INCH-POUND

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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, POWER
TYPE 2041

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

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

DESCRIPTION: Beam power tetrode, pulse amplifier.

See figure 1.

Mounting position: Tube axis vertical, either end up.

Weight: 38 pounds (17.24 kg) nominal.

ABSOLUTE RATINGS:

Parameter:	F	Ef	eb	Eb	ec2	Ec1	ib	Ib	ic1	Ic1	ic2	Ic2
Unit:	MHz	V (per section)	kv	kV dc	kv	V dc	a	A dc	a	mA dc	a	mA dc
Maximum: Screen and grid pulsed amp; class B; tp = 2,500 μs 4/	600	1.5 1/	30 23/	26	2.0	-350	15	1.0	2.25 5/	150	3	200
Test conditions:	---	1.35 1/	---	---	---	---	---	---	---	---	---	---

ABSOLUTE RATINGS:

Parameter:	Pi	Pp	tk	Cooling requirements	Environmental requirements	Operating frequency	Fault protection	Duty
Unit:	kW	kW	sec	---	---	MHz	---	Du
Maximum: Screen and grid pulsed amp; class B; tp = 2,500 μs 4/	25	20	6/	7/	9/	174-575	10/	0.067
Test conditions:	---	---	6/	8/	---	---	10/	---

GENERAL:

Qualification: Not required.

TABLE I. Testing and inspection.

Inspection	Method MIL-STD-1311	Notes	Conditions	Acceptance level 12/	Symbol	Limits		Unit
						Min	Max	
First article inspection								
Life test	---	1/ 11/ 12/ 13/ 16/	po = 180 kw (min); F = 215 ± 15 MHz	---	---	---	---	---
Life test end point	---	11/ 16/	F = 215 ± 15 MHz	---	po	180	---	kw
Vibration	---	21/ 24/		---	---	---	---	---
Shock	---	22/ 24/		---	---	---	---	---
Vibration and shock test end point:	---							
Peak power output (1)		---		---	po	180	---	kw
Conformance inspection, part 1								
Anode water pressure differential	1155	14/	No voltages applied	0.65	APD	---	18	psi
Grid 2 water pressure differential	1155	14/	No voltages applied	0.65	SPD	---	17	psi
Grid 1 water pressure differential	1155	14/	No voltages applied	0.65	GPD	---	9	psi
Filament section (1) water pressure differential	1155	14/	No voltages applied	0.65	FPD1	---	17	psi
Filament section (2) water pressure differential	1155	14/	No voltages applied	0.65	FPD2	---	17	psi
DC cathode water pressure differential	1155	14/	No voltages applied	0.65	CPD	---	11	psi
Filament current per section	1301	---		0.65	If	950	1,050	A
Filament current differential	---	3/		0.65	ΔIf	---	30	A
Total grid current	1266	17/ 20/	Eb = 10 kV dc ± 500 V dc; Ec2 = 900 V dc; Ec1/Ib = 1.5 A dc; t = 5 minutes	0.65	Ic	---	-170	μA dc

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

Inspection	Method MIL-STD-1311	Notes	Conditions	Acceptance level 12/	Symbol	Limits		Unit
						Min	Max	
Conformance inspection, part 1 – Continued								

Peak power output (2)	---	16/ 19/	Eb = 26 kV dc;
			ec2 = 2 kv;
			Ec1 = 15/;
			rf drive/Ib = 750 mA dc;
			Ic1 = 125 mA dc (max);
			Ic2 = 175 mA dc (max);
			F = 550 ± 25 MHz;
			t = 60 minutes
				0.65	po	180	---	kw

Peak power output (1)	---	15/ 16/ 19/	Eb = 23 kV dc;
			ec2 = 1.8 kv;
			rf drive/Ib = 750 mA dc;
			Ic1 = 125 mA dc (max);
			Ic2 = 175 mA dc (max);
			F = 215 ± 15 MHz;
			t = 60 minutes
				0.65	po	200	---	kw

Direct-interelectrode capacitance	1331	2/	Grid 2 to filament Anode to grid 1	0.65 0.65	Cg2k Cg1p	0.011 ---	0.018 0.10	µF pF
Conformance inspection, part 2								
Input resonant frequency	---	18/		---	Fi	265	295	MHz
Output resonant frequency	---	18/		---	Fo	245	275	MHz
Conformance inspection, part 3								
Service-life guarantee	---	11/ 13/	po = 180 kw (min); F = 174 to 575 MHz; t = 1,000 hours	---	---	---	---	---
Service-life guarantee end points:	---							
Peak power output (1)	---	19/		---	po	160	---	kw
Peak power output (2)	---	19/		---	po	160	---	kw

See footnotes at top of next page.

TABLE I. Testing and inspection - Continued.

1/ The filament voltage is 60 Hz ac or dc. The life of the tube can be conserved by operating the filament at the lowest power which will enable the tube to provide the desired power output. The filament voltage shall be measured at the respective water connections on the tube side of the threads. This procedure is essential in order to accurately measure the filament voltage. The filament starting current shall never exceed 1,200 amperes, even momentarily. It is recommended that filament voltage be monitored. The filament voltage shall never exceed the value indicated. In applications where it is feasible to monitor filament voltage, it is permissible to monitor filament current. Under such conditions, the tube shall be operated with the filament current not exceeding 1,050 amperes.

2/ Tie each element not under test to ground. Two tubes per month shall be tested. Failure of one or more tubes shall require 100 percent testing. Testing of two tubes per month may be resumed after testing of 10-consecutive tubes without failure. Any tube having one or more inter-electrode capacitances greater than 100 pF shall be measured for all of its capacitances on suitable capacitance or impedance bridges operating at 1,000 Hz.

3/ The difference between the filament currents of the sections of any tube shall not exceed 30 amperes.

4/ On time (tp) is defined as the sum of the duration of all the individual pulses which occur during any 37,300 microsecond interval.

5/ Peak rectified grid 1 current.

6/ After the application of filament voltage, a minimum of 30 seconds heating time is required before other electrode voltage can be applied.

