The FISK

RADIOLA

MODEL 170

•

Five Valve, Medium Wave, A.C. Operated

Superheterodyne

•

TECHNICAL INFORMATION

AND SERVICE DATA

•

Amalgamated Wireless (Australasia) Ltd

THE FISK RADIOLA, MODEL 170

Five Valve, Medium Wave, A.C. Operated, Superheterodyne

TECHNICAL INFORMATION

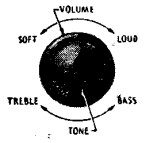
Electrical Specifications

Tuning Range ..... 1500-550 K.C. R.F. Alignment Frequencies ... 600 K.C., 1400 K.C. 1500 K.C.

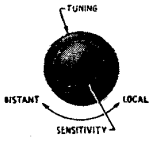
Intermediate Frequency ..... 460 K.C.

Power Supply Rating ..... 200-260V., 50-60C. Power Consumption ..... 60 watts

CONTROLS.



VOLUME — TONE CONTROL



TUNING — SENSITIVITY CONTROL

Loudspeaker ..... 8 inch A.J.4

Loudspeaker Transformer T.T.2

Loudspeaker Field Resistance ..... 1580 ohms

Dial Lamps ..... 6.3 volts, .25 amps.

VALVE COMPLEMENT.

(1) 6K8G ..... Frequency Converter
(2) 6U7G ..... I.F. Amplifier
(3) 6G8G I.F. Amp., Det., A.V.C. and A.F. Amp.
(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 on the next page 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 the band is by air trimmers of the plunger type. The construction of an air trimmer necessitates the use of a special adjusting 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 the aerial and oscillator coils, at the low frequency end of the band, 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.

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

Perform alignment in the proper order starting with No. 1 and following all operations across,

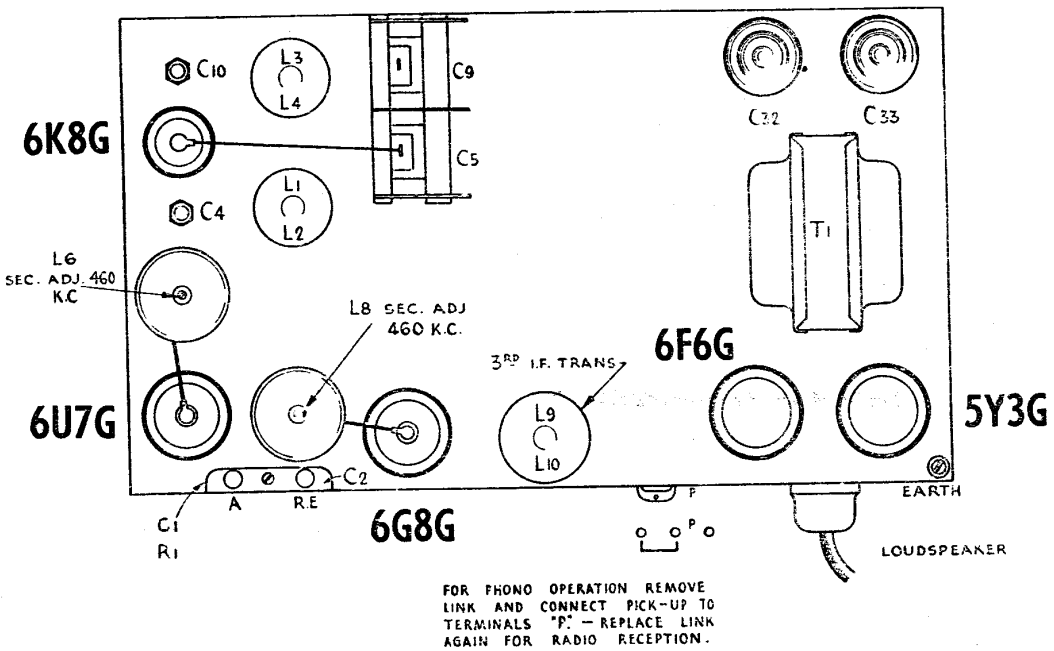


Fig. 1.—Lay-out Diagram (top view).

