

# FEDERAL MERCURY VAPOR Half-Wave Rectifier Type F-869-B



## GENERAL DATA

### DESCRIPTION:

Federal's F-869-B is a mercury vapor, half-wave rectifier for use in high-voltage rectifier circuits.

### Electrical:

|                                    |            |
|------------------------------------|------------|
| ► Filament Voltage                 | 5 Volts    |
| ► Filament Current                 | 20 Amperes |
| ► Cathode Heating Time<br>Required | 60 Seconds |
| ► Anode Voltage Drop               | 15 Volts   |
| ► Critical Anode Voltage           | 100 Volts  |

### Mechanical:

|                                                                     |                |
|---------------------------------------------------------------------|----------------|
| ► Type of Cooling—Convection<br>or Forced Air                       |                |
| ► Equilibrium Condensed Mercury<br>Temperature Rise Over<br>Ambient |                |
| No Load—Approx.                                                     | 15° Centigrade |
| Full Load—Approx.                                                   | 20° Centigrade |
| ► Mounting Position—<br>Vertical, Base Down                         |                |
| ► Net Weight, Maximum                                               | 3.8 Pounds     |

### Maximum Ratings, Absolute Values

|                                         |            |                       |
|-----------------------------------------|------------|-----------------------|
| Maximum Peak Inverse<br>Anode Voltage   | 15,000     | 20,000 Volts          |
| Condensed Mercury<br>Temperature Limits | 30° to 50° | 30° to 40° Centigrade |
| Max. Cathode Current                    |            |                       |
| Peak                                    | 10         | 10 Amperes            |
| Average                                 | 2.5        | 2.5 Amperes           |
| Surge (maximum<br>duration 0.1 sec.)    | 100        | 100 Amperes           |
| Max. Averaging<br>Time                  | 30         | 30 Seconds            |
| Max. Frequency                          | 150        | 150 Cycles/sec.       |

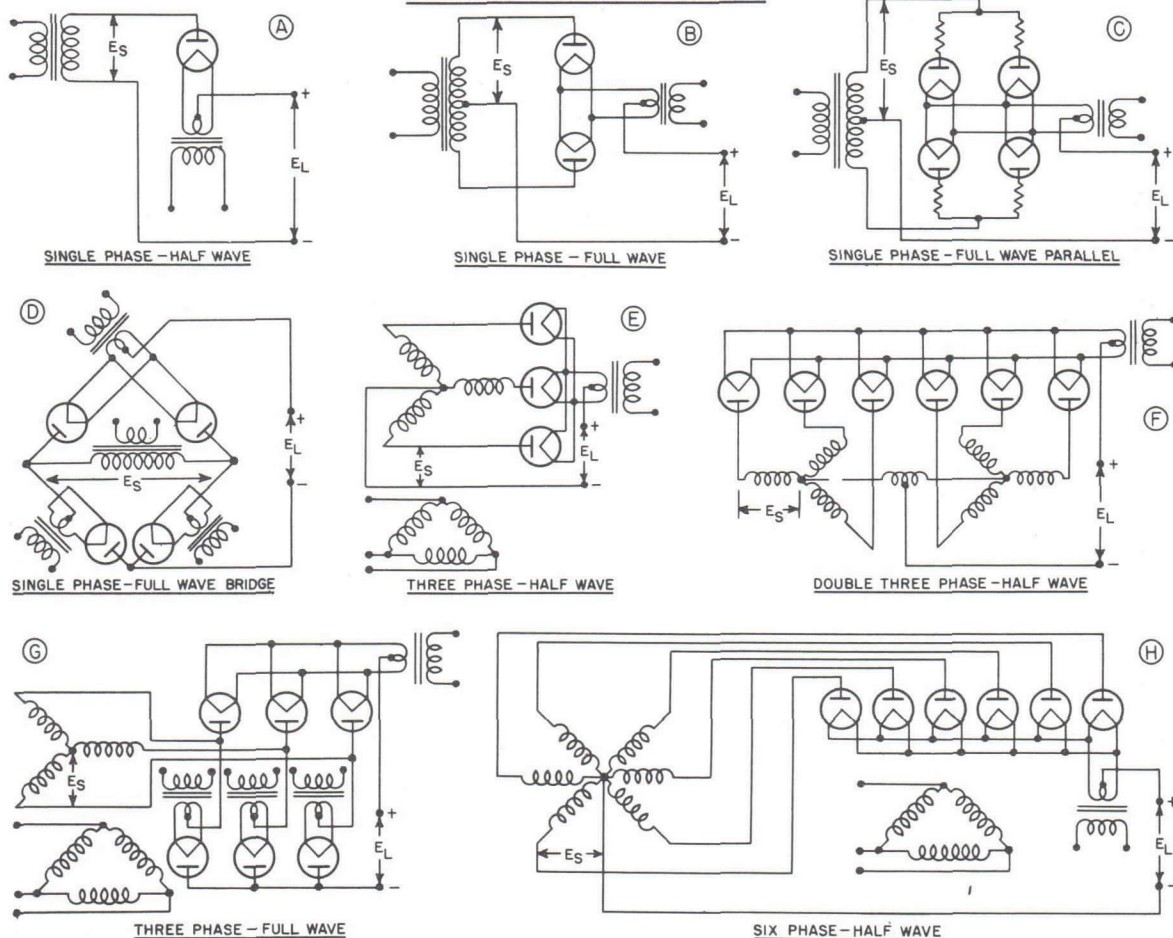


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Federal produces tubes of only the highest quality, satisfying the most exacting users.



