

INCH-POUND

MIL-PRF-1/99E  
 17 January 2014  
 SUPERSEDING  
 MIL-PRF-1/99D  
 17 April 2007

PERFORMANCE SPECIFICATION SHEET  
 ELECTRON TUBES, TRANSMITTING  
 TYPES 807 AND 1625 <sup>1/</sup>

Inactive for new design  
 after 7 March 1997.

The requirement for acquiring the electron tube described herein shall consist of this document and MIL-PRF-1.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

**DESCRIPTION:** Amplifier, beam power, F1 = 60 MHz, F2 = 125 MHz.

Outline	---	16-2 (EIA)
Base		
807	---	A5-11 (low-loss phenolic)
1625	---	A7-13 (low-loss phenolic)
Cap	---	C1-1
Envelope	---	ST16
Cathode	---	Coated unipotential

Base connections:

Pin No.	---	1	2	3	4	5	6	7	Cap
Element									
807	---	h	g2	g1	k, g3 (Note 2)	h	---	--	a
1625	---	h	nc	g2	g1	nc	k, g3 (Note 2)	h	a

**ABSOLUTE-MAXIMUM RATINGS:**

Parameter:	Ef	Eb	Ec1	Ec2	Ib	Ic1	Pg2	Pp	Pi	Ehk	Modu-	Alt
Unit:	V	V dc	V dc	V dc	mA dc	mA dc	W	W	W	v	---	ft
Type 807												
Class B AF:	6.3±10%	600	---	300	120	---	3.5	25	60	135	---	10,000
Class B RF:	6.3±10%	600	---	300	80	---	2.5	25	37.5	135	---	10,000
Class C Teleg:	6.3±10%	475	-200	300	83	5	2.5	16.5	40	135	Anode	10,000
Class C Teleg:	6.3±10%	600	-200	300	100	5	3.5	25	60	135	---	10,000
Test conditions:	6.3	600	-29	300	---	---	---	---	---	---	---	---
Type 1625												
Class B AF:	12.6±10%	600	---	300	120	---	3.5	25	60	135	---	10,000
Class B RF:	12.6±10%	600	---	300	80	---	2.5	25	37.5	135	---	10,000
Class C Teleg:	12.6±10%	475	-200	300	83	5	2.5	16.5	40	135	Anode	10,000
Class C Teleg:	12.6±10%	600	-200	300	100	5	3.5	25	60	135	---	10,000
Test conditions:	12.6 V dc	600	-29	300	---	---	---	---	---	---	---	---

**GENERAL:**

Qualification - Not required.

This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.

<sup>1/</sup> See note 1.

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TABLE I. Testing and inspection.

Requirement or test	MIL-STD-1311 method	Conditions	Symbol	Limits		Unit
				Min	Max	
<u>First article inspection</u>						
Power oscillation (2)	1236	Power oscillation (1); F = 60 MHz	Po	28	---	W
<u>Conformance inspection, part 1</u>						
Emission	1231	Eb = Ec1 = Ec2 = 50 V dc (see note 3)	Is	300	---	mA dc
Power oscillation (1)	1236	Ec2 = 200 V dc; Rg = 10,000 ohms; Ic1 = 6 mA dc; Ib = 100 mA dc; F = 15 MHz.	Po	33	---	W
Electrode current (1) (anode)	1256		Ib	24	48	mA dc
Total grid current	1266	See note 3.	Ic	---	- 4.0	μA dc
Short and discontinuity detection	1201	See note 5.	---	---	---	---
<u>Conformance inspection, part 2</u>						
Low-frequency vibration	1031	Eb = 250 V dc; Ec2 = 100 V dc; Ec1 = -10 V dc; Rp = 2,000 ohms	Ep	---	500	mV ac
Bump	1036	Hammer angle = 20°	---	---	---	---
Heater current Type 807 Type 1625	1301		If If	810 405	990 495	mA mA
Heater-cathode leakage	1336		Ihk	---	100	μA dc
Electrode current (2) (anode)	1256	Ec1 = -100 V dc	Ib	---	0.5	mA dc
Electrode current (screen)	1256		Ic2	0	4.0	mA dc
Primary grid emission Type 807	1266	Eg2 = 175 V ac (approx); Eb = Ec2 = 0; Ec1 = 0 to 6 V dc; Pg2 = 5W (see note 4)	Ic2	---	-750	μA dc
Transconductance Type 1625	1306	Eb = Ec2 = 250 V dc; Ec1 = -14 V dc	Sm	5,100	6,900	μmhos
Internal insulation	1236		---	---	---	---
Direct-interelectrode capacitance	1331	Shield No. 312 Without shield Without shield	{ Cgp Cin Cout	---	0.2 14.0 8.7	pF pF pF

See notes at end of table.

