SAE INTERNATIONAL

AEROSPACE STANDARD

AS95234™ REV. B

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Superseding AS95234A

(R) Connectors, Electrical, Reverse Bayonet, General Specification for

FSC 5935

RATIONALE

Revision is required to change dimensions in Figure A2; add dimension F values to Table A2; change dimension G and H values in Table A1; change G dimensions in Table A2; remove "class 1" from 3.3.3 description of black anodized finish; change minimum axial force in Table 6 and add note under Table A2; correct reference in 1.2.1; update references in 2.1, 2.2, 2.4, 2.7, 3.2. 3.3, 3.4 and 3.7; add EIA procedures in 2.5; correct appendix reference in 3.4.6.2; correct reference in 3.4.10 and 3.5.16.1; delete AS85049/31 reference from 3.5.16.2; correct reference in Tables 8 and 10; correct metric number in 4.7.8 and 4.7.18; correct EIA reference in 4.7.17; correct references in 4.7.18.1; correct references in 4.7.24.2 and 6.1.3.2; correct metric numbers in Tables A1, A8, and C1; and correct references in 3.3.2.

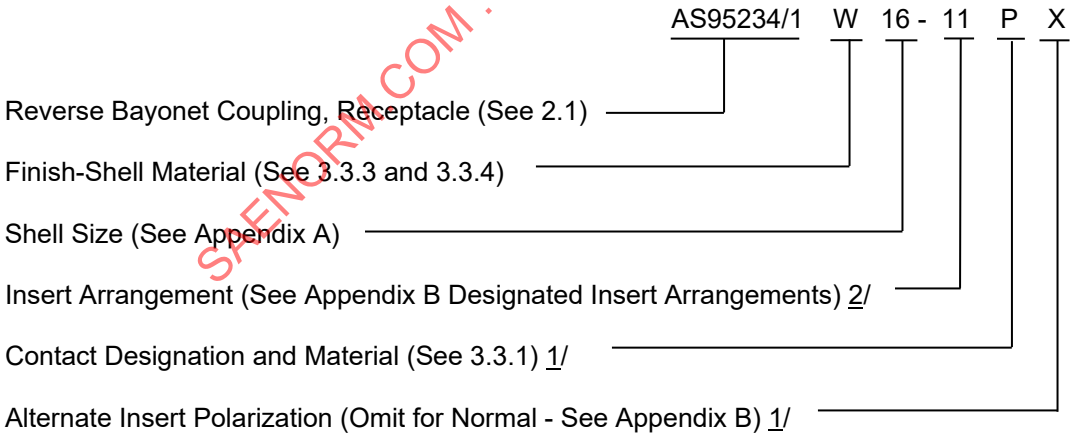
1. SCOPE

1.1 Scope

AS95234 includes reverse bayonet coupling, high current electrical connectors that are water tight and principally used in shipboard, ground vehicles and ground support equipment applications at serve voltages from 200 to 3000 Vrms and temperatures between -55 °C and +125 °C (-67 °F and +257 °F). See 6.1.5 for applications details. For aerospace application connectors, refer to AS50881.

1.2 Part Identification Number (PIN) Structure

The PIN shall be identified in each detail specification (see 3.1). The following PIN structure is recommended to be used.



1/ Leave blank for dummy storage receptacles and protective covers (see 2.1).
2/ See 2.1. Leave blank for dummy storage receptacles. For protective covers, change to “R” (rope) or “N” (rope and ring).

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https://www.sae.org/standards/content/AS95234B

1.2.1 The SAE International PIN is a copyright part number which cannot be used except for products being qualified by the qualifying activity (see 6.2.1) or is approved for qualification (see 6.2.2).

2. APPLICABLE DOCUMENTS

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 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2454	Plating, Electroless Nickel, Codeposited with Polytetrafluoroethylene (PTFE)
AMS2700	Passivation of Corrosion Resistant Steels
AMS5640	Steel Corrosion Resistant, Bars, Wire and Forgings, 18Cr-9.0Ni, Free Machining
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
AMS-QQ-S-763	Steel, Corrosion Resistant, Bars, Wire, Shapes, and Forgings
AIR1351	Manufacturers' Identification of Aerospace Electrical and Electronic Wiring Devices and Accessories
AIR1329	Electrical Connectors and Wiring, Compatibility of
AIR4789	Aerospace Information Report on Evaluating Corrosion Testing of Electrical Connectors and Accessories for the Purpose of Qualification
AIR5919	Alternatives to Cadmium Plating
AS9100	Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations
AS22759	Wire, Electrical, Fluoropolymer-Insulated, Copper or Copper Alloy
AS23053	Insulation Sleeving, Electrical, Heat Shrinkable, General Specification for
AS23053/5	Insulation Sleeving, Electrical, Heat Shrinkable, Polyolefin, Flexible, Crosslinked
AS23053/8	Insulation Sleeving, Electrical, Heat Shrinkable, Polyvinylidene Fluoride, Semi-Rigid, Crosslinked
AS23053/11	Insulation Sleeving, Electrical, Heat Shrinkable, Fluorinated Ethylene Propylene, Non-Crosslinked
AS23053/12	Insulation Sleeving, Electrical, Heat Shrinkable, Polytetrafluoroethylene
AS23053/18	Insulation Sleeving, Electrical, Heat Shrinkable, Modified Fluoropolymer, Crosslinked
AS31971	Gage Pin for Socket Contact Engagement Test
AS39029	Contacts, Electrical Connector, General Specification For
AS39029/44	Contacts, Electrical Connector, Pin, Crimp Removable (For AS50151 Series AS34001 and AS95234 Connectors)

