6C24

POWER TRIODE

FORCED-AIR COOLED

GENERAL DATA

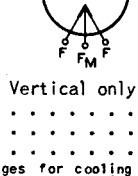
Electrical:

Filament, Thoriated Tungsten:

Voltage	11.0	ac or dc volts
Current	12.1	amp.
Starting Current: The filament current must never exceed, even momentarily, 24 amperes.		
Resistance (Cold)	0.13	ohms
Amplification Factor	30	
Direct Interelectrode Capacitances (Approx.):		
Grid to Plate	4.4	μμf
Grid to Filament	4.6	μμf
Plate to Filament	3.2	μμf

Mechanical:

Terminal Connections:



F – Filament
F_M – Filament Mid-Tap

G – Grid Cap Terminal
P – Plate Terminal (Air-Cooled Radiator)

Mounting Position. . . Vertical only, Filament or Grid End Up
Overall Length . . . . . 8-17/32" ± 3/16"
Diameter . . . . . 1-7/8" ± 1/32"
Radiator . . . . . Integral Part of Tube

Cooling: See following pages for cooling methods. Under any circumstances, sufficient air must be supplied to the radiator so that the rated maximum radiator temperature of 180°C measured at the base of an end fin, on the side away from the air supply, will not be exceeded. In addition, a small amount of air is required on the filament and grid seals to limit their temperature at the hottest part to 150°C. Air flow must start before the application of any voltages.

AF POWER AMPLIFIER & MODULATOR – Class B

	Cooling Method I▲	*Cooling Method II*▲	
Maximum CCS* Ratings, ***Absolute Values:***			
DC PLATE VOLTAGE	3000 max.	3000 max.	volts
MAX.-SIG. DC PLATE CURRENT**	400 max.	400 max.	ma.
MAX.-SIG. PLATE INPUT**	1200 max.	1200 max.	watts
PLATE DISSIPATION**	400 max.	600 max.	watts
Typical Operation:			
Unless otherwise specified, values are for two tubes			
DC Plate Voltage	3000		volts
DC Grid Voltage#○○	-95		volts
Peak AF Grid-to-Grid Voltage	470		volts

▲ See drawings on following pages.

* CCS = Continuous Commercial Service.

** Averaged over any af cycle of sine-wave form.

\# Obtained from fixed or well-regulated supply.

○○ Use separate bias supply for each tube for balancing currents.

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Zero-Signal DC Plate Current	75	ma.
Max.-Signal DC Plate Current	800	ma.
Effective Load Resistance (plate-to-plate)	8600	ohms
Max.-Signal Driving Power (Approx.)	30	watts
Max.-Signal Power Output (Approx.)	1640	watts

RF POWER AMPLIFIER - Class B Telephony

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

	Cooling Method I▲	*Cooling Method II*▲	
Maximum CCS* Ratings, *Absolute Values*:			
DC PLATE VOLTAGE	3000 max.	3000 max.	volts
DC PLATE CURRENT	250 max.	250 max.	ma.
PLATE INPUT	600 max.	600 max.	watts
PLATE DISSIPATION	400 max.	600 max.	watts
Typical Operation:			
DC Plate Voltage	3000		volts
DC Grid Voltage #	-95		volts
Peak RF Grid Voltage	130		volts
DC Plate Current	200		ma.
DC Grid Current (Approx.) ##	5		ma.
Driving Power (Approx.) ##○	16		watts
Power Output (Approx.)	210		watts

\# Obtained from a fixed or well-regulated supply.

○ At crest of af cycle with modulation factor of 1.0.

PLATE-MODULATED RF POWER AMPLIFIER - Class C Telephony

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

	Cooling Method I▲	*Cooling Method II*▲	
Maximum CCS* Ratings, *Absolute Values*:			
DC PLATE VOLTAGE	2500 max.	2500 max.	volts
DC GRID VOLTAGE	-500 max.	-500 max.	volts
DC PLATE CURRENT	400 max.	400 max.	ma.
DC GRID CURRENT	150 max.	150 max.	ma.
PLATE INPUT	1000 max.	1000 max.	watts
PLATE DISSIPATION	265 max.	400 max.	watts
Typical Operation:			
DC Plate Voltage	2500		volts
DC Grid Voltage:▲▲			
from a fixed supply of	-350		volts
from a grid resistor of	2600		ohms
Peak RF Grid Voltage	620		volts
DC Plate Current	400		ma.

▲ See drawings on following pages. * CCS - See next page.

Subject to wide variations as explained on sheet TUBE RATINGS in General Section.

