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UHF MEDIUM-MU TRIODE

"PENCIL TYPE" WITH EXTERNAL PLATE RADIATOR

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC):

Under Transmitting Conditions 6.0 ± 10% volts

Under Standby Conditions 6.3 max. volts

Current at 6.0 Volts 0.280 amp

Amplification Factor 27

Transconductance, for dc plate current of

27 milliamperes and dc plate voltage

of 200 volts 7000 μ mhos

Direct Interelectrode Capacitances:

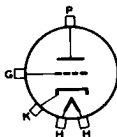
	With Exter- nal Shield [▲]	Without Exter- nal Shield	
Grid to Plate	1.5	1.7	μ lf
Grid to Cathode	-	2.9	μ lf
Plate to Cathode	-	0.08 max.	μ lf

Mechanical:

Terminal Connections:

H: Heater

K: Cathode Cylinder
(Adjacent to
heater lead
terminals)



G: Grid Flange
(Between glass
sections)

P: Plate Cylinder
(With integral
radiator)

Mounting Position Any

Dimensions and Terminal
Connections See Dimensional Outline

Radiator Integral part of tube

Cooling:

In many applications, the 6263 does not require forced-air cooling. The radiator in combination with a connector having adequate heat conduction capability will generally provide adequate cooling under conditions of free circulation of air. The cooling must be sufficient to limit the plate-seal temperature to 175°C. When conditions do not provide adequate circulation of air, provision should be made to direct a blast of cooling air from a small blower through the radiator fins. The quantity of air should be sufficient to limit the plate-seal temperature to 175°C. See curves.

Incoming Air Temperature 40 max. °C

Plate-Seal Temperature (Measured
on Plate Seal). 175 max. °C

Weight (Approx.). 24 grams (0.85 oz)

Socket for Heater Leads . . Cinch No. 54A16325, or equivalent

[▲] A flat plate shield 1-1/4" diameter located parallel to the plane of the grid flange and midway between the grid flange and the radiator plate terminal. The shield is tied to the cathode.

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RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without amplitude modulation*

CCS#

ICAS**

Maximum Ratings, Absolute Values:

For Pressures down to 46 mm of Hg**

DC PLATE VOLTAGE	330 max.	400 max.	volts
DC GRID VOLTAGE	-100 max.	-100 max.	volts
DC PLATE CURRENT	40 max.	55 max.	ma
DC GRID CURRENT	25 max.	25 max.	ma
DC CATHODE CURRENT	55 max.	70 max.	ma
PLATE INPUT	13 max.	22 max.	watts
PLATE DISSIPATION	8 max.	13 max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	90 max.	90 max.	volts
Heater positive with respect to cathode	90 max.	90 max.	volts

Typical Operation as Oscillator in Cathode-Drive

Circuit at 500 Mc:

DC Plate Voltage	300	350	volts
DC Grid Voltage [□]	-30	-35	volts
DC Plate Current	35	40	ma
DC Grid Current (Approx.)	11	14	ma
Useful Power Output (Approx.)	5 [•]	7 [•]	watts

Typical Operation as RF Power Amplifier in Cathode-Drive

Circuit at 500 Mc:

DC Plate Voltage	300	350	volts
DC Grid Voltage [□]	-48	-58	volts
DC Plate Current	35	40	ma
DC Grid Current (Approx.)	13	15	ma
Driver Power Output (Approx.)	2.2	3	watts
Useful Power Output (Approx.)	7 [•]	10 [•]	watts

Maximum Circuit Values (CCS or ICAS Conditions):

Grid-Circuit Resistance	0.1 max.	megohm
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PLATE-MODULATED RF POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

CCS#

ICAS**

Maximum Ratings, Absolute Values:

For Pressures down to 46 mm of Hg**

DC PLATE VOLTAGE	275 max.	300 max.	volts
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* Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

•, □, **, □, •: See next page.

