INCH-POUND
MIL-PRF-94/7C
w/Amendment 2
22 September 2015
SUPERSEDING
MIL-PRF-94/7B
w/Amendment 1
9 June 2008

PERFORMANCE SPECIFICATION SHEET

RESISTOR, VARIABLE, NONWIRE WOUND PRINTED CIRCUIT BROAD MOUNTING, STYLE RV8

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-94.

1. SCOPE

1.1 Scope. This specification covers the requirements for style RV8 composition, variable resistors.

1.2 Part or Identifying Number (PIN). Resistors covered by this specification are identified by a PIN which is in the following form.

RV8	NAYSD101A
Style	Coded dash number

The coded dash number is derived in accordance with MIL-PRF-94

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation (see 6.2).

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-94 - Resistor, Variable, Composition, General Specification for.

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990, or emailed to Resistor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

AMSC N/A FSC 5905

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-202 - Test Methods Standard Electronics and Electrical Component Parts.

(Copies of these documents are available online at http://quicksearch.dla.mil).

2.3 Order of precedence. In event of a conflict between the text of this document and the references cited herein (except for related associated specifications, specification sheets, or MS sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-94.

3.2 Interface and physical dimensions. The resistors shall meet the interface and physical dimensions specified in figure 1.

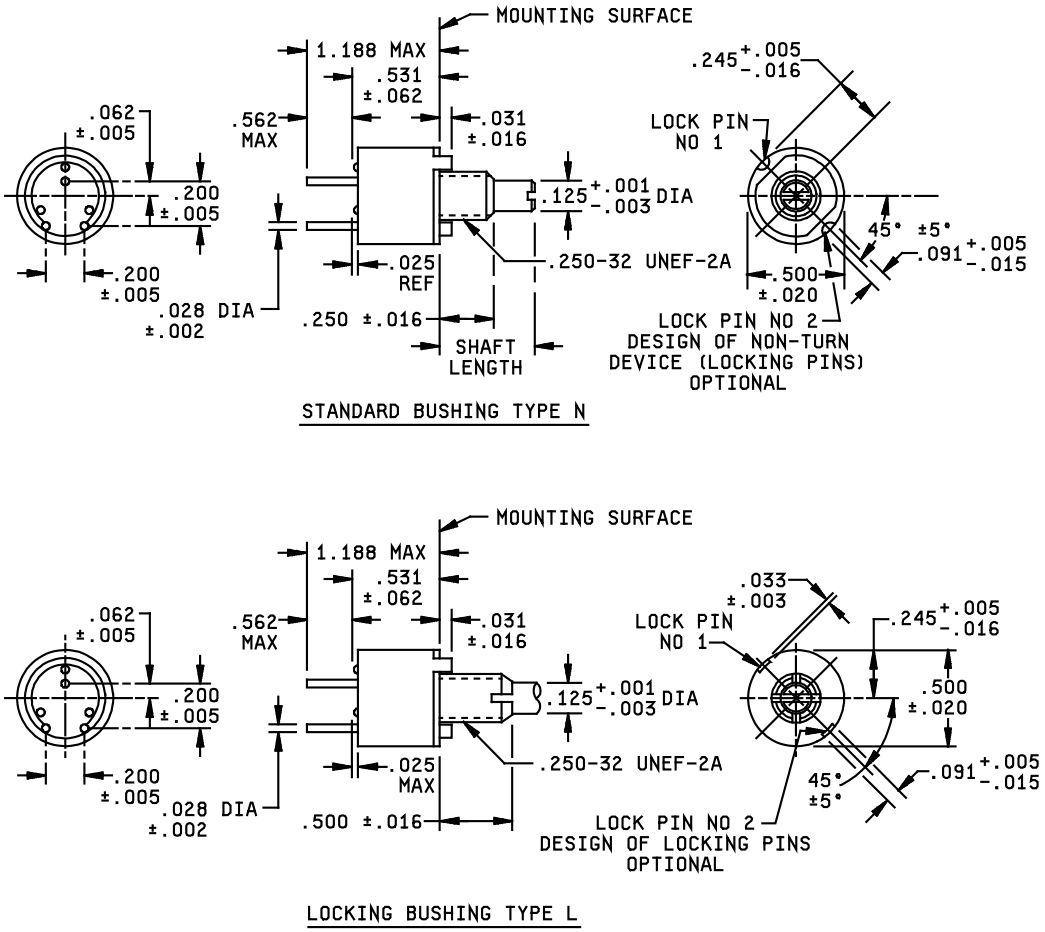
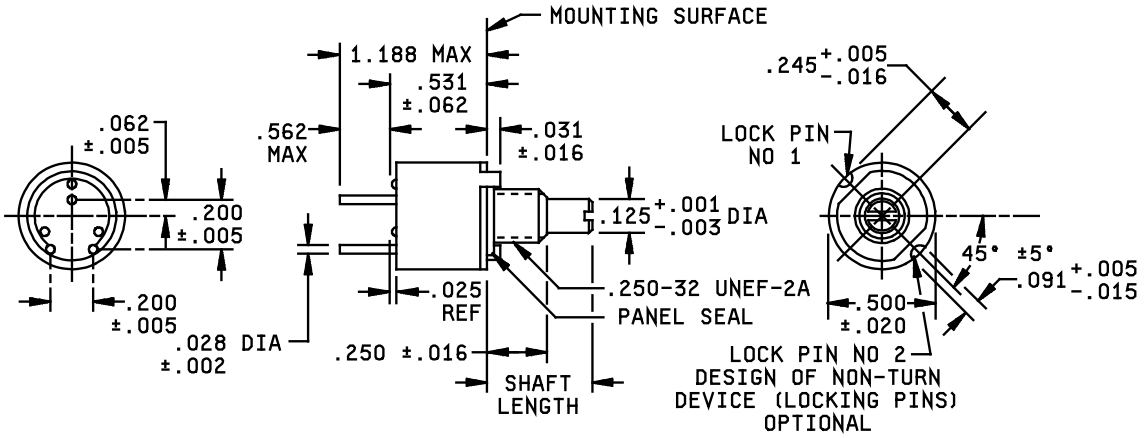
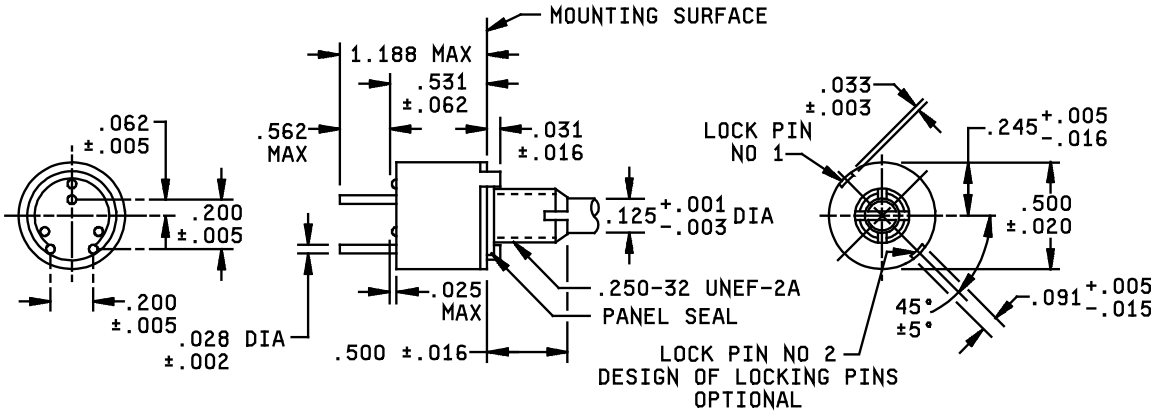


