

MECHANICAL DATA

Bulb	ST-16, T-11 or T-12
Base	B5-15 Medium Shell Octal 5-Pin or, B5-121 Short Medium Shell Octal 5-Pin or, B5-127 Flared Medium Shell Octal 5-Pin or, B5-113 Short Medium Shell Octal 5-Pin
Outline	16-3
Basing5T
Cathode	Coated Filament
Mounting Position ¹	Vertical

ELECTRICAL DATA

FILAMENT CHARACTERISTICS

Filament Voltage, A C or D C	5.0 Volts
Filament Current	3.0 Amperes

RATINGS (Design Center Values)

Peak Inverse Plate Voltage	1550 Volts	Max.
A C Plate Supply Voltage		
Each Plate, R M S	See Rating Chart I	
D C Output Current Each Plate	See Rating Chart I	
Steady State Peak Plate		
Current Each Plate (See Rating Chart II)	800 Ma	Max.
Transient Peak Plate Current		
Each Plate (See Rating Chart III)	4.0 Amperes	Max.

CHARACTERISTICS

Tube Voltage Drop, $I_b = 225$ Ma Each Plate	44 Volts
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TYPICAL OPERATION

Full Wave Rectifier — Capacitor Input Filter

A C Plate Supply Voltage Each Plate, R M S ²	300	450 Volts
Filter Input Capacitor	40	40 μ f
Effective Plate-Supply Impedance Each Plate	35	85 Ohms
D C Output Current	245	225 Ma
D C Output Voltage at Filter Input	290	470 Volts

Full Wave Rectifier — Choke Input Filter

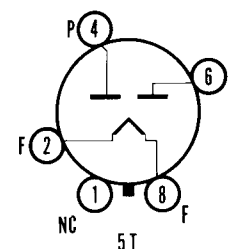
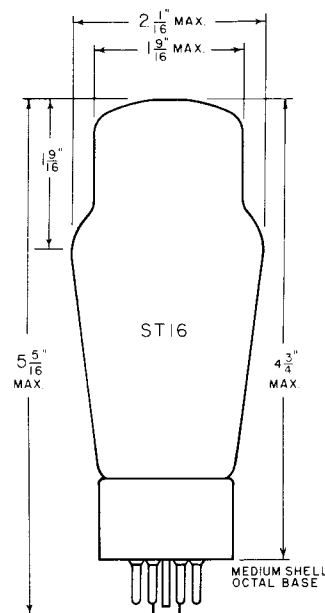
A C Plate Supply Voltage Each Plate, R M S ²		550 Volts
Filter Input Choke		10 Henrys
D C Output Current		225 Ma
D C Output Voltage at Filter Input		440 Volts

NOTES:

1. Horizontal operation is permitted if Pins 1 and 4 are in a vertical plane.
2. A C plate voltage is measured without load.

QUICK REFERENCE DATA

The Sylvania Type 5U4G is a filamentary, fullwave, high vacuum rectifier designed for service in the power supplies of equipment having high current requirements. Electrically, the 5U4G is similar to the Types 5X4G and 5Z3.



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*Prepared and Released By The
TECHNICAL PUBLICATIONS SECTION
EMPORIUM, PENNSYLVANIA*

MARCH 1956

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INTERPRETATION OF RATING CHARTS

Rating Charts I, II and III represent boundary conditions beyond which operation is not permitted. With the aid of simple laboratory measurements and the use of the three Charts, any application may be analyzed for proper rectifier type operation.

The boundaries of Rating Chart I are based on limits of supply voltage, plate dissipation and output current. These boundaries differ, depending upon the type of filter used. With capacitor input, operation is confined to the area bounded by FAEDG while for choke input, the entire area bounded by FABCDG may be used.

The boundary of Rating Chart II defines the limit of steady-state peak current. Operation within the boundary is permitted.

Rating Chart III defines the minimum value of effective plate supply resistance, per plate, for any given plate voltage supply which will assure that the surge currents are within a safe value.

$$R_s = N^2 R_{pri} + R_{sec} + R_a$$

Where: N — Voltage step up ratio of plate transformer.
 R_{pri} — D C resistance of transformer primary.
 R_{sec} — Average D C resistance of transformer secondary per section.
 R_a — Added series resistance.

