

INCH-POUND
MIL-PRF-94/5J
w/Amendment 2
22 September 2015
SUPERSEDING
MIL-PRF-94/5J
w/Amendment 1
9 June 2008

PERFORMANCE SPECIFICATION SHEET

RESISTOR, VARIABLE, COMPOSITION, STYLE RV4

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 RV4 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.

<u>RV4</u>	<u>NAYSD500A</u>
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Style	Coded dash number

The coded dash number is derived in accordance with [MIL-PRF-94](#)

2. APPLICABLE DOCUMENTS

2.2 Government 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.

2.2.1 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 <http://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@dlamail. 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

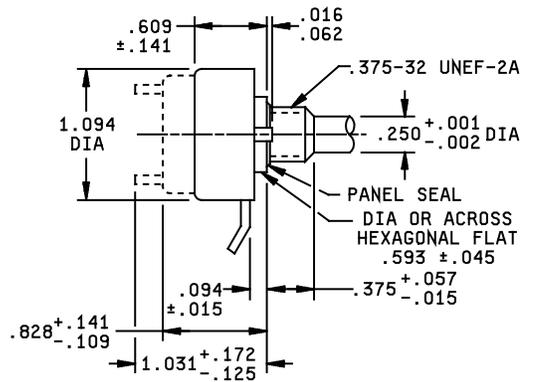


2.3 Order of precedence. In event of a conflict between the text of this document and the references cited herein (except for related associated specifications, specification sheets, or MS sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws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

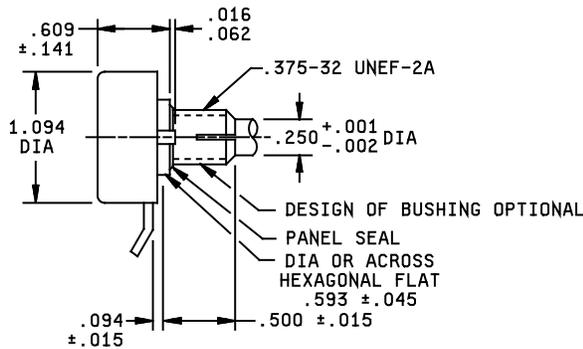
3. REQUIREMENTS

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.



SHAFT-AND PANEL-SEALED-STANDARD BUSHING TYPE



SHAFT-AND PANEL-SEALED-LOCKING BUSHING TYPE

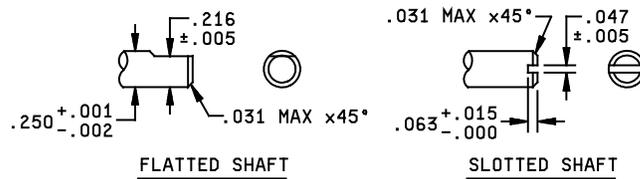
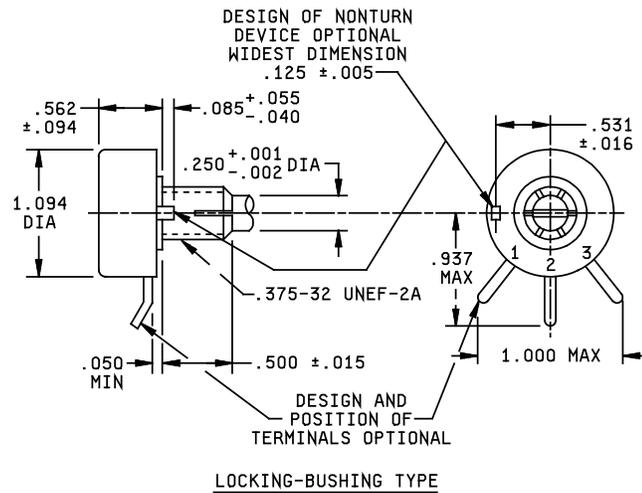
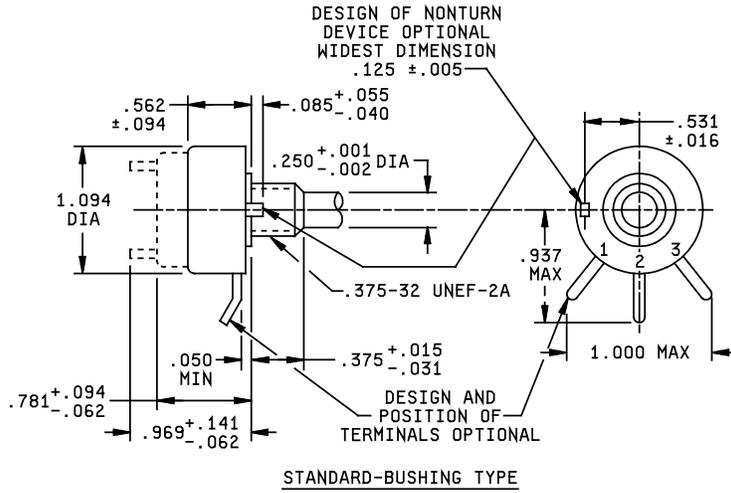


