

FED SUP CLASS
MISCGENERAL NOTES FOR
STANDARD ELECTRICAL DRAWINGS

(9-S, 9000 and 803, 804, and 815 SERIES)

AS LISTED IN ELECTRICAL DRAWING INDEX, AND ELECTRICAL SYMBOL LIST

NAVSEA N.S.S0300-AU-IDX-010/SATD1 AND NAVSEA 30300-AT-GTP-010/ESL

1. The provisions of MIL-E-16400, Electronic, Interior Communication and Navigation Equipment, Naval Ship and Shore: General Specification For, which do not conflict with the provisions of this standard shall apply.
2. All surface finishes indicated shall be in accordance with ANSI B46.1.
3. Note 3 has been deleted.
4. Note 4 has been deleted.
5. Note 5 has been deleted.
6. In lieu of continuous brazing specified on individual Military Standards, the enclosures shall have each component fastened by intermittent localized brazing operations in such manner as to insure that each enclosure assembly will not be completely soft annealed and will not distort nor leak when subjected to prescribed impact (see note 37).
7. Each enclosure, at the completion of all drawing and fabrication operations, shall be stress relieved by being uniformly heated to a temperature suitable for the material used. Stress relief shall be such as to reduce residual stress from fabrication, to a minimum. However, enclosures which are oven brazed as part of their fabrication process do not require additional heat treating for stress relief.
8. The words "stress relieved" shall be stamped on the outside bottom surface of each complete unit in 1/4-inch high letters with black ink.
9. All welding not specified to be by the resistance process, shall be by the manual inert-gas metal (tungsten) arc process. Welding symbols shall be in accordance with ANSI/AWS A2.4.
10. Zinc plating shall conform to type I, class 2 of QQ-Z-325 or ASTM A164.
11. Sheet steel enclosures:
Sheet steel conforming to ASTM A569 finish number 1 shall be used.
12. Sheet brass enclosures:
Sheet brass conforming to QQ-B-613 or ASTM B36 shall be used.
13. Sheet aluminum enclosures:
Sheet aluminum alloy conforming to QQ-A-250/8(5052) or ANSI/ASTM B209 shall be used. Temper designation is intended to indicate final temper after fabrication.
14. Folded watertight enclosures:
Gasket shall be made in four pieces. Long dimension pieces shall be installed first and shall fit tightly throughout the groove and at the ends. Short dimension pieces shall then be fitted to butt tightly against the free ends of the long pieces. Gasket joints shall be made tight with rubber cement. Gaskets shall not be cemented along the grooves. Before shipment, gasket shall be relieved of pressure.
15. Folded submersible enclosures:
Gasket length shall be such as to completely fill the retainer groove with tension. Special care shall be exercised in cutting the single bevel joint to insure smooth faces. These faces shall be securely joined by means of rubber cement. At assembly with enclosure the bevel joint shall be located on a straight side. The gasket shall not be cemented in the retainer groove. Before shipment, gasket shall be relieved of pressure.

ENTIRE STANDARD REVISED

This military standard 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.