7/ Cooling requirements. Water cooling of the filament sections, dc cathode, grid 1, grid 2, and the anode is required. The waterflow shall start before application of any voltages, in order to purge the system of bubbles, and shall continue for at least 10 seconds after removal of all voltages. In order to purge the system of bubbles, and shall continue for at least 10 seconds after removal of all voltages. Interlocking of waterflow through each of the cooled elements with all power supplies is recommended to prevent tube damage in case of failure of adequate waterflow. Waterflow shall be as shown in table IA.

8/ The waterflow to the anode cooling connection shall be 12 gpm. The waterflow to the filament sections, dc cathode, grid 1, and grid 2 cooling connections, shall be 0.8 gpm. Waterflow shall start before the application of any voltages, and shall continue for at least 10 seconds after removal of all voltages. The outlet water temperature shall not exceed 70°C.

TABLE IA. Waterflow.

	Absolute minimum gpm	Typical gpm	Maximum pressure differential (psi) 1/ for typical flow
To filament section No. 1 connection	0.8	1.2	17
To filament section No. 2 connection	0.8	1.2	17
To dc-cathode connection	0.8	1.2	11
To grid 1 connection	0.8	1.2	9
To grid 2 connection	0.8	1.2	17
To anode connection			
For average anode dissipation to 12 kw	12	14	18
For average anode dissipation to 20 kw	18	20	55
Ceramic bushing temperature	---	---	150 max °C
Outlet water temperature (any outlet)	---	---	70 max °C

1/ Measured directly across the cooled element.

TABLE I. Testing and inspection - Continued.

9/ Environmental requirements. Environmental requirements shall be as follows:

Water pressure at any inlet	100 max psi gauge
Maximum external gas pressure 1/	20 psi absolute, except in vicinity of output insulating bushing (this vicinity is above plane BA-BA' of figure 1 where it may be 60 psi absolute).
Minimum storage temperature 2/	-65°C

10/ High-speed electronic protective devices shall be used to prevent energy from the anode, grid 1 and grid 2 power supplies from permanently damaging the tube and its circuitry in the event of abnormal operation. High-speed electronic protective devices are used in addition to the usual circuit breakers which alone do not provide adequate protection, especially when the power-supply filter stores much energy.

a. Additional protection against damage from anode-to-grid 2 fault shall be provided to prevent the grid 2 voltage from rising to a value in excess of 3,000 volts.

b. A test of the effectiveness of the protective devices may be made as follows: Disconnect anode, grid 1, and grid 2 supply-voltage leads from the tube. To simulate the internal bypass capacitors of the tube, connect a 0.015 μF high-voltage capacitor between the "disconnected" grid 2 power-supply lead and ground. It may be necessary to simulate the loading normally supplied by the tube through the use of "dummy" load resistors connected between the appropriate "disconnect" points and ground. Fasten to the "disconnected" anode power-supply lead a small sheet (approximately 2 by 2 inches) of thin aluminum foil, such as household aluminum foil. Also, attach a similar small sheet of aluminum foil to the "disconnected" grid 2 and grid 1 power-supply leads. Then discharge the full rated voltage of each power supply by bringing a grounding rod slowly up to each piece of metal foil in turn. The respective protective devices are functioning properly when the anode supply produces not more than a single pinhole in the foil attached to the anode power-supply lead, and the grid 2 and grid 1 supplies produce no hole in the foil attached to the respective power-supply lead.

11/ The tube shall be operated within the specified frequency range and the specified minimum power output shall be obtained when operating conditions are within maximum ratings.

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

1/ Absolute pressure is the total pressure (sum of atmospheric pressure and gauge pressure). A pressurized output cavity shall be used as required to prevent corona or external flash-over at the ceramic bushing.
2/ Water-cooled elements shall be free of water before storage or shipment to prevent damage from freezing.

TABLE I. Testing and inspection - Continued.

12/ Initial compliance with the statistical life test shown in table IB shall be required. (X_0 = 1,000 hours, X_1 = 500 hours, a = 0.10, β = 0.10.)

TABLE IB. Acceptance and rejection criteria.

Number of failures (r)	Total number of hours of burning	
	Reject	Accept
0	---	2,197
1	---	2,890
2	---	3,583
3	---	4,276
4	575	4,969
5	1,268	5,662
6	1,961	6,355
7	2,564	7,048
8	3,347	7,741
9	4,040	8,434
10	4,733	9,127
11	5,426	9,820
12	6,119	10,513

X_0 = Acceptable length of line in hours.

X_1 = Unacceptable length of line in hours.

a = Maximum risk of rejecting tubes if the length of life is X_0 or better.

β = Maximum risk of accepting tubes if the length of life is X_1 or worse.

13/ It shall be essential (a) that high-quality water be used to fill the system initially, (b) that provision be made for continuous regeneration (purification) of the system water, and (c), that steps be taken to eliminate insofar as possible the sources of contamination. These requirements are necessary to prevent scale formation, corrosion, and excessive electrolysis. Any one of these conditions can greatly reduce tube life. Corrosion and electrolysis contribute to water contamination. Furthermore, they can destroy the tube elements, ducts, and fittings. If the specific resistivity of the water falls below 1.5 MegΩ-cm at 25°C, it can be assumed the contaminants are excessive.

14/ The waterflow to the anode cooling connection shall be 14 gpm. The waterflow to the filament sections, dc cathode, grid 1 and grid 2 cooling connections shall be 1.2 gpm each.

15/ Grid 1 voltage (Ec1) is adjusted for class B operation. Class B operation is defined as that value of negative Ec1 which is between one-fifth and one-eighth of the ec2 voltage.

16/ Circuit adjustments are permissible. The rectified rf output pulse length (tp) shall be 200 to 220 microseconds with a repetition rate of 220 to 250 pps and duty factor 0.05 minimum. Peak output power is calculated by dividing the average output power by the duty factor. Duty factor is defined as the product of pulse duration and the repetition rate. The average output power is measured by a calorimetric method using a waterload.

17/ With conditions as specified, record grid 1 current (I_1) after specified time. Then remove all voltages except filament voltage and grid 1 voltage, and record grid 1 leakage current (I_2). Calculate Ic from the formula: $Ic = I_1 - I_2$.

18/ The frequency of the sweep generator shall be adjusted to obtain resonance curve on oscilloscope. (Be sure tube is making good contact with cavity.) The marker oscillator frequency shall be varied until marker pip is located on peak of resonance curve. The resonance frequency as read on frequency meter shall be within limits specified. The output cavity and input cavity shall be as shown on figures 2 and 3. See figure 4 for typical block diagram of test circuit.

