

INVICTA 480

Three-valve, two-waveband TRF receiver for battery operation. Provision is made for an external low impedance loudspeaker. Marketed by Invicta Radio, Ltd., Parkhurst Road, London, N7.

THE aerial input circuit incorporates a 1,500m wave trap C2, L1 to minimise interference from a powerful local transmitter. It is brought into operation by plugging the aerial into the A2 socket.

From the A1 socket, signals are fed via C1 and the aerial coupling coil L2 to the primary coils L3 (MW), and L4 (LW) of an inductively coupled band-pass unit. The secondary coils L5 (MW), and L6 (LW) transfer the signals direct to the grid of an RF hexode valve V1. The bandpass input circuit is tuned by VC1 and VC2 sections of the ganged condenser.

Anode of V1 is fed from the high tension line via R2 and the anode coils L7, and L8. A lower potential is applied to the screen of V1 and the anode of V2 from a second HT line. C3, C4, C5 and C7 are the decoupling components.

Volume control is by variable biasing of V1 grid through the slider of VR1. The bias battery is connected across VR1 and R1, the steady leakage through these ensuring that the bias voltage will fall at about the same rate as the HT voltage. This preserves the correct ratio between anode and bias voltages.

Output from V1 is coupled to the triode detector valve V2 by the anode coils L7 and L8, tuned by VC3 section of the gang. Positive feedback from the anode of V2 is fed to the reaction coil L9, inductively coupled to the anode coils, and is capacity controlled by the condenser VC4 connected in series with the coil to earth.

Cumulative grid detection is employed with C6, and R3 as grid condenser and leak.

From the anode of V2 the AF signals are fed via an intervalve transformer L10, L11, and the grid stopper R4 to the grid of the pentode output valve V3. Bias is applied to the grid through the secondary winding L11. The anode and screen are fed direct from the high-tension line.

An output transformer L12, L13, couples the output valve to the permanent-magnet moving-coil loudspeaker and a fixed degree of tone correction is effected by C8.

VALVE READINGS

V	Type	Electrode	Volts	Ma
1	Mullard VP2B	Anode Screen	114 60	1.5 .6
2	Mullard PM2HL	Anode	60	.6
3	Mullard PM22A	Anode Screen	120 120	5.0 .66

CONDENSERS

C	Mfds
1	.00015
2	.00015
3	.1
4	.1
5	.1
6	.00015
7	.0003
8	.005

RESISTORS

R	Ohms
1	3,000
2	3,000
3	2 meg
4	250,000
VR1	50,000

An extension speaker can be used with the internal speaker by connecting the extension leads to the LS terminals; these leads should go direct to a 2-ohm speech coil of the external speaker.

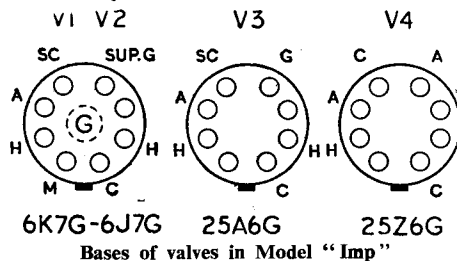
GANGING

See that the scale is fitted correctly with the cross over the centre of the spindle, and that the bottom edge of the glass is horizontal. Turn gang condenser to maximum capacity, and check that the pointer is horizontal.

Switch receiver to MW, and connect an oscillator lead to the aerial socket, and inject a signal of 250m. With reaction at minimum, tune set to 250m and adjust T1, and T2 trimmers on the front and middle sections of the gang to give maximum deflection on an output meter.

Reduce oscillator output and increase reaction to just below oscillation point, then adjust anode trimmer T3 on rear section of gang for maximum deflection. Check at 550m and on LW.

No re-adjustment is necessary on LW as the coils are accurately matched.



INVICTA "IMP"

Three-valve, plus rectifier, two-waveband TRF receiver for operation on AC/DC mains, 200/240 volts, 25/100 cycles. Marketed by Invicta Radio Ltd., 79a, Parkhurst Road, London, N7.

AERIAL input is via C1 and the aerial coupling coil L1, inductively coupled to the grid coils L2 (MW) and L3 (LW), tuned by VC1 section of the ganged condenser. From the grid coils the signal is fed direct to the grid of the RF pentode valve V1.

Volume control VR1 in the cathode circuit and across the aerial input, controls the volume by regulating the bias and, therefore, the amplification of the pentode, which has variable-mu characteristics.

The bottom of R3 is taken to the cathode circuit to ensure that the screen voltage changes in "step" with the bias. R2 is included so that even when VR1 is at minimum, V1 will have sufficient bias to prevent overloading and instability. C4 is the by-pass condenser.

The screen is fed from the high-tension line through R1, and decoupled by C3; the anode receives current through R12 and anode coils, and is decoupled by C5.

