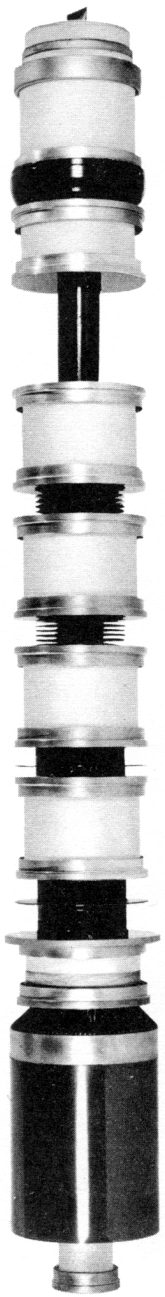
EITEL-McCULLOUGH, INC.
SAN CARLOS · CALIFORNIA

TENTATIVE DATA

4KM3000LQ

POWER-AMPLIFIER L-BAND KLYSTRON



The Eimac 4KM3000LQ is a four-cavity, magnetically focused, power-amplifier klystron of ceramic and metal. It is designed for use at frequencies between 710 and 985 megacycles and will deliver a minimum CW output power of two kilowatts with a minimum power gain of 25 decibels when operated at 50% collector depression.

The collector is designed to operate at less than the cathode to anode voltage, thereby realizing an improvement in efficiency.

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 4KM3000LQ 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-118, for use with the 4KM3000LQ, covers the frequency range of 710 to 985 megacycles. This assembly includes a klystron supporting structure, electromagnetic focusing coils, tuning boxes, output r-f load coupler and an Eimac SK-100 Air-System Socket.

CHARACTERISTICS

ELECTRICAL

Cathode, Unipotential, Oxide Coated				
Minimum Heating Time	-	-	- 5	minutes
Heater: Voltage	-	-	- 5	volts
Current	-	-	- 33	amperes
Maximum Starting Current			- 65	amperes
Modulating Anode Capacitance (To other electrodes)	-	-	- 21	uuf
Power Gain (Narrow Band CW)		-	- 25	decibels
Output Power (Narrow Band CW)		-	2000	watts
Frequency Range (In H-118 Circuit Assembly)	-		710 to 985	megacycles

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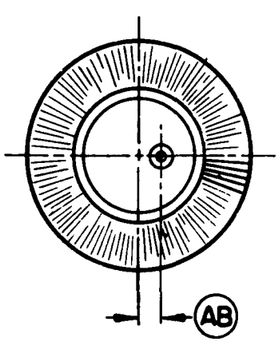
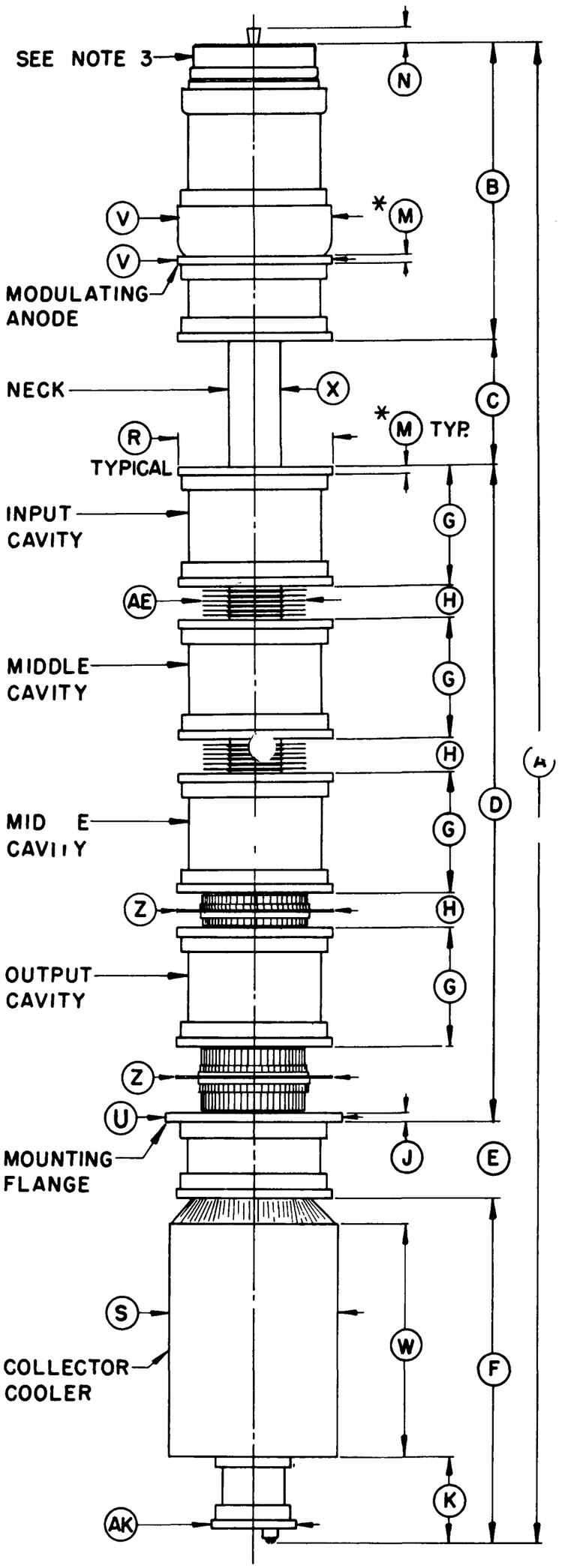
DIMENSIONS			
REF.	NOM.	MIN.	MAX.
A	44.187		
B	8.781		
C	3.750		
D	19.250		
E	2.125		
F	10.265		
G	3.500		
H	1.000		
J	.250		
K	2.578		
M		.187	
N		.650	1.000
R	4.625 DIA.		
S	5.135 DIA.		
U	5.375 DIA.		
V	4.625 DIA.		
W	6.937		
X	1.500 DIA.		
Z	4.625 DIA		
AB	.500		
AE	3.078 DIA.		
AK	2.500 DIA.		

