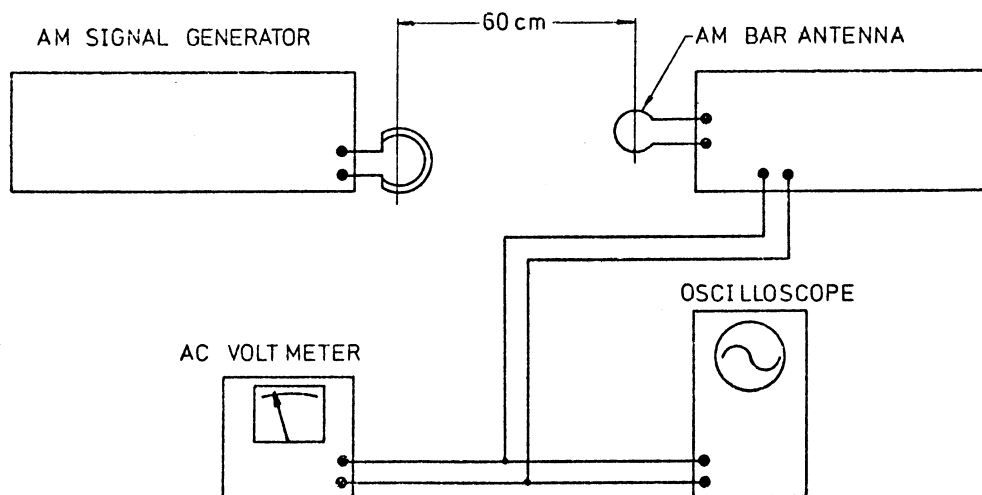
#### ALIGNMENT INSTRUCTIONS

##### AM/FM — AFC DIGITAL CLOCK RADIO

#### AM Alignment

NOTES: Set Band Switch in AM position.  
Set Volume Control to Maximum position.  
Set Signal Generator for 400 KHz. 30% modulation.

STEP	SIGNAL GENERATOR COUPLING	SIG. GEN. FREQ.	DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 KHz (30% Mod)	Tuning gang fully open.	Connect output meter across Earphone Jack.	IFT-6 IFT-7 IFT-8	Adjust for maximum output.
2.	Same as above.	1650 KHz	1650 KHz	Same as above.	CT-4	Same as above.
3.	Same as above.	525 KHz	525 KHz	Same as above.	L-7	Adjust for maximum output. Repeat steps 2 and 3.
4.	Same as above.	1400 KHz	1400 KHz	Same as above.	CT-3	Adjust for max. output.
5.	Same as above.	600 KHz	600 KHz	Same as above.	L-6	Adjust for max. output by sliding along ferrite core. Repeat steps 4 and 5.