then No. 2, etc. Adjustment locations are shown in figs. 1 and 3. Keep the Volume Control and Sensitivity Control set in the maximum clockwise position 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.	L9	Max. (peak)
2	*6K8G Grid Cap	460 K.C.	550 K.C.	2nd I.F. Trans.	L8	Max. (peak)
3	*6K8G Grid Cap	460 K.C.	550 K.C.	2nd I.F. Trans.	L7	Max. (peak)
4	*6K8G Grid Cap	460 K.C.	550 K.C.	1st I.F. Trans.	L6	Max. (peak)
5	*6K8G Grid Cap	460 K.C.	550 K.C.	1st I.F. Trans.	L5	Max. (peak)
		Repeat the above adjustments before proceeding.				
6	Aerial Term.	535 K.C.	†	Oscillator	L4, L.F. Osc.	Max. (peak)
7	Aerial Term.	600 K.C.	**	—	—	Max. (peak)
8	Aerial Term.	600 K.C.	600 K.C.	Aerial	L2, L.F. Aer.	Max. (peak)
9	Aerial Term.	1500 K.C.	1500 K.C.	Oscillator	C10	Max. (peak)
10	Aerial Term.	1400 K.C.	1400 K.C.	Aerial	C4	Max. (peak)
		Repeat adjustments 6 to 10.				

* With grid clip connected, a .001 mfd. condenser should be connected in series with the "hot" 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.