AS39029/45	Contacts, Electrical Connector, Socket, Crimp Removable (For AS50151 Series AS34001 and AS95234 Connectors)
AS39029/112	Contact Bushing, Electrical Connector Contact, Wire Barrel
AS50151	Connectors, Electrical, Circular Threaded, AN Type, General Specification For
AS50881	Wiring Aerospace Vehicle
AS81044/12	Wire, Electric, Crosslinked Polyalkene Insulated, Tin-Coated Copper, Light Weight, 600-Volt, 150 °C
AS81969	Installing and Removal Tools, Connector Electrical Contact, General Specification For
AS81969/17	Installing and Removal Tools, Connector Electrical Contact, Type I, Class 1, Composition C
AS81969/19	Installing and Removal Tools, Connector Electrical Contact Type II, Class 1, Composition C
AS85049	Connector Accessories, Electrical, General Specification For
AS85049/11	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Category 1A (for AS50151 Crimp, MIL-DTL-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/130	Connector Accessories, Electrical Gasketing Material, Conductive/Non-Conductive, Flange Mount, Category 7
AS85049/138	Connector Accessories, Electrical, Cap, Dust, Plastic, Category 9
AS95234/1*	Connector Receptacle, Bayonet Coupling, In Line
AS95234/2*	Connector, Receptacle, Square Flange, Reverse Bayonet Coupling, Box Mount, Front, No Accessory Thread
AS95234/3*	Connector, Receptacle, Reverse Bayonet Coupling, Square Flange, Box Mount, Rear, No Accessory Thread
AS95234/4*	Connector, Receptacle, Reverse Bayonet Coupling, Square Flange, Panel Mount, Front, with Accessory Thread
AS95234/5*	Connector, Receptacle, Reverse Bayonet Coupling, Square Flange, Panel Mount, Rear, with Accessory Thread
AS95234/6*	Connector, Plug, Reverse Bayonet Coupling
AS95234/7*	Connector, Receptacle, Reverse Bayonet Coupling, Jam Nut
AS95234/8*	Connector, Receptacle, Reverse Bayonet Coupling, Jam Nut, with Accessory Threads
AS95234/9*	Connector, Plug, Reverse Bayonet Coupling, Grounding
AS95234/10	Protective Cover, Connector Plug, Reverse Bayonet Coupling
AS95234/11	Aerospace Standard, Protective Cover, Connector Receptacle, Reverse Bayonet Coupling

AS95234/12 Connector Receptacle, Reverse Bayonet Coupling, Dummy Stowage

AS95234/13 Connector Receptacle, Reverse Bayonet Coupling, Bulkhead Feed-Thru

* AS95234 Detail Specifications

2.2 U.S. Government Publications

Copies of these documents are available online at https://quicksearch.dla.mil/.

MIL-PRF-8625 Anodic Coatings for Aluminum and Aluminum Alloys

MIL-DTL-24640 Cables, Light-Weight, Electric, Low Smoke, for Shipboard Use, General Specification for

MIL-DTL-55330 Connectors, Electrical and Fiber Optic, Packaging of

MIL-DTL-83488 Coating, Aluminum, High Purity

MIL-STD-889 Dissimilar Metals

MIL-STD-1285 Marking of Electrical and Electronic Parts

MS27488 Plug, End Seal, Electrical Connector

SD-6 Provisions Governing Qualification

2.3 ANSI Accredited Publications

Copies of these documents are available online at http://webstore.ansi.org/.

ANSI/NCSL-Z540.3 Laboratories, Calibration, and Measuring and Test Equipment

2.4 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A342/A342M Materials, Feebly Magnetic, Permeability of

ASTM A582/A582M Free-Machining Stainless and Heat Resisting Steel Bars

ASTM A967/A967M Chemical Passivation

ASTM B85/B85M Aluminum-Alloy Die Castings

ASTM B26/B26M Aluminum Alloy Sand Castings

ASTM B209 Aluminum and Aluminum Alloy Plate and Sheet

ASTM B211/B221 Aluminum and Aluminum Alloy Bar, Rod, Wire, or Shapes; Rolled, Drawn, Extruded or Cold Finished

ASTM B488 Gold for Engineering Uses, Electrodeposited Coatings of

ASTM B700 Standard Specification for Electrodeposited Coatings of Silver for Engineering

ASTM B841 Standard Specification for Electrodeposited Coatings for Zinc Nickel Alloy Deposits

2.5 EIA Publications

Available from Electronic Component Association (ECA), 2500 Wilson Boulevard, Arlington, VA 22201-3834, Tel: 703-907-7500, www.eia.org.

