



FISK
RADIOLA



GENERAL SERVICE
INFORMATION

1937



Amalgamated  **Wireless**
(Australasia) Ltd

GENERAL SERVICE INFORMATION

The information contained herein has been compiled to acquaint the reader with recent developments that have been incorporated in 1937 Radiolas and Radiolettes and to promote a wider knowledge of the receivers generally.

PERMEABILITY TUNING IN I.F. TRANSFORMERS.

Permeability tuned I.F. transformers, as used in all 1937 Radiolas, provide greater selectivity and sensitivity and insure practically permanent factory alignment of delicately tuned intermediate frequency circuits.

Sectionalised windings are used in conjunction with vacuum impregnated fixed condensers of high quality. Alignment is accomplished by changing

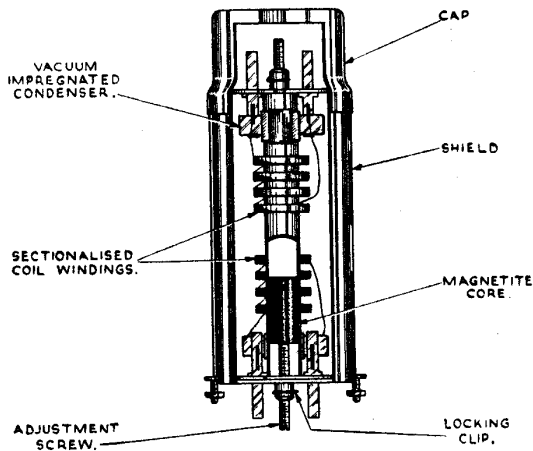


Fig. 1.—Permeability Tuned I.F. Transformer.

the position of a moulded magnetite core within each winding. The position of each core is determined by screws which protrude through the transformer shield; one accessible from above and the other from beneath the chassis. See Fig. 1.

On completion of the alignment procedure the setting of the magnetite cores is automatically made permanent by spring locking clips. This alignment method results in a much more permanent setting than is possible with mica dielectric trimmer condensers, and, in addition, the change in frequency with the change in the setting of the adjustment screw is much slower than with condenser tuning, which makes for accurate adjustment.

RADIOLA PADDING ADJUSTMENT.

A Magnetite core is inserted within the oscillator coil on the medium wave range only and is adjusted by a screw which protrudes through the top of the coil shield. Greater efficiency and permanence of alignment are obtained by this method.

AIR TRIMMERS.

Air Trimmers of the plunger type are used in all 1937 "World Range" Radiolas. They are vastly superior to the conventional mica dielectric trimmers formerly used, since they maintain their factory

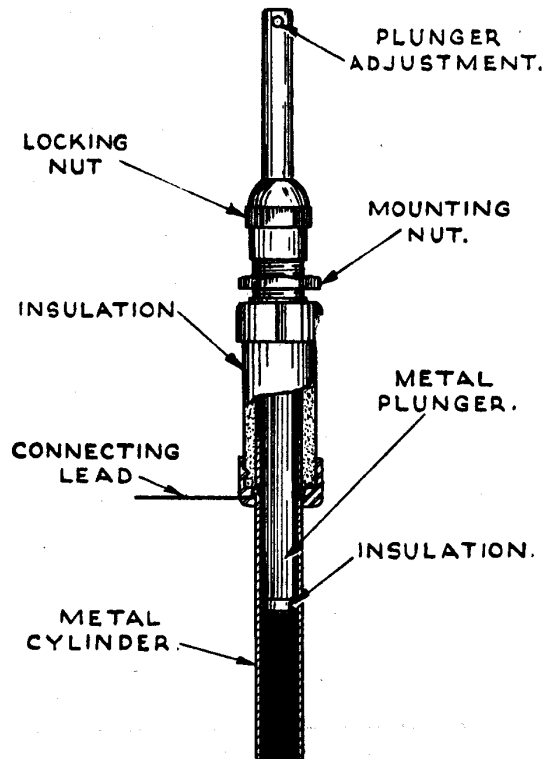


Fig. 2.—Air Trimmer.

adjustment and efficiency under all conditions of temperature, humidity or vibration.

