EITEL-McCULLOUGH, INC.
SAN BRUNO · CALIFORNIA

TENTATIVE DATA

4KM3000LR

POWER AMPLIFIER

L-BAND KLYSTRON

The Eimac 4KM3000LR is a four-cavity, magnetically-focused, power-amplifier klystron of ceramic and metal. It is designed for use at frequencies between 610 and 985 megacycles and under narrow-band conditions will deliver a minimum CW output power of 2 kilowatts with a power gain of at least 45 decibels.

This klystron employs the Eimac Modulating Anode which provides an effective means of amplitude or pulse modulating the output power without changing the beam voltage. It is also useful as a protective device, either in conjunction with external circuits or when grounded through a resistor.

The resonant cavities for the 4KM3000LR are completed by tuning boxes which enclose the cylindrical ceramic windows of the klystron and all tuning is accomplished outside the vacuum envelope. This design permits a wide tuning range and allows external cavity loading for broad-band applications. It also permits an unlimited number of tuning cycles without risk of damage to the vacuum seals.

Eimac Klystron Amplifier Circuit Assembly H-125, for use with the 4KM-3000LR, covers the frequency range of 610 to 985 megacycles. This assembly includes a klystron supporting structure, electromagnetic focusing coils, tuning boxes, adjustable load couplers for the input, second, penultimate and output cavities, and an SK-110 Air-System Socket.

CHARACTERISTICS

ELECTRICAL

Cathode:	Oxide Coated, Unipotential	
	Minimum Heating Time	5 minutes
Heater :	Voltage (5%)	5.0 volts
	Current	31.0 amperes
	Maximum Starting Current	65.0 amperes
Typical Power Gain (Narrow Band)		45 db
Minimum Output Power (Narrow Band)		2000 watts
Frequency Range (H-125 Assembly)		610 to 985 Mc

MECHANICAL

Operating Position (H-125 Assembly)	Vertical, cathode end up
R-F Coupling:	
Input	Type "N" 50-ohm receptacle
Input Cavity Loading	Type "N" 50-ohm receptacle
Second Cavity Loading	Type "N" 50-ohm receptacle
Penultimate Cavity Loading	Type "N" 50-ohm receptacle
Output	1-5/8 inch 50-ohm line

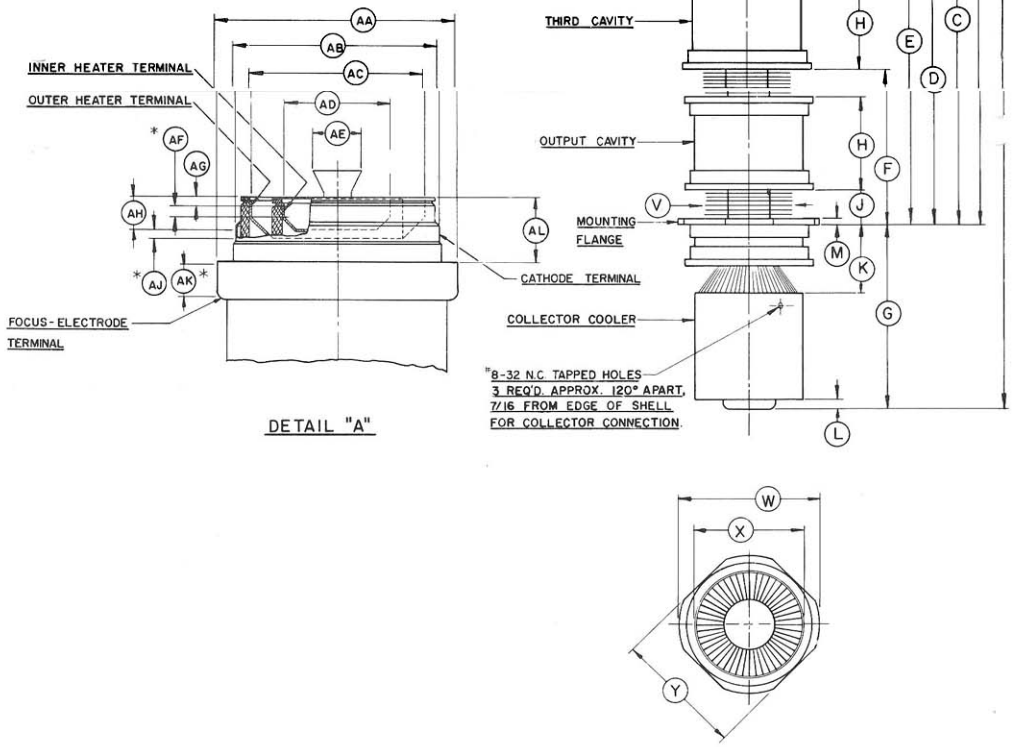
Cooling: (20° C inlet air at sea level)