19/ Peak power output (2) test is an alternate to peak power output (1) and may be performed in place of peak power output (1) or vice versa.

TABLE I. Testing and inspection - Continued.

20/ This test is to be the first test performed at the conclusion of the holding period.

21/ The tube shall be tested in accordance with MIL-STD-167-1.

22/ Test is to be performed in accordance with MIL-STD-202, method 207. The height of hammer drop shall be 1 foot. A total of nine blows shall be applied, three blows being applied to each of the three principal axes.

23/ The magnitude of any spike on the anode voltage pulse shall not exceed its peak value by more than 4,000 volts and the duration of any spike when measured at the peak-value level shall not exceed 10 percent of the maximum "on" time. In the absence of rf output voltage, the peak-pulse supply voltage may exceed 33,000 volts for no more than 10-consecutive pulses, but under no circumstances shall the instantaneous value of the pulse-supply voltage exceed 36,000 volts. The output cavity shall be pressurized as required to prevent corona or external flash-over at the ceramic bushing.

The magnitude of any spike on the grid 2 voltage pulse shall not exceed its peak value by more than 250 volts and the duration of any spike when measured at the peak-value level shall not exceed 10 percent of the maximum "on" time.

24/ Test shall be performed with no voltages applied except as necessary to indicate shorts.

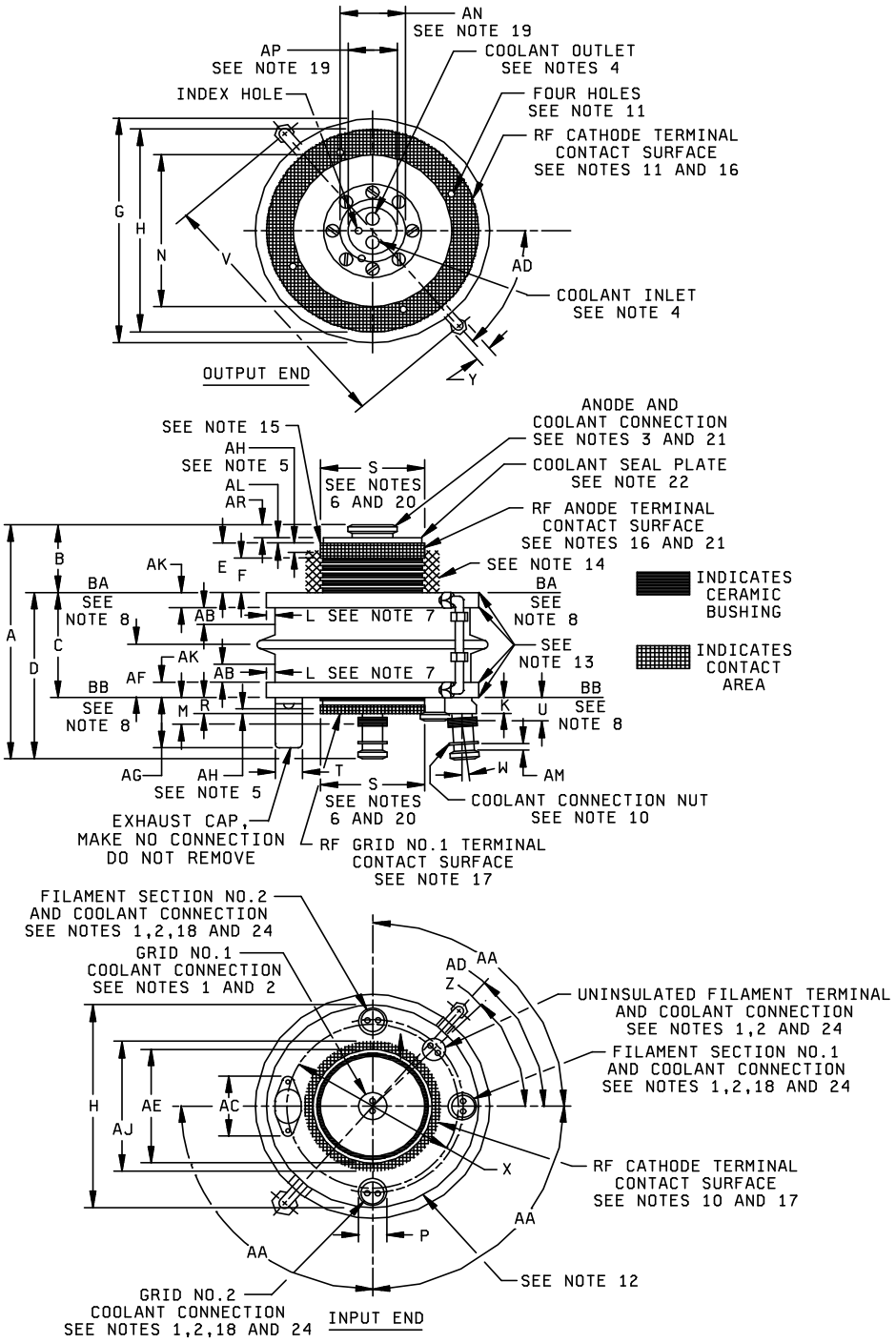


FIGURE 1. Outline drawing of electron tube type 2041.

