

RADIOTRON

6J7-G

TRIPLE-GRID DETECTOR AMPLIFIER

Types 57, 6J7-G & 1603 are similar electrically apart from the heater rating

6J7-G
SHEET 1

Heater== Coated Unipotential Cathode
 Voltage 6.3 a-c or d-c volts
 Current 0.5 amp.

Direct Interelectrode Capacitances :

<u>Pentode Connection</u> ○		<u>Triode Connection</u> ●	
Grid to Plate	0.007 max.	Grid to Plate	1.8 μpF
Input	4.6	Grid to Cathode	2.6 μpF
Output	12.0	Plate to Cathode	17.0 μpF

Maximum Overall Length 4-15/32"
 Maximum Seated Height 5-29/32"
 Maximum Diameter 1-9/16"

Bulb ST-12

Cap

Base

Pin 1 - Internal shield

Pin 2 - Heater

Pin 3 - Plate

Pin 4 - Screen

Mounting Position



Skirted Miniature Small Shell Octal 7-Pin

Pin 5 - Suppressor

Pin 7 - Heater

Pin 8 - Cathode

Cap - Grid

Any

BOTTOM VIEW (G-7R)Maximum Ratings are Design-Centre Values.A-F AMPLIFIER - CLASS A1.

Plate Voltage		300 max. volts
Screen Voltage		250 max. volts
Screen Supply Voltage		300 max. volts
Grid Voltage		0 min. volts
Plate Dissipation		1.4 max. watts
Screen Dissipation		0.35 max. watt
Typical Operation:		
Plate Voltage	100	250 volts
Screen Voltage	100	100 volts
Grid Voltage &	-5	-5 volts
Suppressor	Connected to cathode at socket	
Plate Resistance	1.0	+ megohms
Transconductance	188	1225 μmhos
Grid Bias (approx.) Δ	-7	-7 volts
Plate Current	2.0	2.0 mA.
Screen Current	0.5	0.5 mA.

PENTODE POWER AMPLIFIER

Plate Voltage		300 max. volts
Screen Voltage		250 max. volts
Screen Supply Voltage		300 max. volts
Grid Voltage		0 min. volts
Plate Dissipation		1.4 max. watts
Screen Dissipation		.55 max. watt
Typical Operation:		
Plate Voltage	250	250 volts
Screen Voltage	100	175 volts
Grid Voltage &	-2.5	-4 volts
Suppressor	Connected to cathode at socket	
Cathode Bias Resist.●	600	440 ohms
Peak A-F Grid Volts	2.5	4 volts
Zero-Sig. Plate Current	2.8	7.5 mA.
Max.-Sig. Plate Current	5.5	- mA.
Zero-Sig. Screen Current	0.7	1.8 mA.
Max.-Sig. Screen Current	0.9	- mA.
Plate Resistance	+	ohms
Transconductance	1870 (approx.)	μmhos
Load Resistance	56000	25000 ohms
Max.-Signal Power Output	0.55	0.55 watt

○ With close fitting shield connected to cathode.

● Screen and suppressor connected to plate at the socket; without shield-can.

For other footnotes see back of sheet.

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TRIPLE-GRID DETECTOR AMPLIFIER

TRIODE POWER AMPLIFIER*

Plate Voltage		250 max.	volts
Grid Voltage		0 min.	volts
Plate & Screen Dissipation (total)		1.75 max.	watts
Typical Operation:			
Plate Voltage	180	250	volts
Grid Voltage ^Δ	-5.5	-8.0	volts
Cathode Bias Resistor ^{∞∞}	1000	1230	ohms
Zero-Signal Plate Current	5.5	6.5	mA.
Amplification Factor	20	20	
Plate Resistance	11000	10500	ohms
Transconductance	1800	1900	μmhos
Load Resistance	25000	22000	ohms
Second Harmonic Distortion	5	5	%
Power Output	0.113	0.275	watt

DETECTOR

Typical Operating Conditions as Biased Detector:

Plate Supply Voltage *	100	100	250	250	volts
Screen Voltage	12	30	50	100	volts
Grid Voltage ^Δ	-1.2	-1.5	-2.0	-4.5	volts
Cathode Bias Resistor	18000	10000	3000	10000	ohms
Suppressor	Connected to Cathode at socket				
Zero-Sig. Cathode Cur.	0.063	0.183	0.55	0.43	mA.
Plate Load Resistor	1.0	0.25	0.25	0.5	megohm
Coupling Condenser	0.01	0.01	0.03	0.03	μF
Grid Resistor ^{∞∞}	1.0	0.5	0.25	0.25	megohm
R-F Signal (RMS) ^{ΔΔ}	1.05	1.6	1.18	1.37	volts

* In circuits where the cathode is not directly connected to the heater the potential difference between heater and cathode should be kept as low as possible.

