SAE Aerospace
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AEROSPACE STANDARD

AS85049	REV. B

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Superseding AS85049A

(R) Connector Accessories, Electrical General Specification For

FSC 5935

RATIONALE

Revised to include comments received by the government and industry. Removed government jargon and updated specification references.

WARNING

This document includes cadmium as a plating material. The use of cadmium has been restricted and/or banned for use in many countries due to environmental and health concerns. The user should consult with local officials on applicable health and environmental regulations regarding its use.

1. SCOPE

1.1 Scope

This specification covers connector accessories for use with electrical connectors under environmental or non-environmental conditions. Applicable connector accessories defined in this specification are delineated for the suppression of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI).

1.1.1 Connector Accessory Categories

Connector accessories covered in this specification shall include but are not limited to the following categories:

Category	Item	Description
1A Heavy Duty	Connector Accessory, Cable Sealing, Environmental	Provides waterproofing and environmental sealing under specific hydrostatic pressure. Straight, 90°, or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable pullout, and external bending moment.
1B Medium Duty	Connector Accessory, Cable Sealing, Environmental	Same as Category 1A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 1A.

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Category	Item	Description
1C Light Duty	Connector Accessory, Cable Sealing, Environmental	Same as for Category 1A. Withstands less severe shock, vibration, and external bending moment than Category 1B. No cable pullout capability.
2A Heavy Duty	Connector Accessory, Environmental	Does not provide waterproofing and environmental sealing under hydrostatic pressure. Straight, 90°, or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable pullout, and external bending moment.
2B Medium Duty	Connector Accessory, Environmental	Same as Category 2A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 2A.
2C Light Duty	Connector Accessory, Environmental	Same as Category 2A. Withstands less severe shock, vibration, and external bending moment than Category 2B. No cable pullout capability.
3A Heavy Duty	Connector Accessory, Nonenvironmental	May provide termination features for individual or overall, wire or cable, shielding. May extend working area for wire or cable termination. Straight, 90° or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable pullout, and external bending moment.
3B Medium Duty	Connector Accessory, Nonenvironmental	Same as Category 3A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 3A.
3C Light Duty	Connector Accessory, Nonenvironmental	Same as Category 3A. Withstands less severe shock, vibration, and external bending moment than Category 2B. No cable pullout capability.

Category	Item	Description
4A Heavy Duty	Connector Accessory, Strain Relief, Nonenvironmental	Provides mechanical strain and side loading relief to wire bundles and cable support to jacketed cables. Straight, 90°, or 45° configurations. May be attached to wire bundle or cable by means of metal clamp, plastic straps, lacing cord, or twine. Withstands same shock, vibration, cable pullout, and external bending moment as medium duty connector accessories of Categories 1, 2, and 3.
4B Medium Duty	Connector Accessory, Strain Relief, Nonenvironmental	Same as Category 4A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 4A.
4C Light Duty	Connector Accessory, Strain Relief, Nonenvironmental	Same as Category 4A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 4B.
5	Connector Accessory, Adapter, Shrink Boot and Ring, Potting Boot	Provides means of attaching heat shrinkable boot to connector.
7	Connector Accessory, Miscellaneous Devices	Examination of product. This category defines connector accessories which require relatively few test procedures for qualification. Additional requirements and test procedures shall be defined in the individual specification sheets.
8A	Connector Accessory, Adapter, Conduit, Cable Sealing	Provides waterproofing and environmental sealing under hydrostatic pressure. Straight and angled configurations.
8B	Connector Accessory, Adapter, Conduit, Nonenvironmental	Provides termination area for connector conduit. Straight or angled configurations.
9	Connector Accessory, Miscellaneous Components	Examination of product. This category defines connector accessory components which do not require qualification. The manufacturer is required to maintain examination of product records as evidence of compliance on the first lot of each size produced. These records shall be made available to the user upon request.

1.2 Classification

Connector accessories shall be of the size, style, finish, and class as specified on the applicable military specification sheet (see 3.1).

2. APPLICABLE DOCUMENTS

2.1 Government Documents

2.1.1 Specifications and Standards

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.2 Specifications

MILITARY

MIL-DTL-5015	Connectors, Electrical, Circular Threaded, AN Type
MIL-S-7742	Screw Threads, Standard, Optimum Selected Series
MIL-DTL-22992	Connectors, Plugs and Receptacles, Electrical, Waterproof, Quick Disconnect, Heavy Duty Type, General Specification for
MIL-DTL-24308	Connectors, Electric, Rectangular, Miniature Polarized Shell, Rack and Panel
MIL-DTL-24643/18	Cable, Electrical, 1000 Volts, Type LSMSCU (Including Variations LSMSCA and LSMSCS)
MIL-DTL-26482	Connectors, Electrical (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacles and Plugs
MIL-DTL-27599	Connector, Electrical, Miniature, Quick Disconnect (for Weapons Systems), Established Reliability
MIL-DTL-28804	Connector, Electric, Rectangular, High Density, Polarized Center Jackscrew, General Specification for
MIL-DTL-38999	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts
MIL-DTL-55330	Connectors, Electrical and Fiber Optic, Packaging of
MIL-DTL-83723	Connectors, Electrical, Circular (Environment Resisting), Receptacles and Plugs
MIL-DTL-83733	Connectors, Electrical, Miniature, Rectangular Type, Rack to Panel, Environment Resisting, 200°C Total Continuous Operating Temperature, General Specification for

STANDARDS

FEDERAL

FED-STD-H28	Federal Standards, Screw-Thread Standards for Federal Services
DFARS 252.225-7014	Preference for Domestic Specialty Metals

MILITARY

NASM 20995	Wire, Safety or Lock
ANSI/ASQC Z1.4	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-167-1	Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited)
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-889	Dissimilar Metals
MIL-STD-1285	Marking of Electrical and Electronic Parts
ANSI/NCSL Z540-1	Calibration System Requirements

Application for copies should be addressed to the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, http://assist.daps.dla.mil/quicksearch/.

List of superseded documents is delineated in Table 5 of AS85049B.

2.2 Other Publications

SAE

AMS-QQ-P-35	Passivation Treatments for Corrosion Resistant Steel
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
AMS-QQ-S-763	Steel Bars, Wires, Shapes, and Forgings, Corrosion-Resisting
AMS-QQ-A-225	Aluminum Alloy, Bar, Rod, Wire, or Special Shapes; Rolled Drawn or Cold Finish; General Specification for
AMS-A-8625	Anodic Coatings for Aluminum and Aluminum Alloys
AMS-C-26074	Coatings, Electroless Nickel, Requirements for
AMS-R-25988	Rubber, Fluorosilicone Elastomer, Oil and Fuel Resistant, Sheets, Strips, Molded Parts, and Extruded Shapes
AMS-T-81914	Tubing, Plastic, Flexible, Convoluted, Conduit, General Specification for
AMS 5640	Steel, Corrosion Resistant, Bars, Wire, and Forgings 18CR – 9.0NI Free-Machining
AIR4789	Aerospace Information Report on Evaluating Corrosion Testing of Electrical Connectors and Accessories for the Purpose of Qualification
AIR5919	Alternatives to Cadmium Plating
AS8879	Screw Threads-UNJ Profile, Inch Controlled, Radius Root with Increased Minor Diameter
AS9100	Quality Management System - Aerospace Requirements
AS9104	Requirements for Aerospace Quality Management System Certification/Registrations Programs

AS81703	Connectors, Electric, Circular, Miniature, Rack and Panel or Push-Pull Coupling, Environment Resisting
AS85049/1	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Grounding (Without Strain Relief), Category 1C (For MIL-DTL-5015 Solder Type, V Thread of MS310X, Classes A, B, C or K Connectors)
AS85049/2	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Category 1C (For MIL-DTL-5015 Solder Type, V Thread of MS310X, Classes A, B, C or K Connectors)
AS85049/3	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Category 1A (For MIL-DTL-22992 Connectors, Classes C, J, and R)
AS85049/4	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Step-Up, Category 1A (For MIL-DTL-22992 Connectors, Classes C, J, and R)
AS85049/5	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Step-Down, Category 1A (For MIL-DTL-22992 Connectors, Classes C, J, and R)
AS85049/6	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 45°, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/7	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 45°, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/8	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 90°, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/9	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 90°, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/10	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/11	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Category 1A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/14	Connector Accessories, Electrical, Backshell, Straight, Non-Self-Locking and Self-Locking, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/15	Connector Accessories, Electrical, Strain Relief, 45°, Non-Self-Locking and Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/16	Connector Accessories, Electrical, Strain Relief, 90°, Non-Self-Locking and Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/17	Connector Accessories, Electrical, Backshell, Environmental, Straight, Shield Termination, Category 2B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/18	Connector Accessories, Electrical, Backshell, Environmental, Straight, RFI/EMI, Category 2B (For MIL-DTL-38999 Series III and IV Connectors)

AS85049/19	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, RFI/EMI, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/20	Connector Accessories, Electrical, Backshell, Straight, RFI, EMI, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/21	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/23	Connector Accessories, Electrical, Backshell, Nonenvironmental, 45°, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/24	Connector Accessories, Electrical, Backshell, Nonenvironmental, 90°, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/25	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/26	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/27	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Self-Locking and Non-Self-Locking, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/28	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3B (For MIL-DTL-83733 Connectors)
AS85049/29	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/30	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Individual Shielded Wire Termination, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/31	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Self-Locking and Non-Self-Locking, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/32	Connector Accessories, Electrical, Backshell, Nonenvironmental, 90°, Shield Termination, Category 7 (For MIL-DTL-38999 Series I and II Connectors)
AS85049/33	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 7 (For MIL-DTL-38999 Series I and II Connectors)
AS85049/34	Connector Accessories, Electrical, Backshell, Nonenvironmental, Threaded Adapter, Category 7 (For MIL-DTL-26482 Series I Jam Nut Receptacle Connector) (Inactive for New Design Equipment or Modification of Existing Equipment)
AS85049/36	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, EMI/RFI Shield Termination, Category 3B (For MIL-DTL-27599 Series 1 and MIL-DTL-38999 Series I and II Connectors)
AS85049/37	Connector Accessories, Electrical, Backshell, Nonenvironmental, Split 90°, EMI/RFI Shield Termination, Category 3B (For MIL-DTL-38999 Series I and II Connectors)

AS85049/38	Connector Accessories, Electrical, Strain Relief, Straight, Self-Locking and Non-Self-Locking Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/39	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking and Non-Self-Locking Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/41	Connector Accessories, Electrical, Nonenvironmental, Strain Relief, Straight, Category 4C (For MIL-DTL-5015 Solder Type, V Thread of MS310X, Classes A, B, C or K Connectors)
AS85049/42	Connector Accessories, Electrical, Nonenvironmental, Strain Relief, Straight, Category 4A (For MIL-DTL-5015 Solder Type, V Thread of MS310X, Classes A, B, C or K Connectors)
AS85049/43	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, Self-Locking and Non-Self-Locking, 45°, Category 4B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/44	Connector Accessories, Electrical, Strain Relief, Straight, Category 4C (For MIL-DTL-83733 Connectors)
AS85049/45	Connector Accessories, Electrical, Strain Relief, Straight, Nonmetallic, Category 4C (For MIL-DTL-27599 Series I and MIL-DTL-38999 Series I and II Connectors)
AS85049/46	Connector Accessories, Electrical, Strain Relief, 90°, Nonmetallic, Category 4C (For MIL-DTL-27599 Series I and MIL-DTL-38999 Series I and II Connectors)
AS85049/47	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/48	Connector Accessories, Electrical, Strain Relief, Straight, Category 7 (For MIL-DTL-24308 Connectors)
AS85049/49	Connector Accessories, Electrical, Strain Relief, Straight, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/50	Connector Accessories, Electrical, Strain Relief, 90°, Category 7 (For MIL-DTL-24308 Connectors)
AS85049/51	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 90°, Self-Locking and Non-Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/52	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, Straight, Self-Locking and Non-Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/53	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, Straight, Category 4C (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/54	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 45°, Category 4C (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/55	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 90°, Self-Locking and Non-Self-Locking, Category 4C (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)

