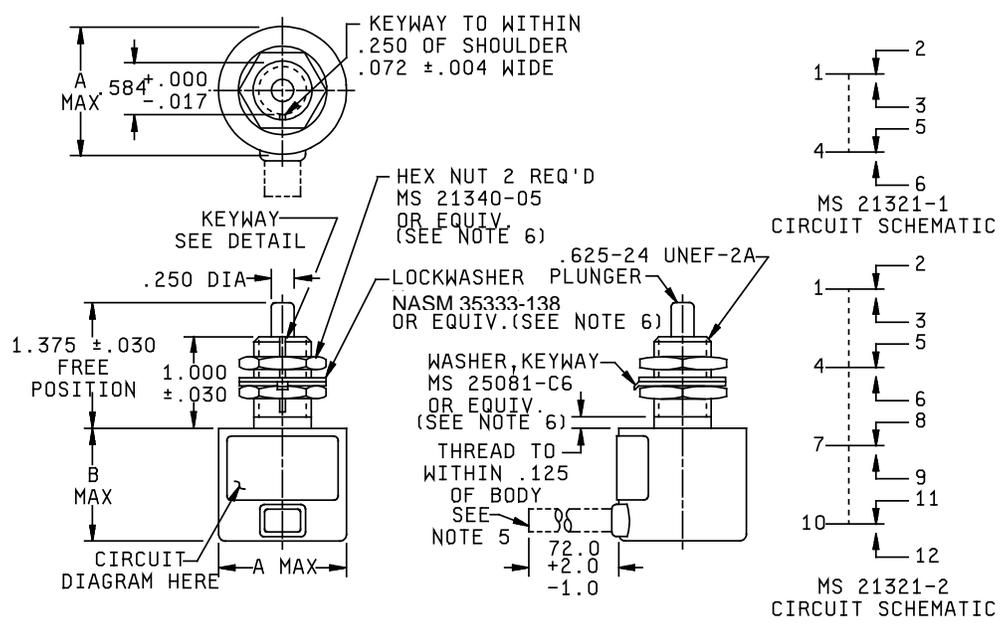


PERFORMANCE SPECIFICATION SHEET

SWITCHES, SENSITIVE, LIMIT, PLUNGER, 7 AMPERES, RESILIENT SEAL, FLUID RESISTANT

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

The complete requirements for acquiring the switches described herein shall consist of this specification and the latest issue of MIL-PRF-8805.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise stated, tolerance is ± 0.010 (0.25 mm).
4. Contour optional, provided maximum dimensions specified are not exceeded.
5. Leads shall be marked with the switch circuit identification number followed by wire gauge number (1-20, 2-20, etc.).
6. Alternative base metals and protective finishes, as approved by the qualifying activity, may be utilized for hexagon nut, lock washer and keyway washer material. Dimensions shall be in accordance with the referenced hardware specifications.

Inches	mm	Inches	mm
.003	0.08	.250	6.35
.004	0.10	.584	14.83
.030	0.76	.625	15.88
.038	0.97	1.000	25.40
.072	1.83	1.375	34.93
.125	3.18	2.0	50.
		72.0	1828.

FIGURE 1. Dimensions and configurations.

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REQUIREMENTS:

Dimensions and configurations: See figure 1 and table I.

Enclosure design: 4 (resilient). All entrances to the switch cavity except through the actuator bushing shall be sealed by fusion of glass-to-metal, metal-to-metal, ceramic-to-metal, or other materials that enable the switch to meet the performance requirements of this specification. The lead wires shall be potted to provide stress relief.

Temperature characteristic: 1 (-55°C to +85°C).

Shock type: M (100 g's).

Sinusoidal vibration grade: 2 (10 to 2,000 Hz).

Finish: Switch housing shall be processed to resist corrosion.

Maximum weight:

MS21321-1: .45 pound.

MS21321-2: .80 pound.

NOTE: MS21321 was superseded by MIL-PRF-8805/39, the MS21321 Part Numbers (PINS) were retained.

Operating characteristics: ± 20 percent variation from specified values acceptable after test.

Actuating force: 9 ± 3 pounds.

Overtravel force: 30 pounds maximum.

Release force: 4 pounds minimum.

Pretravel: .040 inch (1.01 mm) maximum.

Movement differential: .020 inch (0.50 mm) maximum.

Overtravel: .250 inch (6.35 mm) minimum.

Coincidence of operating and releasing points: All poles shall transfer within .010 inch (0.25 mm) of plunger travel.

Strength of actuating means: 35 pounds.

Contact resistance: Not applicable.

Insulation resistance: 100 megohms.

Terminal strength: 15 pounds.

Dielectric withstanding voltage:

At atmospheric pressure: 1,000 V rms.

At reduced barometric pressure: 50,000 feet; 400 V rms.

Mechanical endurance: 25,000 cycles.

Electrical endurance: 25,000 cycles.

Electrical ratings: See table II.

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Fluid resistance: Except for the cut end of the lead wire, switches shall be submerged in each of the following fluids for 2 minutes to 2 minutes 30 seconds, which shall consist of one cycle (one cycle is 10 minutes to 12 minutes 30 seconds total). Each switch shall be subjected to three cycles.

- a. Turbine fuel (MIL-DTL-5624).
- b. Hydraulic fluid (SAE AS1241).
- c. Coolanol (MIL-PRF-87252).
- d. Ethylene glycol (ASTM-E-1119).
- e. Lubricating oil (MIL-PRF-7808).

After each immersion, the excess fluid shall be blown off the external surfaces of the switch with an air jet. Following the third cycle, the switch shall be subjected to and shall meet the requirements for dielectric withstanding voltage, insulation resistance, operating characteristics, seal tests, and marking visibility.

Marking: The circuit schematic shall be marked on the switch case.

PIN: See table I.

Qualification inspection:

Group submission: See table III.

Group A inspection:

Seal test: Only watertight test shall be performed.

TABLE I. Part or Identifying Number (PIN) and characteristics.

PIN	A diameter maximum	B maximum	Lead wires, number required
MS21321-1	.720 (18.29)	.980 (24.89)	6
MS21321-2	1.031 (26.19)	1.200 (30.48)	12

NOTE: MS21321 was superseded by MIL-PRF-8805/39, the MS21321 PINs were retained.

TABLE II. Electrical ratings.

Load	Sea level 28 V dc (Amperes)	50,000 feet 28 V dc (Amperes)
Resistive	7	7
Inductive	4	2.5
Motor	4	4 ^{1/}

^{1/} Application information only.

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 TABLE III. Qualification inspection (group submission).

Examination or test	Samples	Extent of Approval
Qualification inspection table of MIL-PRF-8805	MS21321-2 (24 units)	All
Visual and mechanical examination Operating characteristics	MS21321-1 (2 units)	

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where modifications from this revision 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.

Referenced Documents:

MIL-DTL-5624	MIL-PRF-7808	MIL-PRF-8805
MIL-PRF-87252	MS21340	
MS25081	ASTM-E1119	
NASM 35333	SAE-AS1241	

Custodians:

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

Preparing activity:
 DLA - CC

(Project 5930-2013-020)

Review activities:

Army - AR, AV, MI
 Navy - AS, MC, OS, SH
 Air Force - 19, 99

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/>.