

WESTERN ELECTRIC 7208 ELECTRON TUBE

TYPE DESIGNATION REGISTRATION

Manufacturer's Designation:
JEDEC Designation: 7208
Manufacturer: Western Electric Company

GENERAL CHARACTERISTICS

The 7208 is a pulsed magnetron oscillator tube which operates at a tunable frequency of 15800 to 17200 Mc. The power output is approximately 100 kilowatts and the tube is forced air cooled. The tube uses an integral magnet.

GENERAL ELECTRICAL DATA

Pre-heat Heater Voltage 12 ± 5% volts
Pre-heat Heater Current at 12.6 Volts 3.25 ± 0.25 amperes
Minimum Pre-heat Time 270 seconds
Heater Cold Resistance 0.4 ohm approximately
Anode-Cathode Capacitance 14μμf (nominal)

ABSOLUTE MAXIMUM RATINGS

Heater Voltage 13.9 volts
Heater Current 3.5 amperes
Heater Surge Current 13.6 amperes
Peak Anode Voltage 20 kilovolts
Peak Anode Current 20 amperes
Average Power Input 350 watts
Duty Cycle 0.001
Pulse Duration 3.3 microseconds
Rate of Rise of Anode Voltage (above 85% point) 120 KV μs/max.
Output Circuit Pressurization 15 psia min., 45 psia max.
Maximum Altitude without Pressurization
 Output Circuit sea level
 Input Terminals sea level
Body Temperature 150°C
Cathode Stem Temperature 300°C
VSWR (Magnetron Load) 1.5:1 max.

TYPICAL OPERATING RATINGS

Frequency 15800 to 17200 Mc.
Peak Anode Voltage at 17.0 kmc 17.5 ± 1.5 kv
Pulling Figure (VSWR 1.5/1) 6 Mc.
Pushing Factor - Mc/a
Magnetic Field for External Magnet -

TYPICAL OPERATING RATINGS (Continued)

Current Pulse Duration	Duty Factor	Peak Anode Current	Stability	Peak Power Output	Voltage Pulse Rate-of-Rise	RF Band Width at 1/4 po pts.	Heater Voltage
μsec		Amperes	% Missing Pulses	Kilo-watts	KV per μsec (above 85 % point)	(state VSWR & phase of load) Mc	Volts±5%
1/4	0.0007	17	1% max.	100	100 KV/μs	σ ¹ = 1.5:1* 4.5 Mc	8.8
3	0.001	17	1% max.	100	100 KV/μs	0.6 Mc * = Worst Phase)	7.6

GENERAL MECHANICAL CHARACTERISTICS

Mounting Position any
 Mounting Support See 4 hole
 Mounting Plate in
 outline drawing
 Weight 14 lbs. Max.

Coupling between Tube and Load
 The tube is coupled to RG 91/U waveguide by means of an UG419/U cover flange or a modified UG541/U (Clearance holes instead of tapped 6-32 holes) choke flange.

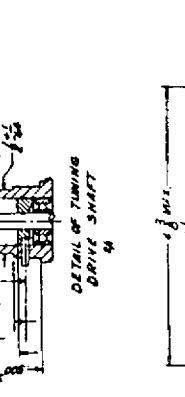
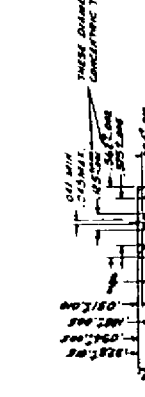
Cooling Data
 To limit rise in body temperature to 100°C for a dissipation of 200 watts - 10 cfm

Recommended cathode stem temperature 225°C ± 25°C

NOTES:

1. THE FREQUENCY INCREASED WHEN DRIVE SHAFT IS OPERATED IN DIRECTION INDICATED BY ARROW.
2. THE TURNING MECHANISM COMPLETELY SHUT OFF THE DRIVE MECHANICAL PARTS WHICH SUBJECTED TO A DYNAMIC TORQUE OF 100 LB INCHES ARE APPLIED AT THE DRIVE SHAFT. IN ORDER THAT THE MECHANICAL PARTS SHALL NOT ENGAGE SOLELY AGAINST THE DRIVE SHAFT AND THE DRIVE SHAFT SHALL NOT BE DAMAGED AND THE DRIVE SHAFT SHALL NOT BE DAMAGED AND THE DRIVE SHAFT SHALL NOT BE DAMAGED AND THE DRIVE SHAFT SHALL NOT BE DAMAGED.
3. THE AXIS OF THE TURNING TERMINAL IS WITHIN 0.0005 INCH OF AXIS OF UNCLAMPED LOCATION (NOTE 4, FIG 1).
4. THE LIMITS ON LOCATION OF WIRE GUIDE OUTPUT AND CATHODE TERMINAL INCLUDE AN ANGULAR AS WELL AS LATERAL DEVIATIONS.
5. NO CLAMPING ON THIS DIAMETER.
6. THE HEATED TERMINAL IS CONCENTRIC WITH THE CATHODE TERMINAL WITHIN .010 IN.
7. WASHING WITH APPROPRIATE CLEANSERS OF 2 INCHES BETWEEN THIS WIRE GUIDE AND CATHODE TERMINAL (MAGNETIC STIFF TOOLS, PLATES, ETC.)
8. THE OPERATOR OF THE WIRE GUIDE AND THE HEATED SHALL BE ENCLOSED BY A DUST COVER (NOTE 9, 10, 11, 12).
9. ALL METAL SURFACES COVERED BY GRAY FINISH EXCEPT THOSE MARKED 5.
10. PROTECTIVE COVER OVER TUNING HEAD MUST BE REMOVED DURING TUBE IS USED.

11. THE SEAL FORMED BY CLAMPING THE WIRE GUIDE OUTPUT FLANGE WITH "CHOKE FLANGE US-5W-1/4" MODIFIED (ELECTRIC POLLS INSTEAD OF POLLS) SHALL BE MAINTAINED BY MEANS OF MECHANICAL TIGHTENING WITH THE SPECIFIED AIR PRESSURE APPLIED THROUGH THE WIRE GUIDE.
12. THE SEAL FORMED BY CLAMPING THE BASE PLATE MUST BE MAINTAINED BY MEANS OF MECHANICAL TIGHTENING WITH THE SPECIFIED AIR PRESSURE APPLIED THROUGH THE WIRE GUIDE.
13. TUBE IS PROVIDED WITH INTERMEDIATE STOP FOR IMPACT CAUSED BY UNRESTRICTED TURNING DRIVE MOTION FOR A MAX. OF 50 IMPACTS.
14. THE NUMBER OF IMPACTS OF THE COILING PIN ARE NOT LIMITED, HOWEVER THERE MUST BE A SLIGHT IMPROVEMENT OF ENVELOPE.

