

FEDERAL POWER TRIODE

Type F-892-R

4 Kilowatts Plate Dissipation



GENERAL DATA

DESCRIPTION:

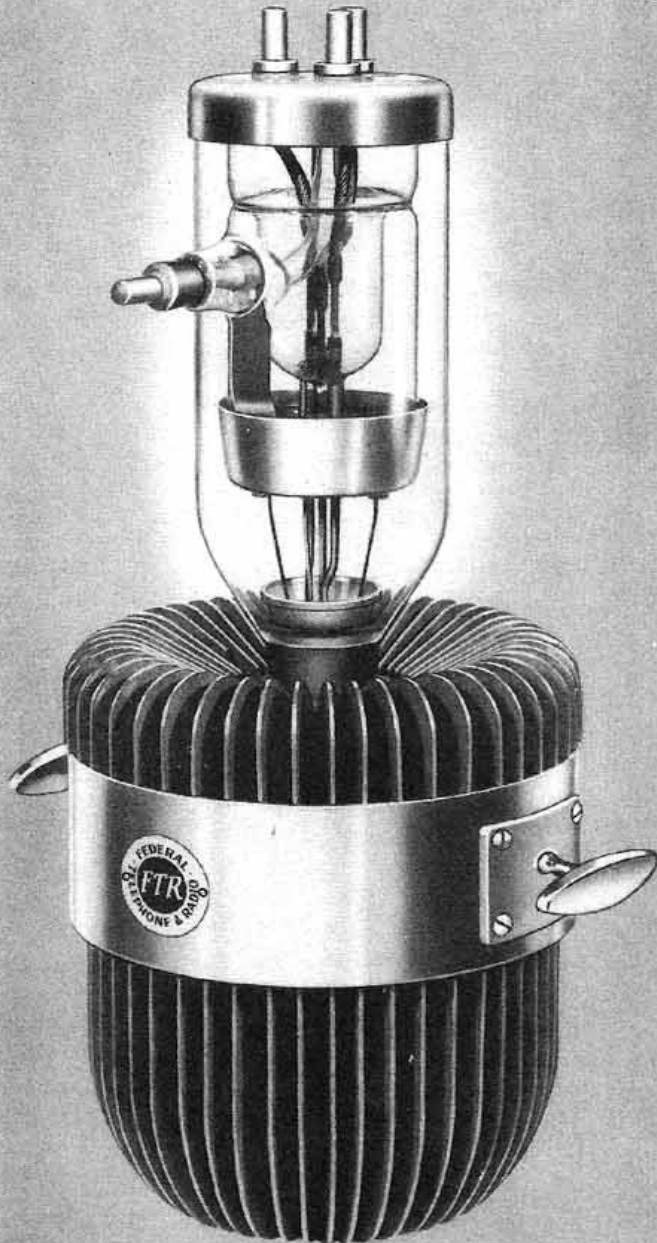
The Type F-892-R by Federal is a three-electrode tube designed for use as a radio-frequency power amplifier, oscillator, and Class B modulator. The anode, cooled by forced air, is capable of dissipating 4 kilowatts. The cathode is a pure tungsten filament constructed to permit operation from single-phase or two-phase alternating current, as well as from direct current. Maximum ratings apply up to 1.6 megacycles, but operation is permissible up to 20 megacycles at reduced ratings.

Electrical:

▶ Filament Voltage	22 Volts
▶ Filament Current	60 Amperes
▶ Filament Starting Current	120 Amperes max.
▶ Filament Cold Resistance	.031 Ohms
▶ Peak Cathode Current	9 Amperes
▶ Amplification Factor, at $I_b = 0.42$ amps. $E_c = -50$ volts	50
▶ Interelectrode Capacitances	
Grid-Plate	31 $\mu\mu f$
Grid-Filament	20 $\mu\mu f$
Plate-Filament	2 $\mu\mu f$

Mechanical:

▶ Mounting Position—	
Vertical, Anode Down	
▶ Type of Cooling—Forced Air	
Maximum Incoming	
Air Temperature	45° C
▶ Required Air Flow on Anode	
Plate Dissipation	
(Kilowatts)	4 3.2 2.4
Air Flow—Cubic	
Feet Per Min.	450 380 300
Pressure—Inches	
Water	0.5 0.36 0.2
Maximum Glass	
Temperature	150° C
▶ Max. Radiator Temperature	
(Measured in Well)	180° C
▶ Net Weight,	
Approximate	46 Pounds



In AM broadcast stations where 24-hour service is an everyday "must", Federal's F-892-R is the convincing answer.