AS85049/56	Connector Accessories, Electrical, Strain Relief, Straight, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/57	Connector Accessories, Electrical, Strain Relief, 45°, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/58	Connector Accessories, Electrical, Ring, Potting Boot, Category 5 (For MIL-DTL-38999 Series I and II Connectors)
AS85049/59	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-22992 Connectors, Classes C, J, and R)
AS85049/60	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/61	Connector Accessories, Electrical, Ring, Potting Boot, Category 5 (For MIL-DTL-27599 Connectors)
AS85049/62	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-38999 Series I and II Connectors)
AS85049/63	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/64	Connector Accessories, Electrical, Strain Relief, Split, Straight, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/65	Connector Accessories, Electrical, Strain Relief, Split 90°, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/69	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/74	Connector Accessories, Electrical, Potting Boot, Category 7 (For Use With AS85049/61 Potting Boot Ring)
AS85049/75	Connector Accessories, Electrical, Potting Boot, Category 7 (For Use With AS85049/58 Potting Boot Ring)
AS85049/76	Connector Accessories, Electrical, Backshell, Environmental, 90°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series I and II Connectors)
AS85049/77	Connector Accessories, Electrical, Backshell, Environmental, 45°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series I and II Connectors)
AS85049/78	Connector Accessories, Electrical, Backshell, Environmental, 45°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series III and IV Connectors)
AS85049/79	Connector Accessories, Electrical, Backshell, Environmental, 90°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series III and IV Connectors)
AS85049/80	Connector Accessories, Electrical, Dummy Contact, Sizes 12 and 8, Category 7 (For MIL-DTL-38999 Connectors)
AS85049/81	Connector Accessories, Electrical, Seal Plug, Size 10, Category 7 (For MIL-DTL-38999 Connectors)

AS85049/82	Connector Accessories, Electrical, Backshell, Straight, Self-Locking, Non Self-Locking, Shield Band Termination (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/83	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/84	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/85	Connector Accessories, Electrical, Backshell, Straight, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Boot Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/86	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/87	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/88	Connector Accessories, Electrical Backshell, Straight, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Boot Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/89	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/90	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Non Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/91	Connector Accessories, Composite, Electrical, Strain Relief, Straight, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/92	Connector Accessories, Composite, Electrical, Strain Relief, 90°, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/93	Connector Accessories, Electrical, Termination, Shield, Split Support Ring, Composite, Nonenvironmental, Straight, Category 7
AS85049/94	Connector Accessories, Electrical, Mounting Device, Flange Type, Full Perimeter,, Category 7 (Medium/Light Duty)
AS85049/95	Connector Accessories, Electrical, Mounting Device, Flange Type, 3/4 Mounting Perimeter, Category 7 (Medium/Light Duty)
AS85049/96	Connector Accessories, Electrical, Mounting Device, Flange Type, 1/4 Mounting Perimeter, Category 7 (Medium/Light Duty)
AS85049/103	Connector Accessories, Composite, RFI/EMI, Electrical, Strain Relief, Straight, Self-Locking, Category 3C (For MIL-DTL-38999 Series III and IV Connectors)

AS85049/104	Connector Accessories, Composite, RFI/EMI, Electrical, Strain Relief, 45°, Self-Locking, Category 3C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/105	Connector Accessories, Composite, RFI/EMI, Electrical, Strain Relief, 90°, Self-Locking, Category 3C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/109	Connector Accessories, Electrical Backshell, Straight, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/111	Connector Accessories, Electrical Backshell, 90°, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/112	Connector Accessories, Electrical Backshell, Straight, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/114	Connector Accessories, Electrical Backshell, 90°, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/115	Connector Accessories, Electrical Backshell, Straight, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/117	Connector Accessories, Electrical Backshell, 90°, Non Self-Locking, Self-Locking, Pre-Attached Shield Termination (RFI/EMI), Boot Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/118	Connector Accessories, Electrical Backshell, Strain Relief, Straight, Self-Locking, Non Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/120	Connector Accessories, Electrical Backshell, Strain Relief, 90°, Self-Locking, Non Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/121	Connector Accessories, Electrical Backshell, Strain Relief, Straight, Self-Locking, Non Self-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/123	Connector Accessories, Electrical Backshell, Strain Relief, 90°, Self-Locking, Non Self-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/124	Connector Accessories, Electrical Backshell, Strain Relief, Straight, Self-Locking, Non Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/126	Connector Accessories, Electrical Backshell, Strain Relief, 90°, Self-Locking, Non Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/127	Connector Accessories, Electrical, Bushing Strip, Category 7 (For Use With SAE AS85049/118, /120, /121, /123, /124, and /126 Accessories)
AS85049/128	Connector Accessories, Electrical, Backshell, Shield Band, Category 7 (For Use With SAE AS85049/82 - /90, /109 - /117 Accessories)

AS85049/130 Connector Accessories, Electrical, Gasketing Material, Conductive, Non Conductive, Flange Mount, Category 7

AS85049/131 Connector Accessories, Fiber Optic Backshell, Straight, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and SAE AS5590/1 Connectors)

AS85049/132 Connector Accessories, Fiber Optic Backshell, 45°, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and SAE AS5590/1 Connectors)

AS85049/133 Connector Accessories, Fiber Optic Backshell, 90°, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and SAE AS5590/1 Connectors)

AS85049/134 Connector Accessories, Fiber Optic Backshell, Filler Plug, Category 7

AS85049/135 Connector Accessories, Fiber Optic Backshell, Split, Straight, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and AS5590/1 Connectors)

AS85049/136 Connector Accessories, Fiber Optic Backshell, Split, 45°, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and AS5590/1 Connectors)

AS85049/137 Connector Accessories, Fiber Optic Backshell, Split, 90°, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and AS5590/1 Connectors)

AS85049/138 Connector Accessories, Electrical, Cap, Dust, Plastic, Category 9

Application for copies should be addressed to SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

ASTM

ASTM A 582/A 582M Bars, Free-machining, Stainless Steel

ASTM A 743/A 743M Casting, Corrosion Resistant, General Application

ASTM A 967 Chemical Passivation

ASTM G 21 Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

ASTM B 26/B 26M Aluminum Alloy Sand Castings

ASTM B 85 Aluminum Alloy Die Castings

ASTM B 209 Aluminum and Aluminum Alloy Plate and Sheet

ASTM B 211/B 221 Aluminum and Aluminum Alloy Bar, Rod, Wire, or Shapes; Rolled, Drawn, Extruded or Cold Finished

ASTM D 4066 Nylon, Injection and Extrusion Materials (PA)

ASTM D 570 Water Absorption of Plastics

ASTM E 595 Standard Test Method for Total Mass & Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment

Application for copies should be addressed to ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

SD-6 Provisions Governing Qualification

Application for copies should be addressed to the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, http://assist.daps.dla.mil/quicksearch/.

EIA

EIA 364 Electrical Connector/Socket Test Procedures Including Environmental Classifications

EIA 364-10 Fluid Immersion Test Procedure for Electrical Connectors

EIA 364-14 Ozone Exposure Test Procedure for Electrical Connectors

EIA 364-26 Salt Spray Test Procedure for Electrical Connectors, Contacts, and Sockets

EIA 364-27 Mechanical Shock (Special Pulse) Test procedure for Electrical Connectors

EIA 364-28 Vibration Test Procedure for Electrical Connectors and Sockets

EIA 364-31 Humidity Test Procedure for Electrical Connectors and Sockets

EIA 364-32 Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors and Sockets

EIA 364-38 Cable Pull-out Test Procedure for Electrical Connectors

EIA 364-54 Magnetic Permeability Test Procedure for Electrical Connectors, Contacts, and Sockets

EIA 364-83 Shell-to-Shell and Shell-to-Bulkhead Resistance Test Procedure for Electrical Connectors

Application for copies should be addressed to EIA, 2500 Wilson Boulevard, Arlington, VA 22201-3834, Tel: 703-907-7500, www.eia.org.

3. REQUIREMENTS

3.1 Specification Sheets

The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 Qualification

The connector accessories furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable Qualified Products List at the time set for opening of bids (see 4.3 and 6.6).

3.2.1 Plant Site

Each site or manufacturer's plant site or manufacturer authorized assembly plant's site from which a qualified product is processed, manufactured, finalized, and/or shipped shall be listed on the qualified product list (see 3.2).

3.2.2 Provisions Governing Qualification

The provisions governing qualification are specified in SD-6.

3.2.3 Reliability

The supplier's quality management system program for assembled connector accessories and assembly procedures must be comparable to AS9100 subject to the approval of the qualifying activity. Certification and registration of conformance to the AS9100 standard shall be in accordance with AS9104.

3.3 Materials

Materials shall be in accordance with DFARS 252.225-7014 and U.S. domestic origin suitable for the purpose intended and as specified (see 3.1), however, when a definite material is not specified, a material shall be used which will enable the connector accessory to meet the performance requirements of this specification provided it is in accordance with the stated DFARS and U.S. domestic origin material clause. Acceptance or approval of any constituent material shall not be construed as a guarantee for acceptance of the finished product.

3.3.1 Corrosion Resisting Steel

Where applicable, corrosion resisting steel shall be 300 series, in accordance with AMS-QQ-S-763/ASTM A 582/AMS 5640, Type 1 or 2/ASTM A 743 (CF8).

3.3.2 Composite

Corrosion resistant, high performance resins with or without filler materials. The resins must be defined by specifications listed or published by professional materials associations. Exceptions may be granted by the preparing activity.

3.3.3 Aluminum

Aluminum alloy shall be in accordance with ASTM B 211, B 221, B 209, B 85,B 26/B 26M, AMS-QQ-A-225/6, /7, or /8.

3.3.4 Elastomers

Unless otherwise specified (see 3.1), elastomers shall be silicone or fluorosilicone. Connector accessories which utilize elastomers shall meet the fluid immersion requirements (see 3.5.12).

3.3.5 Nylon

Nylon shall be in accordance with ASTM D 4066, shall be fungus inert in accordance with ASTM G 21 (see 4.6.14), shall be self-extinguishing in accordance with MIL-STD-202, method 111, and shall be non-toxic.

3.3.6 Dissimilar Metals

When dissimilar metals are employed in intimate contact with each other, suitable protection against electrolytic corrosion shall be provided as specified in MIL-STD-889.

3.3.7 Finish

Finish for aluminum connector accessories shall be as follows. For application information see AIR5919.

A - Black anodize - In accordance with Class 2 of AMS-A-8625, Type II. -65 to +175 °C

G - Electroless nickel, space grade (limited to space applications only). -65 to +200 °C (Not for Navy use)

N - Electroless nickel - In accordance with AMS-C-26074. -65 to +200 °C (Not for Navy use)

P - Cadmium (olive drab) over electroless nickel, selective plating. -65 to +175 °C (P finish is not for use in space application)

W - Cadmium - Olive drab over suitable underplate, 1000 hour salt spray -65 to +175 °C (W finish is not for use in space application)

Finish for corrosion resisting steel accessories shall be as follows:

B - Black cadmium - In accordance with AMS-QQ-P-416, Type II, Class 3. -65 to +175 °C (B finish is not for use in space application)

S - Passivate - In accordance with AMS-QQ-P-35 or ASTM A 967. -65 to + 200 °C

Finish for composite accessories shall be as follows. End fittings and connector interface couplings may be unplated.

J - Olive drab cadmium plate in accordance with AMS-QQ-P-416 over a suitable underplate to withstand 2000 hour salt spray (see 3.5.3). Final finish shall be electrically conductive. -65 to + 175 °C

L - Cadmium (olive drab) over electroless nickel, selective plating -65 to +175 °C

M - Electrically conductive electroless nickel plating. Finish shall withstand 2000 hour salt spray (see 3.5.3). Use of a suitable underplate is permissible. -65 to +200 °C

T - Composite material without plating. -65 + 175 °C

3.4 Design and Construction

Connector accessories shall be designed and constructed to withstand normal handling incident to installation and maintenance in service.

3.4.1 Configuration

The configuration and dimensions of connector accessories shall be as specified (see 3.1).

3.4.2 Screw Threads

English unit screw threads intended to mate with connectors, unless otherwise specified, shall be unified 2A or 2B, conforming to AS8879 metric unit screw threads intended to mate with connectors shall be in accordance with FED-STD-H28. Screw threads shall be checked after plating by means of ring and plug gages only, in accordance with FED-STD-H28. Out of roundness is not objectionable if the threads can be checked without forcing the thread gage.

3.4.3 Safety Wiring

When specified, threaded coupling connector interfaces shall be designed for safety wiring. A minimum of two holes shall be provided for shell size 14 or smaller, and at least three equally spaced holes for sizes 16 and larger. Holes shall be of a diameter sufficient to accommodate 0.020 inch wire. For non-self-locking accessories safety wire holes shall not be optional. Self-locking accessories shall not have safety wire holes on the coupling nut.

3.4.4 Interchangeability

All connector accessories having the same M85049 part number shall be completely interchangeable with each other with respect to installation and performance as specified herein.

