TECHNICAL INFORMATION AND SERVICE DATA

AWA RADIOLA

Portable Model 471-P

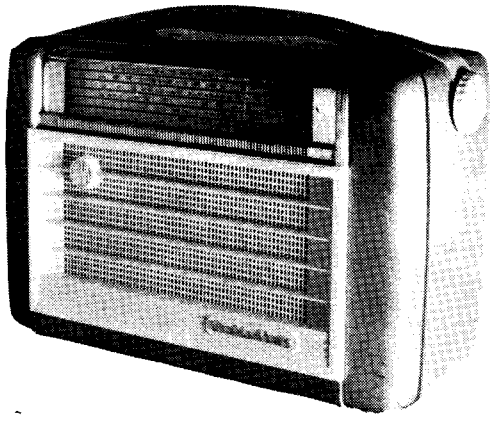
FOUR VALVE, BROADCAST, DRY-CELL BATTERY OPERATED SUPERHETERODYNE

AND

Portable Model 577-P

FIVE VALVE, BROADCAST, DRY-CELL BATTERY OPERATED SUPERHETERODYNE

ISSUED BY:
AMALGAMATED WIRELESS (AUSTRALASIA) LTD.



ELECTRICAL SPECIFICATIONS

Frequency Range ..... 540-1600 Kc/s (555-187.5 metres)
Intermediate Frequency ..... 455 Kc/s

Battery Complement:
"A" Battery:—One 1.5V, type 745
"B" Battery:—Two 45V, type 482

Battery Consumption:

Model 471-P	"A" Battery =	250 mA	
	"B" Battery =	13 mA	("Full")
		8 mA	("Save")
Model 577-P	"A" Battery =	300 mA	
	"B" Battery =	13 mA	("Full")
		8 mA	("Save")

Loudspeaker (Permanent Magnet).
4 inch — Code No. BH4
Transformer — 31727B
V.C. Impedance 3 ohms at 400 C.P.S.

Undistorted Power Output ..... 200 milliwatts

Valve Complement:
1T4 R.F. Amplifier (577-P only)
1R5 Converter
1T4 I.F. Amplifier
1S5 Detector, A.F. Amplifier, A.V.C.
3V4 Output

Controls:
ON-OFF — Volume — left-hand end of cabinet
Tuning—right-hand end of cabinet
Battery "Save"/"Full"—rear of chassis

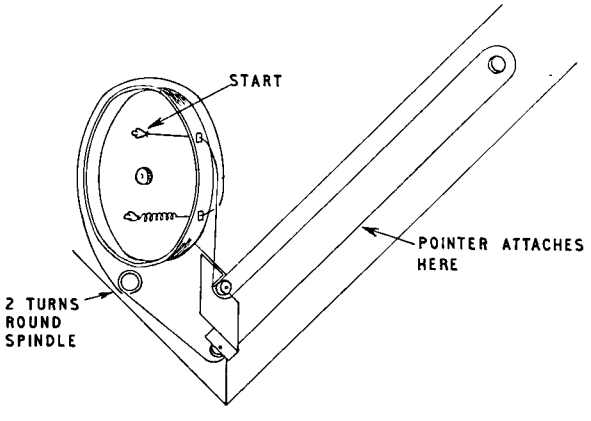
Chassis Removal:

To remove the chassis from the cabinet open the back and disconnect the speaker cable and batteries. Unsolder the loop aerial leads and pull them back through the guides on the side of the cabinet.

Remove the knobs by pulling them straight off their spindles. Remove a screw under each knob when the cream link covers may be lifted off. The screw under each cover on being removed allows the chassis to be withdrawn.

When replacing the chassis pass the loop leads through the guides, keeping the green lead separate from the black and white, and solder the green lead to the panel so that it connects to the inside of the loop winding.

Note that the link covers are slightly different and must be replaced on the correct side, the one marked "TUNE" on the tuning spindle side and the one marked "VOL" on the volume control side.



Drive Cord Replacement:

The accompanying diagram shows the route of the cord and the method of attachment.

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws are broken.

