

FIGURE 1. Dimensions and configuration – continued.

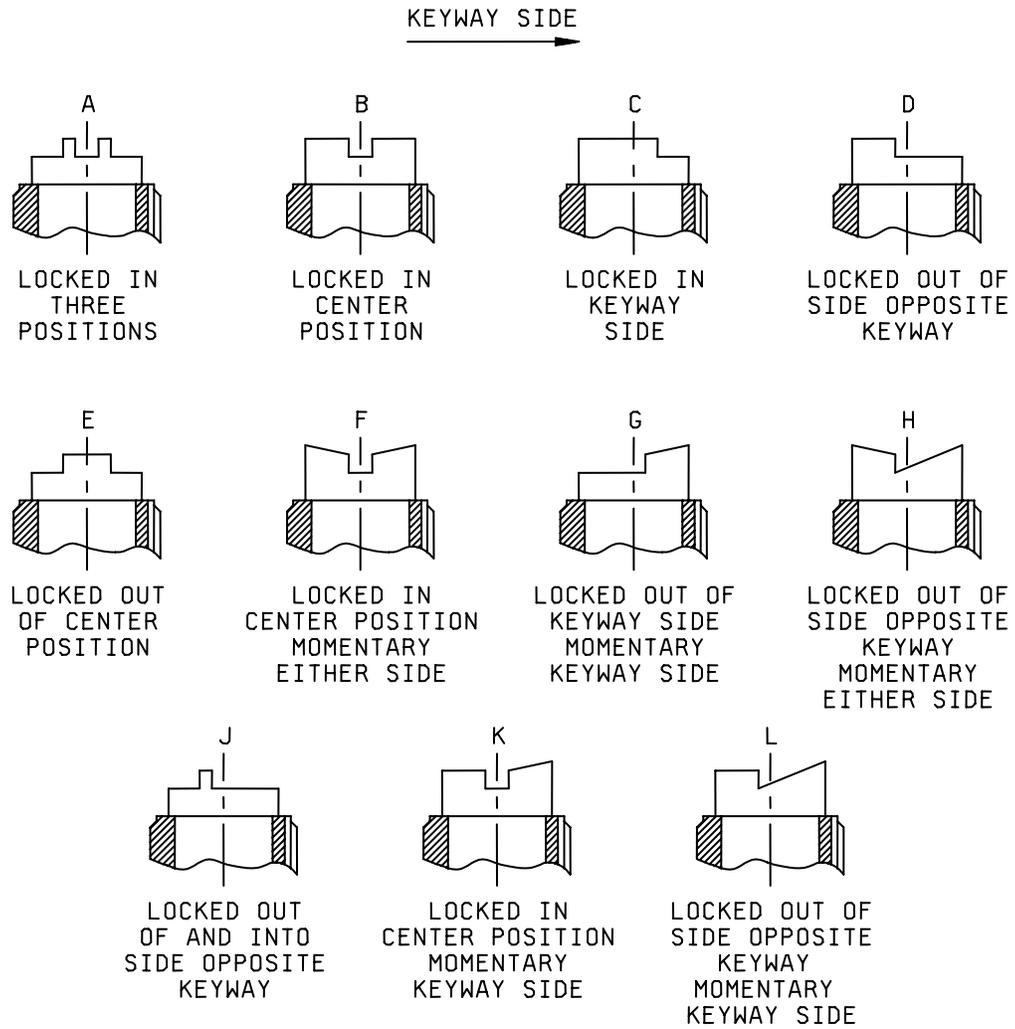


FIGURE 2. Locking and momentary configuration.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	0.13	.04	1.02	.27	6.86	.480	12.19
.012	0.30	.047	1.19	.430	10.32	.670	17.02
.025	0.64	.072	1.83	.432	10.97	.687	17.45
.030	0.76	.16	4.04	.438	11.13	.983	24.97
.032	0.81	.240	6.10	.469	11.91	1.260	32.00

NOTES:

1. Dimensions in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.010$  (0.25 mm) on decimals and  $\pm 5^\circ$  on angles.
4. For hardware detail specifications, see appendix of MIL-DTL-8834.
5. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.
6. Dielectric withstanding voltage: For center on circuit's, DMW shall be 1,200 V rms at sea level.
7. The switch shall be electrically and mechanically operative at the conclusion of the shock test with 2,000 foot pounds except there can be transfer of the contact mechanism at all levels when tested in accordance with MIL-STD-202, method 207.
8. Part number shall consist of MS number, (locking combination letter when lever-lock is required) and dash number.
9. Example part numbers:  
 MS21347-711: Toggle sealed, on-off-on, miniature.  
 MS21347-A711: Toggle sealed, locked in three positions on-off-on.
10. Altitude: 50,000- feet.
11. 115 V ac 60 hertz electrical endurance tests are to be performed at room temperature and pressure.
12. Maximum weight: .062 pound maximum (28.1 grams) miniature toggle.  
 .0797 pound (36.2 grams) lever lock.
13. Unlocking force:  $4 \pm 1$  pound.
14. Terminals shall adequately accept a wire contact within dimensional limits of SAE-AS39029/1-101.
15. The sealing grommet shall seal on smooth wire insulations of .040 (1.02 mm) to .083 (2.11 mm) diameter.
16. Plug, grommet sealing, electrical connector in accordance with MS27488-20.
17. Tool contact, insertion-extraction, electrical connector in accordance with M81969/14-10.
18. The terminal sealing grommet shall be color coded red to indicate contact size.

FIGURE 2. Locking and momentary configuration.

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TABLE I. Detail requirements.

MS dash no.		Locking comb.	Circuit made between terminals as indicated with the toggle lever in these positions: <u>1/</u>			Current capacity in amperes						Life low current level switching 5 mV
						Resistive load			Inductive load			
						28 V dc	115 Volts		28 V dc	115 Volts		
	60 Hz ac	400 Hz ac		60 Hz ac	400 Hz ac		60 Hz ac	400 Hz ac				
-711	-211	A, B, D	ON 2-3 5-6	OFF	ON 1-2, 4-5	5	2	3	1 <u>2/</u>	1	2	25 $\mu$ A <u>3/</u>
-721	-221	C, E		NONE	OFF							
-731	-231			ON 1-2, 4-5								
-741	-241	J, B		OFF	NONE							
-771	-271	F, H	MOM-ON 2-3, 5-6	OFF	MOM-ON 1-2, 4-5							
-781	-281	K	NONE									
-811	-311	G, K, L	ON 2-3, 5-6									
-821 <u>6/</u>	-321 <u>6/</u>	K	NONE	ON 2-3, 5-6	MOM-ON 1-2, 4-5							
-831 <u>6/</u>	-331 <u>6/</u>	A,B,C,D	ON 2-3, 5-6	ON 2-3, 4-5	ON 1-2, 4-5							
-841 <u>6/</u>	-341 <u>6/</u>	F, H	MOM-ON 2-3, 5-6	ON 2-3, 4-5	MOM-ON 1-2, 4-5							
-851 <u>6/</u>	-351 <u>6/</u>	G, K, L	ON 2-3, 5-6	ON 2-3, 4-5	MOM-ON 1-2, 4-5							

- 1/ Direction of movement of internal mechanism is opposite to the direction of the toggle movement.
- 2/ With time constant of .020  $\pm$  .002 seconds.
- 3/ Contact resistance not to exceed 50 ohms during life, low current level switching.
- 4/ Nonfunctional terminals shall not be supplied.
- 5/ 700 and 800 series toggle seal (water) 15' head, 200 and 300 series toggle seal (water) .5" head.
- 6/ Delayed action of the switch toggle lever may cause circuit to close on open before snap action mechanism trips.

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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 (9.52 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 I for 700 and 800 series, method II for 200 and 300 series.

Referenced Documents

MIL-DTL-5624  
MIL-DTL-8834  
MIL-PRF-7808  
MIL-PRF-87252  
MIL-STD-202  
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:

Navy - AS  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5930-1925)

Review activities:

Navy - EC  
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 <http://assist.daps.dla.mil/>.