Litton ELECTRON TUBE DIVISION
WILLIAMSPORT, PENNSYLVANIA 17701

SPECIFICATION SHEET

TYPE NO. L4601R SHEET 1 OF 4
SPECIFICATION REVISION 5
EFFECTIVE 8-26-77

THE PROVISIONS OF THE LATEST ISSUE OF MIL-E-1 APPLY TO THIS SPECIFICATION

DESCRIPTION: Magnetron, Pulsed, fixed frequency 9355 to 9395. Nominal peak power output 9kw, Integral magnet.

ABSOLUTE RATINGS:

PARAMETER	Ef	If(SURGE)	tk	VSWR	TUNER STOP TORQUE	BODY TEMP(TB)	INPUT BUSHING TEMP(TI)	PRESSURIZATION INPUT	PRESSURIZATION OUTPUT
UNIT	V	a	SEC.	---	IN. OZ.	°C	°C	PSIA	PSIA
MAXIMUM	7.0	3.0	---	1.5:1	---	+125	---	---	---
MINIMUM	---	---	120	---	---	-30	---	---	---
NOTES	---	---	4,8	---	---	---	---	---	---

PARAMETER	ib	tpc	Du	Pi	pi	rrv	ALT
UNIT	a	µs	---	W	kw	kv/µs	FEET
MAXIMUM	6.0	3.85	.00041	14	36	60	55,000
MINIMUM	---	.5	---	---	---	25	---
NOTES	---	---	---	---	---	---	---

PHYSICAL CHARACTERISTICS

OUTLINE: Figure 1
MOUNTING POSITION: Any
MOUNTING SUPPORT: Mounting Flange
COOLING: Conduction and/or Convection
MAGNET: Note 2
OUTPUT CONNECTION: Mates with UG-136B/U Flange
INPUT CONNECTION: Silicone covered 18 gauge wire
MARKING: Note 3
HANDLING: Note 1
WEIGHT: 2.5 lbs. Max.

TEST CONDITIONS

PARAMETER	Ef	tk	tpc	Ib	Du	rrv	VSWR
UNIT	V	SEC	µs	mAdc	---	kv/µs	---
NOTES	8	4	9	---	---	6	---

TEST 1

MAXIMUM:	---	---
:	6.3	---
MINIMUM:	---	120

TEST 2

MAXIMUM:	6.615	---	3.85	---	---	50	1.05:1
:	6.3	---	---	2.0	.00035	---	---
MINIMUM:	5.905	120	3.15	---	---	25	---

GENERAL

Litton ELECTRON TUBE DIVISION
WILLIAMSPORT, PENNSYLVANIA 17701

SPECIFICATION SHEET

TYPE NO. [illegible] SHEET 2 OF 8
REVISION D

METHOD	REQUIREMENT OR TEST	NOTES	TEST	CONDITIONS	SYMBOL	LIMITS MIN	LIMITS MAX	UNITS
	QUALIFICATION TESTS							
1031	Vibration	16,17	2	3 Planes, 5-55cps .1 "DA; 55-2000cps 1.0g	BW MP	--- ---	2.5/tpc .25	MHz %
1042	Shock	17		Non-operating 6g's, 10ms, half sine wave, 3 planes, 3 shocks per plane				
1047	Low Temperature Operation	18	2					
1047	High Temperature Operation	18	2					
4027	Temperature Coefficient	5	2	TA =-55°C to 85°C	$\Delta F/\Delta T$	---	0.25	MHz/°C
	QUALITY CONFORMANCE INSPECTION PART I							
1301	Heater Current	4	1		I_f	0.47	0.64	AMP
	Holding Period	14		t = 48 hours				
	Frequency		2		F	9355	9395	MHz
4308	Spectrum Measurements	10,11						
	RF Bandwidth Minor Lobes		2		BW Ratio	--- 8.0	2.5/tpc ---	MHz db
4315	Stability	12,13	2		MP	---	0.25	%
4306	Pulse Voltage		2		epy	5400	5900	Volts
4250	Power Output		2		Po	9.0	---	kw
4310	Pulling Factor		2	VSWR = 1.3:1	ΔF	---	15	MHz
	QUALITY CONFORMANCE INSPECTION PART II							
	Altitude	7	2	55,000 FT.				
4311	Pushing		2	i_b = 5.0 to 6.0 AMP	$\Delta F/i_b$	---	1.7	MHz/AMP
	QUALITY CONFORMANCE INSPECTION PART III							
4551	Life Test	15	2		T	500	---	Hrs.
	Life Test End Points							
4250	Power Output		2		Po	7.5	---	kw
	Frequency		2		F	9345	9405	MHz
4308	Spectrum Meas. RF Bandwidth Minor Lobes	10,11	2 2		BW Ratio	--- 6.0	3.0/tpc ---	MHz db
4315	Stability	12,13	2		MP	---	1.0	%

