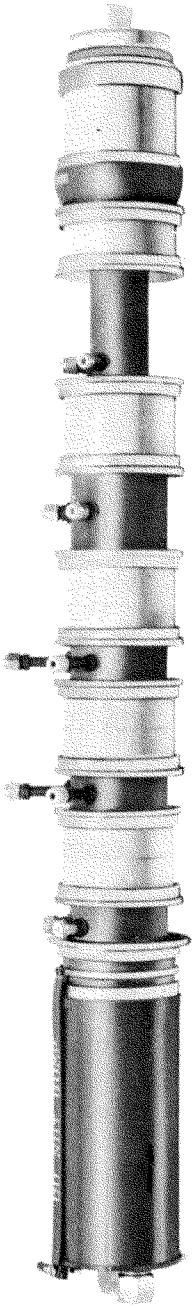
EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

TENTATIVE DATA

4KM50,000LR

POWER-AMPLIFIER L-BAND KLYSTRON



The Eimac 4KM50,000LR is a four-cavity, magnetically focused, power-amplifier klystron designed for use at frequencies between 755 and 985 megacycles. This klystron will deliver a narrow-band CW output power of 10 kilowatts with a minimum power gain of 50 decibels. When adjusted for wide-band operation the 4KM50,000LR will deliver an output power of 10 kilowatts with a half-power bandwidth of 7 megacycles and a power gain of 30 decibels.

This klystron employs the Eimac Modulating Anode which provides an effective means for protecting the tube against internal arcs when connected to the beam supply through a resistor.

All tuning is accomplished outside of the vacuum envelope by means of external resonant cavities which enclose the cylindrical ceramic windows of the klystron. This design affords a wide tuning range and permits external cavity loading for broadband applications. For spares or replacements, only the basic vacuum tube, without cavities, need be purchased.

Eimac Klystron Amplifier Circuit Assembly H-141 has been designed for use with the 4KM50,000LR to cover the specified frequency range. This assembly includes a klystron supporting structure, magnetic focusing coils, tuning cavities, adjustable load couplers for each cavity, 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-141 Assembly)		755 to 985	megacycles

MECHANICAL

Operating Position	Axis vertical, cathode up
RF Coupling:	
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	Type "N" coaxial fitting

MECHANICAL (cont'd)

Weights:

4KM50,000LR Klystron only	55 lbs (Net), 140 lbs (Gross)
H-141 RF Circuit Assembly	349 lbs (Net), 601 lbs (Gross)

Cooling: Water and Forced Air

	Flow Rate	Pressure Drop
Cathode (with SK-110 Air-System Socket)	*25 cfm	1 inch H_2O
Output Cavity	*50 cfm	1.5 inches H_2O
Klystron Body (5 drift-tube sections in series)	1 gpm	28 psi
Klystron Collector	25 gpm	28 psi

MAGNETIC-COIL POWER-SUPPLY REQUIREMENTS

Prefocus Coil:	Voltage	0 to 25	volts
	Current	0 to 1.25	amperes
Three Body Coils and Collector Coil in Series:			
	Voltage	0 to 400	volts
	Current	0 to 4.0	amperes