For any application, each Chart should be consulted. On *all* Charts the points of operation should fall within the proper boundaries.

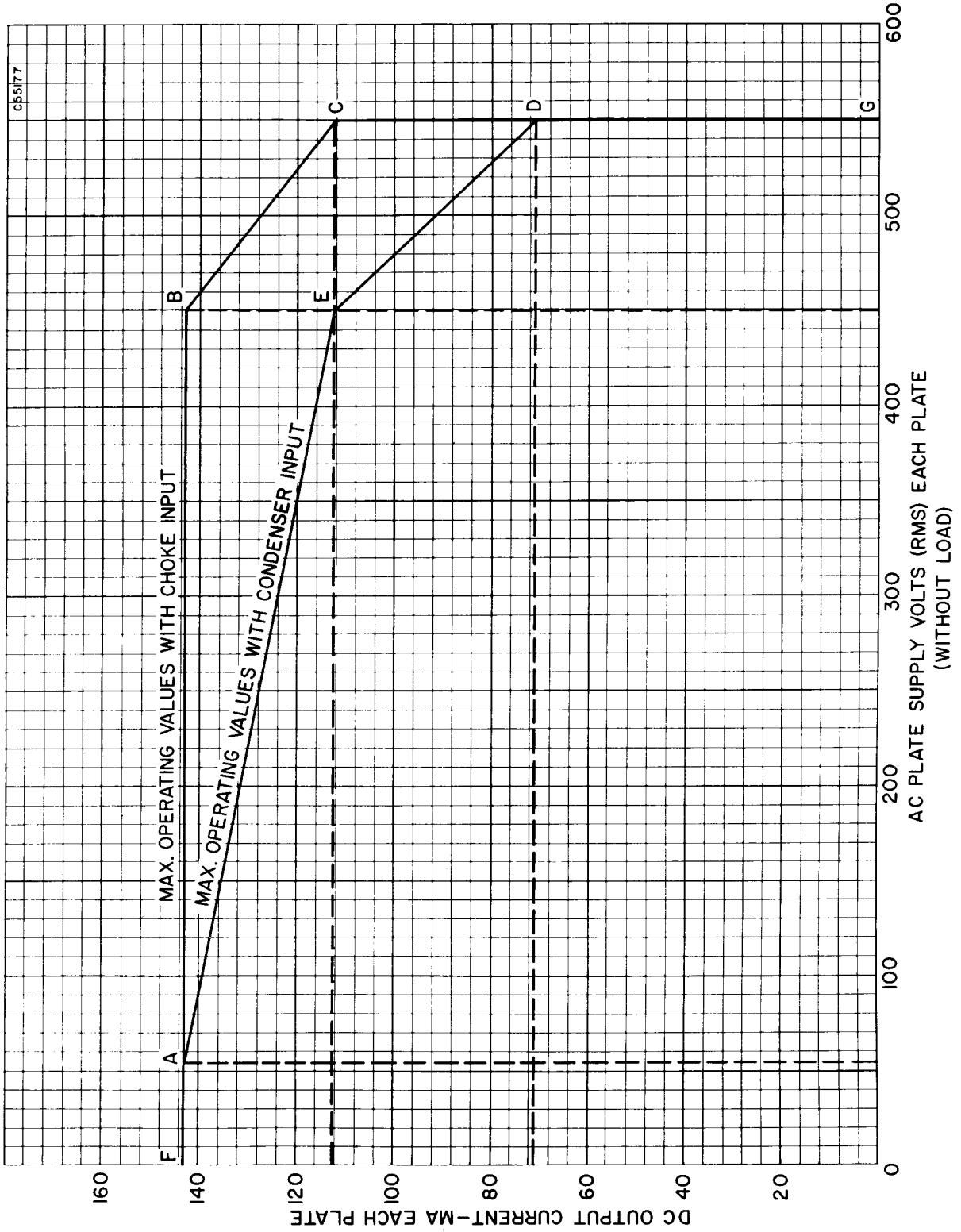
Plate supply voltages are measured with the rectifier tube non-conducting, i.e., with the transformer unloaded. This unloaded voltage is used when calculating rectification efficiency.