FIGURE 1. Style RV4.

MIL-PRF-94/5J
w/Amendment 2



Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.045	1.14	.085	2.16	.250	6.35	.781	19.84
.002	0.05	.047	1.19	.094	2.39	.375	9.53	.828	21.03
.005	0.13	.050	1.27	.109	2.77	.500	12.70	.937	23.80
.015	0.38	.055	1.40	.125	3.18	.531	13.49	.969	24.61
.016	0.41	.057	1.45	.141	3.58	.562	14.27	1.000	25.40
.031	0.79	.062	1.57	.172	4.37	.593	15.06	1.031	26.19
.040	1.02	.063	1.60	.216	5.49	.609	15.47	1.094	27.79

NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information.
2. Unless otherwise specified, tolerance is ± 0.062 inch (1.57mm).

FIGURE 1. Style RV4 Continued.

MIL-PRF-94/5J
w/Amendment 2

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 <u>1/</u> (volts)		Nominal total resistance (in megohms)	RCWV <u>1/</u> (volts)	
	Taper A	Tapers C and F		Taper A	Tapers C and F
50	10		0.10	445	316
100	14	10	0.15	500	350
150	17	12	0.20 <u>2/</u>	500	350
200 <u>2/</u>	20		0.25	500	350
250	22	16	0.35	500	350
350	26	18	0.50	500	350
500	32	23	0.75	500	350
750	39	28	1.00	500	350
1,000	45	32	1.50	500	350
1,500 <u>2/</u>	55	39	2.00	500	350
2,000	63.3	45	2.50	500	350
2,500	71	50	3.50	500	350
3,500	84	60	5.00	500	350
5,000	100	71			
7,500	122	87			
10,000	141	100			
15,000	173	123			
20,000 <u>2/</u>	200	141			
25,000	224	160			
35,000	264	187			
50,000	316	224			
75,000	387	249			

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 shaft shall be in accordance with table II.

TABLE II Shaft length. 1/

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)
B			0.625
D		0.500	
G	0.875	0.875	0.875
N		1.250	
J		1.500	
K		2.000	
B		2.500	

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.

MIL-PRF-94/5J
w/Amendment 2

3.5 Mounting and locking nuts. The mounting nut shall be 0.09375 inches thick and measure 0.500 inches across the hexagonal flats. The locking nut shall be within the limits 0.151 inches and 0.234 inches thick and shall measure 0.500 inches across the hexagonal flats. The thread size shall be 0.375-32 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, they shall have a maximum thickness of 0.047 inches.

3.6 Power rating. The power rating shall be 2.0 watts for taper A resistors and 1.0 watts for taper C and F.

3.7 Torque.

3.7.1 Operating torque. The torque required to effect rotation shall be 1 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 8 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 30 ounce-inches is applied to the shaft.

3.8 Total mechanical rotation. The total mechanical rotation with a switch shall be within the limits of 330 degrees and 340 degrees; without a switch, within the limits of 309 degrees and 320 degrees.

3.9 Thermal cycling. The resistance shall not change in excess of 4 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 shall be 450 volts rms at reduced barometric pressure.

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 Amendment notations. 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 - AR, AT, AV, CR4, EA
Navy - AS, CG, MC, OS
Air Force - 19, 99

(Project 5905-2015-035)

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>.