APPROVED 1 July 1958 REVISED 13 June 1979

P A SH Other: Cust	INTERNATIONAL INTEREST	TITLE GENERAL NOTES FOR STANDARD ELECTRICAL DRAWINGS	MILITARY STANDARD MS16662(SH)
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16. For drawn enclosures (molded gaskets):
- (a) Cover sealing gasket shall be furnished and installed. The gasket shall be installed without cement. The cover shall be tightened to provide a water-vaporproof seal during shipment.
 - (b) Rotary shaft gland gaskets shall be treated with silicone compound conforming to MIL-S-8660 in accordance with the individual Military standard.
17. "O" rings shall be in accordance with MIL-P-25732 and shall be a molded type, molded to the inside diameter dimensions of the gasket retainer groove.
18. Enclosure shall be finished in accordance with the requirements of MIL-E-917, and notes 26 and 27 herein.
19. Note 19 has been deleted.
20. Note 20 has been deleted.
21. Unless otherwise specified, holes for stuffing tubes or box connectors shall be cut or drilled by the manufacturer as directed by the contracting activity. These holes shall be smooth and true without any distortion of the enclosure. Stuffing tubes installed by brazing shall not cause warping or distortion of the box.
22. Stuffing tubes or box connectors shall be furnished only when so specified in the individual standard or contract or order.
23. Threads, unless otherwise specified, shall be right hand, class 2 complying with unified and American national screw threads as specified in FED-STD-H28.
24. Drilling, countersinking, and tapping metal parts shall be done before plating or finish is applied.
25. All sharp corners exposed to touch shall be slightly rounded.
26. Brass enclosures shall be thoroughly cleaned including soldering flux and other corrosive agents. Cleaning agent shall be neutralized after cleaning. Cleaning shall be in accordance with MIL-E-917. The interior of the enclosures shall be primed and shall be painted white, using enamel in accordance with TT-E-489.
27. Instructions to installing activities:
The installing activity, after installation of stuffing tubes, or drilling, tapping, and such, shall carefully clean and paint the equipment after installation in the ship, in accordance with MIL-E-917 except that the interior of the enclosure shall be painted white (if not so furnished) using enamel in accordance with TT-E-489.
28. Note 28 has been deleted.
29. Note 29 has been deleted.
30. After installation, the entire fitting shall be painted to match surrounding structure.
31. Note 31 has been deleted.
32. Gland for switch shaft shall be packed with coil form or a preformed plastic (non-metallic) packing in accordance with MIL-P-16685.
33. Counterbored holes in the bottom of insulating bases shall be filled with sealing wax or with rosin conforming to grade D of LLL-R-626, after screws are in place.
34. Note 34 has been deleted.
35. Flash shall be removed and the width of the flash edges made thereby shall be not greater than 1/32 inch. Flash edges shall then be buffed smooth.
36. Local wiring shall be finished and installed.
37. High impact shock test for determining satisfactory assembly shall be in accordance with MIL-S-901. All equipment shall be considered grade A, class I. Shock mounts shall be used only where specified.
38. Tests for effectiveness of enclosure shall be conducted in accordance with MIL-STD-108.
39. Switches shall conform to the requirements of MIL-S-15291.
40. The equipment shall meet, without failure of disruption of service, the vibration test requirements of type I of MIL-STD-167-1.

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P A Order: SH C-11	INTERNATIONAL INTEREST	TITLE GENERAL NOTES FOR STANDARD ELECTRICAL DRAWINGS	MILITARY STANDARD
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41. Castings shall be free from cold shuts, blow holes, or any imperfections that may affect strength in any way. All surfaces of castings shall have all fins and burrs removed. Sand surfaces shall be disturbed as little as possible.
42. Note 42 has been deleted.
43. Note 43 has been deleted.
44. Conformance to applicable standard:
No deviation in details, dimensions, and materials of the design, size and type as shown and specified on the applicable standard will be permitted, unless approved by the Naval Sea Systems Command (NAVSEA).
45. Plates for identification of equipment and for information shall be in accordance with MIL-P-15024 and MIL-P-15024/5. These plates when used with units that will be exposed to the weather, shall be types A, B, C, D, I or H. Material for types A, B, C, D and I shall be nickel-copper alloy or brass. Material for type H shall be anodized aluminum. Types E and G plates shall be housed within the equipment or enclosure. Type B plates when made of plastic material shall have black inner (or record) laminations and grey cover laminations.
46. Labels for identification of equipment, for information or those containing diagrams shall be in accordance with MIL-F-16377.
47. Wiring diagram in a holder shall be installed on the inside of the cover in accordance with the requirements of MIL-E-2036.
48. Note 48 has been deleted.
49. Two labels shall be attached to each fitting after painting, as follows:
One shall be attached to the outside back surface of the fitting and the other shall be attached to an inner surface.
50. Note 50 has been deleted.
51. Plates for identification of equipment, for information, or containing instructions shall be aluminum in accordance with QQ-A-250/8 or ANSI/ASTM B209. Markings shall be applied by a photographic process type H of MIL-P-15024. These plates may be used in lieu of stamped, embossed or engraved plates where an economy will thereby be effected. Plates may be made by the metal photo process or equivalent. Information concerning this process, required by Naval activities, should be obtained from the nearest Naval District Printing and Publication Office.
52. Manufacturer's marking shall be printed on a pressure sensitive label in accordance with MIL-F-16377.
53. Manufacturer's marking shall appear on the exterior of cover or identification plate. This marking shall be either initials or monogram, and shall be depressed or embossed in the metal to provide permanent identification. This identification shall be that of the prime manufacturer responsible for the final acceptance of the equipment. If the manufacturer makes only the enclosure, his identification marking shall be on the interior of the cover.