	Flow Rate	Pressure Drop
Cathode (with SK-110 Air-System Socket)	5 cfm	0.4 inch H_2O
Penultimate Cavity	50 cfm	0.9 inch H_2O
Output Cavity	50 cfm	0.9 inch H_2O
Collector	150 cfm	1.8 inches H_2O

Maximum Over-All Dimensions:	
Length	38-1/2 inches
Diameter	5-1/8 inches
Net Weight	38 pounds
Shipping Weight (Approximate)	90 pounds

DIMENSIONAL DATA					
REF.	MIN.	MAX.	REF.	MIN.	MAX.
A	36.500	37.000	AA	4.300	4.450
B	30.800	31.000	AB	3.750	3.835
C	22.000	22.150	AC	3.100	3.200
D	14.750	14.900	AD	1.865	1.950
E	10.250	10.375	AE		1.000
F	5.750	5.875	AF	.100	
G	5.825	5.975	AG	.125	.175
H	3.490	3.540	AH	.670	.775
J	1.240	1.370	AJ	.100	
K	2.675	2.825	AK	.500	
L		.750	AL	1.000	1.500
M	.230				
N		1.500			
P	6.200	6.350			
R	4.610	4.635			
S	.240				
T	1.475	1.520			
U	3.080 (NOM.)				
V	3.580 (NOM.)				
W	5.115	5.135			
X	4.115	4.145			
Y	4.630 (NOM.)				

NOTES:
1. DIMENSIONS IN INCHES.
2. * MINIMUM CONTACT SURFACES.



4KM3000LR OUTLINE DRAWING

MAXIMUM RATINGS

D-C BEAM VOLTAGE *	10	KILOVOLTS
D-C BEAM CURRENT*	0.750	AMPERE
D-C BODY CURRENT (CONTINUOUS)	75	MILLIAMPERES
D-C BODY CURRENT (TUNING ONLY)	100	MILLIAMPERES
FOCUS ELECTRODE VOLTAGE	-500	VOLTS
COLLECTOR DISSIPATION	3000	WATTS
TUBE TEMPERATURES	175	DEGREES C

*These ratings are not to be applied simultaneously.

MAGNETIC-COIL POWER-SUPPLY REQUIREMENTS

Prefocus-Coil Voltage	0 to 50	volts
Prefocus-Coil Current	0 to 1.25	amperes
Three Body Coils and Collector Coil in Series:		
Voltage	0 to 350	volts
Current	0 to 2.25	amperes

TYPICAL OPERATION

Narrow-Band, CW Amplifier (In H-125 Circuit Assembly)

Frequency	900	megacycles
Output Power	2100	watts
Driving Power	0.050	watt
Power Gain	46	db
D-C Beam Voltage	8500	volts
D-C Beam Current	0.550	ampere
Beam Input Efficiency	45	percent
D-C Body Current	50	milliamperes
D-C Collector Current	0.500	ampere
Focus-Electrode Voltage	-200	volts
Magnetic-Coil Currents **		
Prefocus	0.65	ampere
Body Coils and Collector Coil in Series	1.75	amperes

** Approximate values

In the event of loss of driving power, the collector dissipation rating of the 4KM3000LR may be exceeded. Therefore, the collector should be fitted with a thermal overload device, interlocked with the beam control circuitry, and set to operate at a collector temperature equal to or greater than 175° Centigrade.

For additional information or information regarding any specific application, write to Eitel-McCullough, Inc., San Bruno, California. All such requests will be handled confidentially.

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