

INCH- POUND
MIL-C-24758(SH)
AMENDMENT 1
23 SEPTEMBER 1994

MILITARY SPECIFICATION

**CONDUIT, FLEXIBLE, WEATHERPROOF, AND ASSOCIATED FITTINGS
GENERAL SPECIFICATION FOR**

This amendment forms a part of MIL-C-24758(SH), dated 5 August 1991, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 2

Specifications, Federal: Delete "QQ-B-626 - Brass, Leaded and Nonleaded: Rod, Shapes, Forging, and Flat Products with Finished Edges (Bar and Strip)."

Specifications, Military: Delete "MIL-C-83488 - Coating, Aluminum, Ion Vapor Deposited "

Specifications, Military: Add "MIL-C-85049 - Connector Accessories, Electrical "

PAGE 3

2.2, American Society for Testing and Materials: Following ASTM B 33, add "ASTM B 36 - Specification for Brass Plate, Sheet, Strip, and Rolled Bar", and "ASTM B 121 - Specification for Leaded Brass Plate, Sheet, Strip, and Rolled Bar."

PAGE 4

3 3 Delete this paragraph.

PAGE 5

3.5 1 3, first sentence, second line: Delete "grade 40" and substitute "grade 60"

3 5 2 1, first sentence, third line: Delete "QQ-B-626" and substitute "ASTM B 36 or ASTM B 121"

3 5 2 2, first sentence, second line: Delete "MIL-C-83488" and substitute "MIL-C-85049A"

AMSC N/A

FSC 5975

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MIL-C-24758(SH)
AMENDMENT 1

PAGE 8

4.3, after the second sentence. Add "Any changes to the product design, materials, or production processes shall automatically require retesting and recertification of product samples."

PAGE 9

4.3.2, first sentence: Delete this sentence and add "First article inspections shall be performed in the order they are specified in table I "

4.3 2, Table I. Delete and substitute:

"TABLE I. First article inspections.

Inspection	Paragraph requirement	Test requirement	Classification of defects 1/
Materials	3.5	4.4.2 2	Critical
Sizes and dimensions	3.6.1	4.4.2.1	Critical
Interchangeability	3.6.3	4.4.2 1	Critical
Electromagnetic shielding	3 7 1	4 4.2 5	Critical
Watertightness	3.7.2	4.4.2 6	Critical
Salt spray (corrosion)	3 7.3	4 4.2 7	Critical
Temperature	3 7.4	4.4 2 8	Critical
Vibration	3 7 5	4 4 2.9	Major
Shock	3 7 6	4 4 2.10	Major
Pull out	3 7 7	4 4 2 11	Major
Marking	3 8	4 6	Minor
Workmanship	3 9	4 5	Major
Repeat tests	3 7 1 3.7 2	4 4 2 12	Critical

4 3.3: Delete this paragraph

MIL-C-24758(SH)
AMENDMENT 1

PAGE 10

4 4, Table II Delete and substitute

"TABLE II Quality conformance inspections.

Inspection	Requirement paragraph	Test paragraph	Classification of defects
Materials	3.5	4 4.2 2	Critical
Visual inspection	3.5.3	4.4.2.3	Major
Sizes and dimensions	3.6.1	4.4.2.1	Critical
Interchangeability	3.6.3	4.4.2.1	Critical
Visual examination	3.9	4.5	Major
Inspection of marking	3.8	4 6	Minor

4.4 1 1, Delete this paragraph and add "As a minimum, the manufacturer shall randomly select a sample quantity of conduits, fittings and adapters in accordance with table III and inspect them in accordance with table II. Sample size depends on the classification of the defect as shown in table II Any sample having one or more defects shall be cause for rejection of the lot represented by the sample. The manufacturer has the option of screening 100% of the lot for the defective characteristic(s) or providing a new lot which shall be inspected in accordance with the requirements contained herein."

