

# FEDERAL POWER TRIODE

## Type F-5918-A

70 Kilowatts Plate Dissipation



*ref to data sheet F-5918*

### GENERAL DATA

#### DESCRIPTION:

*see Mr. Roach*

Federal's F-5918-A is a three-electrode tube designed for use as radio-frequency amplifier, oscillator, or Class B modulator. The anode is water-cooled, capable of dissipating 70 kilowatts. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 22 megacycles.



#### Electrical:

|                                                                     |                       |
|---------------------------------------------------------------------|-----------------------|
| ► Filament Voltage                                                  | 11 Volts              |
| ► Filament Current                                                  | 285 Amperes           |
| ► Filament Starting Current                                         | 1000 Amperes max.     |
| ► Filament Cold Resistance                                          | .005 Ohms             |
| ► Peak Cathode Current                                              | 100 Amperes           |
| ► Amplification Factor, at<br>$I_b = 2$ amps.<br>$E_b = -200$ volts | 37                    |
| ► Interelectrode Capacitances                                       |                       |
| Grid-Plate                                                          | 34.5 $\mu\mu\text{f}$ |
| Grid-Filament                                                       | 75 $\mu\mu\text{f}$   |
| Plate-Filament                                                      | 2.4 $\mu\mu\text{f}$  |

#### Mechanical:

|                                              |         |
|----------------------------------------------|---------|
| ► Mounting Position—<br>Vertical, Anode Down |         |
| ► Type of Cooling—Water                      |         |
| Water Flow on Anode                          | 30 GPM  |
| Maximum Outgoing Water<br>Temperature        | 70° C   |
| Maximum Glass Temperature                    | 150° C  |
| ► Net Weight, approximate                    | 25 Lbs. |

# FEDERAL POWER TRIODE Type F-5918-A 70 Kilowatts Plate Dissipation



The F-5918-A has given *proven* service in 200 KW plate modulated short-wave transmitters.

## Maximum Ratings and Typical Operating Conditions

### AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

#### Maximum Ratings, Absolute Values

|                                  |               |
|----------------------------------|---------------|
| DC Plate Voltage                 | 17,500 Volts  |
| Maximum Signal DC Plate Current† | 15 Amperes    |
| Maximum Signal Plate Input†      | 175 Kilowatts |
| Plate Dissipation†               | 70 Kilowatts  |

#### Typical Operation

(Unless otherwise specified, values are for two tubes)

|                                           |               |
|-------------------------------------------|---------------|
| DC Plate Voltage                          | 14,000 Volts  |
| DC Grid Voltage                           | —300 Volts    |
| Peak A-F Grid-to-Grid Voltage             | 1,600 Volts   |
| Zero Signal DC Plate Current              | 2 Amperes     |
| Maximum Signal DC Plate Current           | 16 Amperes    |
| Effective Load Resistance, Plate to Plate | 2,250 Ohms    |
| Max. Sig. Driving Power, approx.          | 1,500 Watts   |
| Max. Sig. Power Output, approx.           | 150 Kilowatts |

†Averaged over any audio frequency cycle of sine-wave form.

### RADIO-FREQUENCY POWER AMPLIFIER—CLASS B

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

#### Maximum Ratings, Absolute Values

|                   |               |
|-------------------|---------------|
| DC Plate Voltage  | 17,500 Volts  |
| DC Plate Current  | 12 Amperes    |
| Plate Input       | 100 Kilowatts |
| Plate Dissipation | 70 Kilowatts  |

#### Typical Operation

|                             |              |
|-----------------------------|--------------|
| DC Plate Voltage            | 15,000 Volts |
| DC Grid Voltage             | —375 Volts   |
| Peak R-F Grid Voltage       | 500 Volts    |
| DC Plate Current            | 4.9 Amperes  |
| DC Grid Current             | 0.0 Amperes  |
| Driving Power, approximate‡ | 770 Watts    |
| Power Output, approximate   | 25 Kilowatts |

‡At crest of audio-frequency cycle with modulation factor of 1.0.

### PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER—CLASS C TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

#### Maximum Ratings, Absolute Values

|                   |               |
|-------------------|---------------|
| DC Plate Voltage  | 14,000 Volts  |
| DC Grid Voltage   | —3,000 Volts  |
| DC Plate Current  | 12 Amperes    |
| DC Grid Current   | 2 Amperes     |
| Plate Input       | 165 Kilowatts |
| Plate Dissipation | 47 Kilowatts  |

#### Typical Operation

|                            |               |
|----------------------------|---------------|
| DC Plate Voltage           | 14,000 Volts  |
| DC Grid Voltage            | —800 Volts    |
| Peak R-F Grid Voltage      | 1,550 Volts   |
| DC Plate Current           | 10 Amperes    |
| DC Grid Current            | 1.4 Amperes   |
| Driving Power, approximate | 2 Kilowatts   |
| Power Output, approximate  | 104 Kilowatts |

### RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

(Key-down conditions per tube without amplitude modulation)††

#### Maximum Ratings, Absolute Values

|                   |               |
|-------------------|---------------|
| DC Plate Voltage  | 17,500 Volts  |
| DC Grid Voltage   | —3,000 Volts  |
| DC Plate Current  | 18 Amperes    |
| DC Grid Current   | 2 Amperes     |
| Plate Input       | 300 Kilowatts |
| Plate Dissipation | 70 Kilowatts  |

#### Typical Operation

|                              |               |
|------------------------------|---------------|
| DC Plate Voltage             | 17,500 Volts  |
| DC Grid Voltage              | —1,000 Volts  |
| Peak R-F Grid Voltage        | 1,960 Volts   |
| DC Plate Current             | 13.8 Amperes  |
| DC Grid Current, approximate | 2 Amperes     |
| Driving Power, approximate   | 3.6 Kilowatts |
| Power Output, approximate    | 180 Kilowatts |