3.4.5 Intermateability

Unless otherwise specified (see 3.1), the intermateability control dimensions for the threaded mating end of the connector accessories shall conform to the interface dimensions specified in Figures 2 to 4 and Tables 8 to 10.

3.4.6 Spin Coupling

Unless otherwise specified (see 3.1), for all circular connector accessory applications the coupling nut shall have spin coupling. The coupling nut shall be captivated to, and free to rotate on, the follower of the circular connector accessory. Unless otherwise specified (see 3.1), the spin coupling nut will be either non-self-locking or self-locking. The self-locking coupling devices may or may not exhibit some mechanical resistance while captivated to the follower.

3.4.6.1 Self-locking Devices

The self-locking devices within the coupling nut shall be a corrosion-resistant material and shall provide either a positive detent or be an internal captivated anti-decoupling device that maintains applied torque. Coupling nuts with self-locking devices shall meet all of the performance requirements specified herein for the accessories specified category. Lockwire, set screws, and/or locking compounds shall not be used as an anti-decoupling device.

3.4.7 Dummy Connector Test Fixture

When specified for applicable tests in this specification, a dummy connector test fixture which duplicates the connector interfacing features may be used in place of the applicable connector. The dummy connector test fixture material shall be aluminum alloy in accordance with 3.3.3 for aluminum and composite connector accessory testing and corrosion resistant steel in accordance with 3.3.1 for corrosion resistant steel connector accessory testing. The dummy connector test fixture shall have the same plating as the connector accessory being tested. The dummy connector test fixture configuration and dimensions for MIL-DTL-38999 Series I and II connectors are defined in Figure 5 and Table 11. The dummy connector test fixture configuration and dimensions for MIL-DTL-38999 Series III and IV connectors are defined in Figure 6 and Table 12. The dummy connector test fixture configuration and dimensions for MIL-DTL-5015 crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III are defined in Figure 7 and Table 13. The overall length of the dummy connector test fixture shall not exceed the length shown in the figures as specified for each connector family.

3.4.7.1 Dummy Connector Test Plug

When specified for applicable tests in this specification, a dummy cable test plug made of metal core and coated with neoprene, polychloroprene or fluorocarbon polymer. The test plug diameter shall be equal or not more than 0.016 (0.406 mm) smaller than the minimum cable sealing diameter being tested.

3.5 Performance Requirements

Connector accessories shall meet the performance requirements specified herein when tested in accordance with the specified methods of Section 4.

3.5.1 Magnetic Permeability

When tested as specified in 4.6.2, the relative permeability of the connector accessory shall be less than 2.0 for aluminum accessories and 5.0 for stainless steel.

3.5.2 Shell Conductivity

Category 1, 2, and 3 connector accessories that provide termination features for individual or overall EMI/RFI shielding shall be tested as specified in 4.6.3. The connector and connector accessory assembly shall be electrically conductive. The overall resistance shall not exceed 0.0025 ohms for aluminum and composite connector accessories and 0.0050 ohms for stainless steel connector accessories.

3.5.3 Salt Spray (Corrosion)

When tested as specified in 4.6.4, connector accessories shall exhibit no exposure of basis material as defined in AIR4789. For finish J, after 500 hours salt spray exposure, examine for cadmium; there shall be no evidence of underplate or basis material exposed evident to the unaided eye. Retum to chamber for completion of test.

3.5.4 Vibration

When tested as specified in 4.6.5, connector accessories shall not be damaged, nor shall there be any loosening of parts during vibration. Connector accessories that provide termination features for individual or overall EMI/RFI shielding shall be measured for electrical conductivity before and after vibration for initial qualification only (see 3.5.2).

3.5.4.1 Vibration (Self-locking Only)

When tested as specified in 4.6.5.4, connector accessories shall not be damaged, nor shall there by any loosening of parts during vibration. The coupling torque shall be within +20, -10 inch pounds of the initial value after vibration. Connector accessories that provide termination features for individual or overall EMI/RFI shielding shall be measured for electrical conductivity before and after vibration for initial qualification only (see 3.5.2).

3.5.5 Shock

When tested as specified in 4.6.6, connector accessories shall not be damaged, nor shall there be any loosening of parts during exposure to shock.

3.5.6 Humidity (Category 2)

After being subjected to the humidity test specified in 4.6.7, connector accessories mated to counterpart connectors (or dummy connectors, see 3.4.7) shall be examined and there shall be no evidence of water entrance.

3.5.7 Water Pressure (Categories 1 and 8A only)

After being subjected to the test specified in 4.6.8, connector accessories shall be examined and shall show no evidence of internal water entrance.

3.5.8 Cable Pullout

When tested as specified in 4.6.9, the test plug shall not pull out nor shall slippage exceed 0.125 inch. The cable pullout requirement is not applicable to categories 1C, 2C, 3C, and 4C.

3.5.9 Coupling Thread Strength

When tested as specified in 4.6.10, connector accessory threads shall withstand the torque specified in Table 3 without damage. AS85049, category 5 connector accessories shall satisfy the heavy-duty requirement specified in Table 3 for specification sheets that are utilized for MIL-DTL-38999 Series III and IV; MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III; and MIL-DTL-22992 Class C, J, and R connectors. Category 5 connector accessories that are used on MIL-DTL-38999 Series I and II and MIL-DTL-27599 connectors shall satisfy the medium-duty requirement specified in Table 3. Category 8 connector accessories shall satisfy the heavy-duty requirement specified in Table 3.

3.5.10 External Bending Moment

When tested as specified in 4.6.11, connector accessories shall show no evidence of damage detrimental to their normal operation.

3.5.11 Safety Wire Holes (not applicable to self-locking coupling)

When tested as specified in 4.6.12, the safety wire (lock wire) hole shall not pull out.

3.5.12 Fluid Immersion

When tested as specified in 4.6.13, the elastomers (see 3.3.4) shall show no evidence of cracking, swelling/shrinkage, expansion, or dissolution which would be detrimental to performance.

3.5.13 Life Cycle (Self-locking) (see 4.6.15)

After being subjected to the test specified in 4.6.15, connector accessories shall pass succeeding tests.

3.5.14 Temperature Cycling (Finishes J, L, and M)

When tested as specified in 4.6.16, there shall be no blistering, peeling, or separation of plating.

3.5.15 Hydrolytic Stability (Finishes J, L, and M)

When tested as specified in 4.6.17, the connector accessories shall be without defects detrimental to performance. There shall be no increase in weight greater than 5%. Connector accessories shall meet the coupling thread strength requirements of 3.5.9.

3.5.16 Plating Adhesion (Finish J, L, and M)

When tested as specified in 4.6.18, there shall be no evidence of blistering, peeling, or separation of the plating.

3.5.17 Ozone Exposure: (Finish J, L, and M)

When tested as specified in 4.6.19, there shall be no blistering or peeling of the plating or any condition that adversely affects the function of the backshell.

3.5.18 Thermal Vacuum Outgassing (Finish “G” only)

When tested as specified in 4.6.20, the connector accessory shall not emit vacuum condensable, noxious, or toxic gasses. Total loss (TML) shall not be greater than 1.0% and collected volatile condensable materials (CVCM) shall not be greater than 0.10%.

3.6 Marking

Connector accessories shall be legibly and permanently marked in accordance with MIL-STD-1285. The part number shall be as specified (see 3.1). Part marking to include manufacturer’s name or trademark, in accordance with AIR1351 P/N per slash sheet, and manufacturing date code Tag in bag permissible.

3.6.1 Superseded Military Standard Connector Accessory Marking

Equivalent AS connector accessories which have superseded MIL-C-85049 part specifications shall have the corresponding M85049 part number marked on the part (see 6.7).

3.7 Workmanship

Connector accessories shall meet all design dimensions, interchangeability, and intermateability requirements. Poor molding, nicks, burrs, or chipping of plating or finish shall be considered adequate basis for rejection of items as inferior quality for qualification inspection or quality conformance inspection.

3.8 Disposition of Stock

Unless otherwise specified by the qualifying activity and coordinated with the preparing activity, qualified manufacturers and their selling agents or distributors may ship from stock: accessories which were manufactured in accordance with the previous revision of AS85049 and its slash sheets for a period of 18 months from the date of the latest revision.

This depletion of stock is only allowed for changes that do not impact form, fit, or function of the previously qualified AS85049 product(s).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the qualifying activity. The qualifying activity reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for Compliance

All items must meet all requirements of Sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the qualifying activity for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the qualifying activity to acceptance of defective material.

4.1.2 Test Equipment and Inspection Facilities

Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with ANSI/NCSL Z540-1.

4.2 Classification of inspections

The inspections specified herein are classified as follows:

a. Qualification inspection (see 4.3).

b. Retention of qualification (see 4.3.4).

c. Quality conformance inspection (see 4.4).

4.2.1 Inspection Conditions

Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in EIA 364.

4.3 Qualification Inspection

a. Qualification inspection shall consist of all of the applicable examinations and tests performed in the sequence specified in Table 1 on the qualification test samples specified in 4.3.3. Qualification tests shall not begin until authorized by the qualifying activity (see 6.6). The letter of authorization shall specify the conditions under which the qualification tests shall be performed and specify the number of tested or untested samples required to be submitted with the test results. Samples shall be provided to the qualifying activity at no cost.

b. Assembly plants shall be authorized by a qualified manufacturer to assemble the manufacturer's product in accordance with the manufacturer's assembly procedures. Assembly plants must be sponsored by the qualified manufacturer in order to be listed on the Qualified Products List. The qualifying activity shall directly interface with the assembly plants for the purposes of qualification (authorizations, approvals, etc.). Assembly plants shall be qualified under the same condition as the original manufacturer plant site. Dimensions are not required unless the authorized assembly plant makes modifications to the dimensions as part of the final assembly process. Qualification by similarity (i.e., repeatable assembly procedures for various product types, etc.) shall be determined by the qualifying activity.

4.3.1 Qualification by Similarity

For parts which differ only in minor details from those submitted for qualification (see 4.3.2), the manufacturer shall provide data from control drawings which describes the dimensions specified in 3.1 and 3.4. This data shall be tabulated and compared against the dimensional requirements. The extent of qualification testing by similarity shall be specified by the qualifying activity.

4.3.2 Sample Size

Two sample connector accessories in each shell size range (small range 08 to 16); (medium range 18 to 28); (large range 32 to 48), for MIL-DTL-5015 and MIL-DTL-22992 accessories, and (small range 08/09 to 12/13); (medium range 14/15 to 18/19); (large range 20/21 to 24/25) for the MIL-DTL-38999 Series I thru IV accessories, and in each finish for which qualification is desired, shall be provided for qualification testing. Each part subjected to qualification testing shall be provided with an applicable connector. The counterpart connectors supplied for this purpose shall be new, previously qualified connectors. Manufacturers not producing connectors shall submit data substantiating that tests were performed with qualified counterpart connectors. For those tests not requiring indication of connector performance when tested with the connector accessory, a similarly compatible dummy connector, duplicating accessory mating features may be used in place of an actual connector. When a fluid test is required, one untested sample connector accessory for each fluid type of any shell size range regardless of the finish shall be tested.

4.3.2.1 Counterpart Connectors

Counterpart connectors shall be qualified to MIL-DTL-5015, MIL-DTL-22992, MIL-DTL-24308, MIL-DTL-26482, MIL-DTL-27599, MIL-DTL-38999, AS81703, MIL-DTL-83723, or MIL-DTL-83733.

4.3.2.2 Preparation of Samples (Self-locking)

For qualification testing self-locking accessories shall be installed on the specified connector or fixture with a coupling torque of 80% of the coupling thread strength values given for medium- and light-duty accessories as specified in Table 3. Tolerances shall be ±5 inch-pounds.