The construction of an Air Trimmer consists, fundamentally, of a metal cylinder with a variable metal plunger within. Insulation between these elements is of a low-loss ceramic material. The capacity of the air trimmer is varied by altering the setting of the plunger within the cylinder, and when the desired setting is found, the plunger is locked to make the adjustment permanent.

Fig. 2 shows a cut-away view of an air trimmer.

The air trimmer plunger is not threaded and should be adjusted by moving either up or down, using a steady pressure. If the plunger is rotated during the adjustment, accurate alignment is less difficult. Do not tap or jar the plunger as this would probably shatter the insulating material within.

Battery-Operated Radiolas and Radiolettes

ACCUMULATOR.

The accumulator "A" battery should be kept well charged and checked periodically with a hydrometer. At full charge the specific gravity of the electrolyte should be 1250-1275 unless otherwise specified by the manufacturers. The electrolyte should never be allowed to fall below the top of the plates and should be replenished with pure distilled water. After charging, carefully wipe any traces of the electrolyte from the container and smear the terminals with light grease or vaseline to resist corrosion. The terminal voltage test on an accumulator is not a reliable indication unless it is taken when the accumulator is on load, and after at least 30 minutes operation at that load.

"B" BATTERIES.

"B" Batteries should be tested with a high resistance D.C. voltmeter, preferably when supplying the full plate current to the receiver, i.e., when

operating a Radiola or Radiolette that is known to be working satisfactorily. Forty-five volt "B" batteries should be replaced when their voltage drops to thirty-five or forty volts. Exhausted "B" batteries may be the cause of distortion, noisy operation, or uncontrollable oscillation.

BIAS "C" BATTERY.

The bias battery should be periodically tested with a high resistance D.C. voltmeter and should be replaced if the voltage is not equal to the rated value.

The bias battery in 1937 Radiolas and Radiolettes is located in a clip on the chassis, and below is set out the connecting colour code.

Black	..	..	..	+
White	.	..	..	-1.5V
Yellow	.	..	..	-3.0V
Green	..	..	..	-4.5V

Vibrator Power Unit

(Models 42V, 161V, 259V and 260V)

The vibrator power unit supplies the correct socket voltages for proper operation of these receivers. It contains a plug-in type vibrator, step-up transformer, and an efficient filter system. Rectification of the high voltage is accomplished by means of the synchronous vibrator. The complete unit is acoustically housed in a soundproof case to prevent mechanical noise and has been carefully adjusted by special equipment to ensure quiet operation over an extensive period of life. No adjustment should be attempted on a vibrator suspected of being in a defective condition. If the vibrator is suspected of being faulty, it should be returned to the company for test. The plug-in feature affords easy

removal or replacement. When fitting the power unit in the sound-proof case, first make certain that the vibrator is firmly seated in the socket and is making good contact. Also make certain that the vibrator is not moved out of place, when fitting, by contact with the rubber pad attached to the inner wall of the sound-proof case. This pad is placed in such a position to provide a gentle pressure on the top of the vibrator and care should be taken when fitting the unit to see that the pad has this effect.

FUSE REPLACEMENT.

The power unit is provided with a fuse, which

is located in the cable, to protect the installation from damage. It is necessary, when replacing this fuse, to sheath it in the tubing provided before inserting it in the fuse-holder. If the tubing is not used, the fuse is useless and the installation is deprived of protection. Before inserting a replacement fuse, always examine the installation to determine the fault which caused the fuse to "blow."

Replacement fuse 3 amp.

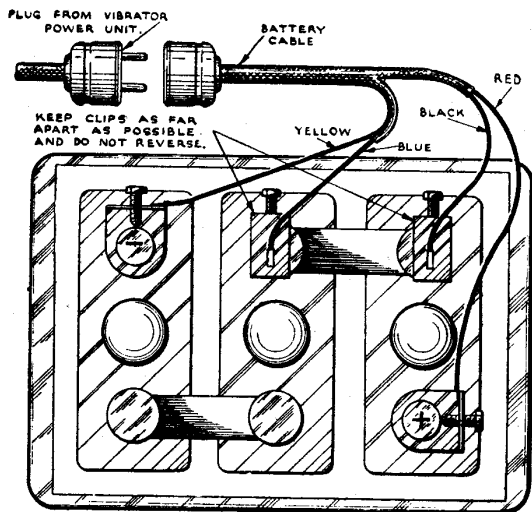


Fig. 3.—Accumulator Connections.