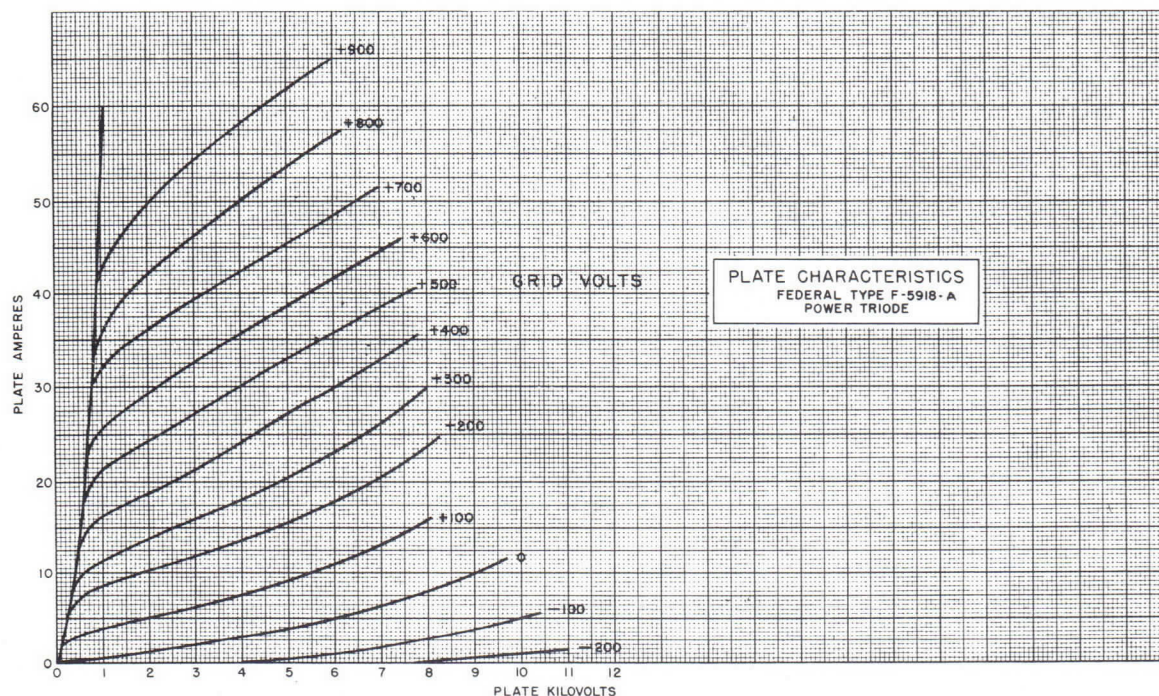
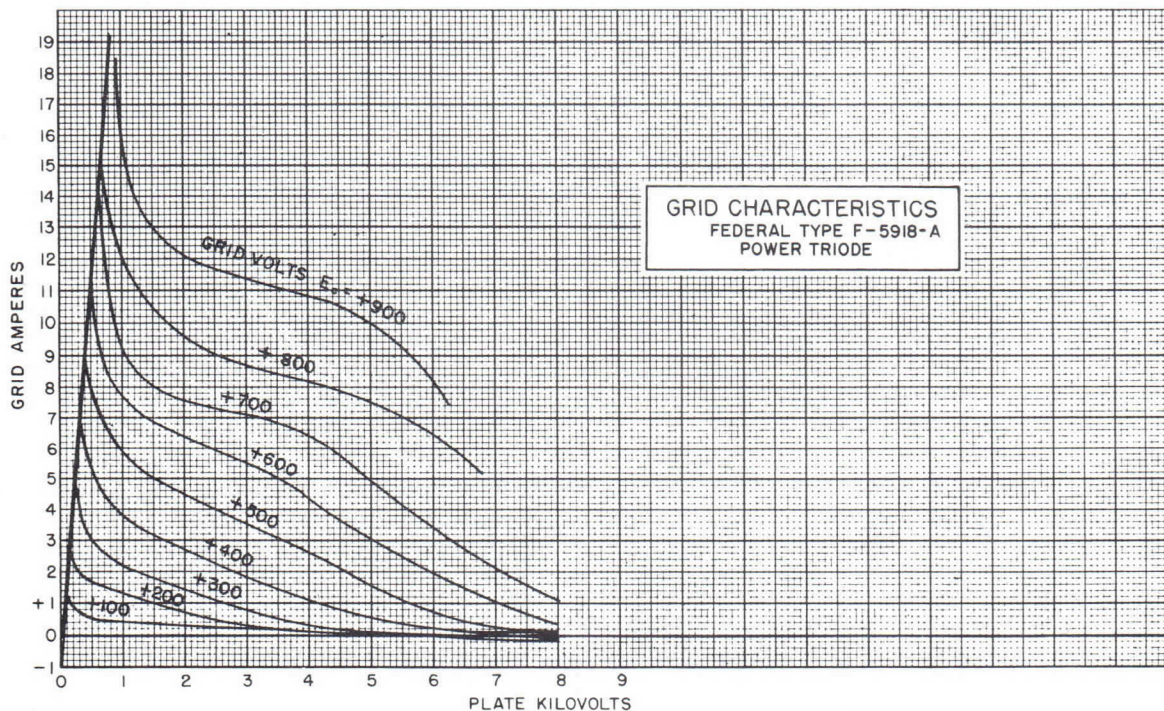
††Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of carrier conditions.

The F-5918-A grid is especially treated for unusually high heat dissipation contributing to stability in operation.