▲▲ obtained by grid resistor of value shown, or by partial self-bias methods.

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DC Grid Current (Approx.)##	135	ma.
Driving Power (Approx.)##	75	watts
Power Output (Approx.)	810	watts

RF POWER AMPLIFIER & OSCILLATOR – Class C Telegraphy

Key-down conditions per tube without modulation¢

	Cooling Method I▲	*Cooling Method II*▲	
Maximum CCS* Ratings, *Absolute Values*:			
DC PLATE VOLTAGE	3000 max.	3000 max.	volts
DC GRID VOLTAGE.	−500 max.	−500 max.	volts
DC PLATE CURRENT	500 max.	500 max.	ma.
DC GRID CURRENT.	150 max.	150 max.	ma.
PLATE INPUT.	1500 max.	1500 max.	watts
PLATE DISSIPATION.	400 max.	600 max.	watts
Typical Operation:			
DC Plate Voltage	3000		volts
DC Grid Voltage:			
from fixed supply of	−250		volts
from grid resistor of.	1700		ohms
from cathode resistor of	400		ohms
Peak RF Grid Voltage	520		volts
DC Plate Current	500		ma.
DC Grid Current (Approx.)##	150		ma.
Driving Power (Approx.)##.	75		watts
Power Output (Approx.)	1100		watts

▲ See drawings on following pages.

¢ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

Subject to wide variations as explained on sheet TUBE RATINGS in General Section.

* Continuous Commercial Service.

NOTE: When the 6C24 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With plate voltage of 3000 volts, a fixed bias of at least −90 volts should be used.

Data on operating frequencies for the 6C24 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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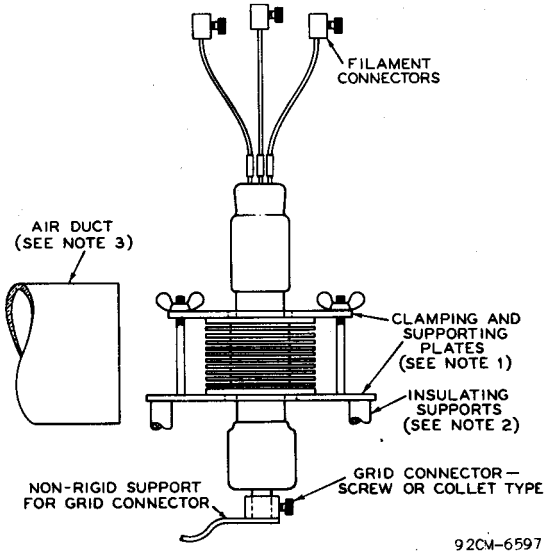
COOLING METHOD I
Suggested Mounting



NOTE 1: SUPPORTING PLATE AND CLAMPING PLATE HAVE HOLES LARGE ENOUGH TO PERMIT PASSAGE OF THE GLASS BULBS OF THE TUBE.

NOTE 2: TWO OR MORE INSULATORS MAY BE USED. INSULATORS MUST BE PLACED SO AS TO NOT INTERFERE WITH AIR FLOW ONTO GRID TERMINAL.

NOTE 3: AIR DUCT MUST BE HORIZONTAL AND MUST BE DIRECTED AT CENTER OF RADIATOR.

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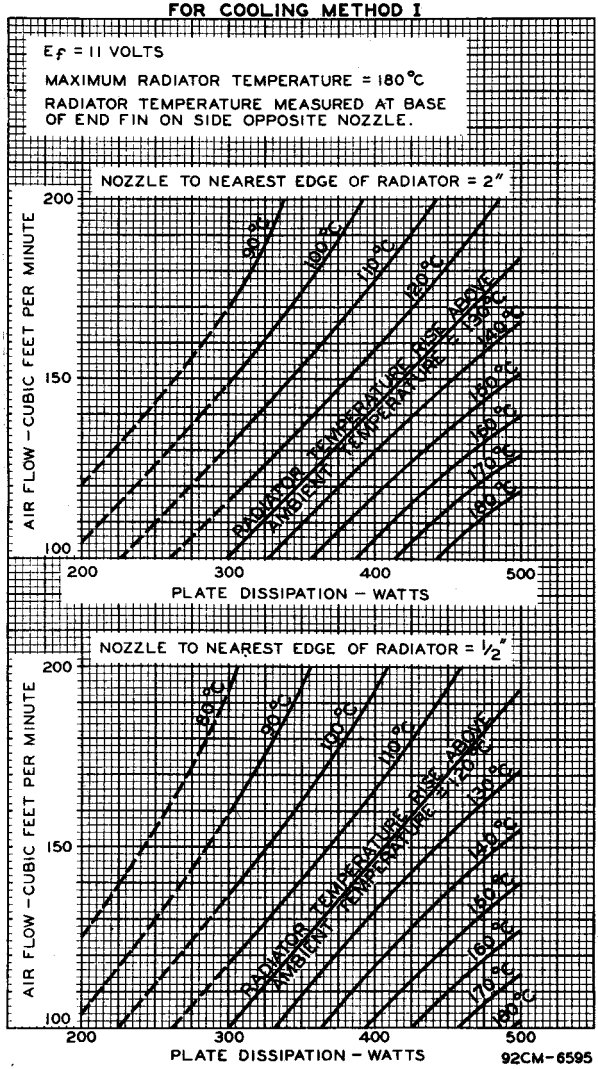
RADIATOR COOLING REQUIREMENTS
FOR COOLING METHOD I