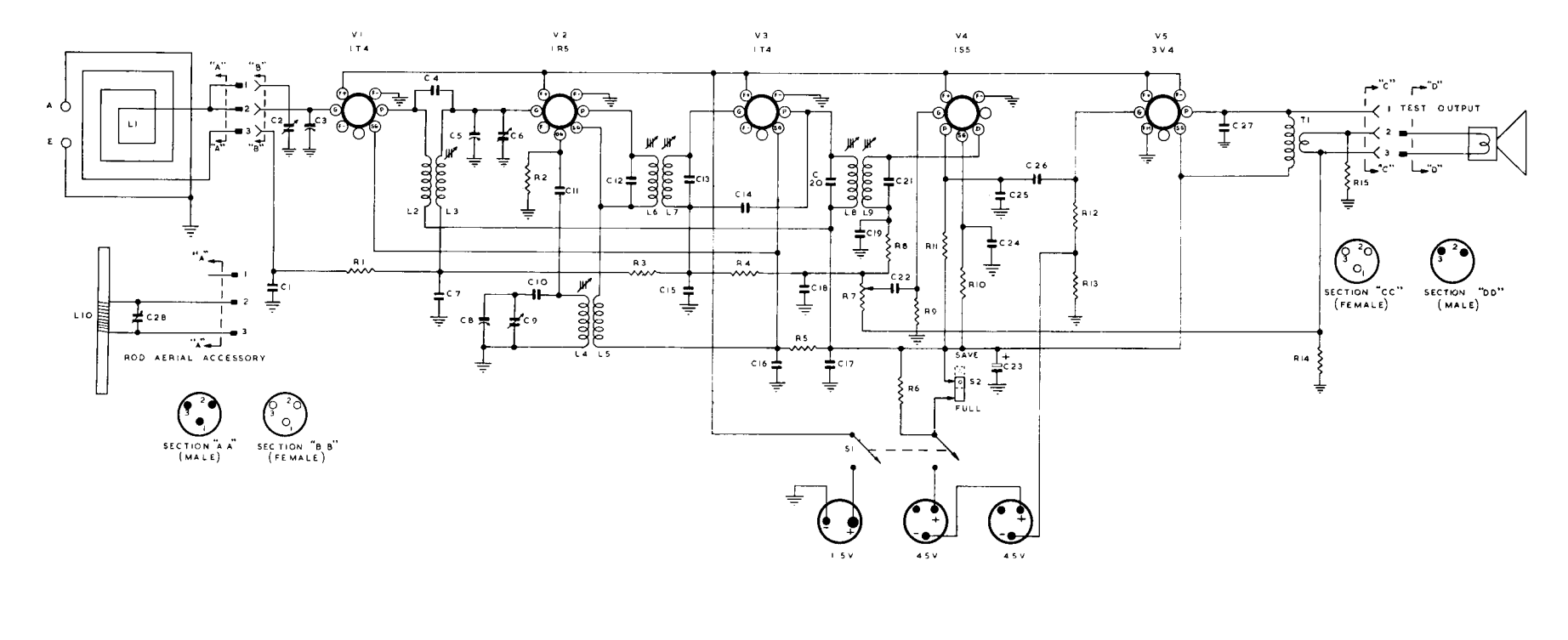
It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and cannot be re-adjusted unless by skilled operators using special equipment.

For all alignment operations, keep the generator output as low as possible to avoid A.V.C. action and set the volume control in the maximum clockwise position.

Testing Instruments:

(1) A.W.A. Junior Signal Generator, type 2R7003, or
(2) A.W.A. Modulated Oscillator, series J6726.
If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals.
(3) A.W.A. Output Meter, type 2M8832.


V1
1T4
V2
1R5
V3
1T4
V4
1S5
V5
3V4
A
E
L1
"A"
"B"
C2
C3
C4
C5
C6
L2
L3
R2
C11
C12
C13
L6
L7
C14
C20
L8
L9
C21
C19
R8
R11
C24
C25
C26
R12
R13
C27
T1
"C"
"D"
1 TEST OUTPUT
2
3
R15
SECTION "CC"
(FEMALE)
SECTION "DD"
(MALE)
R1
C1
C7
C10
C8
C9
L4
L5
R3
C15
R4
C18
C22
R7
R9
R10
R5
C16
C17
R6
SAVE
S2
FULL
C23
R14
S1
L10
C28
ROD AERIAL ACCESSORY
SECTION "A A"
(MALE)
SECTION "B B"
(FEMALE)
1.5V
45V
45V

D.C. RESISTANCE OF WINDINGS

MODEL 471-P

Winding	D.C. Resistance in ohms
Oscillator Coil:	
Primary (L3)	1
Secondary (L2)	4
I.F. Transformer Windings	25
Loudspeaker Input Transformer (T1)	
Primary	450
Secondary	*

* Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.

SOCKET VOLTAGES—MODEL 471-P

VALVE		Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts
1R5	Converter	0	45	45	0.7	1.5
1T4	I.F. Amp.	0	45	85	1.5	1.5
1S5	Det., A.F. Amp., A.V.C.	0	20*	30*	0.1	1.5
3V4	Output	-5	85	82	6.5	1.5

Measured with no signal input. Volume Control maximum clockwise.

* Cannot be measured with an ordinary voltmeter.