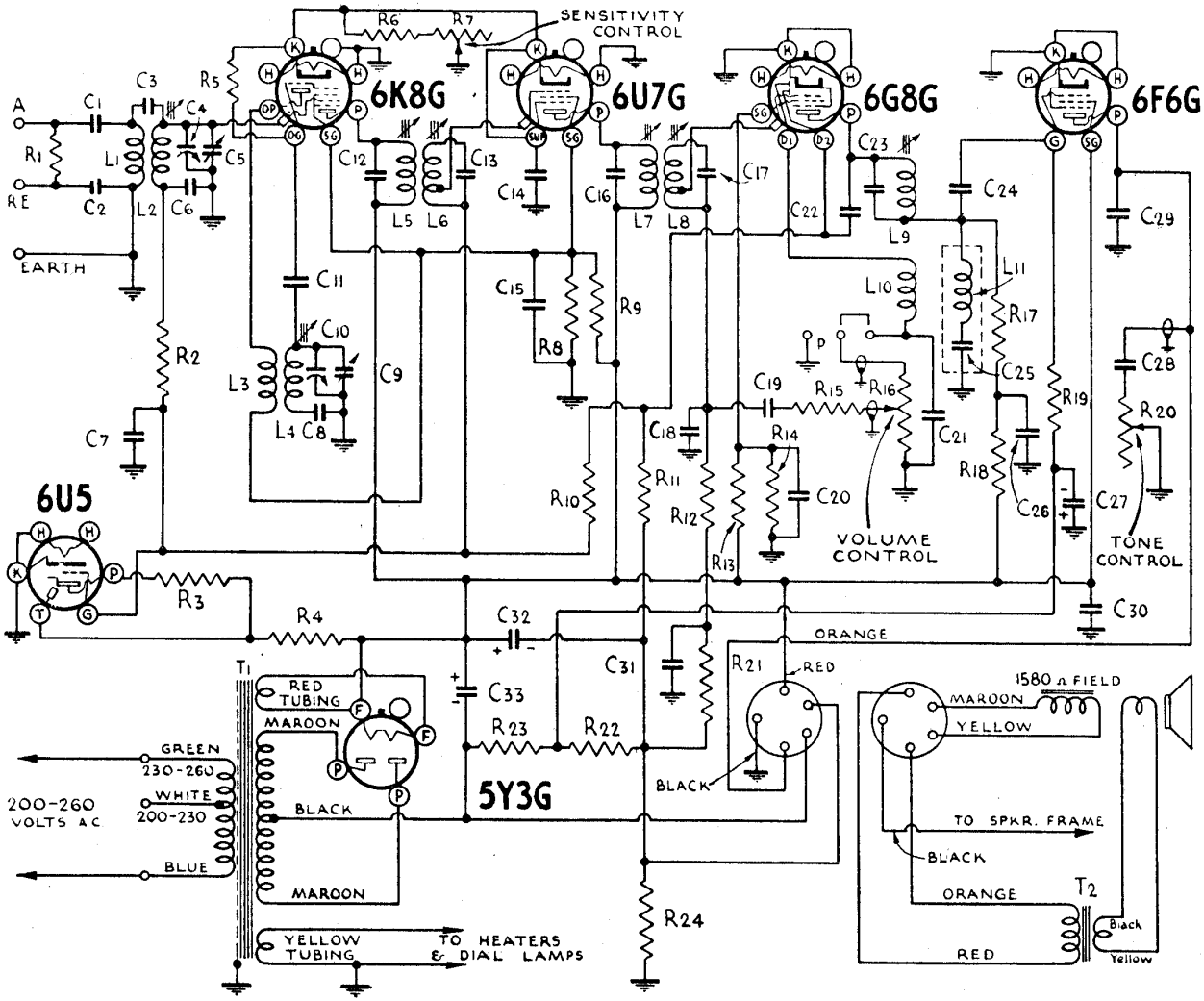


Fig. 2.—Circuit Diagram.

Code	Part	COILS
L1, L2	4426	Aerial Coil
L3, L4	5753	Oscillator Coil
L5, L6	5688	1st I.F. Transformer
L7, L8	5688	2nd I.F. Transformer
L9, L10	5759	3rd I.F. Transformer
L11, C25	5441	Filter Unit
		TRANSFORMERS
T1	5684C	Power Transformer, 50-60C
T1	5686C	Power Transformer, 40C
T2	T.T.2	Loudspeaker Transformer

Code	Part	RESISTORS
R1		100,000 ohms, 1/3 watt
R2		100,000 ohms, 1/3 watt
R3		1 megohm, 1 watt
R4		20,000 ohms, 1 watt
R5		50,000 ohms, 1/3 watt
R6		200 ohms, 1/3 watt
R7	5760	3,000 ohms, Sens. Control
R8		20,000 ohms, 1 watt
R9		11,000 ohms, 3 watt
R10		1.75 megohms, 1/3 watt
R11		2.3 megohms, 1/3 watt
R12		2.3 megohms, 1/3 watt
R13		1 megohm, 1 watt
R14		100,000 ohms, 1 watt
R15		500,000 ohms, 1/3 watt
R16	5622	500,000 ohms, Vol. Control
R17		150,000 ohms, 1 watt
R18		20,000 ohms, 1 watt
R19		500,000 ohms, 1/3 watt
R20	5623	100,000 ohms, Tone Control
R21		300,000 ohms, 1/3 watt
R22		20,000 ohms, 1 watt
R23		100,000 ohms, 1 watt
R24		20 ohms, 3 watt

Code	Part	CONDENSERS
C1		500 mmfd. Mica
C2		500 mmfd. Mica
C3		4 mmfd. Mica
C4	3661	2-20 mmfd. Air Trimmer
C5	5739	Tuning Condenser
C6		.05 mfd. Paper
C7		.05 mfd. Paper
C8		440 mmfd. Mica (Padder)
C9	5739	Tuning Condenser
C10	4853	16-34 mmfd. Air Trimmer
C11		70 mmfd. Mica (N)
C12		115 mmfd. Mica (A)
C13		130 mmfd. Mica (H)
C14		.1 mfd. Paper
C15		.1 mfd. Paper
C16		115 mmfd. Mica (A)
C17		130 mmfd. Mica (H)
C18		110 mmfd. Mica (L)
C19		.01 mfd. Paper
C20		.1 mfd. Paper
C21		110 mmfd. Mica (L)
C22		50 mmfd. Mica (D)
C23		70 mmfd. Mica (N)
C24		.02 mfd. Paper
C25		115 mmfd. Mica (A)
C26		.5 mfd. Paper
C27		25 mfd. 25V Electrolytic
C28		.035 mfd. Paper
C29		.0025 mfd. Paper
C30		.1 mfd. Paper
C31		.1 mfd. Paper
C32		8 mfd. 500V Electrolytic
C33		8 mfd. 500V Electrolytic

Circuit Code.