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TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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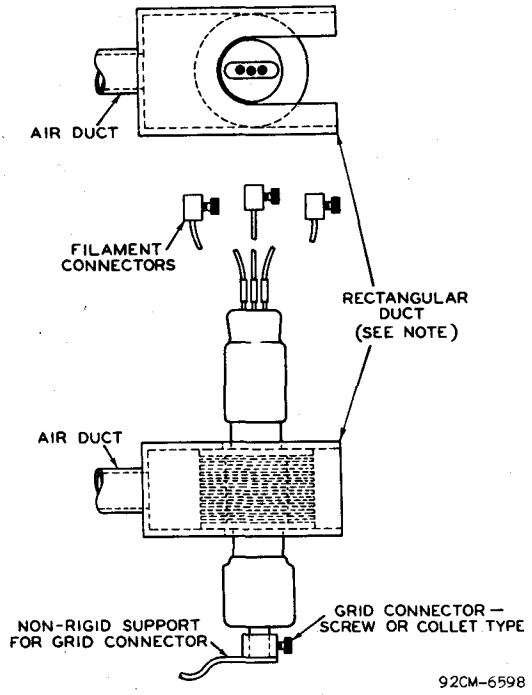
POWER TRIODE

COOLING METHOD II
Suggested Mounting



NOTE: AIR DUCT MAY BE PART OF HIGH-FREQUENCY TRANSMISSION LINE. UPPER AND LOWER FACES OF RECTANGULAR DUCT HAVE SLOTS TO PERMIT PASSAGE OF TUBE. MEANS SHOULD BE PROVIDED TO LOCK TUBE IN POSITION.

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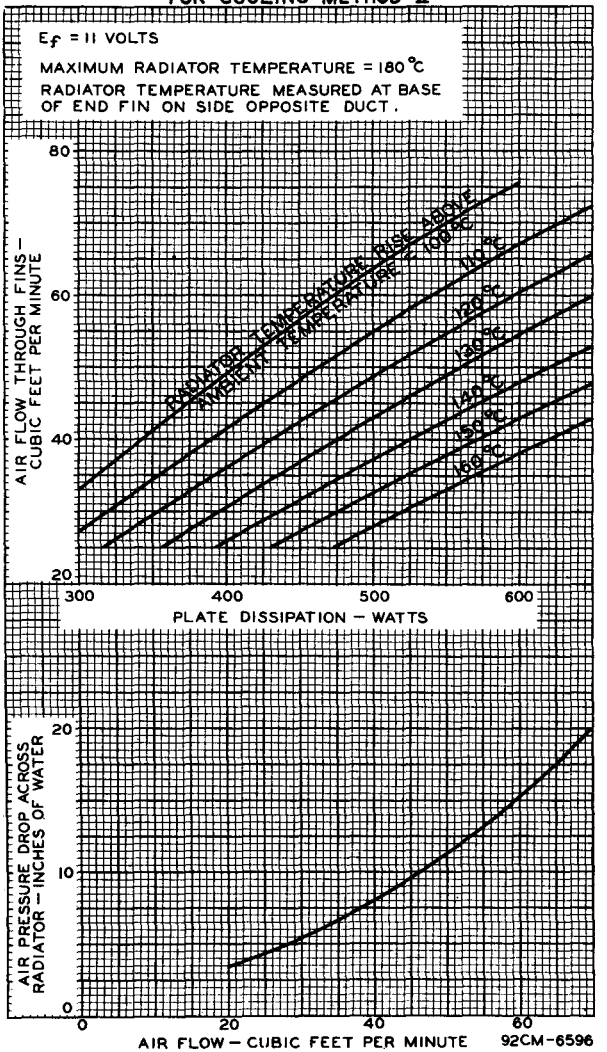
RADIATOR COOLING REQUIREMENTS
FOR COOLING METHOD II



