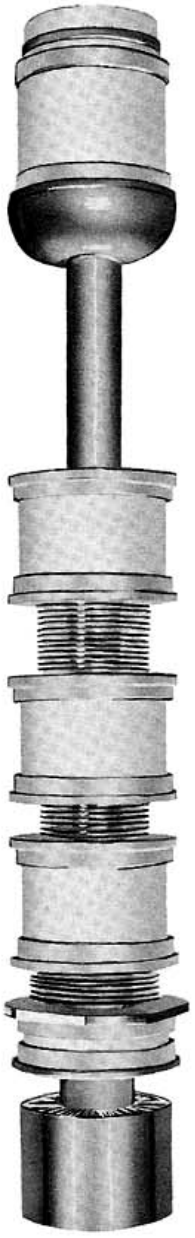
EITEL-McCULLOUGH, INC.
SAN BRUNO · CALIFORNIA

TENTATIVE DATA

3K3000LQ

POWER-AMPLIFIER

L-BAND KLYSTRON



The Eimac 3K3000LQ is a ceramic and metal, three-cavity magnetically focused, power-amplifier klystron designed for use at frequencies between 610 and 985 megacycles. It will deliver a minimum CW output power of two kilowatts with a power gain of more than 25 db.

The resonant cavities for the 3K3000LQ are completed through 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 repeated tuning cycling without damage to vacuum seals.

An Eimac Klystron Amplifier Circuit Assembly (Catalog Number H-102) has been designed for use with this tube and covers the frequency range of 720 to 985 megacycles. Other frequency ranges can be provided if required. The klystron must not be operated in any other circuit assembly without design guidance and final approval by Eitel-McCullough, Inc.

CHARACTERISTICS

ELECTRICAL

Cathode:	Unipotential, Oxide Coated	
	Minimum Heating Time	5 minutes
Heater:	Voltage	5.0 volts
	Current	31 amperes
	Maximum Starting Current	60 amperes
Power Gain		25 db
Output Power		2000 watts
Frequency Range (In H-102 Assembly)		720 to 985 mc

MECHANICAL

Operating Position*	Axis vertical
R-F Coupling:	
Input	Type "N" coaxial fitting
Output	1 5/8-inch 50-ohm air line
Net Weight	32 pounds
Shipping Weight (Approximate)	115 pounds
Maximum Over-All Dimensions:	
Length	34 1/8 inches
Diameter	5 1/8 inches

*Cathode end up when installed in H-102 circuit assembly.

MAGNETIC-COIL POWER-SUPPLY REQUIREMENTS (Using H-102 Coils)

Prefocus-Coil Voltage	0 to 50	volts
Prefocus-Coil Current	0 to 1.5	amperes
Each of Two Body Coils:**		
Voltage	0 to 150	volts
Current	0 to 2.5	amperes

**These coils may be operated series connected with a slight decrease in beam efficiency.

MAXIMUM RATINGS

D-C BEAM VOLTAGE	9000	MAX. VOLTS
D-C BEAM CURRENT	750	MAX. MA
D-C BODY CURRENT (CONTINUOUS)	75	MAX. MA
D-C BODY CURRENT (TUNING ONLY)	100	MAX. MA
D-C FOCUS-ELECTRODE VOLTAGE	-500	MAX. VOLTS
COLLECTION DISSIPATION	3000	MAX. WATTS

TYPICAL OPERATION

NARROW-BAND CW AMPLIFIER (In H-102 Circuit Assembly)

Frequency	850	850	megacycles
Output Power	1300	2790	watts
Driving Power	4	10	watts
Power Gain	25.1	24.4	db
D-C Beam Voltage	7000	9000	volts
D-C Beam Current	375	580	milliamperes
Beam Input Power	2625	5220	watts
Beam Power Efficiency	49.5	53.5	percent
D-C Body Current	30	30	milliamperes
D-C Collector Current	345	550	milliamperes
Collector Dissipation*	1535	2160	watts
Focus-Electrode Voltage	-200	-200	volts
Filament Voltage	5.0	5.0	volts
Filament Current	31	31	amperes
Magnetic-Coil Currents:*			
Prefocus	0.48	0.5	ampere
First Body	2.3	2.3	amperes
Second Body	1.6	2.15	amperes

*Approximate values.