MARCH 1, 1954

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TENTATIVE DATA 1

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DC GRID VOLTAGE	-100 max.	-100 max.	volts
DC PLATE CURRENT	33 max.	46 max.	ma
DC GRID CURRENT	25 max.	25 max.	ma
DC CATHODE CURRENT	50 max.	60 max.	ma
PLATE INPUT	9 max.	15 max.	watts
PLATE DISSIPATION	5.5 max.	9 max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	90 max.	90 max.	volts
Heater positive with respect to cathode	90 max.	90 max.	volts

Typical Operation in Cathode-Drive Circuit at 500 Mc:

DC Plate Voltage	275	320	volts
DC Grid Voltage [□]	-42	-52	volts
DC Plate Current	35	35	ma
DC Grid Current (Approx.)	13	12	ma
Driver Power Output (Approx.)	2	2.4	watts
Useful Power Output (Approx.)	6.7 [●]	8 [●]	watts

Maximum Circuit Values (CCS or ICAS Conditions):

Grid-Circuit Resistance	0.1 max.	megohm
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CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Heater Current	1	0.260	0.300	amp
Grid-to-Plate Capacitance	-	1.45	1.95	$\mu\mu\text{f}$
Grid-to-Cathode Capacitance	-	2.45	3.35	$\mu\mu\text{f}$
Plate-to-Cathode Capacitance	-	-	0.08	$\mu\mu\text{f}$
Plate Current	1,2	18	36	ma
Transconductance	1,2	5600	8400	μmhos
Useful Power Output	3,4	6.5	-	watts

Note 1: With 6.0 volts ac or dc on heater.

Note 2: With dc plate voltage of 200 volts, cathode resistor of $100 \pm 1\%$ ohms, and cathode bypass capacitor of 1000 μf .

Note 3: With 5.4 volts ac or dc on heater.

Note 4: With dc plate voltage of 350 volts, grid resistor adjusted to give a dc plate current of 50 milliamperes in a cavity-type oscillator operating at 500 megacycles per second and having an efficiency of about 75 per cent.

** Corresponds to altitude of about 60000 feet.

♣ Continuous Commercial Service.

♠ Intermittent Commercial and Amateur Service.

□ From a grid resistor, or from a suitable combination of grid resistor and fixed supply or grid resistor and cathode resistor.

● This value of useful power is measured at load of output circuit having an efficiency of about 75 per cent.

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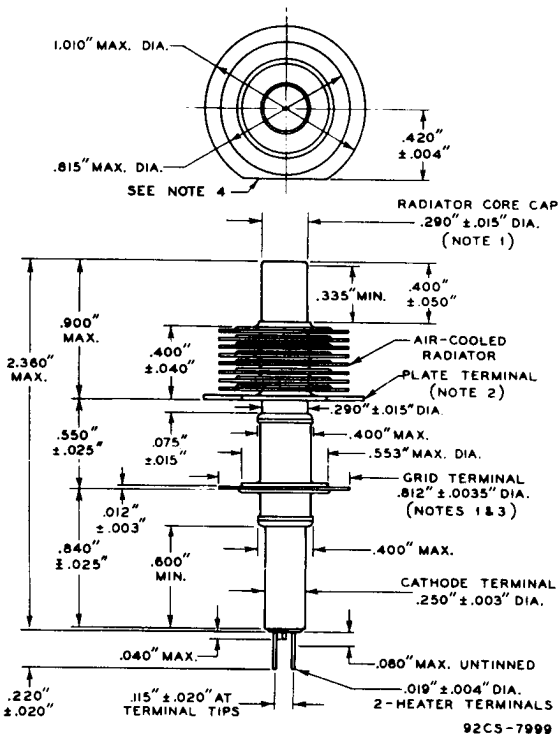


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OPERATING FREQUENCY

The 6263 can be operated as an rf power amplifier and oscillator with full ratings at frequencies up to 500 megacycles per second and with reduced ratings at frequencies as high as 1700 megacycles per second.



NOTE 1: MAX. ECCENTRICITY OF ϕ (AXIS) OF RADIATOR-CORE CAP OR GRID-TERMINAL FLANGE WITH RESPECT TO THE ϕ (AXIS) OF THE CATHODE TERMINAL IS 0.015".