Dimensions									
Ltr	Inches		Millimeters		Ltr	Inches		Millimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
A	8.31	8.93	211.07	226.82	W	2°	4.5°	2°	4.5°
B	2.63	2.75	66.80	69.85	X	6.19	6.31	157.23	160.27
C	2.77	2.95	70.36	74.93	Y	---	.68	---	17.27
D	5.68	6.18	144.27	156.97	Z	43°	47°	43°	47°
E	1.83	1.93	46.48	49.02	AA	88°	92°	88°	92°
F	1.42	---	36.07	---	AB	.25	---	6.35	---
G	---	8.75	---	222.25	AC	2.09	2.15	53.09	54.61
H	7.84	7.88	199.14	200.15	AD	46°	52°	46°	52°
J	3.20 R	3.37 R	81.28 R	85.60 R	AE	---	4.06	---	103.12
K	---	.59	---	14.99	AF	1.38	1.50	35.05	38.10
L	.13	---	3.30	---	AG	---	2.00	---	50.80
M	1.00	1.18	25.40	29.97	AH	.38	---	9.65	---
P	1.22	1.28	30.99	32.51	AJ	4.95	---	125.73	---
R	.59	.69	14.99	17.53	AK	.56	.63	14.22	16.00
S	3.735	3.765	94.87	95.63	AL	---	.28	---	7.11
T	.97	1.12	24.64	28.45	AM	.09	---	2.29	---
U	.83	.95	21.08	24.13	AN	2.65	---	67.31	---
V	---	11.25	---	285.75	AP	---	1.90	---	48.26
Reference dimension					AR	.52	.60	13.21	15.24
N	---	6.00	---	152.40					

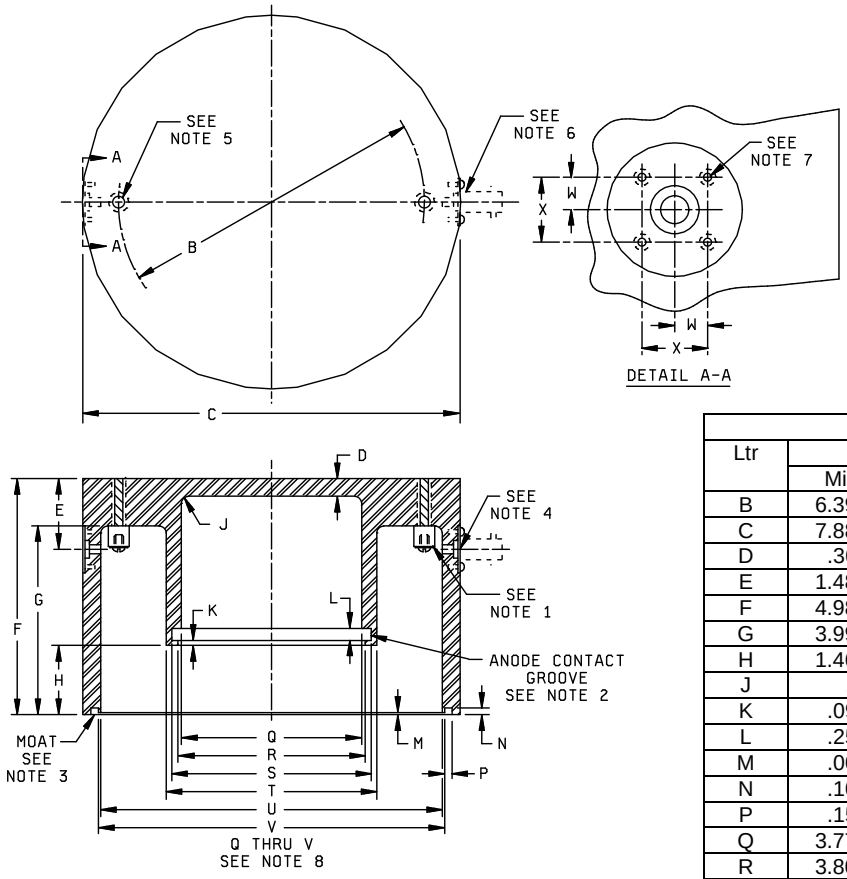
NOTES:

1. Terminal has 1 inch (25.4 mm) - 16 unified thread class 2A fit, .38 inch (9.65 mm) long, and 2 holes .258 -.270 inch (6.55 - 6.86 mm) diameter spaced .438 inch (11.13 mm) on centers.
2. The holes in the filament, grid No. 1 and grid No. 2 coolant terminal connections will accept the pins of the plug-and-cylinder combination gauge shown in gauge G1 (see figure 5.)
3. Terminal has 1.75 inch (44.45 mm) -16 unified extra fine thread, class 2a fit, .38 inch (9.65 mm) long, 2 holes .508 - .522 inch (12.90 - 13.26 mm) diameter spaced .688 inch (17.48 mm) on centers and index hole .160 inch (4.06 mm) maximum diameter spaced .344 inch (8.74 mm) from the center of the terminal.
4. The holes in the anode coolant connection will accept the pins of the plug-and-cylinder combination gauge shown in gauge G2 (see figure 6).
5. Pressure from circuit contacts shall be exerted only over maximum length, AH, of designated contact areas of the anode or gird No. 1 terminals.
6. This diameter dimension is held only over a length of AH.
7. Dimension L applies over length AB as indicated.
8. The contact surfaces, BA - BA' and BB - BB' of the rf cathode terminals shall be parallel within .06 inch (1.52 mm).
9. Contact of the input and rf cathode terminal shall not be made at a diameter smaller than 4.06 inch (103.12 mm) nor greater than 4.95 inch (125.73 mm).
10. To prevent excessive stress on the ceramic seal, a .9375 inch (23.813 mm) open-end wrench shall be used to permit gripping the terminal when removing or tightening the coolant connectors.
11. Contact of the output-end rf cathode terminal shall not be made at a diameter smaller than 6.000 inches (152.40 mm). The pressure exerted for this rf contact shall be limited to that necessary for good electrical contact. The mechanical force for the cavity support and pressure seal shall be made at a diameter not less than 6.000 inches (152.40 mm). On this output-end rf cathode terminal, there are four equally spaced .188 inch (4.78 mm) diameter holes on a circle having a diameter of 6.75 inches (171.45 mm). These holes are for tube manufacturing purposes only. Attention is called to the existence of these holes so that equipment designers can avoid making a pressure seal or electrical contact at points which are coincident with these holes. Mechanical clamping devices for the output cavity shall be designed so as to exert their clamping force across outer edge of output header flange.
12. Serial number shall be located on this surface between DC grid No. 2 and adjacent coolant heater tubing.
13. Corners may be rounded or chamfered not to exceed .05 inch (1.27 mm).
14. This annular-volume region shall be kept clear. Circuit components (conductors or insulators) shall not be allowed to protrude into this region which is defined by 5.00 inches (127.0 mm) diameter.
15. This edge is chamfered not to exceed .03 inch (0.76 mm).

FIGURE 1. Outline drawing of electron tube type 2041 - Continued.