EIA-364-02	Air Leakage Test Procedure for Electrical Connectors
EIA-364-05	Contact Insertion, Release and Removal Force Test Procedure for Electrical Connectors
EIA-364-06	Contact Resistance Test Procedures for Electrical Connectors
EIA-364-09	Durability Test Procedure for Electrical Connectors and Contacts
EIA-364-10	Fluid Immersion Test Procedure for Electrical Connectors
EIA-364-13	Mating and Unmating Force Test Procedure for Electrical Connectors and Sockets
EIA-364-17	Temperature Life With or Without Electrical Load Test Procedures for Electrical Connectors and Sockets
EIA-364-20	Withstanding Voltage Test Procedure for Electrical Connectors, Sockets and Coaxial Contacts
EIA-364-21	Insulation Resistance Test Procedure for Electrical Connectors, Sockets, and Coaxial Contacts
EIA-364-25	Probe Damage Test Procedure for Electrical Connectors
EIA-364-26	Salt Spray Test Procedure for Electrical Connectors, Contact and Sockets
EIA-364-27	Mechanical Shock (Specified Pulse) Test Procedure for Electrical Connectors
EIA-364-28	Vibration Test Procedure for Electrical Connectors and Sockets
EIA-364-29	Contact Retention Test Procedure for Electrical Connectors
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-364-35	Insert Retention Test Procedure for Electrical Connectors
EIA-364-37	Contact Engagement and Separation Force Test Procedure for Electrical Connectors
EIA-364-83	Shell-to-Shell and Shell-to-Bulkhead Resistance Test Procedure for Electrical Connectors

2.6 IPC - Association Connecting Electronics Industries

Available from IPC, 3000 Lakeside Drive, 309 S, Bannockburn, IL 60015, Tel: 847-615-7100, www.ipc.org.

J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
J-STD-006	Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications Requirements For

2.7 Definitions

2.7.1 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.

2.7.2 QUALIFIED PRODUCTS LIST (QPL)

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.

2.7.3 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.

2.7.4 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.

2.7.5 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.

2.7.6 PURCHASER

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

2.7.7 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.

2.7.8 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.

3. REQUIREMENTS

3.1 Detail Specification (see 2.1)

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

3.2 Qualification (see 6.2)

The components shall be a product that has been tested and has passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable Qualified Products List.

3.3 Designations and Materials (see 4.7.1)

3.3.1 Contact Designation and Material

A - Crimp connector with pin contact insert less standard pin contacts (see 6.3.1c).

B - Crimp connector with socket contact insert less standard socket contacts (see 6.3.1c).

C - Solder cup pin contact in accordance with materials specified in Appendix C (see 3.4.2.2).

D - Solder cup socket contact in accordance with materials specified in Appendix C (see 3.4.2.2).

E - Thru Bulkhead fixed pin-pin contact in accordance with materials specified in AS39029 (see 3.4.2.1).

F - Thru Bulkhead fixed socket-socket contact in accordance with materials specified in AS39029 (see 3.4.2.1).

G - Thru Bulkhead fixed pin to socket contact in accordance with materials specified in AS39029 (see 3.4.2.1). Pin facing front of receptacle per Figure A2 (O-ring seal facing front).

H - Thru Bulkhead fixed socket-pin contact in accordance with materials specified in AS39029 (see 3.4.2.1). Socket facing front per Figure A1 (O-ring seal facing front).

P - Crimp pin contact in accordance with materials specified in AS39029 (see 3.4.2.1)

S - Crimp socket in accordance with materials specified in AS39029 (see 3.4.2.1)

3.3.2 Shell and Coupling Ring Material

Aluminum shell and coupling ring shall be made of aluminum alloys in accordance with ASTM B211/B211M, B221, B209 or B26/B26M. Die castings, if specified in the detail specification, shall conform to ASTM B85/B85M, composition number GPASC84B.

Corrosion resisting steel shell and coupling ring shall be 300 series, in accordance with AMS-QQ-S-763, ASTM A582/A582M or AMS5640, Type 1 or 2.

3.3.3 Finish Material and Designation for Aluminum Connector

Aluminum base material and applicable finishes are available for all detail specifications.

A - Black anodize in accordance with MIL-PRF-8625, Type III to withstand 500 hour salt spray.

W - Olive drab cadmium in accordance with AMS-QQ-P-416 over a suitable underplate to withstand 500 hour salt spray. Final finish shall be electrically conductive.

X - Nickel with fluorocarbon polymer additives in accordance with AMS2454 over a suitable underplate to withstand 500 hours of salt spray testing. Color shall be non-reflective. Final finish shall be electrically conductive.

Y - Pure dense electrodeposited aluminum in accordance with MIL-DTL-83488, Type II, to withstand 500 hours of salt spray testing. Color shall be non-reflective. Final finish shall be electrically conductive. (Not for use on grounding finger connector.)

Z - Zinc nickel in accordance with ASTM B841 over suitable underplate to withstand 500 hours of salt spray testing. Color shall be black, conductive, and non-reflective. Final finish shall be electrically conductive.

3.3.4 Finish Material and Designation for Corrosion Resistant Steel Connector

Corrosion resistant steel base material and applicable finishes are available for all detail specifications.

B - Black cadmium in accordance with AMS-QQ-P-416, Type II, Class 3, and designed to withstand 500 hour salt spray testing.

S - Passivated in accordance with ASTM A967 or AMS2700 and designed to withstand 500 hour salt spray testing.

XS - Nickel with fluorocarbon polymer additives in accordance with AMS2454 over a suitable underplate to withstand 500 hours of salt spray testing. Color shall be non-reflective. Final finish shall be electrically conductive.

YS - Pure dense electrodeposited aluminum in accordance with MIL-DTL-83488, Type II, to withstand 500 hours of salt spray testing. Color shall be non-reflective. Final finish shall be electrically conductive (Not for use with grounding finger connectors).

ZS - Zinc nickel in accordance with ASTM B841 over suitable underplate to withstand 500 hours of salt spray testing. Color shall be black, conductive, and non-reflective. Final finish shall be electrically conductive.