TABLE 1 - QUALIFICATION INSPECTION

Inspection	Requirement Paragraph	Test Method Paragraph
Category 1		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Shell conductivity	3.5.2	4.6.3
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
1/ Vibration - Category 1A	3.5.4	4.6.5.1
Category 1B	3.5.4	4.6.5.2
Category 1C	3.5.4	4.6.5.3
1/ Shock - Category 1A	3.5.5	4.6.6.1
Categories 1B and 1C	3.5.5	4.6.6.2
Water pressure	3.5.7	4.6.8
Cable pullout - Categories 1A and 1B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
Category 2		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Temperature cycling (finish J, L, and M)	3.5.14	4.6.16
Hydrolytic stability (finish J, L, and M)	3.5.15	4.6.17
Plating adhesion (finish J, L, and M)	3.5.16	4.6.18
1/ Ozone exposure (finish J, L, and M)	3.5.17	4.6.19
Coupling thread strength	3.5.9	4.6.10
Shell conductivity	3.5.2	4.6.3
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
1/ Vibration - Category 2A	3.5.4	4.6.5.1
Category 2B	3.5.4	4.6.5.2
Category 2C	3.5.4	4.6.5.3
1/ Shock - Category 2A	3.5.5	4.6.6.1
Categories 2B and 2C	3.5.5	4.6.6.2
Humidity	3.5.6	4.6.7
Cable pullout - Categories 2A and 2B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

TABLE 1 - QUALIFICATION INSPECTION (CONTINUED)

Inspection	Requirement Paragraph	Test Method Paragraph
Category 3		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Life cycling	3.5.13	4.6.15
Temperature cycling (finish J, L, and M)	3.5.14	4.6.16
Hydrolytic stability (finish J, L, and M)	3.5.15	4.6.17
Plating adhesion (finish J, L, and M)	3.5.16	4.6.18
1/ Ozone exposure (finish J, L, and M)	3.5.17	4.6.19
Thermal vacuum outgassing (finish G)	3.5.18	4.6.20
Coupling thread strength	3.5.9	4.6.10
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
1/ Vibration - Category 3A	3.5.4	4.6.5.1
Category 3B	3.5.4	4.6.5.2
Category 3C	3.5.4	4.6.5.3
1/ Shock - Category 3A	3.5.5	4.6.6.1
Categories 3B and 3C	3.5.5	4.6.6.2
Cable pullout - Categories 3A and 3B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
Category 4		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Life cycling	3.5.13	4.6.15
Temperature cycling (finish J, L, and M)	3.5.14	4.6.16
Hydrolytic stability (finish J, L, and M)	3.5.15	4.6.17
Plating adhesion (finish J, L, and M)	3.5.16	4.6.18
1/ Ozone exposure (finish J, L, and M)	3.5.17	4.6.19
Coupling thread strength	3.5.9	4.6.10
Salt spray (corrosion)	3.5.3	4.6.4
1/ Vibration - Category 4A	3.5.4	4.6.5.2
Categories 4B and 4C	3.5.4	4.6.5.3
1/ Shock - Categories 4A, 4B, and 4C	3.5.5	4.6.6.2
Cable pullout - Categories 4A and 4B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

TABLE 1 - QUALIFICATION INSPECTION (CONTINUED)

Inspection	Requirement Paragraph	Test Method Paragraph
Category 5		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Salt spray (corrosion)	3.5.3	4.6.4
1/ Vibration	3.5.4	4.6.5.3
1/ Shock	3.5.5	4.6.6.2
Coupling thread strength	3.5.9	4.6.10
Safety wire holes	3.5.11	4.6.11
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
Category 7		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Category 8		
Examination of product	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Salt spray (corrosion)	3.5.3	4.6.4
1/ Vibration	3.5.4	4.6.5.3
1/ Shock	3.5.5	4.6.6.2
Water pressure (category 3A only)	3.5.7	4.6.8
Coupling thread strength	3.5.9	4.6.10
Safety wire holes	3.5.11	4.6.11
Post examination	3.1, 3.3, 3.4, 3.6, and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

1/ Only required for initial qualification.

4.3.3 Failures

There shall be no failures during any examination or tests of the connector accessories submitted for qualification tests. The agent responsible for qualification testing (see 6.6) shall notify the manufacturer of the failures. The manufacturer shall submit details of the failure corrective action before the qualification agent will initiate any further tests required to assure compliance with this specification.

4.3.4 Retention of Qualification

At thirty-six month intervals the manufacturer shall submit retention of qualification data. The qualifying activity shall establish the initial reporting date. Retention of qualification consists of the applicable tests of Table 1, on the sample size specified in 4.3.4.1. Tested and untested connector accessories and materials may be required to be submitted to the qualifying activity (see 6.6) at no cost. Failure to submit to retention of qualification shall result in loss of qualification for previously approved products.

4.3.4.1 Retention of Qualification Samples

For each category (see 1.1.1) of which the manufacturer is qualified, two sample connector accessories in each shell size range (small range 08 thru 16; medium range 18 to 28; large range 32 to 48) for MIL-DTL-5015 and MIL-DTL-22992 accessories, and (small range 08/09 to 12/13; medium range 14/15 to 18/19; large range 20/21 to 24/25) for the MIL-DTL-38999 Series I thru IV accessories shall be tested. All qualified finishes (see 3.3.7) and base materials (cast, molded, and wrought materials) shall be included as part of the sample in each category. For all other connector accessories qualified but not being tested the dimensions described in 3.1 and 3.4 shall be extracted from the manufacturer control drawings, tabulated, and then compared against the specification requirements. This comparison is not required for any accessories where the manufacturer's control drawing(s) have not changed since the last retention cycle. However, manufacturers shall submit a document certifying compliance to the qualifying activity when a dimensional comparison is not performed. Manufacturers not producing connectors shall submit data substantiating that tests were performed with qualified counterpart connectors. For those tests not requiring indication of connector performance when tested with the connector accessory, a similarly compatible dummy connector, duplicating accessory mating features may be used in place of an actual connector.

4.3.4.2 Disposition of Failures

The disposition of failures shall be as specified in 4.3.3.

4.4 Quality Conformance Inspection

4.4.1 Inspection of Product for Delivery

Inspection of product for delivery shall consist of the examination of the product in accordance with 4.6.1.

4.4.2 Inspection Lot

An inspection lot shall consist of all connector accessories of the same type covered by one specification sheet, produced under essentially the same conditions, and offered for inspection at one time.

4.4.3 Sampling Plan

Statistical sampling and inspection shall be in accordance with ANSI/ASQC Z1.4 for general inspection level II. Unless otherwise specified, the Acceptable Quality Level (AQL) shall be 1.0 for major defects and 4.0 for minor defects. Major and minor defects shall be as defined in MIL-STD-105/ANSI/ASQC Z1.4.

4.4.4 Rejected Lots

If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units and resubmit for re-inspection. Resubmitted lots shall be inspected in accordance with ANSI/ASQC Z1.4, tightened inspection. Such lots shall be separate from new lots and shall be clearly identified as re-inspected lots. The contractor shall notify the qualifying activity (see 6.6) immediately of any quality conformance inspection failures which result in a change in control drawings or process control inspection points. Failure to notify the qualifying activity may result in loss of qualification of that product.

4.4.5 Disposition of Sample Units

Sample units which have passed quality conformance inspection may be delivered on the contract if the lot is accepted and the sample units are still within specified tolerances.

4.5 Inspection of Packaging

Sample packages and packs and the inspection of the preservation-packaging, packing and marking for shipment and storage shall be in accordance with the requirements of MIL-DTL-55330.

4.6 Methods of Inspection

4.6.1 Examination of Product

The connector accessories shall be examined to assure compliance with the following requirements:

a. SAE-AS specification sheet (see 3.1).

b. Materials (see 3.3).

c. Design and construction (see 3.4).

d. Temperature cycling (finishes J and M) (see 3.5.14).

e. Marking (see 3.6).

f. Workmanship (see 3.7).

4.6.1.1 In-process Controls

The contractor may use in-process controls to satisfy the requirements listed in 4.6.1. These in-process controls will be subject to review by the qualifying activity (see 6.6) upon request.

4.6.2 Magnetic Permeability (see 3.5.1)

The relative permeability shall be in accordance with EIA 364-54.

4.6.3 Shell Conductivity (see 3.5.2)

Shell conductivity shall be measured in accordance with EIA 364-83. The applied potential shall be 1.5 volts maximum. A resistance shall be inserted in the circuit to limit the current to 1.0 amperes ± 0.1 amperes. Measurements shall be made from a point on the overall cable shield (or individual wire shields, if applicable), located 1.0 inch ± 0.25 inch to the rear of the connector accessory, to the point on the backshell/fixture flange as specified in EIA 364-83.

4.6.4 Salt Spray (Corrosion) (see 3.5.3)

Connector accessories shall be tested in accordance with EIA 364-26. The samples shall not be mounted, but shall be suspended from the top of the chamber using waxed twine or string, glass rods, or glass cord. The duration shall be as specified in 4.6.4.1, 4.6.4.2, 4.6.4.3, or 4.6.4.4.

4.6.4.1 Standard Test (96 hours)

Aluminum connector accessories with finish G, N and P (see 3.3.7), shall be subjected to test condition letter A for a duration of 96 hours for initial qualification and every other retention cycle thereafter.

4.6.4.2 Extended Test (500 hours)

Aluminum connector accessories with finish A shall be subjected for a duration of 500 hours for initial qualification and every other retention cycle thereafter.

4.6.4.3 Extended Test (1000 hours)

Stainless steel connector accessories with finish B and S and aluminum connector accessories with finish W (see 3.3.7), shall be subjected to test condition letter D for a duration of 1000 hours for initial qualification and every other retention cycle thereafter.

4.6.4.4 Extended Test (2000 hours)

Composite accessories with finish J, L, and M shall be subjected for a duration of 2000 hours for initial qualification and every other retention cycle thereafter.

4.6.5 Vibration

A counterpart receptacle connector shall be mounted on a suitable fixture, which in turn shall be attached to the vibration table. The fully wired counterpart connector or approved modification to fixturing and connector accessory shall be engaged with the receptacle by normal locking means. No safety wire shall be used. The sensing device shall monitor vibration at a point on or near the receptacle connector.

4.6.5.1 Vibration - Heavy Duty (see 3.5.4)

The assembly shall be subjected to the vibrational requirements of MIL-STD-167-1(SHIPS), paragraph 5.1.3.3.3.

4.6.5.2 Random Vibration - Medium Duty (see 3.5.4)

The connector accessory shall then be subjected to EIA 364-28, condition VI, test condition letter I. The duration of the test shall be 8 hours in the longitudinal direction and 8 hours in the perpendicular direction.

4.6.5.3 Vibration - Light Duty (see 3.5.4)

The connector accessory shall then be subjected to EIA 364-28, condition III. Total duration 12 hours, 4 each direction.

4.6.5.4 Vibration (Self-locking only) (see 3.5.4.1)

Backshells shall be subjected to the test parameters of the applicable connector specification. Coupling nut torque shall be 80% of coupling thread strength values given for light and medium duty accessories as specified in Table 3 of AS85049. In Table 3 when N/A appears, the values shall be 80% of those values given for heavy-duty accessories.

4.6.6 Shock

4.6.6.1 Shock - Heavy Duty (see 3.5.5)

Connector accessories shall be assembled to counterpart plug and receptacle connectors, wired with 6 feet of MIL-DTL-24643/18 Type LSMSCU (unarmored) cable, and tested in accordance with MIL-STD-202, method 207. Mounting fixtures shall be in accordance with MIL-STD-202, method 207. No safety wire shall be used. Cables shall be supported on a stationary frame a minimum of 36 inches from the assembly. Monitoring for discontinuity is not required.

4.6.6.2 Shock - Medium and Light Duty (see 3.5.5)

A counterpart receptacle connector, mounted on a suitable fixture, shall be attached to the shock machine. The wired mating plug connector and connector accessory shall be engaged with the receptacle connector by normal locking means. The cable shall be clamped to a fixed point at least 8 inches from the rear of the assembly. The assembly shall be subjected to the shock test requirements of EIA 364-27, condition C. Monitoring for discontinuity is not required.

4.6.7 Humidity (see 3.5.6)

The accessory sample shall be prepared as specified in 4.6.10. The prepared accessory sample shall be subjected to humidity in accordance with EIA 364-31, test procedure III, with the exception of step 7b.

4.6.8 Water Pressure (see 3.5.7)

The connector accessory shall be assembled to a counterpart connector (or dummy connector test fixture, see 3.4.7). The face of the connector (or dummy connector) shall have a section of cable (or test plug, see 3.4.7.1) installed to simulate jacketed cable. The face of the connector (or dummy connector) shall be protected from the test environment. Use of lubricants which act as a sealant in this test is prohibited. The assembly shall be immersed in tap water to a depth of 6 feet for a period of 48 hours.

4.6.9 Cable Pullout (see 3.5.8)

The connector accessory shall be subjected to cable pullout in accordance with EIA 364-38, except that the test plug (see 3.4.7.1) shall be installed in the assembly in lieu of cable. The applicable tensile load specified in Table 2 shall be applied to the test plug in the direction tending to displace it toward the rear of the connector accessory. The load shall be applied for a period of 1 hour and the amount of slippage shall be measured.