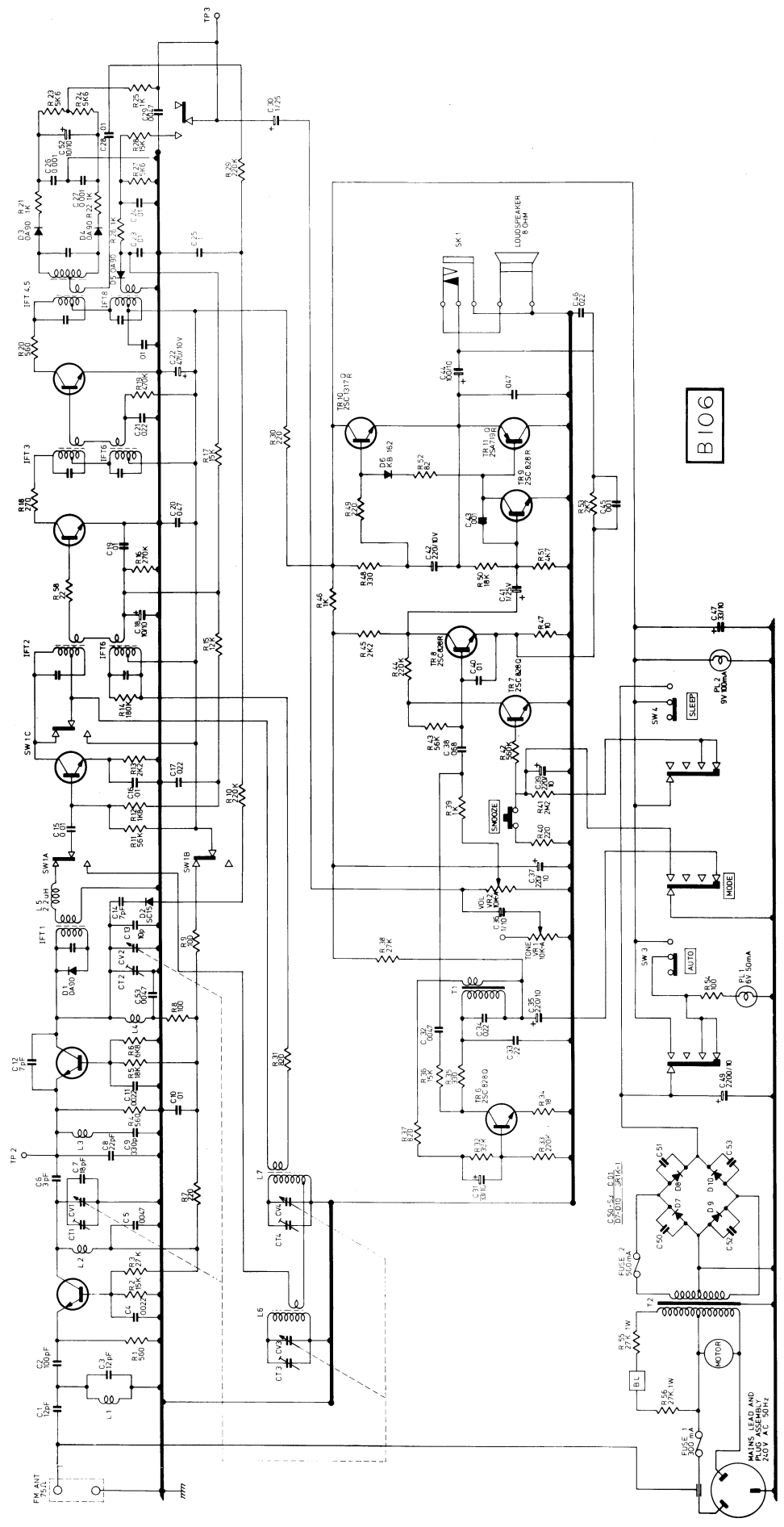
TR 1  
25-10CT.C.D

TR 2  
25C.83C

TR 3  
25C.83B

TR 4  
25C.83C

TR 5  
25C.83B



B106

## FM I.F. Alignment

NOTES: Set Band Switch in FM position.  
Using Sweep Generator and Oscilloscope.

STEP	SIGNAL GENERATOR COUPLING	SIG. GEN. FREQ.	DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side to TP-2. Low side to chassis.	10.7 MHz (10.7 MHz Marker)	Tuning gang fully open.	Vert. amp. to TP-3. Low side to chassis	IFT-1 IFT-2 IFT-3 IFT-4	Adjust for maximum gain.
2.	Same as above.	Same as above.	Same as above.	Same as above.	IFT-5	Adjust to place marker at centre of "S" curve as shown in Fig. A. Slightly retouch IFT-5 for maximum amplitude and symmetry of response curve. Repeat steps 3 and 4 for more accurate alignment.