^Δ The grid circuit resistance should not exceed 1 megohm as a pentode or triode power amplifier or 3 megohms as a conventional r-f or i-f amplifier. Where the circuit constants are such that the plate current cannot exceed 1mA, the grid circuit resistance may be as high as 10 megohms; for higher values of grid circuit resistance it is essential to operate with reduced heater voltage.

[†] Greater than 1 megohm.

^Δ For cathode current cut-off.

* The voltage at the plate will be the "Plate Supply Voltage" minus the voltage drop across the plate load resistor caused by the plate current.

^{∞∞} For the following valve.

^{ΔΔ} For these signal values modulated 20% the voltage output under each set of conditions is 17 peak volts at the grid of the following amplifier. This value is sufficient to ensure full audio output from a type 6PC-6 (class A pentode service) with 250 volts on the plate.

• Screen and suppressor connected to plate.

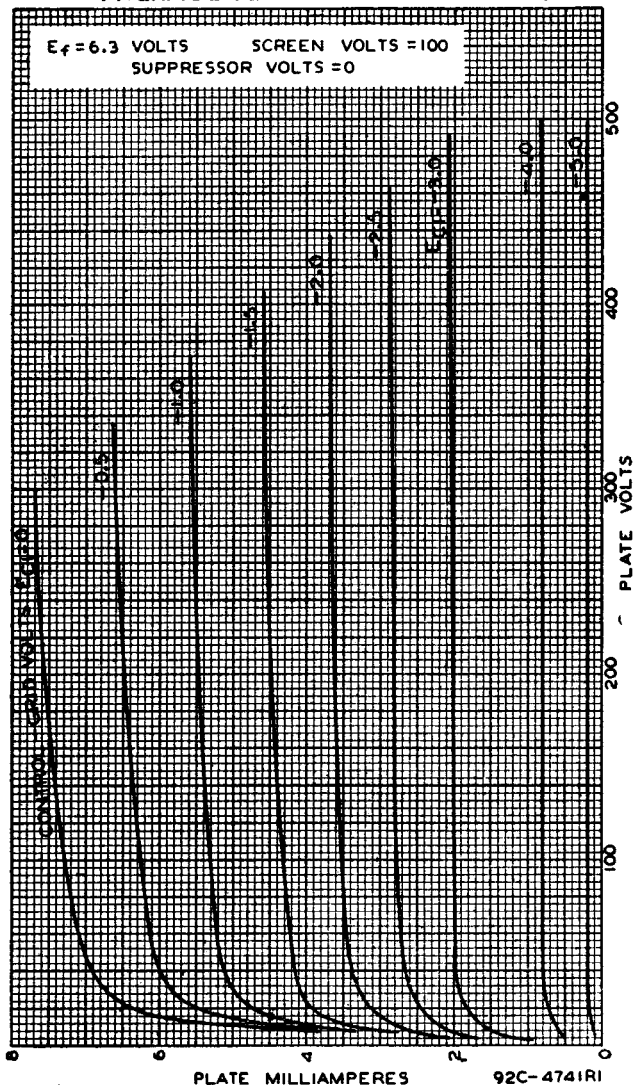
^{∞∞} The requisite negative bias may be obtained from an external source or, alternatively, may be derived from a cathode bias resistor of the stated value. For this particular service the type of bias has negligible effect on the operation.

For recommended operating conditions as a resistance-coupled a-f voltage amplifier refer to sheet headed "Resistance-Coupled Pentodes."

← Indicates a change.