NOTES

1. *MINUMUM CONTACT SURFACE.
2. DIMENSIONS IN INCHES.
3. FOR ELECTRICAL CONTACT SURFACE DIMENSIONS SEE GUN NO. 1 OUTLINE, DRWG. NO. GUN NO. 1 – 6001.



COLLECTOR COOLER
END VIEW



4KM3000LQ OUTLINE DRAWING

4KM3000LQ

MECHANICAL

Operating Position	Axis vertical, cathode up
R-F Coupling	
Input	Type "N" coaxial fitting
Output	1-5/8 inch 50-ohm line
Shipping Weights:	
Klystron Only	49 lbs (Net); 138 lbs (Gross)
H-118 R-F Amplifier Circuit Assembly	327 lbs (Net); 473 lbs (Gross)

Cooling:

The 4KM3000LQ is cooled by forced air. At sea level and with inlet air temperature of 20°C (68°F) the flow rates tabulated below are sufficient for operation at maximum ratings and at maximum collector depression of 50%.

Cathode (with SK-100 Air-System Socket)	5 cfm
Penultimate Cavity	50 cfm
Output Cavity	75 cfm
Collector	150 cfm

Operation at higher altitudes or with higher inlet temperatures requires increased volumes of air flow to obtain equivalent cooling.

MAGNETIC-COIL POWER SUPPLY-REQUIREMENTS

Prefocus Coil Voltage	0 to 50	volts
Prefocus Coil Current	2.0	amperes
Each of Three Body Coils		
Voltage	0 to 100	volts
Current	3.0	amperes
Collector Coil Voltage	0 to 50	volts
Collector Coil Current	0 to 1.5	amperes

MAXIMUM RATINGS

D-C BEAM VOLTAGE	10,000	VOLTS
D-C BEAM CURRENT	0.750	AMPERE
D-C FOCUS ELECTRODE VOLTAGE	-500	VOLTS
COLLECTOR DISSIPATION	3000	WATTS
SEAL TEMPERATURES	175	DEGREES C

TYPICAL OPERATION - NARROW BAND CW AMPLIFIER - COLLECTOR DEPRESSED

Frequency	900	megacycles
Output Power	2150	watts
Driving Power	4.0	watts
Power Gain	27	decibels
D-C Beam Voltage	9000	volts
D-C Beam Current	0.580	amperes
D-C Collector Voltage (from Cathode)	4500	volts
D-C Collector Current	0.210	amperes
D-C Body Current	0.370	amperes
Focus Electrode Voltage	-200	volts
Efficiency	50.0	percent

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

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