Rectifier *Type A 209*

General. An oil-insulated rectifier designed for use in X-ray apparatus.

Ratings:

Continuous Duty:

$I_{dc\ (max)}$	100 mA
PIV $_{(max)}$	140 kV

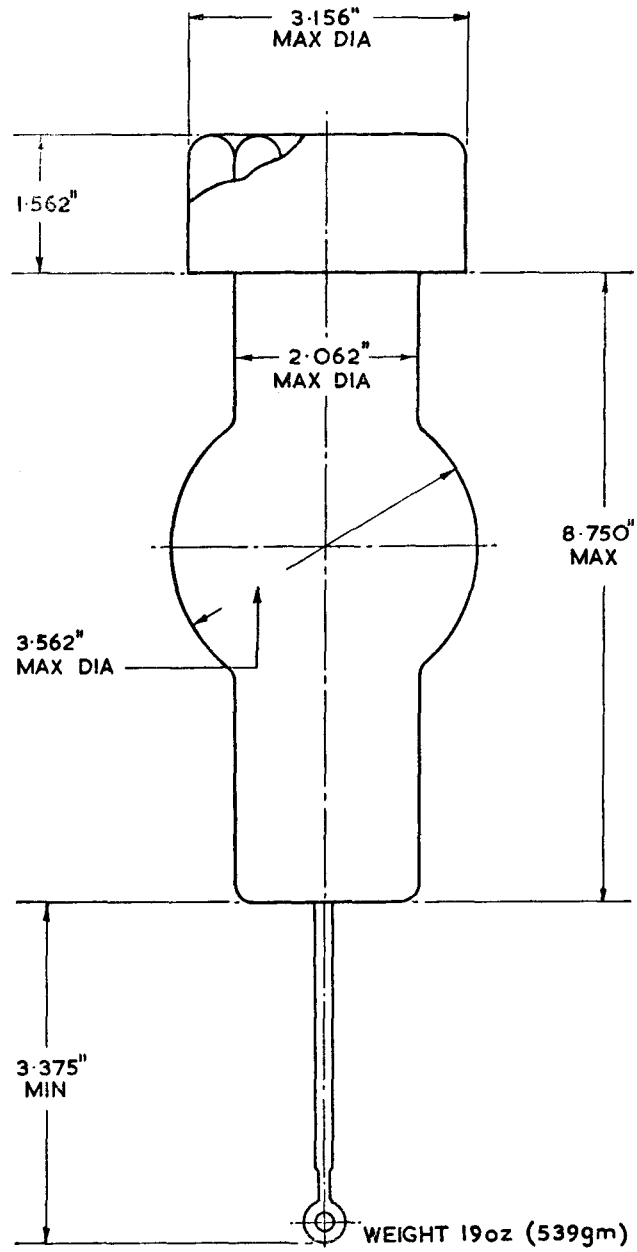
Intermittent Duty:

(applicable to usual radiographic exposure times)

$I_{dc\ (max)}$	500 mA
PIV $_{(max)}$	125 kV

These ratings apply to a full-wave bridge circuit without condenser and the stated values refer to the current as read on a DC average milliammeter in series with the load.

For half-wave circuits the current values should be halved.



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Inverse Voltage Ratings. It is important that the inverse voltage of the circuit does not exceed the published maximum rating of the rectifier. Voltages in excess of the published maximum may cause instability, flash-over or puncture. To ensure dependable stable operation at rated voltage, each valve is carefully seasoned and tested at voltages in excess of rating.

Load Current Ratings. The load rating values for the curve shown are based on a full-wave circuit output without condenser. The use of any other circuit requires a correction of the current rating so that the peak values of current produced will not exceed the peak values obtained from the published full-wave rating.