PAGE 11

4 4 2, after heading Add "Representative samples of conduit and conduit fittings shall be tested in accordance with paragraphs 4 4 2 4 through 4 4 2 12 The samples must be retested if they differ in material, construction, finish, coating, thickness, or process Small, medium, and large samples shall be tested and non-tested sizes qualified by similarity to the tested samples The sizes of these representative samples are -04 (small), -06 (medium), and -12 (large) The -04 (small) size will be used to qualify sizes -02, -03, and -04 The -06 (medium) size will be used to qualify sizes -05, -06, and -08 The -12 (large) size will be used to qualify -10, -12, -16, -20, and -24 "

4 4 2 1, after the first sentence Add "Compliance of conduit, fittings and adapters with physical requirements will ensure that they are interchangeable "

4 4 2.1, second sentence, fourth line Delete "a defect " and add "a defect and shall constitute cause for rejection."

4 4 2 3, second sentence, fifth line Delete "shall be corrected or"

MIL-C-24758(SH)
AMENDMENT 1

4 4 2 4, first sentence, third line Delete "size" and substitute "representative"

4.4.2 4, Table IV. Delete and substitute.

"TABLE IV. Conduit to fitting torque values.

CONDUIT SIZE CODE	FITTING TORQUE VALUE (INCH POUNDS)
02	140
03	150
04	150
05	175
06	175
08	175
10	190
12	190
16	210
20	210
24	210

PAGE 12

4 4 2 5, first sentence, third line Delete "size" and substitute "representative sample of"

4 4.2 6, first sentence, third line Delete "sample section of each size conduit requested (see 6 2), with a fitting attached," and substitute "each representative sample of conduit and fitting,"

4.4 2 7, first sentence, second line Delete "a lot sample of each" and substitute "each representative sample of"

4 4.2 8, first sentence, second line Delete "a sample of each size conduit requested (see 6 2) with a proper size fitting attached" and substitute "each representative sample of conduit and fitting"

PAGE 13

4 4 2 9, first sentence, second line Delete "a sample" and substitute "each representative sample"

MIL-C-24758(SH)
AMENDMENT 1

4 4 2 10, first sentence, first line. Delete "the sample" and substitute "each representative sample".

4 4.2 11, first sentence, first line. Delete "the sample" and substitute "each representative sample".

4 4 2.12, first sentence, fourth line. Delete "each sample" and substitute "each representative sample"

4 5, first sentence, first line: Delete first sentence and add: "Conduit, fittings, and adapters shall be visually examined to determine that they meet the workmanship criteria stated in 3.9. Fittings and adapters shall show no evidence of cross threading or mutilation. Fittings and adapters shall be firmly secured when they are assembled and there shall be no relative movement between the attached parts. There shall be no evidence of abrasions or discontinuities in the conduit jacket that could cause wear or corrosion of the shield. All parts supplied under this specification shall be inspected and shall be free from all foreign substances, such as grit, dirt, oil, and water."

4 5, after the last sentence. Add "Failure to meet the criteria stated in this paragraph shall constitute cause for rejection."

4 6, heading. Delete "packaging" and add "marking"

4.6, first sentence, first line: Delete this sentence and add: "Each conduit jacket shall be inspected to determine that it is marked as specified in 3 8 1. Each fitting and adapter shall be inspected to determine that it is marked as specified in 3.8 2. Failure of the conduit, fittings and adapters to meet the requirements specified in 3.8 1 and 3 8.2 shall constitute cause for rejection "

PAGE 18

6 1, after the second sentence. Add "Requirements for flexible conduit, fittings, and adapters which provide magnetic shielding below 100 kHz are addressed in S9407-AB-HBK-010. Material compatibility requirements are provided in MIL-STD-1310 and MIL-STD-889. An example of the intended use of flexible conduit is shown in figure 7. This method of cable shielding applies to topside cables routed to connection boxes. The use of a brazed stuffing tube on the connection box facilitates weatherproofing of the fitting by moving the conduit interface away from the connection box. This method also provides improved cable shield grounding as compared to the previous method of conduit termination to connection boxes "

PAGE 19

6 4, third sentence, ninth line. Delete this sentence and add: "Invitations for bids should provide that the Government reserves the right to waive the requirements for first article inspection to those bidders offering a product which had previously passed first article inspection. Bidders offering such products, who wish to rely on such test results, must furnish such evidence with the bid "

MIL-C-24758(SH)
AMENDMENT 1

PAGE 21

30.1.1, sixth sentence, eighth line: Delete "used in 30 1 3 or any rigid, easily solderable transmission line", and add "on figure 2".

