

Pencil-Tube Oscillator-Amplifier

600W Peak Power Output at 1090 MHz

ELECTRICAL

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3 $\pm$ 5%	V
Current at 6.3 volts (Total)	0.66 max.	A
Frequency	1090	MHz
Tuning Range	$\pm$ 15	MHz
RF Coaxial Output Terminal	Mates with female screw-type connector Sealectro No.50-007-0000 Micon No.1002, or equivalent	
Characteristic Impedance (Approx.)	50	Ω
Change in Peak Power Output During Modulation ^a	0.5 max.	dB
Pulse Rise Time (10% to 90%) ^b	55-90	ns
Pulse Decay Time (90% to 10%)	60-180	ns
RF Delay Time (measured at 50% of pulse amplitude)	250 max.	ns
RF Jitter	10 max.	ns

MECHANICAL

Operating Position	Any
Dimensions and Terminal Connections	See Dimensional Outline
Total Weight	9 max. oz

ENVIRONMENTAL

The units will remain stable within ± 3 MHz in frequency and ± 3 dB in peak power output (from nominal conditions) under any combination of the following conditions:

Vibration:^c

20 to 33 Hz	2	G
33 to 105 Hz	0.036 in	DA
105 to 500 Hz		
Parallel	20	G
Perpendicular	15	G
Shock, 11 ms: ^d	20	G
Case Temperature	-54 to +125	$^{\circ}$ C
Altitude	Up to 30,000	ft



Output VSWR (All phase angles)	1.5:1	
Plate and Heater Voltage Variation	±5	%
Duty Factor (Long term)	Up to 0.01	

GRID-PULSED OSCILLATOR - CLASS C

MAXIMUM RATINGS, Absolute-Maximum Values:

For a maximum long-term duty factor^e of 0.01^f

DC Plate Voltage (Each Unit)	1050 max.	V
Peak Oscillator Grid Current	0.5 max.	A
Peak Amplifier Cathode Current	2.0 max.	A
Peak Plate Current:		
Oscillator	0.7 max.	A
Amplifier	1.5 max.	A
Plate Dissipation (Total)	18 max.	W
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode . . .	60 max.	V
Heater positive with respect to cathode . . .	60 max.	V

TYPICAL OPERATION WITH RECTANGULAR WAVE SHAPE IN GRID-DRIVE CIRCUIT AT 1090 MHz

With duty factor of 0.01 and pulse duration of 0.45 microsecond

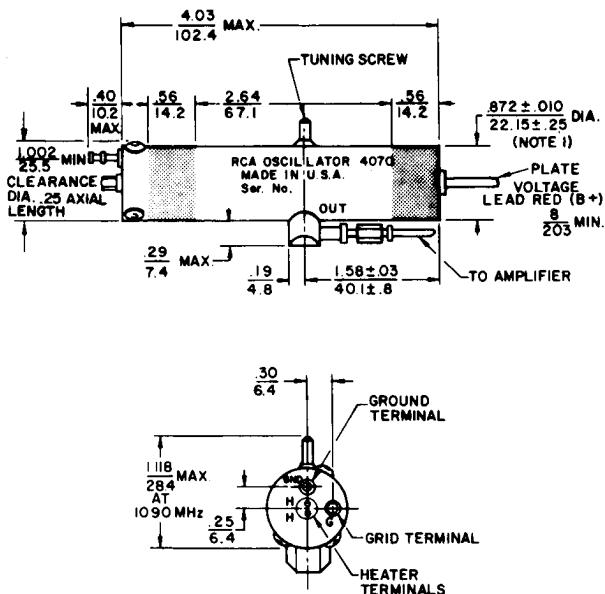
DC Plate Voltage (Each Unit)	1000	V
Oscillator Grid Bias	-80	V
Amplifier Cathode Bias	+25	V
DC Plate Current (Total)	20	mA
Useful Power Output at Peak of Pulse	600	W

- a The change in peak power output between the first video pulse and any other video pulse in a pulse train consisting of 56 pulses. The individual pulse width is 0.45 microseconds and the pulse to pulse spacing is 1.45 microseconds.
- b The pulse rise time and decay time are measured on an oscilloscope having a bandwidth of 24 MHz and a detector having a bandwidth of 12.4 GHz. If the bandwidth of either the oscilloscope or the detector is less than 15 MHz, the measurements must be corrected to account for changes introduced by the instrumentation.
- c Tested per methods described in MIL-STD-202C, Test Method 204A, Test Condition A.
- d Tested per methods described in MIL-STD-202C, Test Method 202B.

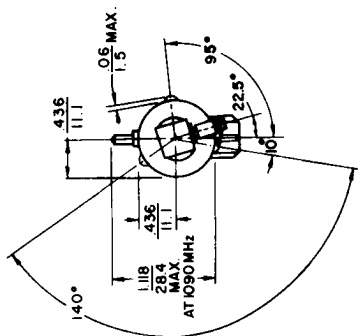
- ^e Duty factor is defined as the product of the pulse duration and repetition rate. For variable pulse durations and pulse repetition rates, the duty factor is defined as the ratio of the "ON" time to total elapsed time in any 2500-microsecond interval. "ON" time is defined as the sum of the durations of all individual pulses which occur during the indicated interval. Pulse duration is defined as the time interval between the two points on the pulse at which the instantaneous value is 70% of the peak power value. Peak value is defined as the maximum value of a smooth curve through the average of the fluctuations over the top portion of the pulse.
- f This value is for continuous pulsing. The duty factor can be 0.25 for any interval up to 100 microseconds in length as long as the long-term duty factor does not exceed 0.01.

NOTE: See Type 4072 for *Recommended Grid-Pulse Amplifier (Modulator)*

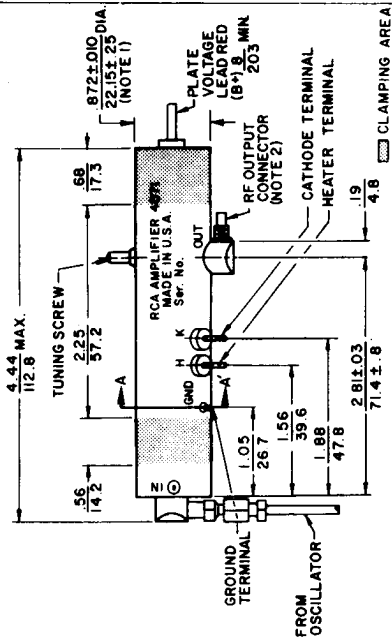
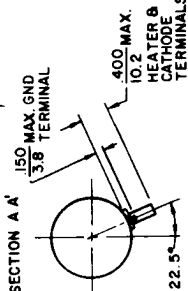
DIMENSIONAL OUTLINE (4070)



DIMENSIONAL OUTLINE (4071)



SECTION A A'



Note 1: Diameter of shell in clamping areas only.

Note 2: Mates with female screw-type connector Sealectro No.50-007-0000, Micon No.1002, or equivalent.

These units are supplied without the mounting brackets; they are also available with brackets upon request.

Dimensions in $\frac{\text{Inches}}{\text{mm}}$ unless otherwise noted

92LL-3473