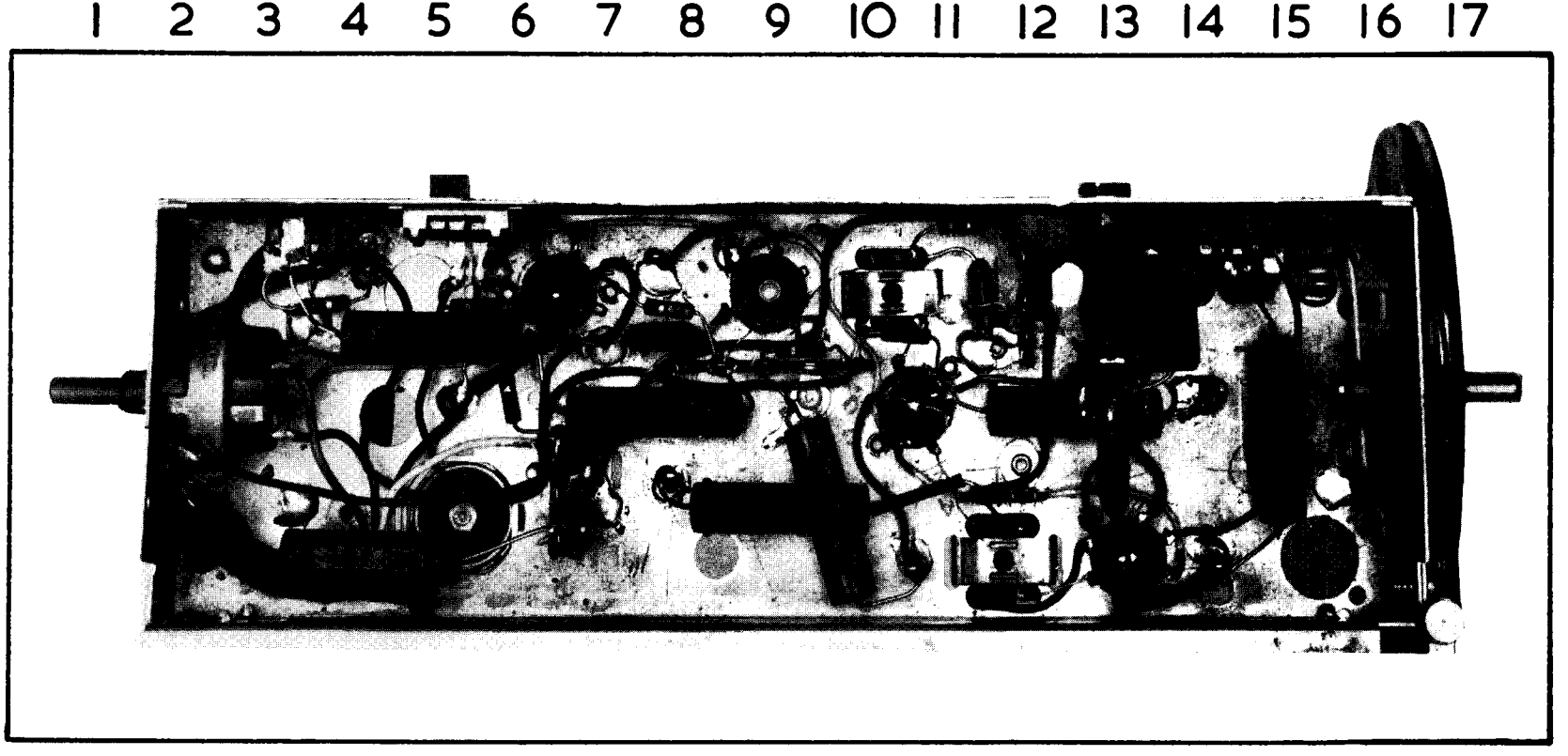

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A
B
C
D
E
F
G
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

