

FERRANTI TRIODE PENTODE

Combined triode and high slope pentode with separate cathodes designed primarily for use as a frequency changer in Television Receivers operating at frequencies up to 220 Mc/s. It is suitable for series connected heater operation, a.c. or d.c.

PHYSICAL DETAILS.

Base	...	...	B9A—Noval.
Max. Overall Length	...	...	56 mm. ($2\frac{1}{2}$ in.).
Max. Seated Height	...	...	49 mm. ($1\frac{1}{2}$ in.).
Max. Diameter	...	...	22.2 mm. ($\frac{7}{8}$ in.).
Mounting Position	...	...	Any.

BASE CONNECTIONS.

Pin 1—Triode Anode.	Pin 6—Pentode Anode.
Pin 2—Pentode g_1	Pin 7—Pentode Cathode, g_3
Pin 3—Pentode g_2	and shield.
Pin 4—Heater.	Pin 8—Triode Cathode.
Pin 5—Heater.	Pin 9—Triode Grid.

HEATER.

Heater Current	...	...	0.3 amp.
Heater Voltage	...	...	9.0 volts.

RATINGS.

PENTODE SECTION.

Max. Anode Supply Voltage	...	550 volts.
Max. Anode Voltage	...	250 volts.
Max. Screen Voltage	...	175 volts.*
Max. Anode Dissipation	...	1.7 watts.
Max. Screen Dissipation	...	0.5 watts.†
Max. Cathode Current	...	17 mA.
**Min. Negative Grid Voltage	...	1.3 volts.
Max. V_{h-k} (heater positive)	...	100 volts.
†Max. V_{h-k} (heater negative)	...	225 volts.
Max. R_{g1-k} (auto bias)	...	1.0 MΩ
Max. R_{g1-k} (fixed bias)	...	0.5 MΩ

TRIODE SECTION.

Max. Anode Supply Voltage	...	550 volts.
Max. Anode Voltage	...	250 volts.
Max. Anode Dissipation	...	1.7 watts.
Max. Cathode Current	...	17 mA.
§Max. Peak Instantaneous Cathode Current	...	200 mA.
Max. R_{g-k}	...	0.5 MΩ
**Min. Negative Grid Voltage	...	1.3 volts.
Max. Peak Instantaneous Negative Grid Voltage	...	350 volts.
†Max. V_{h-k} (heater negative)	...	225 volts.
Max. V_{h-k} (heater positive)	...	100 volts.

CHARACTERISTICS.

	Pentode Sect.	Triode Section
Anode Voltage	...	170 volts.
Screen Voltage	...	170 volts.
Grid Bias Voltage	...	-2 volts.
Anode Current	...	14 mA.
Screen Current	...	2.8 mA.
Mutual Conductance	...	6.2 5.0 mA/V.
Anode Impedance	...	400 4 kΩ
μ	...	47 20
Inner μ	...	47
Input Impedance ($f=50$ Mc/s.)	...	10 kΩ
Equivalent Noise Resistance	...	1.5 kΩ

*May be increased to 200 volts with cathode current not exceeding 10 mA.

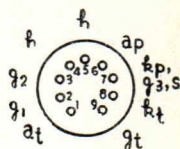
†May be increased to 0.75 volts with anode dissipation not exceeding 1.2 watts.

‡Max. d.c. component 150 volts.

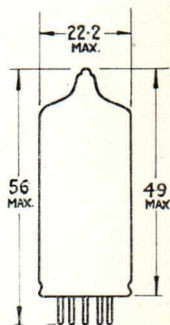
§Max. duration of pulse 200 μ secs.

**At grid current of 0.3 μ A.

9A8



Base
Connections
Underside View
of Base



All dimensions
shown are in
millimetres.





TYPICAL OPERATION (as Frequency Changer)*

Anode Voltage ...	Va	170	170	volts.
Screen Voltage ...	Vg2	170	170	volts.
Grid Resistor ...	Rg1	0.1	0.1	MΩ
Auto Bias Resistor ...	Rk	820	0	ohms.
Anode Current ...	Ia	5.2	6.3	mA.
Screen Current ...	Ig2	1.5	2.5	mA.
Oscillator Voltage ...	Vosc.	3.5	4.0	volts (r.m.s.)
Conversion Conductance ...	gc	2.1	2.05	mA/V.
Anode Impedance ...	ra	0.87	0.72	MΩ
Grid Current ...	Ig1	0	53	μA.

CAPACITANCES.†

Cap-at ...	...	...	...	<0.06 pF.
Cap-ct ...	...	...	...	<0.02 pF.
Csp-ct ...	...	...	...	<0.16 pF.
Csp-ct ...	...	...	...	<0.02 pF.

Pentode Section.

Cin ...	...	...	...	5.5 pF.
Cout ...	...	...	...	3.8 pF.
Ca-g1 ...	...	...	...	<0.025 pF.

Triode Section.

Cg-k+h ...	...	...	...	2.5 pF.
Ca-k+h ...	...	...	...	1.8 pF.
Ca-g ...	...	...	...	1.5 pF.

*Variations in heater-cathode capacitance may render this valve unsuitable for use in Hartley oscillator circuits, particularly in F.M. receivers; it is recommended that a Colpitts type of circuit be employed.

†Measured without external shield.

AVERAGE CHARACTERISTIC CURVES AS FREQUENCY CHANGER.