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Maximum Ratings vs. Operating Frequency

Frequency	1.6	7.5	20 Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input			
Class B—	100	85	76 Per Cent
Class C—Telephony	100	75	50 Per Cent
Class C—Telegraphy	100	75	50 Per Cent

Maximum Ratings and Typical Operating Conditions

AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum Ratings, Absolute Values

DC Plate Voltage	12,500 Volts
Maximum Signal DC Plate Current†	2 Amperes
Maximum Signal Plate Input†	12 Kilowatts
Plate Dissipation†	4 Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

DC Plate Voltage	6,000	8,000 Volts
DC Grid Voltage	0	—60 Volts
Peak A-F Grid-to-Grid Voltage	1,000	1,000 Volts
Zero Signal DC Plate Current	0.5	0.5 Amperes
Maximum Signal DC Plate Current	2.6	2.3 Amperes
Effective Load Resistance, Plate to Plate	4,200	6,800 Ohms
Maximum Signal Driving Power, approximate	135	84 Watts
Maximum Signal Power Output, approximate	8	10.5 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	12,500 Volts
DC Plate Current	1 Ampere
Plate Input	6 Kilowatts
Plate Dissipation	4 Kilowatts

Typical Operation

DC Plate Voltage	6,000	8,000 Volts
DC Grid Voltage	0	—60 Volts
Peak R-F Grid Voltage	230	320 Volts
DC Plate Current	0.64	0.67 Amperes
DC Grid Current, approximate	0.03	0.04 Amperes
Driving Power, approximate‡	77	150 Watts
Power Output, approximate	1	1.8 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	10,000 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	1 Ampere
DC Grid Current	0.3 Amperes
Plate Input	10 Kilowatts
Plate Dissipation	2.5 Kilowatts

Typical Operation

DC Plate Voltage	6,000	8,000 Volts
DC Grid Voltage	—1,000	—1,300 Volts
Peak R-F Grid Voltage	1,650	1,950 Volts
DC Plate Current	0.83	0.82 Amperes
DC Grid Current, approximate	0.28	0.24 Amperes
Driving Power, approximate	420	430 Watts
Power Output, approximate	3.5	5 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	12,500 Volts
DC Grid Voltage	—3,000 Volts
DC Plate Current	2 Amperes
DC Grid Current	0.4 Amperes
Plate Input	18 Kilowatts
Plate Dissipation	4 Kilowatts

Typical Operation

DC Plate Voltage	8,000	10,000 Volts
DC Grid Voltage	—1,000	—1,300 Volts
Peak R-F Grid Voltage	1,700	2,150 Volts
DC Plate Current	1.17	1.4 Amperes
DC Grid Current, approximate	0.22	0.24 Amperes
Driving Power, approximate	330	495 Watts
Power Output, approximate	6.5	10 Kilowatts