3.3.5 Connector Insert

3.3.5.1 Crimp Contact Connector

The mating face of the crimp contact connector pin insert shall be resilient elastomer. Insert material shall be a suitable rigid dielectric material.

3.3.5.2 Solder Contact Connector

Resilient insert material shall be molded with a durometer hardness of from 70 to 90. Plastic insert material shall be a suitable rigid dielectric material.

3.3.5.3 Insert Piece Bonding

Bonding materials shall meet all requirements of this specification.

3.3.6 Accessory (Backshell)

Accessory material shall be in accordance with AS85049.

3.3.7 Bayonet

Bayonet pin material shall be 300 series corrosion resistant steel in accordance with AMS-QQ-S-763, ASTM A582/A582M, or AMS5640, Type 1 or 2.

3.3.8 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.

3.4 Design and Construction (see 4.7.1)

Unless otherwise specified, dimensions and tolerances shall be in accordance with ANSI Y14.5-1994. Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.

3.4.1 Connector and Accessory Intermateability (Interface) Dimensions

Connector mating and rear accessory mating dimensions shall be in accordance with Appendix A. All connector plugs and receptacles shall be intermateable. The accessory threads shall be the same for all connectors and applicable for the AS85049 accessories listed (see Table A5).

3.4.2 Contacts

3.4.2.1 Crimp Contacts

Crimp contacts shall conform to AS39029/44 (pin) and AS39029/45 (socket). Contact finish shall be in accordance with the overall gold finish as defined in AS39029 for size 16, type A and B contacts and the overall silver finish as defined in AS39029 for size 12, 8, 4, and 0, type A and B contacts. The mating ends of thru bulkhead contacts (when applicable) shall comply with the mating ends of the AS39029/44 and AS39029/45 contacts (see 6.1.4). If the bulkhead contacts require crimping, the contacts shall be designed to use the same crimp tools as required for AS39029/44 and /45 contacts.

3.4.2.2 Fixed Contacts

Fixed solderable contacts shall conform to Appendix C. Contacts shall be designed so that neither the pin nor socket contacts are damaged during mating of counterpart connectors.

3.4.3 Installing and Removal Tools

The individual contacts shall be positively retained in the connector when installed with the applicable AS81969/17 contact insertion tool. The individual contacts shall be capable of being removed from the connector when using the applicable AS81969/19 contact removal tool.

3.4.4 Insert Design and Construction (see 3.4.6)

3.4.4.1 Removable Contact Inserts

Removable contact inserts shall be installed in the keyway position indicated in the applicable detail specification part number (see Appendix B). The entire insert and wire sealing shall be essentially one integral part (voidless) and configured to provide suitable sealing around the wires. The rigid dielectric shall be one molded piece or no more than two pieces bonded so as to form essentially one integral piece. The contact locking device shall be a metal clip contained in the rigid dielectric insert. Inserts shall be non-removable, and secured to prevent rotation. All pin contact inserts shall have a resilient interface seal bonded to the front face and a resilient wire sealing grommet at the rear insert face.

3.4.4.2 Fixed Soldered Contact Inserts

Solder contact inserts shall contain non-removable contacts. Inserts shall be designed to not be damaged by the solder process and contacts shall be installed in the keyway position indicated in the applicable detail specification part number. Socket contacts are fully seated when mating tips are 0.228 to 0.062 inch (5.79 to 1.57 mm) below top of socket insert. Pin contacts are fully seated when mating tips are 0.312 to 0.219 inch (7.92 to 5.56 mm) below the end of the plug or receptacle body for the size 16 contacts and 0.125 to 0.062 inch (3.18 to 1.57 mm) below the end of the plug or receptacle body for size 16S, 12, 8, 4, and 0 contacts. All solder cup openings shall be oriented to face the terminus of the indexing radius in accordance with Appendix B and shall be perpendicular to the center line coinciding with the indexing radius, within ±15 degrees. The rigid dielectric shall be one molded piece. All pin contact inserts shall have a resilient interface seal bonded to the front and rear faces.

3.4.4.3 Insert Contact Arrangement

Contacts shall be arranged in the insert in accordance with Appendix B. The connector shall show no evidence of breakdown or flashover for each service rating.

3.4.4.4 Insert Contact Alignment

Connector inserts for socket contacts shall provide an overall sideplay of the socket contacts of 0.005 to 0.015 inch (0.13 to 0.38 mm) from the required position to facilitate alignment of mating pin contacts.

3.4.5 Reverse Bayonet Coupling

Reverse bayonet coupling design after plating shall be as defined in Appendix A.

3.4.6 Shell and Coupling Ring Design

Connector shells shall be seamless.

3.4.6.1 Coupling Ring Retention System

When retaining rings or other devices (i.e., wave spring washer, grounding spring washer, etc.) are used in the coupling ring retention system for plugs, the retention devices shall be metal, positively captivated or utilized in such a manner that the plugs shall remain electrically functional as an assembled connector in the event of a retention device failure.

3.4.6.2 Coupling Ring Engagement and Disengagement

Counterpart connectors of any arrangement and accessories shall be capable of being fully engaged and disengaged without the use of tools. Engagement of connectors shall be defined as full insertion of pins into sockets and proper sealing of the mating insert faces. Full engagement shall be indicated by an audible click at the completion of the coupling cycle, and a positive detent shall be included in the coupling mechanism to lock connectors in the engaged position. Connector pairs shall be coupled by means of a reverse bayonet coupling ring. Coupling shall be accomplished by clockwise rotation of the coupling ring; uncoupling by counterclockwise rotation. The reverse bayonet coupling ring shall be knurled to provide a gripping surface. When the connectors are fully engaged and the coupling ring is in the locked position, mated yellow dots (see Appendix A, paragraph 1.4) shall align on the receptacle and plug.