Proper connection of the power unit to the receiver unit is essential. In the event of noisy operation, see that the earth lug attached to the cable is firmly connected to the Receiver chassis. A tapped hole and screw are provided on the receiver chassis adjacent to the power unit socket for the purpose. Do not connect an earth wire to the power unit other than this, as interference will result. Interference will also result if the aerial lead is run close to the power unit, due to R.F. radiation from the vibrator.

ACCUMULATOR CONNECTIONS.

Fig. 3 shows the accumulator connections and it is important that the leads should always be arranged as shown. Do not reverse the positions of the blue and black leads and also space these leads as far apart as possible on the connecting strap, to avoid vibrator interference. As the cable is permanently connected to the accumulator, keep it smeared with light grease or vaseline, at all times, to resist corrosion.

PERMANENT MAGNET LOUDSPEAKERS.

At all times when this type of loudspeaker is removed from the cabinet, make sure that objects which it contacts are clean and free from metallic filings. The importance of this cannot be over-emphasised.

Radiola Dial Mechanism

The motion imparted to the variable condenser is transmitted by a friction drive. "World Range" Radiolas incorporate an automatic vernier, providing rapid tuning between stations and vernier tuning on any particular station without manual shifting.

The Station Selector pointer is attached to a

carriage which is driven by a plaited copper cord. Tension on the cord is applied by a spring, mounted on the front of the drum. As the cord is not under great stress, it is improbable that any adjustment will be necessary. It is advisable, however, to occasionally lubricate the carriage strap with light grease or vaseline.