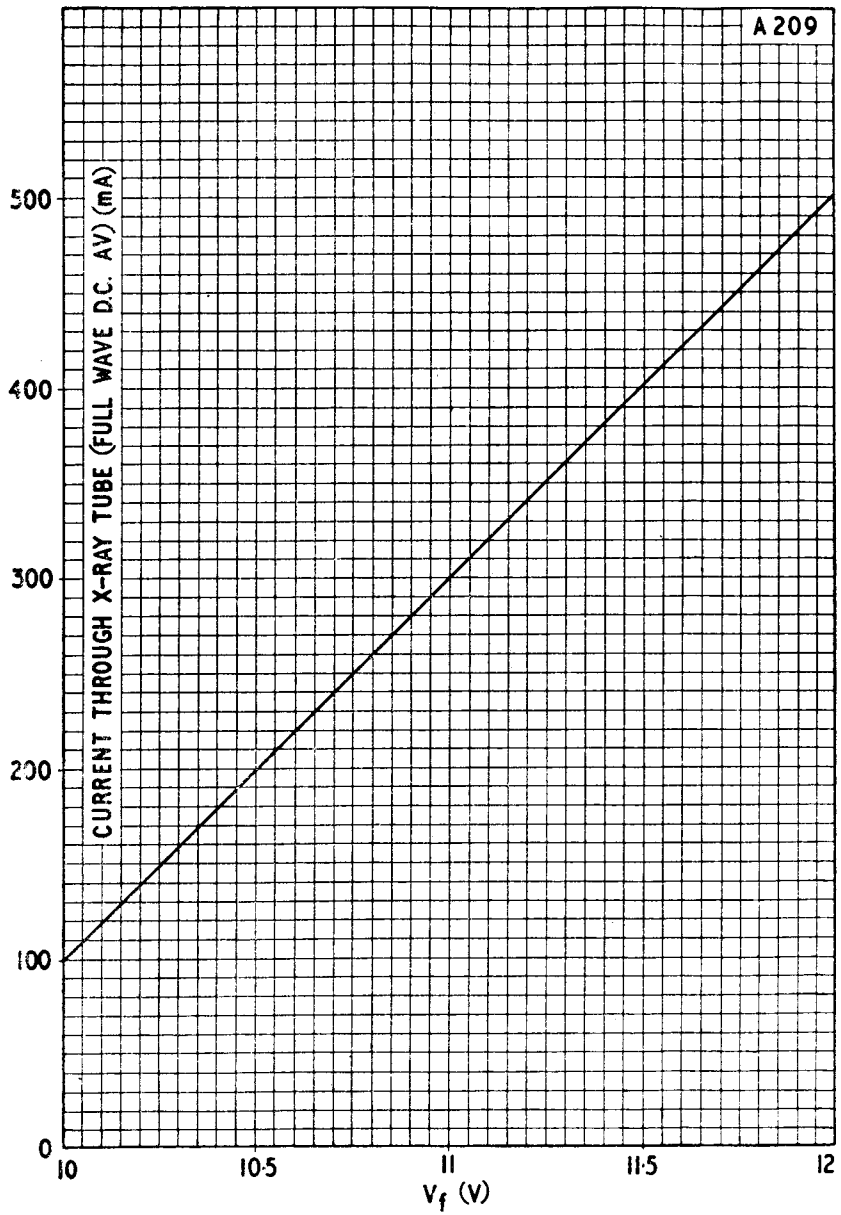
Filament Adjustments. The life of a rectifier is governed to a great extent by the operating temperature of the filament. In order to obtain long life, the practice of energizing the filaments just before the radiographic exposure, and turning them off immediately thereafter, should be followed.