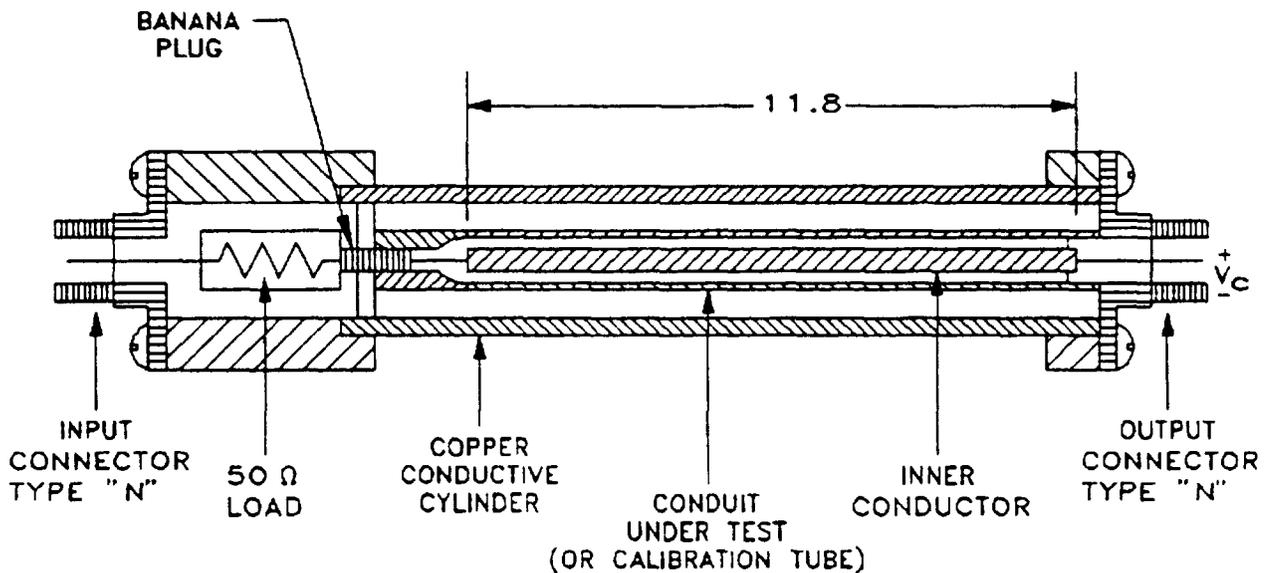
30 1.2, second sentence, third line: Delete "thin-wall"

30.1 2, second sentence, third line. Delete "a small", and add "an".

30.1.2, second sentence, fourth line: Delete "in", and add "on"

PAGE 22

FIGURE 1: Delete and substitute



NOTES

- 1 Dimensions are in inches
- 2 This is a level 1 drawing IAW DOD-D-1000B

FIGURE 1. Conduit transfer impedance test fixture "

30 1 3, heading, first line Delete "and" and substitute "end"

30 1 3, first sentence, second line Delete "and" and substitute "end"

30 1 3, second sentence, second line Delete "thin-wall"

