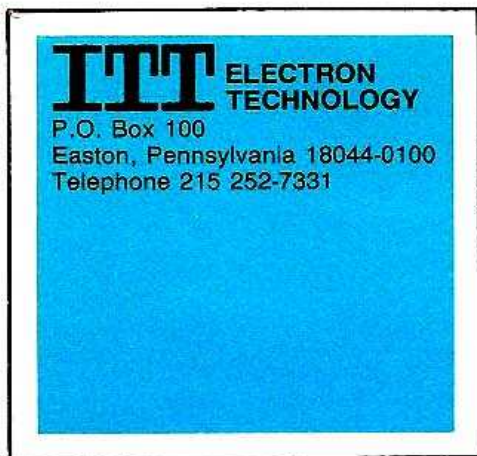




F-1089

POWER TRIODE

DESCRIPTION:

The F-1089 is a three-electrode tube designed for use as a radio frequency amplifier, oscillator, or Class B modulator. The forced-air cooled copper anode radiator assembly of brazed construction is unusually light and compact for its CW rating of 45 KW. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 22 megacycles.

ELECTRICAL

Filament Voltage	11.0	Volts
Filament Current	285	Amperes
Filament Starting Current	1,000	Amperes
Filament Heating Time	15	Seconds
Amplification Factor		
$E_c = -110$ Volts, $I_b = 2.0$ Amps	40	
Direct Inter-Electrode Capacitances		
Grid-Plate	38	μ mf
Grid-Filament	75.0	μ mf
Plate-Filament	2.0	μ mf

MECHANICAL

Mounting Position	Vertical, Anode Down		
Type of Cooling	Forced Air		
Plate Dissipation	45	35	25 KW
Air Flow*	1700	1100	800 cfm
Pressure	6.5	2.7	1.5 "Water
Maximum Incoming Air Temperature	50	50	50 °C
Maximum Glass and Seal Temperature**			180 °C
Net Weight (Approximately)			52 lbs.

*Using Air Distributor RT-55397.

**Operation of frequencies above 2 mc may require air flow onto the dish center in order to hold the temperature of the seals and dish below 180°C.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

(Audio Frequency Power Amplifier and Modulator -- Class B)

Maximum Ratings, Absolute Values

D-C Plate Voltage	19,000	Volts
Maximum Signal D-C Plate Current (Note 1).	9.0	Amperes
Plate Dissipation (Note 1)	45	KW

Typical Operation

(Unless otherwise specified, values are for two tubes)

D-C Plate Voltage	14,000	Volts
D-C Grid Voltage	-300	Volts
Peak A-F Grid-to-Grid Voltage	1,600	Volts
Zero Signal D-C Plate Current	2.0	Amperes
Maximum Signal D-C Plate Current	16	Amperes
Effective Load Resistance, Plate-to-Plate.	2,250	Ohms
Maximum Signal Driving Power (Approx.) . .	1,500	Watts
Maximum Signal Power Output (Approx.) . .	150	KW

PLATE-MODULATED RADIO FREQUENCY POWER AMPLIFIERClass C Telephony

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

Maximum Ratings, Absolute Values

D-C Plate Voltage	14,000	Volts
D-C Grid Voltage	-3,000	Volts
D-C Plate Current	12	Amperes
D-C Grid Current	1.5	Amperes
Plate Dissipation	30	KW

Typical Operation

D-C Plate Voltage	10,000	14,000	Volts
D-C Grid Voltage	-750	-800	Volts
Peak R-F Grid Voltage	1,360	1,550	Volts
D-C Plate Current	6.6	10	Amperes
D-C Grid Current	0.9	1.4	Amperes
Driving Power (Approximately)	1.2	2.0	KW
Power Output (Approximately)	50	104	KW

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATORClass C Telegraphy

(Key-down conditions per tube without amplitude modulation - Note 2)

Maximum Ratings, Absolute Values

D-C Plate Voltage (Note 3)		17,000	Volts
D-C Grid Voltage		-3,000	Volts
D-C Plate Current		15	Amperes
D-C Grid Current		1.5	Amperes
Plate Dissipation		45	KW