IPT1912-020

NOTES:

1. Care must be exercised in storage, handling and mounting of this magnetron to prevent demagnetization of the tube's magnets. Ferromagnetic materials should not be brought to within 2 inches of the tube.

2. The direction of magnetic field shall be such that the north seeking pole of a compass shall point to that part of the magnet which is farthest away from the input leads.

3. The magnetron shall be permanently and legibly marked as shown in Figure 1 (outline drawing). Input leads shall be properly identified.

4. Prior to the application of high voltage, the cathode shall be heated to the required initial operating temperature by applying 6.3 V+5% for a minimum time of 120 seconds.

5. Under the ambient temperatures specified, the body temperature shall be monitored at the point indicated on the outline drawing.

6. The rate of rise of voltage is the slope of the steepest tangent to the leading edge of the voltage pulse above 50% amplitude. Any capacitance used in the viewing system shall not exceed 6.0 picofarads.

7. The magnetron shall meet all electrical requirements of Quality Conformance Inspection-Part I at a reduced pressure equivalent to an altitude of 55,000 feet and a VSWR of 1.25:1.

8. The tube heater shall be protected against arcing by the use of a capacitance of 4000 picofarads (minimum) across the tube at the input leads.

9. The pulse width is defined as the time measured between the 50% points on the leading and trailing edges of the current pulse.

10. A suitable spectrum is considered to be one in which the major lobe has a shape such that its slope does not change sign more than once at power levels greater than the specified db below its peak.

11. The VSWR of the transmission line shall not be less than 1.3:1 at any phase when a stub producing a reflection coefficient corresponding to a VSWR of 1.3:1 is inserted into the waveguide. The stub shall be adjusted to that phase which produces the maximum spectrum degradation.

12. In lieu of measuring missing pulses, visual observation of the spectrum may be substituted. With the spectrum displayed at a slow sweep rate, no missing lines should be observable. If lines are missing, the MP count must be made.

13. The tube shall be operated into a transmission line with a minimum VSWR of 1.3:1 adjusted in phase to produce maximum instability. A missing RF pulse is defined as one whose energy content within ±1% of the normal operating frequency is 70% or less than that of a normal pulse. The missing pulses shall be counted during any three consecutive minute interval of a six-minute test period.

14. All production test shall be performed after the specified non-operating holding period.

15. The life test shall consist of continuous operation at the conditions of Test 2.

    If tube type L-4601 is in concurrent production with type L-4495, the life test of any one of the two types shall be considered to satisfy the life test requirement of the other type.

16. During this test the magnetron shall be operated at the conditions of Test Condition 2. The tube shall meet the requirements for R. F. Bandwidth and Stability production tests.

17. After the specified number of cycles, the tube shall pass all the tests under Test Condition 2 in Quality Conformance Inspection, Part I.

18. The magnetron shall meet all the electrical requirements of this specification from -54°C to +110°C and shall not be damaged by storage from -65°C to +125°C.