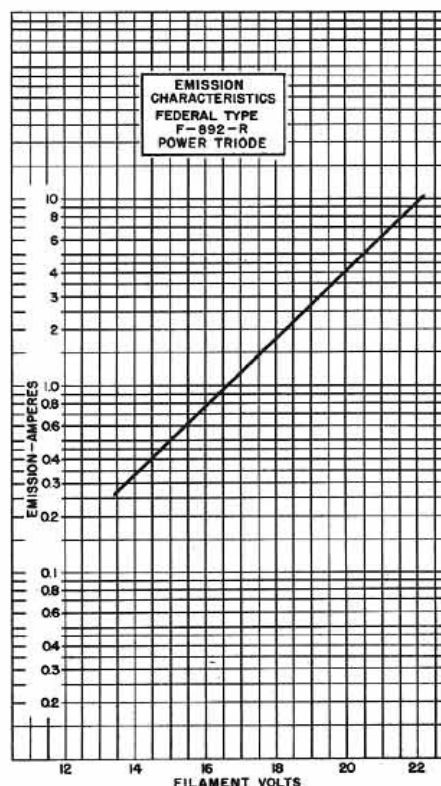
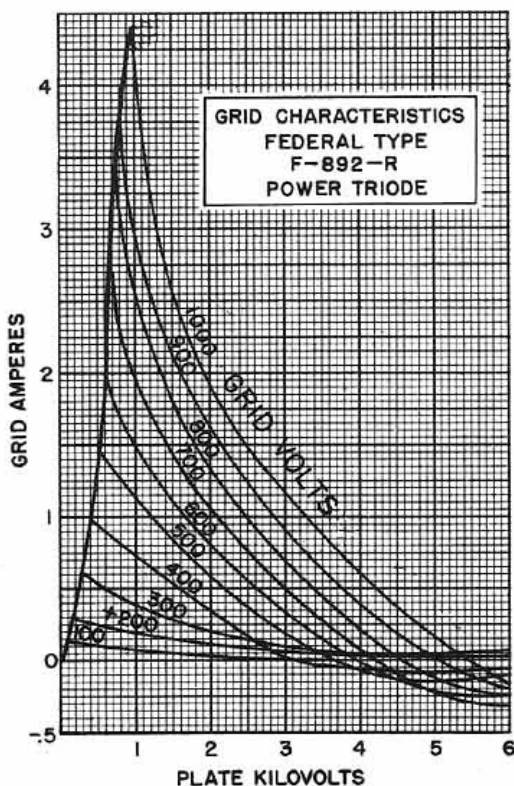
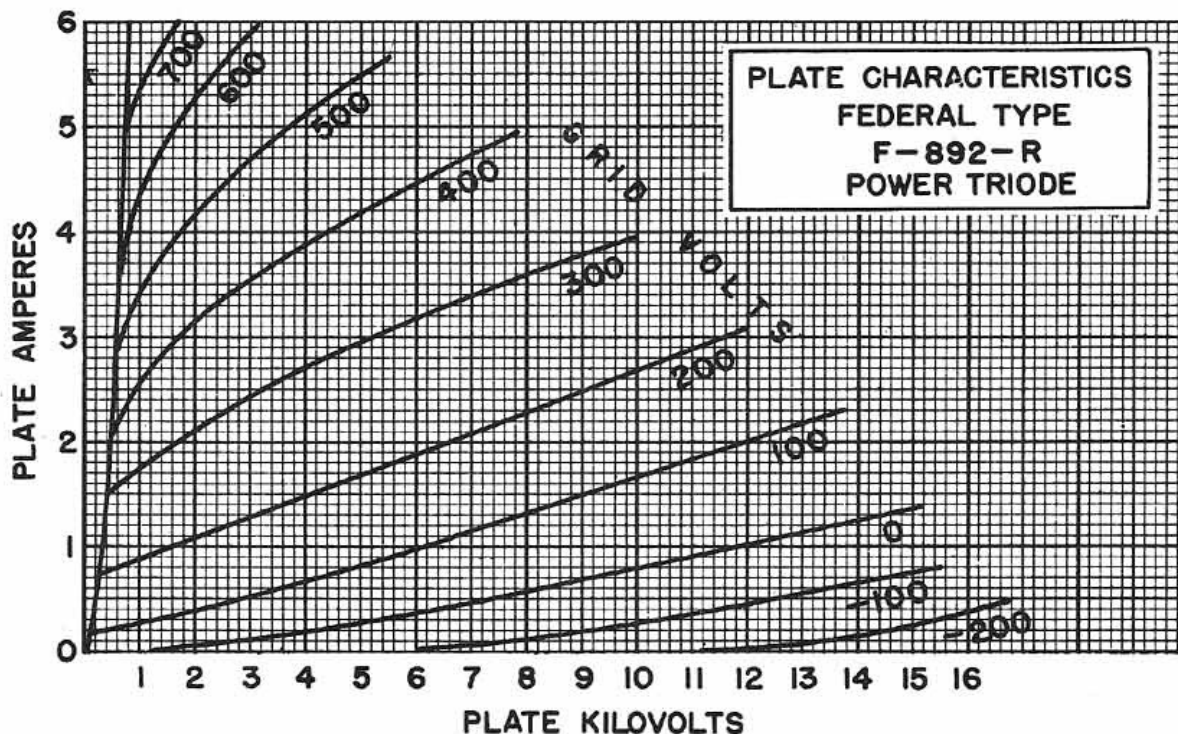
¶Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of carrier conditions.

F-892-R applications include broadcasting and communications as amplifier and modulator . . . industrial heating as an oscillator. The filament takes two-phase or single phase AC or DC excitation.

