

## TENTATIVE DATA

| QUICK REFERENCE DATA                                       |                     |                                                                 |                                                 |         |      |
|------------------------------------------------------------|---------------------|-----------------------------------------------------------------|-------------------------------------------------|---------|------|
| Amplifier and frequency multiplier for mobile transmitters |                     |                                                                 |                                                 |         |      |
|                                                            | Frequency<br>Treble | Telephony,<br>Anode and Screen<br>Grid Modulation,<br>Class 'C' | Telegraphy<br>or F.M.<br>Telephony<br>Class 'C' |         |      |
| f                                                          | 500/167             | 175                                                             | 200                                             | 500     | Mc/s |
| P <sub>out</sub>                                           | 6.5                 | 19                                                              | 33                                              | 19      | W    |
| f max.                                                     | 500                 | 500                                                             |                                                 | 500     | Mc/s |
| V <sub>a</sub> max.                                        |                     |                                                                 |                                                 |         |      |
| (f = 200Mc/s)                                              | -                   | 330                                                             |                                                 | 400     | V    |
| (f = 500Mc/s)                                              | 300                 | 250                                                             |                                                 | 300     | V    |
| p <sub>a</sub> max.                                        | 2 x 8.0             | 2 x 5.5                                                         |                                                 | 2 x 8.0 | W    |

To be read in conjunction with

## GENERAL OPERATIONAL RECOMMENDATIONS - TRANSMITTING VALVES

### TELEGRAPHY OR F.M. TELEPHONY, CLASS 'C'

#### OPERATING CONDITIONS

|                           |         |          |      |
|---------------------------|---------|----------|------|
| f                         | 200     | 500      | Mc/s |
| P <sub>out</sub>          | 33      | 19       | W    |
| †P <sub>load</sub>        | 26      | 14       | W    |
| η <sub>a</sub>            | 67      | 52       | %    |
| V <sub>a</sub>            | 350     | 260      | V    |
| I <sub>a</sub>            | 2 x 70  | 2 x 70   | mA   |
| V <sub>g2</sub>           | 140     | 175      | V    |
| I <sub>g2</sub>           | 23.5    | 20       | mA   |
| -V <sub>g1</sub>          | 13      | 22.5     | V    |
| I <sub>g1</sub>           | 2 x 6.5 | 2 x 3.25 | mA   |
| v <sub>in(g1-g1)pk</sub>  | 85      | 65       | V    |
| P <sub>load(driver)</sub> | 1.0     | 2.5      | W    |
| p <sub>a</sub>            | 2 x 8.0 | 2 x 8.0  | W    |
| p <sub>g2</sub>           | 3.1     | 2.7      | W    |

†With a circuit transfer efficiency of 80%.

# FREQUENCY TREBLER

## OPERATING CONDITIONS

|                    |         |      |
|--------------------|---------|------|
| $f_{out}/f_{in}$   | 500/167 | Mc/s |
| $P_{out}$          | 6.5     | W    |
| $P_{load}$         | 3.0     | W    |
| $\eta_a$           | 29      | %    |
| $V_a$              | 250     | V    |
| $I_a$              | 2 x 45  | mA   |
| $V_{g2}$           | 250     | V    |
| $I_{g2}$           | 14      | mA   |
| $-V_{g1}$          | 70      | V    |
| $I_{g1}$           | 2 x 2.5 | mA   |
| $v_{in(g1-g1)pk}$  | 170     | V    |
| $P_{load(driver)}$ | 2.2     | W    |
| $p_a$              | 2 x 8.0 | W    |
| $p_{g2}$           | 2.4     | W    |

TELEPHONY, ANODE AND SCREEN-GRID MODULATION, CLASS 'C'  
(Two sections in push-pull)

## OPERATING CONDITIONS (Carrier conditions for 100% modulation)

|                     |          |      |
|---------------------|----------|------|
| $f$                 | 175      | Mc/s |
| $P_{out}$           | 19       | W    |
| $P_{load}$          | 15       | W    |
| $\eta_a$            | 72       | %    |
| $V_a$               | 280      | V    |
| $I_a$               | 2 x 50   | mA   |
| $V_{g2}$            | 150      | V    |
| $I_{g2}$            | 19       | mA   |
| $-V_{g1}$           | 35       | V    |
| $I_{g1}$            | 2 x 4.0  | mA   |
| $v_{in(g1-g1)pk}$   | 50       | V    |
| $P_{load(driver)}$  | 1.5      | W    |
| $p_a$               | 2 x 4.5  | W    |
| $p_{g2}$            | 2 x 1.4  | W    |
| $p_{g1}$            | 2 x 0.18 | W    |
| For 100% modulation |          |      |
| $P_{mod}$           | 16       | W    |
| $v_{g2(pk)}$        | 120      | V    |

