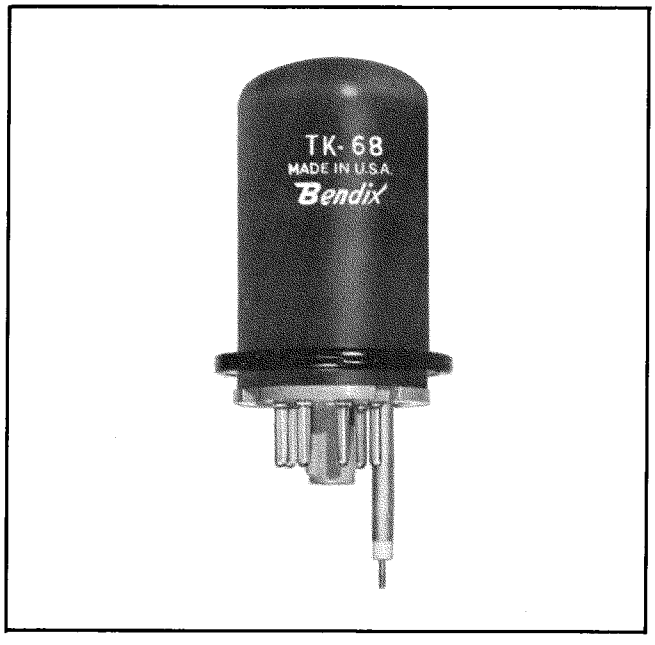
Bendix Type TK-68
(Tentative Data)

REFLEX KLYSTRON

(THERMALLY TUNED)



DESCRIPTION

The Bendix® Type TK-68 Tube is a thermally tuned C band reflex oscillator. It is of the same ruggedized construction as the Bendix 6116/TK-62 The tube is designed for use as a CW power source, over the frequency range of 5120 Mc./sec. to 5430 Mc./sec. Thermal tuning of the klystron is accomplished by means of a diode included within the vacuum envelope, the plate of which comprises one wall of the klystron cavity. Increasing diode voltage, and hence current, causes the plate of the diode to expand thus changing the gap spacing of the klystron; which in turn tunes the tube over the desired frequency range.

Output coupling is accomplished by means of a coaxial output lead. The output line may be coupled into a coaxial system or directly into a waveguide mount by means of the typical adaptor assembly used by the Bendix Types TK-38 and 6584/TK-69.

MAXIMUM RATINGS

(ABSOLUTE VALUES)

Resonator Voltage	330 volts D.C.
Reflector Voltage	—400 volts D.C.
Filament Voltage	6.3 ± 8% volts
Gun Cathode Current	35 ma. D.C.
Diode Voltage	—330 volts D.C.
Diode Plate Dissipation	*see note below

*Note: Power inputs as high as 16.5 watts may be applied to the diode when the frequency of the klystron is above 5430. Tuner Power in excess of 10 watts may permanently damage the tuning structure, if applied when the tube is tuned below 5120 Mc.

PHYSICAL CHARACTERISTICS

- *Base:* Small octal 8-pin, B8-21, Low Loss Phenolic Wafer, Modified for coaxial output lead as shown on outline drawing.
- *Dimensions:* Refer to the outline drawing.
- *Output Coupling:* Coaxial.
- *Mounting Position:* Any.
- *Bulb:* Metal.
- *Cavity:* Integral with tube.
- *Cooling:* Convection.

TYPICAL OPERATING CONDITIONS

Frequency	5120 to 5430 Mc./sec.
Resonator Voltage	300 volts D.C.
Reflector Voltage	—80 to —160 volts D.C.
Filament Voltage	6.3 ± 8% volts
Gun Cathode Current	32 mA D.C. (max.)
Tuner Diode Current	5 to 36 ma (D.C.)
Tuner Diode Voltage	170 to 275 volts D.C.