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## Type F-5918-A

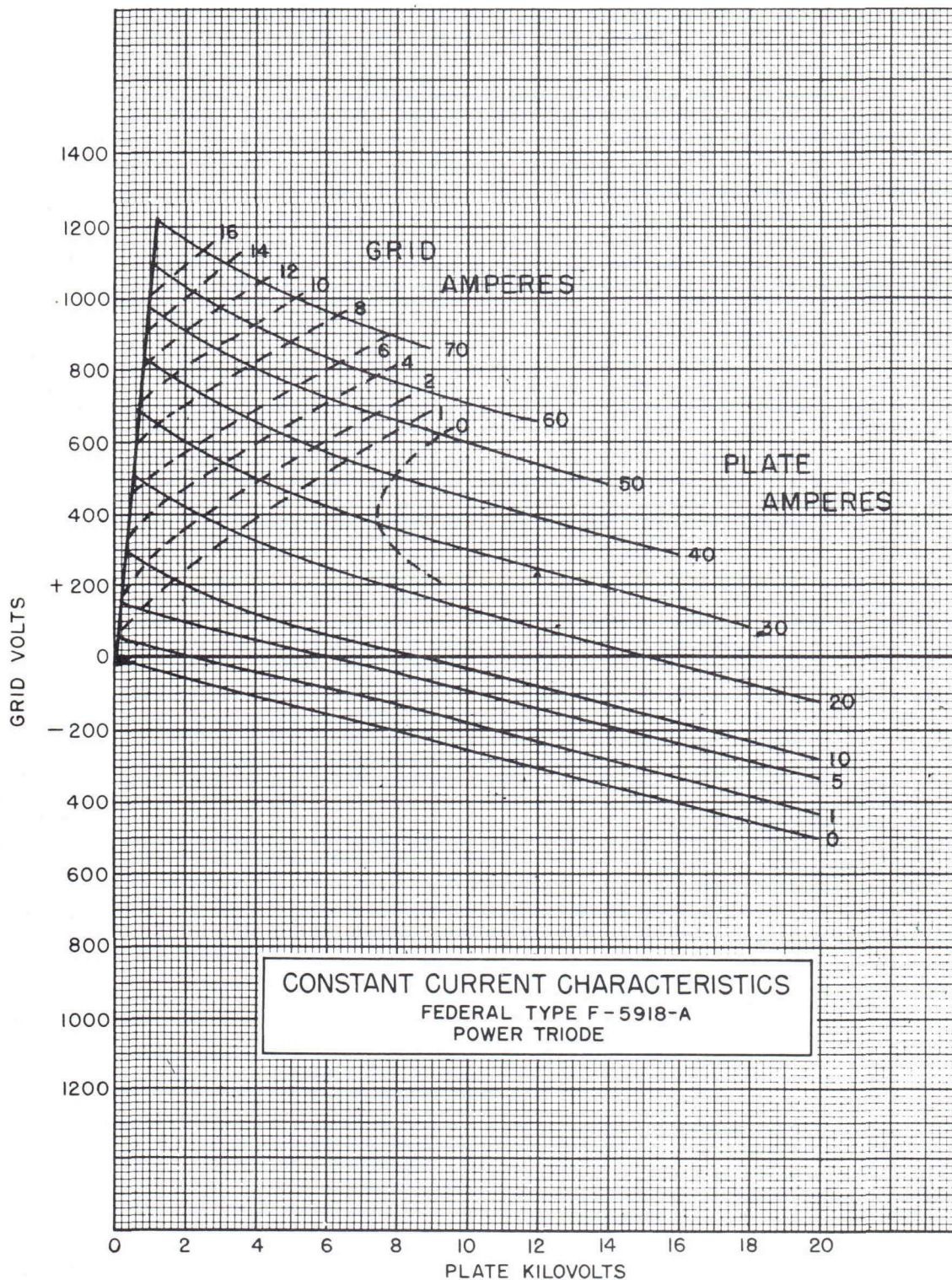
### 70 Kilowatts Plate Dissipation



# FEDERAL POWER TRIODE Type F-5918-A 70 Kilowatts Plate Dissipation



Federal means longer tube life, finer performance, greater satisfaction, greater value for your tube dollar.