FIGURE 1. Style RV8.



SHAFT AND PANEL SEALED STANDARD BUSHING TYPE S



SHAFT AND PANEL SEALED LOCKING BUSHING TYPE T

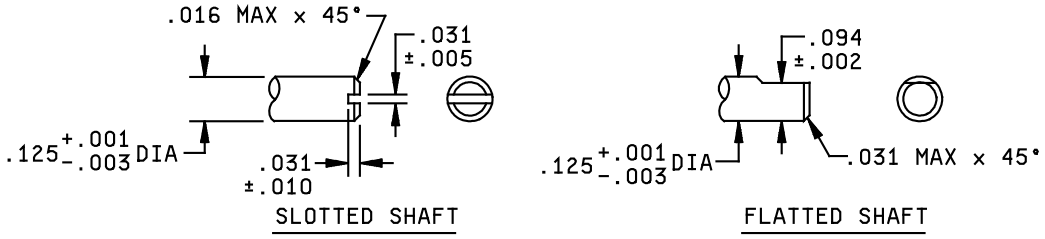


FIGURE 1. Style RV8 - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.001	0.03	0.016	0.41	0.062	1.57	0.067	1.70
0.002	0.05	0.020	0.51	0.091	2.31	0.097	2.46
0.003	0.08	0.025	0.64	0.094	2.39	0.101	2.57
0.005	0.13	0.028	0.71	0.125	3.18	0.133	3.37
0.010	0.25	0.031	0.79	0.200	5.08	0.207	5.26
0.015	0.38	0.033	0.84	0.245	6.22	0.251	6.38

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information.
2. Unless otherwise specified, tolerance is ±0.016 (0.41mm).
3. When terminals are located symmetrically, the contact terminal shall be identified on the unit. The identifying mark shall be at the option of the supplier.

FIGURE 1. Style RV8 - Continued.

3.3 Nominal total resistance and rated continuous working voltages. The nominal total resistance and rated continuous working voltage (RCWV) shall be as specified in table I.

TABLE I. Nominal total resistance and rated continuous working voltage.

