



12BH7-A

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## 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	μf
Grid to cathode and heater . . . . .	3.2	3.2	μf
Plate to cathode and heater . . . . .	0.5	0.4	μf
Plate of unit No.1 to plate of unit No.2 . . . . .	0.8		μf

#### 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" ± 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 6 - Plate of Unit No.1   |
| Pin 2 - Grid of Unit No.2        |   | Pin 7 - Grid of Unit No.1    |
| Pin 3 - Cathode of Unit No.2     |   | Pin 8 - Cathode of Unit No.1 |
| Pins 4 & 9 - Heater of Unit No.2 |   | Pin 9 - Heater Mid-Tap       |
| Pins 5 & 8 - Heater of 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.

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### 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 <sup>▲</sup> max.	volts

### Characteristics:

Plate Voltage . . . . .	250	volts
Grid Voltage . . . . .	-10.5	volts
Amplification Factor . . . . .	16.5	
Plate Resistance (Approx.) . . . . .	5300	ohms
Transconductance . . . . .	3100	$\mu$ mhos
Plate Current . . . . .	11.5	ma
Plate Current for grid voltage of -14 volts . . . . .	4	ma
Grid Voltage (Approx.) for plate current of 50 $\mu$ amp . . . . .	-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 <sup>▲</sup> max.	volts

### Maximum Circuit Values:

#### Grid-Circuit Resistance:

For fixed-bias, grid-resistor bias, or cathode-bias operation . . . . .	2.2 max.	megohms
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<sup>♣</sup> 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.

<sup>▲</sup>, <sup>□</sup>: See next page.

MAR. 1, 1955

TUBE DIVISION

TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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# 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.

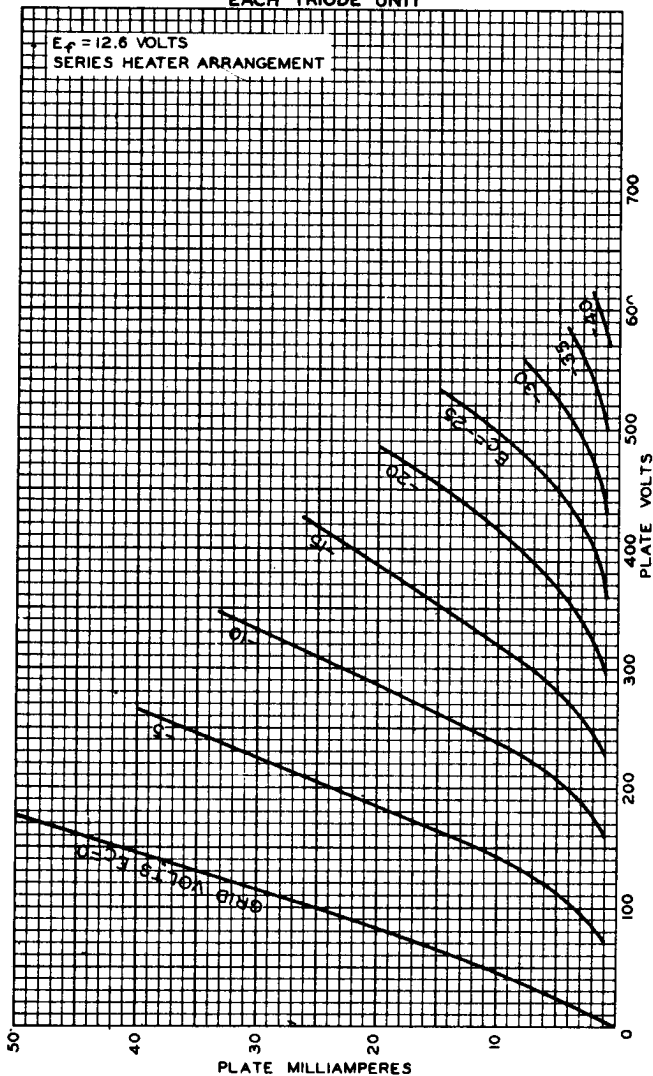
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AVERAGE PLATE CHARACTERISTICS  
EACH TRIODE UNIT

$E_f = 12.6$  VOLTS  
SERIES HEATER ARRANGEMENT



MAR. 1, 1955

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