

Medium-Mu Triode— Sharp-Cutoff Pentode

9-PIN MINIATURE TYPE

For High-Fidelity Audio-Amplifier Applications Critical as to Noise and Hum

GENERAL DATA

Electrical:

Heater Characteristics and Ratings:

| | | |
|--|-----------|-------|
| Voltage (AC or DC) | 6.3 ± 0.6 | volts |
| Current at heater volts = 6.3 | 0.450 | amp |
| Peak heater-cathode voltage (Each Unit): | | |

| | | | |
|---|------------------|------|-------|
| Heater negative with respect to cathode | 200 | max. | volts |
| Heater positive with respect to cathode | 200 ^a | max. | volts |

Direct Interelectrode Capacitances:^b

Triode Unit:

| | | |
|---------------------------------------|-----|----|
| Grid to plate | 2 | pf |
| Grid to cathode and heater | 2.3 | pf |
| Plate to cathode and heater | 0.3 | pf |

Pentode Unit:

| | | | |
|---|------|------|----|
| Grid No.1 to plate | 0.06 | max. | pf |
| Grid No.1 to cathode & internal shield & grid No.3, grid No.2, and heater | 5 | | pf |
| Plate to cathode & internal shield & grid No.3, grid No.2, and heater | 2 | | pf |

Equivalent-Hum and Noise Voltage (Referenced to Grid): ←

Triode Unit

| | | |
|-------------------------------|----|------------|
| Average Value (RMS) | 10 | microvolts |
| Maximum Value (RMS) | 50 | microvolts |

Measured in "true rms" units under the following conditions: heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate load resistor (megohms) = 0.1, cathode resistor (ohms) unbypassed = 1500, grid resistor (megohms) = 0.05, and amplifier covering frequency range between 25 and 10,000 cps.

Pentode Unit

| | | |
|-------------------------------|----|------------|
| Average Value (RMS) | 15 | microvolts |
| Maximum Value (RMS) | 35 | microvolts |

Measured in "true rms" units under the following conditions: heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate-load resistor (megohms) = 0.22, grid-No.2 supply volts = 250; grid No.2 voltage divider: resistor (megohm) from grid No.2 to B+ = 0.68, resistor (megohm) from grid-No.2 to ground = 0.33; bypass ca-

← Indicates a change.



capacitor (μf) from grid No. 2 to cathode = 0.1; cathode resistor (ohms unbypassed) = 680; grid No. 1 resistor (megohm) = 0.27; and amplifier covering frequency range between 25 and 10,000 cps.

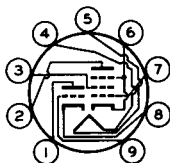
Characteristics, Class A₁ Amplifier:

| | Triode Unit | Pentode Unit | |
|--|----------------|-----------------|------------------|
| Plate-Supply Voltage. | 215 | 100 220 | volts |
| Grid-No. 2 Supply Voltage. | - | 50 130 | volts |
| Grid-No. 1 Voltage. | -8.5 | - | volts |
| Cathode Resistor. | - | 1000 62 | ohms |
| Amplification Factor. | 17 | - | |
| Plate Resistance (Approx.). | 0.0081 | 1 0.4 | megohm |
| Transconductance. | 2100 | 1500 7000 | μmhos |
| Plate Current. | 9 | 1.1 12.5 | ma |
| Grid-No. 2 Current. | - | 0.35 3.5 | ma |
| Grid-No. 1 Voltage (Approx.) for plate $\mu\text{a} = 10$ | -40 | -4 - | volts |

Mechanical:

Operating Position. Any
 Type of Cathodes. Coated Unipotential
 Maximum Overall Length. 2-3/16"
 Maximum Seated Length. 1-15/16"
 Length, Base Seat to Bulb Top (Excluding tip). 1-9/16" \pm 3/32"
 Diameter. 0.750" to 0.875"
 Dimensional Outline. See *General Section*
 Bulb. T6-1/2
 Base. Small-Button Noval 9-Pin (JEDEC No. E9-1)
 Basing Designation for BOTTOM VIEW. 9JT

- Pin 1 - Triode Plate
- Pin 2 - Pentode Plate
- Pin 3 - Pentode Grid No. 2
- Pin 4 - Heater
- Pin 5 - Heater



- Pin 6 - Pentode Cathode, Grid No. 3, Internal Shield
- Pin 7 - Pentode Grid No. 1
- Pin 8 - Triode Cathode
- Pin 9 - Triode Grid

AMPLIFIER — Class A₁

Maximum Ratings, Design-Maximum Values:

| | Triode Unit | Pentode Unit | |
|--|----------------|-----------------------------|-------|
| PLATE VOLTAGE. | 330 max. | 330 max. | volts |
| GRID-No. 2 (SCREEN-GRID) SUPPLY VOLTAGE. | - | 330 max. | volts |
| GRID-No. 2 VOLTAGE. | - | See <i>Grid-No. 2 Input</i> | |
| <i>Rating Chart at front of Receiving Tube Section</i> | | | |
| GRID-No. 1 (CONTROL-GRID) VOLTAGE: Positive-bias value. | 0 max. | 0 max. | volts |



| | <i>Triode Unit</i> | <i>Pentode Unit</i> | |
|--|------------------------|-------------------------|--|
| GRID-NO.2 INPUT: | | | |
| For grid-No.2 voltages up to 165 volts | - | 0.6 max. | watt |
| For grid-No.2 voltages between 165 and 330 volts | - | | |
| | | | See <i>Grid-No.2 Input Rating Chart</i> at front of Receiving Tube Section |
| PLATE DISSIPATION | 2.4 max. | 3 max. | watts |

Maximum Circuit Values:

| | <i>Triode Unit</i> | <i>Pentode Unit</i> | |
|---|------------------------|-------------------------|--------|
| Grid-No.1-Circuit Resistance: ^c | | | |
| For fixed-bias operation | 0.5 max. | 0.25 max. | megohm |
| For cathode-bias operation | 1 max. | 1 max. | megohm |

^a The dc component must not exceed 100 volts.

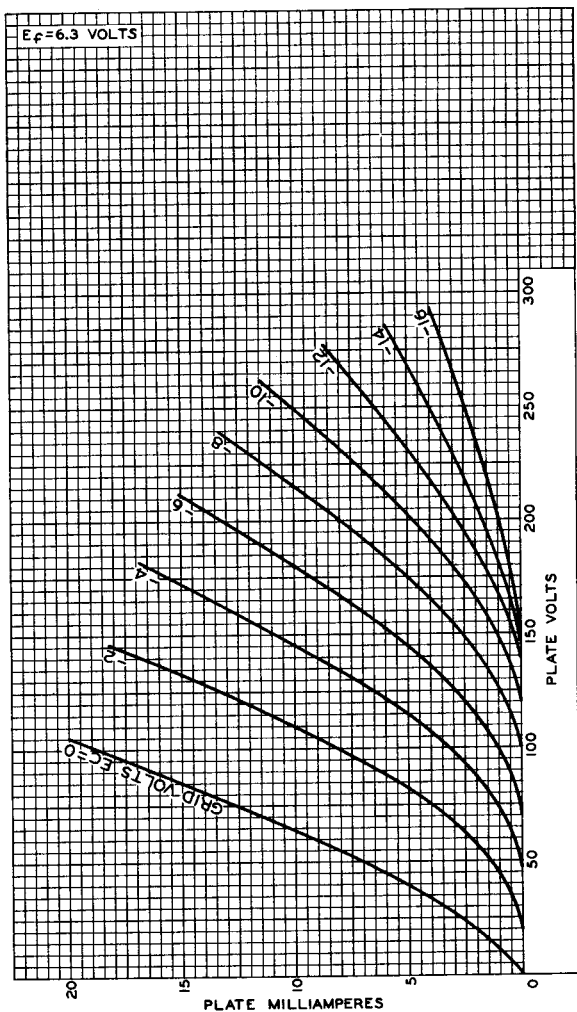
^b Without external shield.

^c If either unit is operated at maximum rated conditions, grid-No.1-circuit resistances for both units should not exceed the stated values.



AVERAGE PLATE CHARACTERISTICS

Triode Unit



92CM-9693

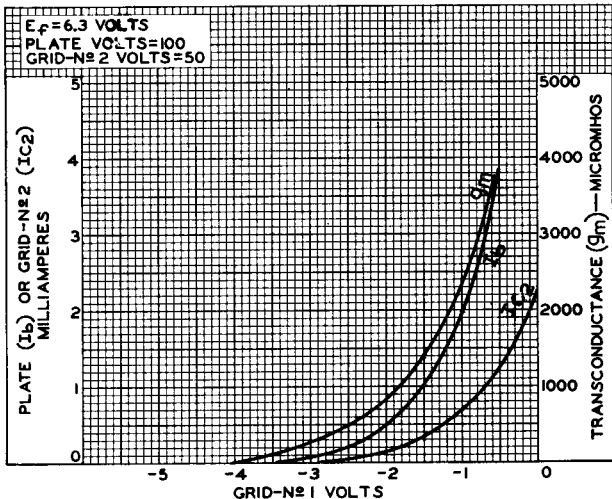




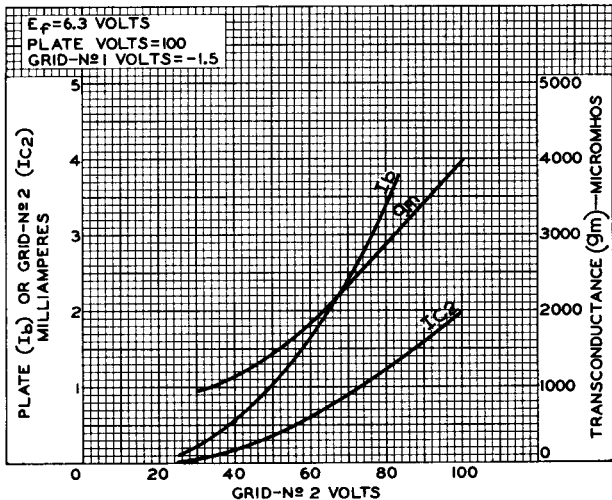
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AVERAGE CHARACTERISTICS PENTODE UNIT