4.6.10 Coupling Thread Strength (see 3.5.9)

A counterpart connector or dummy connector (see 3.4.7) shall be mounted in a suitable fixture. The connector accessory shall be attached and a torque wrench used to apply the required torque at a rate of approximately 10 inch pounds per second. The connector accessory thread torque shall be as specified in Table 3. After the required load has been held for 1 minute minimum, the connector accessory shall be removed and inspected to 3X magnification for damage or breakage.

TABLE 2 - CABLE PULLOUT (CATEGORIES 1 THROUGH 4 WITH CABLE CLAMP)

Cable Range	Load Heavy Duty	Load Medium Duty
0.062 - 0.500	25	12.5
0.501 - 0.750	50	25
0.751 - 1.500	75	37.5
1.501 - 2.500	100	50

NOTE: Test plug diameter should equal the minimum cable range with a +0.000/–0.016 tolerance (for example, cable range minimum 0.500 = test plug 0.500/0.484 diameter).

TABLE 3 - COUPLING THREAD STRENGTH

Shell Size	Accessory Thread Torque ±5 inch-pounds	
	Heavy Duty	Medium, Light Duty and Composite
8, 9	75	50
3, 10, 10SL, 11	100	50
7, 12, 12S, 13	140	50
14, 14S, 15	150	50
16, 16S, 17	150	50
18, 19, 27	150	50
20, 21, 37	175	100
22, 23	175	100
24, 25, 61	175	100
28	190	N/A
32	190	N/A
36	190	N/A
40	210	N/A
44	210	N/A
48	210	N/A

4.6.11 External Bending Moment (see 3.4.7 and 3.5.10)

The connector accessory shall be mounted as in normal service to a rigid panel as shown in Figure 1. The distance "L" from the point of load application "P" to the mounting panel shall be determined. The load to be applied to point "P" shall then be determined as the bending moment listed in Table 4 divided by the lever arm "L". This load shall be applied at a rate of approximately 10 pounds per second until the required load is achieved. The applied load shall be held for 1 minute, and then released. The load shall be applied in Figure 1; two axes 90° apart, at different times for straight accessories and three axes, at different times for angled accessories.

TABLE 4 - BENDING MOMENT

Categories						
Heavy Duty		Medium Duty		Light Duty and Composite		
					Bending Moment (in-lb)	
Shell Size	Bending Moment (in-lb)	Shell Size	Bending Moment (in-lb)	Shell Size	With Saddle Bars	Without Saddle Bars
8,9	60	8,9	55	8,9	50	25
3,10,10SL,11	130	3,10,10SL,11	90	10,11	75	25
7,12,12S,13	270	7,12,12S,13	180	12,13	75	25
14,14S,15	300	14,14S,15	200	14,15	100	50
16,16S,17	370	16,16S,17	250	16,17	125	50
18,19,27	420	18,19,27	280	18,19	125	50
20,21,37	450	20,21,37	300	20,21	125	75
22,23	520	22,23	350	22,23	125	75
24,25,61	570	24,25,61	380	24,25	150	100
28	630	28	420	28	180	100
32	750	32	500	32	220	
36	810	36	540	36	230	
40	870	40	580	40	240	
44	930	44	620	44	280	
48	990	48	660	48	300	

4.6.12 Safety Wire Holes (see 3.5.11)

Safety wire (lock wire) shall be threaded through a lock wire hole, and a pull of 30 pounds ± 2 pounds shall be applied. The pull shall be parallel with the axis of the connector, connector accessory, or coupling ring. The safety wire shall be Ni-Cu alloy (Monel) or Ni-Cr alloy (Inconel) 0.020 diameter in accordance with NASM20995.

4.6.13 Fluid Immersion (3.5.12)

Only connector accessories with elastomers shall be subjected to the test specified in EIA 364-10 (one sample per fluid).

4.6.14 Fungus Resistance Certification (see 3.3.5)

Certification of ASTM G 21 is required.

4.6.15 Life Cycle (Self-locking) (see 3.4.6, 3.4.6.1, 3.5.13)

The coupling with the locking device shall be engaged, and disengaged 10 full cycles, onto its mating connector or dummy connector test fixture (see 3.4.7), 6 full turns in a clockwise direction and 6 full turns counterclockwise. Cycle speed shall not exceed one full turn per second.

4.6.16 Temperature Cycling (Finishes J, L, and M) (see 3.5.14)

Connector accessories shall be subjected to the temperature cycling of EIA 364-32, condition I, 5 cycles, except that steps 2 and 4 shall be of 2 minutes maximum duration. The temperature of step 1 shall be -65° +0, -5 °C and the temperature of step 3 shall be 175° +5, -0 °C for finish J and 200° +5, -0 °C for finish L and M.

4.6.17 Hydrolytic Stability (Finishes J, L, M, and T) (see 3.5.15)

Connector accessories shall be subjected to the following water absorption test:

4.6.17.1 Hydrolytic Stability (Initial Qualification)

The connectors shall be subjected to the test specified in ASTM D 570-95, paragraph 7.4, long-term immersion.

4.6.17.2 Hydrolytic Stability (Periodic Qualification)

The connectors shall be subjected to the test specified in ASTM D 570-95, paragraph 7.5, 2 hour boiling water immersion.

4.6.18 Plating Adhesion (Finish J, L, and M) (see 3.5.16)

The connector accessories shall be immersed in conola, peanut, or other similar oil. The temperature of the oil shall be at the maximum operating temperature as specified in 3.3.7 for each finish type. The connector accessories shall be completely submersed for 2 minutes. Within 10 seconds after removal, the connector accessories shall be completely submersed into ambient temperature solvent or ice water for 2 minutes. Remove and examine as specified in 3.5.16.

4.6.19 Ozone Exposure (Finish J, L, and M) (see 3.5.17)

One connector accessory shall be tested in accordance with EIA 364-14. No sample preparation required. Applicable for initial qualification only or if the base material is changed from the originally qualified material.

4.6.20 Thermal Vacuum Outgassing (Finish G) (see 3.5.18)

The connector accessory shall be tested in accordance with ASTM E 595. Data listed in NASA reference publication 1124 revised may be used in lieu of actual test data for application materials.

5. PACKAGING

5.1 Packaging Requirements

The requirements for packaging shall be in accordance with MIL-DTL-55330.

5.2 Assembly Instructions

Unless otherwise specified (see 3.1), assembly instructions shall be furnished with each connector accessory and included within the unit container. The assembly instructions shall be approved by the qualifying activity (see 6.6).

6. NOTES

6.1 Intended Use

The connector accessories covered in this specification are intended for use with electrical connectors used in aircraft, missile, shipboard and ground support equipment. Composite connector accessories are intended for use with composite connectors only.

6.2 Ordering Data

6.2.1 Acquisition Requirements

Acquisition documents should specify the following:

a. Title, number and date of this specification.

b. The complete part number in accordance with the applicable specification sheet (see 3.1).

6.3 Definitions

The following definitions apply to this specification:

6.3.1 CABLE CLAMP

A connector accessory or part of a component to grip the cable or wire to provide strain relief and absorb mechanical stress which would otherwise be transmitted to the terminal.

6.3.2 CABLE SEALING

Connector accessories which provide waterproofing and environmental sealing under specified hydrostatic pressure.

6.3.3 CATEGORY TYPES

The following definitions are applicable to categories 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, and 4C:

a. Heavy-duty connector accessory (Category A). A connector accessory intended for use in the most extreme environment. This connector accessory withstands the most severe shock, vibration, cable pullout and external bending moment tests.

b. Medium-duty connector accessory (Category B). A connector accessory intended for use in an environment less severe than the environment which requires a heavy-duty connector accessory. This connector accessory withstands shock, vibration, cable pullout, and external bending moment tests which are less severe than tests for a heavy-duty connector accessory.

c. Light-duty connector accessory (Category C). A connector accessory intended for use in an environment less severe than the environment which requires a medium-duty connector accessory. This connector accessory withstands vibration and external bending moment tests which are less severe than tests for a medium-duty accessory. The cable pull-out test is not required for a light-duty accessory.

6.3.4 QUALIFICATION INSPECTION

Qualification Inspection is a process that demonstrates that a component is capable of fully conforming to all the requirements defined in a standard. Qualification Inspection includes definition of the measurements, tests, analysis, and associated data which provides consistent rationale for acceptance of a particular supplier's design as meeting the standard requirements typically prior to acquisition by the purchaser.

6.3.5 QUALIFIED PRODUCTS LIST

A Qualified Products List is a list of suppliers (manufacturers) whose products have been evaluated to a defined process and who are authorized to provide those products to a purchaser upon request. When a Qualified Products List is specified, only approved suppliers (manufacturers) are authorized to provide products under the part number defined in the component standard. A Qualified Products List is established and maintained by a qualifying activity.

6.3.6 QUALIFYING ACTIVITY

A qualifying activity is a function established by a purchaser or group of purchasers (i.e., government, etc.) that has a defined process used to consistently evaluate all suppliers' (manufacturers') products in accordance with the component standard.

6.3.7 QUALITY CONFORMANCE INSPECTION

Quality conformance inspection is a process which includes measurements, non-destructive tests, analysis, and associated data that will provide verification that a particular individual component continually conforms to the requirements defined in the standard.

6.3.8 QUALIFICATION BY SIMILARITY

An alternative qualification inspection process accomplished without completing all of the measurements, tests, and analysis requirements defined in the standard. Acceptance and the extent of similarity, is determined by the qualifying activity. Similarity is established through a rationale that certain designs, materials, and/or processes are identical to those already approved through qualification of the components. Verification testing for the new product is not required for designs, materials, and/or processes already approved. When a Qualified Products List is being established the qualification by similarity rationale shall be approved by the qualifying activity prior to initiation of the remaining portions of the qualification inspection process.

6.3.9 PURCHASER

A purchaser is an activity that can issue a purchase order or contract (i.e., government, etc.).

6.3.10 SUPPLIER (MANUFACTURER)

A supplier (manufacturer) is an original component manufacturer or a value added component manufacturer which has design and production control of the processes used to produce the final component in accordance with the standard.

6.3.11 ASSEMBLY PLANT

A plant established by the supplier (manufacturer) or operated by a distributor authorized by the supplier (manufacturer) to perform specified functions pertaining to the supplier's (manufacturer's) identified qualified products in accordance with supplier's (manufacturer's) specified assembly procedures, test methods, processes, controls, and storage, handling, and packaging techniques.

6.3.12 ENVIRONMENTAL

Connector accessories which provide humidity resistance.

6.3.13 NONENVIRONMENTAL

Connector accessories that do not provide humidity resistance.

6.3.14 SHIELD TERMINATION

Connector accessories which provide the capability of terminating an EMI/RFI cable shield over a wire bundle or cable.

6.3.15 STRAIN RELIEF

Connector accessories which provide strain and side loading relief to wire bundles and cable support to jacketed cables.

6.4 Abbreviations and Acronyms

The following abbreviations and acronyms apply to this specification:

AIA - Aerospace Industry Association
ASTM - American Society for Testing and Materials
AQL - Accepted Quality Level
DOD - Department of Defense
DODISS - Department of Defense Index of Specifications and Standards
DFARS - Defense Federal Acquisition Regulation Supplement
ECA - (formally EIA) Electronic Components, Assemblies, and Materials Association
EMI - Electromagnetic Interference
MS - Military Standard
QPL - Qualified Products List
RFI - Radio Frequency Interference
SAE - Society of Automotive Engineers
SESD - Systems Engineering and Standardization Department

6.5 Subject Term (Key Word) Listing:

Connector accessory, cable sealing, environmental, nonenvironmental, strain relief

6.6 Qualification

With respect to products requiring qualification by the qualifying activity awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List (QPL), whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts for the products delineated in this specification. Qualification is required for U.S. Government procurement. The QPL Evaluating Activity, for U.S. Department of Defense procurement purposes, Naval Air Systems Command (Code 4.4.5.3), 22229 Elmer Road, Building 2360, Patuxent River, MD 20670-1900. Application for qualification tests shall be made in accordance with provisions governing qualification SD-6 (see 2.2).

6.7 Cross Reference of Superseded Documents

The cross reference of superseded MS and connector specification accessories with the corresponding AS85049 superseded specification sheet is defined in Table 5.

6.8 Applicable Connector Accessory for Connector Specifications

The applicable AS85049 connector accessory for the corresponding electrical connector specification is delineated in Table 6.

