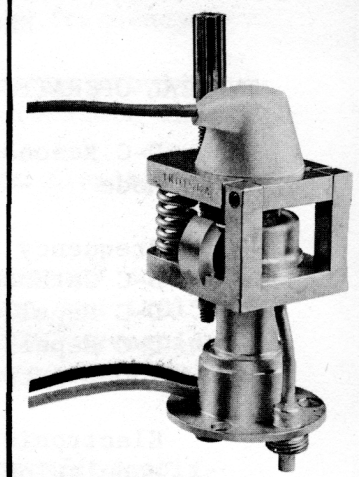
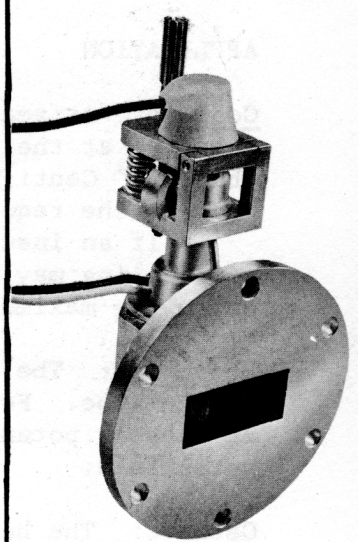
EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

PRELIMINARY DATA

1K015CA
1K015CG
C-BAND
REFLEX KLYSTRONS



1K015CA



1K015CG

The Eimac 1K015CA and 1K015CG are ceramic and metal, ruggedized, internal-cavity reflex klystrons designed for local oscillator service in the frequency range of 5350 to 5950 megacycles. These tubes are capable of delivering a minimum output power of 70 milliwatts into a load VSWR of 1.5 to 1 under conditions of shock, vibration or sustained acceleration.

GENERAL CHARACTERISTICS

ELECTRICAL

Cathode:	Unipotential, oxide coated.		
	Warm-up time - -	60	seconds
Heater:	Voltage - - -	6.3	volts
	Current - - -	1.0	ampere
Minimum Output Power (Load VSWR=1.5:1)		70	milliwatts
Frequency Range - -		5350 to 5950	megacycles

MECHANICAL

Operating Position - - - -			Any
Mounting:			
1K015CA - - -			Three hole flange
1K015CG - -			UG-344/U waveguide flange
R-F Output Coupling:			
1K015CA - -			Miniature coaxial fitting
1K015CG - -			RG-50/U waveguide
Electrical Connections - -			Flexible leads
Cooling - - -			Convection and conduction
Maximum Overall Dimensions:		1K015CA	1K015CG
Length - -		3.4	5.3 inches
Width - -		1.3	3.1 inches
Depth - -		1.2	1.5 inches
Net Weight - - -		4.2	17.5 ounces
Shipping Weight (Approximate)		2	6 pounds

ENVIRONMENTAL

Maximum Ambient Temperature - - - -	100° C
Maximum Altitude - - - - - -	No limit
Maximum Operating Shock (11 ms duration)* - -	40 g
Maximum Operating Vibration (20-2000 cps)** - -	10 g

*Based on a maximum permanent frequency shift after drop of 1.5 megacycles.
**Based on a maximum peak-to-peak frequency deviation of 1.0 megacycle.

MAXIMUM RATINGS

D-C RESONATOR VOLTAGE* - - - - -	350	MAX. VOLTS
D-C CATHODE CURRENT - - - - - -	55	MAX. MA.
RESONATOR DISSIPATION - - - - -	20	MAX. WATTS
PEAK REPELLER VOLTAGE*		
POSITIVE WITH RESPECT TO CATHODE - - -	0	MAX. VOLTS
NEGATIVE WITH RESPECT TO CATHODE - - -	500	MAX. VOLTS

TYPICAL OPERATION (Load VSWR less than 1.15 to 1)

D-C Resonator Voltage* - - -	300	350	volts
Mode - - - - - - -	4-3/4	3-3/4	
Frequency - - - - -	5650	5650	megacycles
D-C Cathode Current - - - -	35	49	milliamperes
D-C Repeller Voltage* - - -	-135	-240	volts
D-C Repeller Current - - -	1	1	microampere
Power Output - - - -	35	130	milliwatts
Electronic Tuning Range (3 db-bandwidth)	45	45	megacycles
Modulation Sensitivity - - -	1600	900	Kc/volt
Peak-to-peak FM Deviation (10g, 20-2000 cps)	75	75	kilocycles

*All voltages referred to cathode.

APPLICATION

Cooling: At sea level, these tubes will not require forced air cooling when operated at their maximum rated dissipation with an ambient temperature less than 100° Centigrade. The mounting flange or waveguide flange will normally provide the required heat sink connection for conduction cooling.

If an insulator is used between the tube and waveguide or chassis, forced air cooling may be required to maintain the ceramic-to-metal seal temperatures below the maximum rating of 200° Centigrade.

Resonator: The resonator of the 1K015CA and 1K015CG is integral with the body of the tube. For this reason, it is often convenient to operate the resonator at chassis potential, with the repeller and cathode at appropriate negative potentials.

Cathode: The heater voltage should be maintained within ± 5% of the rated value of 6.3 volts if variation in performance is to be minimized and best tube life obtained.

The heater and cathode of the 1K015CA and 1K015CG are internally connected. When the resonator of these tubes is operated at chassis potential, the heater transformer must be insulated for the cathode-to-resonator voltage.

Mechanical Tuning: Mechanical tuning is accomplished by a single screw tuner with a differential thread. A tuning rate of approximately 100 megacycles per turn and a maximum tuner torque of four inch-pounds is provided by this design. Mechanical stops, capable of withstanding a maximum torque of 10 inch-pounds, are provided at the extremes of the tuning range. Tuner cycling in excess of 100 cycles will not damage the vacuum seals.

A clockwise rotation of the tuner will produce an increase in frequency.

Mounting: The 1K015CA should be mounted by the three-hole tube flange provided. The 1K015CG is mounted by the UG-344/U waveguide flange to the appropriate waveguide connector.

Electrical connections are made to both tubes by means of the flexible leads provided.

Output Coupling: The R-F terminal of the 1K015CA is a miniature coaxial connector described in detail in the outline drawing. For waveguide coupling, the 1K015CG utilizes the Eimac transition section and mates with standard RG-50/U waveguide. An adapter is available on special order to adapt the 1K015CA to standard BNC type coaxial output.

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

Eitel-McCullough, Inc.
February 16, 1960
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