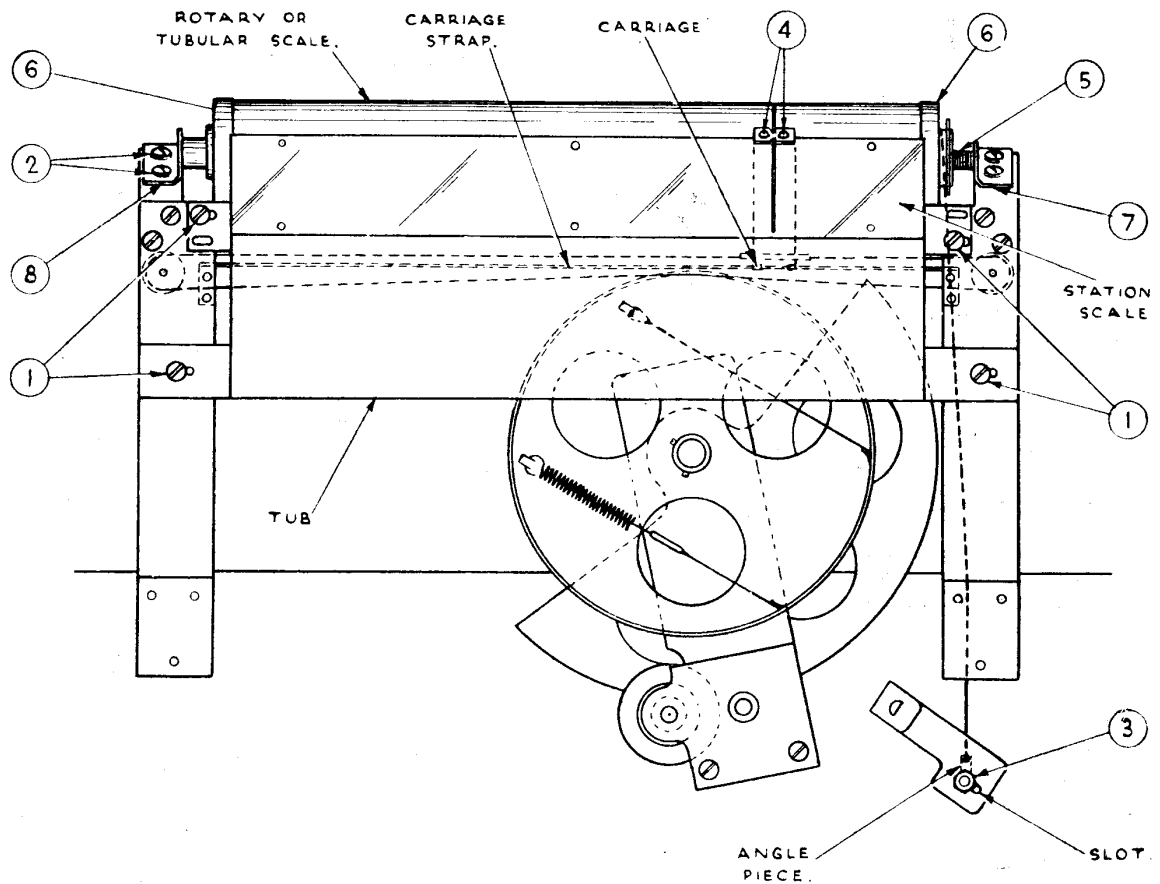


Fig. 4.—Dial Mechanism.

Dial Scale Replacement

STATION SCALE.

Remove dial lamp assemblies from brackets beneath tub assembly and remove screws (1). Six bifurcated rivets hold the scale to the tub assembly.

ROTATING SCALE ("WORLD RANGE" RADIOLAS).

First remove screw (3) then screws (2). When removing the latter, hold the scale to prevent the

spring (5) from releasing suddenly. When replacing the scale, assemble the scale caps (6) so that the keys are inserted in the slots at each end of the scale. Assemble the spring and washer on bracket (7) and push the right-hand scale cap on the bracket. Fit the left-hand scale cap into bearing of left-hand bracket (8) and replace screws (2). Before the last operation, see that there is sufficient grease in the bearing. Take one turn in tension spring (5) and clip the spring into position. See Fig. 5. Make sure that the scale is able to rotate freely. Replace screw (3) to fix control cord to the Range Switch arm.

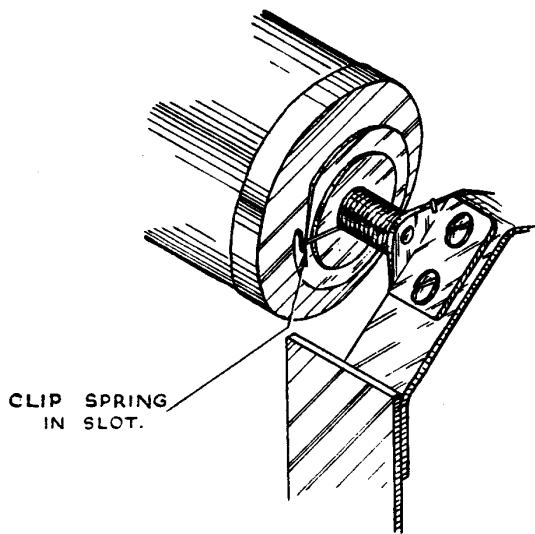


Fig. 5.

TUBULAR SCALE (MEDIUM WAVE RADIOLAS).

As this scale does not rotate, it is replaced by simply removing a screw which holds the right hand scale cap to the bracket.

ADJUSTMENTS.

The design of the dial mechanism permits the scales to be adjusted independently.

Calibration adjustments for the rotating scale or, in the case of medium wave Radiolas, the tubular scale, are made at the pointer by releasing the screws (4). When calibration is correct, the station scale may be aligned independently by loosening screws (1).

After a rotating scale has been replaced it may be necessary to reset the scale by adjusting the control cord. The adjustment is situated on the range switch arm. By loosening adjustment screw (3) and moving the angle piece either up or down, the cord may be lengthened or shortened as desired. Adjust so that the tip of the pointer will travel along the heavy line of the "Australasian Range" Scale with the angle piece in a vertical position and with adjustment screw (3) to the extreme left in slot. Tighten adjustment screw (3) and test the setting of the other scales. If incorrect, adjust the throw between the scales by moving the adjustment screw a little to the right in slot. When adjusting the throw, hold the angle piece so that it will not move up or down and so upset the previous adjustment.