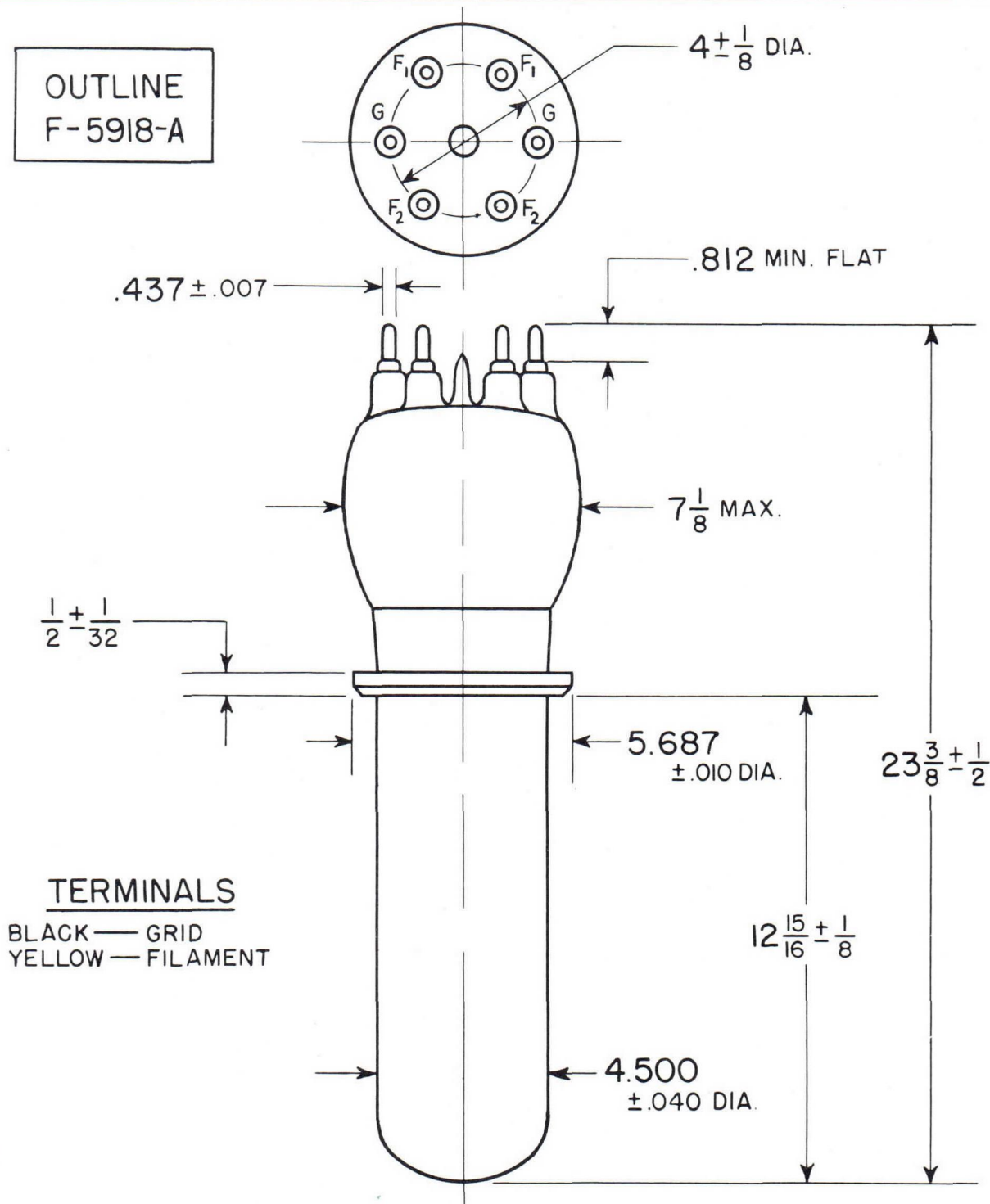


Kovar-to-glass seals throughout and heavy wall anode contribute to the electrical and mechanically rugged structure of the F-5918-A

# FEDERAL POWER TRIODE Type F-5918-A 70 Kilowatts Plate Dissipation



OUTLINE  
F-5918-A



## TERMINALS

BLACK — GRID  
YELLOW — FILAMENT

*Federal Telephone and Radio Company*

100 Kingsland Road VACUUM TUBE DEPARTMENT Clifton, New Jersey



**Federal Always Has  
Made Better Tubes**