RADIOTRON 6J7-G

AVERAGE PLATE CHARACTERISTICS

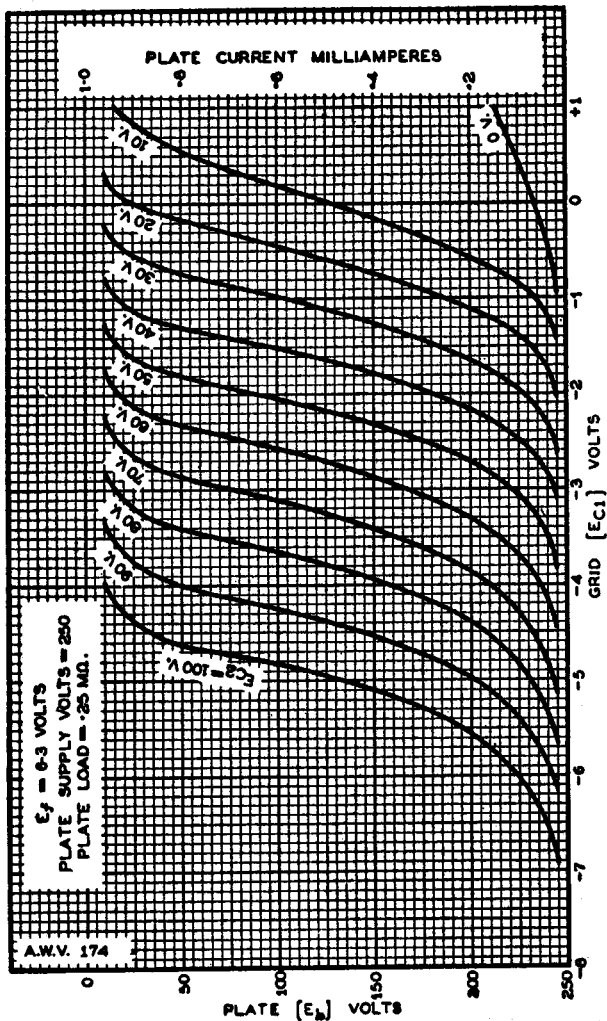


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AVERAGE DYNAMIC CHARACTERISTICS