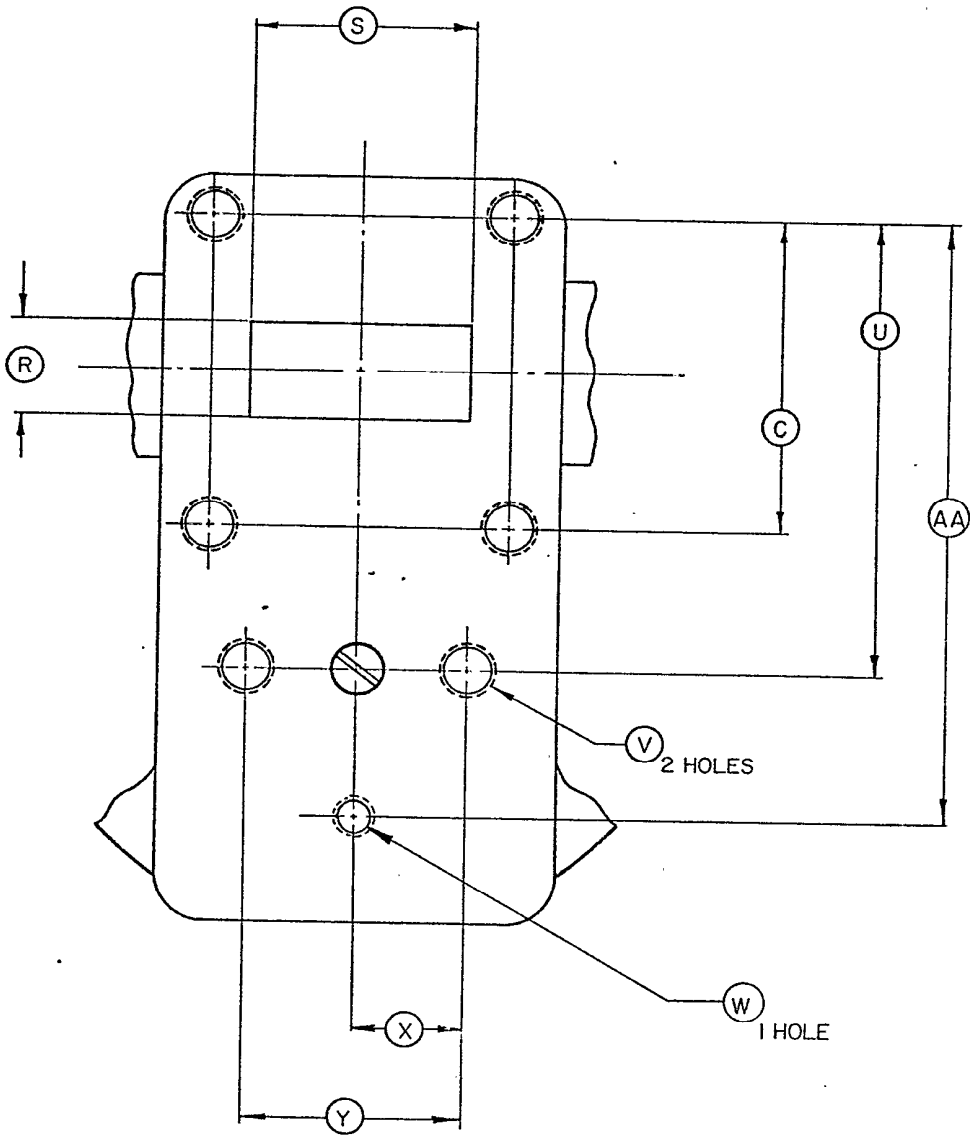

FIGURE 1A

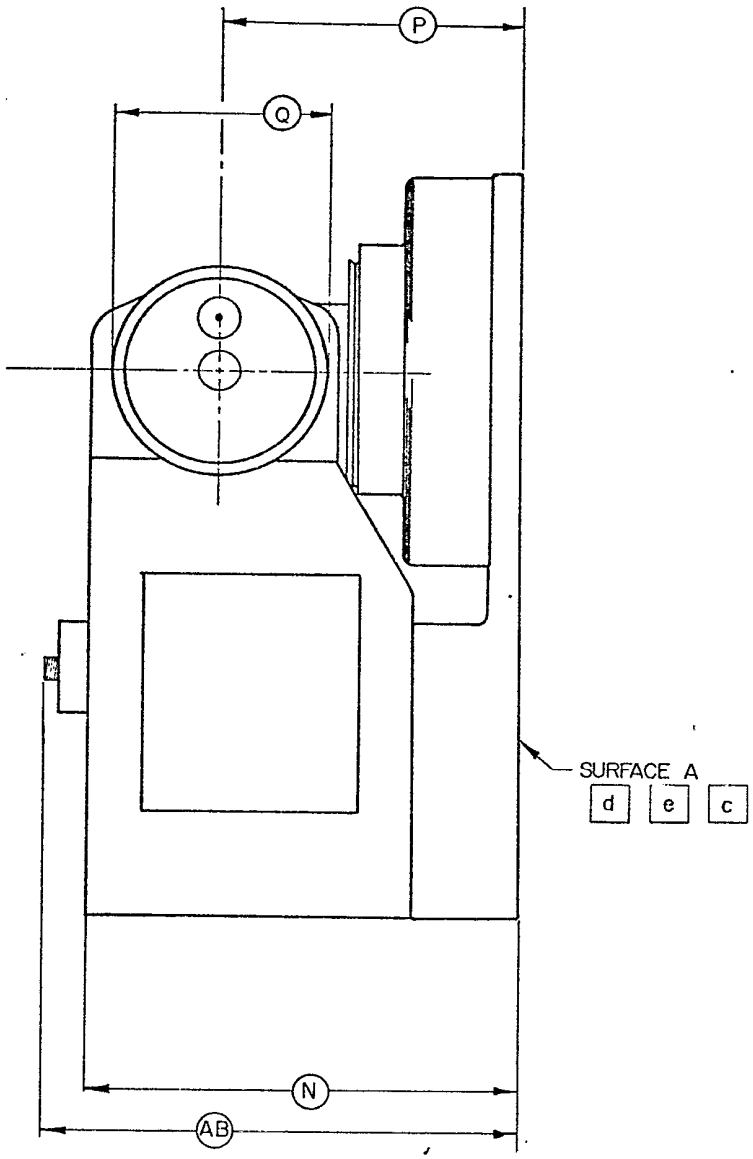

FIGURE 1C

Litton ELECTRON TUBE DIVISION
WILLIAMSPORT, PENNSYLVANIA 17701

SPECIFICATION SHEET

TYPE NO. L-4691 B SHEET 7 OF 8

REVISION D

DIMENSIONS				
LETTER	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
QUALITY CONFORMANCE INSPECTION - PART I				
A	2.615	2.645	66.42	67.18
B	1.610	1.640	40.89	41.65
C	1.276	1.284	32.41	32.61
D		.350		8.89
E	8-32 NC-2B			
F	1.206	1.318	30.63	33.48
G	1.216	1.224	30.89	31.09
J		3.950		100.33
K	2.585	2.615	65.66	66.42
L	.809	.815	20.55	20.70
M	3.110	3.130	78.99	79.50
N		1.90		48.26
P	1.145	1.185	29.08	30.09
Q	.855	.855	21.72	22.48
R	.398	.402	10.11	10.21
S	.898	.902	22.81	22.91
T	3.000		76.2	
AA	2.595	2.625	63.627	64.135
AB		2.00		50.8

DIMENSIONS				
LETTER	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
QUALITY CONFORMANCE INSPECTION - PART II				

LETTER	INCHES		MILLIMETER	
	MIN.	MAX.	MIN.	MAX.
QUALIFICATION INSPECTION				
NOMINAL				
H		.610		15.49
U		1.890		48.00
V	8-32 NC-2B			
W	8-32 NC-2B			
X		.500		12.7
Y		1.000		25.4

IPT 1912-040

O

OUTLINE NOTES:

a. Magnet WARNING decal.

b. Part number, serial number and date code decal.

c. Surface A must be flat to a maximum of .010.

d. All metal surfaces, except surface A and the input assembly, shall be painted with heat-resistant paint.

e. Surface A and interior surface of waveguide output shall be plated.

f. Cathode lead shall be identified by letter "C" and contain yellow silicone insulation. Heater lead color is left to discretion or manufacturer.

g. Magnet Polarity:
The North seeking pole of a compass shall be attracted to this end of the magnet.

h. Body temperature (TB) shall be monitored at this point.