

MIL-E-1/1655B  
 6 December 1978  
 SUPERSEDING  
 MIL-E-1/1655A  
 15 April 1976  
 (See note 11)

MILITARY SPECIFICATION SHEET

ELECTRON TUBE, RECEIVING

TYPE 6080WC

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

The complete requirements for procuring the electron tube described herein shall consist of this document and the latest issue of Specification MIL-E-1.

**DESCRIPTION:** Twin triode, low Mu

Outline --- See figure 1  
 Base --- B8-98 (glass-bonded mica)  
 Envelope --- T12  
 Cathode --- Coated unipotential

Base connections:

Pin no.	---	1	2	3	4	5	6	7	8
Element	---	2g	2a	2k	1g	1a	1k	h	h

**ABSOLUTE-MAXIMUM RATINGS:**

Parameter:	Ef	Eb	Ec	Ehk	Rk/k	Rg/g	Ic/g	Ik/k	Pp/p	TE	Alt
Unit:	V	Vdc	Vdc	v	Ohms	Meg	mAdc	mAdc	W	°C	ft
Maximum:	6.6	250	0	450	---	(See note 2)	5.0	200	13	300	(See note 1)
Minimum:	6.0	---	---	---	---	---	---	---	---	---	---
TEST CONDITIONS:	6.3	135	0	---	250	---	---	---	---	---	---

**GENERAL:**

Qualification - Required  
 Reliable tube

6080WC

FSC 5960

METHOD	REQUIREMENT OR TEST	NOTES	CONDITIONS	AQL (PERCENT DEFECTIVE)	INSPECTION LEVEL OR CODE	SYMBOL	LIMITS		UNIT
							MIN	MAX	
1216	<u>Qualification inspection</u> Base material insulating quality		glass-bonded mica, zone 5 minimum	---	---	---	---	---	---
1031	Variable-frequency vibration	4	E <sub>c1</sub> = -7 Vdc; R <sub>k</sub> = 0; R <sub>p</sub> = 2,000 ohms	---	---	Ep	---	500	mVac
1256	<u>Quality conformance inspection, part 1</u> Electrode current (1) (anode)	6,7,8		0.4	II	I <sub>b</sub>	100	150	mAdc
1266	Total grid current	4,8	R <sub>g</sub> = 1.0 Meg; R <sub>k</sub> = 125 ohms	0.4	II	I <sub>c</sub>	0	-1.0	μAdc
1301	Heater current			0.4	II	I <sub>f</sub>	2.35	2.65	A
1306	Transconductance (1)	6,7,9		0.4	II	S <sub>m</sub>	6,000	8,200	μmhos
1336	Heater-cathode leakage	6	E <sub>hk</sub> = +450 Vdc E <sub>hk</sub> = -450 Vdc	0.4	II	I <sub>hk</sub>	---	25	μAdc
1201	Short and discontinuity detection			0.4	II	---	---	---	---
1211	<u>Quality conformance inspection, part 2</u> Insulation of electrodes	6		2.5	I	R	200	---	Meg
1256	Electrode current (2) (anode)	6,7	E <sub>b</sub> = 250 Vdc; E <sub>c</sub> = 200 Vdc	2.5	I	I <sub>b</sub>	---	10	mAdc
1306	Transconductance (2)	6,7,9	E <sub>f</sub> = 5.7 V	2.5	I	ΔS <sub>m</sub> E <sub>f</sub>	---	10	%
1316	Amplification factor	6,7,9	R <sub>k</sub> = 250 ohms	---	---	M <sub>u</sub>	1.5	2.5	---
1256	Electrode current (1) (anode) difference between sections			2.5	I	ΔI <sub>b</sub>	---	25	mAdc
1031	Sweep-frequency vibration	4,10	R <sub>k</sub> = 0; R <sub>p</sub> = 2,000 ohms; E <sub>c</sub> = -7 Vdc; F = 50 to 500 Hz; 2.5 G	6.5	Code H	Ep	---	500	mVac
1101	Secureness of base, cap. or insert			---	---	---	---	---	---
1111	Base pin solder depth			---	---	---	---	---	---
1041	Shock	3,4	450 G; E <sub>hk</sub> = +450 Vdc; E <sub>c</sub> = -7 Vdc; R <sub>p</sub> = 2,000 ohms; R <sub>k</sub> = 0	---	---	---	---	---	---
1031	Sweep-frequency vibration fatigue	10	F = 50 to 500 Hz; 2.5 G; E <sub>f</sub> = 6.3 V; no other voltages applied (except t = 96 hours)	6.5	Code E	---	---	---	---
---	Post-shock and sweep-frequency vibration-fatigue-test end points:			---	---	---	---	---	---
1031	Sweep-frequency vibration			---	---	Ep	---	500	mVac
1336	Heater-cathode leakage			---	---	I <sub>hk</sub>	---	50	μAdc

