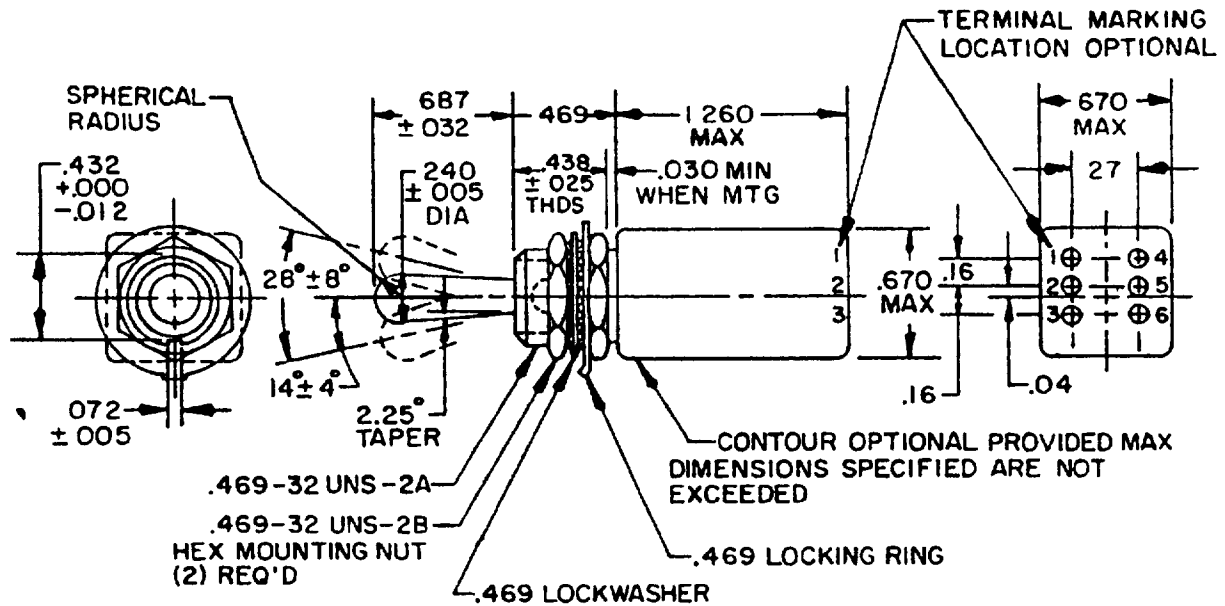


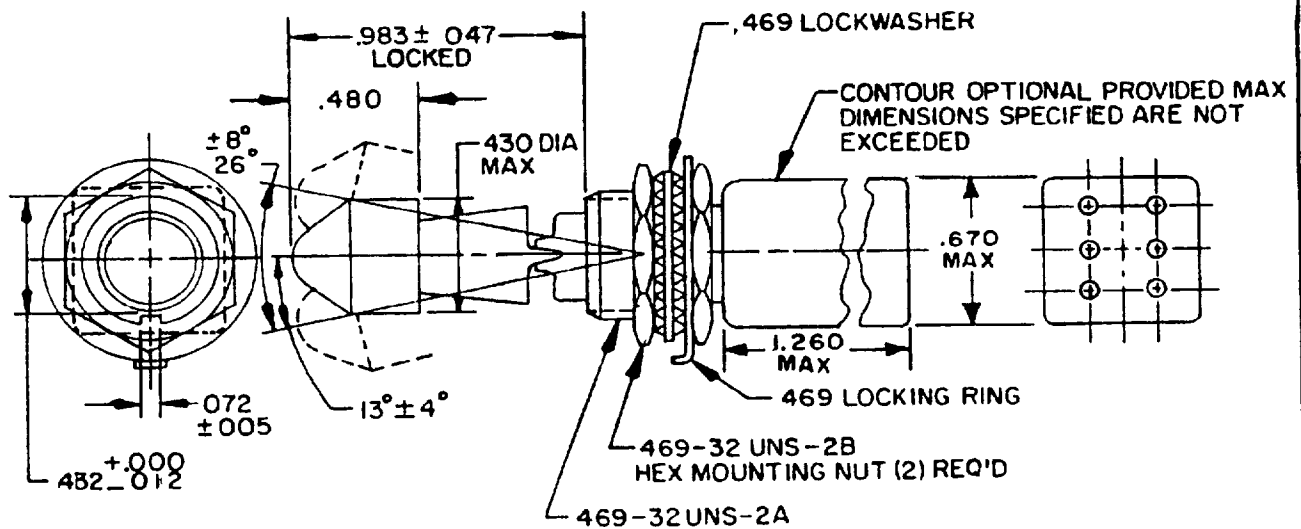
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TOGGLE SWITCH (MINIATURE)



TOGGLE SWITCH (LEVER LOCK)

ⓐ Denotes changes

PREPARING ACTIVITY Air Force-85 CUSTODIANS ARMY NAVY AS AIR FORCE DLA	MILITARY SPECIFICATION SHEET TITLE SWITCH, TOGGLE, POSITIVE BREAK, MINIATURE, TOGGLE SEALED, AND --LEVER LOCK-- MINIATURE, TOGGLE SEALED, INTEGRATED WIRE TERMINALS, DOUBLE POLE, 469 MOUNTING RUSHING	SPECIFICATION SHEET NUMBER MS21347-J 4 Sep 1991
REVIEW Air Force-19, 99 Navy-EC USER	PROJECT NUMBER 5930-1454-05	SUPERSIDING MS21347H 15 Dec 1989 AMSC N/A FSC 5930
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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	10.92	.670	17.02
.025	0.64	.072	1.83	.432	10.97	.687	17.45
.030	0.76	.16	4.06	.438	11.13	.983	24.97
.032	0.81	.240	6.10	.469	11.91	1.260	32.00

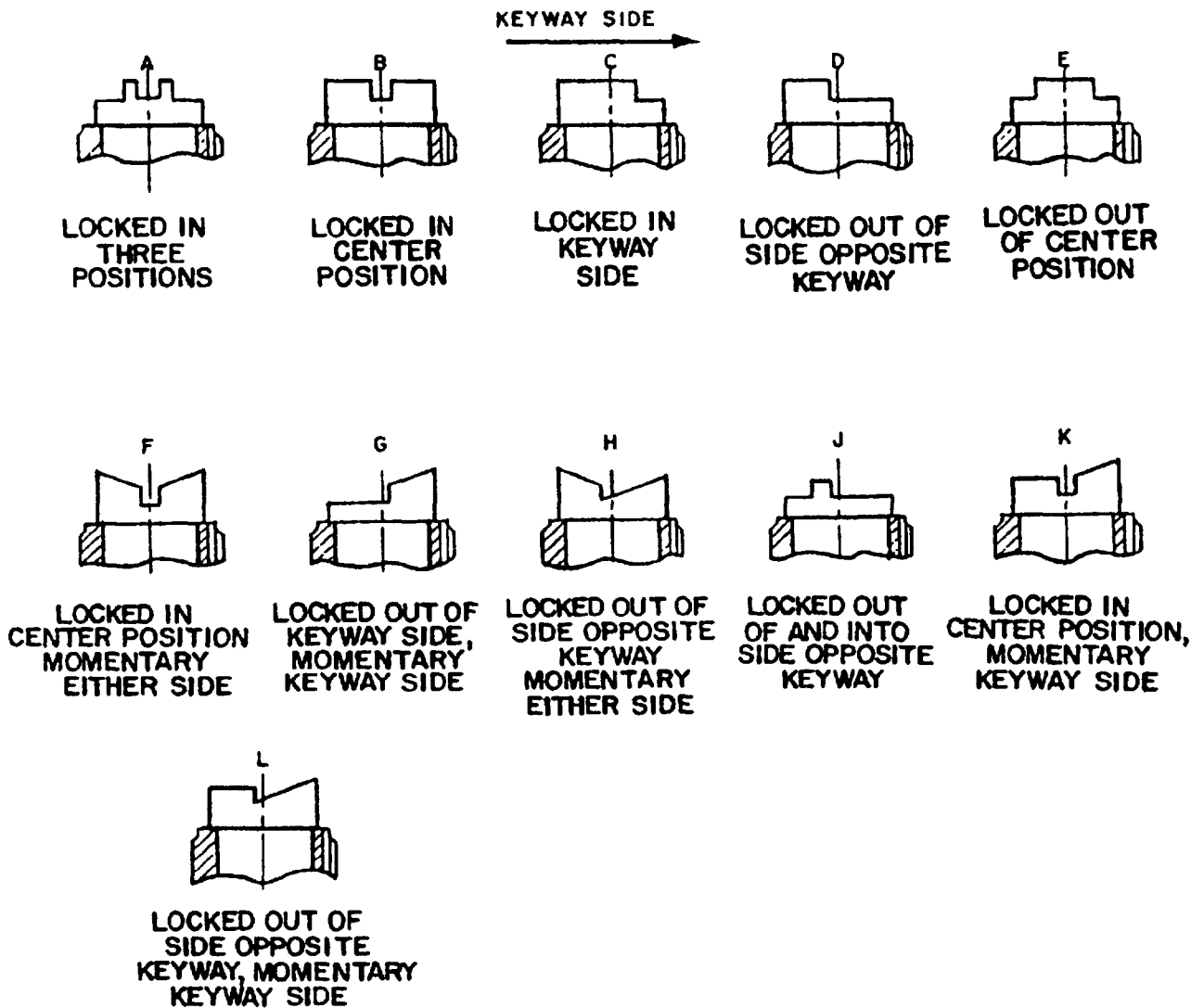
NOTES.

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .010$ (0.25 mm) on decimals and $\pm 5^\circ$ on angles.
4. For hardware detail specification see appendix of MIL-S-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. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation shall form a part of this standard to the extent specified herein.
7. Dielectric withstanding voltage: For center on circuit's, DMV shall be 1200 V rms at sea level.
8. The switch shall be electrically and mechanically operative at the conclusion of the shock test with 2000 foot pounds except there can be transfer of the contact mechanism at all levels when tested in accordance with MIL-STD-202, method 207.
9. Part number shall consist of MS number, (locking combination letter when lever-lock is required) and dash number.
10. Example part numbers:
 - (J) MS21347-711 - Toggle sealed, on-off-on, miniature.
 - MS21347-A711 - Toggle sealed, locked in three positions on-off-on.
11. Altitude: 50,000 feet.
12. 115 V ac 60 hertz electrical endurance tests are to be performed at room temperature and pressure.
13. Maximum weight: .062 pound maximum (28.1 grams) miniature toggle.
.0797 pound (36.2 grams) lever lock.
14. Unlocking force = 4 ± 1 pound.
- (J) 15. Terminals shall adequately accept a wire contact within dimensional limits of M39029/1-101.
16. The sealing grommet shall seal on smooth wire insulations of .040 (1.02 mm) to .083 (2.11 mm) diameter.
- (J) 17. Plug, grommet sealing, electrical connector in accordance with MS27488-20.
- (J) 18. Tool contact, insertion-extraction, electrical connector in accordance with M81969/14-10.
19. The terminal sealing grommet shall be color coded red to indicate contact size.

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Figures A thru L illustrate the locking and momentary configuration and not the detail construction of the locking design

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MINIATURE, TOGGLE SEALED, INTEGRATED WIRE
TERMINALS, DOUBLE POLE, 469 MOUNTING BUSHING

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Detail requirements

MS dash no. (e)	Locking comb	Circuit made between terminals as indicated with the toggle lever in these positions (a)			Current capacity in amperes						Low current level switching 5 mV	
					Resistive load			Inductive load				
		Opposite keyway side (d)	Center position	Keyway tab side (d)	28 V dc	115 V 160 Hz ac	400 Hz ac	28 V dc	115 V 160 Hz ac	400 Hz ac		
-711	-211	A, B, D		off	on 1-2, 4-5							
-721	-221	C, E	on 2-3, 5-6	none	off on 1-2, 4-5							
-731	-231											
-741	-241	J, B		off	none							
-771	-271	F, H	mom-on 2-3, 5-6		mom-on							
-781	-281	K	none on	off	1-2, 4-5							
-811	-311	G, K, L	2-3, 5-6									
-821 (f)	-321 (f)	K	none	on 2-3, 5-6	mom-on 1-2, 4-5	5	12	3	(b) 1	1	2	(c) 25 μ A
-831 (f)	-331 (f)	A, B, C, D	on 2-3, 5-6	on 2-3, 4-5	on 1-2, 4-5							
-841 (f)	-341 (f)	F, H	mom-on 2-3, 5-6	on 2-3, 4-5	mom-on 1-2, 4-5							
-851 (f)	-351 (f)	G, K, L	on 2-3, 5-6	on 2-3, 4-5	mom-on 1-2, 4-5							

SEE
NOTE (F)

- (J) (a) Direction of movement of internal mechanism is opposite to the direction of the toggle movement.
 (b) With time constant of .020 \pm .002 seconds.
 (c) Contact resistance not to exceed 50 Ω during life, low current level switching.
 (d) Non-functional terminals shall not be supplied.
 (e) 700 and 800 series toggle seal (water) 15' head, 200 and 300 series toggle seal (water) 1/2" head.
 (f) Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.

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MINIATURE, TOGGLE SEALED, INTEGRATED WIRE
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Test requirements.

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

1. During all tests, switches are to be fully wired with appropriate wire and terminal contacts.
2. 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 amperes at a voltage of 2-4 volts dc.
- ① 3. Fluid immersion - two additional qualifications of group B switches, fully wired shall be subjected to three exposure cycles in accordance with sub-paragraphs A and B.
 - ① A. The terminal end of the switch shall be immersed to a depth of .375 inch (9.52 mm) measured from the exposed face of the sealing grommet in each of the following fluids for 2-0 1/2 minutes with a maximum of two minutes between immersions. After each immersion the excess fluid is to be blown off the switch external surfaces with an air jet.
 - (1) MIL-T-5624 - Turbine fuel, aviation, grade JP-4 or JP-5.
 - (2) Skydrol 500A - Federal stock number 9150-00-857-9069.
 - ① (3) Coolanol - Federal stock number 9160-00-257-1298, (Coolanol is a Monsanto Company's registered trademark)
 - (4) MIL-E-9500 - Ethylene glycol, technical uninhibited.
 - (5) MIL-L-7808 - Lubricating oil, aircraft turbine engine, synthetic base.
 - B. Exposure to ambient air for 24 ±2 hours.
 - C. At the end of the third cycle, the insulation resistance shall be measured and the switches shall be examined for cracking and loosening of bonds and seams. When switches are tested as specified the insulation resistance shall not be less than 1000 megohms and there shall be no evidence of cracking and loosening of bonds and seams.
4. Toggle seal test. Method I for 700 and 800 series, method II for 200 and 300 series.

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