FIG. 2

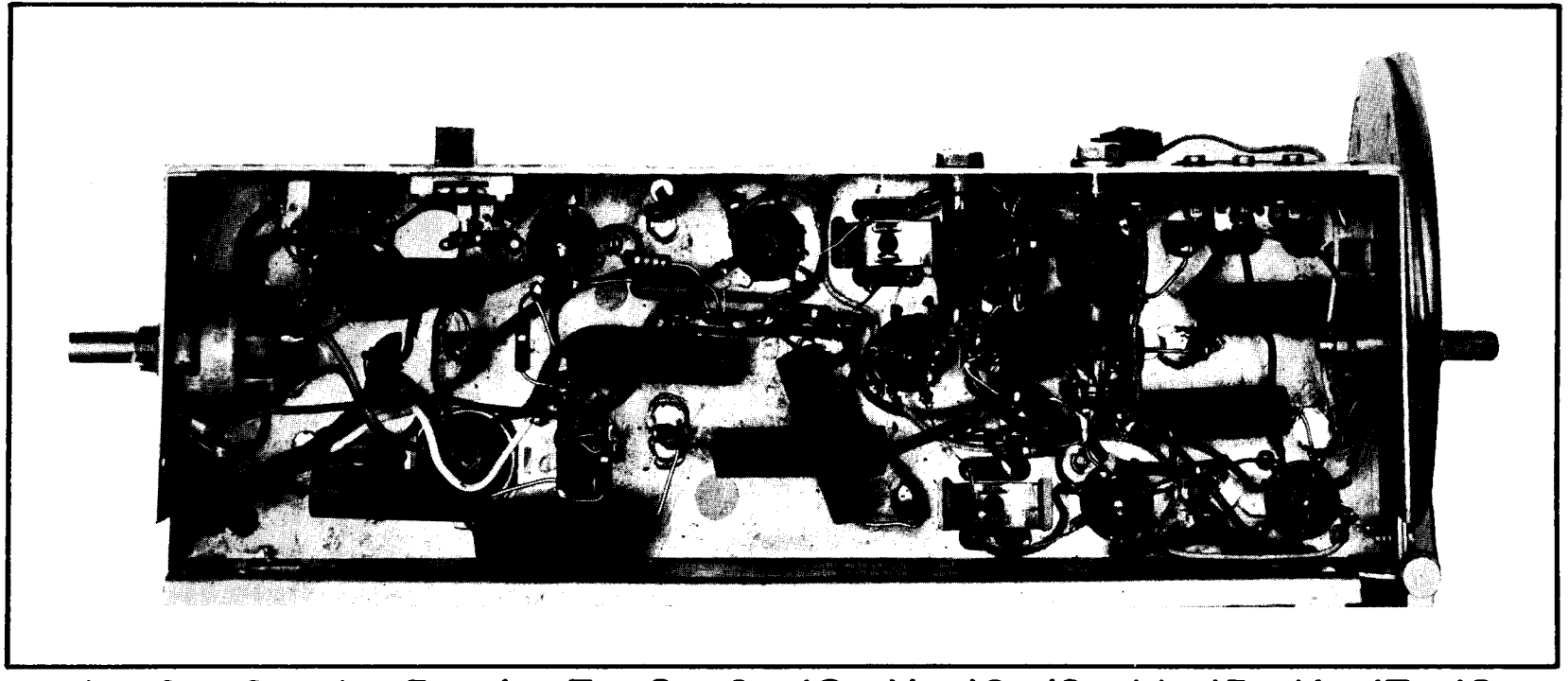
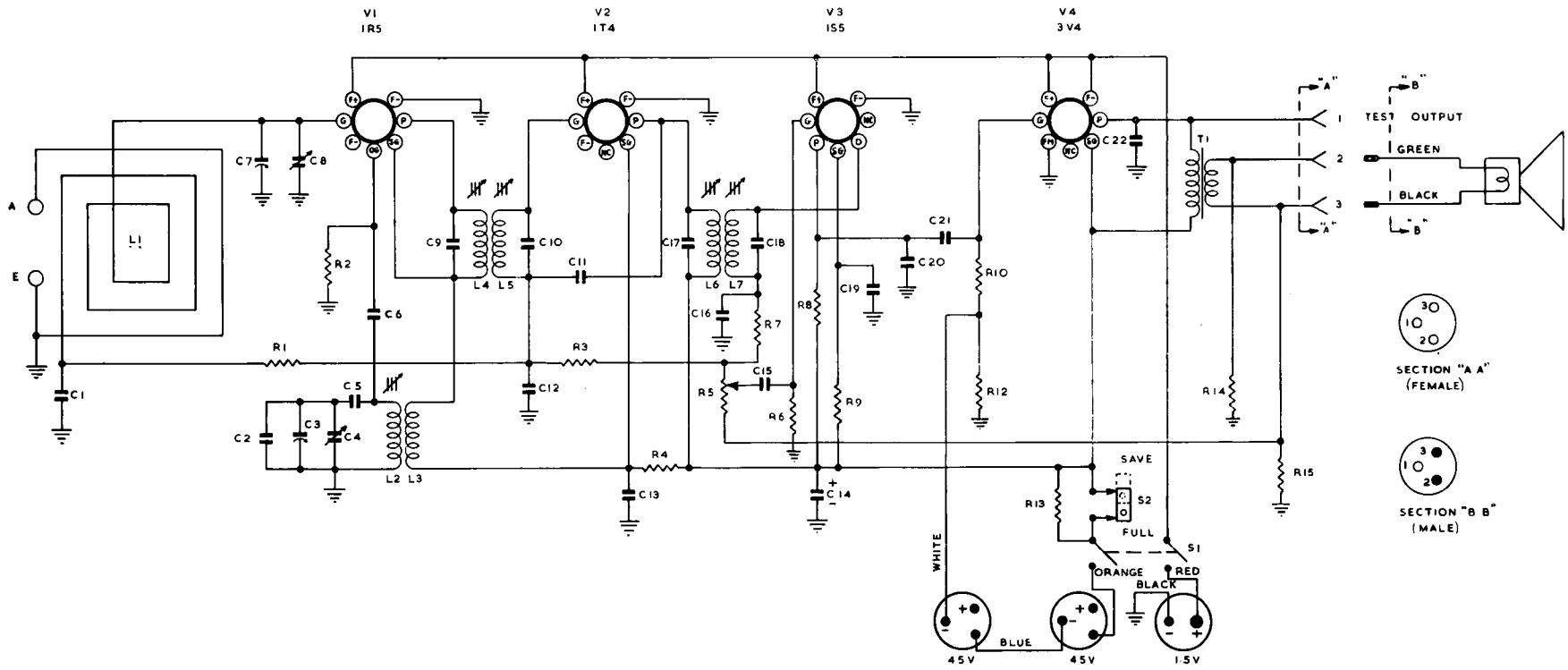