The rectification efficiency is defined as:

$$\frac{\text{D C Output Voltage}}{\sqrt{2} \text{ (Unloaded RMS Supply Voltage Per Plate)}}$$

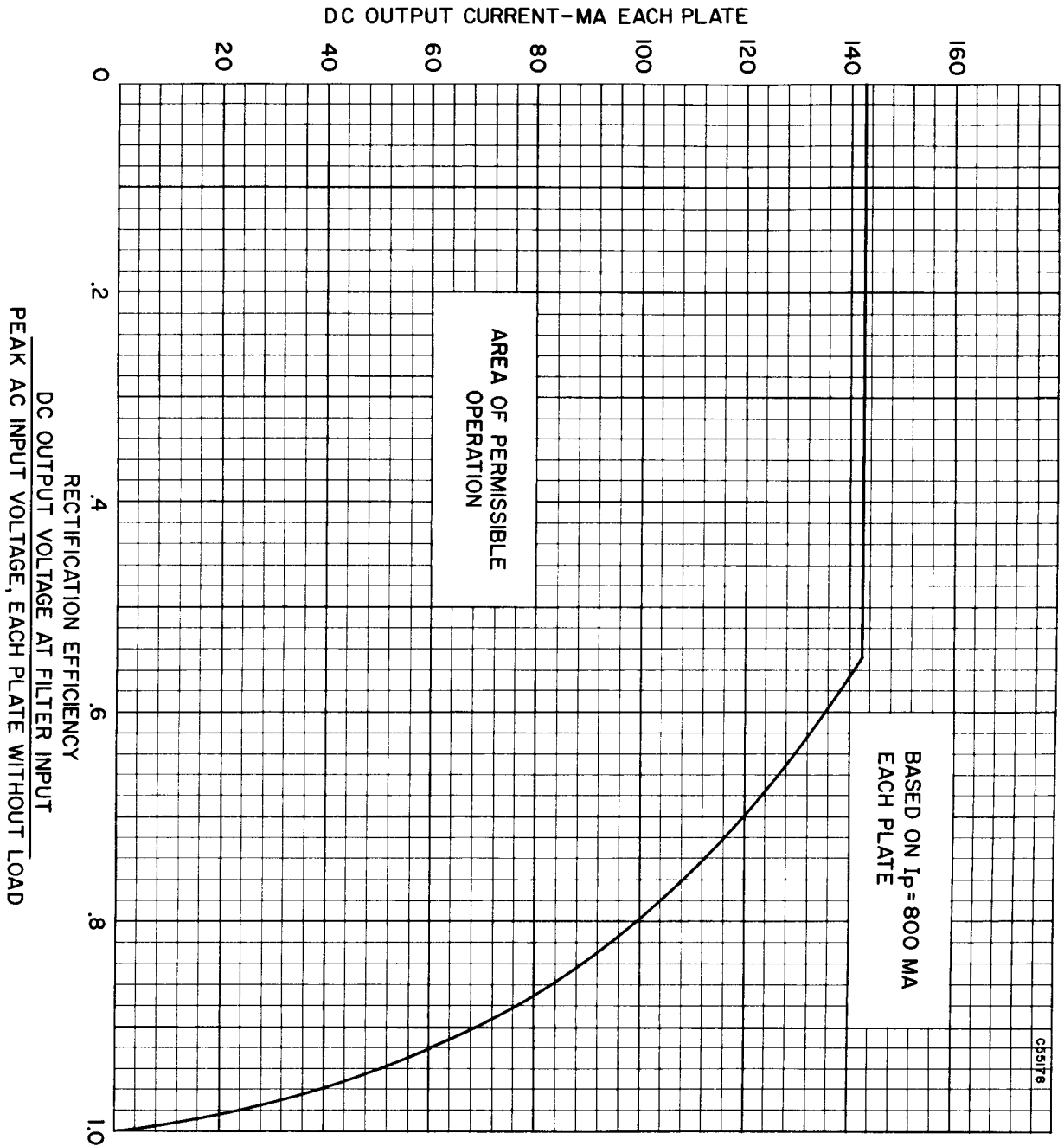
The D C output voltage is measured at the input to the filter.

RATING CHART I



655/77

RATING CHART II
CAPACITOR INPUT



RATING CHART III
CAPACITOR INPUT

