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MEDIUM-MU TWIN TRIODE

9-PIN MINIATURE TYPE

For use in mobile communications equipment operating from 6-cell storage-battery systems. Useful as an rf amplifier in direct-coupled cathode-drive circuits at frequencies up to 200 Mc.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

Voltage range. 12 to 15 ac or dc volts

Current (Approx.) at

13.5 volts 0.18 amp

Direct Interelectrode Capacitances:^o

Unit No.1 Unit No.2

Grid to plate. 1.2 1.2 μf Grid to cathode, internal shield,
and heater 2.6 - μf Plate to cathode, internal
shield, and heater 1.2 - μf Plate to cathode 0.12 0.12 μf Cathode to heater. 2.6 2.7 μf Cathode to grid, internal shield,
and heater - 5 μf Plate to grid, internal shield,
and heater - 2.2 μf Plate of unit No.1 to plate of
unit No.2. 0.01 max. μf Plate of unit No.2 to plate and
grid of unit No.1. 0.024 max. μf Characteristics, Class A₁ Amplifier (Each Unit):

Heater Voltage 13.5 volts

Plate-Supply Voltage 150 volts

Cathode Resistor 220 ohms

Amplification Factor 36

Plate Resistance (Approx.) 5300 ohms

Transconductance 6800 μmhos

Plate Current. 10 ma

Grid Voltage (Approx.) for plate $\mu\text{a} = 10$ -12 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

^o With external shield JETEC No.315 connected to pin 9.

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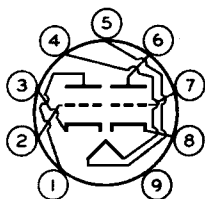


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Base. Small-Button Noval 9-Pin (JETEC No.E9-1)
 Basing Designation for BOTTOM VIEW. 9AJ

Pin 1—Plate of
 Unit No.2
 Pin 2—Grid of
 Unit No.2
 Pin 3—Cathode of
 Unit No.2
 Pin 4—Heater
 Pin 5—Heater



Pin 6—Plate of
 Unit No.1
 Pin 7—Grid of
 Unit No.1
 Pin 8—Cathode of
 Unit No.1
 Pin 9—Internal
 Shield

AMPLIFIER — Class A₁

Values are for Each Unit

Maximum Ratings, Absolute Values:

PLATE VOLTAGE	275 max.	volts
PLATE DISSIPATION	2.2 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . .	150 max.	volts
Heater positive with respect to cathode . . .	150 max.	volts

Maximum Circuit Values:

Grid-Circuit Resistance	0.5 max.	megohm
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CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

Values are for Each Unit Unless Otherwise Specified

	Note	Min.	Max.	
Heater Current.	1	0.165	0.195	amp
Direct Interelectrode Capacitances:				
Grid to cathode, internal shield, and heater (Unit No.1)	2	2.05	3.15	μmf
Cathode to grid, internal shield, and heater (Unit No.2)	2	4.1	5.9	μmf
Plate to grid, internal shield, and heater (Unit No.2)	2	1.9	2.5	μmf
Amplification Factor.	1,3	26	46	
Plate Current	1,4	7	13	ma
Transconductance.	1,3	5800	7800	μmhos
Reverse Grid Current (Total—both units)	1,5	—	—2	μa
Heater-Cathode Leakage Current:				
Heater negative with respect to cathode.	1,6	—	20	μa
Heater positive with respect to cathode.	1,6	—	20	μa



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	Note	Min.	Max.	
Leakage Resistance:				
Between grid and all other electrodes of both units tied together.	1,7	50	-	megohms
Between plate and all other electrodes of both units tied together.	1,8	50	-	megohms
Note 1: With ac or dc heater volts = 13.5. Note 2: With external shield JETEC No.315 connected to pin 9. Note 3: With dc plate-supply volts = 150, cathode resistor (ohms) = 220, and cathode-bypass capacitor (μf) = 1000. Each unit tested separately. Electrodes of unit not under test are connected to ground. Note 4: With dc plate-supply volts = 150, and cathode resistor (ohms) = 220. Each unit tested separately. Electrodes of unit not under test are connected to ground. Note 5: With dc plate-supply volts = 250, cathode resistor (ohms) = 250, and grid resistor (megohms) = 0.5. Units are tested in parallel with cathode and grid resistors common to both units. Note 6: With 150 volts dc between heater and cathode. Note 7: With grid 100 volts negative with respect to all other electrodes of both units tied together. Note 8: With plate 300 volts negative with respect to all other electrodes of both units tied together.				
SPECIAL RATINGS & PERFORMANCE DATA				
Heater-Cycling Life Performance:				
This test is performed on a sample lot of tubes from each production run. A minimum of 2000 cycles of intermittent operation is applied under the following conditions: heater volts = 17 cycled one minute on and four minutes off, heater 180 volts negative with respect to cathode, and all other elements connected to ground. At the end of this test, tubes are checked for heater-cathode shorts and open circuits.				
Low-Frequency Vibration Performance:				
This test is performed on a sample lot of tubes from each production run under the following conditions: units connected in parallel, heater volts = 13.5, plate-supply volts = 250, grid volts = -8, plate load resistor (ohms) = 2000, and vibrational acceleration of 2.5 g at 25 cps. In this test, the rms output voltage must not exceed 150 millivolts.				
500-Hour Intermittent Life Performance:				
This test is performed on a sample lot of tubes from each production run to insure high quality of the individual tube and to guard against epidemic failures. Life testing is conducted under the following conditions: heater volts = 15 and maximum-rated plate dissipation.				