FEDERAL POWER TRIODE

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4 Kilowatts Plate Dissipation

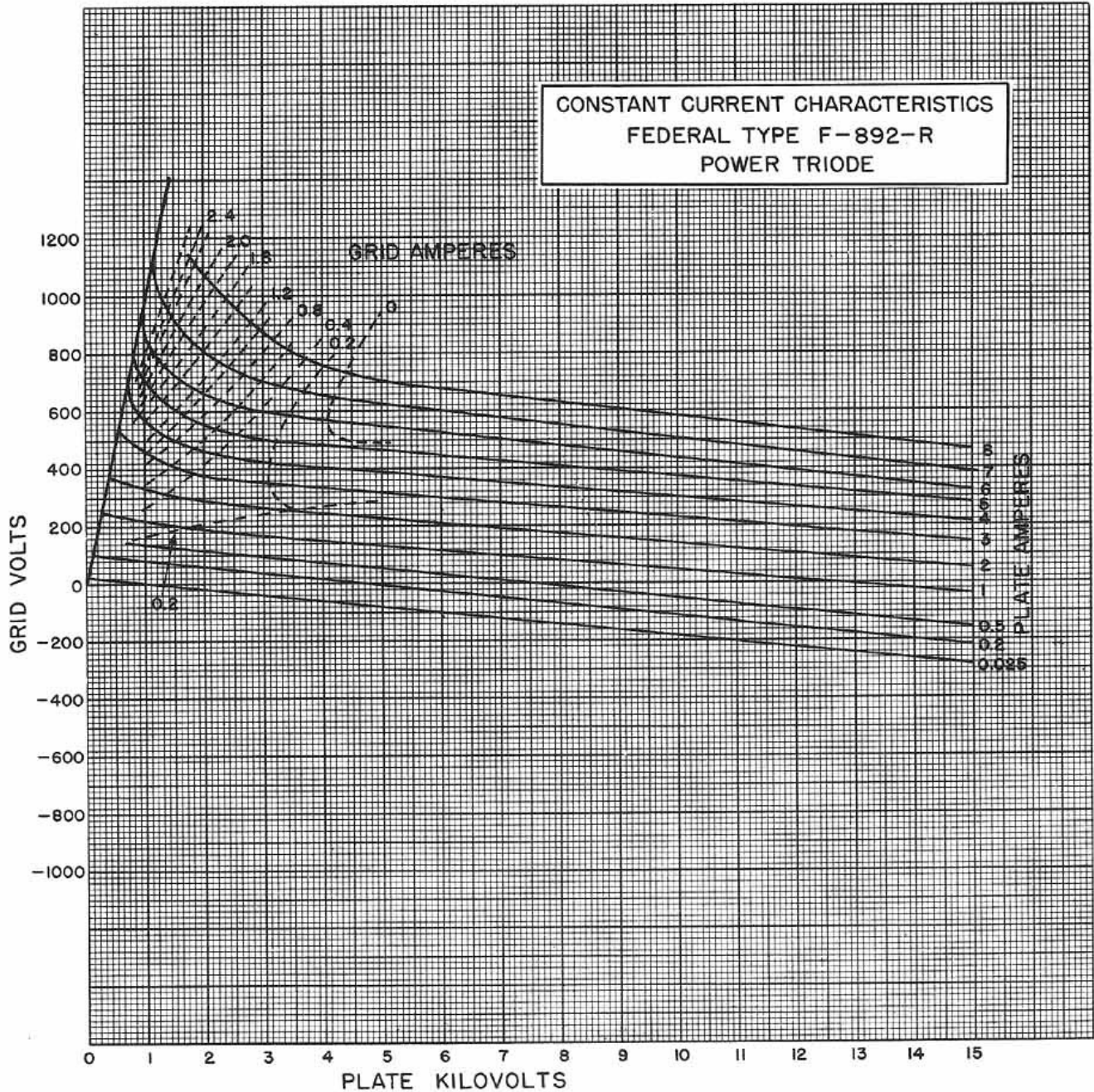


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The F-892-R design *plus* Federal's engineering and craftsmanship pay dividends in the form of longer and better service, fewer tube replacements.

