



5963

5963

### MEDIUM-MU TWIN TRIODE

9-PIN MINIATURE TYPE

For "on-off" control applications involving long periods of operation under cutoff conditions

#### GENERAL DATA

##### Electrical:

Heater, Pure Tungsten, for Unipotential Cathodes:

Heater arrangement	Series	Parallel	
Voltage . . . . .	12.6 ± 10%	6.3 ± 10%	ac or dc volts
Current . . . . .	0.15	0.3	amp

Microphonism. . . . . Not Tested

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

	Unit No. 1	Unit No. 2	
Grid to plate . . . . .	1.5	1.5	μμf
Grid to cathode and heater. . . . .	1.9	1.9	μμf
Plate to cathode and heater . . . . .	0.5	0.35	μμf
Grid of unit No.1 to grid of unit No.2 . . . . .	0.1 max.		μμf

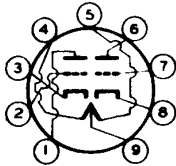
##### Characteristics, Class A<sub>1</sub> Amplifier (Each Unit):

Plate Voltage . . . . .	67.5	volts
Grid Voltage. . . . .	0	volts
Amplification Factor. . . . .	21	
Plate Resistance (Approx.). . . . .	6600	ohms
Transconductance. . . . .	3200	μmhos
Plate Current . . . . .	8.5	ma

##### Mechanical:

Mounting Position . . . . .	Any
Maximum Overall Length. . . . .	2-3/16"
Maximum Seated Length . . . . .	1-5/16"
Length, Base Seat to Bulb Top (Excluding tip) . . . . .	1-9/16" ± 3/32"
Maximum Diameter. . . . .	7/8"
Dimensional Outline . . . . .	See General Section
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
- Pins 4 & 9 - Heater of Unit No.2
- Pins 5 & 8 - 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

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

← Indicates a change.

SEPT. 1, 1955

TUBE DIVISION

DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

5963



5963

**MEDIUM-MU TWIN TRIODE**

**FREQUENCY DIVIDER IN COMPUTER SERVICE  
and "ON-OFF" CONTROL SERVICE**

*Values are for Each Unit*

**Maximum Ratings, Absolute Values:**

PLATE VOLTAGE. . . . .	250 max.	volts
GRID VOLTAGE:		
Negative bias value. . . . .	100 max.	volts
Positive bias value. . . . .	0 max.	volts
Peak negative value. . . . .	200 max.	volts
PLATE DISSIPATION. . . . .	2.5 max.	watts
GRID INPUT . . . . .	0.5 max.	watt
CATHODE CURRENT:		
Peak . . . . .	100 max.	ma
DC . . . . .	20 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts
BULB TEMPERATURE (At hottest point on bulb surface) . . . . .	120 max.	°C

**Typical Operation as Frequency Halfer:**

	<i>Cutoff Condition</i>	<i>Zero-Bias Condition</i>	
Plate-Supply Voltage . . . . .	150	150	volts
Grid Voltage . . . . .	-15	0	volts
Plate-Circuit Resistance . . . . .	20000	20000	ohms
Grid-Circuit Resistance. . . . .	47000	47000	ohms
Plate Current. . . . .	0	5.1	ma

**Maximum Circuit Values:**

Grid-Circuit Resistance:	
For fixed-bias operation . . . . .	0.5 max. megohm
For cathode-bias operation . . . . .	1.0 max. megohm

**CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN**

	<i>Note</i>	<i>Min.</i>	<i>Max.</i>	
<i>Cutoff Condition</i>				
Plate Current. . . . .	1	-	50	μamp
Difference in Plate Current Between Units. . . . .	-	-	50	μamp
<i>Zero-Bias Condition</i>				
Plate Current. . . . .	2	4.6	5.4	ma
Difference in Plate Current Between Units. . . . .	-	-	0.8	ma

Note 1: For conditions with 12.6 volts on heater, plate-supply volts = 150, grid-supply volts = -15, plate-circuit resistance (ohms) = 20000, and grid-circuit resistance (ohms) = 47000.

Note 2: Conditions are same as for Note 1 except that grid-supply volts = 0.

