



6CM7

6CM7

**MEDIUM-MU DUAL TRIODE****With Dissimilar Units**

9-PIN MINIATURE TYPE

*Intended for use in equipment having series heater-string arrangement***GENERAL DATA****Electrical:**

Heater, for Unipotential Cathodes:

Voltage. . . . . 6.3 . . . . . ac or dc volts

Current. . . . . 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 Oscillator	Unit No. 2 Amplifier	
Grid to plate. . . . .	3.8	3	$\mu\text{f}$
Grid to cathode and heater	2	3.5	$\mu\text{f}$
Plate to cathode and heater	0.5	0.4	$\mu\text{f}$

**Characteristics, Class A<sub>1</sub> Amplifier:**

	Unit No. 1 Oscillator	Unit No. 2 Amplifier	
Plate Voltage. . . . .	200	250	volts
Grid Voltage . . . . .	-7	-8	volts
Amplification Factor . . . . .	20	18	
Plate Resistance (Approx.) . . . . .	11000	4100	ohms
Transconductance . . . . .	2000	4400	$\mu\text{mhos}$
Plate Current. . . . .	5	20	ma
Plate Current for grid voltage of -10 volts . . . . .	1	-	ma
Grid Voltage (Approx.) for plate current of 10 microamperes. . . . .	-14	-	volts

**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"
Dimensional Outline. . . . .	See General Section
Bulb . . . . .	T-6-1/2

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

JULY 1, 1955

TUBE DIVISION

TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6CM7

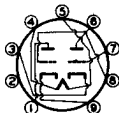


6CM7

## MEDIUM-MU DUAL TRIODE

### With Dissimilar Units

Base . . . . .	Small-Button Noval 9-Pin (JETEC No. E9-1)
Basing Designation for BOTTOM VIEW . . . . .	9ES
Pin 1-Plate of Unit No. 2	Pin 6-Plate of Unit No. 1
Pin 2-No Connection	Pin 7-Grid of Unit No. 1
Pin 3-Cathode of Unit No. 1	Pin 8-Grid of Unit No. 2
Pin 4-Heater	Pin 9-Cathode of Unit No. 2
Pin 5-Heater	



### VERTICAL DEFLECTION OSCILLATOR

Values are for Unit No. 1

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

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

DC PLATE VOLTAGE . . . . .	500 max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . .	200 max.	volts
CATHODE CURRENT:		
Peak . . . . .	70 max.	ma
Average . . . . .	15 max.	ma
PLATE DISSIPATION . . . . .	1.25 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 Unit No. 2

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

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

DC PLATE VOLTAGE . . . . .	500 max.	volts
PEAK POSITIVE-PULSE PLATE VOLTAGE <sup>#</sup>		
(Absolute maximum) . . . . .	2200 <sup>■</sup> max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . .	200 max.	volts
CATHODE CURRENT:		
Peak . . . . .	70 max.	ma
Average . . . . .	20 max.	ma
PLATE DISSIPATION . . . . .	5.5 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

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

<sup>□</sup>, <sup>#</sup>, <sup>■</sup>: See next page.

JULY 1, 1955

TUBE DIVISION

TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



6CM7

6CM7

## MEDIUM-MU DUAL TRIODE With Dissimilar Units

### Maximum Circuit Values:

#### Grid-Circuit Resistance:

For fixed-bias operation . . . . . 1.0 max. megohm  
For cathode-bias operation . . . . . 2.5 max. megohms

□ 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 milliseconds.

■ Under no circumstances should this absolute value be exceeded.

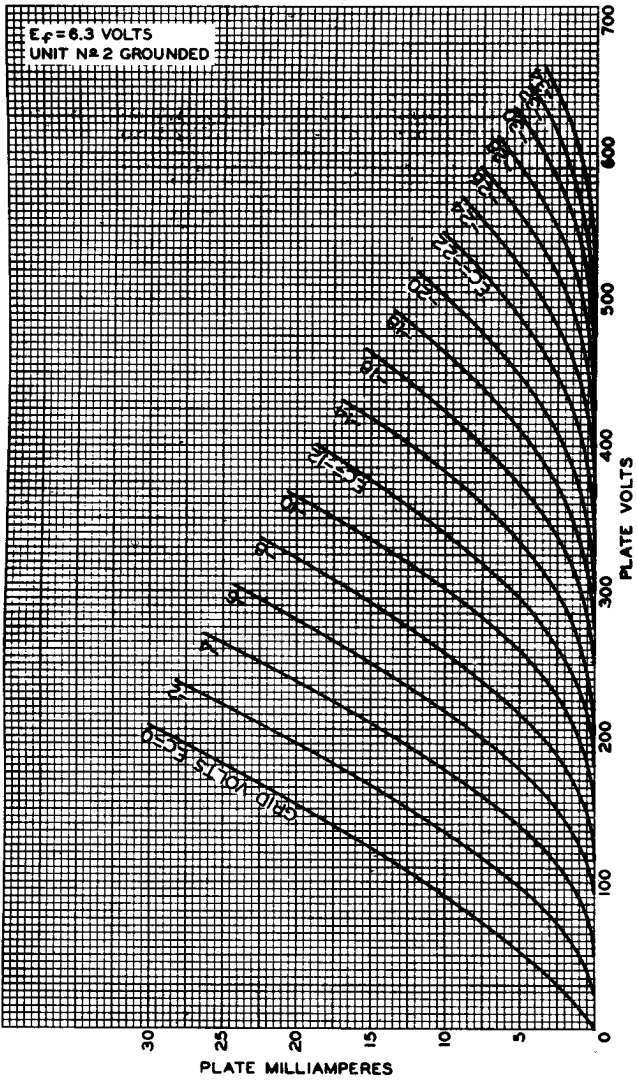
6CM7



6CM7

# AVERAGE PLATE CHARACTERISTICS

UNIT N<sup>o</sup> 1



MAY 17, 1955

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

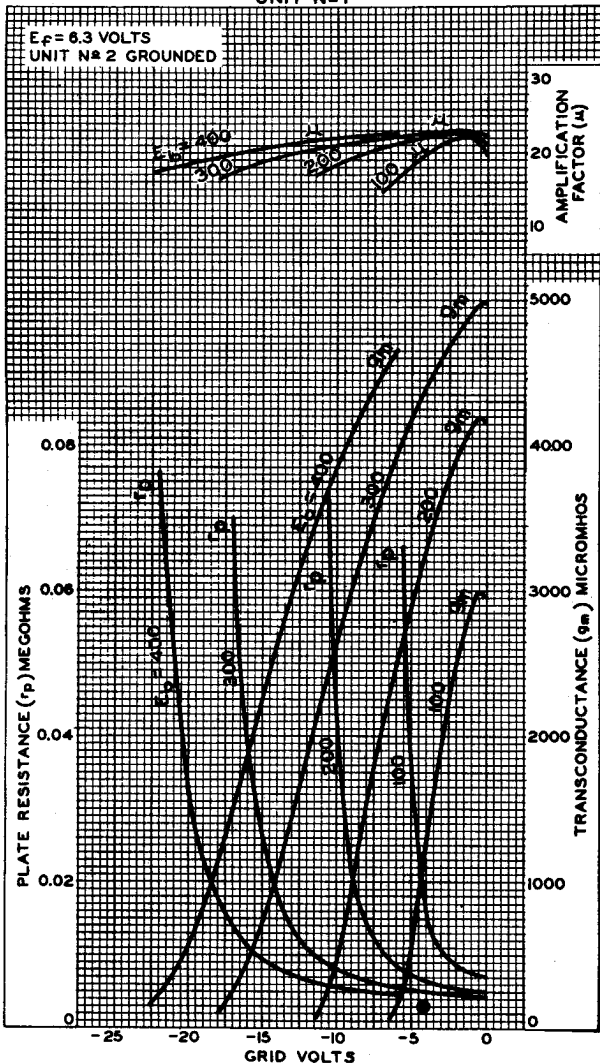
92CM-8617



6CM7

AVERAGE CHARACTERISTICS  
UNIT № 1

6CM7



MAY 16, 1955

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-8616

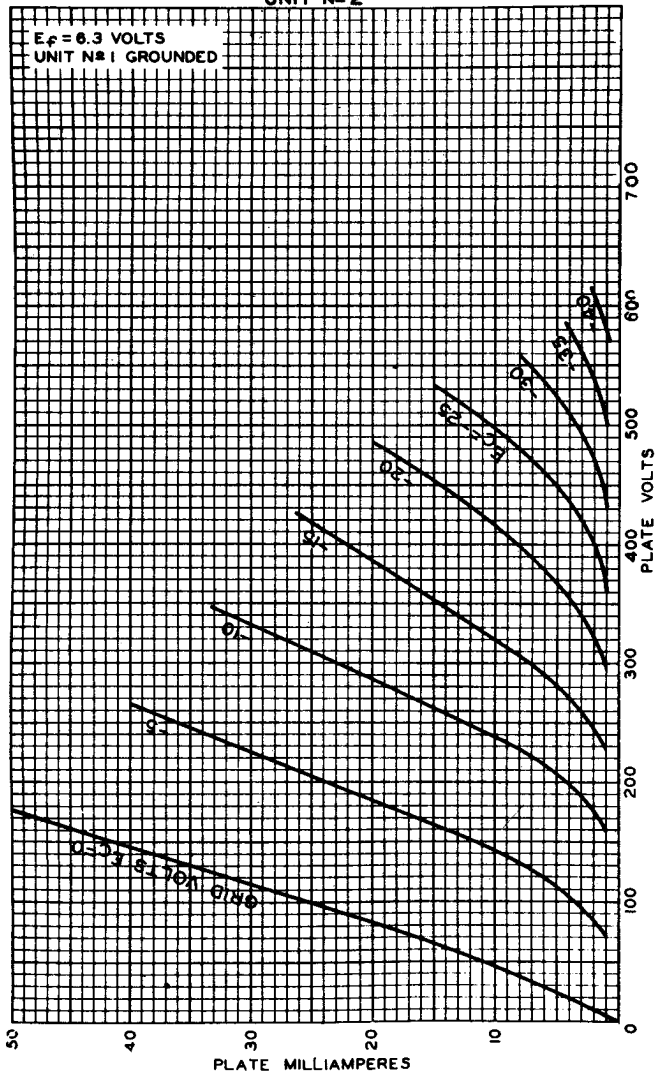
6CM7



6CM7

### AVERAGE PLATE CHARACTERISTICS UNIT N<sup>o</sup> 2

$E_f = 6.3$  VOLTS  
UNIT N<sup>o</sup> 1 GROUNDED



MAY 16, 1955

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

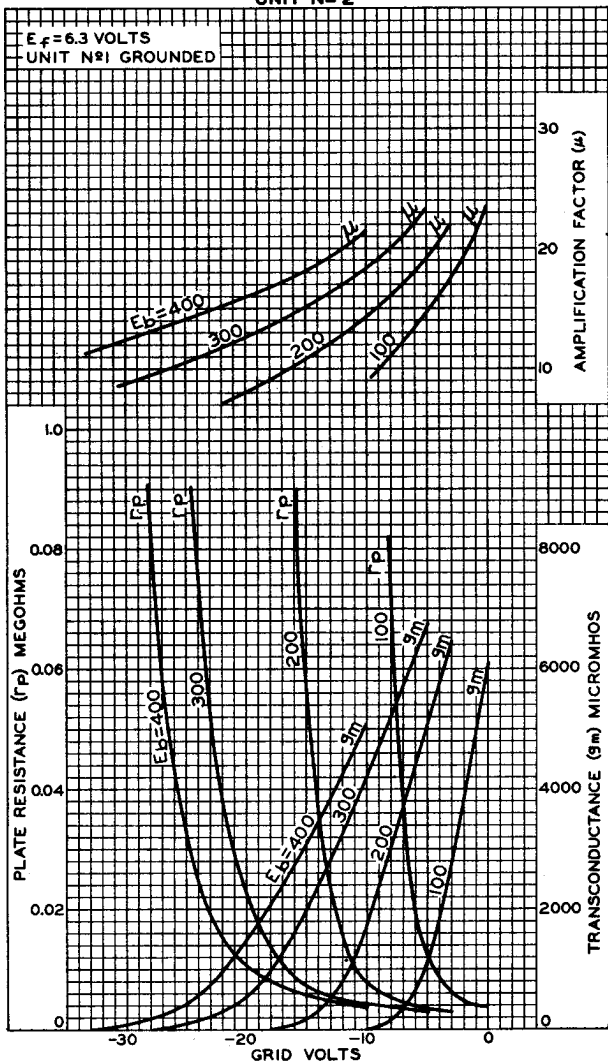
92CM-8615



6CM7

6CM7

### AVERAGE CHARACTERISTICS UNIT #2



# Medium-Mu Dual Triode

## With Dissimilar Units

### 9-PIN MINIATURE TYPE

With Heater Having Controlled Warm-Up Time

#### GENERAL DATA

#### Electrical:

Heater, for Unipotential Cathodes:

Voltage (AC or DC) . . . . .	6.3	volts
Current . . . . .	0.6 ± 6%	amp ←
Warm-up time (Average) . . . . .	11	sec

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

	Unit No. 1	Unit No. 2	
Grid to plate . . . . .	3.8	3	μmf
Grid to cathode and heater. . .	2	3.5	μmf
Plate to cathode and heater . .	0.5	0.4	μmf