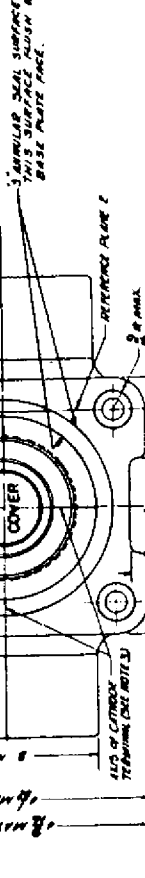
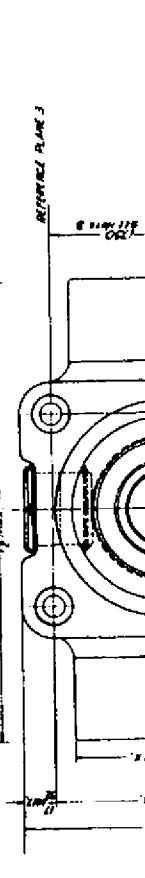
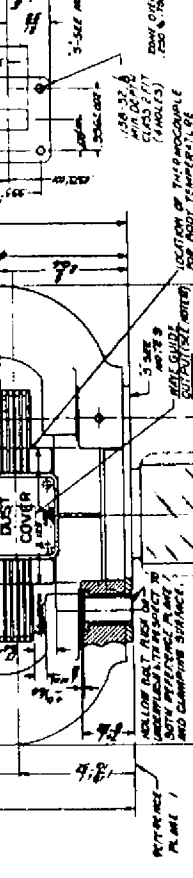
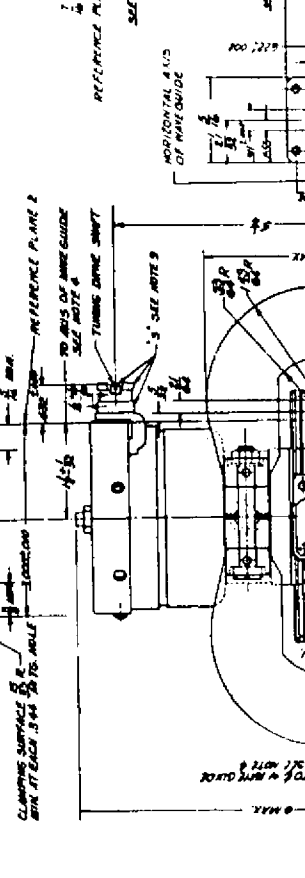
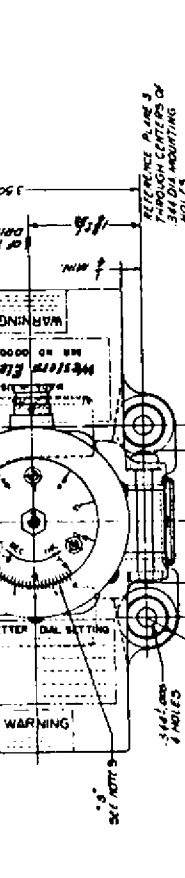
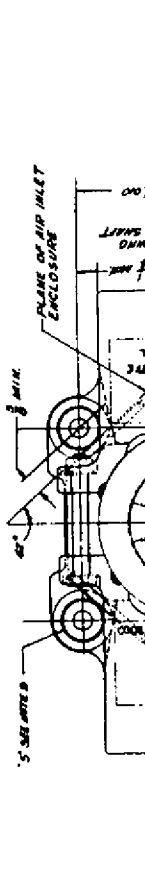
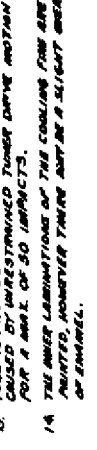
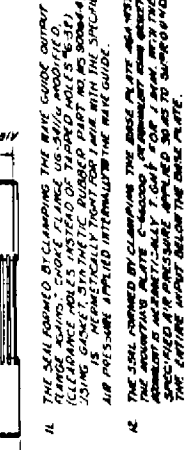
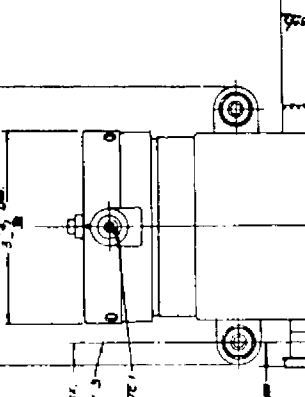


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12. THE SEAL FORMED BY CLAMPING THE BASE PLATE MUST BE MAINTAINED BY MEANS OF MECHANICAL TIGHTENING WITH THE SPECIFIED AIR PRESSURE APPLIED THROUGH THE WIRE GUIDE.

13. TUBE IS PROVIDED WITH INTERMEDIATE STOP FOR IMPACT CAUSED BY UNRESTRICTED TURNING DRIVE MOTION FOR A MAX. OF 50 IMPACTS.

14. THE NUMBER OF IMPACTS OF THE COILING PIN ARE NOT LIMITED, HOWEVER THERE MUST BE A SLIGHT IMPROVEMENT OF ENVELOPE.



PARALLEL SEAL SURFACE 3 TO D. 0.0005 O.D. THIS SURFACE MUST BE WITHIN .010 IN. OF BASE PLATE FACE.