16. The output-end will accept gauge G3 (see figure 7). Proper acceptance is obtained when gauge is seated on the output-end rf cathode terminal contact surface. The gauge is properly seated when a .015 inch (0.38 mm) thickness gauge .500 inch (12.70 mm) wide will not enter between gauge G3 and the rf cathode contact surface.
17. The input-end will accept gauge G4 (see figure 8). Proper acceptance is obtained when gauge is seated on the input-end rf cathode terminal contact surface. The gauge is properly seated when a .015 inch (0.38 mm) thickness gauge .500 inch (12.70 mm) wide will not enter between gauge G4 and the rf cathode terminal contact surface.
18. The input-end will accept gauge G5 (see figure 9). Proper acceptance of the DC grid No. 2, the filament sections No. 1 and 2 terminals is obtained when the gauge seats properly on the input-end rf cathode terminal contact surface.
19. The indicated annular surface between the diameter AN and AP has a finish suitable for an 'O'-ring gas pressure seal.
20. The axis of the rf anode terminal contact surface is coincident with the axis of the grid No. 1 terminal contact surface within .050 inch (1.27 mm).
21. The axis of the DC anode and coolant connection is coincident with the axis of the rf anode terminal contact surface within .025 inch (0.64 mm).
22. This edge is rounded to a .031 inch (0.79 mm) radius. The diameter of this coolant seal plate shall be 3.710 inch (94.23 mm) maximum.
23. Dimensions E, R, S and notes 1, 2, 3, 4, 16, 17, and 18 shall be conformance inspection, part 1 tests. Remaining dimensions, excluding reference dimension, and notes shall be tested on a minimum of 1 tube out of every 50 tubes.
24. The centers of the water course holes in each connection around the periphery of the tube shall be on a line through the center of these holes and perpendicular to a line through the center of the tube within $\pm$2 degrees.

FIGURE 1. Outline drawing of electron tube type 2041 - Continued.



Dimensions				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
B	6.397	6.403	162.48	162.64
C	7.885	7.905	200.28	200.79
D	.365	.385	9.27	9.78
E	1.485	1.515	37.72	38.48
F	4.985	5.015	126.62	127.38
G	3.995	3.997	101.47	101.52
H	1.466	1.468	37.24	37.29
J	.12 R (TYP)		3.05 R (TYP)	
K	.098	.104	2.49	2.64
L	.253	.259	6.43	6.58
M	.009	.015	0.23	0.38
N	.107	.113	2.72	2.87
P	.153	.159	3.89	4.04
Q	3.770	3.780	95.76	96.01
R	3.805	3.811	96.65	96.80
S	4.169	4.175	105.89	106.05
T	4.401	4.403	111.79	111.84
U	7.145	7.147	181.48	181.53
V	7.243	7.249	183.97	184.12
W	.250 REF		6.35 REF	
X	.490	.510	12.45	12.95

NOTES:

1. 2 studs. 1.5 inch (38.1 mm) long threaded .25 inch (6.35 mm)-20 NC by 1.0 inch (25.4 mm) with .375 inch (9.53 mm) diameter head. Head of stud shall be drilled and tapped .25 inch (6.35 mm) deep for #6-32 RH machine screw. Use standard .156 inch (3.96 mm) flat washer under screw.
2. Anode contact groove shall be filled with the following spring: .020 inch (.51 mm) diameter wire wound to give a .250 inch (6.35 mm) O. D. at 35 TPI, 14.25 inches (361.95 mm) in length (approximate).
3. Moat shall be filled with a braid to insure continuous braid contact and yet permit firm seating of the cavity on the rf cathode terminal contact surface.
4. 2 holes. Drill .219 inch (5.56 mm) diameter (thru), C' bore .375 inch (9.53 mm) diameter by .125 inch (3.18 mm) deep. Spot face 1 inch (25.4 mm) diameter by .062 inch (1.57 mm) deep.
5. 2 holes. Drill and tap for .250 inch (6.35 mm) -20 NC screws.
6. Location of A-N connector - UG-290/U (two connectors 180 degrees apart).
7. 4 holes. Drill and tap for #3-48 screws by .250 inch (6.35 mm) deep.
8. Cylindrical holes Q to V have axes coincident within .001 inch (0.03 mm).

FIGURE 2. Output cavity required for resonant frequency test.