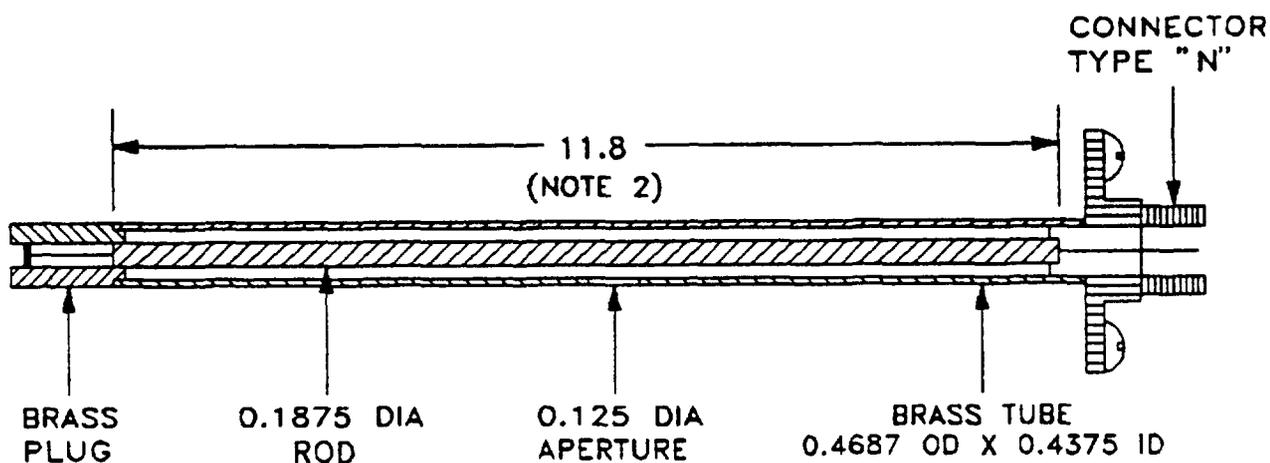
30 1 3, second sentence, third line Delete "per dimensions in" and substitute "with wall thickness dimensions shown on"

MIL-C-24758(SH)
AMENDMENT 1

30 1.3, fifth sentence, ninth line after "external source of radiation", add "and act as the outer conductor of a transmission line with the brass tube/flexible conduit/conduit end fitting as inner conductor."

PAGE 23

FIGURE 2· Delete and substitute



NOTES:

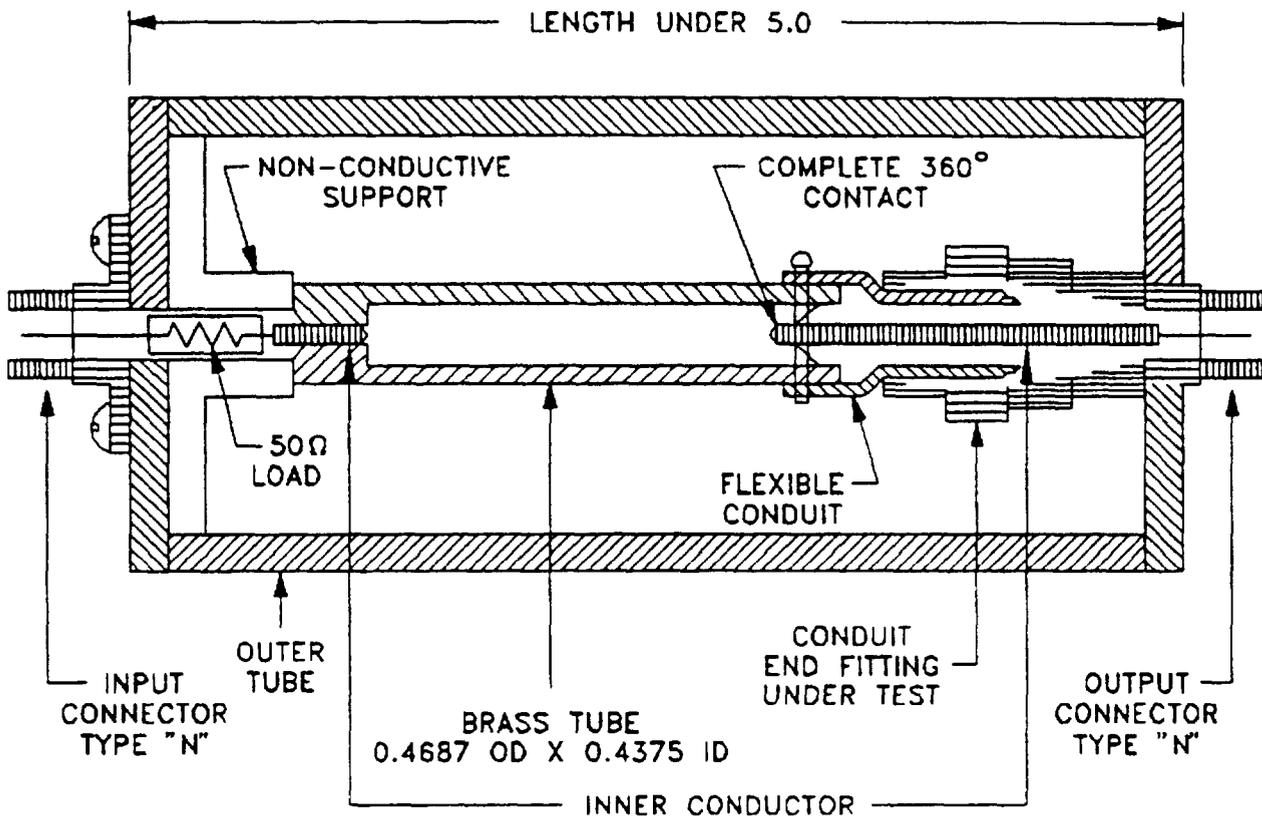
1. Dimensions are in inches.
2. For conduit and fitting assembly this dimension shall correspond to the length of the inner conductor that is illustrated in figure 4
- 3 This is a level 1 drawing IAW DOD-D-1000B

