

Ferranti

TRIODE PENTODE

Combined triode and high slope frame grid 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, AC. or DC.

PHYSICAL DETAILS.

Base	...	...	B9A—Noval
Max. Overall Length	...	...	56 mm. ($2\frac{3}{8}$ "
Max. Seated Height	...	...	49 mm. ($1\frac{13}{16}$ "
Max. Diameter	...	...	22.2 mm. ($\frac{7}{8}$ "
Mounting Position	...	...	Any

BASE CONNECTIONS.

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

HEATER.

Heater Current	...	...	0.3 amp
Heater Voltage	...	...	8.0 volts

RATINGS.

Pentode Section.

Max. Anode Voltage	...	...	250 volts
Max. Screen Grid Voltage	...	...	150 volts
Max. Anode Dissipation	...	...	2.0 watts
Max. Screen Grid Dissipation	...	...	0.5 watts
Max. Cathode Current	...	...	18 mA
Max. R_{g_1-k} (auto bias)	...	...	500 k Ω
Max. R_{g_1-k} (fixed bias)	...	...	250 k Ω

Triode Section.

Max. Anode Voltage	...	...	125 volts
Max. Anode Dissipation	...	...	1.5 watts
Max. Cathode Current	...	...	15 mA
Max. R_{g-k}	...	...	0.5 M Ω
*Max. V_{h-k}	...	...	100 volts

CHARACTERISTICS.

Pentode Section.

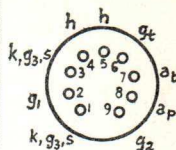
Anode Voltage	...	...	170 volts
Screen Grid Voltage	...	...	150 volts
Grid Bias Voltage	...	...	-1.2 volts
Anode Current	...	...	10 mA
Screen Current	...	...	3.3 mA
Mutual Conductance	...	...	12 mA/V
Anode Impedance	...	...	> 350 k Ω
Inner μ	...	...	70
Equivalent Noise Resistance	...	...	1.0 k Ω

Triode Section.

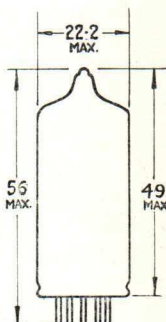
Anode Voltage	...	...	100 volts
Grid Bias Voltage	...	...	-3 volts
Anode Current	...	...	14 mA
Mutual Conductance	...	...	5.5 mA/V
Anode Impedance	...	...	3 k Ω
μ	...	...	17

*To avoid excessive hum on a.m. sound it is necessary to limit V_{h-k} to less than 50 volts (r.m.s.).

PCF86



Base
Connections
Underside View
of Base



Dimensions are in
millimetres

Ferranti

TYPICAL OPERATION (As Frequency Changer).

Pentode (As Mixer).

V_a	...	190	volts
$V_{g2(b)}$	...	190	volts
R_{g2}	...	18	$k\Omega$
R_{g1}	...	100	$k\Omega$
V_{osc}	...	2.3	volts(r.m.s.)
I_a	...	8.5	mA
I_{g2}	...	2.7	mA
g_c	...	4.5	mA/V

Triode (As Oscillator).

$V_{a(b)}$	...	190	volts
R_g	...	10	$k\Omega$
V_{osc}	...	4.5	volts(r.m.s.)
I_a	...	12.0	mA
$g_m(\text{eff})$	...	3.5	mA/V

CAPACITANCES (Measured without external shield.)

C_{ap-at}	...	...	...	...	0.14	pF
C_{ap-gt}	...	...	...	...	0.015	pF
C_{gp-at}	...	...	...	...	0.01	pF
C_{gp-gt}	...	...	...	...	0.01	pF

Pentode Section.

C_{in}	...	6.0	pF
C_{out}	...	3.5	pF
C_{a-g1}	...	0.012	pF
C_{g1-g2}	...	1.7	pF

Triode Section.

C_{g-k+h}	...	2.4	pF
C_{a-k+h}	...	1.1	pF
C_{a-g}	...	2.0	pF

TYPICAL CHARACTERISTIC CURVES AS FREQUENCY CHANGER