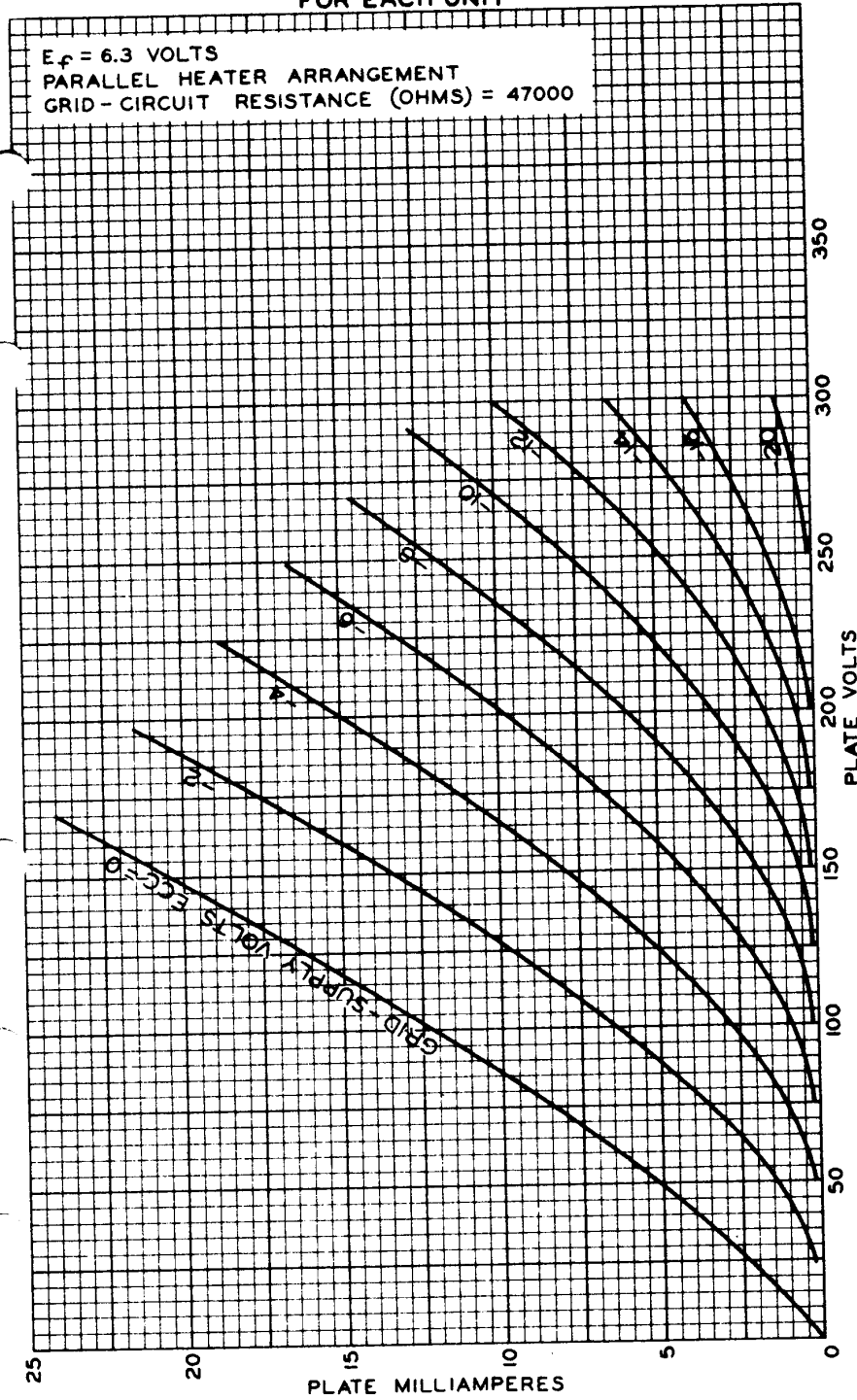
→ Indicates a change.



5963

5963

### AVERAGE OPERATION CHARACTERISTICS FOR EACH UNIT



MAY 19, 1950

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7493