92CS-9702



ELECTRON TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CS-9703



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MEDIUM-MU TRIODE— SHARP-CUTOFF PENTODE

9-PIN MINIATURE TYPE

For high-fidelity audio-amplifier applications critical as to noise and hum

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

Voltage 6.3 ± 10% ac or dc volts

Current 0.45 amp

Direct Interelectrode Capacitances:⁰

Triode Unit:

Grid to plate 2 μμf

Grid to cathode and heater 2.3 μμf

Plate to cathode and heater 0.3 μμf

Pentode Unit:

Grid No.1 to plate 0.06 max. μμf

Grid No.1 to cathode & internal shield & grid No.3, grid No.2, and heater 5 μμf

Plate to cathode & internal shield & grid No.3, grid No.2, and heater 2 μμf

Equivalent-Hum and Noise Voltage (Referenced to Grid):

Triode Unit

Median Value (RMS) 10 microvolts

Maximum Value (RMS). 150 microvolts

Measured in "true rms" units under the following conditions:
heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate load resistor (megohms) = 0.1, cathode resistor (ohms) = 1500, grid resistor (megohms) = 0.05, and amplifier covering frequency range between 25 and 10,000 cps.

Pentode Unit

Median Value (RMS) 35 microvolts

Maximum Value (RMS). 100 microvolts

Measured in "true rms" units under the following conditions:
heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate-load resistor (megohms) = 0.1, grid-No.2 supply volts = 250, grid-No.2 resistor (megohms) = 0.33, grid-No.2-bypass capacitor (μf) = 0.22, cathode resistor (ohms) = 1200, grid-No.1 resistor (megohms) = 0.05, and amplifier covering frequency range between 25 and 10,000 cps.

Characteristics, Class A₁ Amplifier:

| | Triode Unit | Pentode Unit | |
|--------------------------------|-------------|--------------|-------|
| Plate-Supply Voltage | 215 | 100 220 | volts |

⁰: See next page.



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MEDIUM-MU TRIODE— SHARP-CUTOFF PENTODE

| | Triode Unit | Pentode Unit | | |
|--|----------------|-----------------|------|------------|
| Grid-No.2 Supply voltage . . . | - | 50 | 130 | volts |
| Grid-No.1 Voltage | -8.5 | - | - | volts |
| Cathode Resistor | - | 1000 | 62 | ohms |
| Amplification Factor | 17 | - | - | |
| Plate Resistance (Approx.) . . | 0.0081 | 1 | 0.4 | megohm |
| Transconductance | 2100 | 1500 | 7000 | μ mhos |
| Plate Current | 9 | 1.1 | 12.5 | ma |
| Grid-No.2 Current | - | 0.35 | 3.5 | ma |
| Grid-No.1 Voltage (Approx.) for plate μ a = 10. | -40 | -4 | - | volts |

Mechanical:

| | |
|--|---|
| Operating Position | Any |
| Maximum Overall Length | 2-3/16" |
| Maximum Seated Length | 1-15/16" |
| Length, Base Seat to Bulb Top (Excluding tip). | 1-9/16" \pm 3/32" |
| Diameter | 0.750" to 0.875" |
| Dimensional Outline | See General Section |
| Bulb | T6-1/2 |
| Base | Small-Button Noval 9-Pin (JEDEC No. E9-1) |
| Basing Designation for BOTTOM VIEW | .9JT |

Pin 1—Triode
Plate
Pin 2—Pentode
Plate
Pin 3—Pentode
Grid No.2
Pin 4—Heater
Pin 5—Heater



Pin 6—Pentode
Cathode,
Grid No.3,
Internal
Shield
Pin 7—Pentode
Grid No.1
Pin 8—Triode
Cathode
Pin 9—Triode
Grid

AMPLIFIER — Class A,

Maximum Ratings, Design-Maximum Values:

| | Triode Unit | Pentode Unit | |
|---|----------------|---------------------|-------|
| PLATE VOLTAGE | 330 max. | 330 max. | volts |
| GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE | - | 330 max. | volts |
| GRID-No.2 VOLTAGE | - | See Grid-No.2 Input | |
| <i>Rating Chart at front of Receiving Tube Section</i> | | | |
| GRID-No.1 (CONTROL-GRID) VOLTAGE: Positive-bias value | 0 max. | 0 max. | volts |

0: See next page.