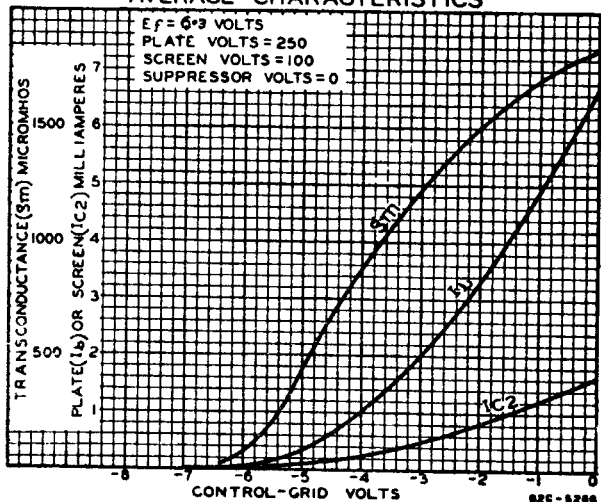


RADIOTRON

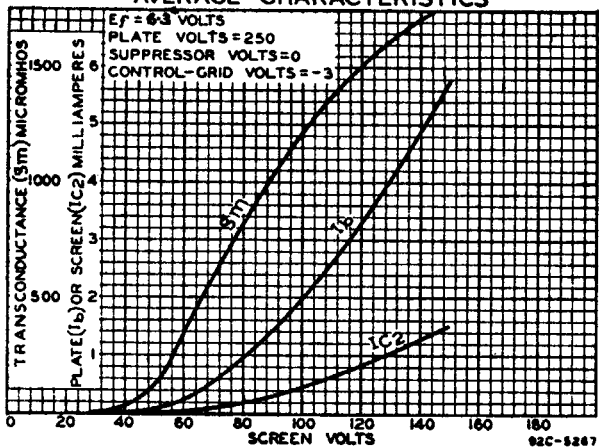
6J7-G

6J7-G
SHEET 3

AVERAGE CHARACTERISTICS



AVERAGE CHARACTERISTICS

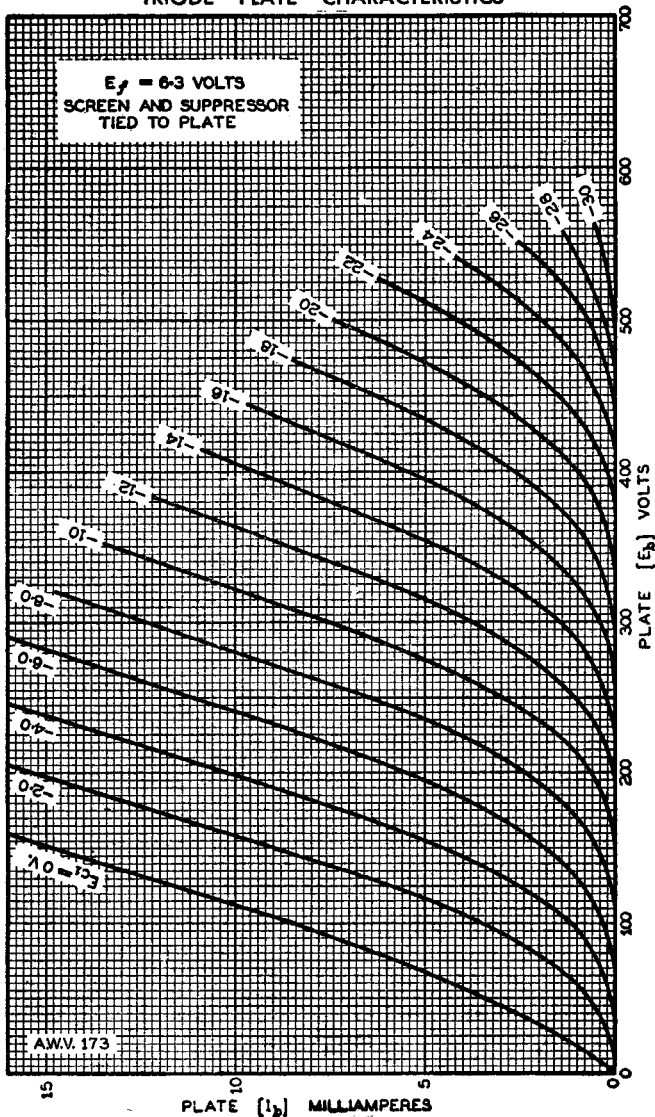


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TRIODE PLATE CHARACTERISTICS



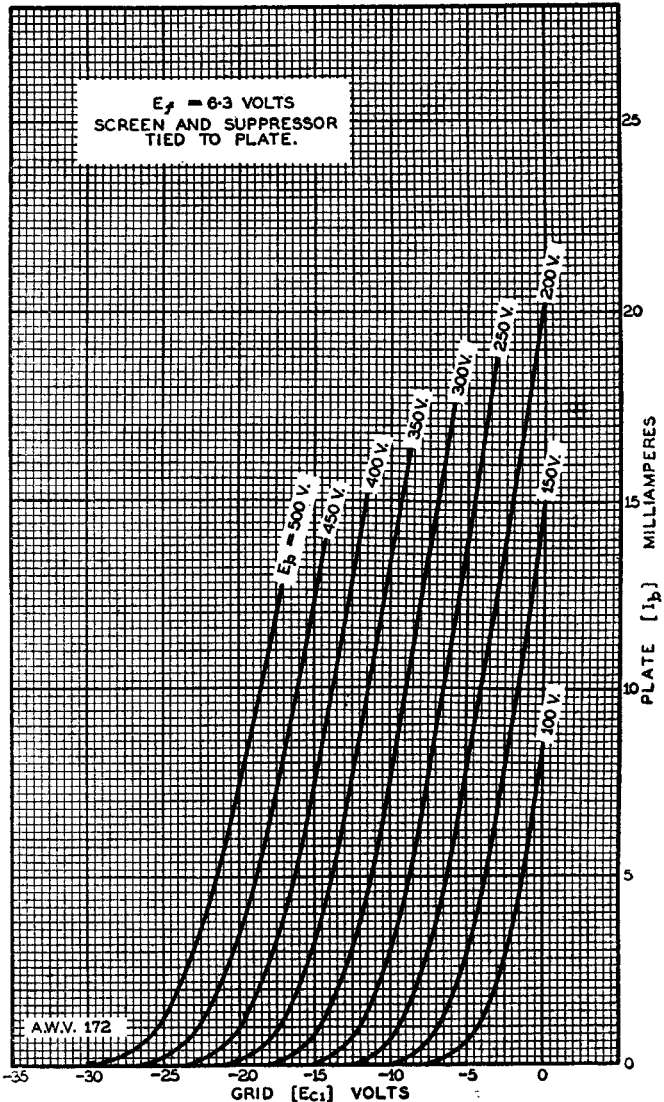
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TRIODE MUTUAL CHARACTERISTICS

6J7-G
SHEET 4

$E_f = 6.3$ VOLTS
SCREEN AND SUPPRESSOR
TIED TO PLATE.



A.W.V. 172