

FERRANTI

TUNING INDICATOR

Type EM80 is an electron beam tube designed for use as a tuning indicator in F.M. or A.M. radio receivers. The display consists of three curved green petals radiating from the centre of the lower edge of a fluorescent screen, which is viewed through the side of the bulb.

PHYSICAL DETAILS.

Base	...	...	...	B9A (Noval).
Max. Overall Length	...	...	...	67.5 mm. ($2\frac{3}{4}$ in.).
Max. Seated Height	...	...	...	60.5 mm. ($2\frac{3}{8}$ in.).
Max. Diameter	...	...	...	22.2 mm. ($\frac{7}{8}$ in.).
Mounting Position	...	...	...	Any.

For dimensions and location of display area see outline drawing.

BASE CONNECTIONS.

Pin 1—Grid.	Pin 5—Heater.
Pin 2—Cathode.	Pin 6—Internal Connection.
Pin 3—Internal Connection.	Pin 7—Anode.
Pin 4—Heater.	Pin 8—Internal Connection.
	Pin 9—Target.

HEATER.

Heater Voltage	...	...	...	6.3 volts.
Heater Current	...	...	...	0.3 amp.

RATINGS.

Max. Anode Supply Voltage	...	...	550 volts.
Max. Anode Voltage	...	...	300 volts.
Max. Anode Dissipation	...	...	0.2 watt.
Max. Target Supply Voltage	...	...	500 volts.
Max. Target Voltage	...	...	300 volts.
Min. Target Voltage	...	...	165 volts.
Max. Negative Grid Voltage	...	...	1.3 volts.
Max. Grid Resistor	...	...	3.0 M Ω
Max. Total Cathode Current	...	...	3.0 mA.
Max. Heater-Cathode Voltage	...	...	100 volts.
Max. Insulation Resistance	...	...	...
Heater-Cathode	...	...	20000 ohms.

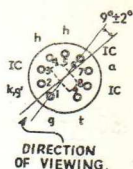
TYPICAL OPERATION.

*Anode Supply Voltage	...	250	250	volts.
Target Voltage	...	250	250	volts.
Grid Resistor	...	3.0	3.0	M Ω
Grid Voltage	...	-1	-14	volts.
†Light Angle β	...	5	50	degrees.
Anode Current	...	370	10	μ A.
Target Current	...	2.0	2.3	mA.

*Applied through an anode resistor of 0.56 M Ω

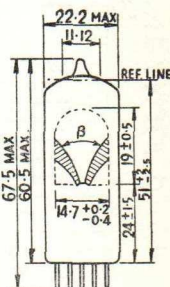
†The width of the 'petals' is determined by the voltage of two linked deflectors which are mounted in an accelerated electron stream. The Deflector Voltage is derived from the anode of the Triode, the Grid of which is connected to the AGC line of the Receiver. As the AGC voltage becomes more negative, the Deflector Voltage rises and the 'petal' width is increased, indicating correct tuning. At low signal levels the area of the 'petals' shows the most marked rate of change; but with stronger signals the shadow areas are relatively small and the increased rate of change with AGC voltage is most noticeable.

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Base Connections

Underside View of Base



All dimensions shown are in millimetres.



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