METHOD	REQUIREMENT OR TEST	NOTES	CONDITIONS	AQL (PERCENT DEFECTIVE)	INSPECTION LEVEL OR CODE	SYMBOL	LIMITS		UNIT
							MIN	MAX	
	<u>Quality conformance inspection, part 2</u> -Continued								
---	Post-shock and sweep-frequency vibration-fatigue-test end points: -Continued								
1306	Transconductance (1)			---	---	$\Delta S_m$	---	70	%
1266	Total grid current			---	---	$I_c$	0	-1.5	$\mu\text{Adc}$
1261	Electrode voltage (anode)	6	$R_k = 0; E_c = 0;$ $E_b/I_k = 200 \text{ mAdc}$	---	---	$E_b$	---	70	Vdc
1131	Metallic base sleeve quality			---	---		---	---	---
1105	Permanence of marking			---	---		---	---	---
	<u>Quality conformance inspection, part 3</u>								
1506	Heater-cycling life		$E_f = 7.5 \text{ V}; E_{hk} = 300 \text{ Vac}; E_b = E_c = 0;$ 1 min "on" 4 min "off"	---	---				
---	Heater-cycling life-test end point:			---	---				
1336	Heater-cathode leakage			---	---	$I_{hk}$		50	$\mu\text{Adc}$
1516	Stability life	6	$E_b = 150 \text{ Vdc}; E_{hk} = 300 \text{ Vac}; R_k/k = 400$ ohms; $T_A = \text{room}$	---	---				
---	Stability life-test end point (1 hour):			---	---				
1306	Transconductance (1) change of individual tubes			---	---	$\Delta S_m$		10	%
1501	Intermittent life	5	Group E; stability life-test conditions; $T_E = 300^\circ\text{C}$ (min)	---	---				
---	Intermittent life-test end points (1,000 hours):			---	---				
---	Inoperatives			---	---				
1266	Total grid current			---	---	$I_c$	0	-5	$\mu\text{Adc}$
1306	Transconductances (2)			---	---	$\Delta S_m$		10	%
1336	Heater-cathode leakage			---	---	$E_f$		25	$\mu\text{Adc}$
1301	Heater current			---	---	$I_{hk}$	2.35	2.75	A
1306	Transconductance (1) change of individual tubes			---	---	$I_f$		15	%
				---	---	$\Delta S_m$			
1211	Insulation of electrodes			---	---	R	100	---	Meg

## NOTES:

1. See "Reduced pressure (altitude) rating", and altitude, maximum peak voltage in the basic document.
2. Maximum grid-circuit resistance:
  - a. 1.0 megohm for cathode-bias operation.
  - b. 0.1 megohm for fixed-bias operation.
  - c. 0.1 megohm for combined fixed-and cathode-bias operation.

NOTES: - Continued

3. A grid resistor of 0.1 megohm shall be added to each section; however, this resistor shall not be used when a thyratron-type short indicator is employed.
4. Tie 1k to 2k; 1g to 2g; and 1a to 2a.
5. Envelope temperature (TE) requirements when measured in accordance with the temperature by conduction-band measurement (method 1226), will be satisfied if a tube having bogey Ib ( $\pm 5$  percent) under normal test conditions, is determined to operate at or above minimum specified temperature at any position in the life-test rack.
6. Test each unit separately.
7. Both units shall be operating.
8. This test to be performed at the conclusion of the holding period.
9. Rk bypassed with 1,000  $\mu$ F capacitor.
10. Sweep-frequency vibration and fatigue-test procedure:
  - a. This test shall be performed with an average acceleration level equal to the specified value while being swept continuously during a time of approximately 1 minute through the frequency range of 50 to 500 Hz and back to 50 Hz.
  - b. The total excitation time for the test shall be not less than 3 minutes. The tube shall be mounted in each of three planes X, Y, and Z for one-third of the total excitation time. In each mounting plane, the tube shall experience at least one complete frequency sweep.
11. Revision letters are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - ER  
Navy - EC  
Air Force - 85

Review activities:

Air Force - 99  
DLA - ES

User activities:

Army - AR  
Navy - AS, OS, MC, CG  
Air Force - 11, 19

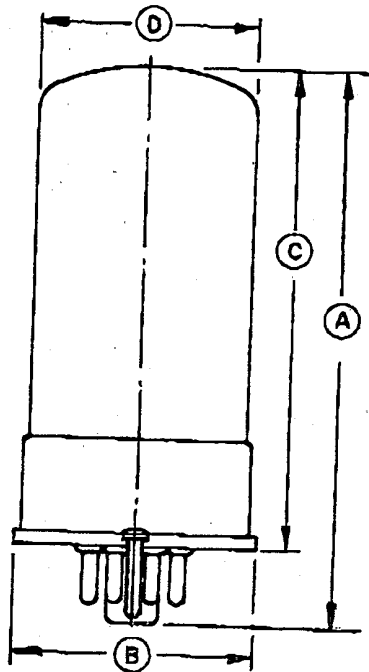
Preparing activity:

Navy - EC

Agent:

DLA - ES

(Project 5960-3202)



Ltr	Dimensions in inches with metric equivalents (mm) in parentheses	
	Minimum	Maximum
Quality conformance inspection, part 1		
A		4.063 (103.20)
B		1.719 (43.66)
C	3.125 (79.38)	3.500 (88.90)
D	1.438 (36.53)	1.563 (39.70)

FIGURE 1. Outline drawing of electron tube type 6080WC.