DEFENSE LOGISTICS AGENCY
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MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION 13 April 2016

SUBJECT: Initial Draft of MS4655S w/Amd 2
Project Numbers: 5930-2016-025

The subject document is now available for viewing and downloading from the DLA Land and Maritime - VA website:

http://www.landandmaritime.dla.mil/Programs/MilSpec/initialdrafts.aspx

The following is a synopsis of the changes:
Clarify description of seal in figure 1.

Concurrence or comments are required at this Center no later than 13 May 2016. If comments are not received during the allotted coordination period, concurrence may be assumed. Late comments may be held for the next specification action. Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians of this office, as applicable, in sufficient time to allow for consolidating the department reply.

The point of contact for this project is Mr. Mark Rush, DLA Land and Maritime - VAT, Post Office Box 3990, Columbus, OH 43218-3990. The preferred method of contact is via email. Mark can be reached at mark.rush@dla.mil or 614-692-0550/DSN 850-0550.

/ SIGNED /
MICHAEL A. RADECKI
Chief
Electronic Components Team

NOTE: This draft, dated April 13, 2016 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
(Project 5930-2016-025)

INCH-POUND
MS24655S
w/Amendment 2
DRAFT
SUPERSEDING
w/Amendment 1
4 May 2012

DETAIL SPECIFICATION SHEET

SWITCH, TOGGLE, POSITIVE BREAK, MINIATURE TOGGLED SEALED, SINGLE POLE, SOLDER LUG OR INTEGRATED WIRE TERMINALS: .250 MOUNTING BUSHINGS

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 the latest issue of MIL-DTL-8834.

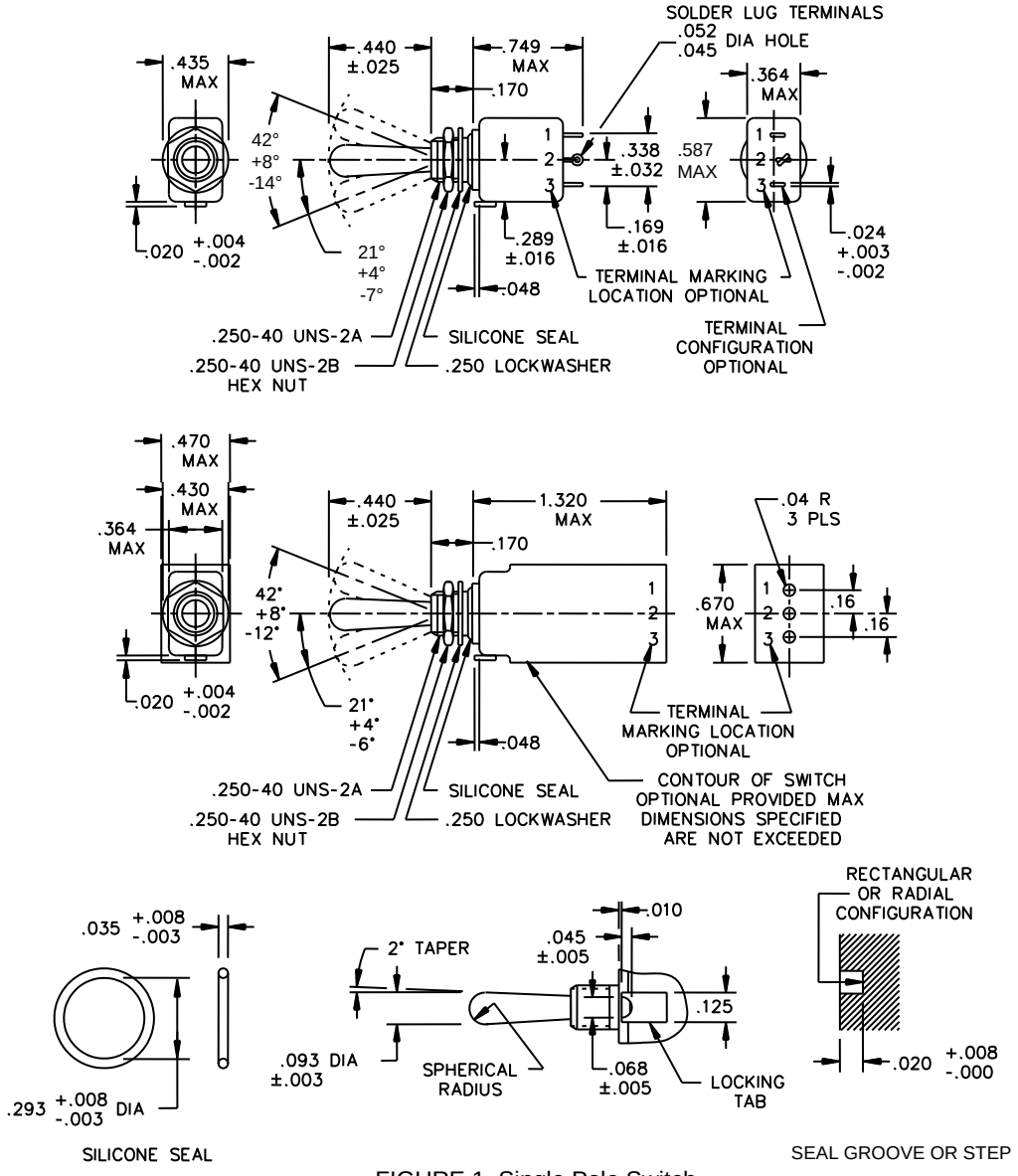


FIGURE 1. Single Pole Switch

AMSC N/A

FSC 5930

TABLE I. Detail requirements. 5/

<table>
<tr><th rowspan="3">MS dash no.</th><th colspan="3" rowspan="2">Circuits made between terminals as indicated with the toggle lever in these positions: 1/</th><th colspan="5">Current capacity in amperes</th><th rowspan="3">Life low current level switching 5 mV</th></tr>
<tr><th colspan="3">Resistive load</th><th colspan="2">Inductive load</th></tr>
<tr><th rowspan="2">28 V dc</th><th>115 Volts</th><th rowspan="2">28 V dc</th><th>115 Volts</th><th rowspan="2">400 Hz ac</th></tr>
<tr><th>Opposite locking tab side 4/</th><th>Center position</th><th>Locking tab side 4/</th><th>60 Hz ac</th><th>400 Hz ac</th><th>60 Hz ac</th></tr>
<tr><td>-211</td><td rowspan="4">2-3 ON</td><td>OFF</td><td>ON 1-2</td><td rowspan="8">5</td><td rowspan="8">2</td><td rowspan="8">3</td><td rowspan="8">2/
1</td><td rowspan="8">1</td><td rowspan="8">2</td><td rowspan="8">3/
25 μA</td></tr>
<tr><td>-221</td><td>NONE</td><td>OFF</td></tr>
<tr><td>-231</td><td>NONE</td><td>ON 1-2</td></tr>
<tr><td>-241</td><td rowspan="4">OFF</td><td>NONE</td></tr>
<tr><td>-271</td><td>MOM-ON 2-3</td><td rowspan="4">1-2 MOM-ON</td></tr>
<tr><td>-281</td><td>NONE</td></tr>
<tr><td>-311</td><td>ON 2-3</td></tr>
<tr><td>-321 6/ 7/</td><td>NONE</td><td>ON</td></tr>
</table>

1/ Direction of movement of internal mechanism is opposite to the direction of the toggle movement.

2/ With time constant of .020 ± .002 seconds.

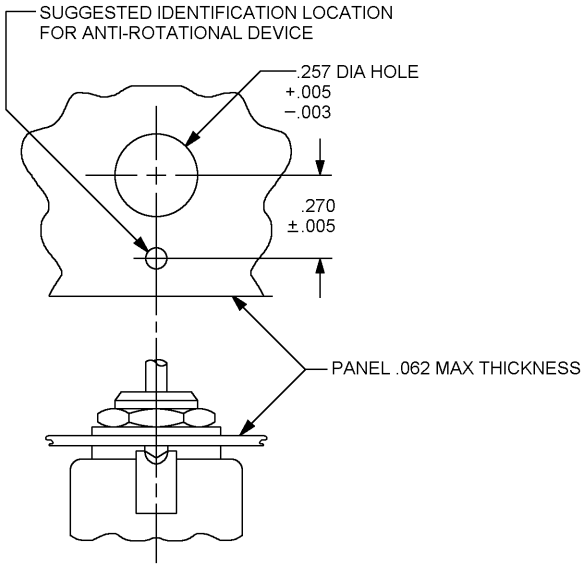
3/ Contact resistance not to exceed 50 ohms during life, low current level switching.

4/ Nonfunctional terminals shall not be supplied.

5/ Part or Identifying Number (PIN) example: For IWTS termination MS number will be concluded by the letter W. Example: MS24655-211 with IWTS termination will be MS24655-211W.

6/ Dielectric withstanding voltage: 1,200 V rms at sea level (center on circuits).

7/ Delayed action of the switch toggle lever may cause circuit to close or open before snap action mechanism trips.



Inches	mm	Inches	mm	Inches	mm
.002	0.05	.040	1.02	.270	6.86
.003	0.08	.045	1.14	.286	7.26
.004	0.10	.048	1.22	.293	7.44
.005	0.13	.050	1.27	.338	8.59
.008	0.20	.062	1.57	.364	9.25
.010	0.25	.067	1.70	.408	10.36
.016	0.41	.093	2.36	.440	11.18
.020	0.51	.125	3.18	.470	11.94
.024	0.61	.160	4.06	.572	14.53
.025	0.64	.169	4.29	.670	17.02
.028	0.71	.170	4.32	.749	19.02
.032	0.81	.250	6.35	1.320	33.53
.035	0.89	.257	6.53		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ± .010 (0.25 mm) on decimals and ± .5° 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 specification and the references cited herein, the text of this specification shall take precedence.
6. Altitude: 50,000 feet.
7. 115 V ac, 60 hertz electrical endurance tests are to be performed at room temperature and pressure.
8. Weight: .014 pound maximum (6.4 grams). For switches with solder lug terminals. .0211 pound maximum (9.6 grams). For switches with IWTS termination.
9. Shock: Switches with solder terminals, method I and method II (high impact). Switches with IWTS terminals, method I only. The switch shall be electrically and mechanically operative at the conclusion of the test and there shall be no mechanical transfer during the test.
10. Suitable for mounting on panels of .062 (1.57 mm) maximum thickness.
11. Strength of terminal: 5 pound normal to the mounting planes, and 2 pounds in other planes, (solder lug terminals only).
12. Strength of actuator: Lever pivot and lever stop 6 pounds.
13. Switches with ITWS terminals shall accept M39029/1-101 connector contacts.
14. With IWTS termination: Sealing plugs may be used in non-functional terminal grommet holes. Switches shall accept MS27488-20 end seal plugs.
15. The terminal sealing grommet for switches with IWTS terminals shall seal on smooth wire insulations of .040 (1.02 mm) to .083 (2.11 mm) diameter. The sealing grommet shall be color coded red to indicate contact size.
16. Installing/removal tool for IWTS connector contacts is M81969/14-02.

FIGURE 2.

NOTE: The following test requirements apply only to those switches with integrated wire terminals.

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 and group B switches, fully wired, shall be subjected to three exposure cycles in accordance with a. and b. below.

a. The terminal end of the switch shall be immersed to a depth of .375 (9.53 mm) measured from the exposed face of the sealing grommet in each of the following fluids to 2 +.5, -0 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-83133: Turbine fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO f-35, and JP-8 + 100 or Commercial Jet A-1

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

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

   (4) ASTM-E1119: Glycol, Industrial Grade Ethylene, Standard Specification for.

   (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.

Toggle seal test: Method II

Referenced documents:
MIL-DTL-8834
MIL-DTL-83133
MIL-PRF-7808
MIL-PRF-87252
ASTM-E1119

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

Custodians:
Army - CR
Navy - AS
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5930-2016-025)

Review activities:
Army - AV, MI
Navy - EC
Air Force - 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/ .