

**BRIMAR**

**R. E. T. M. A.**  
**REGISTRATION DATA**

6870  
 TYPE.....

DATE 6. 11. 1956.  
 ISSUED.....

TYPE 6870  
V.H.F. POWER PENTODE

This tube is an indirectly heated fully screened V.H.F. power pentode for operation up to 150 mc. It is intended for use as a class C amplifier or as a frequency multiplier. It may also be used as a video amplifier where the supply voltage is low and a large output voltage is required with a low value plate resistor. The tube features a centre-tapped heater for both AC and AC/DC applications.

The 6870 is designed for trustworthy operation under conditions of shock and vibration usually found in aircraft and mobile equipment.

MECHANICAL DATA.

Coated unipotential cathode.  
 Outline drawing..... 6-3      Bulb..... T-6 $\frac{1}{2}$   
 Base..... E9-4 Miniature Button 9-pin  
 Maximum diameter.....  $\frac{7}{8}$ "  
 Maximum overall length..... 2.5/8"  
 Maximum seated height..... 2.3/8"  
 Pin Connections..... Basing JETEC 9BF  
     Pin 1 - Cathode.                      Pin 6 - Heater centre tap.  
     Pin 2 - Grid No.1.                    Pin 7 - Plate.  
     Pin 3 - Grid No.3, internal shield. Pin 8 - Grid No.2.  
     Pin 4 - Heater.                      Pin 9 - Grid No.3, internal shield.  
     Pin 5 - Heater.

Mounting position..... Any

Maximum shock (intermittent service)..... 550" g"  
 Maximum vibration (continuous service)..... 2 $\frac{1}{2}$  " g"  
 Minimum mechanical resonance..... 100c/s

ELECTRICAL DATA.

Direct Inter-electrode Capacitances - without external shield

Grid to plate: (g1 to p) max..... 0.025  $\mu$ F  
 Input: g1 to (h+k+g2+g3 and I.S.)..... 8.5  $\mu$ F  
 Output: p to (h+k+g2+g3 and I.S.)..... 7.0  $\mu$ F

Ratings Design Centre Values

|                                                        |               |
|--------------------------------------------------------|---------------|
| Heater voltage (A.C. or D.C.).....                     | 12.6/6.3volts |
| Maximum heater-cathode voltage.....                    | 190volts      |
| Maximum plate voltage.....                             | 300DCvolts    |
| Maximum grid No.2 voltage.....                         | 250DCvolts    |
| Maximum plate supply voltage ( $I_b = 0$ mA).....      | 500DCvolts    |
| Maximum grid No.2 supply voltage ( $I_{g2} = 0$ )..... | 500DCvolts    |
| Maximum plate dissipation.....                         | 6.3watts      |
| Maximum grid No.2 dissipation.....                     | 2.0watts      |
| Maximum grid No.1 current.....                         | 3.0mA         |
| Maximum cathode current.....                           | 50 mA         |
| Maximum grid No.1 circuit resistance.....              |               |
| Fixed bias.....                                        | 0.1meg        |
| Self bias.....                                         | 0.5meg        |
| Maximum bulb temperature.....                          | 190°C         |