Leakage Resistance:

Between grid and all other electrodes of both units tied together.

1,7

50

-

megohms

Between plate and all other electrodes of both units tied together.

1,8

50

-

megohms

Note 1: With ac or dc heater volts = 13.5.

Note 2: With external shield JETEC No.315 connected to pin 9.

Note 3: With dc plate-supply volts = 150, cathode resistor (ohms) = 220, and cathode-bypass capacitor (μ f) = 1000. Each unit tested separately. Electrodes of unit not under test are connected to ground.

Note 4: With dc plate-supply volts = 150, and cathode resistor (ohms) = 220. Each unit tested separately. Electrodes of unit not under test are connected to ground.

Note 5: With dc plate-supply volts = 250, cathode resistor (ohms) = 250, and grid resistor (megohms) = 0.5. Units are tested in parallel with cathode and grid resistors common to both units.

Note 6: With 150 volts dc between heater and cathode.

Note 7: With grid 100 volts negative with respect to all other electrodes of both units tied together.

Note 8: With plate 300 volts negative with respect to all other electrodes of both units tied together.

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500-Hour Intermittent Life Performance:

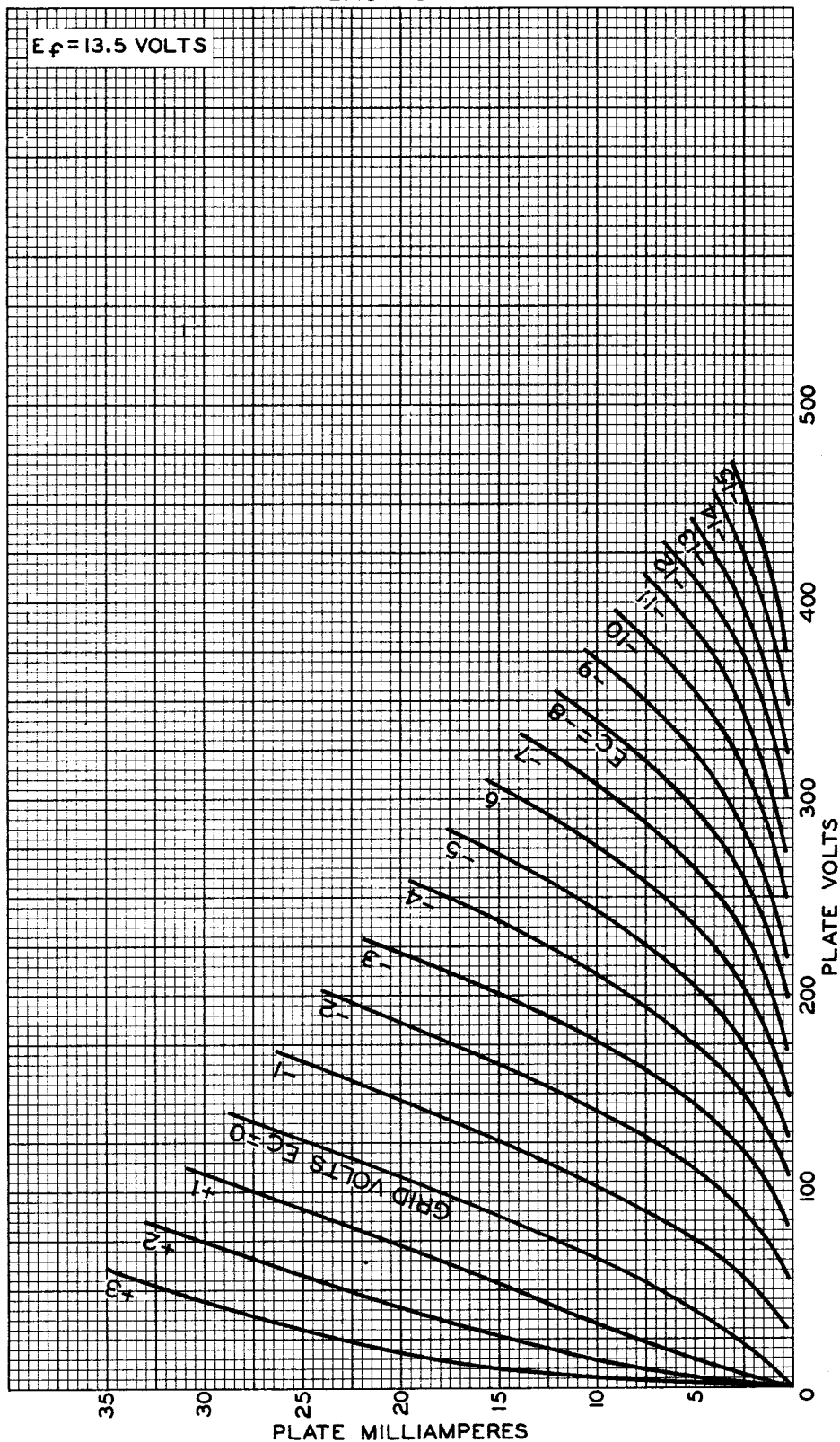
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AVERAGE PLATE CHARACTERISTICS EACH UNIT