6.9 Connector Accessory by Similar Groups

The applicable connector accessory group for the corresponding electrical connector specification is delineated in Table 5. The AS85049 connector accessories are listed into the following groups:

a. Full Body Backshells

b. Saddle Clamps

c. Tie Wrap Backshells

d. Rubber Boots

e. Boot Adapters

f. Shield Terminators

g. Individual Shield Terminator

h. Grommet Compressors

i. Potting Boots

j. MIL-DTL-5015 Solder Type, MS310X Connectors

k. MIL-DTL-22992 Connectors, Classes C, J, and R

l. Split Backshells

m. Threaded Adapters

n. Copper Body Backshells

o. Rectangular Backshells

p. Nut Plates

r. Accessory Components

s. Acessories for Fiber Optic Connectors

Tables 6 and 7 are defined as an application guide only; for detailed information refer to the AS85049 specification sheet.

6.10 Not applicable to this specification.

6.11 The change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document indicates a complete revision of the document.

TABLE 5 - CROSS REFERENCE OF SUPERSEDED DOCUMENTS

Superseded Document	Superseded by	Superseded Document	Superseded by
MS3057 Type A	AS85049/41	MS27485	AS85049/58
MS3057 Type B	AS85049/1	MS27486	AS85049/75
MS3057 Type C	AS85049/2	MS27487-1	AS85049/33-1
MS3057 Type D	AS85049/42	MS27487-2	AS85049/32-1
MS3152	AS85049/53	MS27489	AS85049/32-2
MS3153	AS85049/54	MS27506-2	AS85049/49-2
MS3154	AS85049/55	MS27507	AS85049/47
MS3158	AS85049/60-1	MS27663-1	AS85049/45
MS3161	AS85049/26-2	MS27663-2	AS85049/46
MS3184	AS85049/34	MS27668 Type R	AS85049/56
MS3188 Type A	AS85049/8	MS27669	AS85049/57
MS3188 Type B	AS85049/9	MS27670	AS85049/63
MS3188 Type C	AS85049/24	MS90376	AS85049/138
MS3189 Type A	AS85049/6	MS90568	AS85049/59
MS3189 Type B	AS85049/7	MS90569	AS85049/4-3
MS3189 Type C	AS85049/23	MS90570	AS85049/5-3
MS3415	AS85049/43	MS90571	AS85049/3-3
MS3416 Style E	AS85049/31	MIL-C-24308/19	AS85049/50
MS3416 Style G	AS85049/60-2	MIL-C-24308/20	AS85049/48-1
MS3417	AS85049/52-1	MIL-C-24308/21	AS85049/48-2
MS3418	AS85049/51-1	MIL-C-24308/22	AS85049/48-3
MS3419	AS85049/26-1	MIL-C-38999/1	AS85049/27
MS3437 Type A	AS85049/10	MIL-C-38999/2	AS85049/62
MS3437 Type B	AS85049/11	MIL-C-38999/3	AS85049/33-2
MS3437 Type C	AS85049/25	MIL-C-38999/4	AS85049/30
MS17340 Style 1	AS85049/3-1	MIL-C-38999/5	AS85049/17
MS17340 Style 2	AS85049/3-2	MIL-C-38999/6	AS85049/29
MS17341 Style 1	AS85049/5-1	MIL-C-38999/7	AS85049/36
MS17341 Style 2	AS85049/5-2	MIL-C-38999/8	AS85049/37
MS17342 Style 1	AS85049/4-1	MIL-C-83723/15 Type N	AS85049/31
MS17342 Style 2	AS85049/4-2	MIL-C-83723/15 Type A	AS85049/51-1
MS27332	AS85049/61	MIL-C-83723/15 Type S	AS85049/52-1
MS27333	AS85049/74	MIL-C-83723/16 Type M	AS85049/60-2
MS27342-1	AS85049/35	MIL-C-83733/15	AS85049/28
MS27342-2	AS85049/49-1	MIL-C-83733/16	AS85049/44

TABLE 6 - APPLICABLE CONNECTOR ACCESSORY FOR CONNECTOR SPECIFICATIONS

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
1. MIL-DTL-5015	1	1C	Straight			X				
Solder Type, MS310X	2	1C	Straight			X		X		
Connectors	41	4C	Straight					X		
	42	4A	Straight					X		
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
	130	7								Gasket F / Mount
	138	9								Cap, Dust, Plastic
2. MIL-DTL-5015	6	1A	45°		X	X	X	X	X	
Crimp, MIL-DTL-26482	7	1A	45°		X	X	X	X		
Series 2, AS81703	8	1A	90°		X	X	X	X	X	
Series 3 and MIL-DTL-	9	1A	90°		X	X	X	X		
83723 Series III	10	1A	Straight		X	X	X	X	X	
Connectors	11	1A	Straight		X	X	X	X		
	23	3A	45°		X			X	X	
	24	3A	90°		X			X	X	
	25	3A	Straight		X			X	X	
	26 – 1	3A	Straight		X				X	
	26 – 2	3A	Straight		X				X	
	26 – 3	3A	Straight		X				X	
	31	3B	Straight	X	X					
	43	4B	45°	X	X			X		
	51	4B	90°	X	X			X		
	52	4B	Straight	X	X			X		
	53	4C	Straight		X			X		
	54	4C	45°		X			X		
	55	4C	90°	X	X			X		
	60 – 1	5	Straight		X					Shrink Boot Adapter
	60 – 2	5	Straight		X					Shrink Boot Adapter
	66	4C	Straight		X			X		
	67	4C	90°		X			X		
	82	3B	Straight	X					X	Banding/Shrink Boot
	83	3B	45°	X					X	Banding/Shrink Boot
	84	3B	90°	X					X	Banding/Shrink Boot
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
	109	3B	Straight	X	X				X	Pre Attached Braid
	111	3B	90°	X	X				X	Pre Attached Braid
	118	4B	Straight	X	X			X		Full Radius Saddles
	120	4B	90°	X	X			X		Full Radius Saddles
	127	7								Bushing Strip
	128	7								Shield Band
	130	7								Gasket F / Mount
	138	9								Cap, Dust, Plastic
3. MIL-DTL-22992	3	1A	Straight			X	X	X		
Classes C, J, and R	4	1A	Straight			X	X	X		
Connectors	5	1A	Straight			X	X	X		
	59	5	Straight							Shrink Boot Adapter
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
	130	7								Gasket F / Mount

TABLE 6 - APPLICABLE CONNECTOR ACCESSORY FOR CONNECTOR SPECIFICATIONS (CONTINUED)

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
4. MIL-DTL-27599 Connectors	45 1/	4C	Straight		X			X		Nonmetallic
	46 1/	4C	90°		X			X		Nonmetallic
	61	5	Straight							Ring, Potting Boot
	74 – 1	7	Straight							Potting Boot
	74 – 2	7	90°							Potting Boot
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
5. MIL-DTL-38999 Series I and II Connectors	17	2B	Straight			X	X	X	X	
	27	3B	Straight	X	X					
	29	3B	Straight					X		
	30	3B	Straight		X				X	Individual Shielded Wire Termination
	32 – 1	7	90°						X	
	32 – 2	7	Straight							
	33 – 1	7	Straight						X	
	33 – 2	7	Straight		X				X	
	35 2/									
	36	3B	Straight					X	X	
	37	3B	90°		X			X	X	Split
	45 1/	4C	Straight		X			X		Nonmetallic
	46 1/	4C	90°		X			X		Nonmetallic
	47	4C	90°	X	X			X		
	49	4C	Straight	X	X			X		
	56	4C	Straight		X			X		
	57	4C	45°	X	X			X		
	58	5	Straight							Ring, Potting Boot
	62	5	Straight		X					Adapter Shrink Boot
	63	4C	90°	X	X			X		
	64	4C	Straight		X			X		Split
	65	4C	90°		X			X		Split
	75 – 1	7	Straight							Potting Boot
	75 – 2	7	90°							Potting Boot
	80	7								Dummy Contact
	81	7								Sealing Plug
	85	3B	Straight	X					X	Banding/Shrink Boot
	86	3B	45°	X					X	Banding/Shrink Boot
	87	3B	90°	X					X	Banding/Shrink Boot
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
	112	3B	Straight	X	X				X	Pre Attached Braid
	114	3B	90°	X	X				X	Pre Attached Braid
	121	4C	Straight	X	X			X		Full Radius Saddles
	123	4C	90°	X	X			X		Full Radius Saddles
	127	7								Bushing Strip
	128	7								Shield Band
	130	7								Gasket F / Mount
	138	9								Cap, Dust, Plastic
6. MIL-DTL-24308 Connectors	48	7	Straight					X		
	50	7	90°					X		
7. MIL-DTL-26482 Series 1, Jam Nut Receptacle Connector	34	3C	Straight							Threaded Adapter
	138	9								Cap, Dust, Plastic

TABLE 6 - APPLICABLE CONNECTOR ACCESSORY FOR CONNECTOR SPECIFICATIONS (CONTINUED)

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
8. MIL-DTL-38999	14	3B	Straight	X	X					
Series III and IV	15	4C	45°	X	X			X		
Connectors	16	4C	90°	X	X			X		
	18	2B	Straight		X	X	X	X	X	
	19	3B	Straight		X			X	X	
	20	3B	Straight		X				X	
	21	3B	Straight		X			X		
	38	4C	Straight	X	X			X		
	39	4C	90°	X	X			X		
	69	5	Straight							Shrink Boot Adapter
	80	7								Dummy Contact
	81	7								Sealing Plug
	88	3B	Straight	X					X	Banding/Shrink Boot
	89	3B	45°	X					X	Banding/Shrink Boot
	90	3B	90°	X					X	Banding/Shrink Boot
	91	4C	Straight	X				X		Composite
	92	4C	45°	X				X		Composite
	94	7								Nut Plate F / Mount
	95	7								Nut Plate F / Mount
	96	7								Nut Plate F / Mount
	103	3C	Straight	X				X	X	Composite/Braid Sock
	104	3C	45°	X				X	X	Composite/Braid Sock
	105	3C	90°	X				X	X	Composite/Braid Sock
	115	3B	Straight	X	X				X	Pre Attached Braid
	117	3B	90°	X	X				X	Pre Attached Braid
	124	4C	Straight	X	X			X		Full Radius Saddles
	126	4C	90°	X	X			X		Full Radius Saddles
	127	7								Bushing Strip
	128	7								Shield Band
	130	7								Gasket F / Mount
	131	3B	Straight	X						Fiber Optic Backshells
	132	3B	45°	X						Fiber Optic Backshells
	133	3B	90°	X						Fiber Optic Backshells
	134	7								Fiber Optic Filler Plug
	135	3B	Straight	X						Fiber Optic, Split
	136	3B	45°	X						Fiber Optic, Split
	137	3B	90°	X						Fiber Optic, Split
	138	9								Cap, Dust, Plastic
9. MIL-DTL-83733	28	3B	Straight					X	X	
Connectors	44	4C	Straight					X		

1/ - Inactive for Air Force and Navy new design equipment or modification of existing equipment.
2/ - Cancelled.
N/A - Not Applicable.

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS

1. FULL BODY BACKSHELLS

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
6	1A	45°		X	X	X	X	X	
7	1A	45°		X	X	X	X		
8	1A	90°		X	X	X	X	X	
9	1A	90°		X	X	X	X		
10	1A	Straight		X	X	X	X	X	
11	1A	Straight		X	X	X	X		
23	3A	45°		X			X	X	
24	3A	90°		X			X	X	
25	3A	Straight		X			X	X	
82	3B	Straight	X					X	Banding / Shrink Boot
83	3B	45°	X					X	Banding / Shrink Boot
84	3B	90°	X					X	Banding / Shrink Boot
109	3B	Straight	X	X				X	Pre Attached Braid
111	3B	90°	X	X				X	Pre Attached Braid

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
17	2B	Straight			X	X	X	X	
29	3B	Straight					X		
36	3B	Straight					X	X	
37	3B	90°		X			X	X	Split Backshell
85	3B	Straight	X					X	Banding / Shrink Boot
86	3B	90°	X					X	Banding / Shrink Boot
87	3B	45°	X					X	Banding / Shrink Boot
112	3B	Straight	X	X				X	Pre Attached Braid
114	3B	90°	X	X				X	Pre Attached Braid

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
18	2B	Straight		X	X	X	X	X	
19	3B	Straight		X			X	X	
21	3B	Straight		X			X		
88	3B	Straight	X					X	Banding / Shrink Boot
89	3B	45°	X					X	Banding / Shrink Boot
90	3B	90°	X					X	Banding / Shrink Boot
115	3B	Straight	X	X				X	Pre Attached Braid
117	3B	90°	X	X				X	Pre Attached Braid

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

2. SADDLE CLAMPS

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
43	4B	45°	X	X			X		
51	4B	90°	X	X			X		
52	4B	Straight	X	X			X		
118	4B	Straight	X	X			X		Full Radius Saddles
120	4B	90°	X	X			X		Full Radius Saddles

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
47	4C	90°	X	X			X		
49	4C	Straight	X	X			X		
121	4C	Straight	X	X			X		Full Radius Saddles
123	4C	90°	X	X			X		Full Radius Saddles

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
38	4C	Straight	X	X			X		
39	4C	90°	X	X			X		
91	4C	Straight	X				X		Composite
92	4C	90°	X				X		Composite
103	3C	Straight	X				X		Composite / Braid Sock
104	3C	45°	X				X		Composite / Braid Sock
105	3C	90°	X				X		Composite / Braid Sock
124	4C	Straight	X	X			X		Full Radius Saddles
126	4C	90°	X	X			X		Full Radius Saddles

3. TIE WRAP BACKSHELLS

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
53	4C	45°		X			X		
54	4C	90°		X			X		
55	4C	Straight	X	X			X		

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
45 *	4C	Straight		X			x		Nonmetallic
46 *	4C	90°		X			x		Nonmetallic
56	4C	Straight		X			x		
57	4C	45°		X			x		
63	4C	90°		X			x		

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
15	4C	45°	X	X			X		
16	4C	90°	X	X			X		

D. MIL-DTL-27599 Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
45 2/	4C	Straight		X			X		Nonmetallic
46 2/	4C	90°		X			X		Nonmetallic

4. Rubber Boots

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
68 1/									

5. Boot Adapters

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
60 – 1	5	Straight		X					Shrink Boot Adapter
60 – 2	5	Straight		X					Shrink Boot Adapter

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
62	5	Straight		X					Shrink Boot Adapter

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
69	5	Straight		X					Shrink Boot Adapter

6. SHIELD TERMINATORS

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
26 – 1	3A	Straight		X				X	
26 – 2	3A	Straight		X				X	
26 – 3	3A	Straight		X				X	

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
33 – 2	7	Straight		X				X	

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
20	7	Straight		X				X	

7. INDIVIDUAL SHIELD TERMINATOR

A. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
30	3B	Straight		X				X	Individual shield wire termination

8. GROMMET COMPRESSOR

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
31	3B	Straight	X	X					

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
27	3B	Straight	X	X					

C. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
14	3B	Straight	X	X					

9. POTTING BOOT, ACCESSORY

A. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
58	5	Straight							Ring, Potting Boot
75 – 1	7	Straight							Potting Boot
75 – 2	7	90°							Potting Boot

B. MIL-DTL-27599 Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
61	5	Straight							Ring, Potting Boot
74 – 1	7	Straight							Potting Boot
74 – 2	7	90°							Potting Boot

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

10. MIL-DTL-5015 SOLDER TYPE, MS310X CONNECTORS

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
1	1C	Straight			X				
2	1C	Straight			X		X		
41	4C	Straight					X		
42	4B	Straight					X		
94	7								Nut Plate F / mount
95	7								Nut Plate F / mount
96	7								Nut Plate F / mount
130	7								Gasket F / Mount
138	9								Cap, Dust, Plastic

11. MIL-DTL-22992 Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
3	1A	Straight			X	X	X		
4	1A	Straight			X	X	X		
5	1A	Straight			X	X	X		
59	5	Straight							Shrink Boot Adapter
94	7								Nut Plate F / Mount
95	7								Nut Plate F / Mount
96	7								Nut Plate F / Mount
130	7								Gasket, F / mount

12. SPLIT BACKSHELLS

A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
66	4C	Straight		X			X		
67	4C	90°		X			X		

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
64	4C	Straight		X			X		
65	4C	90°		X			X		

13. THREADED ADAPTERS

B. MIL-DTL-38999 Series I and II Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
35 3/									

C. MIL-DTL-26482 Series I Jam Nut Receptacle Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
34	3C	Straight							Threaded Adapter

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
14. COPPER BODY BACKSHELLS									
A. MIL-DTL-38999 Series I and II Connectors									
32 – 1	7	90°						X	
32 – 2	7	Straight							
33 – 1	7	Straight						X	
15. RECTANGULAR BACKSHELLS									
A. MIL-DTL-24308 Connectors									
48	7	Straight					X		
50	7	90°					X		
B. MIL-DTL-83733 Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
28	3B	Straight					X	X	
44	4C	Straight					X		
16. NUT PLATE, FLANGE MOUNT									
A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series III, MIL-DTL-38999 Series I, II, III and VI Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
94	7	Straight							
95	7	Straight							
96	7	Straight							
17. FLANGE MOUNT GASKET									
A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series III, MIL-DTL-38999 Series I, II, III and VI Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
130	7								
18. END CAPS, DUST, PLASTIC									
A. MIL-DTL-5015 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, MIL-DTL-83723 Series III, MIL-DTL-38999 Series I, II, III and VI Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
138	9								

TABLE 7 - APPLICABLE CONNECTOR ACCESSORY GROUP FOR CONNECTOR SPECIFICATIONS (CONTINUED)

19. CONTACT, DUMMY

A. MIL-DTL-38999 Series I, II, III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
80	7								

19. SEALING PLUG

A. MIL-DTL-38999 Series I, II, III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
81	7								
134	7								Fiber Optic

20. MISCELLANEOUS DEVICES

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
127	7								Bushing Strip
128	7								Shield Band

21. FIBER OPTIC BACKSHELLS

A. MIL-DTL-38999 Series III and IV Connectors

AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environ-mental	Strain Relief	Shield Termination	Other
131	3B	Straight	X						
132	3B	45°	X						
133	3B	90°	X						
135	3B	Straight	X						Split
136	3B	45°	X						Split
137	3B	90°	X						Split

1/ Superseded by SAE AS5258 and MIL-C-83723/16 boots, heat shrinkable.
2/ Inactive for Air Force and Navy new design equipment or modification of existing equipment.
3/ Cancelled.
N/A - Not Applicable.

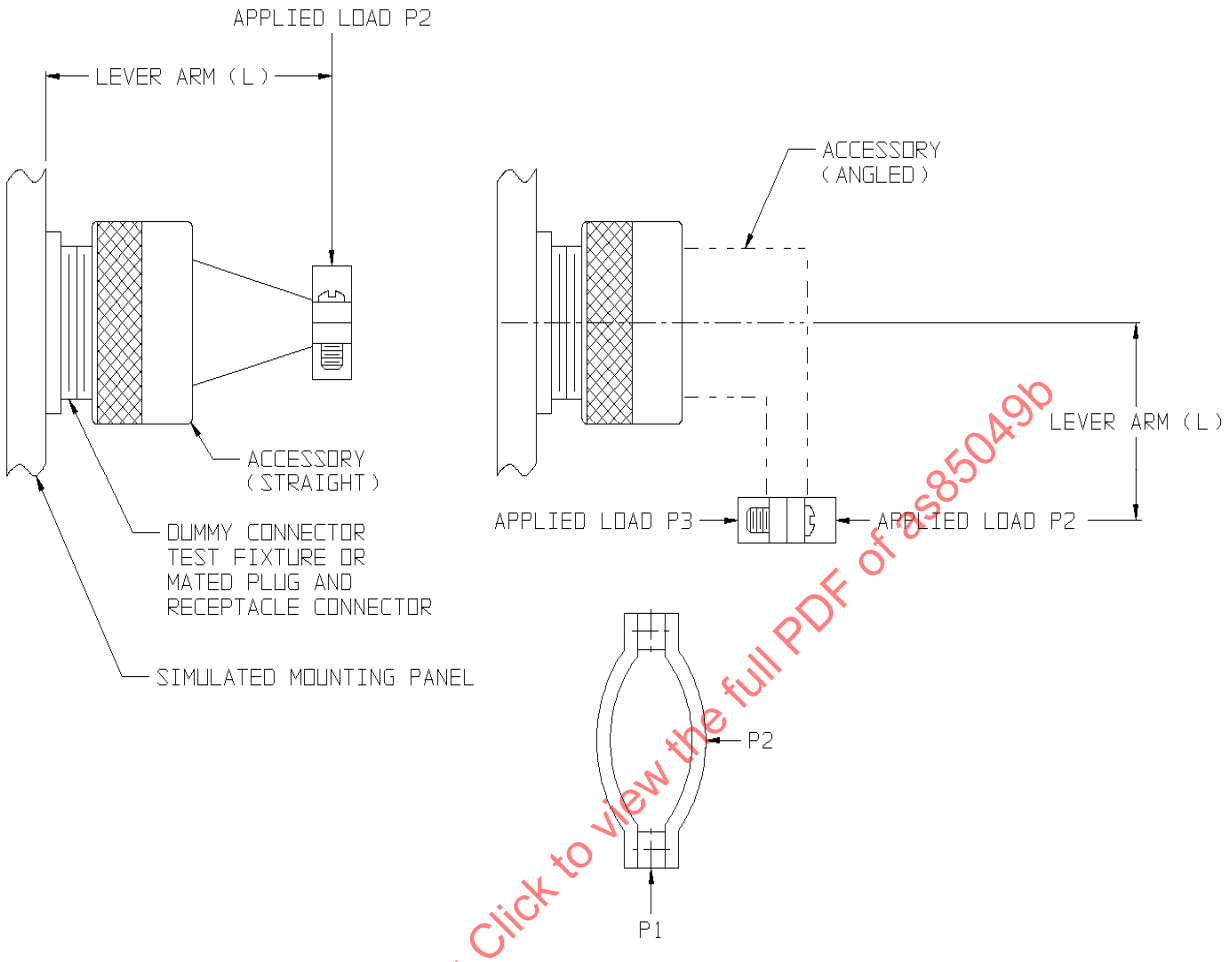
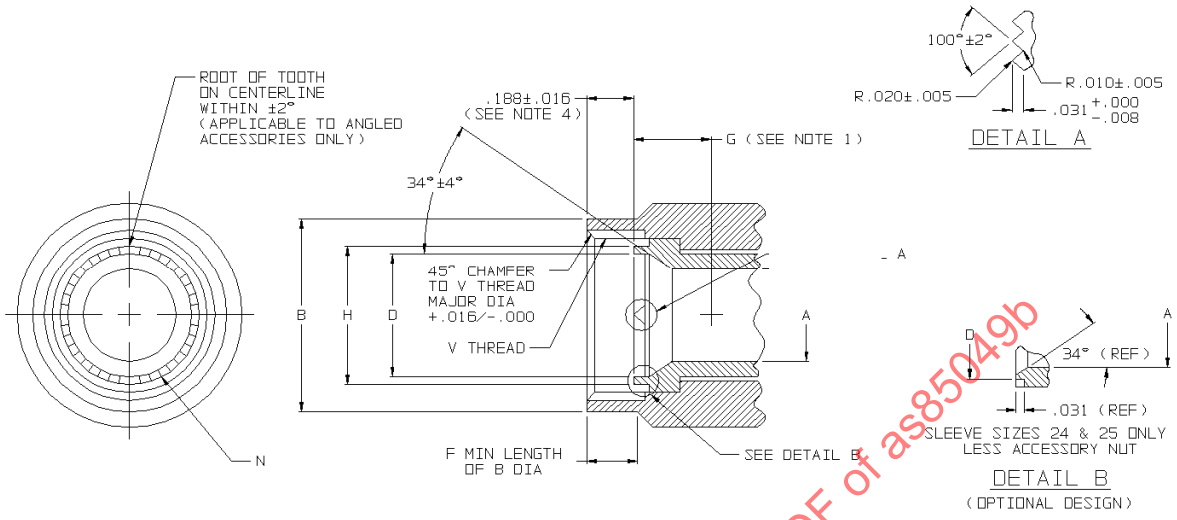


FIGURE 1 - EXTERNAL BENDING MOMENT TEST SETUP



SERIES I & II

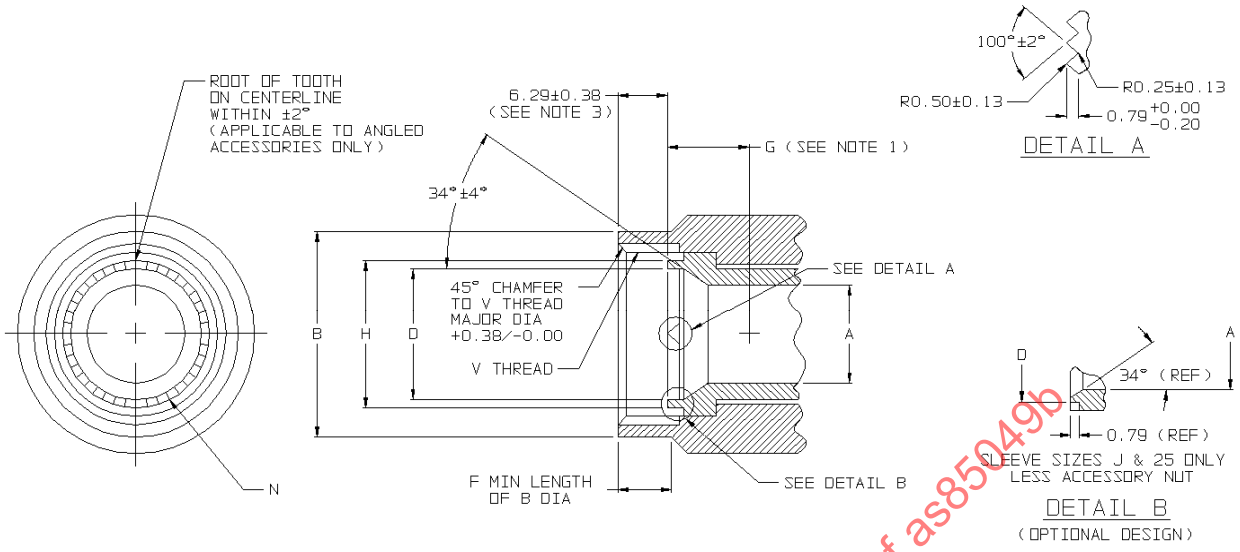
NOTES:

1. Minimum penetration of “A” diameter from front of serrations.
2. Metric equivalents are based upon 1.00 inch = 25.4 mm and shall be in accordance with ASTM E 380, paragraph 4.5, method A, and ASTM E 29, rounding-off method.
3. Dimensions are in inches.
4. Thread length is applicable on rotatable coupling nuts in the installed condition. Non-detent self-locking coupling nuts may require pre-loading to determine thread engagement length.