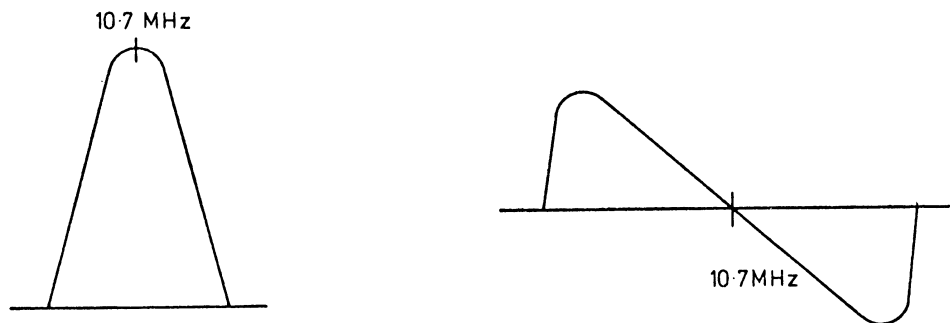
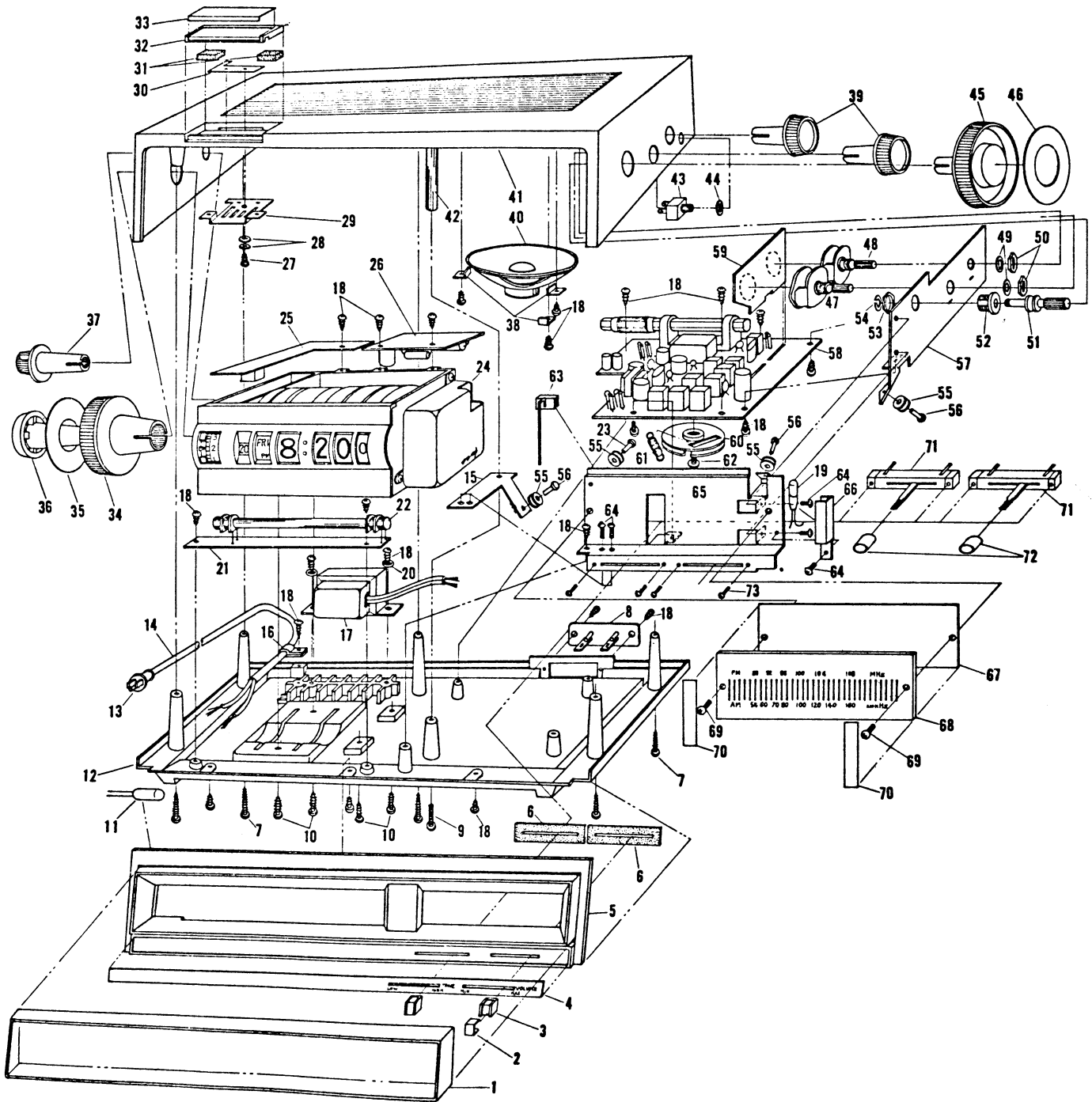