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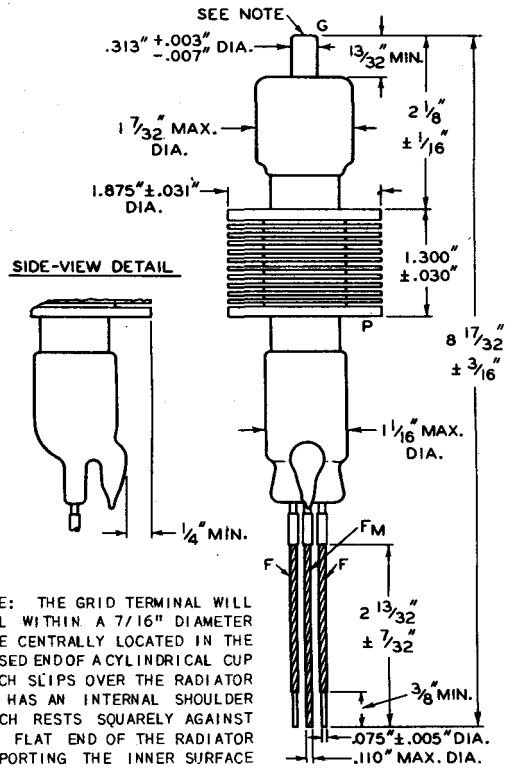
POWER TRIODE



NOTE: THE GRID TERMINAL WILL FALL WITHIN A 7/16" DIAMETER HOLE CENTRALLY LOCATED IN THE CLOSED END OF A CYLINDRICAL CUP WHICH SLIPS OVER THE RADIATOR AND HAS AN INTERNAL SHOULDER WHICH RESTS SQUARELY AGAINST THE FLAT END OF THE RADIATOR SUPPORTING THE INNER SURFACE OF THE CLOSED END OF THE CUP 1-13/16" FROM THE GRID END OF THE RADIATOR. THE CLOSED END OF THE CUP IS 7/16" THICK.

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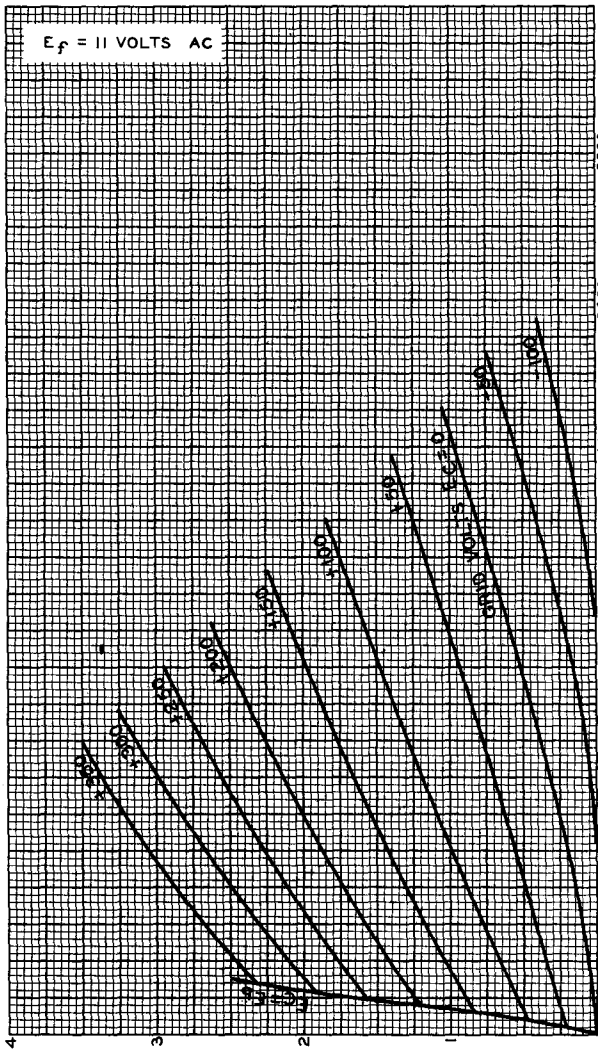
AVERAGE PLATE CHARACTERISTICS



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RCA

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TYPICAL CHARACTERISTICS