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G

FIG. 4


V1
1R5
V2
1T4
V3
1S5
V4
3V4
A
E
L1
C1
C2
C3
C4
C5
C6
C7
C8
R1
R2
L2 L3
C9
C10
C11
L4 L5
R3
C12
C13
R4
C15
R5
R6
C16
R7
C17
C18
L6 L7
R8
R9
C14
C19
C20
C21
R10
R12
C22
T1
R14
R15
R13
S2
SAVE
FULL
S1
WHITE
ORANGE
RED
BLACK
BLUE
45V
45V
1.5V
"A"
"B"
TEST OUTPUT
GREEN
BLACK
SECTION "A A"
(FEMALE)
SECTION "B B"
(MALE)

ALIGNMENT TABLE—MODEL 471-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to to:	Adjust for maximum peak output:
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1 megohm resistor across them.			
1	Grid of 1T4*	455 Kc/s	Gang in full mesh	L7 and L6 Cores
2	Aerial Section of Gang* (Drive End)	455 Kc/s	Gang in full mesh	L5 and L4 Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale. Replace the cover over the receiver chassis which should then be fitted in the cabinet, the resistor removed from the loop leads and the leads then connected to the aerial in the back lid, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed before remainder of alignment is proceeded with.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	L.F. Osc. Core Adj. (L2)‡§
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C4)§
5	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. Aer. Adj. (C8)§
	Repeat adjustments 3 and 5 until the maximum output is obtained.			

* A 0.001 μF capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.

‡ Rock the tuning control back and forth through the signal.

§ These adjustments are accessible through 3 holes in the cabinet back.

ALIGNMENT TABLE—MODEL 577-P

Order	Connect "high" side of Generator to:	Tune Generator to:	Tune Receiver to:	Adjust for maximum peak output:
	NOTE: If loop leads protruding from the chassis are disconnected, connect a 1.0 megohm resistor across them.			
1	Grid of 1T4* (I.F. Amp.)	455 Kc/s	Gang in full mesh	L9 and L8 Cores
2	Grid of 1R5* (Rear Section of Gang)	455 Kc/s	Gang in full mesh	L7 and L6 Cores
	Repeat adjustments 1 and 2 until the maximum output is obtained. With gang in full mesh, set the pointer to the setting mark at the right-hand end of the dial scale Replace the cover over the receiver chassis which should then be fitted in the cabinet, remove the resistor from the loop leads and connect them to the aerial in the cabinet back, the green lead to the inside of the loop. The batteries must be in place in the cabinet and the back closed for alignment of aerial circuits. Connect a 10,000 ohm resistor from the rear section of the gang to chassis.			
3	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	L.F. Osc. Core Adj. (L4)‡¶
4	Inductively coupled to loop†	1640 Kc/s	Gang fully open	H.F. Osc. Adj. (C9)§
5	Inductively coupled to loop†	1500 Kc/s	1500 Kc/s (3AK)	H.F. Aer. Adj. (C2)¶
	Repeat adjustments 3 and 5 until maximum output is obtained. Remove the 10,000 ohm resistor.			
6	Inductively coupled to loop†	600 Kc/s	600 Kc/s (7ZL)	L.F. R.F. Core Adj. (L3)¶
7	Inductively coupled to loop†	1500 Kc/s	1500 K/cs (3AK)	H.F. R.F. Adj. (C6)¶
	Repeat adjustments 6 and 7 until maximum output is obtained and finally check adjustments 3 and 5.			

* A 0.001 μF capacitor should be connected in series with the high side of the test instrument.

† A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument, placed co-axial with the loop and distant not less than 1 foot from it.

‡ Rock the tuning control back and forth through the signal.

§ Open the back to make this adjustment and then close to complete alignment.

¶ These adjustments are accessible through 4 holes in the cabinet back.