## RATINGS (ABSOLUTE MAXIMUM SYSTEM)

|                   | Frequency<br>Treble | Telephony<br>Class 'C' |     | Telegraphy<br>Class 'C' |     |            |
|-------------------|---------------------|------------------------|-----|-------------------------|-----|------------|
| $f_{max.}$        | 500                 | 200                    | 500 | 200                     | 500 | Mc/s       |
| $V_a_{max.}$      | 300                 | 330                    | 250 | 400                     | 300 | V          |
| $V_{g2_{max.}}$   | 200                 | 200                    | 200 | 200                     | 200 | V          |
| $-V_{g1_{max.}}$  | 150                 | 150                    | 100 | 150                     | 100 | V          |
| $I_a_{max.}$      | 2 x 50              | 2 x 56                 |     | 2 x 75                  |     | mA         |
| $p_a_{max.}$      | 2 x 8.0             | 2 x 5.5                |     | 2 x 8.0                 |     | W          |
| $p_{g2_{max.}}$   | 3.5                 | 2 x 1.5                |     | 3.5                     |     | W          |
| $I_{g1_{max.}}$   | 2 x 3.0             | 2 x 5.0                |     | 2 x 7.0                 |     | mA         |
| $R_{g1-f_{max.}}$ | 100                 | 100                    |     | 100                     |     | k $\Omega$ |

## CATHODE

Quick heating directly heated filament, 70%  $P_{out}$  in less than 0.5 seconds.

|        |     |   |
|--------|-----|---|
| $*V_f$ | 1.1 | V |
| $I_f$  | 3.8 | A |

Frequency of filament supply

Sine wave max. 200 c/s

Square wave Any

\*The filament has been designed to accept temporary fluctuations of supply voltage of  $\pm 15\%$ .

## CAPACITANCES

$c_{out}$  (two sections in push-pull) 1.2 pF

$c_{in}$  (two sections in push-pull) 4.7 pF

Internally neutralised for push-pull operation up to 500Mc/s.

CHARACTERISTICS (measured at  $V_a = 150V$ ,  $V_{g2} = 150V$ ,  $I_a = 45mA$ )

$g_m$  9.5 mA/V

$\mu_{g1-g2}$  22

## MOUNTING POSITION

Any

If the valve is mounted with its main axis horizontal it is recommended that pins 3 and 7 be in a horizontal plane.

## COOLING

Radiation and convection cooling

Maximum temperatures

Bulb 230 °C

## PHYSICAL DATA

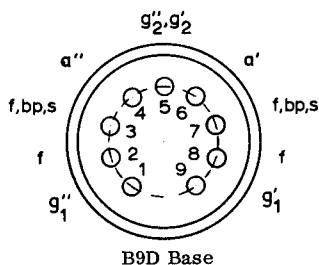
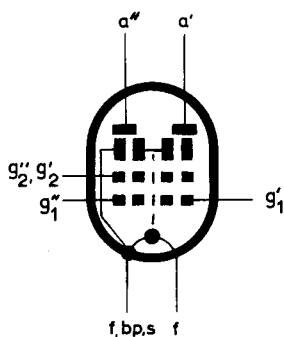
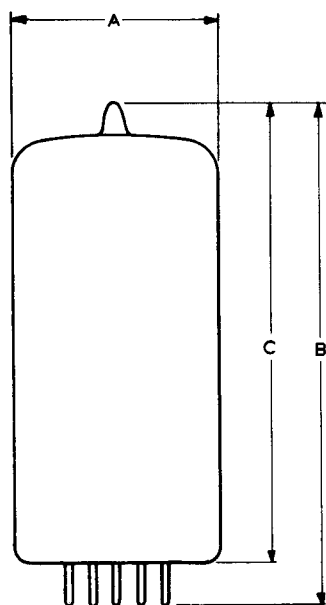
|                 | oz  | g  |
|-----------------|-----|----|
| Weight of valve | 1.0 | 27 |