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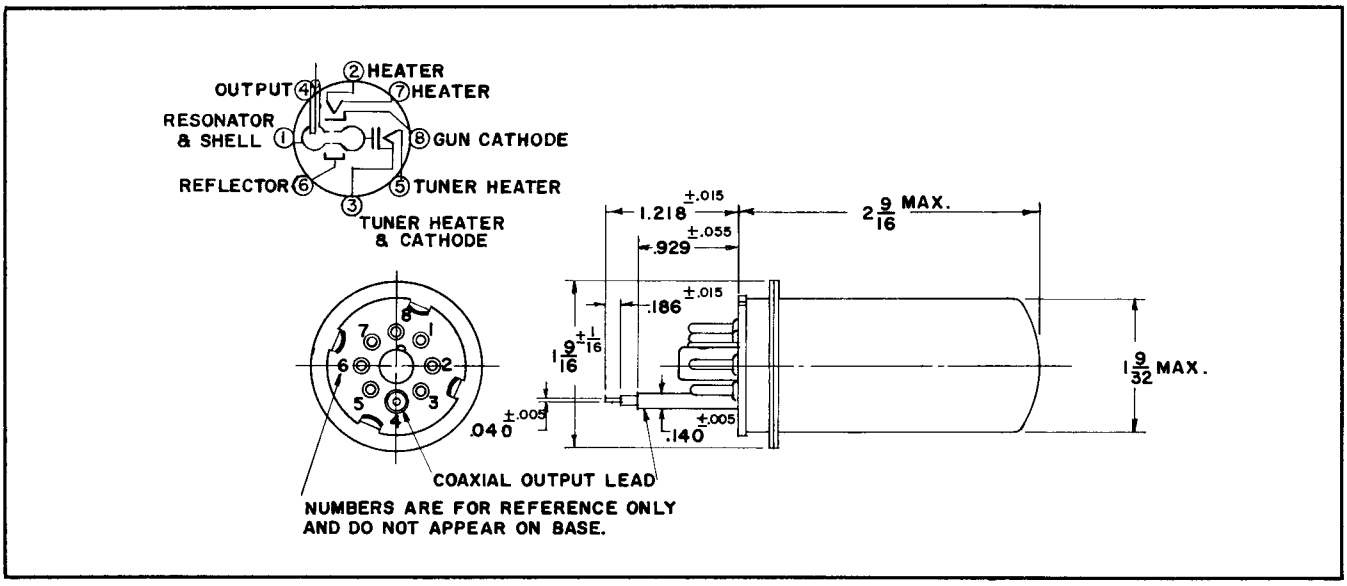
ELECTRICAL CHARACTERISTICS & TEST CONDITIONS

Test Conditions and Specification Limits

TEST	CONDITIONS	SYMBOL	LIMITS		UNITS
			MIN.	MAX.	
PRODUCTION TESTS:					
Total Reflector Current:	Er = −250 Vdc, 2 min.	Ir:	—	5.0	μA
Reflector Leakage Current:	Er = −250 Vdc	Ir:	—	3.0	μA
Reflector Gas Current:	Er = −250 Vdc	Ir:	—	2.0	μA
Cathode 1 Current:	Er/Max. Po	Ik1:	—	32	mAdc
Reflector Voltage:	Er/Max. Po	Er:	−80	−160	Vdc
Thermal Tuning Range:	Er/Max. Po				
	Thermal Tuning	Max. F:	5430	—	Mc
	Thermal Tuning	Min. F:	—	5120	Mc
Speed (1):	F = 5170 to 5370	t:	—	3.0	sec.
Speed (2):	F = 5370 to 5170	t:	—	2.5	sec.
Power Output:	Er/Max. Po; F = 5120 to 5430	Po:	80	—	mW
Emission:	Ef = 5.8	Ik1/Ik1:	—	.15	
DESIGN TESTS:					
Electrode Insulation:	300 Vdc Tube Cold	Rk1-rs:	2.0	—	Meg.
		Rk2-rs:	2.0	—	Meg.
		RF1-rs:	2.0	—	Meg.
Heater Current (1):		If1:	465	570	mA
Heater Current (2):		If2:	720	880	mA
Insulation:	Eh-K1 = ±100 Vdc	IhK1:	—	100	μAdc
Electronic Tuning:	Er/50% Max. Po	E.T.	30	—	Mc



OUTLINE DRAWING