
The FISK
RADIOLA
MODEL 173

•

Five Valve, Two Band, Automatic and Manually Tuned,
A.C. Operated Superheterodyne

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TECHNICAL INFORMATION
AND SERVICE DATA

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Amalgamated  **Wireless**
(Australasia) Ltd

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Five Valve, Two Band, Automatic and Manually Tuned
A.C. Operated, Superheterodyne

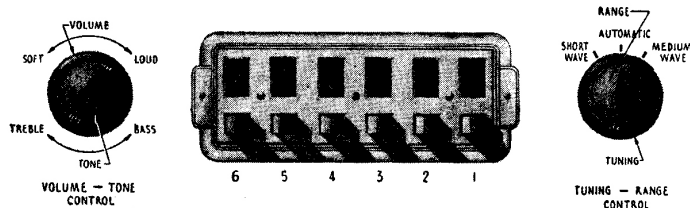
TECHNICAL INFORMATION

Electrical Specifications

Tuning Ranges..... (a) 1500-550 K.C. R.F. Alignment Frequencies (a) 600 K.C., 1400 K.C.,
(b) 16-50 M. (b) 18 M. 1500 K.C.

Intermediate Frequency 460 K.C.
Power Supply Rating 200-260V., 50-60C. Power Consumption 60 Watts

CONTROLS.



Loudspeaker 8 inch Type AJ4
Loudspeaker Transformer T.T.2
Loudspeaker Field Resistance 1580 ohms
Dial Lamps 6.3 volts, .25 amps.

VALVE COMPLEMENT.

(1) 6K8G Frequency Converter (3) 6G8G .. I.F. Amp., Det., A.V.C. & A.F. Amp.
(2) 6U7G I.F. Amplifier (4) 6F6G Output Pentode
(5) 5Y3G Rectifier
6U5 Visual Tuning Indicator

Alignment Procedure

Alignment should only be necessary when adjustments have been altered from the factory setting or when repairs have been made to the tuned circuits. Climatic conditions should not seriously affect the receiver.

It is important to apply a definite procedure as tabulated below and to use adequate and reliable test equipment. Instruments ideally suited to the requirements are the A.W.A. Junior Signal Generator, Type 2R3911 or the A.W.A. Modulated Oscillator, Type C1070. An output meter is necessary in conjunction with both these instruments

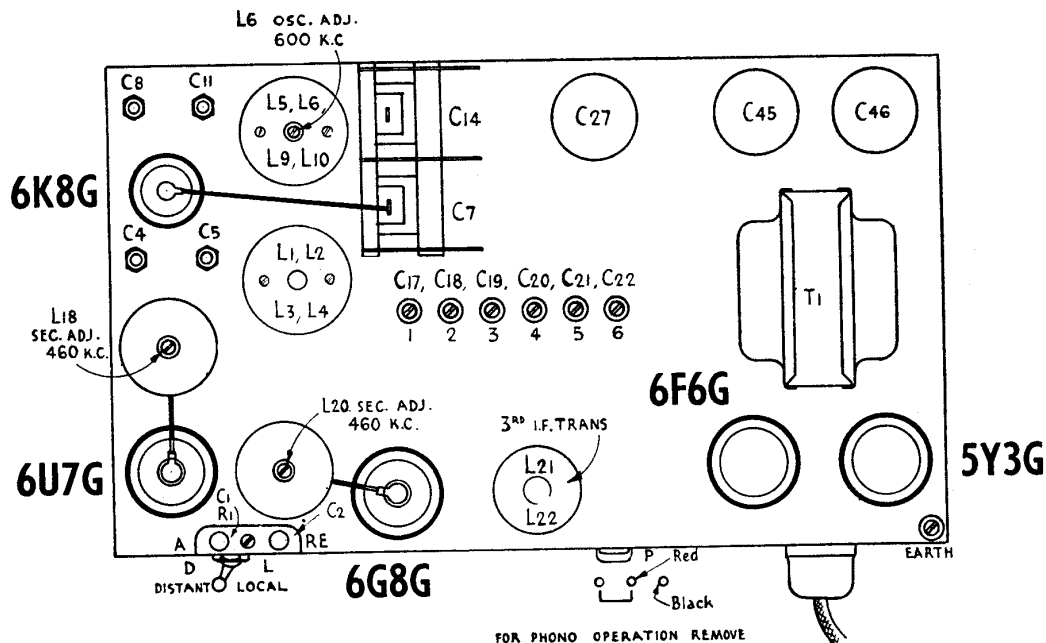
Alignment of the R.F. stages at the high frequency end of each band is by air trimmers of the plunger type. The adjustment of an trimmer necessitates the use of a special tool. Such a tool, Part No. 5371, may be obtained from the Service

