MEDIUM-MU TWIN TRIODE
9-PIN MINIATURE TYPE

GENERAL DATA

Electrical:
Heater, for Unipotential Cathodes:
Heater arrangement Series Parallel
Voltage . . . . . . . . . . . . 12.6 6.3 ac or dc volts
Current . . . . . . . . . . . . 0.15 0.3 . . . . . . . . amp
Direct Inter-electrode Capacitances (Approx.):

Without external shield:
Grid to plate . . . . . . . . . . . . 1.5 1.5 µf
Grid to cathode and heater . . . . . . 1.6 1.6 µf
Plate to cathode and heater . . . . . . 0.4 0.32 µf

With external shield, JETEC No. 315, connected to cathode:
Grid to plate . . . . . . . . . . . . 1.5 1.5 µf
Grid to cathode and heater . . . . . . 1.8 1.8 µf
Plate to cathode and heater . . . . . . 2 2 µf

Characteristics, Class A1 Amplifier (Each Unit):
Plate Voltage . . . . . . . . . . . . 100 250 volts
Grid Voltage . . . . . . . . . . . . 0 −8.5 volts
Amplification Factor . . . . . . . . . . . . 20 17
Plate Resistance (Approx.) . . . . . . 6500 7700 ohms
Transconductance . . . . . . . . . . . . 3100 2200 µmhos
Plate Current . . . . . . . . . . . . 11.8 10.5 ma
Grid Voltage (Approx.) for plate current of 10 µamp . . . . . . . . . . . . . . . . . . . . −24 volts

Mechanical:
Mounting 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" ± 3/32"
Maximum Diameter . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7/8"
Bulb . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . T-6-1/2
Base . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Small-Button Noval 9-Pin (JETEC No. E9-1)
Basing Designation for BOTTOM VIEW . . . . . . . . . . . . . . . . . . . . . . . . . 9A

Pin 1 - Plate of Unit No. 2
Pin 2 - Grid of Unit No. 2
Pin 3 - Cathode of Unit No. 2
Pin 4 & 9 - Heater of Unit No. 2
Pin 5 & 9 - Heater of Unit No. 1

Pin 6 - Plate of Unit No. 1
Pin 7 - Grid of Unit No. 1
Pin 8 - Cathode of Unit No. 1
Pin 9 - Heater Mid-Tap

Indicates a change.
### MEDIUM-MU TWIN TRIODE

#### AMPLIFIER - Class A

**Values are for Each Unit**

**Maximum Ratings, Design-Center Values:**

- **PLATE VOLTAGE**: 300 max. volts
- **CATHODE CURRENT**: 20 max. ma
- **PLATE DISSIPATION**: 2.75 max. watts
- **PEAK HEATER-CATHODE VOLTAGE:**
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200 max. volts

**Maximum Circuit Values:**

- **Grid-Circuit Resistance:**
  - For fixed-bias operation: 0.25 max. megohms
  - For cathode-bias operation: 1.0 max. megohms

**Typical Operation as Resistance-Coupled Amplifier:**

*See RESISTANCE-COUPLED AMPLIFIER CHART No.10 at front of this Section*

### HORIZONTAL DEFLECTION OSCILLATOR

**Values are for Each Unit**

**Maximum Ratings, Design-Center Values:**

- For operation in a 525-line, 30-frame system:
  - **DC PLATE VOLTAGE**: 300 max. volts
  - **PEAK NEGATIVE-PULSE GRID VOLTAGE**: 600 max. volts
  - **CATHODE CURRENT:**
    - Peak: 300 max. ma
    - Average: 20 max. ma
  - **PLATE DISSIPATION**: 2.75 max. watts
  - **PEAK HEATER-CATHODE VOLTAGE:**
    - Heater negative with respect to cathode: 200 max. volts
    - Heater positive with respect to cathode: 200 max. volts

**Maximum Circuit Values:**

- **Grid-Circuit Resistance:**
  - For fixed-bias, grid-resistor bias, or cathode-bias operation: 2.2 max. megohms

### VERTICAL DEFLECTION OSCILLATOR

**Values are for Each Unit**

**Maximum Ratings, Design-Center Values:**

- For operation in a 525-line, 30-frame system:
  - **DC PLATE VOLTAGE**: 300 max. volts

*This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.*

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**Notes:**

- **A**: See next page.
- **C**: Indicates a change.

**MAR. 1, 1955**

**TUBE DIVISION**

**RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY**
MEDIUM-MU TWIN TRIODE

**PEAK NEGATIVE-PULSE GRID VOLTAGE** 400 max. volts

**CATHODE CURRENT:**
  - Peak: 60 max. ma
  - Average: 20 max. ma

**PLATE DISSIPATION:** 2.75 max. watts

**PEAK HEATER-CATHODE VOLTAGE:**
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200 max. volts

**Maximum Circuit Values:**

- Grid-Circuit Resistance:
  - For fixed-bias, grid-resistor bias, or cathode-bias operation: 2.2 max. megohms

**VERTICAL DEFLECTION AMPLIFIER**

*Values are for Each Unit*

**Maximum Ratings, Design-Center Values Except as Noted:**

- For operation in a 525-line, 30-frame system:
  - DC PLATE VOLTAGE: 300 max. volts
  - PEAK POSITIVE-PULSE PLATE VOLTAGE: 1200 max. volts
  - PEAK NEGATIVE-PULSE GRID VOLTAGE: 250 max. volts

**CATHODE CURRENT:**
  - Peak: 60 max. ma
  - Average: 20 max. ma

**PLATE DISSIPATION:** 2.75 max. watts

**PEAK HEATER-CATHODE VOLTAGE:**
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200 max. volts

**Maximum Circuit Values:**

- Grid-Circuit Resistance:
  - For cathode-bias operation: 2.2 max. megohms

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- The dc component must not exceed 100 volts.
- As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
- This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 per cent of one vertical scanning cycle is 2.5 milli-seconds.
- Under no circumstances should this absolute value be exceeded.

The curves under Type 6C4 also apply to each unit of the 12AU7