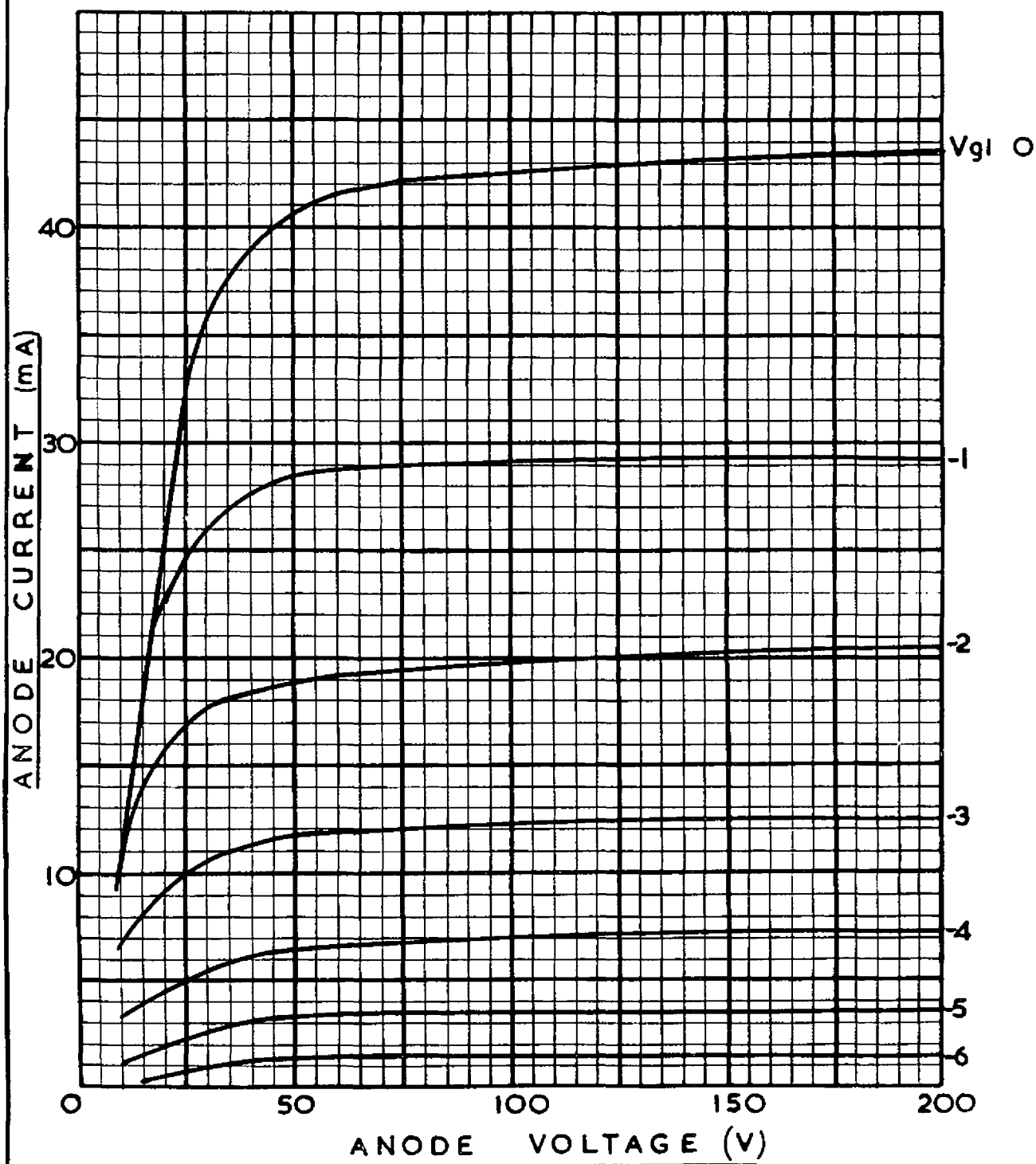
Typical Operating Conditions and Characteristics, class A1  
Amplifier.

|                                                                 |          |          |             |
|-----------------------------------------------------------------|----------|----------|-------------|
| Heater voltage (A.C. or D.C.).....                              | 6.3/12.6 | 6.3/12.6 | volts       |
| Heater current.....                                             | 0.6/0.3  | 0.6/0.3  | amps        |
| Plate voltage.....                                              | 250      | 180      | DCvolts     |
| Grid No.3 voltage - pins 3 and 9 connected to pin 1 at socket.  |          |          |             |
| Grid No.2 voltage.....                                          | 250      | 180      | DCvolts     |
| Cathode bias resistor.....                                      | 120      | 56       | ohms        |
| Plate resistance (approximately)....                            | 230      | 170      | k-ohms      |
| Transconductance.....                                           | 8,500    | 9000     | $\mu$ -mhos |
| Plate current.....                                              | 25       | 25       | mA          |
| Grid No.2 current.....                                          | 3.5      | 3.5      | mA          |
| Grid No.1 voltage (approximately)<br>for $I_b = 100\mu A$ ..... | -13.5    | -9       | volts       |
| Amplification factor ( $g_2$ - $g_1$ ).....                     | 35       | 35       |             |

# BRIMAR

VALVE TYPE 6870

$V_{g2} = 180V$ ;  $V_{g3} = 0$



# BRIMAR

VALVE TYPE 6 8 7 0

$V_{g2} = 250 \text{ V}$

$V_{g3} = 0$