Department of the company. It will be found advantageous to rotate the air trimmer plunger when adjusting. By doing this accuracy is more easily attained.

The I.F. Transformers and oscillator coil (600 K.C.) are adjusted by magnetite cores within the windings. A non-metallic screwdriver should be used for adjusting. A tool specially designed for the purpose is also obtainable from the company. The part number of this tool is No. 5372.

If the A.W.A. Type C1070 test oscillator is used, see that a 250,000 ohms resistor is connected between the output terminals and, for short wave alignment, a 400 ohms non-inductive resistor in series with the "hot" output lead.

Connect the ground connection of the test instrument to the receiver chassis.



FOR PHONO OPERATION REMOVE LINK AND CONNECT PICK-UP TO TERMINALS 'P'—REPLACE LINK AGAIN FOR RADIO RECEPTION.

Fig. 1.—Lay-out Diagram (top view).

Perform alignment in the proper order starting with No. 1 and following all operations across, then No. 2, etc. Adjustment locations are shown in figs. 1 and 3. Keep the Volume Control set in maximum clockwise position and the Sensitivity

Switch at Distant (D), and regulate the output of the test instrument so that a minimum signal is introduced to the receiver to obtain an observable output indication. This will avoid A.V.C. action and overloading.

Alignment Order	Test Inst. Connection to Receiver	Test Inst. Setting	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbol	Adjust to Obtain
1	*6K8G Grid Cap	460 K.C.	550 K.C.	3rd I.F. Trans.	L21	Max. (peak)
2	*6K8G Grid Cap	460 K.C.	550 K.C.	2nd I.F. Trans.	L20	Max. (peak)
3	*6K8G Grid Cap	460 K.C.	550 K.C.	2nd I.F. Trans.	L19	Max. (peak)
4	*6K8G Grid Cap	460 K.C.	550 K.C.	1st I.F. Trans.	L18	Max. (peak)
5	*6K8G Grid Cap	460 K.C.	550 K.C.	1st I.F. Trans.	L17	Max. (peak)
Repeat the above adjustments before proceeding.						
6	Aerial Term.	535 K.C.	†	Oscillator	L6, L.F. Osc.	Max. (peak)
7	Aerial Term.	600 K.C.	**	—	—	Max. (peak)
8	Aerial Term.	1500 K.C.	1500 K.C.	Oscillator	C8	Max. (peak)
9	Aerial Term.	1400 K.C.	1400 K.C.	Aerial	C4	Max. (peak)
Repeat adjustments 6, 7, 8 and 9 before proceeding.						
10	Aerial Term.	18 metres	18 metres	Oscillator	C11	Max. (peak)††
11	Aerial Term.	18 metres	18 metres‡	Aerial	C5	Max. (peak)***

* With grid clip connected. A .001 mfd. condenser should be connected in series with the "hot" output lead of the test instrument.

† Tuning condenser plates in full mesh.

** Tune receiver to resonance. Set receiver pointer to 600 K.C. by loosening mounting screw, if necessary.

†† Use minimum capacity peak if two peaks can be obtained.