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NOTE 2: TILT OF PLATE-TERMINAL FIN OF RADIATOR WITH RESPECT TO ROTATIONAL AXIS OF CATHODE CYLINDER IS DETERMINED BY CHUCKING THE CATHODE TERMINAL, ROTATING THE TUBE, AND GAUGING THE TOTAL TRAVEL DISTANCE OF THE PLATE-TERMINAL FIN PARALLEL TO THE AXIS AT A POINT APPROXIMATELY 0.020" INWARD FROM THE STRAIGHT EDGE OF THE PLATE-TERMINAL FIN FOR ONE COMPLETE ROTATION. THE TOTAL TRAVEL DISTANCE WILL NOT EXCEED 0.035".

NOTE 3: TILT OF GRID-TERMINAL FLANGE WITH RESPECT TO ROTATIONAL AXIS OF CATHODE TERMINAL IS DETERMINED BY CHUCKING THE CATHODE TERMINAL, ROTATING THE TUBE, AND GAUGING THE TOTAL TRAVEL DISTANCE OF THE GRID-TERMINAL FLANGE PARALLEL TO THE AXIS AT A POINT APPROXIMATELY 0.020" INWARD FROM ITS EDGE FOR ONE COMPLETE ROTATION. THE TOTAL TRAVEL DISTANCE WILL NOT EXCEED 0.025".

NOTE 4: THE STRAIGHT EDGE ON THE PERIMETER OF THE LARGE FIN (PLATE TERMINAL) IS PARALLEL TO A PLANE THROUGH THE CENTERS OF THE HEATER LEADS AT THEIR SEALS WITHIN 15°.

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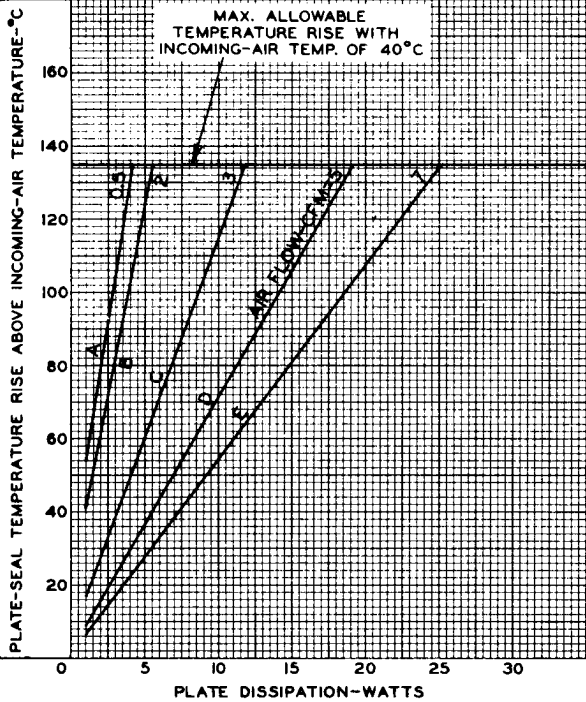
COOLING REQUIREMENTS