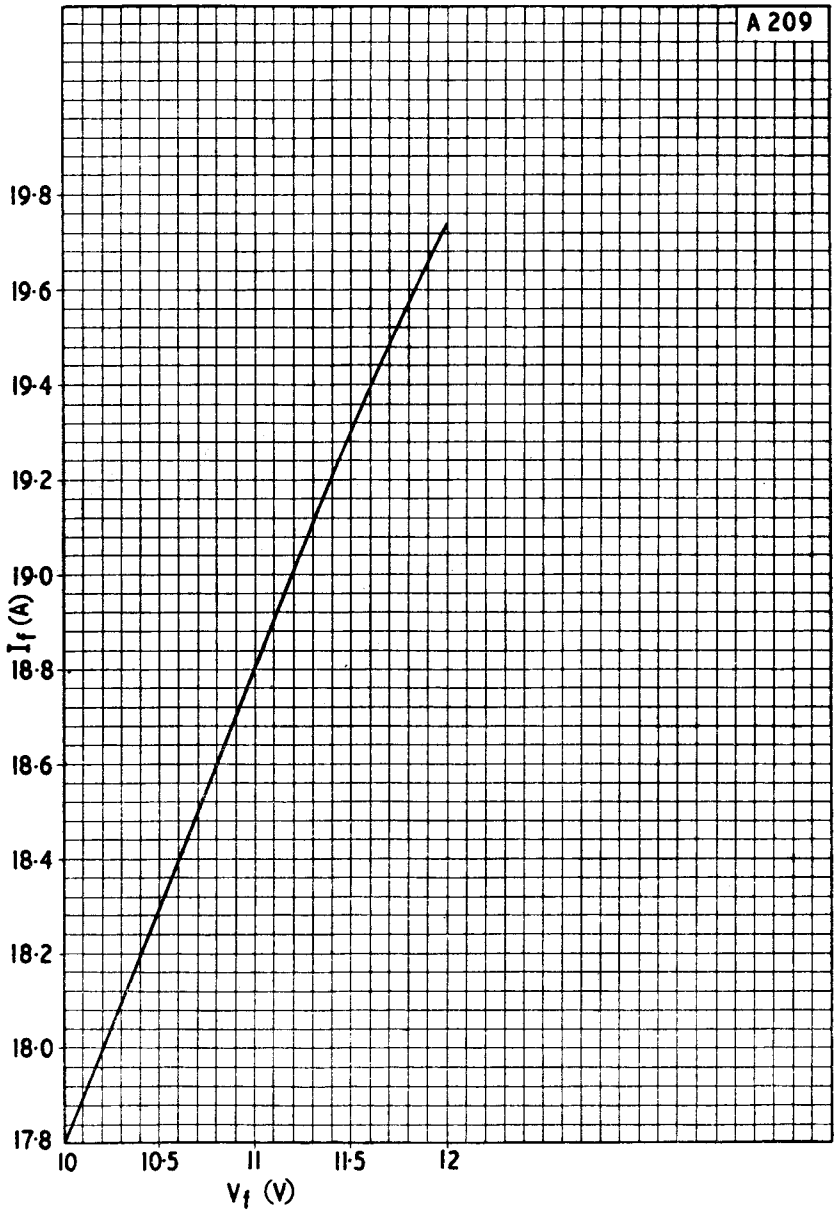
The importance of setting the filament voltage in accordance with the Filament Voltage Adjustment Chart cannot be over-estimated. Low filament voltage will result in low emission from the filament and a high forward voltage drop which may be deleterious to the operation of the valve. On the other hand, an excessive filament voltage will result in short filament life.

The Filament Voltage Adjustment Chart is based on the use of full-wave circuits without condensers. For other circuits, the filament voltage must be adjusted so that the peak values of current produced will correspond exactly with the peak values of current calculated from this chart.

Fluctuations in supply line voltage should be checked and the filament voltage set at a value high enough to avoid the possibility of the filament voltage dropping below the value indicated on the Filament Voltage Adjustment Chart.

Installation. The A 209 rectifier may be operated in any position. Adequate clearance must be maintained around the valve when it is installed in order to prevent sparking to other objects. The insulating oil should have a dielectric strength of at least 25,000 V per 0·1 in. and must be free from dirt and moisture.


A 209
CURRENT THROUGH X-RAY TUBE (FULL WAVE D.C. AV) (mA)
500
400
300
200
100
0
10
10·5
11
11·5
12
V_f (V)


A 209
19·8
19·6
19·4
19·2
19·0
18·8
18·6
18·4
18·2
18·0
17·8
I_f (A)
10
10·5
11
11·5
12
V_f (V)

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