ELECTRON TUBE DIVISION

92CM-9816

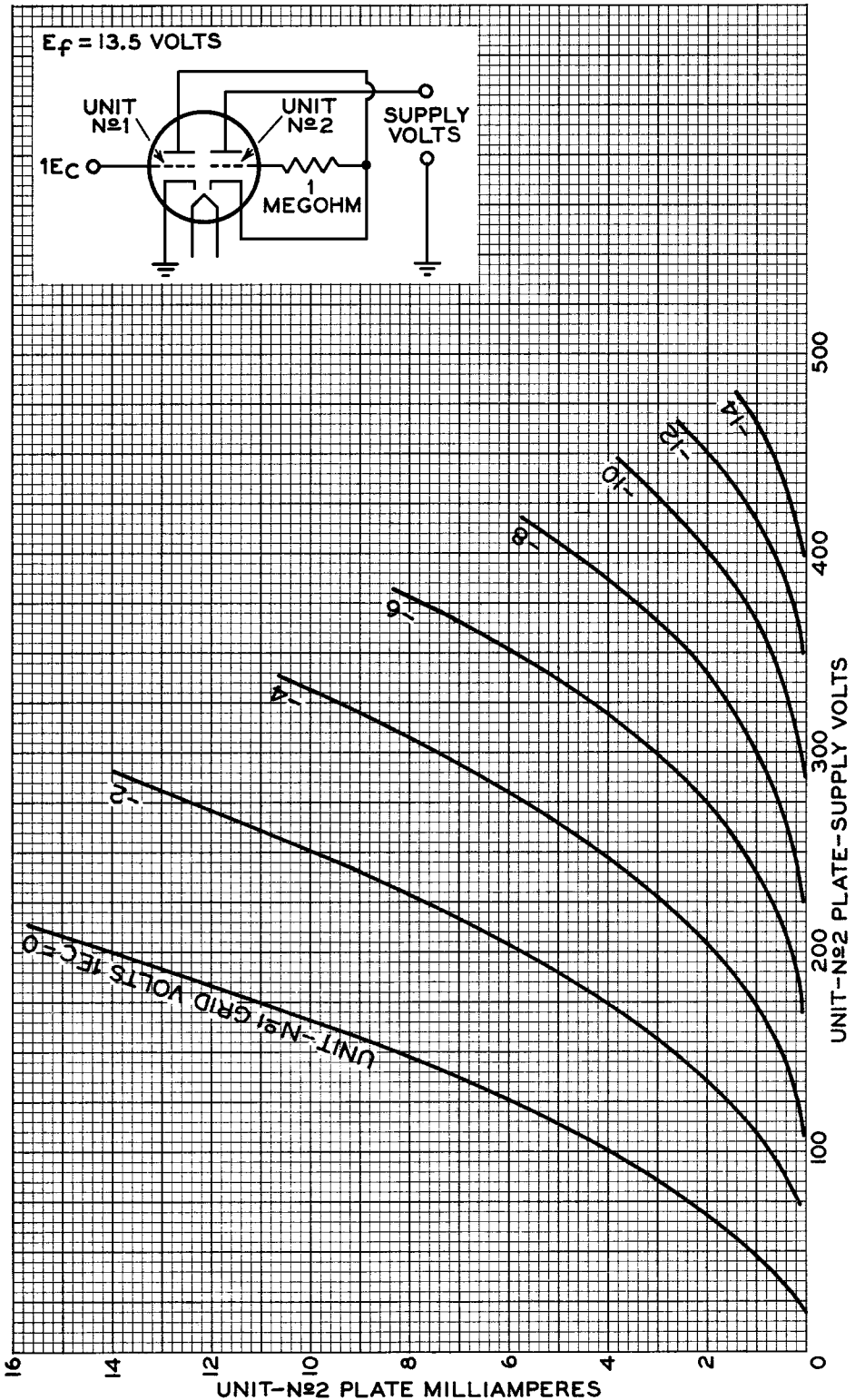
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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AVERAGE PLATE CHARACTERISTICS DIRECT-COUPLED DRIVEN RF AMPLIFIER IN CATHODE-DRIVE CIRCUIT



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AVERAGE CHARACTERISTICS

$E_f = 13.5$ VOLTS
 CURVE A: SUPPLY VOLTS=300
 CURVE B: PLATE VOLTS=150
 --- PLATE MILLIAMPERES
 — TRANSCONDUCTANCE
 CIRCUIT FOR CURVE A:

