



6CS6

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PENTAGRID AMPLIFIER

7-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts

Current. 0.3 amp

Direct Interelectrode Capacitances (Approx.):^oGrid No.1 to plate 0.07 max. μf ←Grid No.3 to plate 0.36 max. μf ←Grid No.1 to grid No.3 0.22 max. μf ←Grid No.1 to cathode & grid No.5,
grid No.4 & grid No.2, grid
No.3, and heater 5.5 μf Grid No.3 to cathode & grid No.5,
grid No.4 & grid No.2, grid
No.1, and heater 7 μf Plate to cathode & grid No.5,
grid No.4 & grid No.2, grid
No.3, grid No.1, and heater. 7.5 μf Characteristics, Class A₁ Amplifier:

Plate Voltage. 100 100 volts

Grid-No.2 & Grid-No.4 Voltage. 30 30 volts

Grid-No.3 Voltage. -1 0 volt

Grid-No.1 Voltage. 0 -1 volt

Plate Resistance (Approx.) 0.7 1 megohm

Grid-No.3-to-Plate Transconductance. 1500 - μmhos ←Grid-No.1-to-Plate Transconductance. - 1100 μmhos ←

Plate Current. 0.8 1 ma ←

Grid-No.2 & Grid-No.4 Current. 5.5 1.3 ma ←

Grid-No.3 Voltage (Approx.) for
plate current of 50 μamp -2.2 - voltsGrid-No.1 Voltage (Approx.) for
plate current of 50 μamp - -2.5 volts

Mechanical:

Mounting Position. Any

Maximum Overall Length 2-1/8"

Maximum Seated Length. 1-7/8"

Length, Base Seat to Bulb Top (Excluding tip). 1-1/2" $\pm$ 3/32"

Maximum Diameter 3/4"

Dimensional Outline. See General Section

Bulb T-5-1/2"

Base Small-Button Miniature 7-Pin (JETEC No.E7-1)

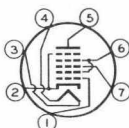
Basing Designation for BOTTOM VIEW 7CH

Pin 1 - Grid No.1

Pin 2 - Cathode,
Grid No.5

Pin 3 - Heater

Pin 4 - Heater



Pin 5 - Plate

Pin 6 - Grid No.2,
Grid No.4

Pin 7 - Grid No.3

^o Without external shield.

← Indicates a change.



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PENTAGRID AMPLIFIER

GATED AMPLIFIER SERVICE

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE. 300 max. volts
 GRID-No.2 & GRID-No.4 SUPPLY VOLTAGE . . 300 max. volts
 GRID-No.2 & GRID-No.4 VOLTAGE. . . See Grid-No.2 Input Rating

Chart at front of Receiving Tube Section

PLATE DISSIPATION. 1 max. watt

GRID-No.2 & GRID-No.4 INPUT:

For grid-No.2 & grid-No.4 voltages

up to 150 volts. 1 max. watt

For grid-No.2 & grid-No.4 voltages

between 150 and 300 volts. . . See Grid-No.2 Input Rating

Chart at front of Receiving Tube Section

CATHODE CURRENT. 14 max. ma

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with

respect to cathode 200 max. volts

Heater positive with

respect to cathode 200[▲] max. volts

Typical Operation as Sync Separator and Sync Clipper:

Plate Voltage. 10 volts

Grid-No.2 & Grid-No.4 Voltage. 30 volts

Grid-No.3 Voltage. 0 volts

Grid-No.1 Voltage. 0 volts

→ Plate Current. 2.0 ma

→ Grid-No.2 & Grid-No.4 Current. 4.5 ma

Maximum Circuit Values:

Grid-No.1-Circuit Resistance 0.47 max. megohm

Grid-No.3-Circuit Resistance 2.2 max. megohms

[▲] The dc component must not exceed 100 volts.

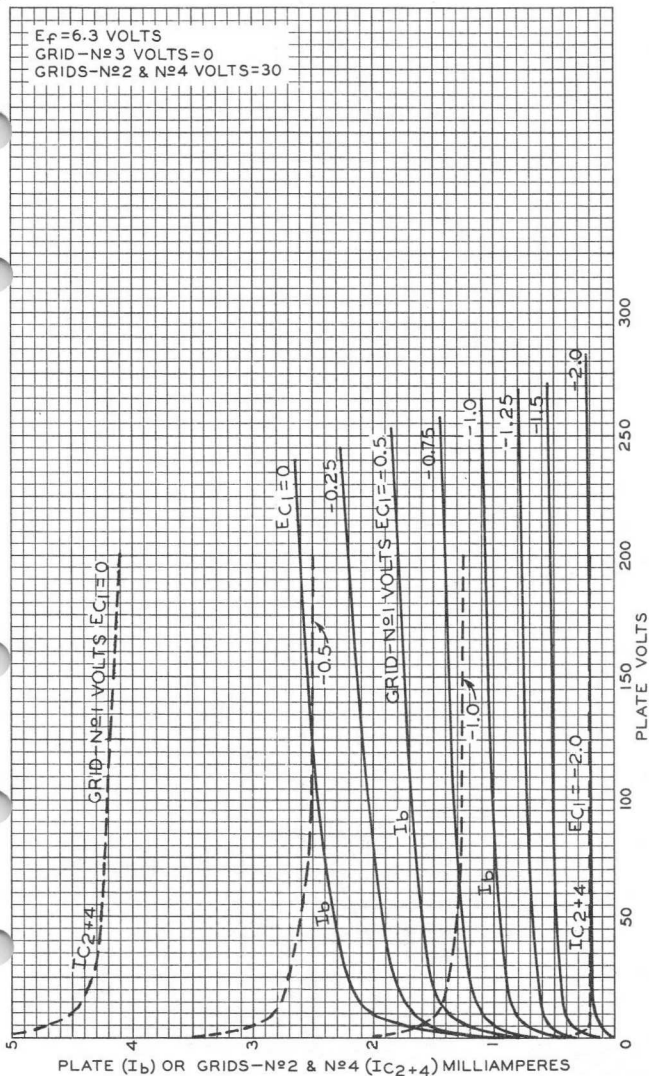
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AVERAGE CHARACTERISTICS



TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

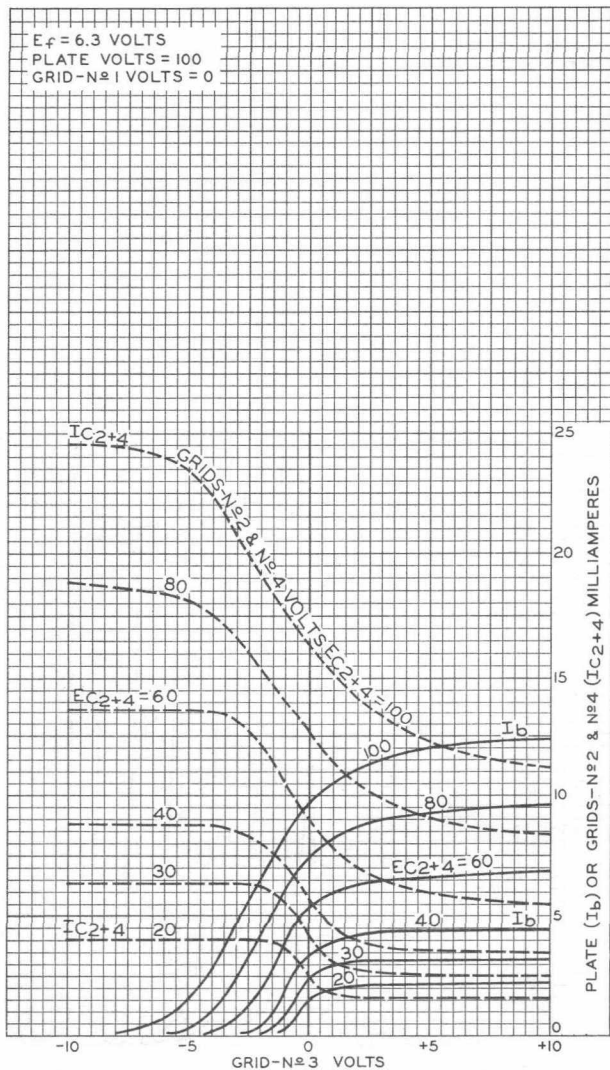
92CM-8922

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AVERAGE CHARACTERISTICS



TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-8926



6CS7

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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.):⁰

	Unit No. 1 Oscillator	Unit No. 2 Amplifier	
Grid to plate.	2.6	2.6	$\mu\mu\text{f}$
Grid to cathode and heater..	1.8	3	$\mu\mu\text{f}$
Plate to cathode and heater.	0.5	0.5	$\mu\mu\text{f}$

Characteristics, Class A₁ Amplifier:

	Unit No. 1 Oscillator	Unit No. 2 Amplifier	
Plate Voltage.	250	250	volts
Grid Voltage.	-8.5	-10.5	volts
Amplification Factor	17	15.5	
Plate Resistance (Approx.) .	7700	3450	ohms
Transconductance	2200	4500	μmhos
Plate Current.	10.5	19	ma
Plate Current for grid volts = -16.	-	3	ma
Grid Voltage (Approx.) for plate current of:			
10 microamperes.	-24	-	volts
50 microamperes.	-	-22	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" $\pm$ 3/32"
Diameter	0.750" to 0.875"
Dimensional Outline.	See General Section
Bulb	T6-1/2

⁰: See next page.



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

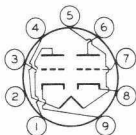
Base. Small-Button Noval 9-Pin (JETEC No.E9-1)

Basing Designation for BOTTOM VIEW 9EF

Pin 1-Plate of
Unit No.2Pin 2-No Connec-
tionPin 3-Grid of
Unit No.2

Pin 4-Heater

Pin 5-Heater

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

VERTICAL-DEFLECTION OSCILLATOR

Values are for Unit No.1

Maximum Ratings, Design-Center Values:

For operation in a 525-line, 30-frame system[□]

DC PLATE VOLTAGE. 500 max. volts

PEAK NEGATIVE-PULSE GRID VOLTAGE. 400 max. volts

CATHODE CURRENT:

Peak. 70 max. ma

DC. 20 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[▲] max. volts

Maximum Circuit Values:

Grid-Circuit Resistance 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[□]

DC PLATE VOLTAGE. 500 max. volts

PEAK POSITIVE-PULSE PLATE VOLTAGE[#]. 2200[■] max. volts

(Absolute maximum).

PEAK NEGATIVE-PULSE GRID VOLTAGE. 250 max. volts

CATHODE CURRENT:

Peak. 105 max. ma

DC. 30 max. ma

PLATE DISSIPATION 6.5 max. watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode. 200 max. volts

Heater positive with respect to cathode. 200[▲] max. volts

□, ▲, #, ■: See next page.



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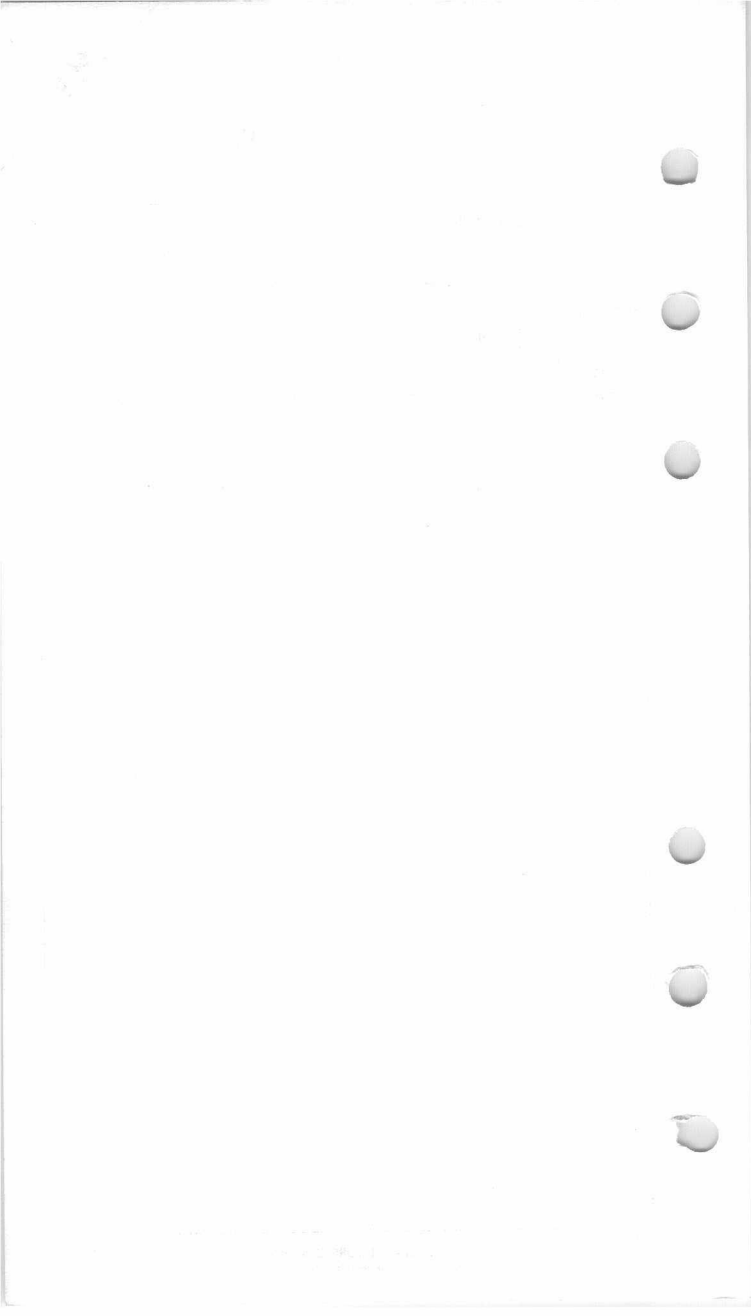
MEDIUM-MU DUAL TRIODE

With Dissimilar Units

Maximum Circuit Values:

Grid-Circuit Resistance. 2.2 max. megohms

- As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.
- ▲ The dc component must not exceed 100 volts.
- # 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.
- Without external shield.



Half-Wave Rectifier

9-Pin Miniature Type

$i_{bm} = 1200 \text{ max. mA}$

$P_b = 4.75 \text{ max. W}$

For Black-and-White and Small-Screen Color-TV
Damper Diode Applications

ELECTRICAL CHARACTERISTICS - Bogey Values

Heater Voltage, ac or dc.	E_h	6.3	V
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Heater Current	I_h	1.2	A
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Direct Interelectrode

Capacitances:^a

Plate to cathode

and heater. $c_{p(k+h)}$	12.0	pF
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Cathode to plate

and heater. $c_{k(p+h)}$	9.5	pF
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Heater to cathode c_{hk}	2.8	pF
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Instantaneous Tube Voltage

Drop for instantaneous

plate current (i_b) = 350 mA. e_b	16	V
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MECHANICAL CHARACTERISTICS

Maximum Overall Length (l_m)	3.125 in (79.37 mm)
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Maximum Seated Length (l_{sm})	2.875 in (73.02 mm)
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Maximum Diameter (d_m)	0.875 in (22.22 mm)
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Envelope.	JEDEC Designation 6-1/2
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Base	Small-Button Noval 9-Pin JEDEC Designation E9-1
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Terminal Connections

(See <i>TERMINAL DIAGRAM</i>)	JEDEC Designation 9RX
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Type of Cathode.	Coated Unipotential
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Operating Position	Any
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MAXIMUM RATINGS - Design-Maximum Values^b

For operation as a Damper Tube in TV Receivers utilizing a
525-line, 30-frame system^c

Peak Inverse Plate Voltage. . . $-e_{bm}$	5000 ^d	V
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Heater-Cathode Voltage:

Peak e_{hkm}	$\left\{ \begin{array}{l} +300 \\ -5000 \end{array} \right.$	V
		V

6CT3

Average ^e	$E_{hk(av)}$	$\begin{cases} +100 \\ -900 \end{cases}$	$\begin{matrix} V \\ V \\ V \end{matrix}$
Heater Voltage, ac or dc . . .	E_h	5.7 to 6.9	V
Plate Current:			
Peak	i_{bm}	1200	mA
Average ^e	$I_{b(av)}$	250	mA
Plate Dissipation	P_b	4.75	W
Envelope Temperature (at			
hottest point on envelope			
surface)	T_E	220	°C

^a Measured without external shield in accordance with the current issue of EIA Standard RS-191.

^b As defined in the current issue of EIA Standard RS-239.

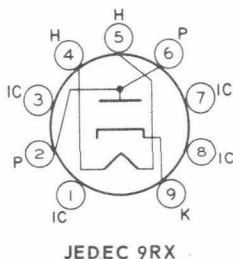
^c As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.

^d This rating is applicable when the duration of the voltage pulse does not exceed 15% of one horizontal scanning cycle. In a 525-line, 30-frame system, 15% of one horizontal scanning cycle is 10 μ s.

^e Measured with a dc meter.

TERMINAL DIAGRAM (Bottom View)

- Pin 1 - Do Not Use
- Pin 2 - Plate
- Pin 3 - Do Not Use
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Plate
- Pin 7 - Do Not Use
- Pin 8 - Do Not Use
- Pin 9 - Cathode



OPERATING CONSIDERATIONS

Socket terminals 1, 3, 7, and 8 should not be used as tie points for external-circuit components. It is recommended that these socket tabs be removed to reduce the possibility of arc-over and to minimize leakage.