INCH-POUND
MS21346F
21 December, 2005
SUPERSEDING
MS21346E
4 September 1991

DETAIL SPECIFICATION SHEET

SWITCH, TOGGLE, POSITIVE BREAK, LEVER LOCK AND TOGGLE, MINIATURE, TOGGLE SEALED, INTEGRATED WIRE TERMINALS, SINGLE POLE, .469 MOUNTING BUSHING

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

The complete requirements for acquiring the switch described herein shall consist of this specification and the latest issue of MIL-DTL-8834.

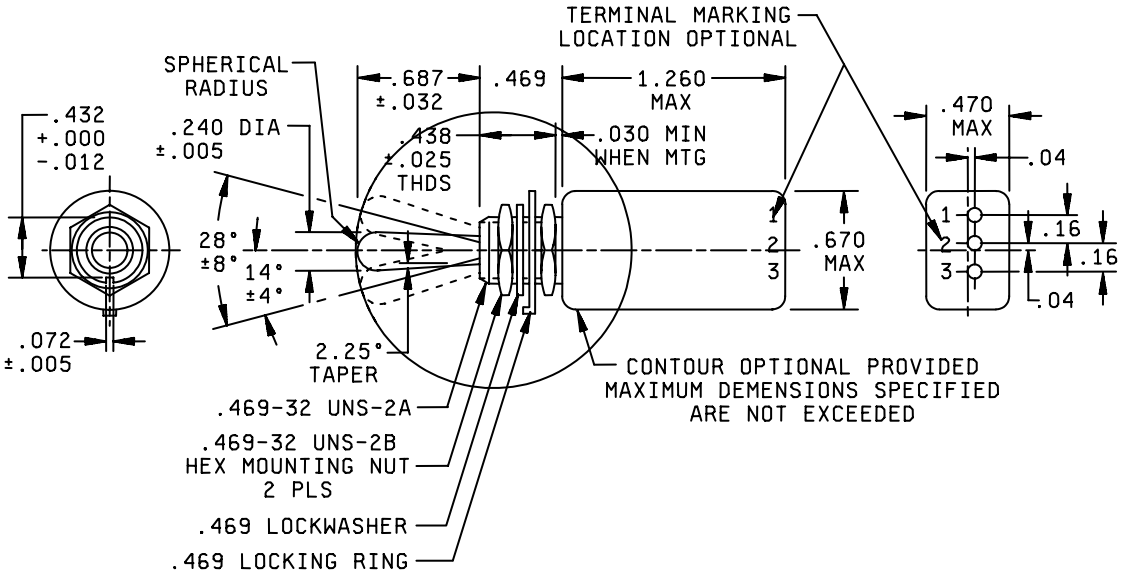

FIGURE 1. Dimensions and configuration.

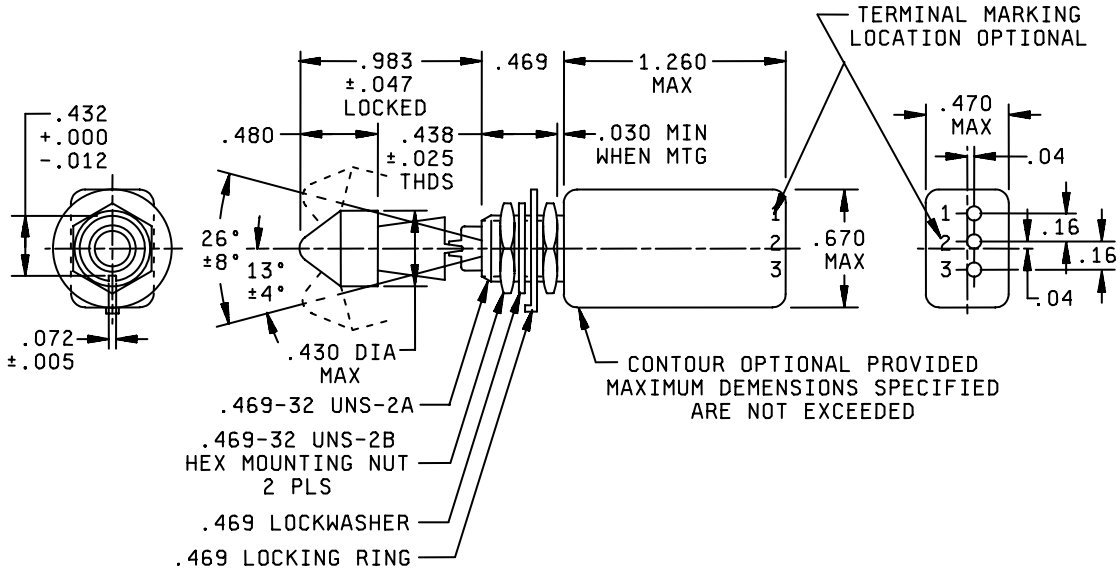

FIGURE 1. Dimensions and configuration - Continued.

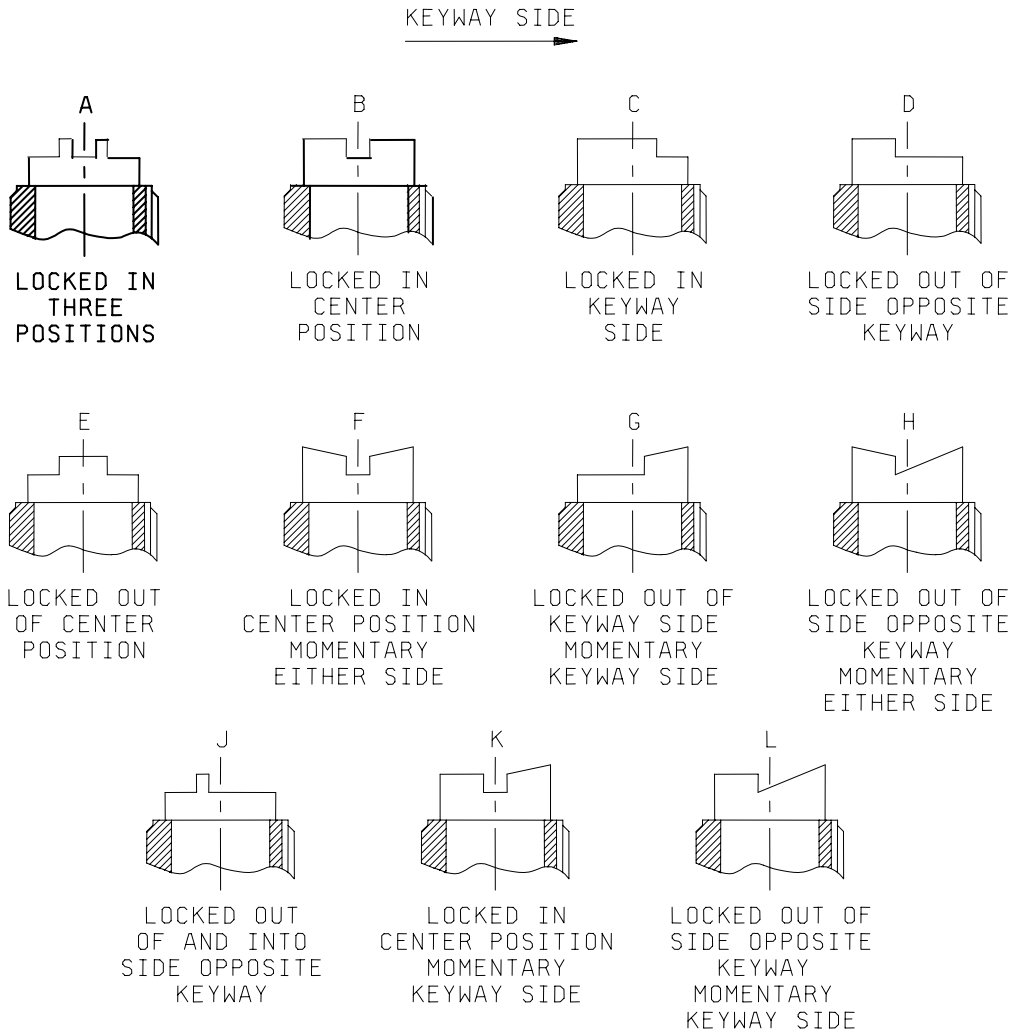

FIGURE 1. Dimensions and configuration - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.002	0.05	.024	0.61	.047	1.19	.364	9.52	.480	12.19
.003	0.08	.025	0.64	.052	1.32	.430	10.92	.572	14.53
.005	0.13	.030	0.76	.072	1.83	.432	10.97	.670	17.02
.010	0.25	,032	0.81	.160	4.06	.438	11.13	.706	17.93
.012	0.30	.04	1.02	.169	4.29	.469	11.91	.983	24.97
.016	0.41	.045	1.14	.338	8.59	.470	11.94	1.260	32.00

NOTES:

1. Dimensions in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.010 on decimals and ±.5° on angles.
4. For hardware detail specifications, see appendix of MIL-DTL-8834.
5. For design feature purposes, this standard takes precedence over procurement documents referenced herein.
6. Referenced documents shall be of the issue in effect on date of invitation for bid.
7. Toggle seal test: Method 11.
8. Unlocking force: 4 ± 1 pound.
9. Configuration of switch case housing, terminals and barriers. Design optional providing maximum dimensions specified are not exceeded.
10. Altitude: 50,000 feet.
11. 115 V ac 60 hertz electrical endurance tests are to be performed at room temperature and pressure.
12. Terminals shall adequately accept a wire contact within dimensional limits of SAE-AS39029/1-101.
13. The sealing grommet shall seal on smooth wire insulations of .040 ()1.02 mm) to .083 (2.11 mm) diameter.
14. Plug, grommet sealing, electrical connector in accordance with MS27488-20.
15. Tool contact, insertion-extraction, electrical connector in accordance with M81969/14-10.
16. The terminal sealing grommet shall be color coded red to indicate contact size.
17. Maximum weight for lever lock, .069 pound (31.5 grams).
18. Maximum weight for switch without level lock, .053 pounds (24 grams).

FIGURE 1. Dimensions and configuration - Continued.

TABLE I. Detail requirements. 1/ 2/

MS dash no.	Locking comb.	Circuit made between terminals as indicated with the toggle lever in these positions: 3/			Current capacity in amperes						Life low current level switching 5 mV
					Resistive load			Inductive load			
		Opposite keyway side 5/	Center positions	Keyway side 5/	28 V dc	115 Volts 60 Hertz ac	115 Volts 400 Hertz ac	28 V dc	115 Volts 60 Hertz ac	115 Volts 400 Hertz ac	
-211	A, B, C, D, E	ON 2-3	OFF	ON 1-2	5	2	3	1 4/	1	2	25 µA 5/
-221	C, E		NONE	OFF							
-231				ON 1-2							
-241	J, B		OFF	NONE							
-271	F, H	MOM-ON 2-3	OFF	MOM-ON 1-2							
-281	K	NONE									
-311	G, K, L	ON 2-3									
-321 7/ 8/	L	NONE	ON 2-3								

1/ For lever lock, part number shall consist of MS number, locking combination letter and dash number; example part number: MS21346-B211 - Toggle sealed, on-off-on. Locked in center position.
2/ Without lever lock, part number shall consist of MS number and dash number. Example part number: MS21346-211-Toggle sealed on-off-on.
3/ Direction of movement of internal mechanism is opposite to the direction of the toggle movement.
4/ With time constant of .020 ± .002 seconds.
5/ Contact resistance not to exceed 50 ohms during life, low current level switching.
6/ Nonfunctional terminals shall not be supplied.
7/ Dielectric withstanding voltage: 1,200 V rms at sea level (center on circuits).
8/ Delayed action of the switch toggle lever may cause circuit to close on open before snap action mechanism trips.

TEST REQUIREMENTS:

Qualification and group B tests are to be performed in accordance with MIL-DTL-8834 except:

During all tests, switches are to be fully wired with appropriate wire and terminal contacts.

Contact voltage drop: The contact voltage drop with two terminals and the switch contact in series shall not exceed 8 millivolts. This measurement shall be made from one wire contact through the switch contacts to the other wire contact with .1 ampere at a voltage of 2-4 V dc.

Fluid immersion. Two additional qualification of group B switches, fully wired, shall be subjected to three exposure cycles in accordance with a. and b.

a. The terminal end of the switch shall be immersed to a depth of .375 (9.53 mm) inch measured from the exposed face of the sealing grommet in each of the following fluids for 2 +.5, -0 minutes with a maximum of two minutes between immersions. After each immersion, the excess liquid is to be blown off the switch external surfaces with an air jet.

   (1) MIL-DTL-5624: Turbine fuel, aviation, grade JP-4 or JP-5.

   (2) Skydrol 500A: Federal stock number 9150-00-857-9069.

   (3) MIL-PRF-87252: Coolant Fluid, Hydrolytically Stable, Dielectric.

   (4) ASTM-E1119: Ethylene glycol, technical uninhibited.

   (5) MIL-PRF-7808: Lubricating oil, aircraft turbine engine synthetic base.

b. Exposure to ambient air for 24 $\pm$ 2 hours.

c. At the end of the third cycle, the insulation resistance shall be measured and the switches shall be inspected for cracking and loosening of bonds and seams. When switches are tested as specified the insulation resistance shall not be less than 1,000 megohms and there shall be no evidence of cracking and loosening of bonds and seams.

d. Toggle seal test: Method II.

Referenced Documents
MIL-DTL-5624
MIL-DTL-8834
MIL-PRF-7808
MIL-PRF-87252
MS27488
ASTM-E1119
SAE-AS39029/1

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

Custodians:
Army - CR
Navy - AS
Air Force - 11
DLA - CC

Review activities:
Army - AR, MI
Navy - EC
Air Force – 99

Preparing activity:
DLA - CC

(Project 5930-1924)

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 http://assist.daps.dla.mil/.