

L-Band Pencil-Tube Oscillator-Amplifier

1090 Mc/s

500 W PEAK

These Units^d are Designed to Implement New Airborne Transponder Systems

ELECTRICAL

Heater, for Unipotential Cathode

Voltage (AC or DC)	6.3 ± 10%	V
Current at 6.3 V (Total)	0.66 max	A

Frequency	1090	Mc/s
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RF Coaxial Output

Terminal	Sealectro No. 50-047-0129	
Characteristic impedance (approx.)	50	Ω

Output VSWR	1.5:1	
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All phase angles

MECHANICAL

Operating Position	Any
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Dimensions and Terminal Connections	See <i>Dimensional Outlines</i>
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Weight (Approx.)	7 oz
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ENVIRONMENTAL

The units will remain stable within ±2.5 Mc/s in frequency and ±3 dB in peak power output (from nominal conditions) under any combination of the following conditions:

Vibration	Curve IV of MIL-E-5400 and Curve IV MIL-T-5422E
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Shock	15	g
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Ambient Temperature	-54 to 95	°C
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Altitude	30000	ft
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Output VSWR	1.5:1
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All phase angles

Plate and Heater Voltage Variation	±10	%
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Duty Factor	0.01
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GRID-PULSED OSCILLATOR—CLASS C

Absolute-Maximum Ratings

For a maximum "ON" time^a of 12.5^b microseconds
in any 2500-microsecond interval

DC Plate Voltage	1100	V
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Each unit

Peak Oscillator Grid Current	0.5	A
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Peak Amplifier Cathode Current	2	A
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Peak Plate Current

Oscillator	0.7	A
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Amplifier	1.5	A
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Plate Dissipation	18	W
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Total

Peak Heater-Cathode Voltage

Heater negative with respect to cathode	60	V
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Heater positive with respect to cathode	60	V
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TYPICAL OPERATION

With Rectangular Wave Shape in Grid-Drive Circuit at 1090 Mc/s

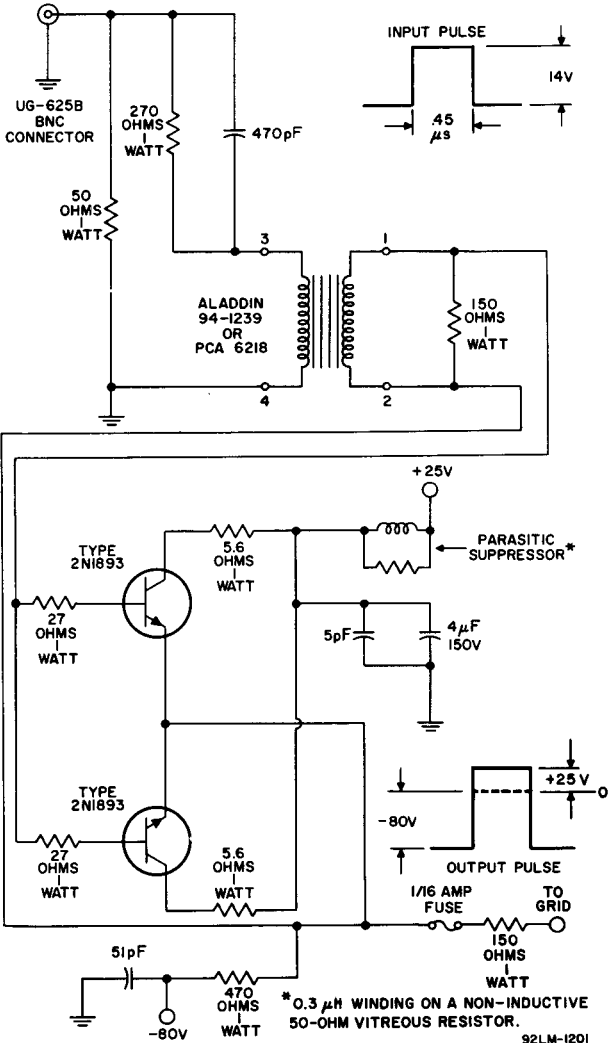
With duty factor^c of 0.01 and pulse duration of
0.45 microsecond