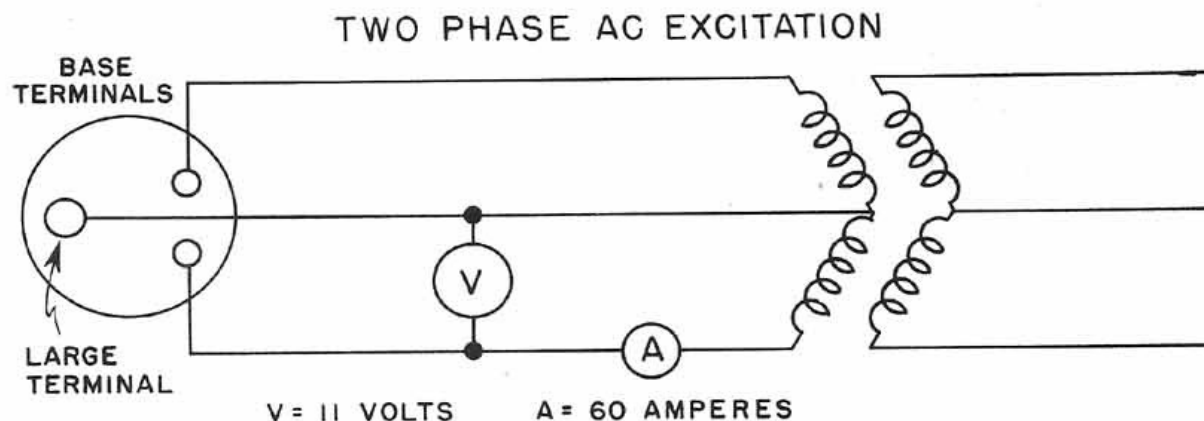
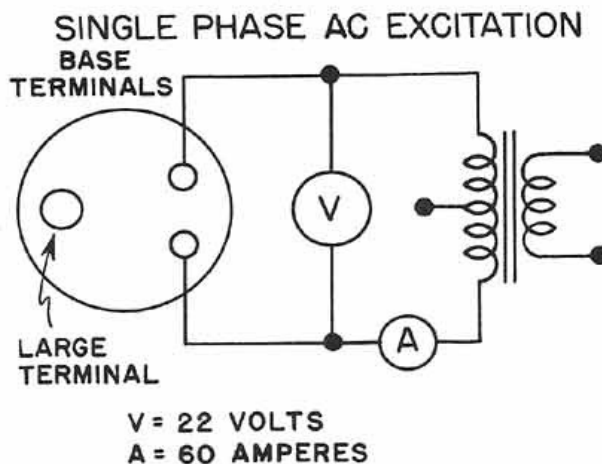
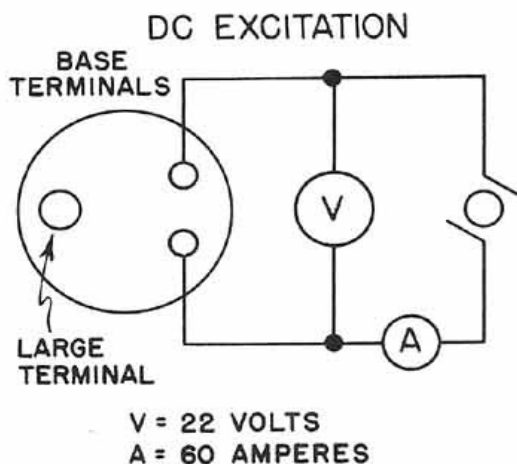


Federal has always adhered to the most rigid standards in tube design, materials used, and in its quality control.

