



12BH7-A

# 12BH7-A

## MEDIUM-MU TWIN TRIODE

9-PIN MINIATURE TYPE

*Intended for use in equipment having  
series heater-string arrangement*

### GENERAL DATA

#### Electrical:

Heater, for Unipotential Cathodes:

| Heater arrangement               | Series | Parallel |                |
|----------------------------------|--------|----------|----------------|
| Voltage . . . . .                | 12.6   | 6.3      | ac or dc volts |
| Current . . . . .                | 0.3    | 0.6      | amp            |
| Warm-up time (Average) . . . . . | —      | 11       | sec            |

*For definition of heater warm-up time and method of determining it, see sheet HEATER WARM-UP TIME MEASUREMENT at front of this Section.*

Direct Interelectrode Capacitances (Approx.):<sup>o</sup>

|                                                       | Unit No.1 | Unit No.2 |               |
|-------------------------------------------------------|-----------|-----------|---------------|
| Grid to plate . . . . .                               | 2.6       | 2.6       | $\mu\text{f}$ |
| Grid to cathode<br>and heater. . . . .                | 3.2       | 3.2       | $\mu\text{f}$ |
| Plate to cathode<br>and heater. . . . .               | 0.5       | 0.4       | $\mu\text{f}$ |
| Plate of unit No.1 to<br>plate of unit No.2 . . . . . | 0.8       |           | $\mu\text{f}$ |

#### Mechanical:

|                                                         |                                          |
|---------------------------------------------------------|------------------------------------------|
| Mounting Position . . . . .                             | Any                                      |
| Maximum Overall Length. . . . .                         | 2-5/8"                                   |
| Maximum Seated Length. . . . .                          | 2-3/8"                                   |
| Length, Base Seat to Bulb Top (Excluding tip) . . . . . | 2" $\pm$ 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<br>Unit No.2       | Pin 6—Plate of<br>Unit No.1   |
| Pin 2—Grid of<br>Unit No.2        | Pin 7—Grid of<br>Unit No.1    |
| Pin 3—Cathode of<br>Unit No.2     | Pin 8—Cathode of<br>Unit No.1 |
| Pins 4 & 9—Heater of<br>Unit No.2 | Pin 9—Heater<br>Mid-Tap       |
| Pins 5 & 8—Heater of<br>Unit No.1 |                               |



### AMPLIFIER - Class A<sub>1</sub>

Values are for Each Unit

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

|                         |                |
|-------------------------|----------------|
| PLATE VOLTAGE . . . . . | 300 max. volts |
|-------------------------|----------------|

<sup>o</sup> Without external shield.

MAR. 1, 1955

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TENTATIVE DATA 1



12BH7-A

## MEDIUM-MU TWIN TRIODE

## GRID VOLTAGE:

|                               |         |       |
|-------------------------------|---------|-------|
| Negative bias value . . . . . | 50 max. | volts |
| Positive bias value . . . . . | 0 max.  | volts |

CATHODE CURRENT . . . . . 20 max. ma

PLATE DISSIPATION . . . . . 3.5 max. watts

## PEAK HEATER-CATHODE VOLTAGE:

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

## Characteristics:

|                                                                  |       |       |
|------------------------------------------------------------------|-------|-------|
| Plate Voltage . . . . .                                          | 250   | volts |
| Grid Voltage . . . . .                                           | -10.5 | volts |
| Amplification Factor . . . . .                                   | 16.5  |       |
| Plate Resistance (Approx.) . . . . .                             | 5300  | ohms  |
| Transconductance . . . . .                                       | 3100  | μmhos |
| Plate Current . . . . .                                          | 11.5  | ma    |
| Plate Current for grid<br>voltage of -14 volts . . . . .         | 4     | ma    |
| Grid Voltage (Approx.) for<br>plate current of 50 μamp . . . . . | -23   | volts |

## Maximum Circuit Values:

## Grid-Circuit Resistance:

|                                      |           |        |
|--------------------------------------|-----------|--------|
| For fixed-bias operation . . . . .   | 0.25 max. | megohm |
| For cathode-bias operation . . . . . | 1.0 max.  | megohm |

## HORIZONTAL DEFLECTION OSCILLATOR

*Values are for Each Unit*

## Maximum Ratings, Design-Center Values:

*For operation in a 525-line, 30-frame system<sup>□</sup>*

DC PLATE VOLTAGE . . . . . 450 max. volts

PEAK NEGATIVE-PULSE GRID VOLTAGE<sup>♣</sup> . . . . . 600 max. volts

## CATHODE CURRENT:

|                   |          |    |
|-------------------|----------|----|
| Peak . . . . .    | 300 max. | ma |
| Average . . . . . | 20 max.  | ma |

PLATE DISSIPATION . . . . . 3.5 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<br>cathode-bias operation . . . . . | 2.2 max. | megohms |
|----------------------------------------------------------------------------|----------|---------|

♣ 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.