FIG- A



EXPLODED VIEW B106

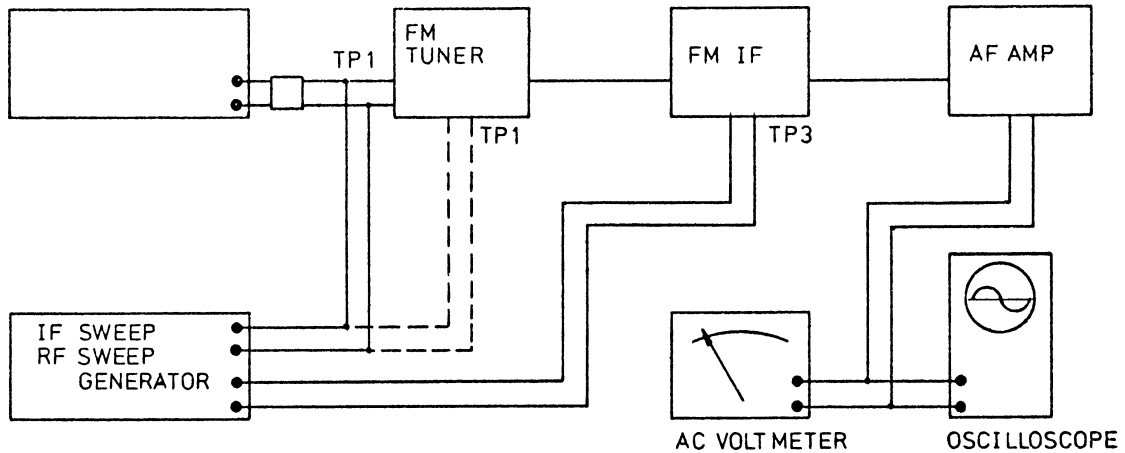
## FM RF Alignment

NOTES: Set Band Switch in FM position.

Using FM Sweep Generator and Oscilloscope.

STEP	SWEEP GEN. COUPLING	SWEEP GEN. FREQ.	DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side to TP-1. Low side to chassis.	109 MHz (109 MHz Marker)	109 MHz	Vert. amp. to TP-3. Low side to chassis.	CT-2	Adjust for maximum.
2.	Same as above.	87 MHz (87 MHz Marker)	87 MHz	Same as above.	L-4	Adjust for maximum. Repeat steps 3 and 4.
3.	Same as above.	106 MHz (106 MHz Marker)	106 MHz	Same as above.	CT-1	Adjust for maximum.
4.	Same as above.	90 MHz (90 MHz Marker)	90 MHz	Same as above.	L-2	Adjust for maximum. Repeat steps 3 and 4.
5.	Same as above.	98 MHz	98 MHz	Same as above.	L-1	Adjust for maximum.