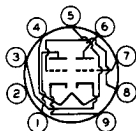
#### Characteristics, Class A<sub>1</sub> Amplifier:

	Unit No. 1	Unit No. 2	
Plate Voltage . . . . .	200	250	volts
Grid Voltage . . . . .	-7	-8	volts
Amplification Factor . . . . .	21	18	
Plate Resistance (Approx.) . . .	10500	4100	ohms
Transconductance . . . . .	2000	4400	μmhos
Plate Current . . . . .	5	20	ma
Plate Current for grid volts = -10.	-1	-	ma
Grid Voltage (Approx.) for plate μa = 10 . . . . .	-14	-	volts

#### Mechanical:

Operating 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"
Diameter . . . . .	0.750" to 0.875"
Dimensional Outline . . . . .	See <i>General Section</i>
Bulb . . . . .	T6-1/2
Base . . . . .	Small-Button Noval 9-Pin (JEDEC No. E9-1)
Basing Designation for BOTTOM VIEW . . . . .	9ES

Pin 1 - Plate of  
Unit No. 2  
Pin 2 - No Con-  
nection  
Pin 3 - Cathode of  
Unit No. 1  
Pin 4 - Heater  
Pin 5 - Heater



Pin 6 - Plate of  
Unit No. 1  
Pin 7 - Grid of  
Unit No. 1  
Pin 8 - Grid of  
Unit No. 2  
Pin 9 - Cathode of  
Unit No. 2

← Indicates a change.





## VERTICAL-DEFLECTION OSCILLATOR

Values are for Unit No. 1

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

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

DC PLATE VOLTAGE. . . . .	550 max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE. . . .	220 max.	volts
CATHODE CURRENT:		
Peak. . . . .	77 max.	ma
Average . . . . .	17 max.	ma
PLATE DISSIPATION . . . . .	1.45 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode. . . . .	200 max.	volts
Heater positive with respect to cathode. . . . .	200 <sup>c</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 Unit No. 2

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

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

DC PLATE VOLTAGE. . . . .	550 max.	volts
PEAK POSITIVE-PULSE PLATE VOLTAGE <sup>d</sup> . . . .	2200 max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE. . . .	220 max.	volts
CATHODE CURRENT:		
Peak. . . . .	77 max.	ma
Average . . . . .	22 max.	ma
PLATE DISSIPATION . . . . .	6 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode. . . . .	200 max.	volts
Heater positive with respect to cathode. . . . .	200 <sup>c</sup> max.	volts

### Maximum Circuit Values:

#### Grid-Circuit Resistance:

For fixed-bias operation. . . . .	1 max.	megohm
For cathode-bias operation. . . . .	2.5 max.	megohms