APPLICATION

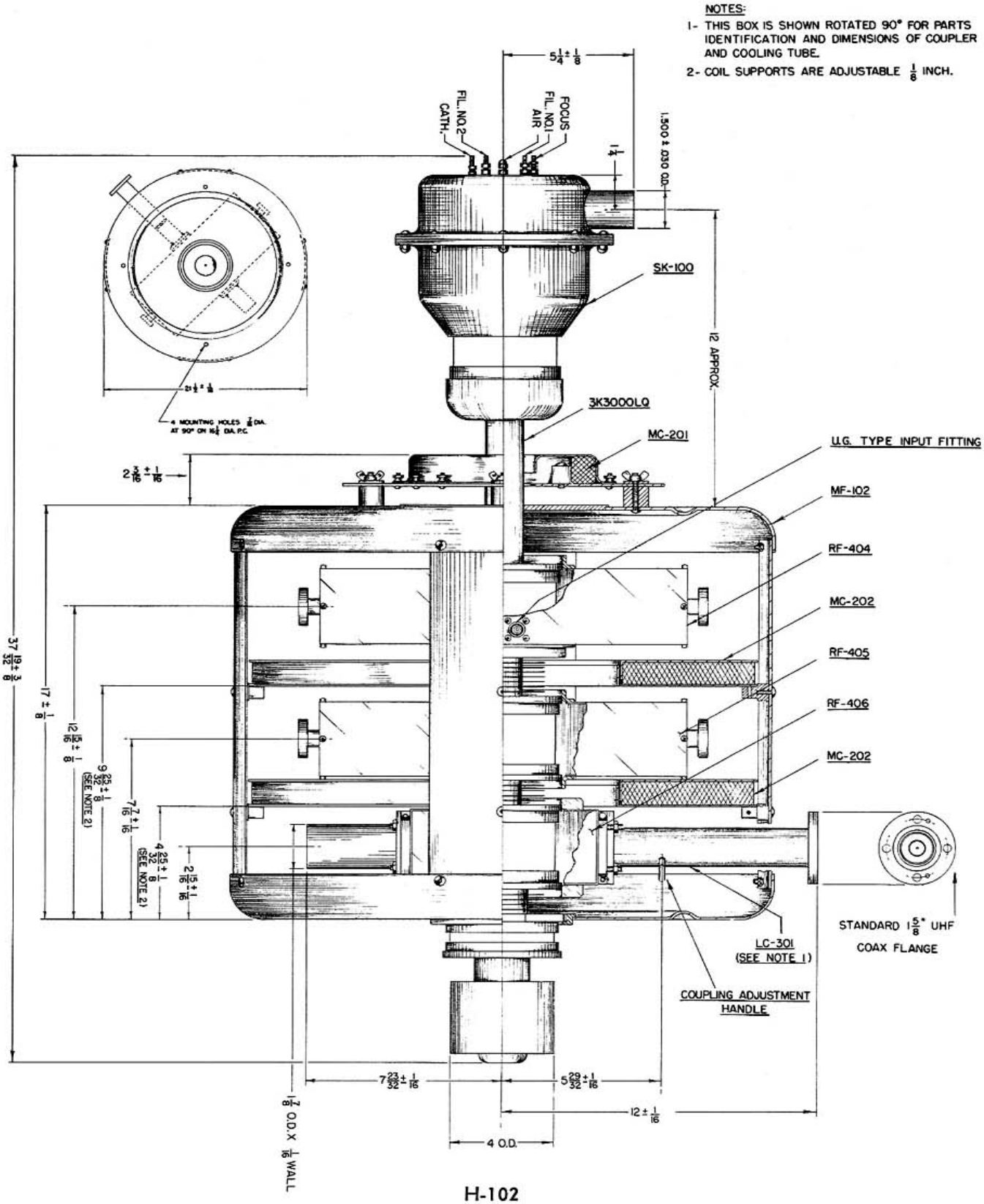
Cooling--The 3K3000LQ is cooled by forced air. At sea level and with an inlet air temperature of 20° C (68° F), the flow rates tabulated below are sufficient for operation at maximum ratings. Corresponding pressure drops, in inches of water column, are also listed to allow the effective measurement of air flow in the field without elaborate test equipment.

Cathode (With SK-100 Socket)	5 cfm	0.4 inch H^2O
Output Cavity	50 cfm	1.0 inch H^2O
Collector	150 cfm	1.6 inches H^2O