DC Plate Voltage.	1000	V
Each unit		
Oscillator Grid Bias.	-80	V
Amplifier Cathode Bias.	25	V
DC Plate Current.	20	mA
Total		
Useful Power Output	500	W
At peak of pulse		

- a "ON" time is defined as the sum of the duration 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. The *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.
- b This value is for continuous pulsing. The "ON" time can be 25 microseconds when the units are operated 10 minutes per hour.
- c Duty factor is the product of pulse duration and repetition rate. For variable pulse durations and pulse repetition rates, the duty factor is defined as the ratio of the time "ON" to total elapsed time in any 2500-microsecond interval.
- d The ruggedized oscillator-amplifier combination is built to satisfy all AIMS/FAA (Army Integrated Meteorological Systems) requirements.

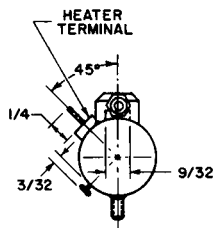
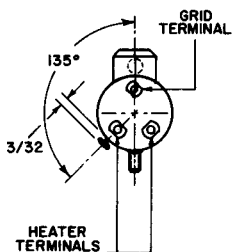
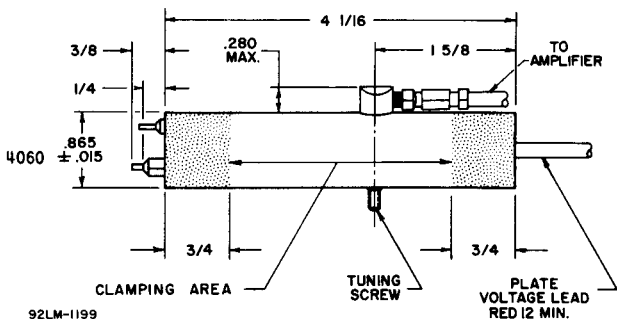


RECOMMENDED GRID-PULSE AMPLIFIER (MODULATOR)



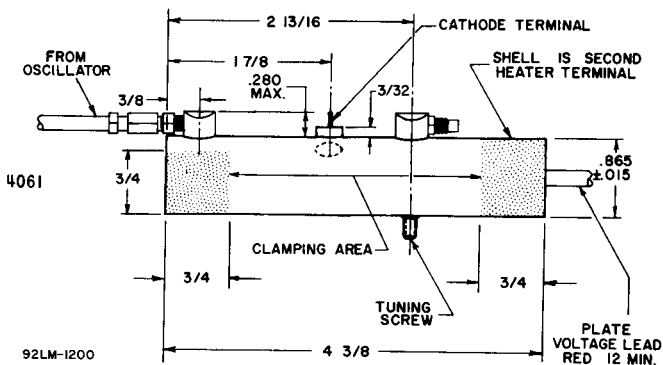
4060-4061

DIMENSIONAL OUTLINES



4060
LEFT SIDE VIEW

4061
LEFT SIDE VIEW

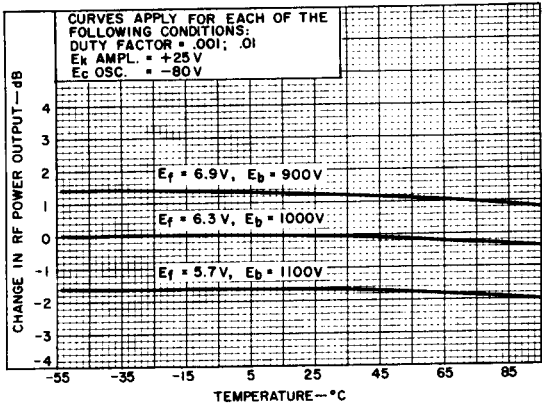


DIMENSIONS IN INCHES

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



Typical Change in Power Output vs. Temperature



Typical Output Frequency vs. Temperature