$E_f = 6.0$ VOLTS
 MAX. PLATE-SEAL TEMPERATURE = 175°C
 CURVES WERE TAKEN WITH AIR FLOW DIRECTED
 AS SHOWN ON SKETCH

AIR DUCT
 OPENING
 $1\frac{5}{32}'' \times 1\frac{5}{32}''$



MAX. ALLOWABLE
 TEMPERATURE RISE WITH
 INCOMING-AIR TEMP. OF 40°C



OCT. 13, 1953

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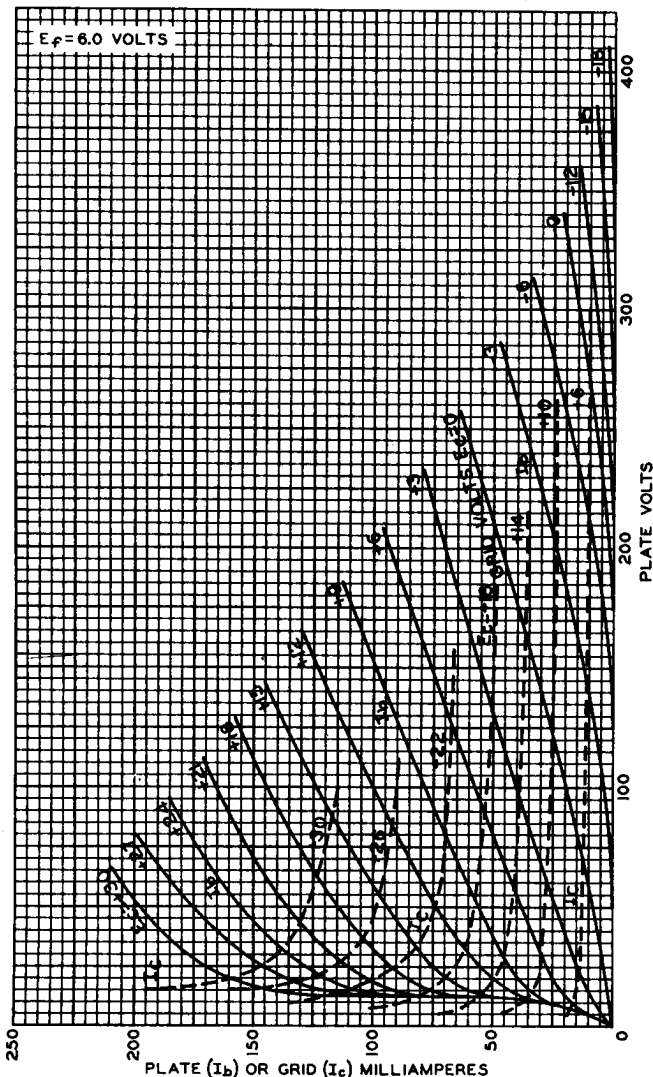
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AVERAGE PLATE CHARACTERISTICS



OCT. 7, 1953

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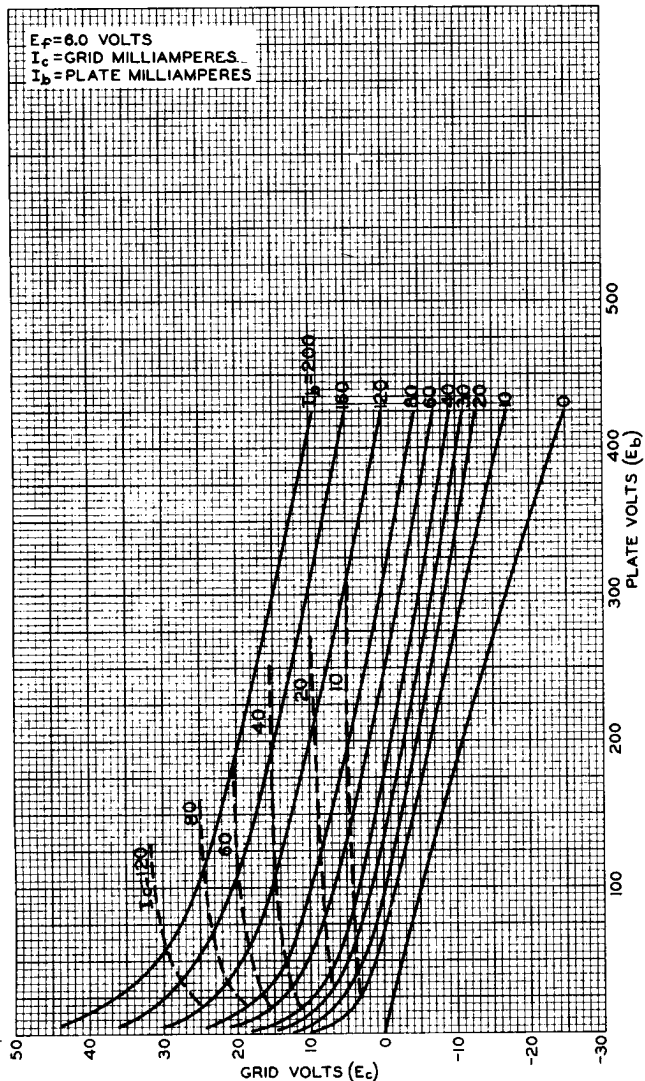
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AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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