Typical Operation

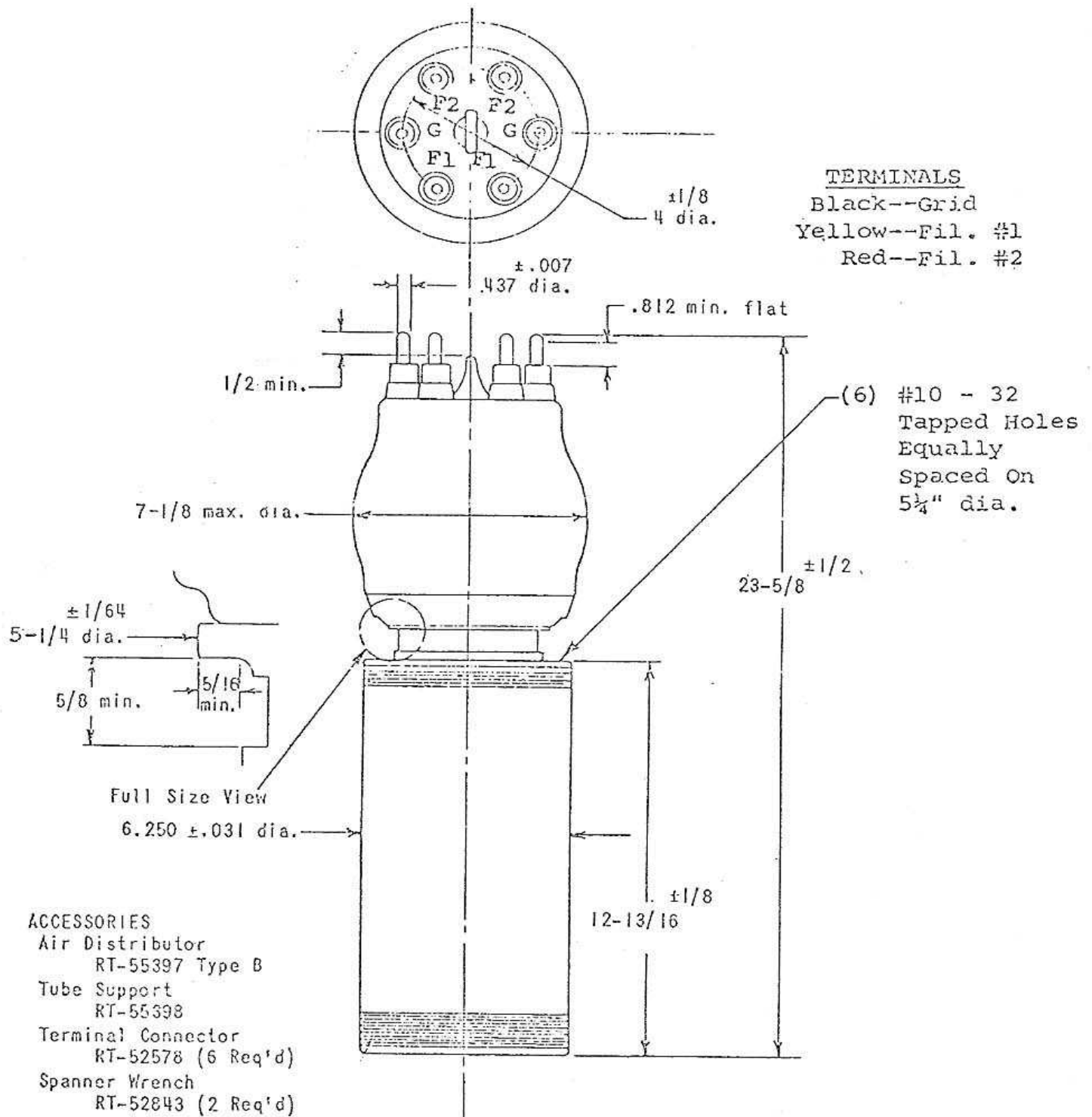
D-C Plate Voltage		14,500	10,000	Volts
D-C Grid Voltage		-2,250	-1,000	Volts
Peak R-F Grid Voltage		3,200	1,675	Volts
D-C Plate Current		8.25	6.4	Amperes
D-C Grid Current (Approximately)		1.45	1.1	Amperes
Driving Power (Approximately)		5.0	1.7	KW
Power Output (Approximately)		90	50	KW

NOTE 1: Averaged over any audio frequency cycle of sine-wave form.NOTE 2: Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115% of carrier conditions.NOTE 3: The tube may be operated up to 19,000 D-C Plate Voltage at frequencies of 2 mc or less.MAXIMUM RATINGS VERSUS OPERATING FREQUENCY

Frequency		2.0	22	30 megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input:				
Class B		100	100	80 percent
Class C Plate Modulated		100	100	80 percent
Class C Unmodulated		115	100	80 percent

Additional information for specific applications can be obtained from the:

ITT ELECTRON TECHNOLOGY DIVISION
 Applications Department
 P.O. Box 100
 Easton, Pennsylvania 18042



CONSTANT CURRENT CHARACTERISTICS

