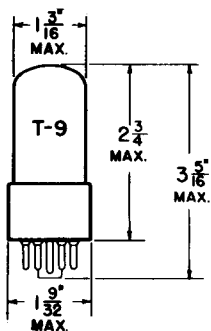


TUNG-SOL

PENTODE



GLASS BULB *

INTERMEDIATE SHELL
7 PIN OCTAL B7-233
WITH BARRIERS
OR

INTERMEDIATE SHELL
8 PIN OCTAL B8-142
WITH BARRIERS
OR

INTERMEDIATE SHELL
7 PIN OCTAL B7-238

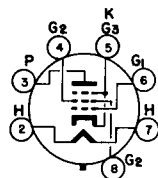
COATED UNIPOTENTIAL CATHODE

HEATER

6.3 VOLTS 0.80 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

THE 7591 IS A BEAM POWER PENTODE DESIGNED FOR USE AS AN AUDIO FREQUENCY POWER OUTPUT TUBE. IT HAS HIGH POWER SENSITIVITY AND HIGH EFFICIENCY AND IS ESPECIALLY DESIGNED FOR APPLICATIONS WHERE HIGH POWER OUTPUT IS REQUIRED.

DIRECT INTERELECTRODE CAPACITANCES

| | | |
|--------------------------|------|------------------|
| GRID TO PLATE | .25 | $\mu\mu\text{f}$ |
| INPUT: G1 TO (H+K+G2+G3) | 10.0 | $\mu\mu\text{f}$ |
| OUTPUT: P TO (H+K+G2+G3) | 5.0 | $\mu\mu\text{f}$ |

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

| | | |
|---|------|---------|
| HEATER VOLTAGE | 6.3 | VOLTS |
| MAXIMUM PLATE VOLTAGE | 550 | VOLTS |
| MAXIMUM SCREEN VOLTAGE | 440 | VOLTS |
| MAXIMUM PLATE DISSIPATION | 19.0 | WATTS |
| MAXIMUM SCREEN DISSIPATION ^A | 3.3 | WATTS |
| MAXIMUM CATHODE CURRENT | 85 | MA. |
| MAXIMUM GRID #1 CIRCUIT RESISTANCE: | | |
| WITH FIXED BIAS | 0.3 | MEGOHMS |
| WITH CATHODE BIAS | 1.0 | MEGOHMS |
| MAXIMUM HEATER-CATHODE VOLTAGE: | | |
| HEATER NEGATIVE WITH RESPECT TO CATHODE | | |
| TOTAL DC AND PEAK | 200 | VOLTS |
| HEATER POSITIVE WITH RESPECT TO CATHODE | | |
| DC | 100 | VOLTS |
| TOTAL DC AND PEAK | 200 | VOLTS |

* INDICATES AN ADDITION.

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATION

CLASS A₁ AMPLIFIER

| | | |
|------------------------------|--------|---------|
| HEATER VOLTAGE | 6.3 | VOLTS |
| HEATER CURRENT | 0.80 | AMP. |
| PLATE VOLTAGE | 300 | VOLTS |
| SCREEN VOLTAGE | 300 | VOLTS |
| GRID #1 VOLTAGE | -10 | VOLTS |
| PEAK AF GRID VOLTAGE | 10.0 | VOLTS |
| PLATE CURRENT (ZERO SIGNAL) | 60 | MA. |
| PLATE CURRENT (MAX. SIGNAL) | 75 | MA. |
| SCREEN CURRENT (ZERO SIGNAL) | 8.0 | MA. |
| SCREEN CURRENT (MAX. SIGNAL) | 15.0 | MA. |
| TRANSCONDUCTANCE | 10 200 | μMHOS |
| PLATE RESISTANCE | 29 000 | OHMS |
| TRIODE AMPLIFICATION FACTOR | 16.8 | |
| LOAD RESISTANCE | 3000 | OHMS |
| POWER OUTPUT | 11 | WATTS |
| TOTAL HARMONIC DISTORTION | 13 | PERCENT |

PUSH-PULL CLASS AB₁ - PENTODE CONNECTION

VALUES FOR TWO TUBES

| | FIXED BIAS | | | | | CATHODE | |
|--------------------------------|------------|-------|-------|-------|------|---------|---------|
| | | | | | | BIAS | |
| PLATE SUPPLY VOLTAGE | 300 | 350 | 400 | 450 | 450 | 450 | VOLTS |
| SCREEN SUPPLY VOLTAGE | 300 | 350 | 350 | 350 | 400 | 400 | VOLTS |
| GRID #1 VOLTAGE | -12.5 | -15.5 | -16.0 | -16.5 | -21 | | VOLTS |
| COMMON CATHODE RESISTOR | | | | | | 200 | OHMS |
| PEAK AF GRID TO GRID VOLTAGE | 25 | 31 | 32 | 33 | 42 | 28 | VOLTS |
| ZERO SIGNAL PLATE CURRENT | 86 | 92 | 85 | 77 | 66 | 82 | MA. |
| MAX. SIGNAL PLATE CURRENT | 116 | 130 | 143 | 153 | 144 | 94 | MA. |
| ZERO SIGNAL SCREEN CURRENT | 12.6 | 13.0 | 11.0 | 9.6 | 9.4 | 11.5 | MA. |
| MAX. SIGNAL SCREEN CURRENT | 26.0 | 28.6 | 27.0 | 27.0 | 30.0 | 22 | MA. |
| EFFECTIVE LOAD, PLATE TO PLATE | 6600 | 6600 | 6600 | 6600 | 6600 | 9000 | OHMS |
| TOTAL HARMONIC DISTORTION | 2.5 | 2.0 | 1.5 | 1.5 | 1.5 | 2.0 | PERCENT |
| MAXIMUM SIGNAL POWER OUTPUT | 23 | 30 | 37 | 43 | 45 | 28 | WATTS |

PUSH-PULL CLASS AB₁ - ULTRA-LINEAR^B

OPERATION

VALUES FOR TWO TUBES

| | FIXED BIAS | CATHODE BIAS | |
|--|------------|--------------|---------|
| PLATE SUPPLY VOLTAGE | 400 | 425 | VOLTS |
| GRID #1 VOLTAGE | -20.5 | | VOLTS |
| CATHODE RESISTOR (COMMON TO TWO TUBES) | | 185 | OHMS |
| PEAK AF GRID TO GRID VOLTAGE | 41 | 42 | VOLTS |
| ZERO SIGNAL PLATE CURRENT | 80 | 88 | MA. |
| MAXIMUM SIGNAL PLATE CURRENT | 138 | 104 | MA. |
| ZERO SIGNAL SCREEN CURRENT | 11.5 | 13.0 | MA. |
| MAXIMUM SIGNAL SCREEN CURRENT | 26.4 | 17.5 | MA. |
| EFFECTIVE LOAD, PLATE TO PLATE | 6600 | 6600 | OHMS |
| TOTAL HARMONIC DISTORTION | 1.0 | 2.0 | PERCENT |
| MAXIMUM SIGNAL POWER OUTPUT | 32 | 26 | WATTS |

A. SCREEN DISSIPATION MAY BE PERMITTED TO REACH 6 WATTS DURING THE PERIODS OF MAXIMUM INPUT OF SPEECH AND MUSIC SIGNALS. FOR EFFICIENT OPERATION OF THE SCREEN, THE TWO SCREEN CONNECTIONS, PINS 4 AND 8 SHOULD BE EXTERNALLY TIED TOGETHER.

B. SCREEN TAPPED AT 40% OF PRIMARY TURNS.