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P A Dist. SH	INTERNATIONAL INTEREST	TITLE GENERAL NOTES FOR STANDARD ELECTRICAL DRAWINGS	MILITARY STANDARD MS16662(SH)
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MISC54. Inspection and sampling:

- (a) Sampling for visual and dimensional examination shall be in accordance with MIL-STD-105. Sampling for the applicable tests shall be in accordance with MIL-STD-105. For each of the small samples the acceptance number shall be zero, and for the larger samples the acceptance numbers shall be as shown for the specified AQL. Unless otherwise specified, the inspection level and the AQL's shall be as follows:

	<u>Inspection level</u>	<u>AQL</u>
Group A examination and tests: Visual and dimensional examination, and tests which do not require more than 5 minutes.	II	1.5
Group B tests: Tests which require from five minutes to eight hours and are nondestructive on units which meet the test requirement.	S-4	4.0
Group C tests: Tests which are destructive, and tests which require more than eight hours, (destructive and non-destructive).	S-2	4.0
(b) Tests for shock, vibration, surface finish and effectiveness of enclosure need not be performed where the contractor has:		

- (1) Passed this inspection under a previous contract and the equipment being offered is identical to that previously tested and the materials, dimensions and method of manufacture have not been changed.

- (c) If a classification of defects is not available for an item to be inspected, the Quality Assurance Representative should prepare and classify a listing of the defects for the item.

55. Adjustment, fit and general operation (by the manufacturer).

Each fitting shall be subjected to an operational test to ascertain that the adjustment and fit are in accordance with the applicable standard, and that the fitting is in a satisfactory operating condition.

56. Dielectric test (by the manufacturer):

The interior of each fitting shall be subjected for one minute to a dielectric test voltage applied between points of polarity and also between live parts and ground. The frequency of the test voltage shall be 60 cycles r.m.s., a.c. and shall approximate a true sine wave:

- (a) Effective potential shall be twice the rated voltage plus 500 volts.
(b) Effective potential shall be twice the rated voltage plus 1000 volts.

57. Note 57 has been deleted.

58. Cable entrance hole(s) (stuffing tubes) shall be plugged, by the manufacturer of the enclosure or equipment, by a suitable rubber plug and compressed by the gland or cap so as to provide a water-vaporproof seal.

59. The flat side walls of drawn enclosures shall have die score and waviness kept to a minimum in cable entrance areas. The depth of score marks or height or waviness shall not exceed 125 microinches.

60. Nonmagnetic corrosion-resistant steel parts shall indicate, prior to assembly, a permeability level less than 2.0. This check shall be made with a low- μ permeability indicator, conforming to MIL-I-17214. Material not reworked by the prime contractor will be acceptable upon certification by the component manufacturer.