## DIMENSIONS

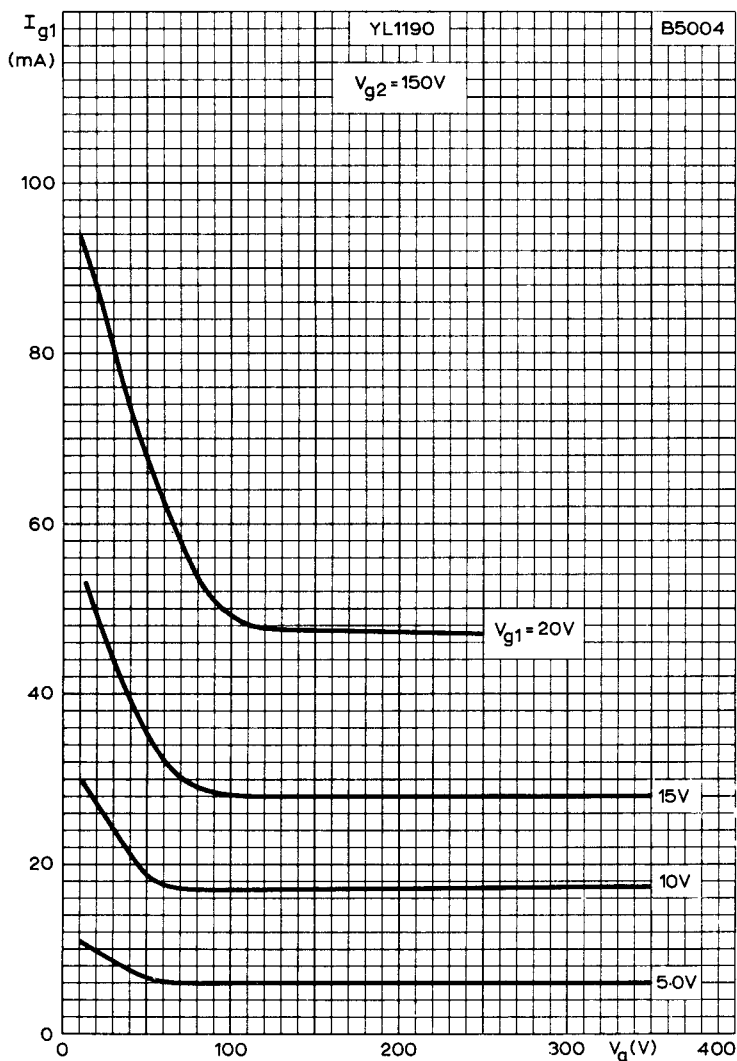
Inches      Millimetres

|   |       |           |
|---|-------|-----------|
| A | 1.189 | 30.2 max. |
| B | 2.909 | 73.9 max. |
| C | 2.591 | 65.8 max. |

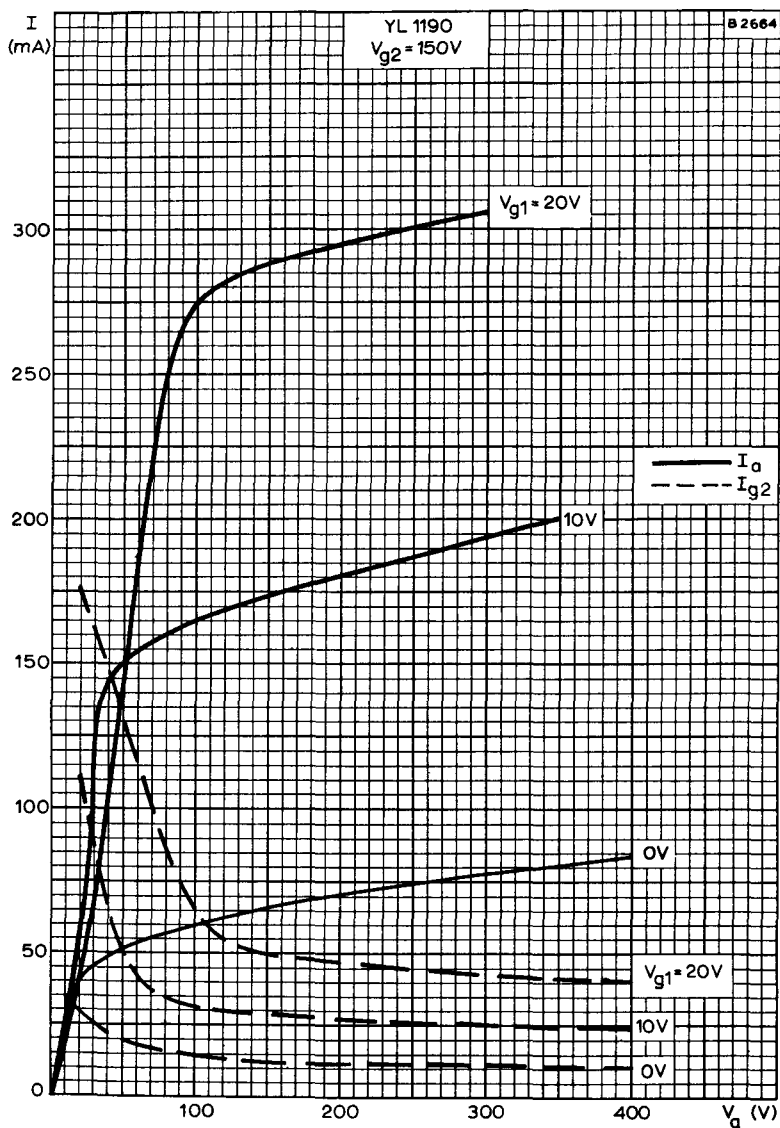
Inch dimensions derived from original millimetre dimensions.



Filament connections (pins 3, 7 and 2, 8) should be connected in parallel on the socket.



CONTROL-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH  
CONTROL-GRID VOLTAGE AS PARAMETER,  $V_{g2} = 150V$ .



ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE  
WITH CONTROL-GRID VOLTAGE AS PARAMETER.  $V_{g2} = 150V$ .