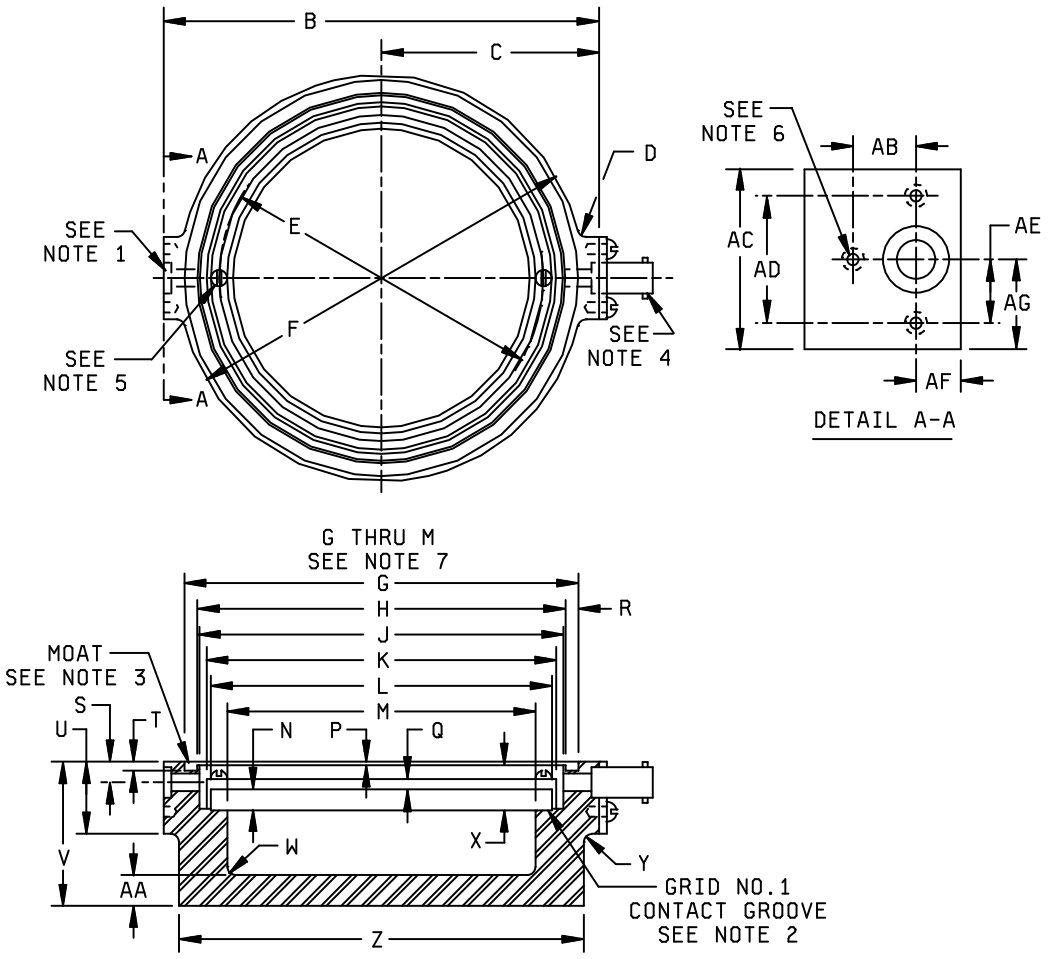


FIGURE 3. Input cavity required for resonant frequency test.

Dimensions									
Ltr	Inches		Millimeters		Ltr	Inches		Millimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
B	5.315	5.335	135.00	135.51	S	.244	.254	6.20	6.45
C	2.657	2.667	67.49	67.74	T	.105	.111	2.67	2.82
D	.12 R (TYP)		3.05 R (TYP)		U	.865	.885	21.97	22.48
E	3.987	3.993	101.27	101.42	V	1.740	1.760	44.20	44.70
F	4.947	4.953	125.65	125.81	W	.12 R		3.05 R	
G	4.505	4.511	114.43	114.58	X	.574	.576	14.58	14.63
H	4.450	4.452	113.03	113.08	Y	.12 R		3.05 R	
J	4.273	4.275	108.53	108.59	Z	4.947	4.953	125.65	125.81
K	4.169	4.175	105.89	106.05	AA	.365	.385	9.27	9.78
L	3.802	3.808	96.57	96.72	AB	.351	.357	8.92	9.07
M	3.765	3.775	95.63	95.89	AC	.990	1.010	25.15	25.65
N	.252	.258	6.40	6.55	AD	.702	.712	17.83	18.08
P	.012	.018	0.30	0.46	AE	.354 REF		8.99 REF	
Q	.120	.130	3.05	3.30	AF	.247	.253	6.27	6.43
R	.153	.159	3.89	4.04	AG	.500 REF		12.70 REF	

NOTES:

1. 2 holes, drill .219 inch (5.56 mm) diameter (thru) C' bore .375 (9.53 mm) diameter by .062 inch (1.57 mm) deep.
2. Grid No. 1 contact groove to be filled with the following spring: .020 inch (0.51 mm) diameter wire wound to give a .250 inch (6.35 mm) O.D. at 35 TPI, 14.25 inches (361.95 mm) in length (approximate).
3. Moat shall be filled with a braid to insure continuous braid contact and yet permit firm seating of the cavity on the RF cathode terminal contact surface.
4. Location of A-N connector - UG-290/U (two connectors 180 degrees apart).
5. 2 holes. Drill and tap for #3-48 screws.
6. 3 holes. Drill and tap for #3-48 screws by .188 inch (4.78 mm) deep.
7. Cylindrical holes G to M have axes coincident within .001 inch (0.03 mm).

FIGURE 3. Input cavity required for resonant frequency test - Continued.

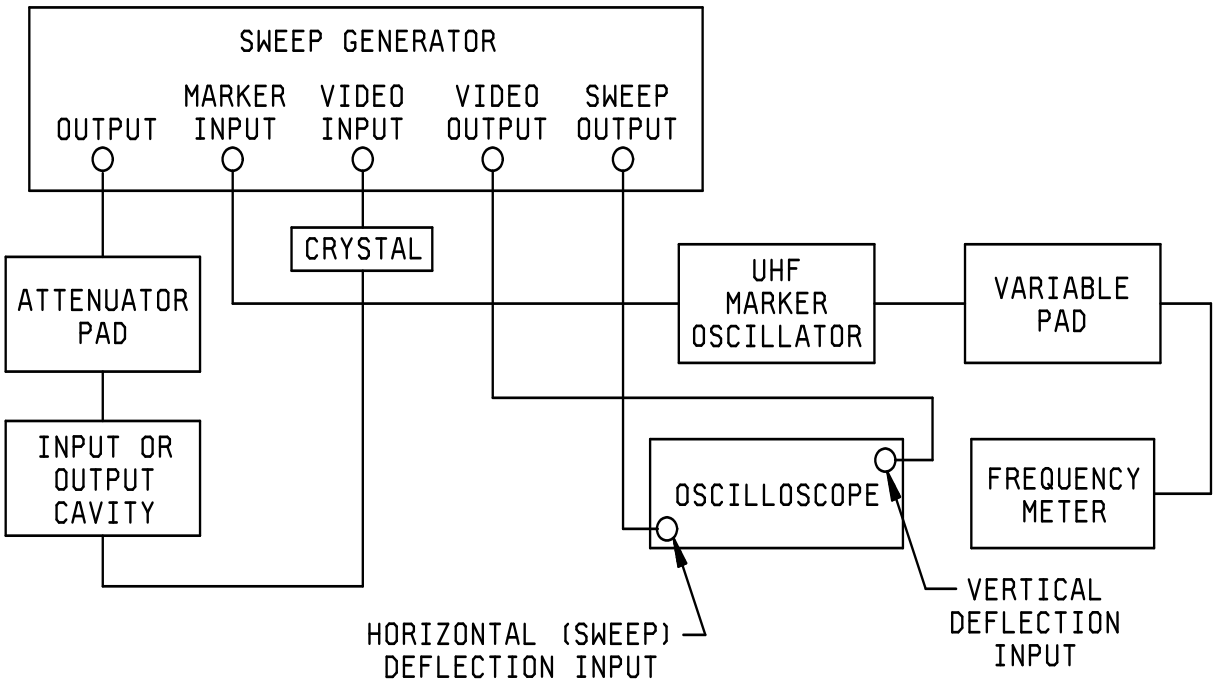
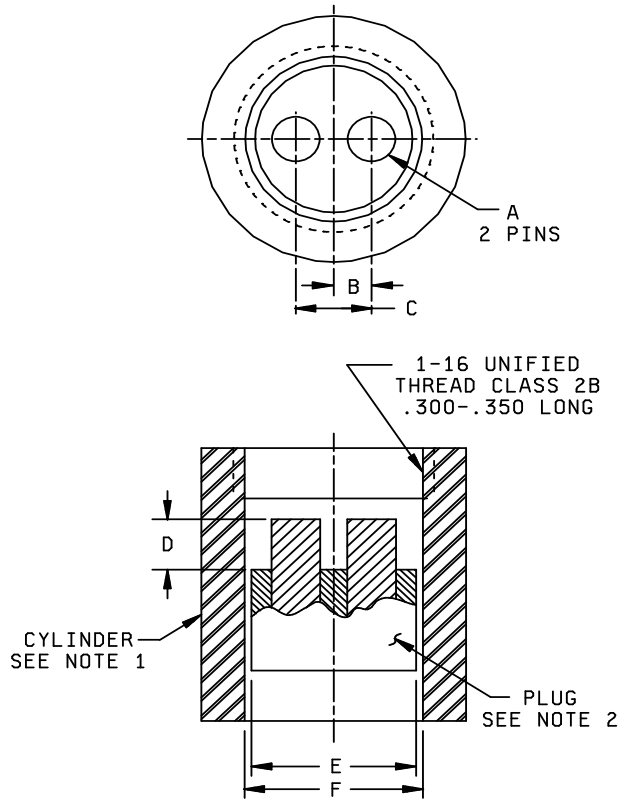