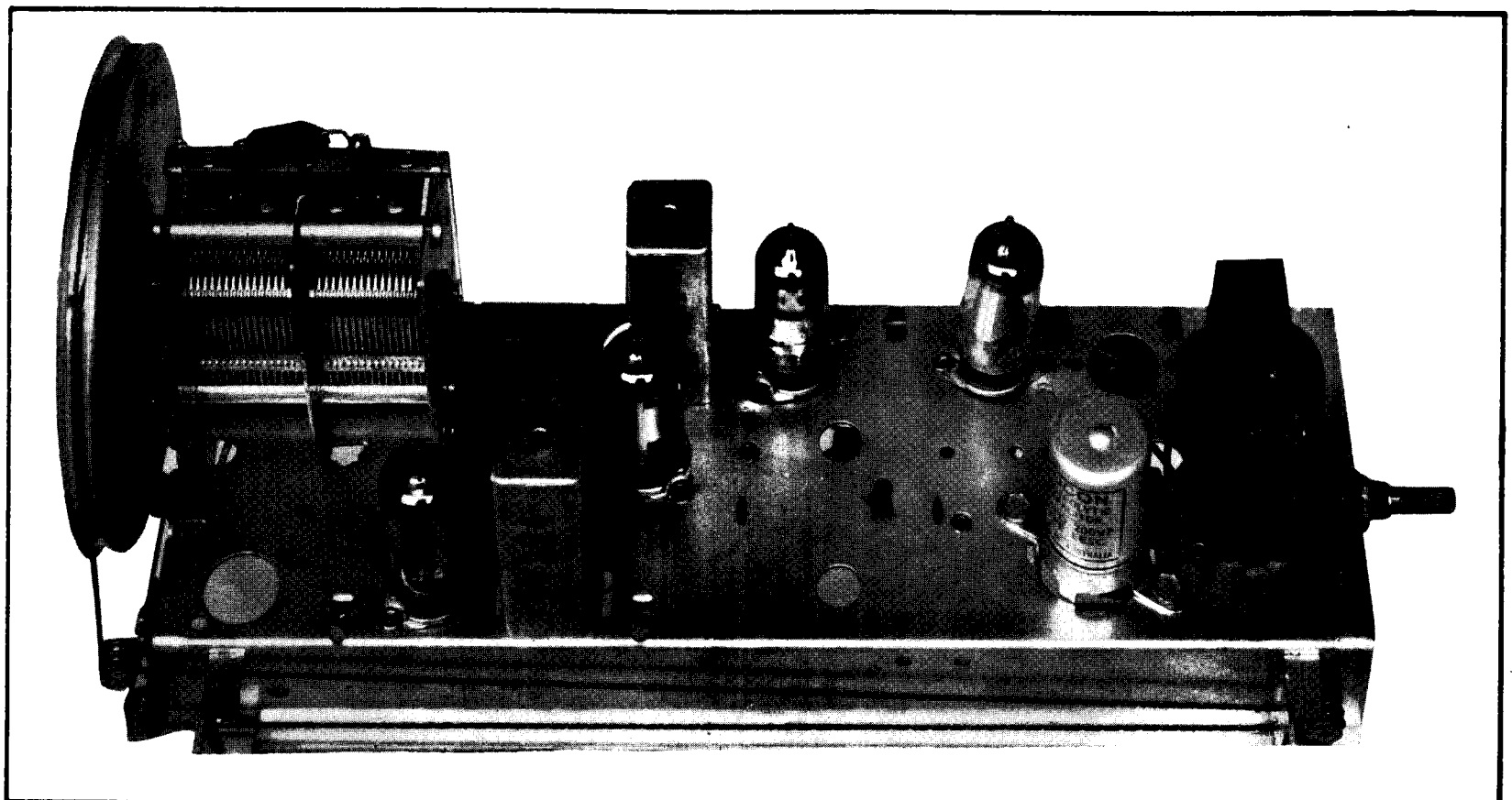


FIG. 1

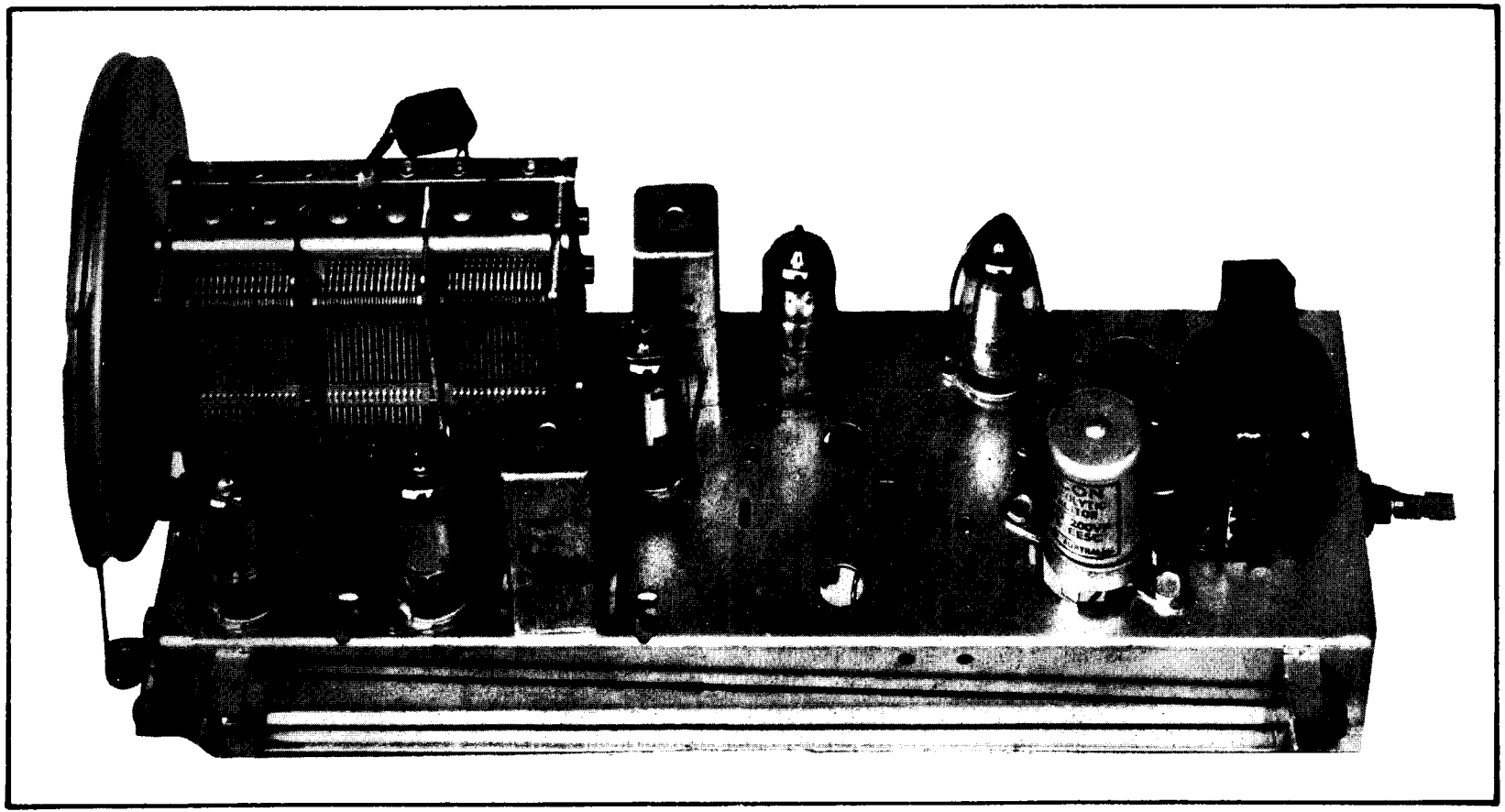


FIG. 3

D.C. RESISTANCE OF WINDINGS

MODEL 577-P

Winding	D.C. Resistance in ohms
R.F. Coil:	
Primary (L2)	100
Secondary (L3)	4
Oscillator Coil:	
Primary (L5)	1
Secondary (L4)	4
1st I.F. Transformer Windings	25
2nd I.F. Transformer Windings	20
Loudspeaker Input Transformer (T1)	
Primary	450
Secondary	*

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.

* Less than 1 ohm.

SOCKET VOLTAGES—MODEL 577-P

	VALVE	Bias Volts	Screen to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Filament Volts
1T4	R.F. Amp.	0	35	85	1.0	1.5
1R5	Converter	0	35	35	0.2	1.5
1T4	I.F. Amp.	0	35	85	1.0	1.5
1S5	Det., A.F. Amp., A.V.C.	0	20*	30*	0.1	1.5
3V4	Output	-5	85	82	6.5	1.5

* Cannot be measured with an ordinary voltmeter.

Measured with no signal input. Volume Control maximum clockwise.