3.4.6.3 Shell Polarization

Polarization of connectors shall be accomplished by matched integral key and keyway of counterpart connectors. The polarization of counterpart connectors shall take place before coupling rings are engaged.

3.4.6.4 Engagement Seal

Pin contact connectors with resilient interfaces shall contain sealing means so that the engaged contacts meet the requirements herein. The design of the seal shall be such that in mated connectors all air paths between adjacent contacts and between contacts and shells are eliminated. There shall be interfacial mating of the engaged connector insert to provide dielectric under compression. Plug connectors shall have a peripheral seal to ensure shell to shell sealing.

3.4.7 Wire Sealing

Connectors shall be provided with a wire sealing grommet capable of sealing on wires of the sizes specified in Table 1.

Table 1 - Wire range accommodations

Contact Size	Wire Size	Outside Diameter (OD) of Finished Wire in Inches (millimeters)			
		Solder Contact Connectors		Crimp Contact Connectors	
		min 1/	max	min 2/	max
16-16 12-16	20 18 16	0.064 (1.63)	0.130 (3.30)	0.066 (1.68)	0.130 (3.30)
12-12	14 12	0.114 (2.90)	0.170 (4.32)	0.097 (2.46)	0.170 (4.32)
8-8	10 8	0.164 (4.17)	0.255 (6.48)	0.132 (3.35)	0.255 (6.48)
4-4	6 4	0.272 (6.91)	0.370 (9.40)	0.237 (6.02)	0.370 (9.40)
0-0	2 0	0.415 (10.54)	0.550 (13.97)	0.360 (9.14)	0.550 (13.97)

1/ For OD smaller than that specified, see 6.1.3.

3.4.8 Grommet Sealing Plugs (Crimp Contact Connectors)

Grommets shall be designed to accept sealing plugs in accordance with MS27488, as defined for the AS50151 connector, in lieu of wire where unused contacts are employed.

3.4.9 Intermateable and Interchangeability Characteristics

All plugs and receptacles are intermateable, but performance may vary when different finishes or shell materials are mated together. Connectors having the same part number shall be completely interchangeable with each other with respect to installation (physical) and performance (function) as specified herein.

3.4.10 Water Pressure Resistance

Connectors are designed to withstand a 6 foot column of water when used with an environmental sealed accessory (see 3.5.16 and 6.1.6).

3.4.11 Connector Service Voltage and Temperature Ratings

The connector continuous service voltage rating shall be as specified in Appendix B at the connector continuous temperature usage rating of -55 °C and +125 °C (-67 °F and +257 °F). See 6.1.5 for application details.

3.5 Performance

Connector performance characteristic shall be evaluated in accordance the methods of examination and tests (see 4.7).

3.5.1 Magnetic Permeability for Shell A and Accessories (see 4.7.2)

The relative magnetic permeability of the connector and various individual parts shall not be greater than 2.0.

3.5.2 Temperature Cycling-Thermal Shock (see 4.7.3)

Connectors shall meet the dielectric withstand voltage requirement after being subjected to the specified temperature extremes (see 3.5.23).

3.5.3 Air Leakage - Solder Contact Receptacles (see 4.7.4)

The air leakage rate shall not be greater than 1 atmospheric cubic inch per hour (4.55×10^{-3} cubic centimeters per second).

3.5.4 Contact Retention (see 4.7.5)

The contact shall be retained in the insert when subjected to the minimum axial load. The axial displacement shall not be greater than 0.025 inch (0.64 mm) for crimp connector contacts. No axial displacement is required for fixed connector contacts.

3.5.5 Sine Vibration (see 4.7.7)

Mated connectors shall not be damaged (cracks, breaks, lose parts, etc.) due to vibration. Counterpart connectors shall be retained in full engagement. The interruption of electrical continuity for the Sine Vibration shall be no longer than 10 µs.

3.5.6 Low Impact Shock (see 4.7.8)

Mated connectors shall not be damaged (cracks, breaks, lose parts, etc.) due to shock impact. Counterpart connectors shall be retained in full engagement, and the interruption of electrical continuity shall be no longer than 10 µs.

3.5.7 Humidity (see 4.7.9)

The mated connector shall withstand the dielectric withstanding voltage after humidity at sea level for 5 minutes, -0 seconds, +15 seconds (see 4.7.6.1).

3.5.8 Solder Contact Resistance (see 4.7.10)

Solder connector contacts in the mated condition shall meet the ambient 25 °C (77 °F) contact resistance requirements of Table 2.

3.5.8.1 Solder Contact Resistance at Temperature

Solder connector contacts in the mated condition shall meet the maximum connector temperature of 125 °C (257 °F) contact resistance requirements of Table 2.