## TYPICAL RECTIFIER CIRCUITS



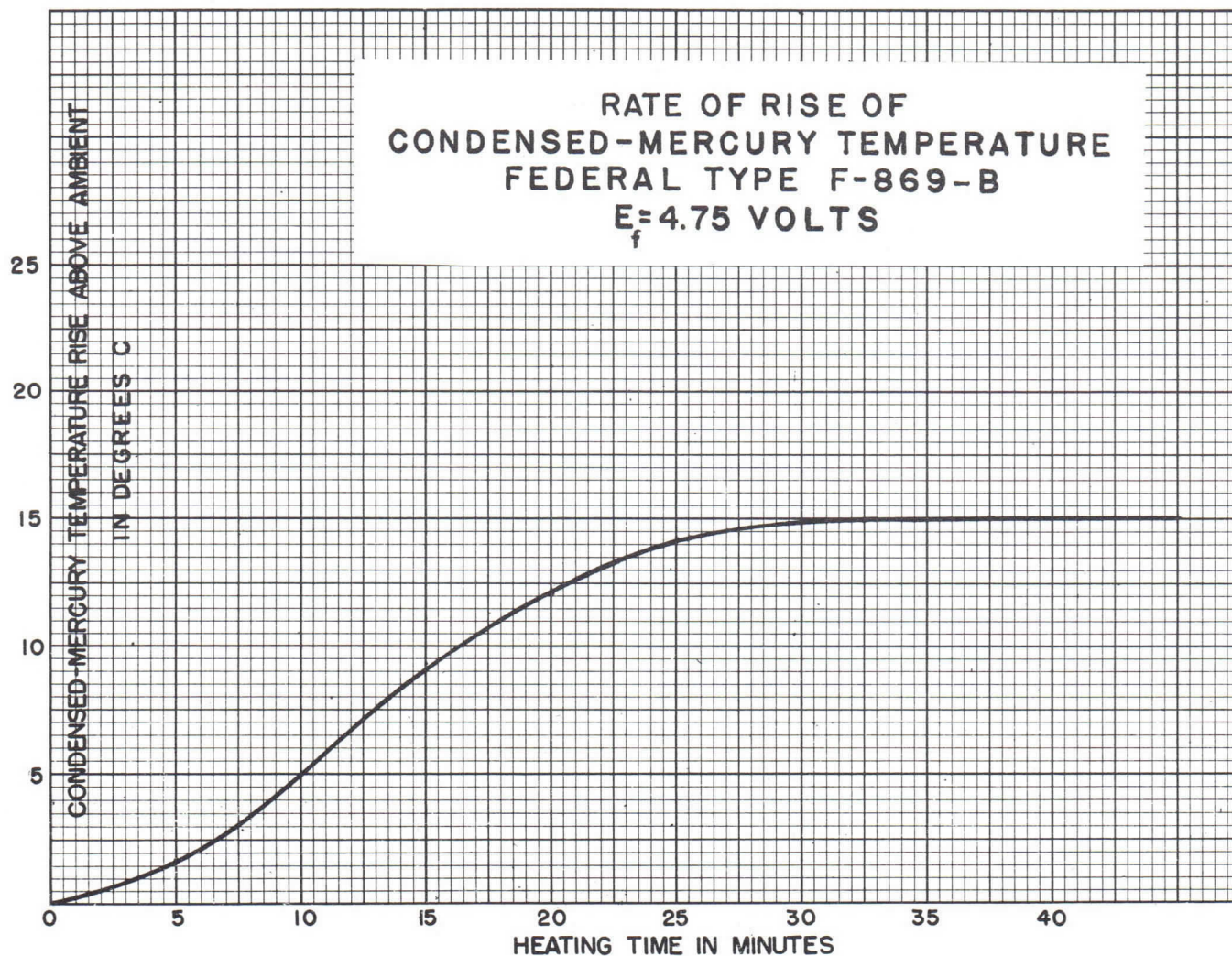
## TYPICAL OPERATION FOR MAXIMUM OUTPUT\*

| Circuit | R.M.S. Trans.<br>Sec. Volt ( $E_s$ ) | DC Voltage<br>to Filter ( $E_L$ ) | Max. DC<br>Load Current |
|---------|--------------------------------------|-----------------------------------|-------------------------|
| A       | 14,000                               | 6,300                             | 2.5                     |
| B       | 7,000                                | 6,300                             | 5.0                     |
| C       | 7,000                                | 6,300                             | 10.0                    |
| D       | 14,000                               | 12,700                            | 5.0                     |
| E       | 8,100                                | 9,500                             | 7.5                     |
| F       | 8,100                                | 9,500                             | 15                      |
| G       | 8,100                                | 19,000                            | 7.5                     |
| H       | 7,000                                | 9,500                             | 9.5                     |