FIGURE 2 Standard shield for calibration of test fixture."

MIL-C-24758(SH)
AMENDMENT 1

PAGE 25

FIGURE 4: Delete and substitute



NOTES.

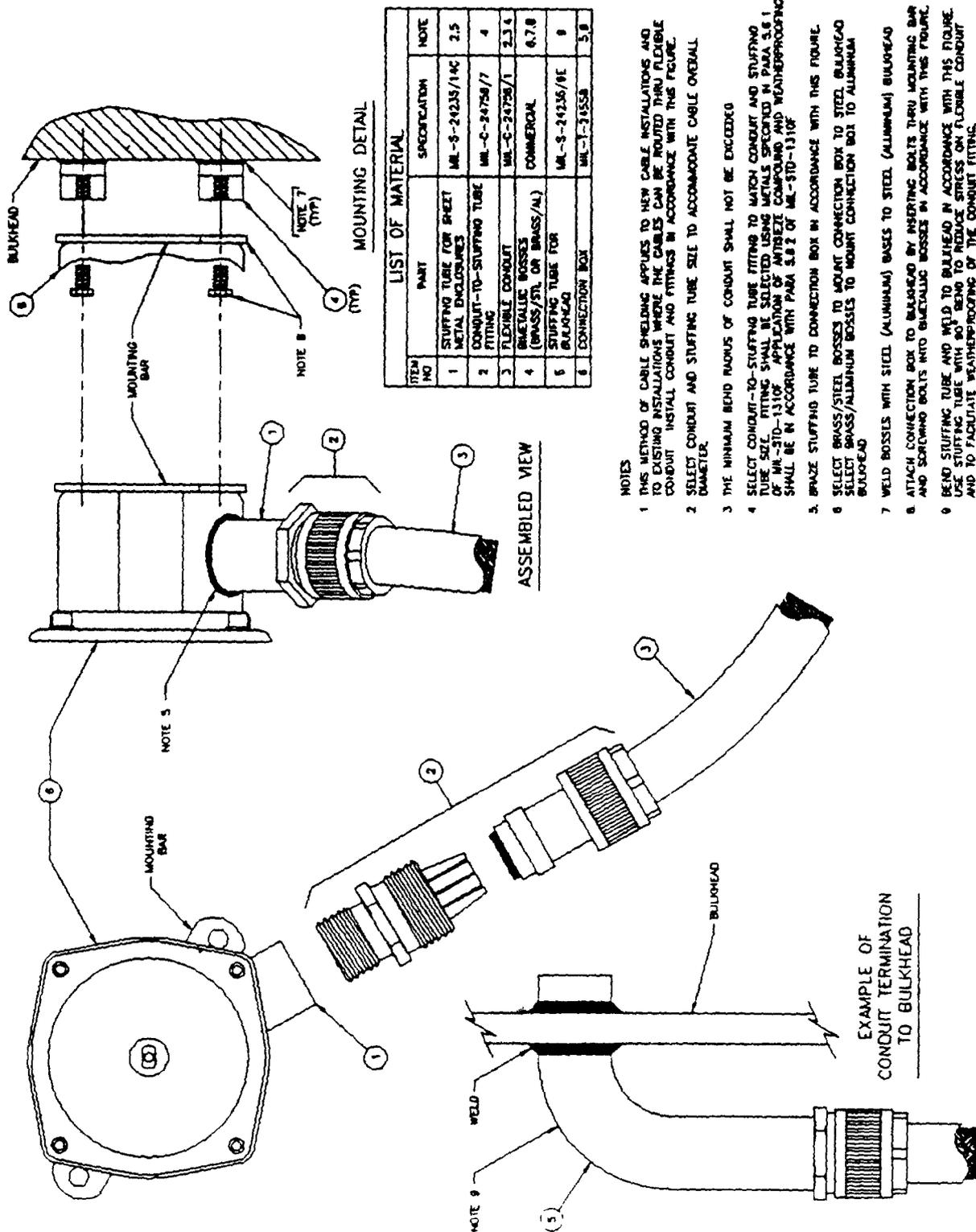
- 1 Dimensions are in inches
- 2 This is a level 1 drawing IAW DOD-D-1000B