Nominal total Resistance (in ohms)	RCWV 1/ (volts)		Nominal total resistance (in megohms)	RCWV 1/ (volts)	
	Taper A	Tapers C and F		Taper A	Tapers C and F
100	7	5	0.20	224	160
200	10	7	0.25	316	200
250	11	8	0.50	350	200
500	16	11	1.00	350	200
1,000	22	16	2.00	350	200
2,000	31	22	2.50	350	200
2,500	35	25	0.20	350	200
5,000	50	36			
10,000	71	50			
20,000 2/	100	70			
25,000	112	80			
50,000	158	112			

1/ Rated for continuous working voltage at 70°C.
2/ For replacement purposes only. Not for new design.

3.4 Minimum resistance. The maximum value of minimum resistance shall be 15 ohms for total resistance values of 100 ohms to 500 ohms inclusive.

3.4.1 Resistance value deviations. All maximum deviations as specified in this section are to be considered absolute limits with the exception of the contact resistance adjustments.

3.5 Shaft length. The length of the operating shaft shall be in accordance with table II.

TABLE II Shaft length.

Symbol	Length of shafts from mounting surface of resistors, (nominal)		
	Flatted	Slotted	
	Bushings N and S (inches ±0.313)	Bushings N and S (inches ±0.313)	Bushings L and T (inches ±0.313)
A		0.625	0.625
B		0.500	
D	0.875	0.875	0.875
L		0.375	

1/ For resistors with panel seals, the mounting surface shall be considered the metal face of the panel seal when the seal is firmly seated against the resistor body.

3.6 Mounting and locking nuts. The mounting nut shall be 0.078 inches (1.981 mm) thick and measure 0.312 inch (7.925 mm) across the hexagonal flats. The locking nut shall be 0.156 inches (3.962 mm) thick and shall measure 0.312 inches (7.925 mm) across the hexagonal flats. The thread size shall be 0.25-32 NEF-2B.

3.6.1 Internal tooth lockwasher. Internal tooth lockwasher shall be supplied and when mounted, shall have a maximum thickness of approximately 0.045 inch (1.143 mm).

3.6.2 Retainer rings. If retainer rings are used, shall have a maximum thickness of 0.032 inches (0.813 mm).

3.7 Power rating. The power rating shall be 0.5 watts for taper A resistors and 0.25 watts for taper C and F. Derate 50 percent for nonmetallic panel mounting.

3.8 Torque.

3.8.1 Operating torque. The torque required to effect rotation shall be 0.50 ounce-inch minimum and 6 ounce-inch maximum.

3.8.2 Stop torque. The torque applied to the operating shaft to the stops shall be 3 pound-inch.

3.8.3 Locking torque (as applicable). For the locking bushing type resistors, the locking nut shall be tightened with a torque of 8 pound-inches. After the locking nut is tightened, the contact arm shall not move when a torque of 20 ounce-inches is applied to the shaft.

3.9 Total mechanical rotation. The total mechanical rotation without a switch shall be within the limits of 292 degrees and 298 degrees.

3.10 Thermal cycling. The resistance shall not change in excess of 4 percent.

3.11 Immersion. When resistors are tested as specified in 4.5, no more than four bubbles shall be emitted.

3.12 Resistance to solvents. When resistors are tested as specified in 4.6, there shall be no evidence of mechanical damage and marking shall remain legible.

3.10 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.3).

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-94, except immersion and resistance to solvents testing.

4.2 Additional qualification inspections. Additional qualification inspections are immersion and resistance to solvent. These shall be added prior to solderability test as specified in table VIII, group IA of MIL-PRF-94.

4.3 Additional group A inspections. Additional group A inspections are immersion (see 3.11 and 4.5); these shall be included in table X, subgroup 1 of MIL-PRF-94 prior to total resistance test.

4.4 Dielectric withstanding voltage. In the dielectric withstanding voltage test, the applied potential shall be 750 volts rms at atmospheric pressure, and 350 volts rms at a reduced barometric pressure.

4.5 Immersion. Resistor shall be immersed for 1 minute ±5 seconds in water at 85^{O}C +5^{O}C, -0^{O}C.

4.6 Resistance to solvents. Resistance shall be tested in accordance with method 215 of MIL-STD-202.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military services system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The intended use specified in MIL-PRF-94 is applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification, and the complete PIN (see 1.2).

b. If not otherwise specified (see 2.1), the versions of the individual documents referenced will be those in effect on the date of release of the solicitation.

c. Packaging instructions (see 5.1).

d. Hardware, whether assembled on resistor (see 3.4.6.1 of MIL-PRF-94).

6.3 Tin whisker growth. The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to ASTM-B545 (Standard Specification for Electrodeposited Coatings of Tin).

6.4 Extension of qualifications. Qualification to style RV6 will qualify style RV8 with the following tests:

Immersion
Resistance to solvents

6.4 Amendment notification. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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

Preparing activity:
DLA - CC

Review activities
Army - AT, AV, CR4, MI
Navy - AS, CG, MC, OS
Air Force - 19, 99

(Project 5905-2015-037)

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