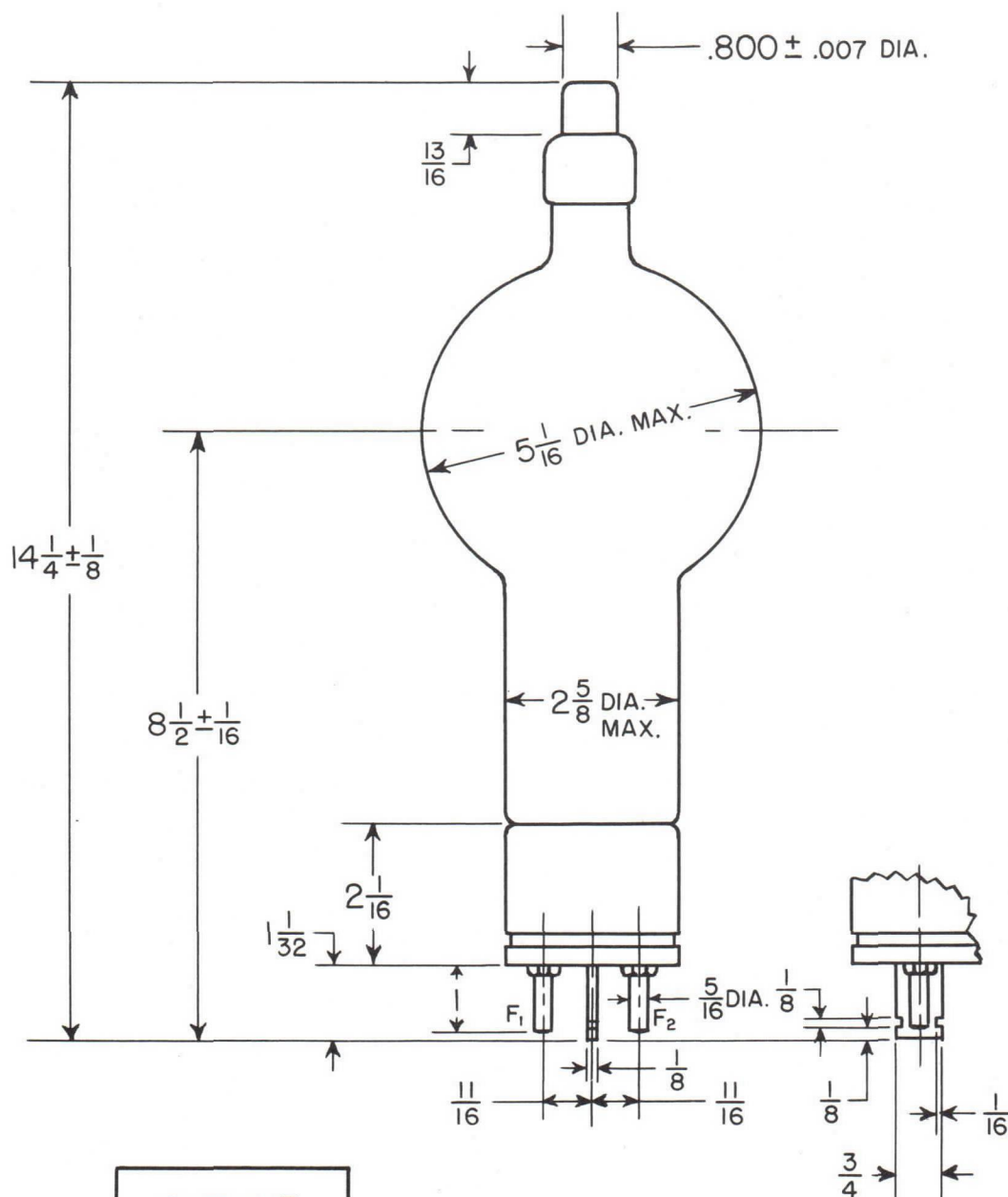
\*For sine wave input and choke input filter to maintain output current substantially constant.

Federal's longer tube life means lower costs. Increase the life of the tubes in your equipment, and unit costs per hour go down.

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**In *satisfying* the customer and winning his confidence, Federal has reduced tube selling to a formula.**



OUTLINE  
F-869-B



*Federal Telephone and Radio Company*

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