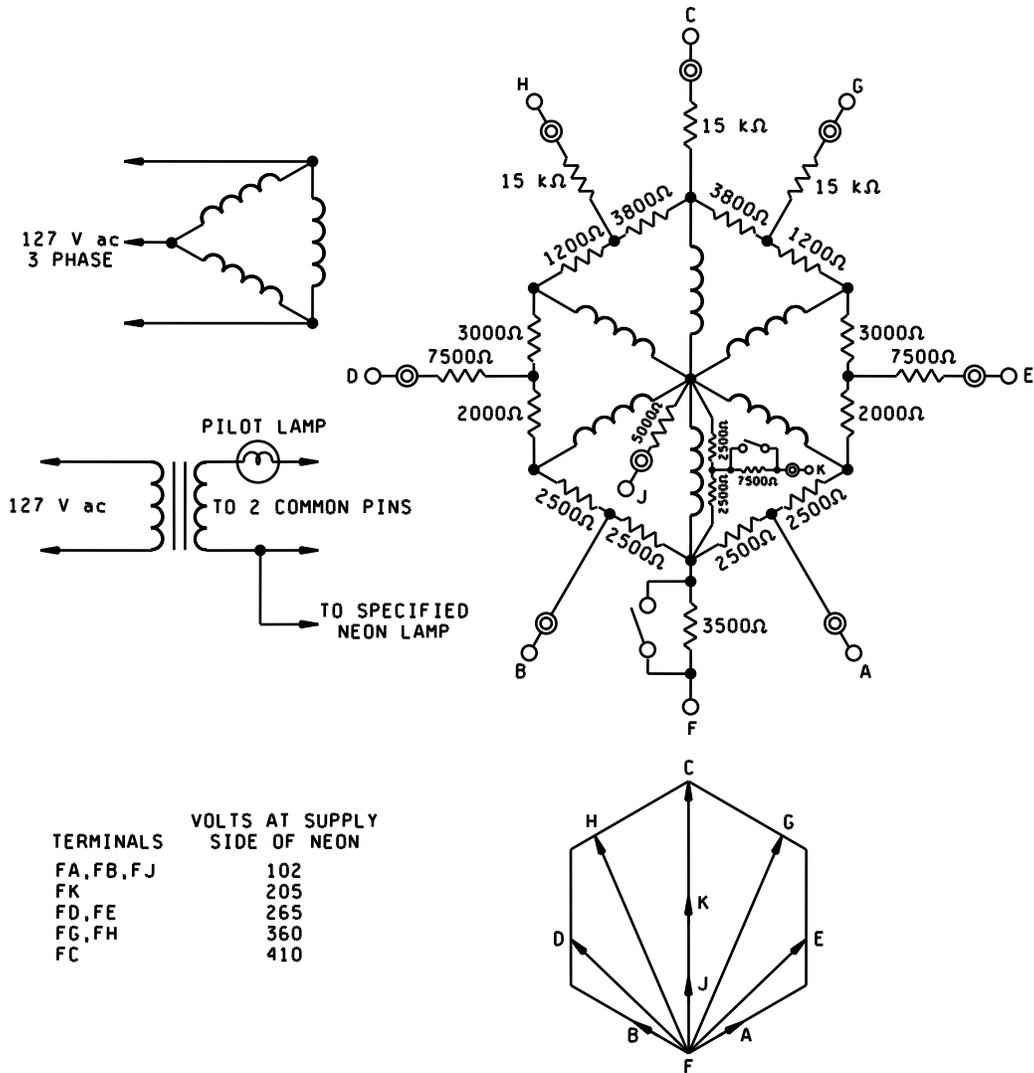
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TABLE I. Testing and inspection - Continued.

Requirement or test	MIL-STD-1311 method	Conditions	Symbol	Limits		Unit
				Min	Max	
<u>Conformance inspection, part 2</u> - Continued						
Secureness of base, cap, or insert	1101		---	---	---	---
Permanence of marking	1105		---	---	---	---
<u>Conformance inspection, part 3</u>						
Life-test provisions	---	Group B; Ehk = 135 V	---	---	---	---
Life-test end points (500 hours)	---	Total grid current and Power oscillation (1)	Ic1 Po	0 27	- 4.0 ---	$\mu$ A dc W

## NOTES:

1. Tube type 5933 has been deleted from this tube specification sheet. For replacement purposes, use tube type 5933WA, MIL-E-1/852.
2. The beam forming plate lead and the cathode lead shall be individually passed through the glass stem of the tube and shall be electrically connected together only at the base pin.
3. This test to be performed at the conclusion of the holding period.
4. A protective resistor of 15,000 ohms shall be placed in series with the primary emission current meter. Grid No. 2 input power shall be calculated as 2.46 times the product of the rectified current and rectified voltage. Test duration shall be sufficient to obtain a stabilized negative Ic2 value.
5. The hexaphase short and discontinuity test may be used as an alternate equivalent test for transmitting tubes (see figure 1).



REPRESENTATIVE TEST CIRCUIT, VECTOR DIAGRAM, AND VOLTAGES

NOTES:

1. Voltage tolerance  $\pm 15$  percent. Measure voltages without a tube in the socket, using a rectifier type voltmeter (500 ohms per volt minimum) or an average-reading type VTVM, such as the Hewlett Packard 400 series. Ballantine 300 or 310, or the RCA Junior Voltohmyst, or equivalent. Peak reading meters such as the RCA Senior Voltohmyst will not agree with the above figures for voltage at the terminals. The Voltohmyst shall be isolated from ground and from the technician during the measurement, as its case is connected to its common test lead.
2. Use a hexaphase supply connected to a ring potentiometer. Each tube element (except cathode) is connected through a neon lamp to an appropriate point on the ring potentiometer.

FIGURE 1. Hexaphase short and discontinuity test.

Referenced documents. In addition to MIL-PRF-1, this specification sheet references:

MIL-E-1/852  
MIL-STD-1311

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Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5960-2013-043)

Review activities:

Navy - AS, CG, MC, OS  
Air Force - 19, 99

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