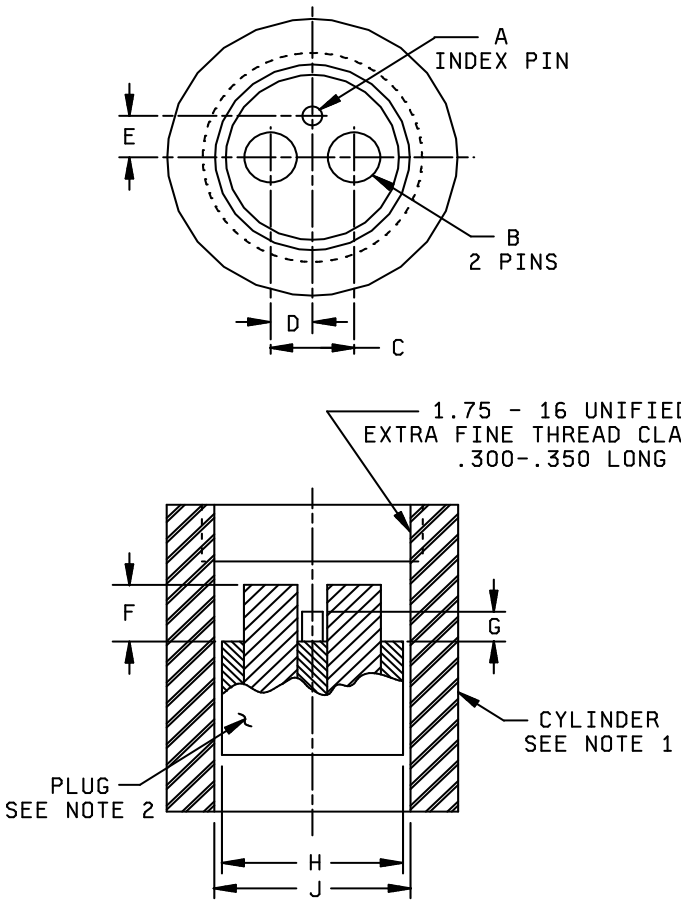
FIGURE 4. Typical block diagram of test circuit.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A	.255 DIA	.256 DIA	6.48 DIA	6.50 DIA
B	.218	.220	5.54	5.59
C	.436	.440	11.07	11.18
D	.188	.189	4.78	4.80
E	.894 DIA	.895 DIA	22.71 DIA	22.73 DIA
F	.910 DIA	.911 DIA	23.11 DIA	23.14 DIA

NOTES:
1. Tapped section of cylinder shall be concentric with untapped section of cylinder within .002 inch (0.05 mm).
2. Plug sides and pin sides shall be parallel within .001 inch (0.03 mm).

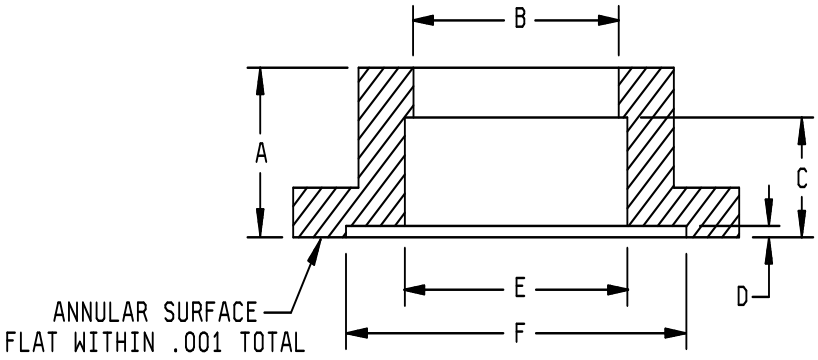
FIGURE 5. Gauge G1.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A	.124 DIA	.126 DIA	3.15 DIA	3.20 DIA
B	.505 DIA	.506 DIA	12.83 DIA	12.85 DIA
C	.686	.690	17.42	17.53
D	.339	.349	8.61	8.86
E	.343	.345	8.71	8.76
F	.500	.501	12.70	12.73
G	.249	.251	6.32	6.38
H	1.624 DIA	1.625 DIA	41.25 DIA	41.28 DIA
J	1.660 DIA	1.661 DIA	42.16 DIA	42.19 DIA

NOTES
1. Tapped section of cylinder shall be concentric with untapped section of cylinder within .002 inch (0.05 mm).
2. Plug sides and pin sides shall be parallel within .001 inch (0.03 mm).