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

*** Use maximum capacity peak if two peaks can be obtained.

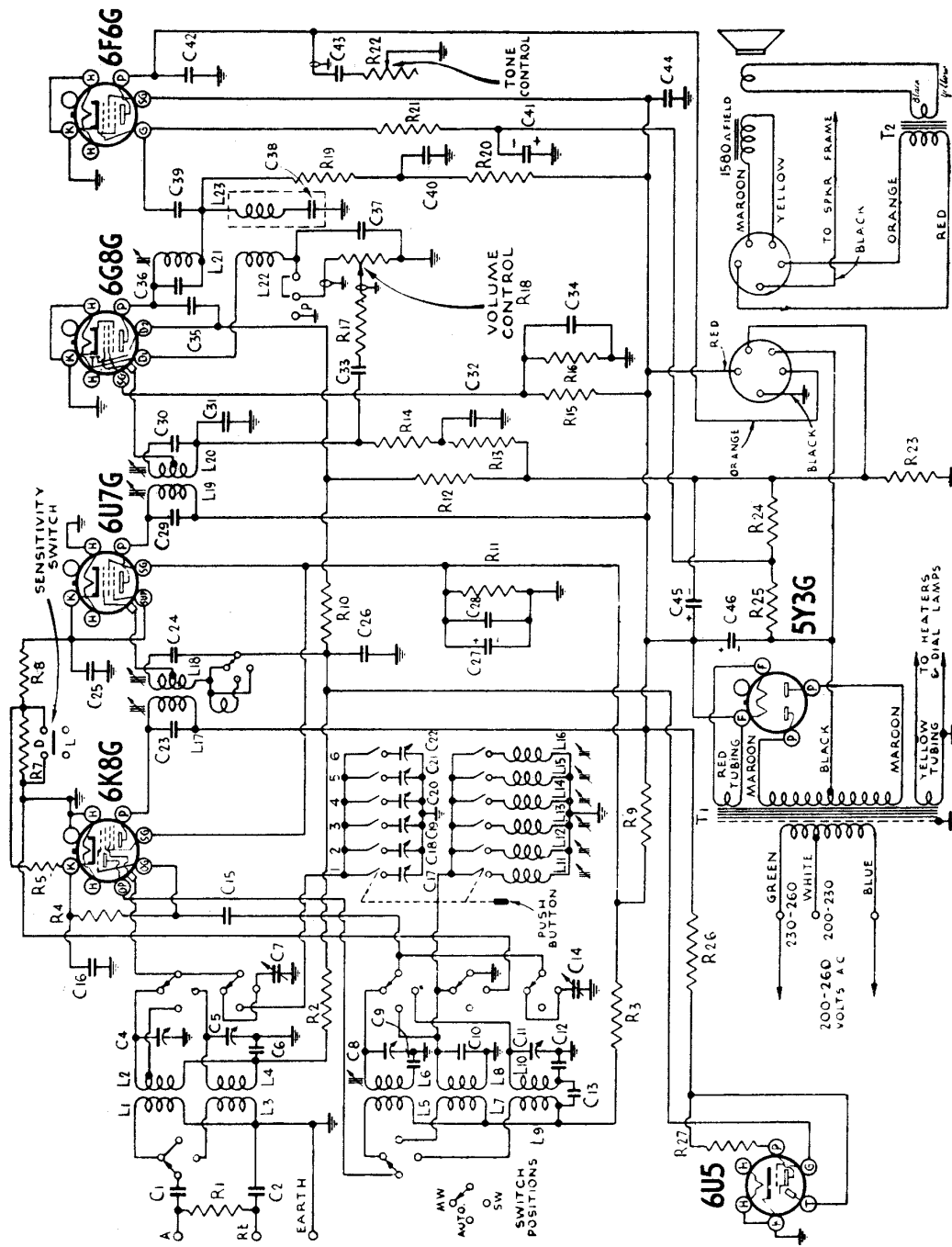


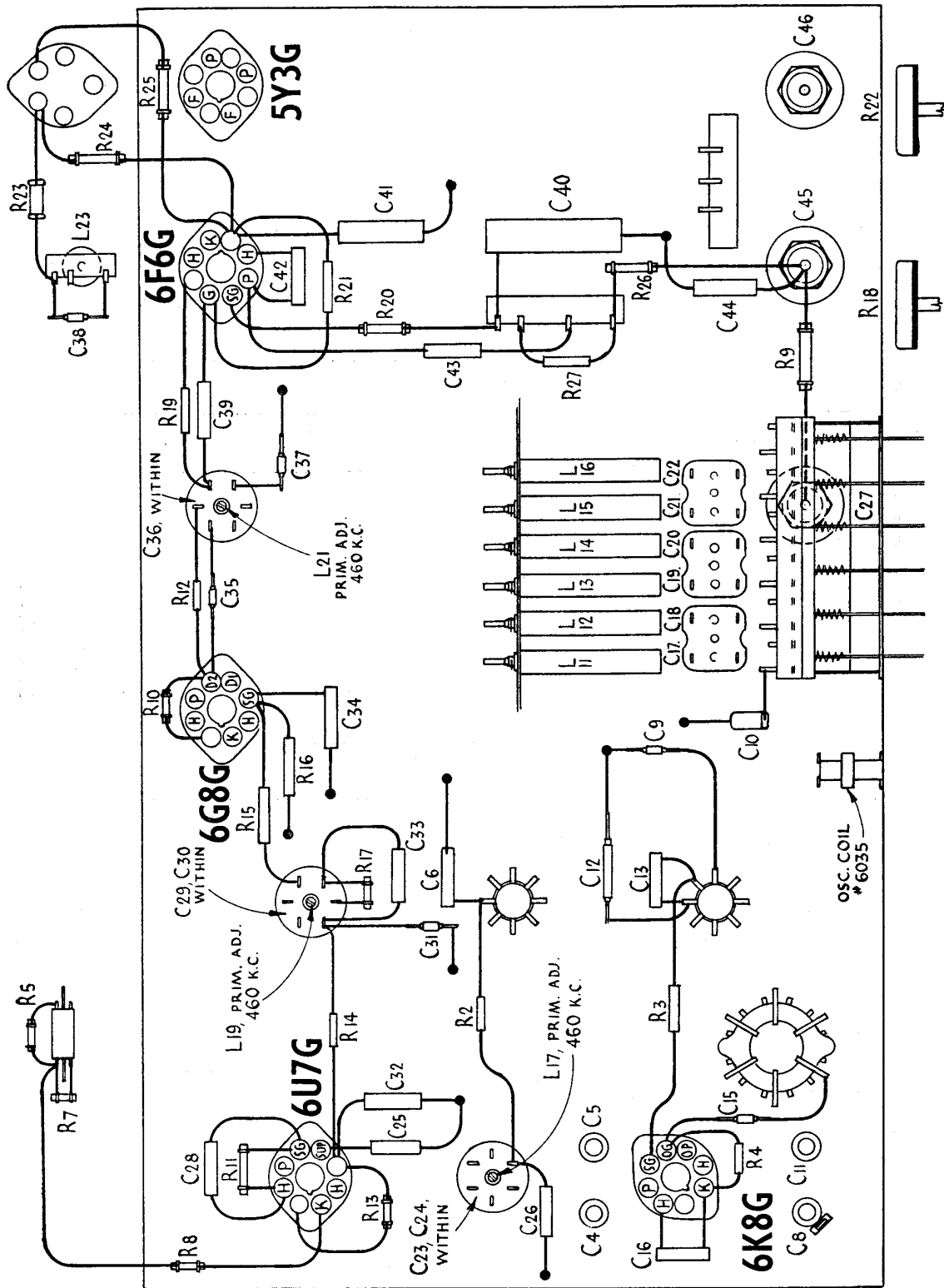
Fig. 2.—Circuit Diagram.

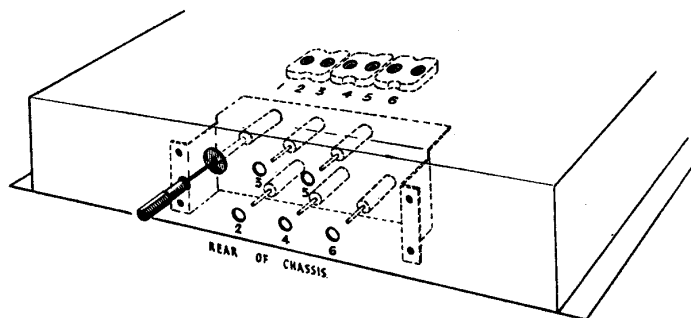
Circuit Modification—Receivers produced after 16/11/38 have a 100 ohms resistor inserted in the lead which previously joined the earth end of R7 to chassis.