Table 2 - Solder contact resistance with tin and silver plated wire

Wire Size	Test Current Amperes	Maximum Voltage Drop (millivolts)					
		25 °C ± 3 °C (77 °F ± 10 °F)		25 °C ± 3 °C (77 °F ± 10 °F) After Conditioning		+125 °C +3 °C -0 °C (+257 °F +10 °F -0 °F)	
		Max	Max Avg	Max	Max Avg	Max	Max Avg
0	150	21	19	26	23	32	26
1	125	19	18	23	20	29	24
2	100	17	16	21	18	26	21
4	80	23	21	28	24	35	28
6	60	25	23	30	26	38	31
8	46	26	24	32	28	39	32
10	33	33	30	40	37	50	42
12	23	42	38	51	43	63	51
14	17	40	36	48	41	60	48
16	13	49	45	59	51	74	60
18	10	52	48	64	54	79	64
20	7.5	55	50	68	56	83	67

3.5.9 Connector Durability (see 4.7.11)

Counterpart connectors shall show no mechanical or electrical defects detrimental to the operation of the connector after 500 cycles of coupling and uncoupling for crimp contact connectors.

3.5.10 Corrosion (see 4.7.12)

Connectors shall exhibit no exposure of basis material on internal or external surfaces as defined in AIR4789.

3.5.11 Insulation Resistance - Room Temperature (see 4.7.13)

The insulation resistance shall not be less than 5000 MΩ when tested at standard conditions.

3.5.12 Insulation Resistance - Long Term Elevated Temperature (see 4.7.14)

The insulation resistance shall be not less than 50 MΩ at +125 °C, +5 °C, -0 °C (+257 °F +9 °F, -0 °F) after 1000 hours.

3.5.13 Fluid Immersion (see 4.7.15)

Connectors shall mate with their counterpart connectors after fluid immersion, have no damage (cracks, tears, adhesion etc.), and pass the dielectric withstand voltage.

3.5.14 Insert Retention (see 4.7.16)

Inserts shall not be dislocated from their original position or show damage.

3.5.15 Moisture Resistance (see 4.7.17)

Mated connectors with rear straight accessory hardware assembled shall maintain an insulation resistance of 100 MΩ or greater at 25 °C (77 °F) after being subjected to the moisture resistance test.

3.5.16 Water Pressure (see 4.7.18)

3.5.16.1 Solder Contact Receptacles

When tested in accordance with 4.7.18.1, receptacle connector inserts and panel seal shall show no indication of water leakage. In addition, there shall be no evidence of leakage at the interface of mated connectors and at the end of 48 hours, while still immersed, the insulation resistance shall be greater than 100 MΩ.

3.5.16.2 Crimp Contact Connectors

When tested in accordance with 4.7.18.2, mated connectors assembled with AS85049/11 backshells shall have an insulation resistance greater than 100 MΩ after being subjected to the water pressure test. There shall be no evidence of water intrusion.

3.5.17 External Bending Moment (see 4.7.19)

Connectors shall exhibit no evidence of damage, as revealed by inspection with 3X magnification, when stressed using the applicable bending moment.

3.5.18 Solder Contact Engaging and Separating Forces (see 4.7.20)

The socket contact engaging and separating forces shall be within the applicable limits specified in Table 3.

Table 3 - Solder contact engagement and separation forces

Contact Mating End Size	Minimum Separation Force (ounces) Minimum Diameter AS31971 Pin	Maximum Average Engagement Force (ounces) Maximum Diameter AS31971 Pin	Maximum Engagement Force (ounces) Maximum Diameter AS31971
16	2	33	48
12	3	56	80
8	5	N/A	160
4	10	N/A	240
0	15	N/A	320

NOTE: N/A - Not applicable.

3.5.19 Resistance to Probe Damage for Solder Socket Contacts (see 4.7.21)

After being subjected to the resistance to probe damage, solder socket contacts shall meet the engagement and separation force requirements.

3.5.20 Shell Conductivity for Connectors Except Finish A and S (see 4.7.22)

Mated connectors shall be electrically conductive from the plug accessory thread to the receptacle mounting flange or to the accessory thread on the cable connecting plug. The overall DC resistance shall not be greater than 0.05 Ω prior to performance exposure and 0.10 Ω after performance exposure (see Tables 6 and 7).

3.5.21 Contact Insertion and Removal Forces for Crimp Connectors (see 4.7.23)

The forces required to insert and remove unlocked contacts shall not exceed the requirements specified in Table 4.

Table 4 - Contact insertion and removal forces

Contact Size	Insertion and Removal Max Pound Force (Newtons)
16	20 (89)
12	25 (111)
8	30 (133)
4	40 (178)
0	40 (178)

3.5.22 Radio Frequency Interference (RFI) (see 4.7.24)

3.5.22.1 RFI Shielding

The RFI shielding capabilities of the designated RFI shells at the specified frequencies shall not be less than that specified in Table 5.

Table 5 - RFI leakage attenuation

Frequency MHz	Leakage Attenuation dB
100	65
150	60
200	60
300	55
400	55
600	50
800	45
1000	45

3.5.22.2 RFI Finger Spring Force

The plug and receptacle axial mating force shall be as specified in Table 6.

Table 6 - RFI spring finger force

Shell Size	Axial Pound Force (Newton)	
	Max	Min Pounds
10	15 (67)	1 (4.5)
14	20 (89)	
16 thru 36	30 (133)	

3.5.23 Dielectric Withstanding Voltage at Sea Level (see 4.7.6)

Connectors shall show no evidence of breakdown or flashover when subjected to the test voltages and altitudes in accordance with 4.7.6. Corona shall not be considered as breakdown.

3.5.24 Marking (see 4.7.1)

Each connector shall be legibly and permanently marked on the shell or coupling ring in accordance with MIL-STD-1285. Marking shall be legible after all tests specified herein. Suppliers' symbols or trademark shall be listed in AIR1351.