MAXIMUM RATINGS

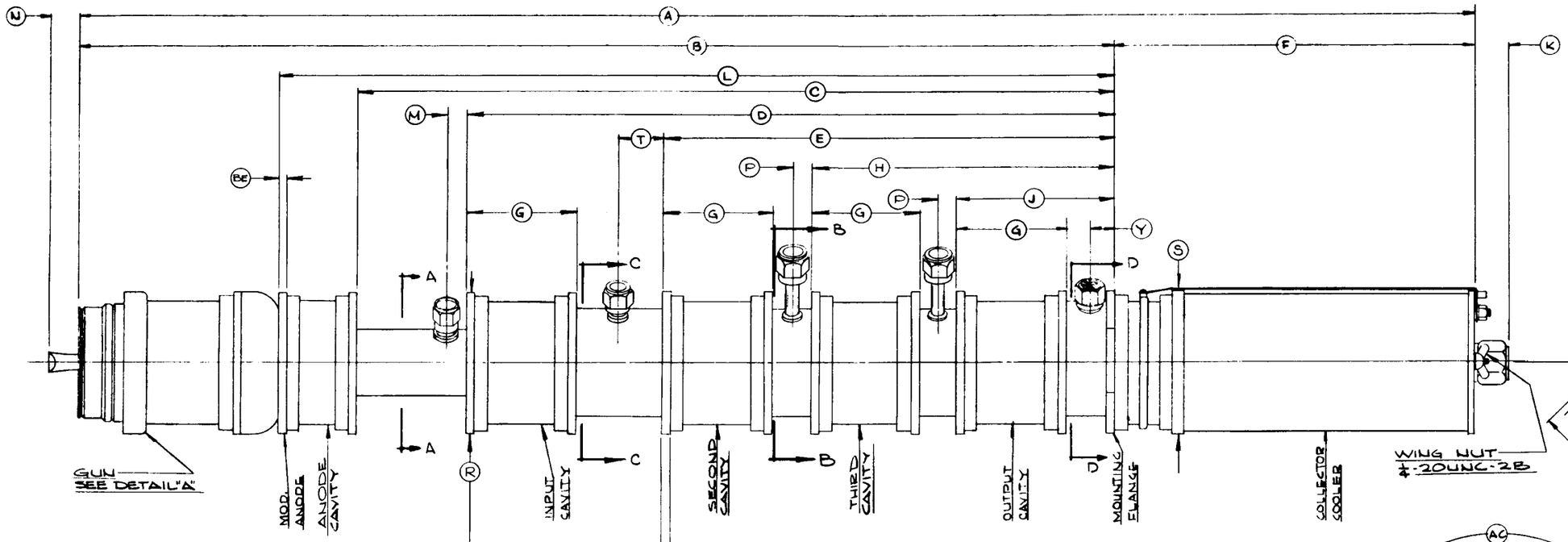
D-C BEAM VOLTAGE	20	KILOVOLTS
D-C BEAM CURRENT	2.5	AMPERES
D-C BODY CURRENT (CONTINUOUS)	100	MILLIAMPERES
D-C BODY CURRENT (TUNING ONLY)	150	MILLIAMPERES
A-C GETTER CURRENT	50	AMPERES
FOCUS-ELECTRODE VOLTAGE	-500	VOLTS
COLLECTOR DISSIPATION	50	KILOWATTS
INLET WATER PRESSURE	50	PSI

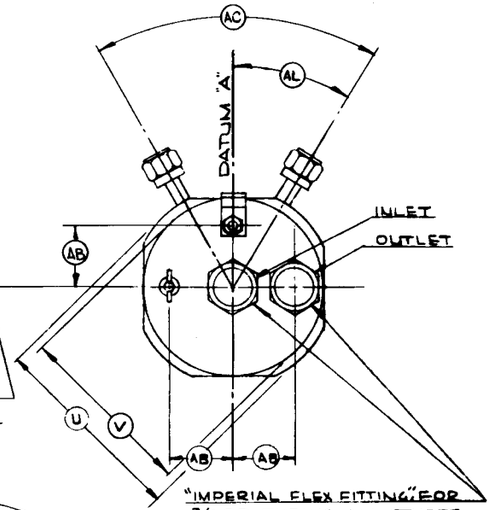
TYPICAL OPERATION

	Narrow Band		Wide Band	
Frequency	755	985	762	megacycles
Output Power	12.1	11.5	10	kilowatts
Driving Power	0.05	0.05	10	watts
Power Gain	53.8	53.6	30	decibels
D-C Beam Voltage	17	17	17	kilovolts
D-C Beam Current	1.76	1.76	1.9	amperes
Beam Power Efficiency	45.7	43.7	31	percent
D-C Body Current	30	40	90	milliamperes
Focus-Electrode Voltage	-245	-245	-175	volts
Half Power Bandwidth	- -	- -	7	megacycles
Cavity Loading:				
1st Cavity	- -	- -	8	watts
2nd Cavity	- -	- -	70	watts
3rd Cavity	- -	- -	400	watts
Magnetic-Coil Currents:				
Prefocus Coil	1.06	1.03	1.1	amperes
Three Body Coils and Collector Coil in Series	3.0	3.0	3.0	amperes

* At sea level with 20° C inlet air temperature.