Code	Part	COILS	Code	Part	RESISTORS	Code	Part	CONDENSERS
L1, L2	5755A	Aerial Coil, 1500-550KC	R1		100,000 ohms, 1/2 watt	C1		500 mmfd. Mica
L3, L4	5755A	Aerial Coil, 16-50M	R2		100,000 ohms, 1/2 watt	C2		500 mmfd. Mica
L5, L6	5757A	Osc. Coil, 1500-550KC	R3		600 ohms, 1/2 watt	C3		Deleted
L7, L8	6035	Exciter Osc. Coil	R4		50,000 ohms, 1/2 watt	C4	3661	2-20 mmfd. Air Trimmer
L9, L10	5757A	Osc. Coil, 16-50M	R5		200 ohms, 1/2 watt	C5	3661	2-20 mmfd. Air Trimmer
L11	6039	Osc. Coil—Automatic	R6		Deleted	C6		.05 mfd. Paper
L12	6039	Osc. Coil—Automatic	R7		2,000 ohms, 1/2 watt	C7	6048	Tuning Condenser
L13	6040	Osc. Coil—Automatic	R8		200 ohms, 1/2 watt	C8	4853	16-34 mmfd. Air Trimmer
L14	6040	Osc. Coil—Automatic	R9		11,000 ohms, 3/4 watt	C9		440 mmfd. Mica (Padder)
L15	6041	Osc. Coil—Automatic	R10		1.75 megohms, 1/2 watt	C10		100 mmfd. Compensator
L16	6041	Osc. Coil—Automatic	R11		20,000 ohms, 1 watt	C11	3658	2-10 mmfd. Air Trimmer
L17, L18	6037	1st I.F. Transformer	R12		2.3 megohms, 1/2 watt	C12		3500 mmfd. Mica (Padder)
L19, L20	5688	2nd I.F. Transformer	R13		300,000 ohms, 1/2 watt	C13		.05 mfd. Paper
L21, L22	5759	3rd I.F. Transformer	R14		2.3 megohms, 1/2 watt	C14	6048	Tuning Condenser
L23, C38	5441	Filter Unit	R15		1 megohm, 1 watt	C15		70 mmfd. Mica (N)
			R16		100,000 ohms, 1 watt	C16		.05 mfd. Paper
			R17		500,000 ohms, 1/2 watt	C17	6042	30-180 mmfd. Mica Trimmer
			R18	5622	500,000 ohms, 1 watt	C18		30-180 mmfd. Mica Trimmer
			R19		150,000 ohms, 1 watt	C19	6043	65-280 mmfd. Mica Trimmer
			R20		20,000 ohms, 1/2 watt	C20		65-280 mmfd. Mica Trimmer
			R21		500,000 ohms, 1/2 watt	C21	6044	120-470 mmfd. Mica Trimmer
			R22	5623	100,000 ohms, 1 watt	C22		120-470 mmfd. Mica Trimmer
			R23		20 ohms, 3 watt	C23		115 mmfd. Mica (A)
			R24		20,000 ohms, 1 watt	C24		130 mmfd. Mica (H)
			R25		100,000 ohms, 1 watt	C25		110 mmfd. Mica (L)
			R26		20,000 ohms, 1 watt	C26		.1 mfd. Paper
			R27		1 megohm, 1 watt	C27		.1 mfd. Paper
						C28		.1 mfd. Paper
						C29		115 mmfd. Mica (A)
						C30		130 mmfd. Mica (H)
						C31		110 mmfd. Mica (L)
						C32		.1 mfd. Paper
						C33		.1 mfd. Paper
						C34		.1 mfd. Paper
						C35		50 mmfd. Mica (D)
						C36		70 mmfd. Mica (N)
						C37		110 mmfd. Mica (L)
						C38		115 mmfd. Mica (A)
						C39		.02 mfd. Paper
						C40		.5 mfd. Paper
						C41		25 mmfd. 25V Electrolytic
						C42		.0025 mfd. Paper
						C43		.035 mfd. Paper
						C44		.1 mfd. Paper
						C45		16 mmfd. 500V Electrolytic
						C46		16 mmfd. 500V Electrolytic
T1	5684C	Power Transformer, 50-60C						
T1	5686C	Power Transformer, 40C						
T2	T.T.2	Loudspeaker Transformer						