FIGURE 4 Test fixture for conduit end fitting assembly "

PAGE 31

Add Figure 7 (see page 9 of this amendment)

MIL-C-24758(SH)
AMENDMENT 1



ITEM NO	PART	SPECIFICATION	NOTE
1	STUFFING TUBE FOR SHEET METAL ENCLOSURES	MIL-S-24235/14C	2.5
2	CONDUIT-TO-STUFFING TUBE FITTING	MIL-C-24758/7	4
3	FLEXIBLE CONDUIT	MIL-C-24726/1	2.3.4
4	BRASS/STEEL OR BRASS/AL.	COMMERCIAL	6.7.8
5	STUFFING TUBE FOR BULKHEAD	MIL-S-24235/9E	9
6	CONNECTION BOX	MIL-T-3155A	5.8

- NOTES**
- THIS METHOD OF CABLE SHIELDING APPLIES TO NEW CABLE INSTALLATIONS AND TO EXISTING INSTALLATIONS WHERE THE CABLES CAN BE ROUTED THRU FLEXIBLE CONDUIT. INSTALL CONDUIT AND FITTINGS IN ACCORDANCE WITH THIS FIGURE.
 - SELECT CONDUIT AND STUFFING TUBE SIZE TO ACCOMMODATE CABLE OVERALL DIAMETER.
 - THE MINIMUM BEND RADIUS OF CONDUIT SHALL NOT BE EXCEEDED.
 - SELECT CONDUIT-TO-STUFFING TUBE FITTING TO MATCH CONDUIT AND STUFFING TUBE SIZE. FITTING SHALL BE SELECTED USING METALS SPECIFIED IN PARA 5.8.1 OF MIL-STD-1310F. APPLICATION OF ANTISETTE COMPOUND AND WEATHERPROOFING SHALL BE IN ACCORDANCE WITH PARA 5.8.2 OF MIL-STD-1310F.
 - BRASS STUFFING TUBE TO CONNECTION BOX IN ACCORDANCE WITH THIS FIGURE.
 - BRASS/STEEL/ALUMINUM BROSSES TO MOUNT CONNECTION BOX TO STEEL BULKHEAD. SELECT BRASS/ALUMINUM BROSSES TO MOUNT CONNECTION BOX TO ALUMINUM BULKHEAD.
 - WELD BROSSES WITH STEEL (ALUMINUM) BASES TO STEEL (ALUMINUM) BULKHEAD.
 - ATTACH CONNECTION BOX TO BULKHEAD BY INSERTING BOLTS THRU MOUNTING BAR AND SCREWING BOLTS INTO METALLIC BROSSES IN ACCORDANCE WITH THIS FIGURE.
 - BEND STUFFING TUBE AND WELD TO BULKHEAD IN ACCORDANCE WITH THIS FIGURE. USE STUFFING TUBE WITH 90° BEND TO REDUCE STRESS ON FLEXIBLE CONDUIT AND TO FACILITATE WEATHERPROOFING OF THE CONDUIT FITTING.

FIGURE 7. Example of topside shielding using flexible conduit."

MIL-C-24758(SH)
AMENDMENT 1

Preparing activity
Navy - SH
(Project 5975-N085)