INCH-POUND
MIL-PRF-94/2E
w/Amendment 4
20 July 2022
SUPERSEDING
MIL-PRF-94/2E
w/Amendment 3
13 July 2017

PERFORMANCE SPECIFICATION SHEET

RESISTOR, VARIABLE, COMPOSITION, STYLE RV5

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 RV5 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.

RV5	NAYSD251A
Style	Coded dash number

Note: 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.

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

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
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FSC 5905

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related, specification 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.

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
250	11		0.10	224	160
500	16		0.20 2/	316	200
1,000	22	16	0.25	350	200
2,000 2/	31	22	0.50	350	200
2,500	35	25	1.00	350	200
5,000	50	36	2.00	350	200
10,000	71	50	2.50	350	200
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.

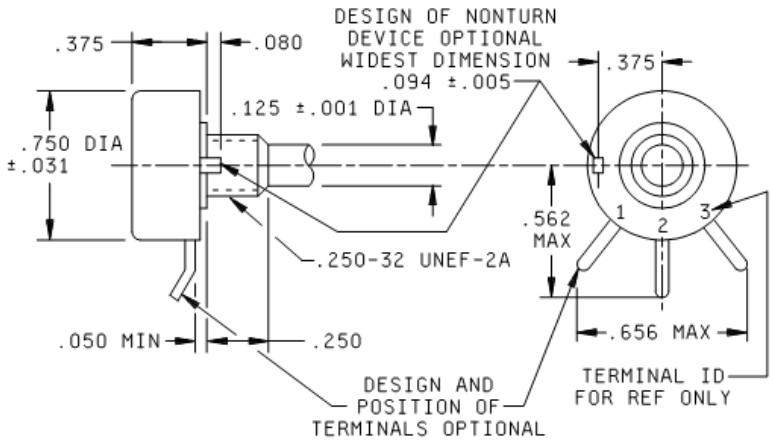
3.3.1 Resistance value deviations. All maximum deviations as specified in this section are to be considered absolute limits with the exception of the contact resistance adjustments.

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

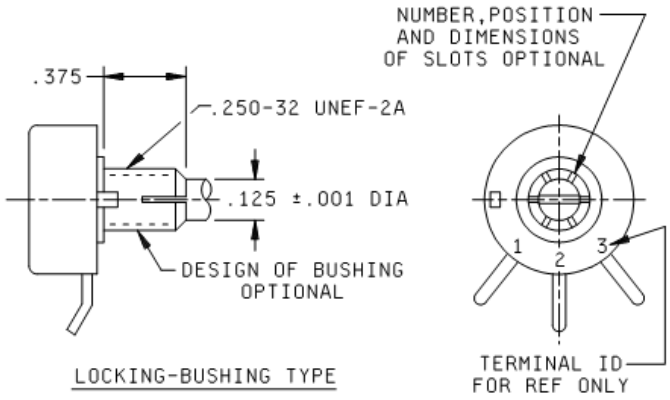
TABLE II Shaft length.

Symbol	Length of shafts from mounting surface at resistors Nominal (in inches ±0.03125)	
	Bushing N	Bushing L
B		0.500
D	0.875	0.875 1/
L	0.375	

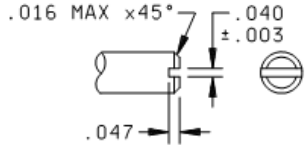
1/ For replacement purposes only, not for new design.



STANDARD-BUSHING TYPE



LOCKING-BUSHING TYPE



SLOTTED SHAFT

Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.001	0.03	0.031	0.79	0.080	2.03	0.375	9.53
0.003	0.08	0.040	1.02	0.094	2.39	0.562	14.27
0.005	0.13	0.047	1.19	0.125	3.18	0.656	16.66
0.016	0.41	0.050	1.27	0.250	6.35	0.750	19.05

NOTES:
1. Dimensions are in inches. Metric equivalents are given for general information.
2. Unless otherwise specified, tolerance is ±0.016 inch (0.41mm).

FIGURE 1. Style RV5.

3.5 Mounting and locking nuts. The mounting nut shall be 0.09375 inches thick and measure 0.375 inches across the hexagonal flats. The locking nut shall be 0.125 inches thick and shall measure 0.375 inches across the hexagonal flats. The thread size shall be 0.25-32 NEF-2B.

3.5.1 Internal tooth lockwasher. Internal tooth lockwasher of suitable size shall be applied.

3.5.2 Retainer rings. If retainer rings are used, shall have a maximum thickness of 0.032 inches.

3.6 Power rating. The power rating shall be a s follows:

Taper A	-	0.5 watts
Taper C and F	-	0.25 watts

3.7 Torque.

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

3.7.2 Stop torque. The torque applied to the operating shaft to the stops shall be 5 pound-inch.

3.7.3 Locking torque (as applicable). For the locking bushing type resistors, the locking nut shall be tightened with a torque of 10 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.

3.8 Total mechanical rotation. The total mechanical rotation without a switch shall be within the limits of 295 degrees and 305 degrees.

3.9 Thermal cycling. The resistance shall not change in excess of 6 percent.

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.

4.2 Dielectric withstanding voltage. In the dielectric withstanding voltage test, the applied potential at reduced barometric pressure shall be 350 volts, rms.

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. Unless 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 Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

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

Preparing activity:
DLA - CC

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

(Project 5905-2022-051)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.