Code Modification—After 16/11/38 I.F. Transformer No. 5688 is replaced by No. 6076.

Circuit Code.





Automatic Tuning Adjustments.

ADJUSTMENTS FOR AUTOMATIC TUNING

Any six stations in the "Standard Medium Wave" Broadcasting Band may be selected for "Automatic" tuning.

The range of frequencies covered by each button from right to left, is as follows, and only stations with the given range can be obtained.

- | | |
|----------------------|----------------------|
| (1) 850 .. 1500 K.C. | (4) 700 .. 1300 K.C. |
| (2) 850 .. 1500 K.C. | (5) 550 .. 1100 K.C. |
| (3) 700 .. 1300 K.C. | (6) 550 .. 1100 K.C. |

A sheet on which are printed the call-signs of all Australasian broadcasting stations accompanies the Receiver. Call-signs of the six stations selected should be removed from the sheet.

Remove the escutcheon plate beneath the dial, by removing the three screws, and take out the celluloid window.

The stations should be adjusted in order of their frequency in kilocycles. This order is used in the following example:

- | | |
|---------------------|--------------------|
| (1) 2SM (1270 K.C.) | (4) 2GB (870 K.C.) |
| (2) 2CH (1190 K.C.) | (5) 2BL (740 K.C.) |
| (3) 2UW (1110 K.C.) | (6) 2FC (610 K.C.) |

Place the six selected stations call-signs in their respective sections and replace the celluloid window and escutcheon plate.

Turn the Receiver ON and allow it to operate for at least five minutes before making adjustments.

Attached to the inside of the cabinet will be found an envelope containing a screwdriver and guide. On the rear of the chassis are six holes, number 1 to 6, as shown in the diagram. They give access to the adjusting screws. Take the screwdriver guide and insert it in the hole marked "1." Pass the screwdriver through the guide and turn till it is felt to engage in the slot of the adjusting screw.

It will be found most convenient when making the adjustments to lean over the Receiver from the rear. In this attitude the adjustments may be carried out with one hand, and the controls operated with the other, and at the same time allowing a good view of the Tuning Indicator.

Then proceed as follows:

- (1) Set the Manual-Automatic control at "Manual" and tune the station selected for No. 1 push-button (2SM in the above example).
- (2) Switch the Manual-Automatic control to "Automatic." It is advisable to set the Sensitivity switch to Distant (D) at the same time.
- (3) Press push-button No. 1 (see Controls diagram, front page).
- (4) Turn the screwdriver, previously placed in position, slowly, until station No. 1 is heard (2SM in example). Watch the Tuning Indicator and adjust until its darkened sector is at the narrowest possible width.
- (5) While searching for the station, switch the Manual-Automatic control to "Manual" frequently to verify that station No. 1 is that which is being tuned.
- (6) Switch the Manual-Automatic control to "Automatic." On top of the chassis are six more holes numbered 1 to 6—see diag. These give access to six screw adjustment. Insert the screwdriver in the hole marked "1" and turn until the darkened sector of the Tuning Indicator is at its narrowest possible width.
- (7) Return to the rear of the chassis and make a final adjustment of adjusting screw No. 1 until the Tuning Indicator shows most accurate tuning.

Now proceed in order of frequency to adjust for the other five stations making the set-up 2, 3, 4, 5, and 6, in sequence, by the same method as that described above for No. 1.