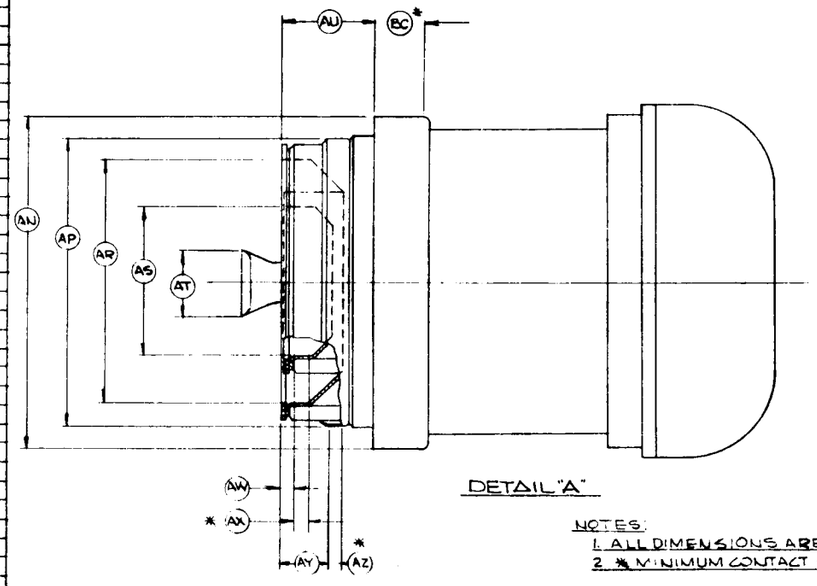
For additional information or information regarding a specific application write to Eitel-McCullough, Inc., San Carlos, California.

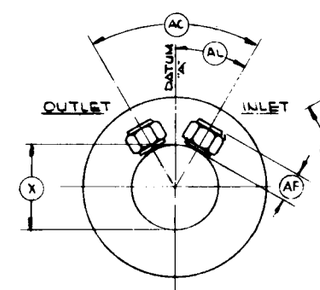


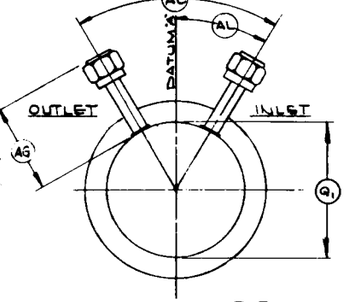


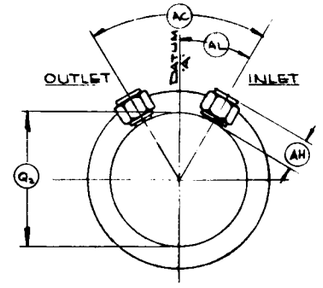
"IMPERIAL FLEX FITTING" FOR 3/4 O.D. TUBING, ALL OTHERS ARE "IMPERIAL FLEX FITTING" FOR 5/16 O.D. TUBING.

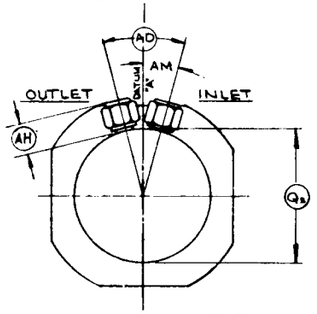
DIMENSIONAL DATA							
NO	NOM	MIN.	MAX.	AS		1.865	1.950
A	44.640			AT			1.190
B	33.127			AU		1.000	1.500
C	24.392			AV			
D	20.662			AW		.125	.175
E	14.388			AX		.100	
F	11.818			AY		.670	.775
G	3.504			AZ		.100	
H	9.696			BA			
J	5.004			BC		.100	
K	1.062			BD			
L	26.875			BE	0.250		
M	.562						
N			1.750				
P	.593						
Q	3.500						
R	4.625	4.610	4.640				
S	4.720						
T	1.375						
U	3.122						
V	4.625						
W							
X	2.180						
Y	0.696						
AB	1 5/8						
AC	60°						
AD	30°						
AE							
AF	.850						
AG	2.250						
AH	0.850						
AJ							
AK							
AL	30°						
AM	15°						
AN		4.300	4.450				
AP		3.750	3.835				
AQ							
AR		3.100	3.200				