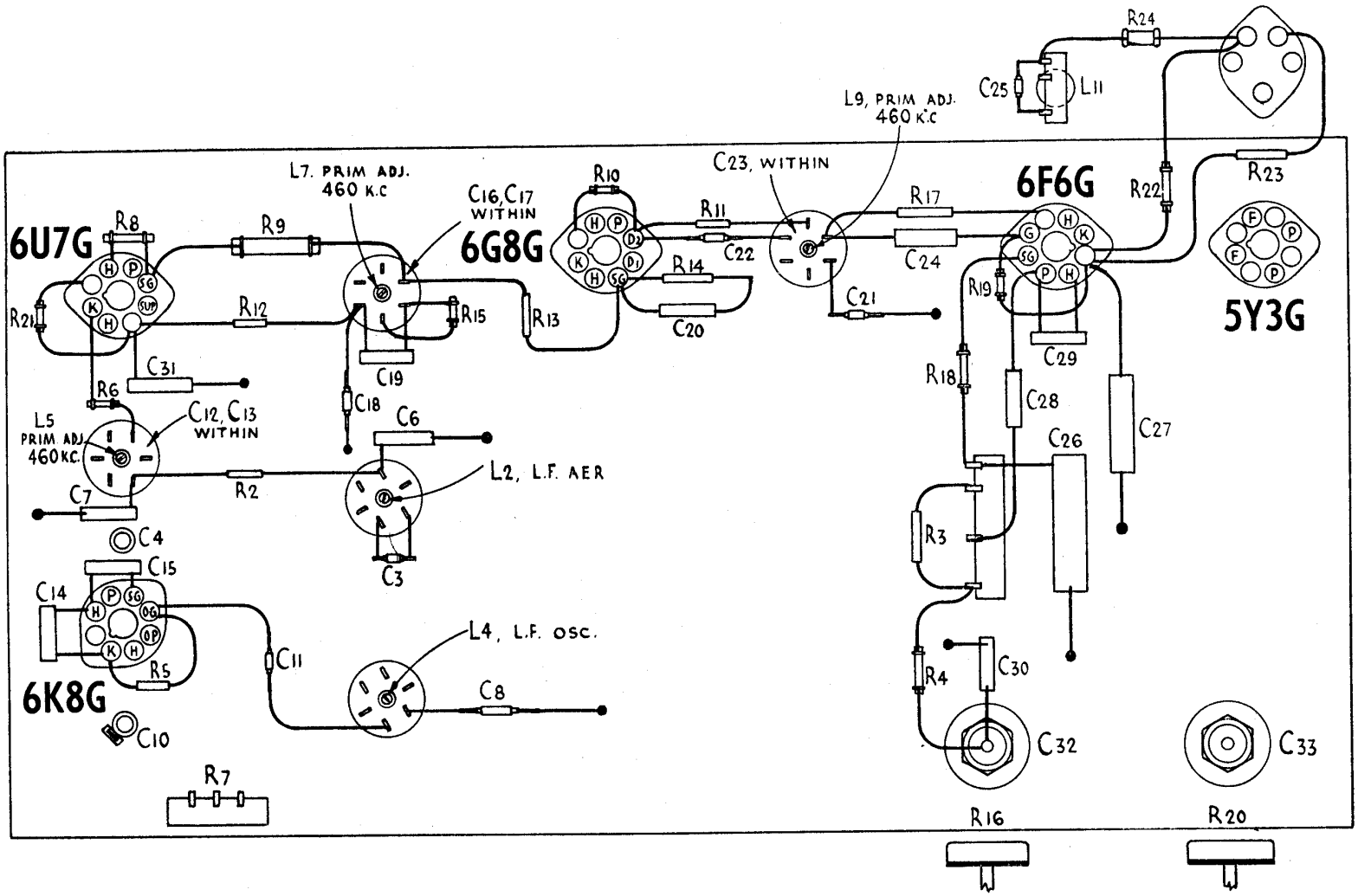


Fig. 3.—Lay-out Diagram (underneath view).

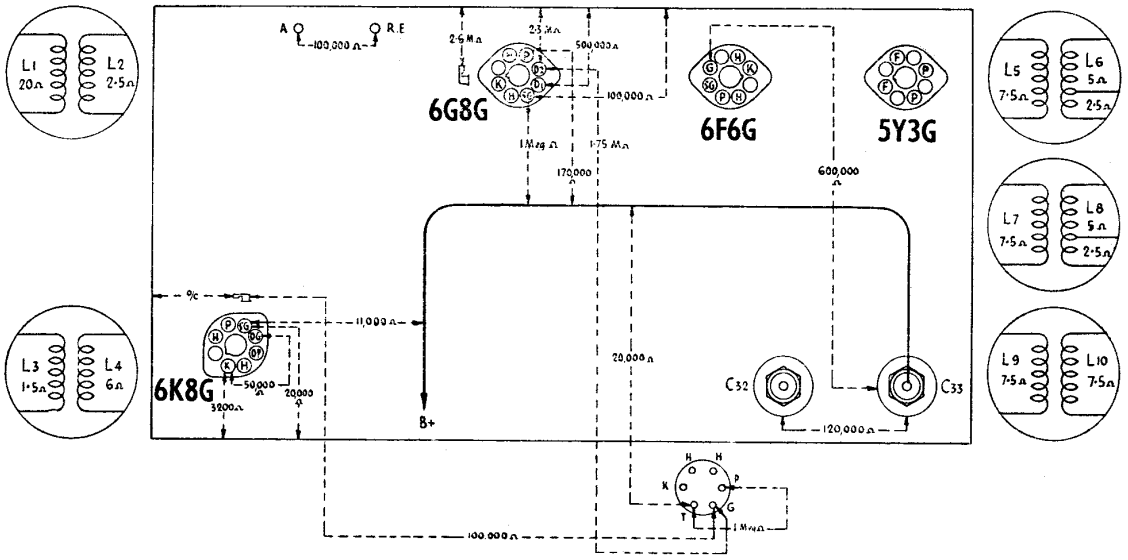


Fig. 4.—Resistance Diagram.

Sensitivity control maximum anti-clockwise. All other controls maximum clockwise.

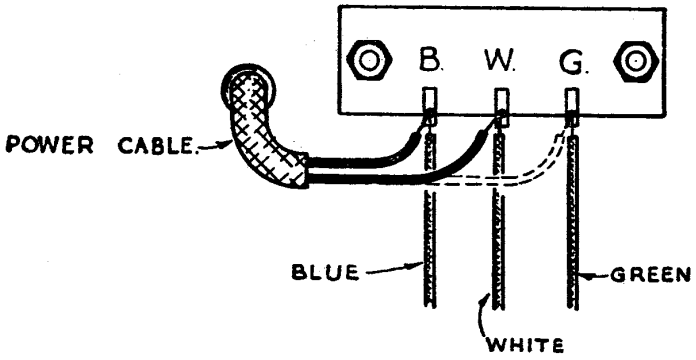


Fig. 5.—Showing Power Cable Connections for Line Voltages below 230 V. (dotted lead indicates "standard" connection).

SOCKET VOLTAGES.

VALVE	Bias Voltages	Screen Grid to Chassis 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	250	230	33	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 and sensitivity controls at maximum.

AWA