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P A Other: SH	INTERNATIONAL INTEREST	TITLE GENERAL NOTES FOR STANDARD ELECTRICAL DRAWINGS	MILITARY STANDARD
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61. Salt spray test shall be conducted in accordance with method 101 of MIL-STD-202. Test condition A with 5 percent salt solution shall be used.
62. All loose parts required for installation or operation shall be provided in a suitable cloth or plastic bag and packaged with the assembly.
63. Fittings shall be prepared for delivery in accordance with MIL-E-17555.
64. Note 64 has been deleted.
65. Insulation resistance:
Insulation resistance of electrical circuits following the dielectric tests shall be measured with a 500 volt d.c. megometer between electrical conductors and between electrical conductors and ground at approximately room temperature 75°F (25°C) and at relative humidity of approximately 50 percent. Resistance shall be not less than 200 megohms.
66. Fuse clips shall be in accordance with MIL-F-21346 and MIL-F-21346/1.
67. Referenced documents shall be the issue in effect on date of invitation for bids. Recommended corrections, additions or deletions shall be addressed to the contracting activity concerned.
68. This standard takes precedence over documents referenced herein.

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GENERAL NOTES CROSS REFERENCE						FED. SUP CLASS MISC
Drawing 9000-S6202- 74040	To MS16662	MS16662	To Drawing 9000-S6202- 74040	MS16662	To Drawing 9000-S6202- 74040	
1.	3.-Deleted	1.	31.	35.	30.	
2.	4.-Deleted	2.	45.	36.	21.	
3.	5.-Deleted	3.-Deleted	1.	37.	20.	
4.	24.	4.-Deleted	2.	38.	24.	
5.	25.	5.-Deleted	3.	39.	32.	
6.	21.	6.	40.(A)	40.	33.	
7.	23.	7.	40.(B)	41.	25.	
8.	10.	8.	40.(C)	42.-Deleted	26.	
9.(A)	18.	9.	47.	43.-Deleted	27.	
9.(B)	19.-Deleted	10.	8.	44.	35.	
9.(B.1)	26. & 27.	11.	15.(A)	45.	12.	
9.(C)	28.-Deleted	12.	15.(B)	46.	None	
9.(D)	29.-Deleted	13.	15.(C)	47.	17.	
10.	20.-Deleted	14.	11.(A)	48.-Deleted	None	
11.(A)	14.	15.	11.(B)	49.	None	
11.(B)	15.	16.	11.(C)	50.-Deleted	None	
11.(C)	16.	17.	11.(D)	51.	None	
11.(D)	17.	18.	9.(A)	52.	None	
12.	45.	19.-Deleted	9.(B)	53.	16.	
13.	32.	20.-Deleted	10.	54.	36.	
14.	33.	21.	6.	55.	37.	
15.(A)	11.	22.	18.	56.	38.	
15.(B)	12.	23.	7.	57.-Deleted	42.	
15.(C)	13.	24.	4.	58.	43.	
16.	53.	25.	5.	59.	44.	
17.	47.	26.	9.(B.1)	60.	46.	
18.	22.	27.	9.(B.1)	61.	None	
20.	37.	28.-Deleted	9.(C)	62.	41.	
21.	36.	29.-Deleted	9.(D)	63.	39.	
22.	31.-Deleted	30.	28.	64.-Deleted	None	
24.	38.	31.-Deleted	22.	65.	None	
25.	41.	32.	13.	66.	None	
26.	42.-Deleted	33.	14.	67.	None	
27.	43.-Deleted	34.-Deleted	29.	68.	None	
28.	30.					
29.	34.-Deleted					
30.	35.					
31.	1.					
32.	39.					
33.	40.					
35.	44.					
36.	54.					
37.	55.					
38.	56.					
39.	63.					
40.(A)	6.					
40.(B)	7.					
40.(C)	8.					
41.	62.					
42.	57.-Deleted					
43.	58.					
44.	59.					
45.	2.					
46.	60.					
47.	9.					

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