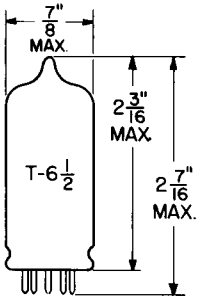
**TUNG-SOL**

# PENTODE-TRIODE-DIODE

MINIATURE TYPE



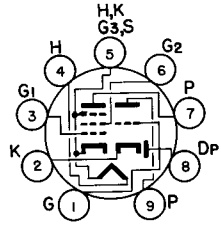

GLASS BULB

COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.32 AMP.

ANY MOUNTING POSITION




**BOTTOM VIEW**

MINIATURE BUTTON
9 PIN BASE

9KU

THE 12FR8 IS A PENTODE, TRIODE, DIODE, IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS INTENDED FOR SERVICE AS AN IF AMPLIFIER, AF AMPLIFIER AND SECOND DETECTOR IN RECEIVERS WHERE THE HEATER, PLATE AND SCREEN GRID POTENTIALS ARE OBTAINED DIRECTLY FROM AN AUTOMOTIVE BATTERY.

## DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

| | | |
|---|---|---|
| PENTODE GRID #1 TO PLATE (MAX.) | .015 | μμf |
| PENTODE INPUT | 8.5 | μμf |
| PENTODE OUTPUT | 5.5 | μμf |
| TRIODE GRID TO PLATE | 1.7 | μμf |
| TRIODE INPUT | 2.6 | μμf |
| TRIODE OUTPUT | 2.0 | μμf |
| COUPLING, PENTODE GRID #1 TO TRIODE GRID (MAX.) | .012 | μμf |
| COUPLING, PENTODE GRID #1 TO DIODE PLATE (MAX.) | .004 | μμf |
| COUPLING, TRIODE GRID TO DIODE PLATE (MAX.) | .17 | μμf |
| COUPLING, TRIODE PLATE TO DIODE PLATE | .8 | μμf |

## RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

| | PENTODE | TRIODE | DIODE | |
|---|---|---|---|---|
| HEATER VOLTAGE[A] | 12.6 | 12.6 | | VOLTS |
| MAXIMUM HEATER-CATHODE VOLTAGE | --- | ±16 | --- | VOLTS |
| MAXIMUM PLATE VOLTAGE | 16 | 16 | --- | VOLTS |
| MAXIMUM GRIDS #2 & #4 VOLTAGE | 16 | --- | --- | VOLTS |
| MAXIMUM GRIDS #2 & #4 SUPPLY VOLTAGE | 16 | --- | --- | VOLTS |
| MAXIMUM PENTODE GRID CIRCUIT RESISTANCE | 10 | --- | --- | MEGOHMS |
| MAXIMUM TRIODE GRID CIRCUIT RESISTANCE | --- | 10 | --- | MEGOHMS |
| MAXIMUM PLATE CURRENT | --- | --- | 5 | MA. |

A

THIS TUBE IS INTENDED TO BE USED IN AUTOMOTIVE SERVICE FROM A NOMINAL 12 VOLT BATTERY SOURCE. THE HEATER IS THEREFORE DESIGNED TO OPERATE OVER THE 10.0 TO 15.9 VOLTAGE RANGE ENCOUNTERED IN THIS SERVICE. THE MAXIMUM RATINGS OF THE TUBE PROVIDE FOR AN ADEQUATE SAFETY FACTOR SUCH THAT THE TUBE WILL WITHSTAND THE WIDE VARIATION IN SUPPLY VOLTAGES.