FM SIGNAL GENERATOR



# ELECTRICAL PARTS LIST B106

## TRANSISTORS, DIODES AND INTEGRATED CIRCUITS

REF. NO.	DESCRIPTION	QTY	SCHEMATIC LOCATION
1	Transistor 2SC1047c.d.	1	TR1
2	Transistor 2SC829c	2	TR2, TR4
3	Transistor 2SC829b	2	TR3, TR5
4	Transistor 2SC828q	2	TR6, TR7
5	Transistor 2SC828r	2	TR8, TR9
6	Transistor 2SC1317q.r	1	TR10
7	Transistor 2SA719q.r.	1	TR11
8	Ge Diode OA-90	2	D1, D5
9	Ge Diode 20A-90	2	D3, D4
10	Variable capacitor Diode SC-15	1	D2
11	Si Varistor KB-162	1	D6

## COIL AND TRANSFORMER

NO.	DESCRIPTION	QTY	SCHEMATIC LOCATION
1	Antenna coil FM	1	L1
2	RF Coil FM	1	L2
3	10.7 MHz Trap Coil	1	L3
4	OSC Coil FM	1	L4
5	Inductor 2.2uH	1	L5
6	AM Antenna Coil	1	L6
7	AM OSC Coil	1	L7
8	OSC Transformer	1	T1
9	Power Transformer	1	T2
10	FM IFT	1	IFT-1
11	FM IFT	1	IFT-2
12	FM IFT	1	IFT-3
13	FM Detector	1	IFT-4
14	FM Detector	1	IFT-5
15	AM IFT	1	IFT-6
16	AM IFT	1	IFT-7
17	AM-IFT	1	IFT-8

## CAPACITORS AND VARIABLE CAPACITOR

NO.	DESCRIPTION	QTY	SCHEMATIC LOCATION
1	Ceramic Capacitor 7pf	2	C12, C14
2	Ceramic Capacitor 3pF	1	C6
3	Ceramic Capacitor 10pF	1	C13
4	Ceramic Capacitor 12 pF	2	C3, C1
5	Ceramic Capacitor 18pF	1	C7
6	Ceramic Capacitor 22 pF	1	C1
7	Ceramic Capacitor 100 pF	1	C2
8	Ceramic Capacitor 330pF	1	C9
9	Ceramic Capacitor 0.001uF $\pm$ 20%	2	C26, C27
10	Ceramic Capacitor 0.001uF YZ	2	C43, C45
11	Ceramic Capacitor 0.0022uF YZ	2	C4, C11
12	Ceramic Capacitor 0.0047uf YZ	3	C5, C29, C53
13	Ceramic Capacitor 0.01uF YZ	10	C10, C15, C16, C19, C23, C24, C28, C40, C50, C51
14	Ceramic Capacitor 0.022uF YZ	3	C17, C21, C46
15	Ceramic Capacitor 0.047uF YZ	1	C20.
16	Electrolytic Capacitor 0.1uF 10 V	1	C36
17	Mylar Capacitor 0.0047uF	1	C32
18	Mylar Capacitor 0.022uF	1	C34
19	Mylar Capacitor 0.068uF	1	C38
20	Mylar Capacitor 0.1uF	1	C25
21	Mylar Capacitor 0.22uF	1	C33
22	Electrolytic Capacitor 1uF 25 V	2	C30, C41
23	Electrolytic Capacitor 10 uF 10 V	2	C18, C52
24	Electrolytic Capacitor 33uF 10 V	2	C31, C47
25	Electrolytic Capacitor 100uF 10 V	1	C44
26	Electrolytic Capacitor 220uF 10 V	4	C35, C37, C39, C42
27	Electrolytic Capacitor 470uF 10 V	1	C22
28	Electrolytic Capacitor 2200uF 10 V	1	C49

