



**EITEL-MCCULLOUGH, INC.**  
SAN CARLOS, CALIFORNIA

TENTATIVE DATA

**4KM50,000LA**

POWER-AMPLIFIER

L-BAND KLYSTRON

The Eimac 4KM50,000LA is a four-cavity, magnetically focused, power-amplifier klystron of ceramic and metal. It is designed for use at frequencies between 400 and 610 megacycles and will deliver a minimum CW output power of 10 kilowatts with a minimum power gain of 50 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 4KM50,000LA 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.

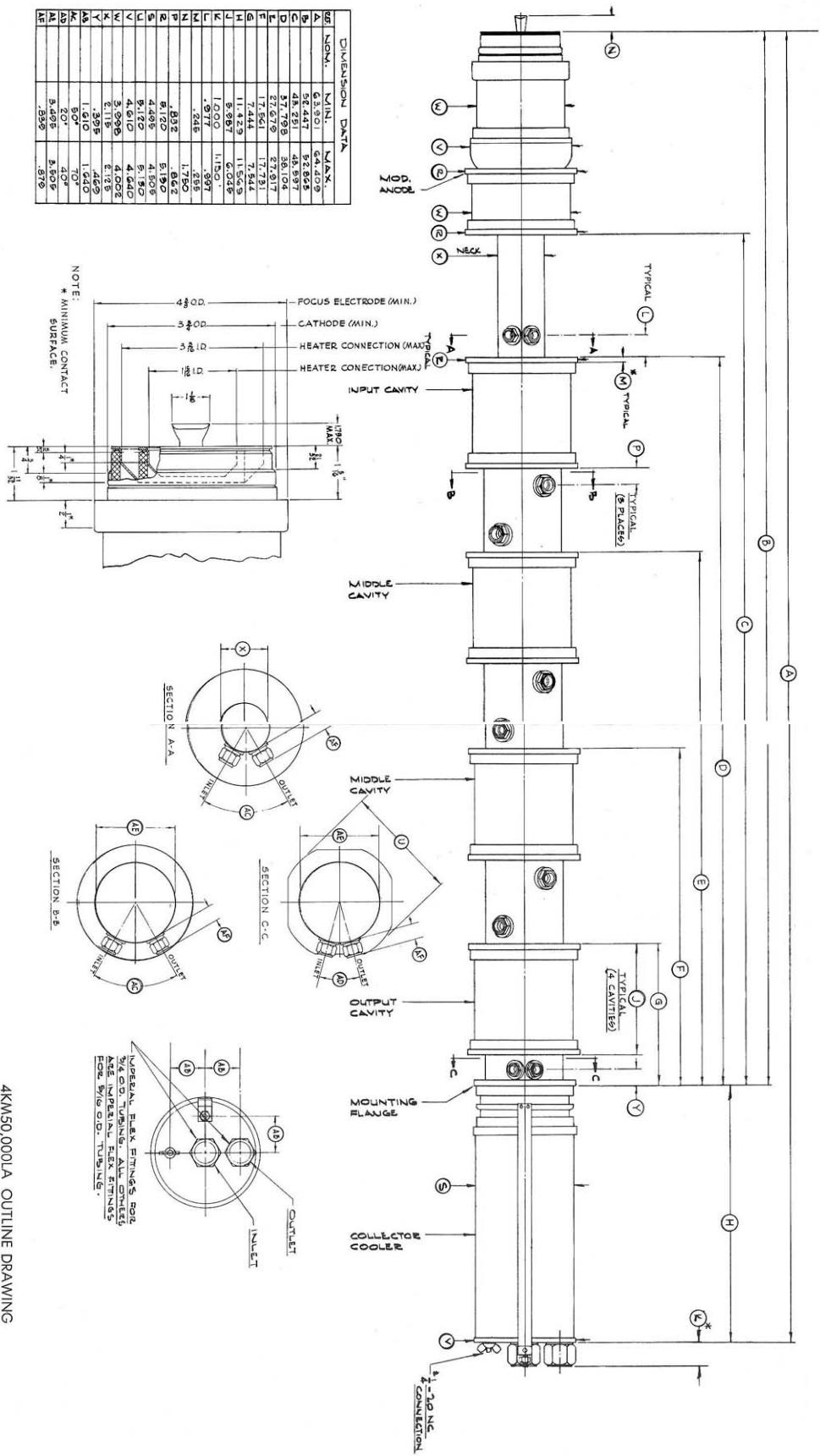
Eimac Klystron Amplifier Circuit Assembly H-121, for use with the 4KM50,000LA, covers the frequency range of 400 to 610 megacycles. This assembly includes a klystron supporting structure, electro-magnetic focusing coils, tuning boxes, adjustable load couplers for the second, third and output cavities, and an Eimac SK-110 Air-System Socket.