FIGURE 2 CONNECTOR ACCESSORY INTERMATEABILITY DATA FOR MIL-DTL-38999 CONNECTORS SERIES I AND II

TABLE 8 - CONNECTOR ACCESSORY INTERMATEABILITY DATA
FOR MIL-DTL-38999 CONNECTORS SERIES I AND II (FIGURE 2)

AS85049 Dash No.	MIL-DTL-38999 Shell Size		A Dia	B Dia	D Dia	F Min	G Min	H Dia Ref.	N No. of Teeth	V Thread UNEF-2B (plated)
	Series I	Series II								
08	9	8	0.269 ±0.005	0.567 +0.000 –0.062	0.321 +0.023 –0.022	0.084	0.117	0.386	12	0.4375-28
10	11	10	0.402 ±0.010	0.704 +0.000 –0.062	0.449 +0.023 –0.022	0.084	0.117	0.503	16	0.5625-24
12	13	12	0.516 ±0.010	0.829 +0.000 –0.062	0.565 +0.023 –0.022	0.084	0.117	0.628	20	0.6875-24
14	15	14	0.641 ±0.010	0.954 +0.000 –0.062	0.688 +0.023 –0.022	0.084	0.117	0.742	24	0.8125-20
16	17	16	0.766 ±0.010	1.079 +0.000 –0.062	0.813 +0.023 –0.022	0.084	0.117	0.866	28	0.9375-20
18	19	18	0.863 ±0.019	1.203 +0.000 –0.062	0.919 +0.023 –0.022	0.172	0.117	0.984	32	1.0625-18
20	21	20	0.988 ±0.018	1.329 +0.000 –0.062	1.044 +0.023 –0.022	0.172	0.117	1.109	36	1.1875-18
22	23	22	1.113 ±0.019	1.454 +0.000 –0.062	1.169 +0.023 –0.022	0.172	0.117	1.234	40	1.3125-18
24	25	24	1.238 ±0.019	1.579 +0.000 –0.062	1.290 +0.019 –0.018	0.172	0.067	1.359	44	1.4375-18



SERIES III & IV

NOTES:

1. Minimum penetration of “A” diameter from front of serrations.
2. Dimensions are in millimeters.
3. Thread length is applicable to rotatable coupling nuts in the installed condition. Non-detent self-locking coupling nuts may require pre-loading to determine thread engagement length.

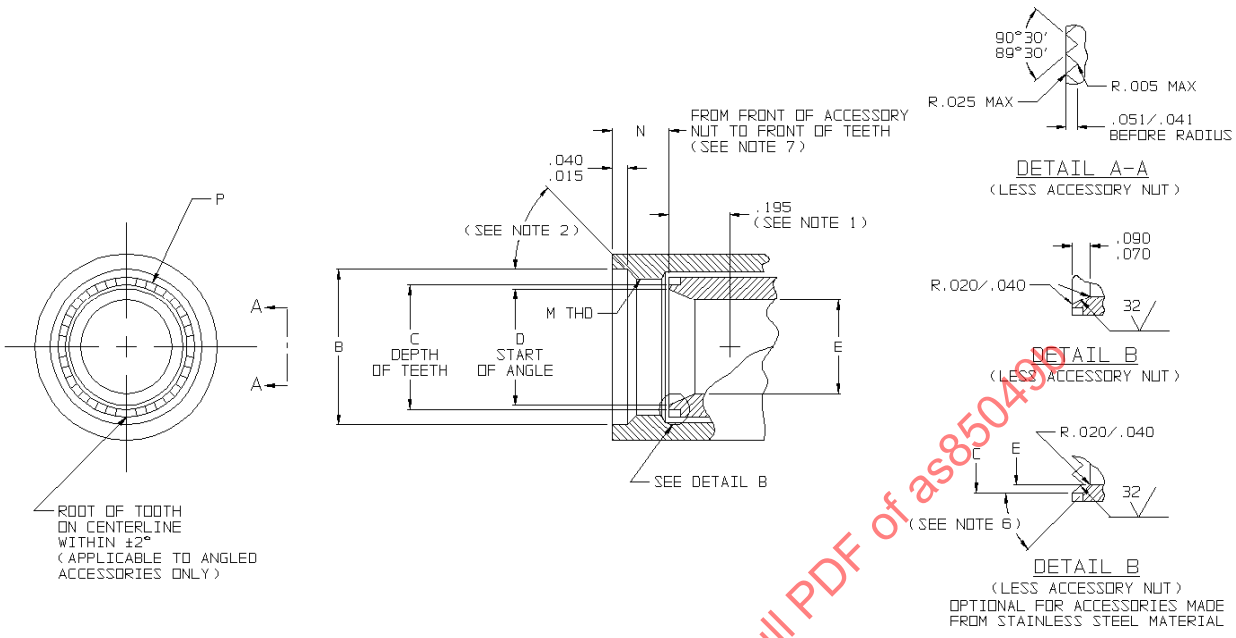
FIGURE 3 - CONNECTOR ACCESSORY INTERMATEABILITY DATA FOR MIL-DTL-38999 CONNECTORS SERIES III AND IV

TABLE 9 - CONNECTOR ACCESSORY INTERMATEABILITY DATA
FOR MIL-DTL-38999 CONNECTORS SERIES III AND IV (FIGURE 3)

AS85049 Dash No.	MIL-DTL-38999 Shell Size		A Dia Min	B Dia Max	D Dia Min	F Dim Min	G Dim Min	H Dia Ref.	N No. of Teeth	V Thread
	Series III	Series IV								
09	9 (A)	-	6.7	15.24	7.5	2.1	2.9	10.57	12	M12X1.0-6H
11	11 (B)	11 (B)	9.9	18.21	10.8	2.1	2.9	13.56	16	M15X1.0-6H
13	13 (C)	13 (C)	12.8	21.18	13.8	2.1	2.9	16.58	20	M18X1.0-6H
15	15 (D)	15 (D)	16.0	25.14	16.9	2.1	2.9	20.57	24	M22X1.0-6H
17	17 (E)	17 (E)	19.2	28.12	20.1	2.1	2.9	23.57	28	M25X1.0-6H
19	19 (F)	19 (F)	21.4	31.09	22.8	2.1	2.9	26.57	32	M28X1.0-6H
21	21 (G)	21 (G)	24.6	34.06	26.0	2.1	2.9	29.57	36	M31X1.0-6H
23	23 (H)	23 (H)	27.7	36.90	29.1	2.1	2.9	32.56	40	M34X1.0-6H
25	25 (J)	25 (J)	30.9	39.88	32.3	2.1	1.7	35.56	44	M37X1.0-6H

TABLE 9 - CONNECTOR ACCESSORY METRIC INTERNAL THREAD DIMENSIONS
FOR MIL-DTL-38999 CONNECTORS SERIES III AND IV (X THREAD, TABLE 9)

AS85049 Dash No.	Designation (Thread Size)	Minor Diameter		Pitch Diameter		Major Diameter	
		Min	Max	Min	Max	Min	Max
09	M12X1.0-6H 0.100R	10.917	11.153	11.350	11.510	12.000	12.304
11	M15X1.0-6H 0.100R	13.917	14.153	14.350	14.510	15.000	15.304
13	M18X1.0-6H 0.100R	16.917	17.153	17.350	17.510	18.000	18.304
15	M22X1.0-6H 0.100R	20.917	21.153	21.350	21.510	22.000	22.304
17	M25X1.0-6H 0.100R	23.917	24.153	24.350	24.520	25.000	25.314
19	M28X1.0-6H 0.100R	26.917	27.153	27.350	27.520	28.000	28.314
21	M31X1.0-6H 0.100R	29.917	30.153	30.350	30.520	31.000	31.314
23	M34X1.0-6H 0.100R	32.917	33.153	33.350	33.520	34.000	34.314
25	M37X1.0-6H 0.100R	35.917	36.153	36.350	36.520	37.000	37.314



NOTES:

1. Minimum penetration of “E” diameter measured from front of teeth.
2. The first thread is to be chamfered.
3. Metric equivalents are based upon 1.00 inch = 25.4 mm and shall be in accordance with ASTM E 380, paragraph 4.5, method A, and ASTM E 29, rounding-off method.
4. Dimensions are in inches.
5. This figure supersedes MS3155.
6. Angle, manufacturing option to meet performance requirements.
7. Thread length is applicable on rotatable coupling nuts in the installed condition. Non-detent self-locking style coupling nuts may require pre-loading to determine thread engagement length.

FIGURE 4 - CONNECTOR ACCESSORY INTERMATEABILITY DATA FOR MIL-DTL-5015 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3 AND MIL-DTL-83723 SERIES III

TABLE 10 - CONNECTOR ACCESSORY INTERMATEABILITY DATA FOR MIL-DTL-5015 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III (FIGURE 4)

For Connector Shell Size			B +0.025 –0.000 Dia	C +0.000 –0.015 Dia	D +0.015 –0.000 Dia	E +0.000 –0.010 Dia	M R.H. Thread Class 2B	N +0.000 –0.022 Dim	P No. of Teeth
AS81703 Series 3	MIL-DTL-26482 Series 2 or MIL-DTL-83723 Series I	MIL-DTL-5015 Crimp or MIL-DTL-83723 Series III Crimp							
3	—	—	0.562	0.431	0.370	0.270	0.5625-24 UNEF	0.305	15
—	8	8S	0.500	0.360	0.299	0.270	0.500-20 UNF	0.305	12
—	10	10S, 10SL	0.625	0.494	0.433	0.375	0.625-24 UNEF	0.305	15
7	12	12S, 12	0.750	0.610	0.549	0.511	0.750-20 UNEF	0.305	21
12	14	14S, 14	0.875	0.735	0.674	0.585	0.875-20 UNEF	0.305	24
19	16	16S, 16	1.000	0.860	0.799	0.710	1.000-20 UNEF	0.305	30
27	18	18	1.062	0.916	0.869	0.789	1.0625-18 UNEF	0.305	33
37	20	20	1.188	1.041	0.994	0.914	1.1875-18 UNEF	0.305	36
—	22	22	1.312	1.166	1.119	1.039	1.3125-18 UNEF	0.305	39
—	24	24	1.438	1.291	1.244	1.154	1.4375-18 UNEF	0.305	42
—	—	28	1.750	1.512	1.469	1.389	1.750-18 UNS	0.467	54
—	—	32	2.000	1.762	1.715	1.635	2.000-18 UNS	0.467	63
—	—	36	2.250	1.977	1.930	1.850	2.250-16 UN	0.467	72
—	—	40	2.500	2.192	2.145	2.065	2.500-16 UN	0.467	81
—	—	44	2.750	2.447	2.400	2.320	2.750-16 UN	0.467	87
—	—	48	3.000	2.697	2.650	2.570	3.000-16 UN	0.467	96
61	—	—	1.500	1.354	1.307	1.194	1.500-18 UNEF	0.305	45