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

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

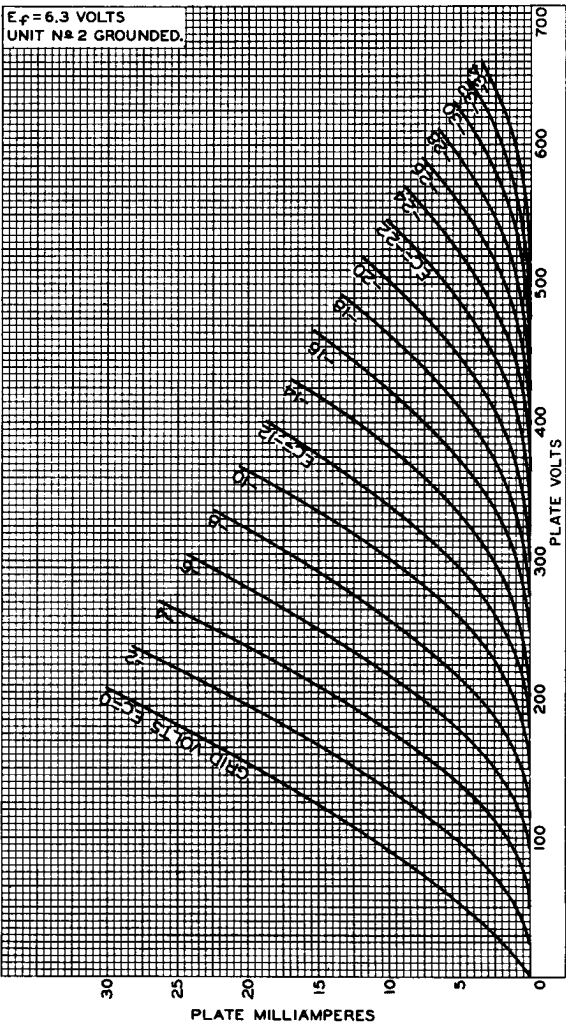
<sup>c</sup> The dc component must not exceed 100 volts.

<sup>d</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.

→ indicates a change.



## AVERAGE PLATE CHARACTERISTICS Unit No.1



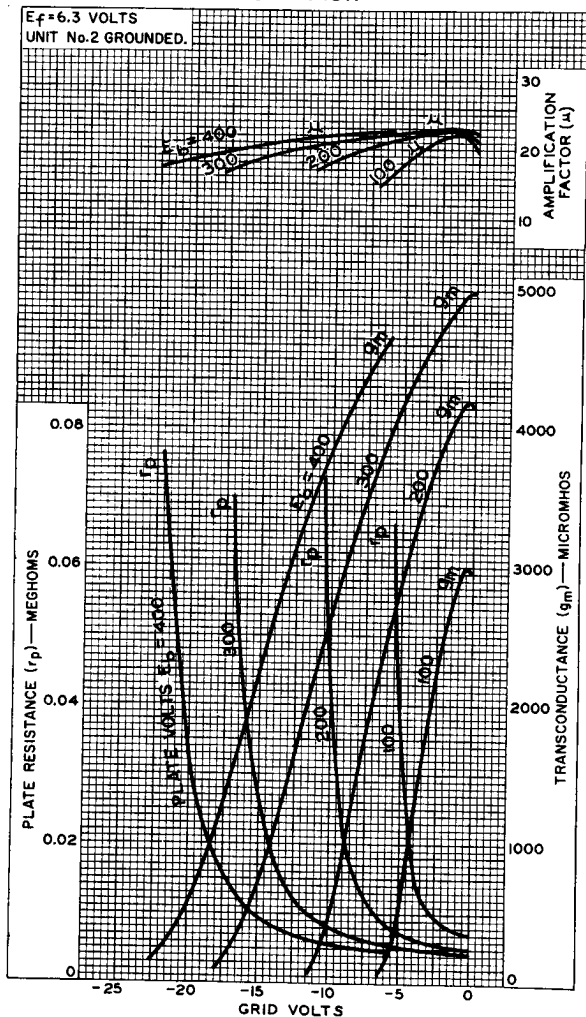
92CM-8617



## AVERAGE CHARACTERISTICS Unit No.1

$E_f = 6.3$  VOLTS

UNIT No.2 GROUNDED.