3.5.24.1 Insert Marking (see Appendix B)

Inserts shall be marked as specified in appendix B. Supplier's identification is permitted. Raised or depressed characters shall not be used on insert mating faces for any markings of crimp contact connectors.

3.5.24.2 Contact Designations Marking

Eighty percent of the characters on any face of the connector shall remain identifiable after completion of the tests specified in Tables 7 and 8.

3.5.24.3 Grommet and Insulating Spacers Marking

Wire openings on the rear face of grommets and insulating spacers shall be marked with legible characters corresponding to the insert contact designators. Raised, depressed, or contrasting colored characters shall be used. It is permissible to identify only those wire openings which are located on the vertical centerline of the grommets of solder contact connectors.

3.5.25 Workmanship (see 4.7.1)

Loose contacts, poor molding fabrication, loose materials, defective bonding, damaged or improperly assembled contacts, peeling, or chipping of plating or finish, galling of mating parts, nicks and burrs of metal parts, improper tinning of solder cups (see Appendix C), and warping of the post molding shall be a basis for rejection of items.

4. QUALITY ASSURANCE

4.1 Responsibility for Inspection

Unless otherwise specified herein, the contract or purchase order, the supplier is responsible for the performance of all contract inspection requirements. Except as otherwise specified herein, the supplier may use any facilities suitable for the performance of the inspection requirements. The qualifying activity has the right to perform any of the inspections set forth in the standard where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for Compliance

All items must meet all technical requirements of the product standard. The inspection set forth in this standard shall become a part of the supplier's overall inspection system or quality program. The absence of any inspection requirements in the standard shall not relieve the supplier of the responsibility of assuring that all products comply with all requirements of the contract or purchase order. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the purchaser 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 supplier. 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 Z540-3 or equivalent standards.

4.1.3 Quality Assurance Compliance

The supplier's reliability assurance program for (generic name of item*) and assembly procedures shall comply with the AS9100 Aerospace Standard for Quality Management System requirements. Other established and industry recognized quality assurance standards that assure all products produced conform to the contract requirements are acceptable. However, if used, it is the responsibility of the supplier to provide evidence of compliance to AS9100. The qualifying activity (QA) authority reserves the right to monitor, measure, and validate compliance at their discretion.

4.2 Classification of Inspections

The conditions for the inspections are specified as applicable and all test data shall be compiled in accordance with an acceptable method, such as chapter 4 of SD-6. The inspections specified herein are classified as follows:

a. Initial qualification inspection (see 4.3).

b. Retention of qualification inspection (see 4.4).

c. Quality conformance inspection (see 4.5).

4.3 Initial Qualification Inspection

Initial qualification inspection shall be in accordance with Tables 7 and 8. Sequential testing is not required except as specified. The qualifying activity shall perform or witness the tests specified in Table 7 and the supplier shall perform the tests specified in Table 8 in a laboratory of their choice. All test laboratories require qualifying activity approval.

4.3.1 Qualification Inspection Procedure

A request for qualification shall be made to the qualifying activity (see 6.2) prior to initiating testing. Testing cannot begin until the supplier has received an authorization letter. The supplier is recommended to provide the qualifying activity a test plan based on the authorization letter to ensure the supplier and qualifying activity maintain communication and document changes as needed. The Qualifying activity shall not approve a component that does not meet requirements specified herein. The qualifying activity has the authority to impose specific specification test requirements to resolve test failures/discrepancies and to waive testing to verify specific product manufacturing changes or qualifications by similarity. Any change in the supplier's process control inspections, quality conformance inspections, or manufacturing control drawings (editorial changes are acceptable) without the express approval of the qualifying activity may result in loss of qualification for that product.

4.3.2 Qualification of Assembly Plants

Assembly plants shall be authorized by a qualified supplier to assemble the supplier's product in accordance with the supplier's assembly procedures. Assembly plants must be sponsored by the qualified supplier 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 supplier 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.

Table 7 - Qualifying activity test requirements

Examination or Test	Requirement Paragraph	Examination or Test Paragraph	Connector Specimens as Applicable 1/
Group 1 - Visual, design, and preparation inspections (sequence not required)			A minimum of two connector specimens (see 4.3.3 and 4.3.4)
Dimensions, materials, design, marking, and workmanship	3.1, 3.3, 3.4, 3.5.24, and 3.5.25	4.7.1	All detail specification configurations for all shell size ranges
Magnetic permeability for Shell A and accessories	3.5.1	4.7.2	
Contact retention	3.5.4	4.7.5	Limited to five contacts per contact size
Contact insertion and removal forces (crimp connector)	3.5.21	4.7.23	Limited to five contacts per contact size
Resistance to probe damage size 16 solder socket contact	3.5.19	4.7.21	Limited to five contacts per contact size
Solder Contact engagement and separation forces	3.5.18	4.7.20	Limited to five contacts per contact size
Solder Contact resistance +25 °C (77 °F) and +125 °C (257 °F)	3.5.8	4.7.10	Limited to five contacts per contact size
Insulation resistance - room temperature	3.5.11	4.7.13	
Dielectric withstanding voltage	3.5.23	4.7.6	
Shell conductivity except finish A and S	3.5.20	4.7.22	One shell size range

1/ Tests limited to any finish except as indicated.