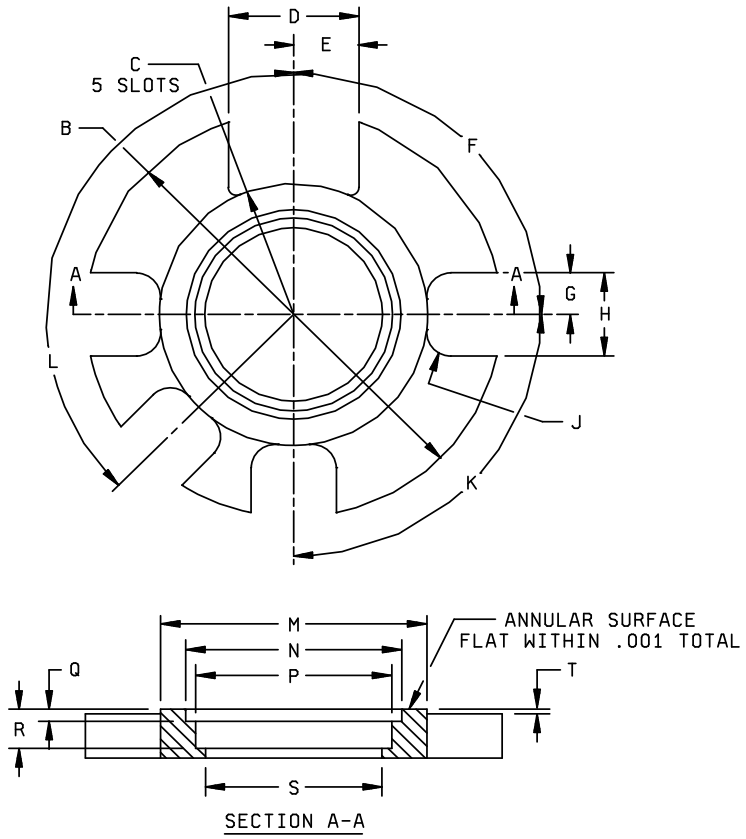
FIGURE 6. Gauge G2.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A	2.195	2.205	55.75	56.01
B	3.766 DIA	3.767 DIA	95.66 DIA	95.68 DIA
C	1.452	1.453	36.88	36.91
D	.060	.090	1.52	2.29
E	4.0 DIA	---	101.60 DIA	---
F	5.999 DIA	6.000 DIA	152.37 DIA	152.40 DIA

NOTE: Cylindrical holes B and F have axes coincident within .0005 inch (0.13 mm).

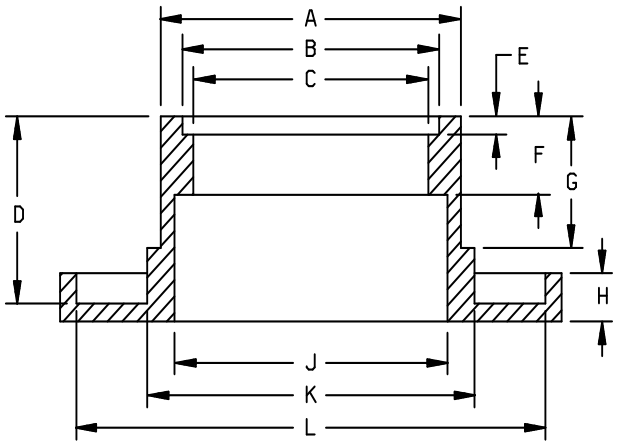
FIGURE 7. Output-end gauge G3.



Dimensions				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
B	7.850 DIA	7.870 DIA	199.39 DIA	199.90 DIA
C	2.4760 R	2.4765 R	62.89 R	62.90 R
D	2.500	2.501	63.50	63.53
E	1.2500	1.2505	31.75	31.76
F	89.5°	90.5°	89.5°	90.5°
G	.8125 (TYP)	.8130 (TYP)	20.64 (TYP)	20.65 (TYP)
H	1.625 (TYP)	1.626 (TYP)	41.28 (TYP)	41.30 (TYP)
J	---	.500 R (TYP)	---	12.70 (TYP)
K	89.5°	90.5°	89.5°	90.5°
L	134.5°	135.5°	134.5°	135.5°
M	4.952 DIA	4.953 DIA	125.78 DIA	125.81 DIA
N	4.061 DIA	4.062 DIA	103.15 DIA	103.17 DIA
P	3.766 DIA	3.767 DIA	95.66 DIA	95.68 DIA
Q	.218	.219	5.54	5.56
R	.688	.689	17.48	17.50
S	3.22 DIA	3.28 DIA	81.79 DIA	83.31 DIA
T	.060	.090	1.52	2.29

NOTE: Cylindrical holes M, N, and P have axes coincident with .0005 inch (0.013 mm).

FIGURE 8. Input-end gauge G4.



Dimensions				
Ltr	Inches		Millimeters	
	Min	Max	Min	Max
A	4.953 DIA	4.954 DIA	125.81 DIA	125.83 DIA
B	4.061 DIA	4.062 DIA	103.15 DIA	103.17 DIA
C	3.766 DIA	3.767 DIA	95.66 DIA	95.68 DIA
D	3.500	3.501	88.90	88.93
E	.218	.219	5.54	5.56
F	.995	1.005	25.27	25.53
G	2.695	2.705	68.45	68.71
H	.49	.51	12.45	12.95
J	4.23 DIA	4.27 DIA	107.44 DIA	108.46 DIA
K	5.399 DIA	5.400 DIA	137.13 DIA	137.16 DIA
L	7.780 DIA	7.781 DIA	197.61 DIA	197.64 DIA

NOTE: Cylindrical holes B, C, and J have axes coincident within .0005 inch (0.013 mm). Diameters K and L are centered on axes of the cylindrical holes within .0005 inch (0.013 mm).

FIGURE 9. Input-end gauge G5.

Referenced documents. In addition to MIL-PRF-1, this specification sheet references:
MIL-STD-1311 MIL-STD-202 MIL-STD-167-1

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