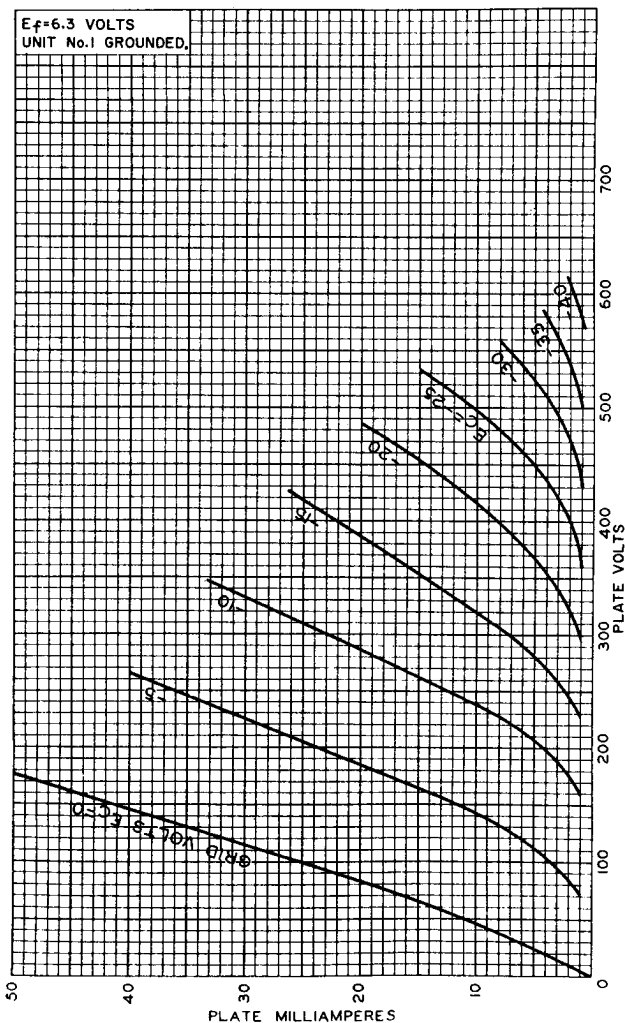


92CM-8616RI



# AVERAGE PLATE CHARACTERISTICS

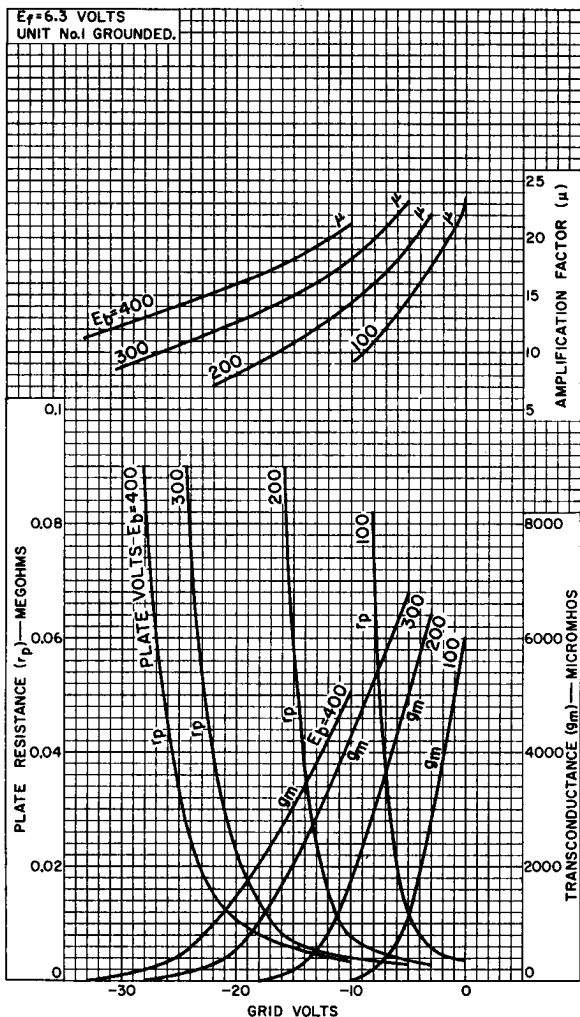
## Unit No.2



92CM-8615



## AVERAGE CHARACTERISTICS Unit No.2



92CM-8613R1