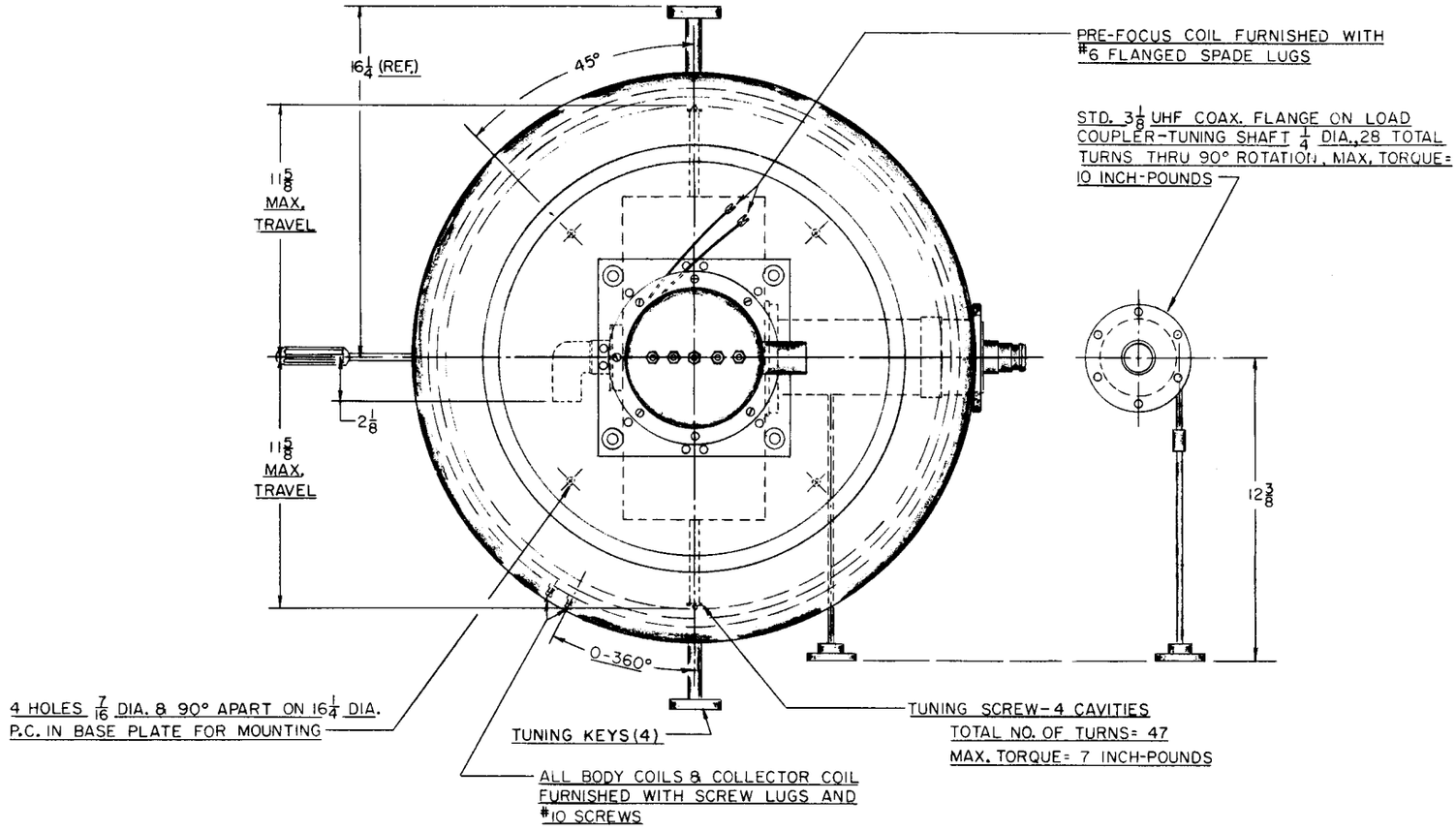


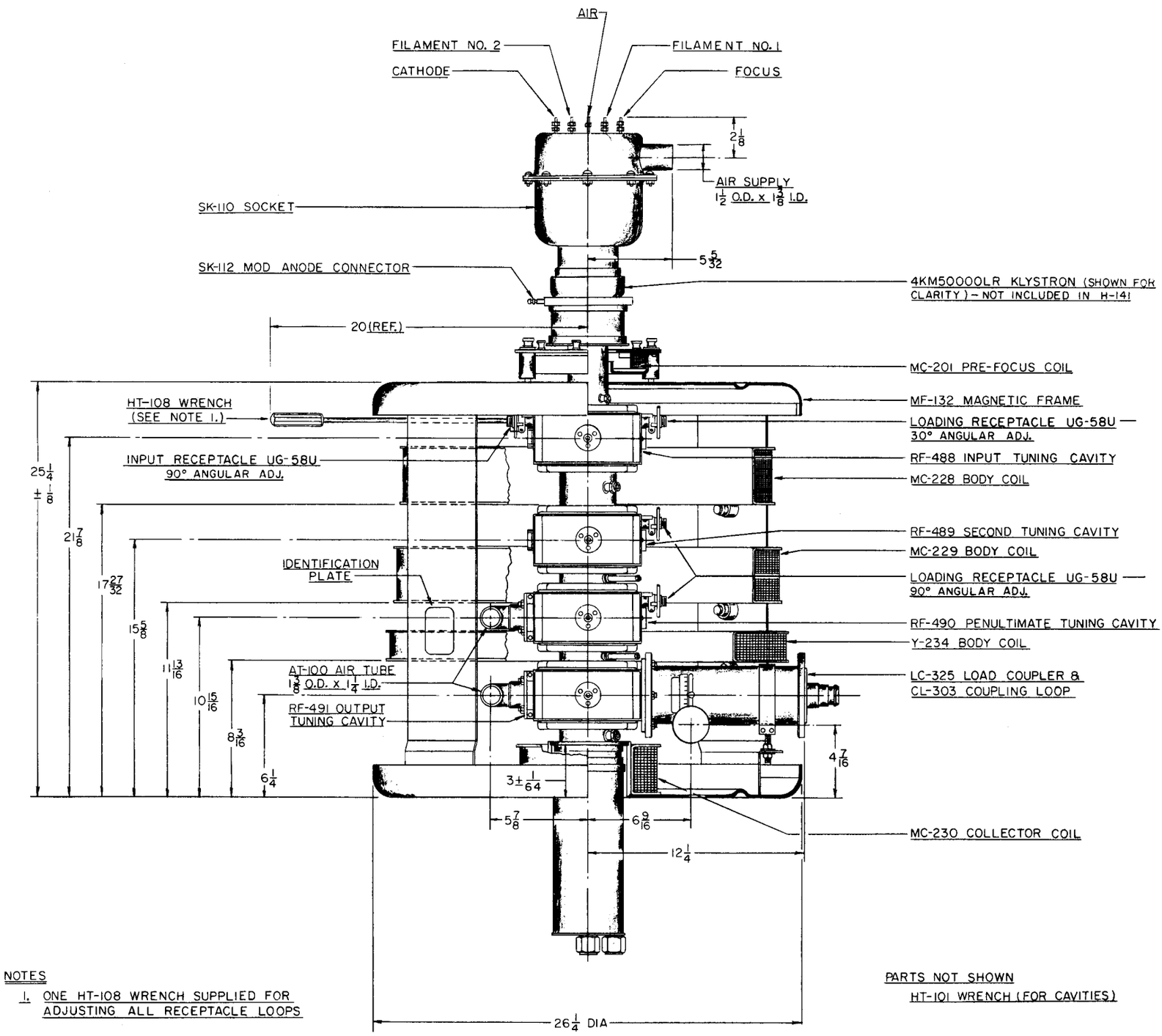




NOTES:
1. ALL DIMENSIONS ARE IN INCHES
2. * MINIMUM CONTACT SURFACE

4KM50,000LR KLYSTRON





NOTES

1. ONE HT-108 WRENCH SUPPLIED FOR ADJUSTING ALL RECEPTACLE LOOPS

PARTS NOT SHOWN

HT-101 WRENCH (FOR CAVITIES)

H-141 KLYSTRON AMPLIFIER CIRCUIT ASSEMBLY