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

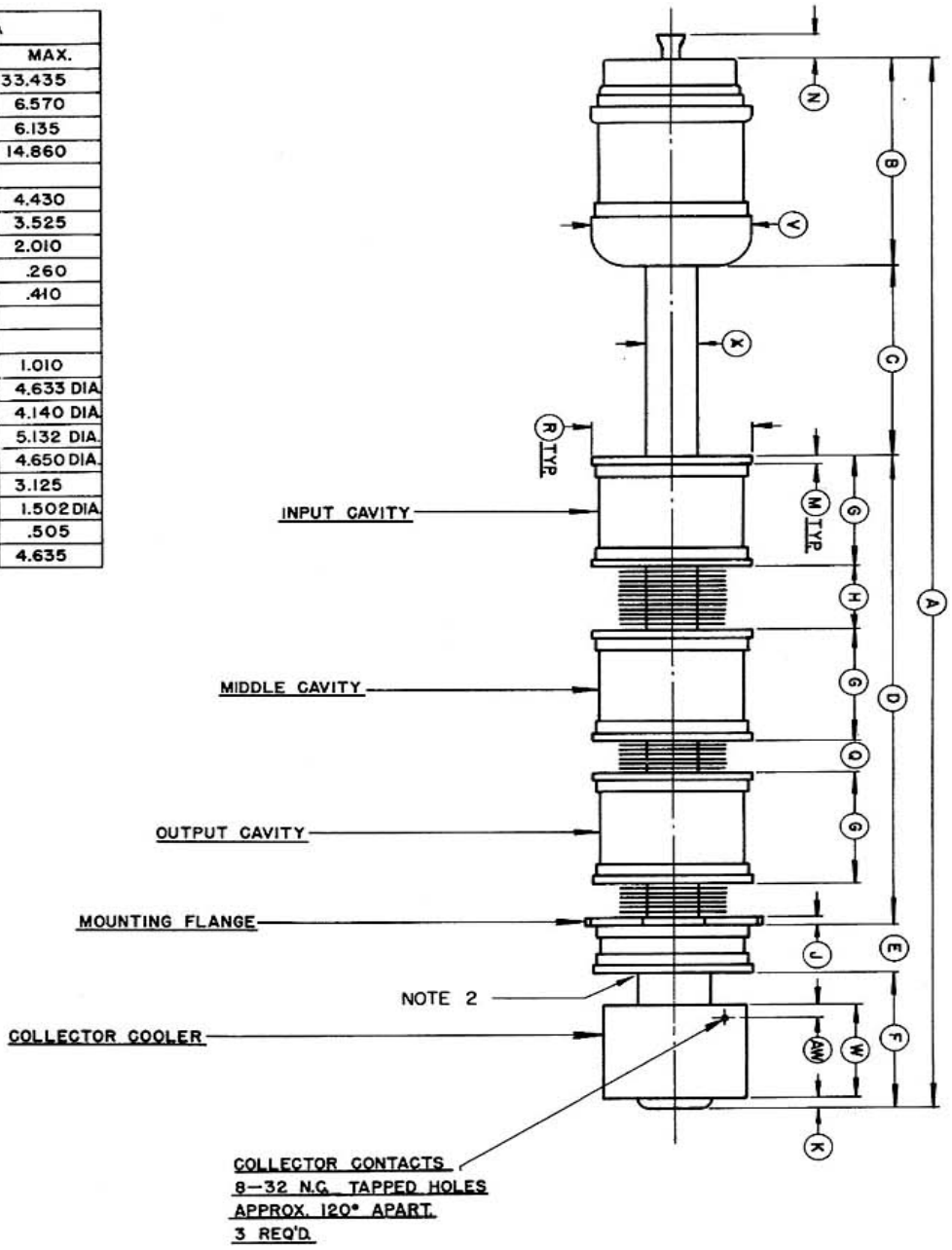
Since the collector dissipation rating of the 3K3000LQ may be exceeded in the event of a loss of driving power, the collector should be fitted with a thermal overload for maximum protection. This device should be set to operate at 175° C and installed in the beam-voltage supply circuit. The sensing element for this overload should be located on the input section of the collector body at the point indicated on the outline drawing.

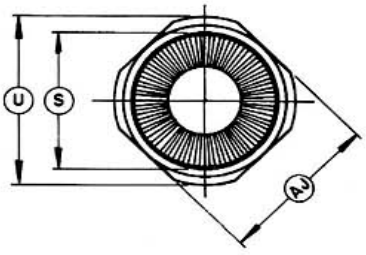
Special Applications--If it is desired to operate this tube under conditions not covered by this data sheet or if more information is required, write to the Application Engineering Department, Eitel-McCullough, Inc., San Bruno, California.



H-102
KLYSTRON AMPLIFIER CIRCUIT ASSEMBLY

DIMENSION DATA			
REF.	NOM	MIN.	MAX.
A		33.120	33.435
B		6.495	6.570
C		5.995	6.135
D		14.810	14.860
E	1.510		
F		4.360	4.430
G		3.495	3.525
H		1.985	2.010
J		.235	.260
K		.375	.410
M		.187	
N	.750		
Q		.980	1.010
R		4.618 DIA.	4.633 DIA.
S		4.125 DIA.	4.140 DIA.
U		5.118 DIA.	5.132 DIA.
V		4.615 DIA.	4.650 DIA.
W		2.950	3.125
X		1.490 DIA.	1.502 DIA.
AW		.405	.505
AJ		4.618	4.635





NOTES:

1. DIMENSIONS IN INCHES
2. LOCATE THERMAL—OVERLOAD SENSING ELEMENT HERE.

3K3000LQ
OUTLINE DRAWING

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