## RESISTOR AND VARIABLE RESISTOR

NO.	DESCRIPTION	QTY	SCHEMATIC LOCATION
1	Resistor $\frac{1}{4}$ WR 18 ohm J	1	R34
2	Resistor $\frac{1}{4}$ WR 22 ohm J	1	R58
3	Resistor $\frac{1}{4}$ WR 10 ohm J	1	R47
4	Resistor $\frac{1}{4}$ WR 82 ohm J	1	R52
5	Resistor $\frac{1}{4}$ WR 100 ohm J	2	R9, R54
6	Resistor $\frac{1}{4}$ WH 100 ohm J	1	R8
7	Resistor $\frac{1}{4}$ WR 220 ohm J	4	R7, R30, R40, R49
8	Resistor $\frac{1}{4}$ WR 330 ohm J	2	R35, R48
9	Resistor $\frac{1}{4}$ WR 270 ohm J	1	R18
10	Resistor $\frac{1}{4}$ WR 560 ohm J	3	R1, R4, R20
11	Resistor $\frac{1}{4}$ WH 820 ohm J	1	R31
12	Resistor $\frac{1}{4}$ WR 820 ohm J	1	R37
13	Resistor $\frac{1}{4}$ WR 1 Kohm J	6	R21, R22, R25, R26, R39, R46
14	Resistor $\frac{1}{4}$ WR 1.8 Kohm J	1	R12
15	Resistor $\frac{1}{4}$ WR 2.2 Kohm J	2	R13, R45
16	Resistor $\frac{1}{4}$ WR 2.7 Kohm J	1	R53
17	Resistor $\frac{1}{4}$ WR 4.7 Kohm J	1	R51
18	Resistor $\frac{1}{4}$ WR 5.6 Kohm J	3	R23, R24, R27
19	Resistor $\frac{1}{4}$ WR 6.8 Kohm J	1	R6
20	Resistor $\frac{1}{4}$ WH 12 Kohm J	1	R15
21	Resistor $\frac{1}{4}$ WH 15 Kohm J	1	R17
22	Resistor $\frac{1}{4}$ WR 15 Kohm J	3	R2, R28, R36
23	Resistor $\frac{1}{4}$ WR 18 Kohm J	2	R5, R50.
24	Resistor $\frac{1}{4}$ WR 27 Kohm J	2	R3, R38
25	Resistor $\frac{1}{4}$ WR 39 Kohm J	1	R32
26	Resistor $\frac{1}{4}$ WR 56 Kohm J	2	R11, R43
27	Resistor $\frac{1}{4}$ WR 180 Kohm J	1	R14
28	Resistor $\frac{1}{4}$ WR 220 Kohm J	4	R10, R29, R33, R34
29	Resistor $\frac{1}{4}$ WR 270 Kohm J	1	R16
30	Resistor $\frac{1}{4}$ WR 470 Kohm J	1	R19
31	Resistor $\frac{1}{4}$ WR 560 Kohm J	1	R42
32	Resistor $\frac{1}{4}$ WR 2.2 Mohm J	1	R41
33	Resistor $\frac{1}{2}$ WR 2.2 Mohm J	1	R57
34	Resistor $\frac{1}{2}$ WR 27 Kohm J	2	R55, R56
35	Variable Resistor A-10 Kohm	2	VR1, VR2