CONTINUED ON FOLLOWING PAGE

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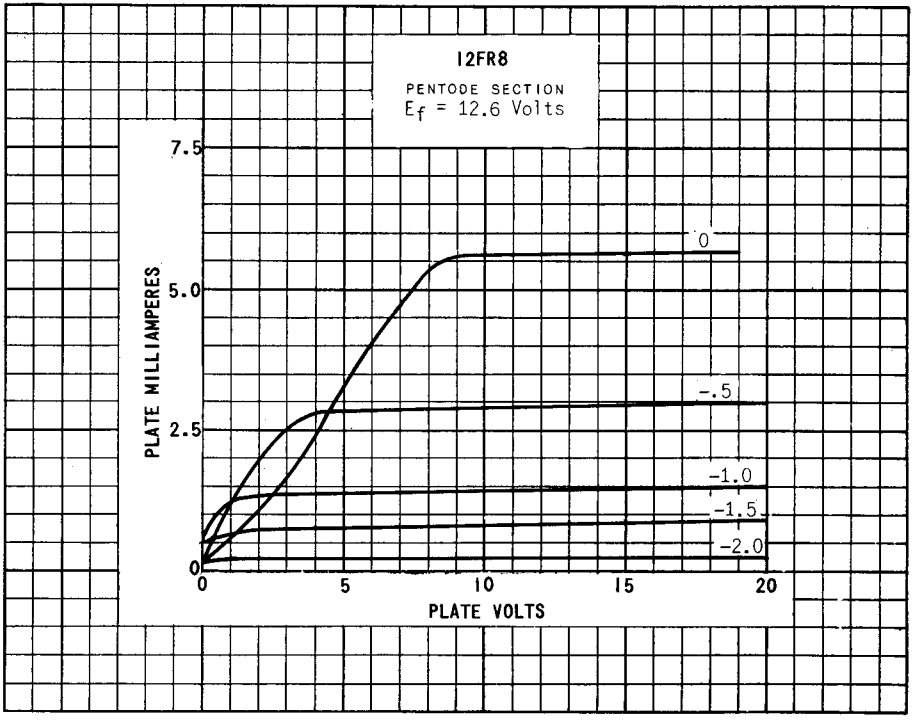
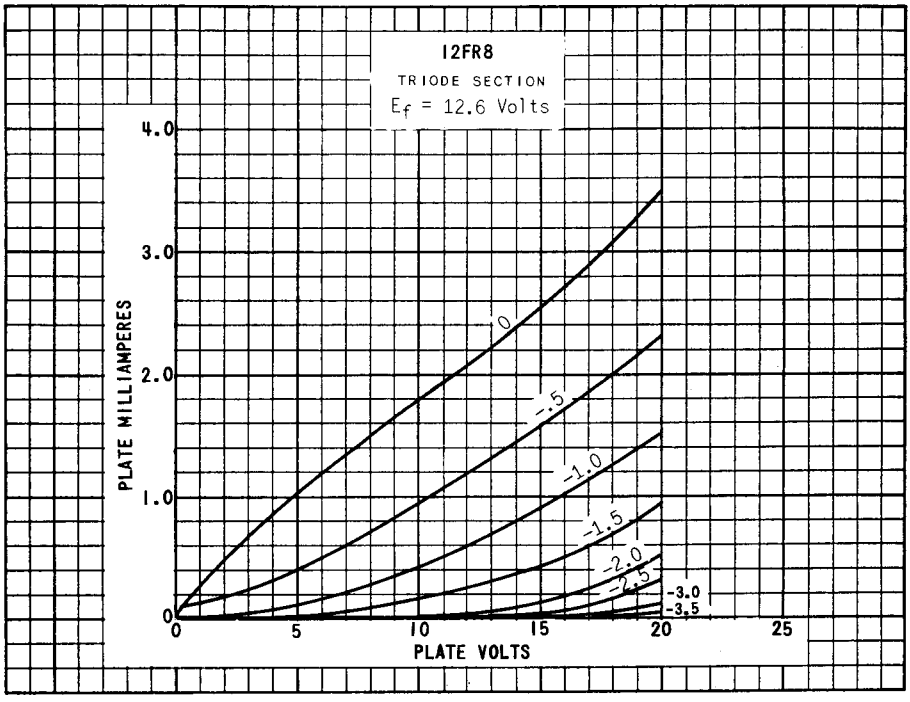
## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

| | PENTODE | TRIODE | DIODE[B] | |
|---|---|---|---|---|
| HEATER VOLTAGE | 12.6 | 12.6 | | VOLTS |
| HEATER CURRENT | 0.32 | 0.32 | | AMP. |
| PLATE VOLTAGE | 12.6 | 12.6 | 10 | VOLTS |
| GRID #2 VOLTAGE | 12.6 | --- | --- | VOLTS |
| GRID #1 VOLTAGE | -0.8[C] | -0.6[C] | --- | VOLTS |
| PLATE CURRENT | 1.9 | 1.0 | 2 | MA. |
| SCREEN CURRENT | .7 | --- | --- | MA. |
| TRANSCONDUCTANCE | 2700 | 1200 | --- | μMHOS |
| PLATE RESISTANCE (APPROX.) | .40 | --- | --- | MEGOHMS |
| AMPLIFICATION FACTOR | --- | 10 | --- | |
| GRID #1 VOLTAGE FOR TRANSCONDUCTANCE = 30 μMHOS | -2.8 | --- | --- | VOLTS |
| GRID VOLTAGE FOR PLATE CURRENT OF 10μA | --- | -3.5 | --- | VOLTS |

[B] AVERAGE CHARACTERISTICS.

[C] AVERAGE BIAS DEVELOPED ACROSS A 2.2 MEGOHM GRID RESISTOR.



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