#### CHARACTERISTICS

#### ELECTRICAL

Heater:	Voltage	-	-	-	7.5	volts
	Current	-	-	-	40.0	amperes
	Maximum Starting Current				80.0	amperes
Cathode:	EMA, Unipotential					
	Heating Time	-	-	-	5	minutes
Getter (Operating):						
	Voltage	-	-	-	2.0	volts
	Current	-	-	-	36.0	amperes
Power Gain: (Narrow Band)	-	-	-	-	50	decibels
Output Power	-	-	-	-	10	kilowatts
Frequency Range (H-121 Assembly)	400 to 610					megacycles





4KM50,000LA OUTLINE DRAWING



## MECHANICAL

Operating Position	-	-	-	-	-	Axis vertical, cathode up
<b>R-F Coupling:</b>						
Input	-	-	-	-	-	Type "N" coaxial fitting
Output	-	-	-	-	-	3 1/8 inch 50 ohm line
Input Cavity Loading	-	-	-	-	-	Type "N" coaxial fitting
2nd and 3rd Cavity Loading	-	-	-	-	-	1 5/8 inch 50 ohm line
<b>Shipping Weights:</b>						
4KM50, 000LA Klystron Only	-	-	-	-	-	64 lbs (Net)
H-121 R-F Circuit Assembly	-	-	-	-	-	155 lbs (Gross)
						767 lbs (Net)
						1084 lbs (Gross)
<b>Cooling: Water and Forced Air</b>						
Cathode (with SK-110 Air-System Socket)	-	-	-	-	Flow Rate	<u>Pressure Drop</u>
					*25 cfm	1 inch H <sub>2</sub> O
Output Cavity	-	-	-	-	*50 cfm	1.5 inches H <sub>2</sub> O
Klystron Body (5 drift-tube sections, in series)	-	-	-	-	1 gpm	28 psia
Klystron Collector	-	-	-	-	25 gpm	28 psia

## MAGNETIC-COIL POWER-SUPPLY REQUIREMENTS

Prefocus-Coil: Voltage	-	-	-	-	-	0 to 50	volts
Current	-	-	-	-	-	0 to 1.5	amperes
<b>Three Body Coils and Collector Coil in Series:</b>							
Voltage	-	-	-	-	-	0 to 500	volts
Current	-	-	-	-	-	0 to 2.5	amperes

## MAXIMUM RATINGS

D-C BEAM VOLTAGE	-	-	-	-	-	20	KILOVOLTS
D-C Beam Current	-	-	-	-	-	2.5	AMPERES
D-C BODY CURRENT (CONTINUOUS)	-	-	-	-	-	100	MILLIAMPERES
D-C BODY CURRENT (TUNING ONLY)	-	-	-	-	-	150	MILLIAMPERES
A-C GETTER CURRENT	-	-	-	-	-	50	AMPERES
FOCUS ELECTRODE VOLTAGE	-	-	-	-	-	-500	VOLTS
COLLECTOR DISSIPATION	-	-	-	-	-	50	KILOWATTS

## TYPICAL OPERATION, NARROW BAND, CW AMPLIFIER

Frequency	-	-	-	-	-	400	610	megacycles
Output Power	-	-	-	-	-	13.1	12.0	kilowatts
Driving Power	-	-	-	-	-	.050	.050	watts
Power Gain	-	-	-	-	-	54	53.8	decibels
D-C Beam Voltage	-	-	-	-	-	17	17	kilovolts
D-C Beam Current	-	-	-	-	-	1.8	1.8	amperes
Beam Power Efficiency	-	-	-	-	-	42.8	39.2	percent
D-C Body Current	-	-	-	-	-	90	80	milliamperes
D-C Collector Current	-	-	-	-	-	1.71	1.72	amperes
Focus-Electrode Voltage	-	-	-	-	-	-201	-211	volts
<b>Magnetic-Coil Currents (H-121 Components):</b>								
Prefocus Coil	-	-	-	-	-	1.0	0.97	ampere
Three Body Coils and Collector Coil in Series	-	-	-	-	-	2.0	2.0	ampères

\* At Sea level with 20° C inlet air temperature.

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