## OTHER PARTS

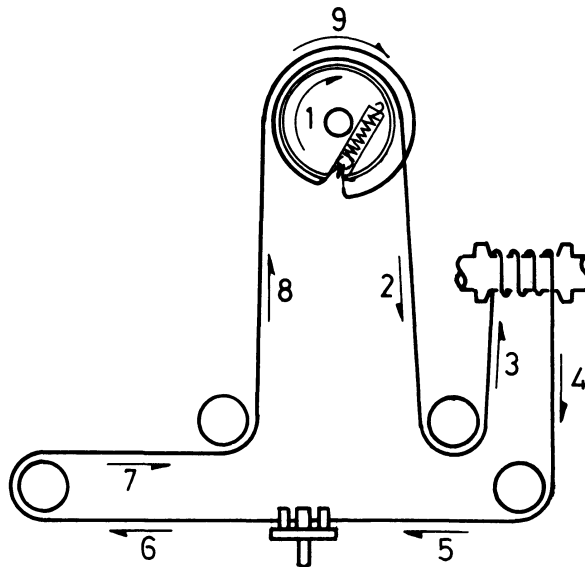
NO.	DESCRIPTION	QTY	SCHEMATIC LOCATION
1	Rotary Switch (Band Switch)	1	S1-1, S1-2, S1-3
2	Rotary Switch (Mode Switch)	1	S2
3	Variable Capacitor	1	CV1, CV2, CV3, CV4, CT1, CT2, CT3, CT 4
4	Cold Cathode Discharge Lamp	1	BL
5	Pilot Lamp 6 V 50mA	1	PL1
6	Pilot Lamp 8 V 100mA	1	PL2
7	Speaker	1	SP
8	Earphone Jack	1	EP
9	ANT Terminal	1	
10	Power supply wire	1	
11	Digital Clock	1	
12	Printed circuit board (Radio)	1	
13	Printed circuit board (Switch)	1	
14	Printed circuit board (Power)	1	
15	Printed circuit board (Clock)	1	
16	Printed circuit board (BL)	1	
17	Wire		
18	Fuse 0.5 A	1	FU