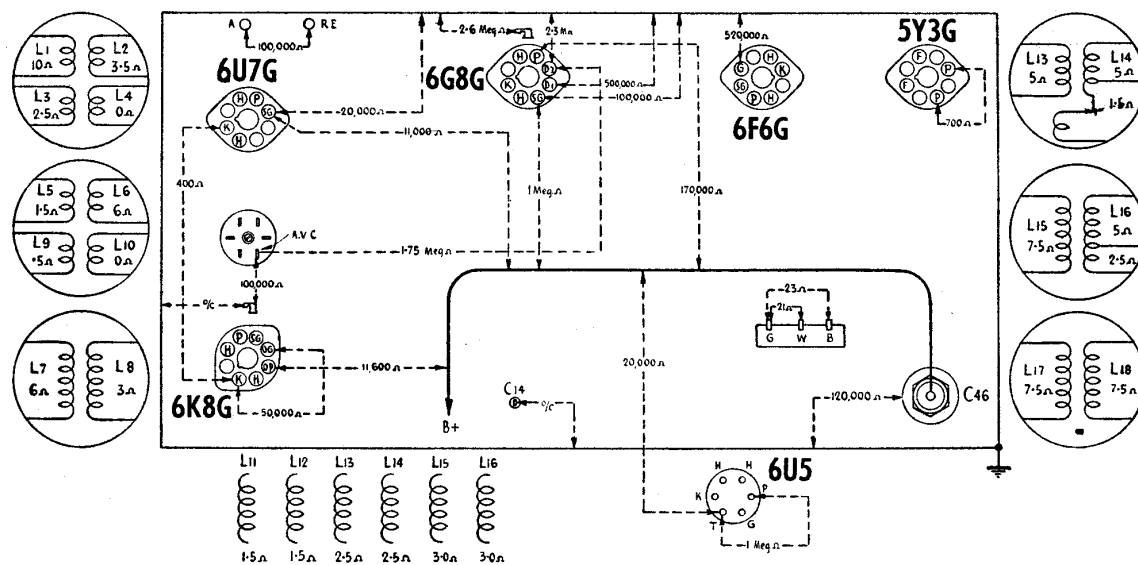


Fig. 4.—Resistance Diagram.

Resistances taken with all controls at maximum.

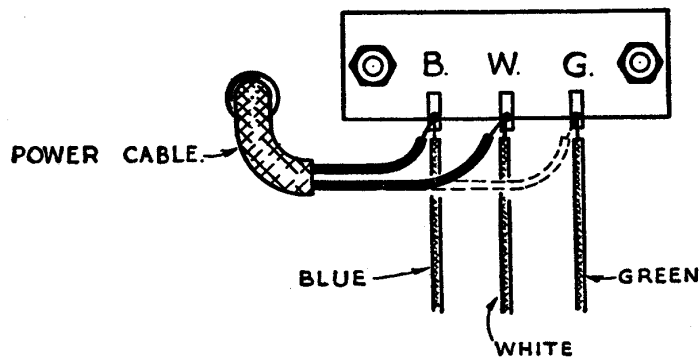


Fig. 5.—Showing Power Cable Connections for Line Voltages below 230 V. (dotted lead indicates "standard" connection).

SOCKET VOLTAGES.

VALVE	Bias Voltages	Screen Grid to Chassis to Volts	Plate to Chassis Volts	Plate Current M.A.	Heater Volts
6K8G Detector	-1.2 ‡ 2.8 †	100	250	1.25	6.3
Oscillator	—	—	100	3.0	—
6U7G I.F. Amplifier	-1.2 ‡ 2.8 †	100	250	1.0	6.3
6G8G Reflex Amplifier	-1.2 ‡	16*	165*	0.47	6.3
6F6G Pentode	-17.0 ‡	250	230	33.0	6.3
5Y3G Rectifier	720/360 volts, 65 m.a. total current.	—	—	5.0	—

Voltage across Loudspeaker field, 100 volts.

* Cannot be measured with ordinary voltmeter.

‡ Control Grid to chassis. Cannot be measured with ordinary voltmeter.

† Cathode to chassis.

Measured at 240 volts A.C. supply. No signal input. Volume control at maximum and Sensitivity switch at Distant (D).