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INCH-POUND

  
MIL-PRF-8805/48G  
3 September 1999  


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SUPERSEDING  
MIL-S-8805/48F  
3 December 1990

PERFORMANCE SPECIFICATION SHEET

SWITCHES, SENSITIVE, LIMIT, ROLLER LEVER, SELF-RETURN,  
RESILIENT SEAL, FLUID RESISTANT

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-8805.

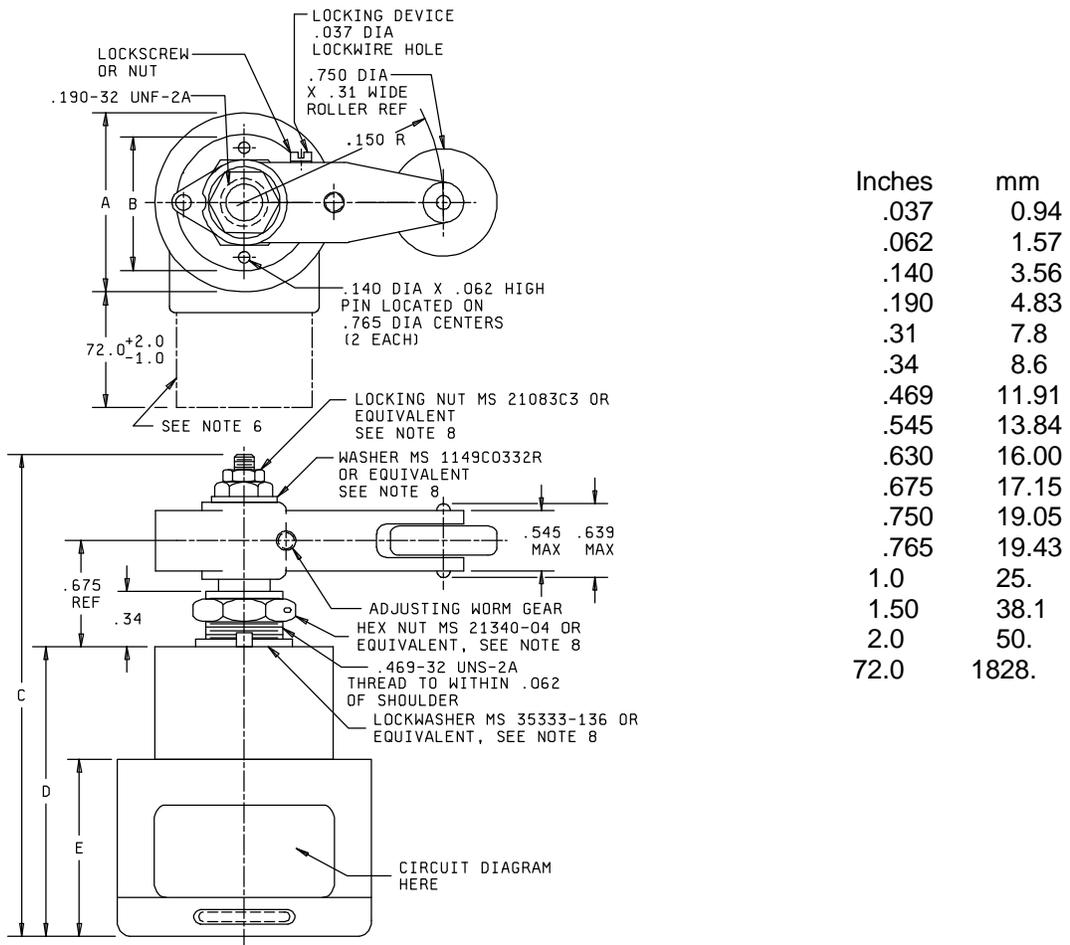
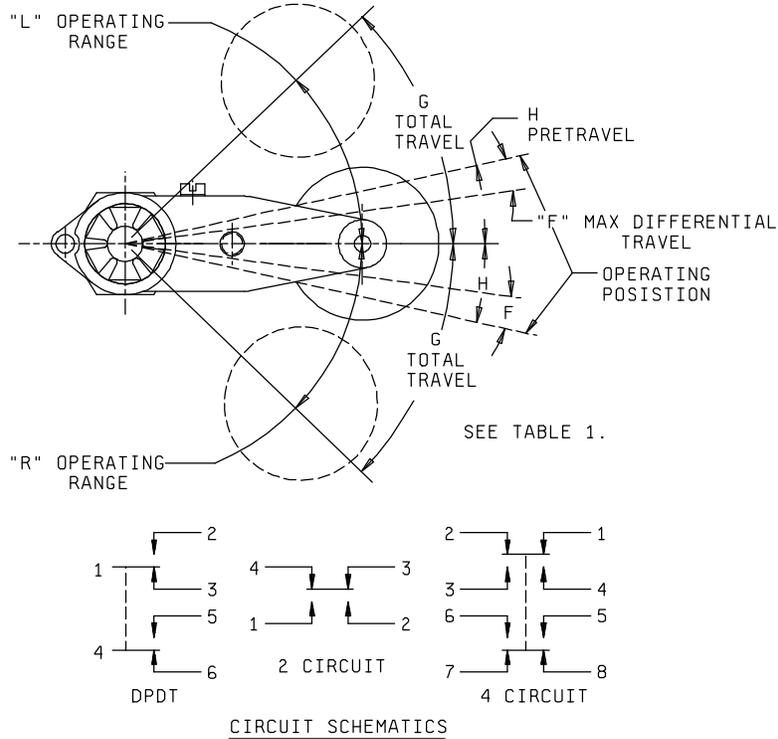


FIGURE 1. Configuration and dimensions.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Millimeters are in parentheses.
4. Unless otherwise specified, tolerances are  $\pm 0.02$  (0.51 mm) for two place decimals and  $\pm 0.005$  (0.13 mm) for three place decimals.
5. Envelope optional provided dimensions specified are not exceeded.
7. Lever shall be adjustable for an infinite number of positions through  $360^\circ$  without removing lever.
8. Alternate base metals and protective finishes, as approved by the qualifying activity, may be utilized for lock washer, flat washer, locking nut and hex nut material. Dimensions shall be in accordance with the referenced hardware specification.

FIGURE 1. Configuration and dimensions - Continued.

## REQUIREMENTS:

Dimensions and configuration: See figure 1 and table I.

TABLE I. Dimensions and operating characteristics.

MS21320-	Operating range	A diameter maximum	B diameter maximum	C maximum	D maximum	E maximum	F max.	G $\pm 3^\circ$	H	Lead Wires		
										Size	Number req.	
1	R	1.030 (26.16)	1.030 (26.16)	3.41 (86.61)	2.16 (54.86)	---	4°	45°	13° $\pm 3^\circ$	Number 20	6	
2	L			4.10 (104.14)	2.82 (71.63)	1.86 (47.24)	10°		20° $\pm 4^\circ$			
3	R	1.530 (38.86)		3.68 (93.47)	2.44 (61.98)	1.46 (37.08)	5°		15° $\pm 4^\circ$	Number 18		4
4	L			4.10 (104.14)	2.82 (71.63)	1.86 (47.24)	10°		15° $\pm 5^\circ$			8
5	R											
6	L											
7	R											
8	L											

Enclosure design: Four (resilient). All entrances to the switch cavity except through the actuator bushing shall be sealed by fusion of glass-to-metal, metal-to-metal, or ceramic-to-metal and the lead wires shall be potted to provide stress relief.

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

Shock type: M (100 G).

Sinusoidal vibration grade: 1 (10 Hz to 500 Hz).

Finish: Switch housing shall be processed to resist corrosion.

Maximum weight with leads:

MS21320-1, -2: 9.5 ounces.

MS21320-3, -4: 15.5 ounces.

MS21320-5, -6: 9.5 ounces.

MS21320-7, -8: 15.5 ounces.

Operating characteristics:

Operating torque: 12 to 25 inch-pounds.

Release torque:

MS21320-1, -2: 9 inch-pounds minimum.

MS21320-3, -4: 4 inch-pounds minimum.

MS21320-5, -6, -7, 8: 8 inch-pounds minimum.

Full overtravel torque: 40 inch-pounds maximum.

Coincidence of operating and releasing points: Not applicable.

Contact resistance: Not applicable.

Insulation resistance: 100 megohms minimum.

±10 percent variation from specified values acceptable after test.

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.

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-T-5624).
- b. Hydraulic fluid (SAE AS1241A)
- c. Coolanol 1/ (MIL-C-47220).
- d. Ethylene glycol (MIL-E-9500).
- e. Lubricating oil (MIL-L-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.

Part or Identifying Number (PIN): See table III.

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1/ Monsanto Company registered trademark.

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 TABLE II. Electrical ratings.

Rating code	Load				
	Sea level 28 V dc			50,000 ft 28 V dc	
	Resistive (amperes)	Inductive (amperes)	Motor (amperes)	Resistive (amperes)	Inductive (amperes)
A	5	3	4	5	2
B	10	6	6	10	3
C	15	10	5	15	10

TABLE III. PIN and characteristics.

PIN	Electrical rating code (table II)	Circuit
MS21320-1	A	DPDT
MS21320-2	A	DPDT
MS21320-3	B	DPDT
MS21320-4	B	DPDT
MS21320-5	C	2 circuit
MS21320-6	C	2 circuit
MS21320-7	C	4 circuit
MS21320-8	C	4 circuit

Qualification inspection:

Group submission: See table IV.

Group A inspection:

Seal test: Only watertight test shall be performed.

TABLE IV. Qualification inspection (group submission).

Examination or test	Samples	Extent of approval
Qualification inspection table of MIL-PRF-8805	MS21320-7 or-8 (24 units)	All
Visual and mechanical examination, group II	MS21320-1, -3 or MS21320-2, -4 (2 units each)	
Group VII	MS21320-1, -3 or MS21320-2, -4 (10 units each)	

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army – CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5930-1692-020)

Review activities:

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