# MECHANICAL PARTS LIST

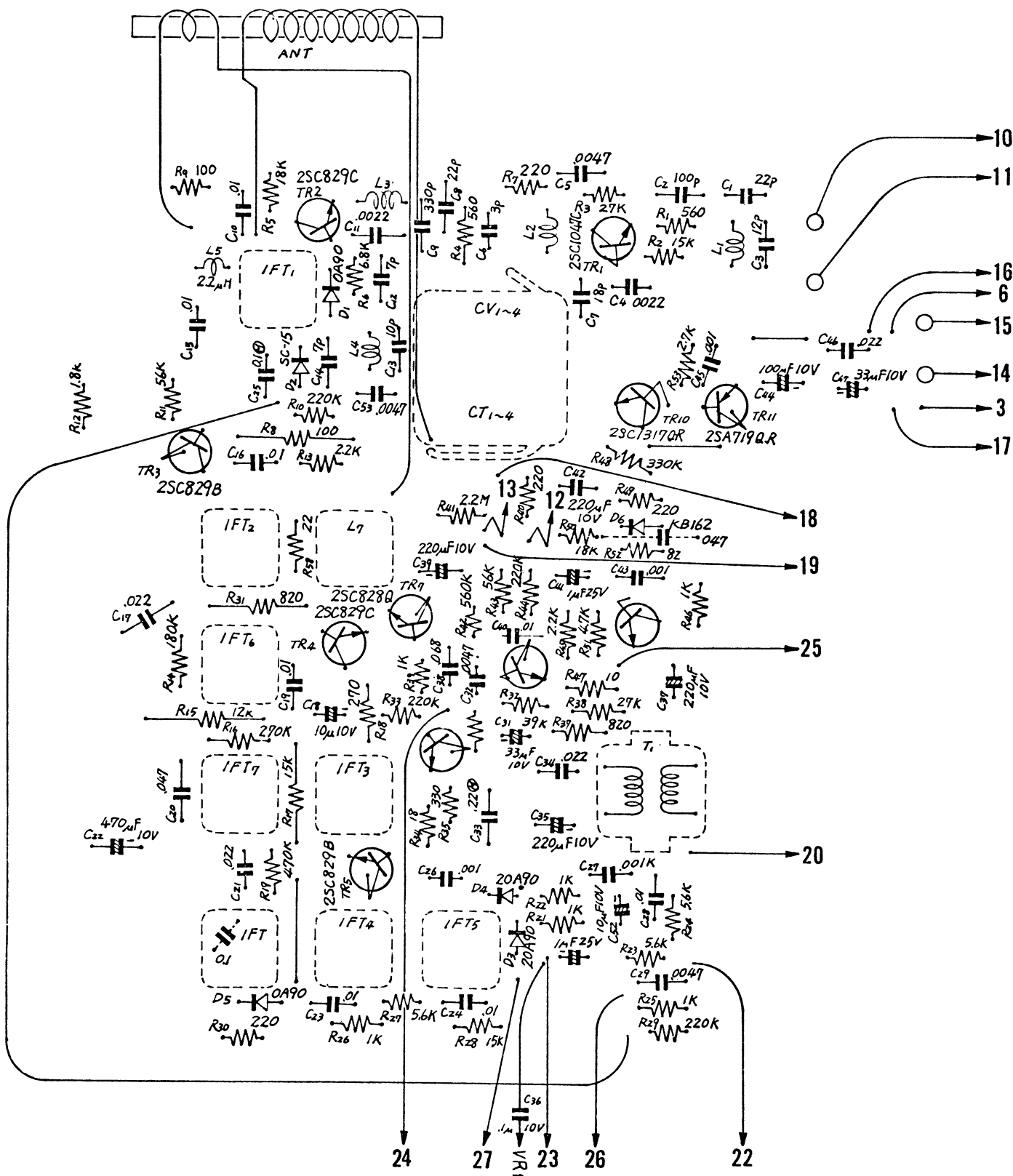
REF. NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	QTY
1	Dial Window	1	40	Speaker	1
2	Volume Knob Plate	2	41	Cabinet	1
3	Volume Knob	2	42	Supporter	1
4	Front Plate	1	43	Earphone Jack	1
5	Front Mask	1	44	Earphone Jack Nut	1
6	Volume Mask	2	45	Tuning Knob	2
7	Tapping Screw (M3 x 18)	5	46	Tuning Knob Plate	1
8	FM Antenna Terminal	1	47	Mode Switch	1
9	Screw (M3 x 15)	4	48	Band Switch	1
10	Tapping Screw (M3 x 10)	4	49	Washer 9/64	2
11	Indicator Light 6 V 50mA	1	50	Nut M9	2
12	Bottom Cabinet	1	51	Tuning Shaft	1
13	a.c. Plug	1	52	Tuning Shaft Holder	1
14	a.c. Cord	1	53	Tuning Shaft Holder Nut	1
15	Metal Fitting	1	54	E-Ring	1
16	Cord Stopper	1	55	Pulley	4
17	Power Transformer	1	56	Pulley Shaft (A)	3
18	Tapping Screw (M3 x 8)	17	57	Chassis (A)	1
19	Indicator Light 8 V 100mA	1	58	Radio P.C. Board	1
20	Washer	2	59	Switch P.C. Board	1
21	Black Light P.C. Board	1	60	Dial Drum	1
22	Black Light	1	61	Dial Spring	1
23	Pulley Shaft (B)	1	62	Dial Drum Screw	1
24	Digital Clock	1	63	Dial Pointer	1
25	Clock P.C. Board	1	64	Screw (M3 x 8)	6
26	Power Supply P.C. Board	1	65	Chassis (B)	1
27	Tapping Screw (M3 x 5)	1	66	Lamp Holder	1
28	Spring Washer	2	67	Rear Panel	1
29	Snooze Switch Board (A)	1	68	Dial Scale	1
30	Snooze Switch Board (B)	1	69	Screw (M3 x 10)	2
31	Snooze Knob Cushion	2	70	Silver Tape	2
32	Snooze Knob	1	71	Volume	2
33	Snooze Knob Plate	1	72	Tube (for Volume Shaft)	2
34	Alarm Knob	1	73	Screw (M2.6 x 4)	4
35	Alarm Knob Plate	1			
36	Time Set Knob	1			
37	Sleep Knob	1			
38	Speaker Metal Fitting	3			
39	Select Knob	2			

**NOTE:** Always quote the model number and the part number when ordering replacement parts.

The manufacturers reserve the right to vary specifications and/or materials as may be deemed necessary or desirable at any time.



DIAL CORD ARRANGEMENT



B106 P.C.B. LAYOUT