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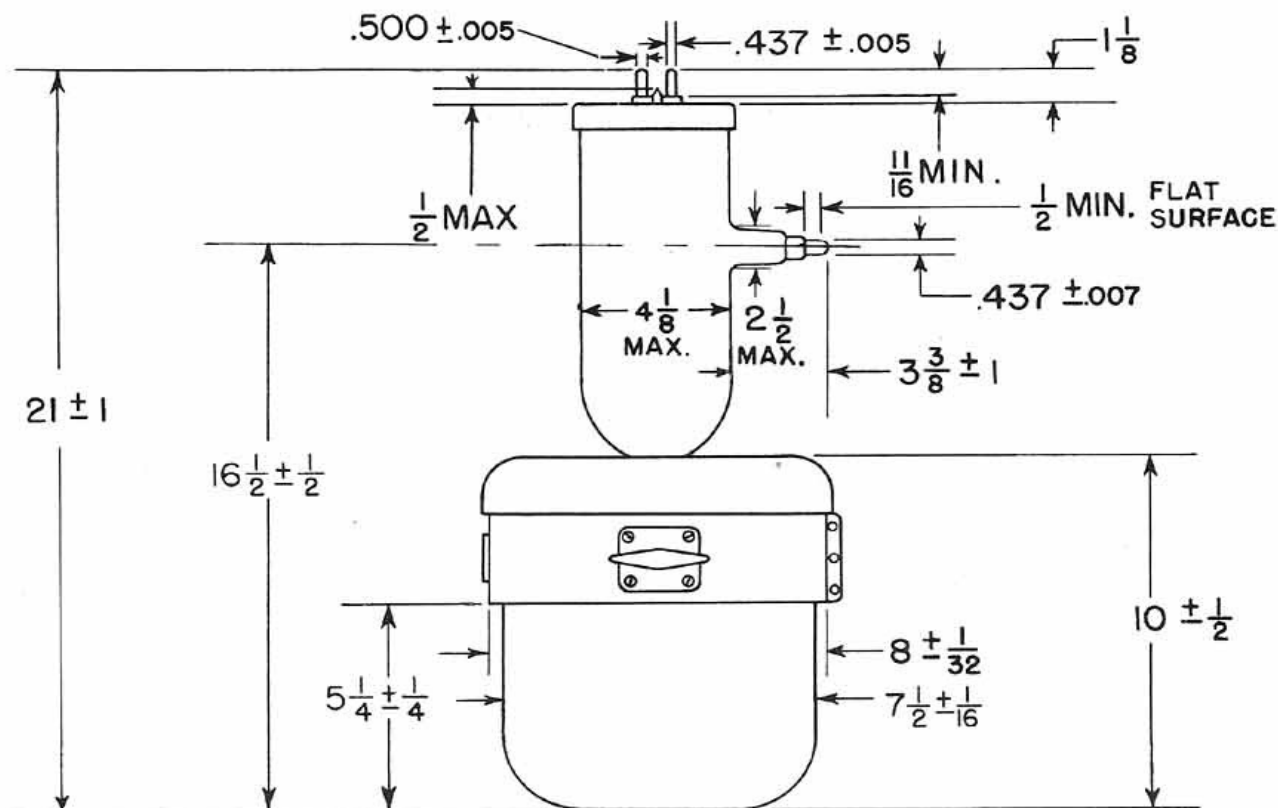
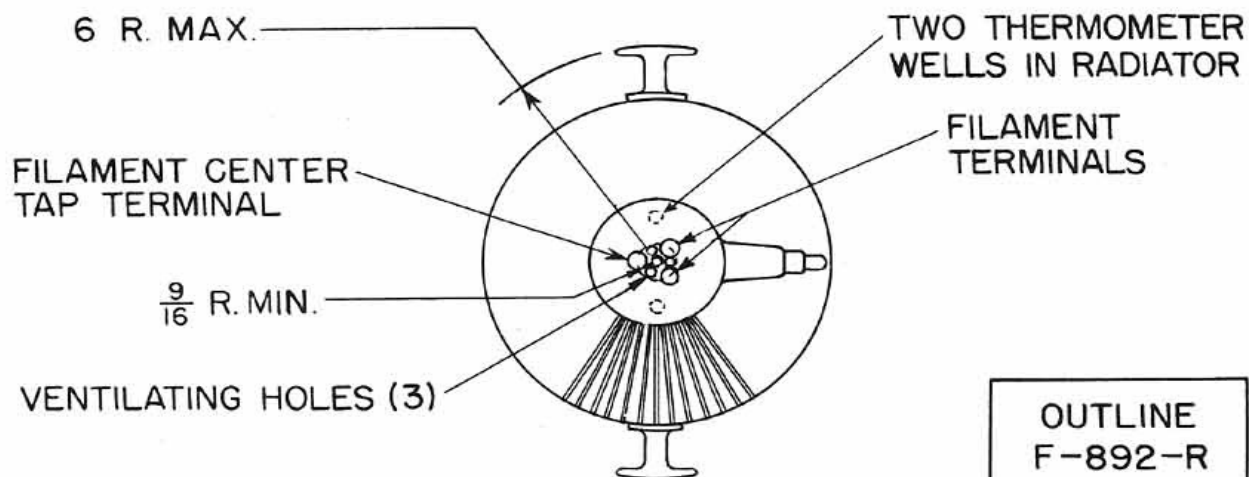
FEDERAL F-892-R
FILAMENT CONNECTIONS

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In every Federal tube there is that added degree of superiority which users call: "Federal's extra-life margin."



Form FJ-165 Printed in U. S. A.



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