Codes

WIRING COLOUR CODE.

Each circuit in Radiola and Radiolette receivers is identified by a colour as follows:

Circuit	Colour
B+	Orange
Plate	Red
Screen Grid	Blue
Cathode	White
Control Grid	Green
Earth, negative and A.V.C.	Black

RESISTOR COLOUR CODE.

BODY.		END.		DOT.	
Brown	= 1	Black	= 0	Black	= no noughts
Red	= 2	Brown	= 1	Brown	= 1 nought
Orange	= 3	Red	= 2	Red	= 2 noughts
Yellow	= 4	Orange	= 3	Orange	= 3 "
Green	= 5	Yellow	= 4	Yellow	= 4 "
Blue	= 6	Green	= 5	Green	= 5 "
Violet	= 7	Blue	= 6	Blue	= 6 "
Grey	= 8	Violet	= 7	Violet	= 7 "
White	= 9	Grey	= 8	Grey	= 8 "
		White	= 9	White	= 9 "

EXAMPLES.

BODY.		END.		DOT.	
Red	Green	Yellow	=	250,000	ohms
Brown	Brown	Orange	=	11,000	ohms
Orange	Black	Red	=	3,000	ohms

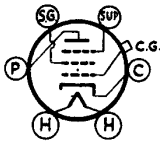
MICA CONDENSERS.

Fixed mica dielectric condensers with capacities of 200 mmfd and less are marked with a code for reference purposes as follows:

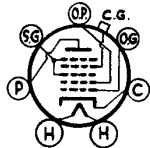
A	115 mmfd	G	100 mmfd
B	10 "	H	130 "
C	15 "	J	200 "
D	50 "	K	20 "
E	85 "	L	110 "
F	6 "	M	25 "
N	70 mmfd		

VALVE SOCKET CONNECTIONS 1937 RADIOLAS AND RADIOLETTES

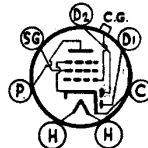
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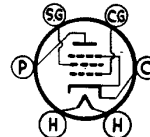
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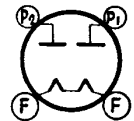
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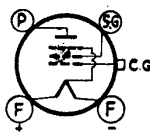
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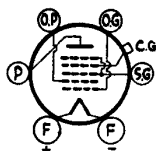
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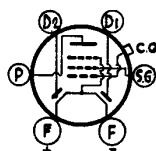
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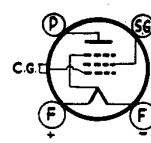
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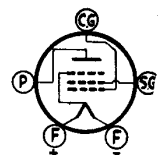
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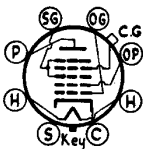
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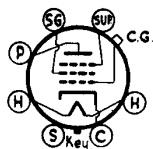
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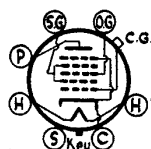
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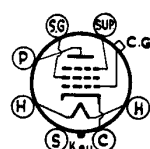
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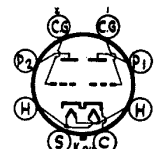
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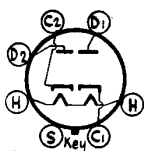
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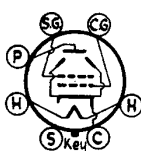
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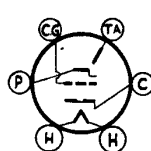
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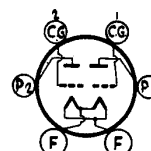
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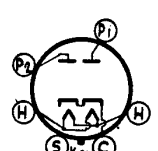
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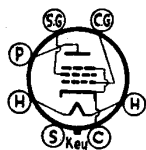
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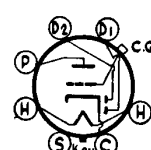
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6X5



6F6



6Q7

H - Heater
F - Filament
P - Plate
TA - Target

SG - Screen Grid
CG - Control Grid
OP - Oscillator Plate
OG - Oscillator Grid

D - Diode Plate
C - Cathode
S - Shield
SUP - Suppressor Grid

