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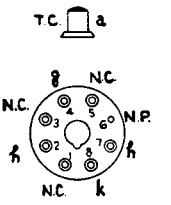
HL10

HIGH VOLTAGE VACUUM TRIODE

A high voltage vacuum triode with an indirectly heated oxide coated cathode. Applications include its use as a control valve or regulator for high voltage d.c. power supplies and as a variable resistor for use at high d.c. voltages.



Base Connections
Underside View of Base

PHYSICAL DETAILS.

Base	International Octal.
Top Cap	Skirted Medium CT3. (14.5 mm. dia.)
Max. Overall Length	234 mm.
Max. Seated Height	220 mm.
Max. Diameter	64 mm.
Mounting Position	Any.

BASE CONNECTIONS.

Pin 1—Not connected. Pin 5—Not connected.
Pin 2—Heater. Pin 6—No Pin.
Pin 3—Not connected. Pin 7—Heater.
Pin 4—Grid. Pin 8—Cathode.
Top Cap—Anode.

HEATER.

Heater Voltage	4·0 volts.
Heater Current	1·5 amps.

RATINGS (Absolute).

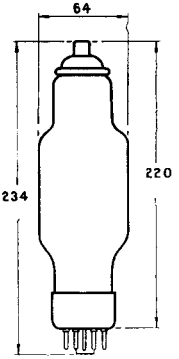
Max. Anode Voltage	20 kV.
Max. Peak Anode Current ...	30 mA.
Max. Mean Anode Dissipation ...	30 watts.
Max. Mean Anode Current ...	10 mA.
Max. Negative Grid Voltage ...	−250 volts.
Max. Grid Circuit Resistance ...	2 megohms.
*Max. Peak Heater/Cathode Voltage	150 volts.
Min. Cathode Heating Period prior to application of anode potential	30 secs.

CHARACTERISTICS.

D.C. Anode Voltage	5	10	15	20	kV.
→ D.C. Grid Volts for cut off ...	−24	−40	−59	−80	volts.
→ D.C. Grid Volts for I_a=100μA	−18	−35	−52	−73	volts.
→ Amplification Factor	300	300	300	300	(approx.)

→ CAPACITANCES.

C_{g-k} (input)	4·0 pF.
C_{a-g} (output)	2·0 pF.



All dimensions shown are in millimetres (max.).

*Heater negative with respect to cathode.

WARNING.

Operation of the HL10 at high anode voltage may result in the production of X-rays which could cause possible injury from prolonged exposure at close range unless adequate shielding is provided. Relatively simple shielding should prove adequate.

The high voltages normally applied to this valve can be very dangerous and particular care should be taken when making any circuit adjustments. It is recommended that before any part of the circuit is touched the supply voltage should be switched off and the terminals of any capacitor grounded.

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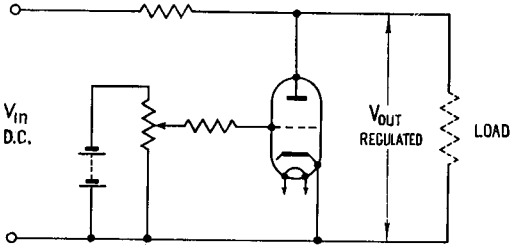
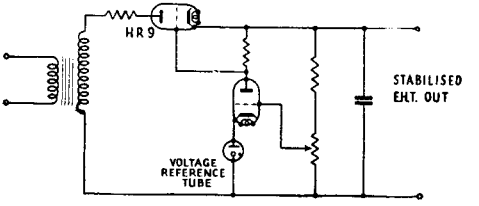
As a Shunt Regulator.



(*Fig* 1)

Fig. (1) shows a simple circuit using the HL10 as a shunt regulator.

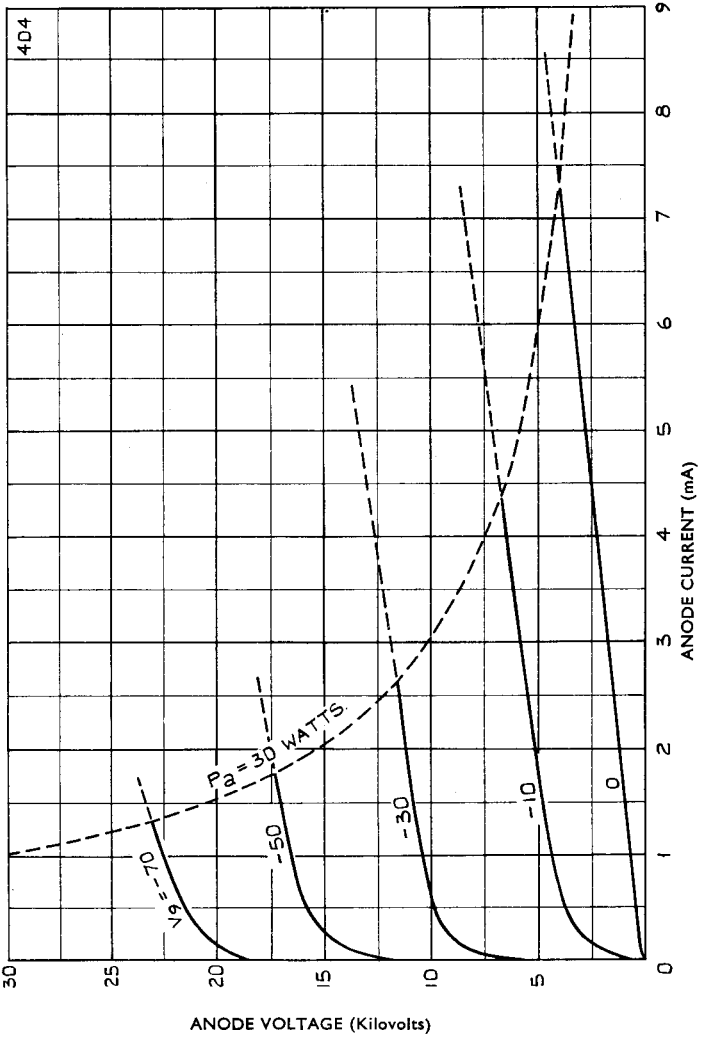
As a Voltage Controller in a Grid Controlled Rectifier Circuit with Automatic Stabilisation.



(*Fig*. 2)

In this application the HL10 is used in conjunction with a gas filled cold cathode diode type KD21. The function of the KD21 is to provide a stabilised cathode bias, and the HL10 supplies automatic grid control to the Rectifier HR9. The resultant stabilised E.H.T. output voltage can be varied by adjustment of the HL10 grid potentiometer.

Typical Anode Voltage/Anode Current Characteristics



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Typical Anode Current/Grid Voltage Characteristics