▲, □: See next page.

MAR. 1, 1955

TUBE DIVISION

TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



12BH7-A

12BH7-A

## MEDIUM-MU TWIN TRIODE

## VERTICAL DEFLECTION OSCILLATOR

Values are for Each Unit

## Maximum Ratings, Design-Center Values:

For operation in a 525-line, 30-frame system<sup>□</sup>

|                                            |                       |       |
|--------------------------------------------|-----------------------|-------|
| DC PLATE VOLTAGE . . . . .                 | 450 max.              | volts |
| PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . . | 400 max.              | volts |
| CATHODE CURRENT:                           |                       |       |
| Peak . . . . .                             | 70 max.               | ma    |
| Average. . . . .                           | 20 max.               | ma    |
| PLATE DISSIPATION. . . . .                 | 3.5 max.              | watts |
| PEAK HEATER-CATHODE VOLTAGE:               |                       |       |
| Heater negative with respect to cathode.   | 200 max.              | volts |
| Heater positive with respect to cathode.   | 200 <sup>▲</sup> 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<sup>□</sup>

|                                                |                        |       |
|------------------------------------------------|------------------------|-------|
| DC PLATE VOLTAGE . . . . .                     | 450 max.               | volts |
| PEAK POSITIVE-PULSE PLATE VOLTAGE <sup>#</sup> |                        |       |
| (Absolute Maximum) . . . . .                   | 1500 <sup>■</sup> max. | volts |
| PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . .     | 250 max.               | volts |
| CATHODE CURRENT:                               |                        |       |
| Peak . . . . .                                 | 70 max.                | ma    |
| Average. . . . .                               | 20 max.                | ma    |
| PLATE DISSIPATION. . . . .                     | 3.5 max.               | watts |
| PEAK HEATER-CATHODE VOLTAGE:                   |                        |       |
| Heater negative with respect to cathode.       | 200 max.               | volts |
| Heater positive with respect to cathode.       | 200 <sup>▲</sup> max.  | volts |

## Maximum Circuit Values:

Grid-Circuit Resistance:

For cathode-bias operation . . . . . 2.2 max. megohms

<sup>▲</sup> The dc component must not exceed 100 volts.

<sup>□</sup> As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.

<sup>#</sup> 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 milliseconds.

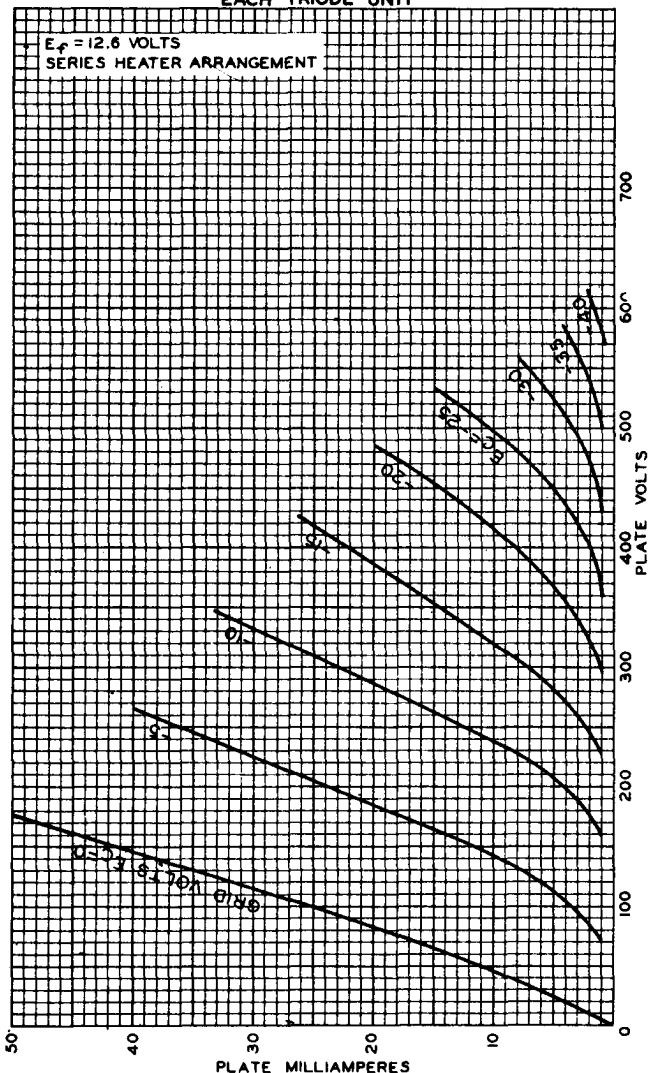
<sup>■</sup> Under no circumstances should this absolute value be exceeded.

12BH7-A



12BH7-A

# AVERAGE PLATE CHARACTERISTICS EACH TRIODE UNIT



MAR. 1, 1955

PLATE MILLIAMPERES

TUBE DIVISION

92CM-7742RI

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY