

INCH-POUND

MIL-S-15291E(SH)

AMENDMENT 4

1 April 2003

SUPERSEDING

AMENDMENT 3

7 June 1999

MILITARY SPECIFICATION

SWITCHES, ROTARY, SNAP ACTION AND DETENT/SPRING RETURN ACTION, GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-S-15291E(SH), dated 22 July 1991, and is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense

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Beneficial comments box, delete existing preparing activity address and substitute the following:

"Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center Columbus, ATTN: DSCC-VAM, Post Office Box 3990, Columbus, OH 43216-5000 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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Paragraph 2.1.1: Delete the following Federal Specifications:

- QQ-B-750 - Bronze, Phosphor; Bar, Plate, Rod, Sheet, Strip, Flat Wire, and Structural and Special Shaped Sections.
- QQ-C-502 - Copper Rods and Shapes; and Flat Products with Finished Edges (Flat Wire Strips and Bars).
- QQ-C-576 - Copper, Flat Products with Slit, Slit and Edge-Rolled, Sheared, Sawed, or Machined Edges, (Plate, Bar, Sheet, and Strip).
- PPP-F-320 - Fiberboard: Corrugated and Solid Sheet Stock (Container Grade) and Cut Shapes.

Paragraph 2.1.1: Delete the following Military Specification:

- MIL-M-14 - Molding Compounds, Thermosetting
- MIL-P-15035 - Plastic Sheet; Laminated, Thermosetting, Cotton-Fabric-Base, Phenolic-Resin.

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Paragraph 2.1.1: Delete the following Military Specification:

- MIL-G-23827 - Grease, Aircraft and Instrument, Gear and Actuator Screw, NATO Code Number G-354, Metric

Paragraph 2.1.1,: Delete the following Military Standards:

- MIL-STD-454 - Standard General Requirements for Electronic Equipment

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Paragraph 3.4.1.4.1, Delete "in accordance with MIL-G-23827." and substitute with the following, "that shall enable the switch to meet the performance requirements of this document. For additional information and guidance on lubricating compounds see 6.10."

Paragraph 3.4.1.4.2, Delete the first sentence and substitute, "Contacts shall be lubricated to enable the switch to meet the performance requirements of this document. For additional information and guidance on lubricating compounds see 6.10."

Paragraph 3.4.2.1, Delete and substitute the following: "Plastic Laminates. Plastic laminates when used, shall be selected to enable the switch to meet performance requirements of this specification. For additional information and guidance on plastic laminates see 6.11."

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Paragraph 3.4.2.2, Delete and substitute the following: "Plastic molding. Plastic molding material shall be selected to enable the switch to meet performance requirements of this specification. Color shall be gray, approximating color chip Number 26307 of FED-STD-595. Molded parts shall be free of flash. For additional information and guidance on plastic molding see 6.12."

Paragraph 3.4.2.3, Delete "in accordance with MIL-STD-454, requirement 4"

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Paragraph 3.4.2.4, Delete "in accordance with MIL-STD-454, requirement 3"

Paragraph 3.4.2.5, Delete.

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Paragraph 3.5.7, Delete and substitute the following: "Moving contact material. Moving contact material shall be selected to enable the switch to meet performance requirements of this specification. For additional information and guidance on moving contact material see 6.13"

Paragraph 3.5.8, Delete the first sentence and substitute the following: "Stationary contact material shall be selected to enable the switch to meet performance requirements of this specification".

Paragraph 3.5.8, add to end of paragraph, "For additional information and guidance on stationary contact material see 6.14."

Paragraph 3.5.9, Contact studs: Delete "be copper in accordance with QQ-C-502." and substitute the following, "allow the switch to meet the performance requirements of this document. For additional information and guidance on contact studs material see 6.15"

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Paragraph 3.6.2, Delete

PAGE 10

Paragraph 4.2, Delete "a. Materials inspections (see 4.3)"

Paragraph 4.3, Delete

PAGE 11

Delete Table II.

Delete Table III.

Paragraph 4.4, Qualification inspection: Delete "Naval Sea Systems Command (NAVSEA)" and substitute "Government (see 6.6)".

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Delete notes at top of page associated with Table III.

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Table III A, Qualification inspection for SR classes, delete and substitute:

TABLE III A. Qualification inspection for SR classes.

Inspection	Requirement	Test method	Sample number ¹						
			1	2	3	4	5	6	7
General Examination	3.5 and 3.7	4.7	1	1	1	1	1	1	1
Operation	3.6.1	4.8.1	2	2	2	2	2	2	2
Momentary position return	3.6.1.1	4.8.1.1		3					
Stop strength	3.6.1.2	4.8.1.2		4					
Transfer time	3.6.1.3	4.8.1.3	3		3	3	3	3	3
Salt spray	3.6.3	4.8.3						4	4
Vibration	3.6.4	4.8.4				4	4		
Shock	3.6.5	4.8.5				5	5		
Dielectric with- standing voltage	3.6.6	4.8.6	4	5		6	6	5	
Overload	3.6.7	4.8.7				7			
Contact resistance	3.6.8	4.8.8	5	6	4		7	6	5
Endurance, ac	3.6.10	4.8.10.1	6	7	5				
Endurance, dc	3.6.10	4.8.10.2	7	8					
Temperature rise	3.6.9	4.8.9			6				
Insulation resistance	3.6.11	4.8.11	8	9	7	8			6
Operation	3.6.1	4.8.1	9	10	8	9	8	7	7
Transfer time	3.6.1.3	4.8.1.3	10	11	9	10	9	8	8
General Examination	3.5	4.7	11	12	10	11	10	6	9

¹For classes 1SR, 3SR, 6SR, or 20SR the test sample shall be of the following types for each class:

Sample:

1. Type SR3B2 - Front mounted, side connected
2. Type SR3B2 - With stop and spring return
3. Type SR3A2 - Front mounted, side connected
4. Type SR3B1 - Front mounted, back connected
5. Type - Longest front mounted switch not requiring rear support listed for each class.
6. Type SR3A3 - Base mounted, side connected
7. Type SR3B3 - Base mounted, side connected

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Delete Table III B, Qualification inspection for SRN classes, and substitute:

TABLE IIIB. Qualification inspection for SRN classes.

Inspection	Requirement	Test method	Sample Number ^{1,2}						
			1	2	3	4	5	6	7
General Examination	3.5 and 3.7	4.7	1	1	1	1	1	1	1
Operation	3.6.1	4.8.1	2	2	2	2	2	2	2
Momentary position return	3.6.1.1	4.8.1.1		3			3		3
Stop strength	3.6.1.2	4.8.1.2		4			4		4
Salt spray	3.6.3	4.8.3					5		
Vibration	3.6.4	4.8.4		5	3				
Shock	3.6.5	4.8.5		6	4				
Dielectric with-standing voltage	3.6.6	4.8.6	3	7	5			3	5
Overload	3.6.7	4.8.7			6				
Contact resistance	3.6.8	4.8.8		8	7			4	6
Endurance, ac	3.6.10	4.8.10.1	5						7
Temperature rise	3.6.9	4.8.9	6						8
Insulation resistance	3.6.11	4.8.11	7	9	8			5	9
Operation	3.6.1	4.8.1	8	10	9	3	6	6	10
General Examination	3.5	4.7	9	11	10	4	7	7	11

¹Samples for qualification of class 1SRN switches shall be of the following types:

- Samples 1,2 and 4 - M15291/4-001
- Samples 3 and 5 - M15291/4-006
- Samples 6 - M15291/4-004
- Samples 7 - M15291/4-002

²When qualifying both class 1SR and 1SRN only, samples 1,2,and 7 for 1SRN are required to be tested in addition to samples in Table IIIA..

* Paragraph 4.4.2, Delete and substitute the following: "Verification of qualification. Every 12 months, the manufacturer shall provide verification of qualification to the qualifying activity. Continuation is based on meeting the following requirements:

- a. Design of switch has not been modified (every 12 months).
- b. Verification of group A lot acceptance (every 12 months) (see 4.5.3).
- c. Periodic group B inspection (every 24 months) (see 4.5.4)."

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Paragraph 4.4.3.1, Samples. Delete "III" in first sentence and replace with "IIIA or IIIB"

Paragraph 4.5.1, Delete ",B, and C" and substitute "and B"

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Paragraph 4.5.4, Delete the first and last sentences.

Paragraph 4.5.5, Delete.

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TABLE VIII, Delete.

Paragraph 4.6, First line delete "C tests" and all instances of "or C".

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Paragraph 4.8.1.3, lines 3 and 4: Delete "make-before-break" and substitute "break-before-make".

Paragraph 4.8.2, Delete

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Paragraph 4.8.9, line 4: Delete "prior to and"

PAGE 23

Paragraph 5.1.a.(2) Packaging requirements: Delete "PPP-F-320" and substitute "ASTM D 4727".

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Paragraph 6.6, Qualification: Delete "Naval Sea Systems Command, SEA 55Z3, Department of the Navy, Washington, DC 20362-5101" and substitute "Defense Supply Center Columbus, ATTN: DSCC-VQP, Post Office Box 3990, Columbus, OH 43216-5000."

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Paragraph 6.10, Delete and Substitute, "Lubricating Compounds. It is recommended that MIL-G-23827 be considered for meeting the lubricating compound requirements of this specification.

Add the following:

6.11 Plastic laminates. It is recommended that MIL-P-15035, type FBE be considered for the plastic laminates material.

6.12 Plastic molding. It is recommended that MIL-M-14, type MAI-60 or MAI-30 be considered for the plastic molding material.

6.13 Moving contact material. It is recommended that phosphor bronze in accordance with QQ-B-750 be considered for the moving contact material.

6.14 Stationary contact material. It is recommended that copper in accordance with QQ-C-576 be considered for the stationary material.

6.15 Contact studs. It is recommended that copper in accordance with QQ-C-502 be considered for the contact studs material.

* 6.16 The margins of this amendment are marked with an asterisk to indicate where changes from the previous amendment were 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 and relationship to the last amendment."

CONCLUDING MATERIAL

Custodians:
Navy - SH
DLA - CC

Preparing activity:
DLA-CC

Project (5930-1277)