CIRCUIT CODE — MODEL 471-P

Code No.	Description	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Loop Aerial Coil	31841		
L2, L3	Oscillator Coil 540-1600 Kc/s	30777	2	C13
L4, L5	1st I.F. Transformer	27324	1	F6
L6. L7	2nd I.F. Transformer	27324	1	C7
	RESISTORS			
R1	0.1 megohm ½ watt		2	B13
R2	0.1 megohm ½ ,,		2	F13
R3	3.3 megohms ½ ,,		2	B12
R4	13,000 ohms ½ ,, ± 5%		2	C10
R5	1.0 megohm Volume Control (including S1)	27530	2	D2
R6	10.0 megohms ½ watt		2	F7
R7	47,000 ohms ½ ,,		2	B11
R8	0.47 megohms ½ ,,		2	C7
R9	3.3 megohms ½ ,,		2	C9
R10	1.0 megohm ½ ,,		2	D6
R11	Not Used			
R12	390 ohms ½ ,, ± 5%		2	E7
R13	1,800 ohms ½ ,,		2	C5
R14	330 ohms ½ ,,		2	C3
R15	30 ohms ½ ,,		2	C5
	CAPACITORS			
C1	0.05 μF paper 200V working		2	D15
C2	9 μμF mica		1	A3
C3	12-445 μμF Tuning	18621	1	C4
C4	3-25 μμF Trimmer	27526	2	B14
C5	470 μμF padder ± 2½%		2	C14
C6	68 μμF silvered mica		2	E13
C7	12-445 μμF Tuning	18621	1	C3
C8	3-25 μμF Trimmer	27526	2	C16
C9	47 μμF silvered mica (in 1st I.F.)		1	F6
C10	47 μμF silvered mica (in 1st I.F.)		1	F6
C11	6.8 μμF Ceramic		2	C11
C12	0.01 μF paper 600V working		2	E9
C13	0.05 μF paper 200V working		2	D12
C14	20 μF 200 P.V. electrolytic		1	E12
C15	0.01 μF paper 600V working		2	F4
C16	200 μμF mica		2	C11
C17	47 μμF silvered mica (in 2nd I.F.)		1	C7
C18	47 μμF silvered mica (in 2nd I.F.)		1	C7
C19	0.05 μF Paper 200V working		2	E10
C20	100 μμF silvered mica		2	C7
C21	0.01 μF paper 600V working		2	D8
C22	0.005 μF paper 600V working		2	C5
	TRANSFORMERS			
T1	Loudspeaker Transformer	31727B	1	D14
	LOUDSPEAKER			
	4" Permanent Magnet	BH4		
	SWITCHES			
S1	Power Switch (on R5)		1	D3
S2	Battery Save Switch	22775	1	A5

CIRCUIT CODE — RADIOLA 577-P

Code No.	Descriptions	Part No.	Fig. No.	Location
	INDUCTORS			
L1	Loop Aerial Coil	31841		
L2, L3	R.F. Coil 540–1600 Kc/s.	30784	4	C13
L4, L5	Oscillator Coil 540-1600 Kc/s.	30777	4	C12
L6, L7	1st I.F. Transformer	27324	3	F6
L8, L9	2nd I.F. Transformer	27351	3	C7
	RESISTORS			
R1	0.1 megohm ½ watt ± 10%		4	E14
R2	0.1 megohm ½ ,, ,,		4	F14
R3	0.1 megohm ½ ,, ,,		4	E12
R4	3.3 megohms ½ ,, ,,		4	C12
R5	22,000 ohms ½ ,, ,,		4	E12
R6	1,800 ohms ½ ,, ,,		4	C5
R7	1.0 megohm Volume Control (includes S1)	27530	4	D2
R8	47,000 ohms ½ watt ± 10%		4	B11
R9	10 megohms ½ ,, ,,		4	F7
R10	3.3 megohms ½ ,, ,,		4	D10
R11	0.47 megohms ½ ,, ,,		4	C8
R12	1.0 megohm ½ ,, ,,		4	D6
R13	390 ohms ½ ,, ± 5%		4	E7
R14	30 ohms ½ ,,		4	D4
R15	330 ohms ½ ,,		4	C4
	CAPACITORS			
C1	0.05 μF paper 200V working		4	C16
C2	3-25 μμF Trimmer	27526	4	B16
C3	12-445 μμF Tuning	30785	3	D2
C4	6.8 μμF ceramic		4	F15
C5	12-445 μμF Tuning	30785	3	D6
C6	3-25 μμF Trimmer	27526	4	B14
C7	0.05 μF paper 200V working		4	E15
C8	12-445 μμF Tuning	30785	4	D4
C9	5-50 μμF Trimmer	31954	3	A5
C10	470 μμF padder ± 2½%		4	C13
C11	68 μμF silvered mica		4	E12
C12	47 μμF silvered mica (in 1st I.F.)		3	F6
C13	47 μμF silvered mica (in 1st I.F.)		3	F6
C14	6.8 μμF ceramic		4	C12
C15	0.01 μF paper 600V working		4	E10
C16	0.05 μF paper 200V working		4	D13
C17	0.1 μF paper 200V working		4	F6
C18	100 μμF silvered mica		4	C12
C19	100 μμF silvered mica		4	C12
C20	100 μμF silvered mica (in 2nd I.F.)		3	C7
C21	100 μμF silvered mica (in 2nd I.F.)		3	C7
C22	0.01 μF paper 600V working		4	F5
C23	20 μF 200 P.V. electrolytic		3	E12
C24	0.05 μF paper 200V working		4	E10
C25	100 μμF silvered mica		4	C8
C26	0.01 μF paper 600V working		4	D8
C27	0.0025 μF paper 600V working		4	C4
C28	1-10 μμF trimmer	33155		
	TRANSFORMERS			
T1	Loudspeaker Transformer	31727B	1,3	D14
	LOUDSPEAKER			
	4" Permanent Magnet	BH4		
	SWITCHES			
S1	Power Switch on R7		2,4	D3
S2	Battery Save Switch	22775	2,4	B5