Osram Valves

Made in England.



Maximum Dimensions :

Overall length (including pins)
135 m/m.
Diameter of bulb
45 m/m.

TYPE X31

UNIVERSAL RANGE TRIODE-HEXODE FREQUENCY CHANGER.

With Indirectly Heated Cathode.

The OSRAM X31 is a multi-electrode valve designed to perform as a mixer, first detector, or frequency changer valve in a superheterodyne receiver. Its filament rating of 13 volts 0.3 amp. makes it suitable for series running in D.C. and Universal Receivers. The valve consists of a cathode common to two sets of electrodes : (1) The Hexode, (2) The Triode.

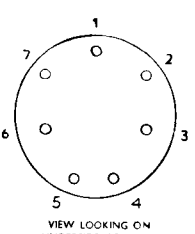
The triode grid is connected to the mixer grid internally so that oscillations generated by the triode modulate the cathode hexode stream. The control grid of the hexode portion may be connected to an A.V.C. line as it has "variable mu" characteristics.

Type X31 is suitable for short wave receivers.

CHARACTERISTICS.

Heater Current		0.3 amp.
Heater Volts		13.0
	Max.	Recommended Operating Conditions.
Anode Volts	250	180—200
Screen Volts	80	70
Oscillator Anode Volts	150	100
Oscillator Grid Peak Swing	12v. peak	10-12v. peak
Control Grid Voltage	..	–1.5
Conversion Conductance average	..	640 micromhos
Conversion Impedance	..	0.75 megohms
Total Cathode Current average	..	7.6 ma.
Interelectrode Capacities :—		
Control Grid—Anode	0.046 micro-microfarad approx.	
Anode—Earth	21.5 ,, ,, ,,	
Control Grid—Earth	7.0 ,, ,, ,,	
Oscillator Grid—Oscillator Anode	3.56 ,, ,, ,,	
Oscillator Anode—Earth	8.5 ,, ,, ,,	
Oscillator Grid—Earth	17.0 ,, ,, ,,	
Oscillator Grid—Control Grid (Taken on metallised valve).	0.26 ,, ,, ,,	

For prices see pages 126-129.



VIEW LOOKING ON UNDERSIDE OF BASE

BASE 7-PIN.

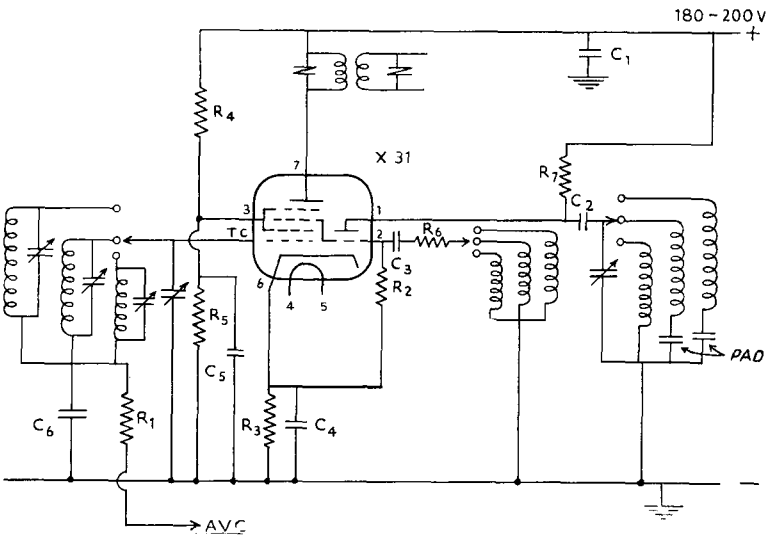
1 : Oscillator Anode (A_o)
2 : Oscillator & Mixer Grids (G_1, G_3)
3 : Screen, (G_2 G_4)
4 : Heater
5 : Heater
6 : Cathode
7 : Anode (A)
Top Cap : Control Grid, (G_1)

Type X31 is supplied in metallised bulb only.

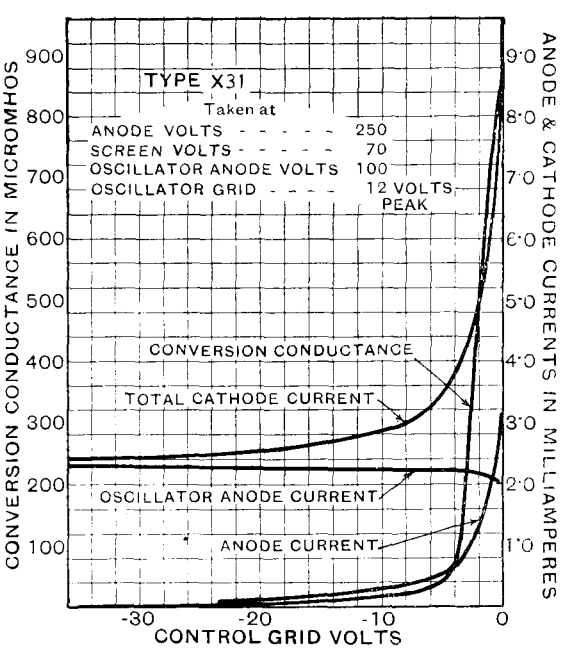
TYPE X31

TYPICAL OPERATING CONDITIONS.

A typical circuit is shown herewith. The Screen grid should be fed from a low resistance potentiometer and care should be taken to reduce to a minimum any coupling between the oscillator and signal frequency circuits. In A.C.-D.C. receivers with the valve heaters connected in series the X31 should be so connected that A.C. voltage between heater and cathode is as low as possible. Care should be taken that the total resistance in the control grid to cathode circuit (A.V.C. decoupling resistances, etc.) does not exceed 2 megohms effective value.



R_1	0.5 megohm	R_5	20,000 ohms.	C_1	0.1 mfd.	C_4	0.1 mfd.
R_2	50,000 ohms.	R_6	50-5000 ohms.	C_2	0.1 mfd.	C_5	0.1 mfd.
R_3	200 ohms.	R_7	40,000-70,000 ohms.	C_3	0.0001 mfd.	C_6	0.05 mfd.
R_4	20,000 ohms.						



CHARACTERISTIC CURVES OF AVERAGE VALVE.