Group 2 - Mechanical Characteristics (sequenced required)			A minimum of one connector pair, pin in receptacle, from Group 1 (see 4.3.5) 1/
Temperature cycle - thermal shock	3.5.2	4.7.3	
Moisture resistance	3.5.15	4.7.17	
Connector durability	3.5.9	4.7.11	
Corrosion	3.10	4.7.12	
Insulation resistance - room temperature	3.5.11	4.7.13	
Shell conductivity except finish A and S	3.5.20	4.7.22	All finishes on one shell size range
Solder contact resistance +25 °C (77 °F)	3.5.8	4.7.10	Limited to two contacts per contact size
Contact engagement and separation forces (solder connector)	3.5.18	4.7.20	All shell size ranges
Contact retention	3.5.4	4.7.5	Limited to two contacts per contact size/type

Contact insertion and removal forces	3.5.21	4.7.23	Limited to two untested contacts per contact size
Insert retention	3.5.14	4.7.16	Limit to 2 solder and 2 crimp connectors in all shell size ranges
External bending moment	3.5.17	4.7.19	Shell A only in all shell size ranges

1/ Except as specified, connector pairs shall include all finishes, shell types, contact sizes/types and 6 shell size ranges (three shell size ranges for solder and three for crimp connectors).

Group 3 Temperature endurance (sequence required)			A minimum one connector pair, pin in plug, from Group 1 (see 4.3.5) 1/
Humidity	3.5.7	4.7.9	
Insulation resistance (long term)	3.12	4.7.14	
Dielectric withstanding voltage	3.5.23	4.7.6	
Shell conductivity except finish A and S	3.20	4.7.22	All finishes on one shell size range
Solder contact resistance +25 °C (77 °F)	3.5.8	4.7.10	Limited to two contacts per contact size
Contact engagement and separation forces (solder connector)	3.5.18	4.7.20	All shell size ranges
Contact retention	3.5.4	4.7.5	Limited to two contacts per contact size/type
Contact insertion and removal forces	3.5.21	4.7.23	Limited to two contacts per contact size
Insert retention	3.14	4.7.16	Limit to 2 solder and 2 crimp connectors in all shell size ranges

1/ Except as specified, connector pairs shall include all finishes, shell types, contact sizes/types and 6 shell size ranges (Three shell size ranges for solder and three for crimp connectors).

Table 8 - Supplier test requirements

Examination or Test	Requirement Paragraph	Examination or Test Paragraph	Number of Specimens as Applicable 1/
Group 1 - Air and water pressure resistance (sequence required)			See 4.3.5 1/
Insulation resistance - room temperature	3.5.11	4.7.13	
Dielectric withstanding voltage	3.5.23	4.7.6	
Contact insertion and removal forces (crimp connector)	3.5.21	4.7.23	
Connector durability	3.5.9	4.7.11	
Temperature cycle - thermal shock	3.5.2	4.7.3	
Air leakage (solder connector)	3.5.3	4.7.4	
Water pressure (crimp connector)	3.5.16	4.7.18	
Dielectric withstanding voltage	3.5.23	4.7.6	
Insulation resistance - room temperature	3.5.11	4.7.13	

Group 2 - Fluid resistance (sequence required)			See 4.3.4h
Dielectric withstanding voltage	3.5.23	4.7.6	
Fluids 1/	3.5.13	4.7.15	
Dielectric withstanding voltage	3.5.23	4.7.6	
Insert retention	3.5.14	4.7.16	

Group 3 - Radio Frequency Interference (RFI)			See 4.3.5L
RFI finger spring force	3.5.22.2	4.7.24.2	
Durability	3.5.9	4.7.11	
RFI finger spring force	3.5.22.2	4.7.24.2	
RFI shielding	3.5.22.1	4.7.24.1	

Group 4 - Vibration and shock endurance (sequence required)			A minimum of one connector pair, pin in receptacle, from Group 1 (see 4.3.5) 2/
Sine Vibration 3/	3.5.5	4.7.7	
Low Impact Shock 3/	3.5.6	4.7.8	
Contact retention	3.5.4	4.7.5	
Insert retention	3.5.14	4.7.16	

1/ Except as specified, two connector specimens (one with pin and one with socket contacts in the receptacle) shall include all shell types with choice of finish, all contact sizes/types, and 6 shell size ranges (three shell size ranges for solder and three for crimp connectors).
2/ Except as specified, connector pairs shall include all finishes, shell types, contact sizes/types and 6 shell size ranges (three shell size ranges for solder and three for crimp connectors).
3/ Requires QA or third party designated witnessing. Performed only for initial qualification and alternating retention periods.

4.3.3 Initial Qualification Test Report

The qualifying activity shall provide the supplier a data package of all tests performed in accordance with Table 7. The qualifying activity test method procedures shall be made available to the supplier upon request. The supplier shall provide a test report to the qualifying activity for the tests specified in Table 7. The test report shall be signed by the manufacturing authority responsible for ensuring compliance to the specification requirements. The supplier may combine the qualifying activity test data with the supplier's test data into one final test report. The final test report and/or data package shall remain on file with the supplier for a minimum period of 6 years and be available to the qualifying activity upon request. The supplier test report shall contain as a minimum the following information:

a. The quantitative results for tests specified in Table 8 and the authorization letter.

b. A tabulated comparison between the dimensions specified herein and each manufacturing control drawing for components qualified by similarity.

c. Corrective Action Reports (as applicable).

4.3.4 Qualification by Similarity

Qualification by Similarity is as specified in Table 9. The qualifying activity and the supplier may agree on other similarity test samples and sequences not specified herein provided the products and test requirements associated with the agreed upon similarity are specified herein. The qualifying activity may accept data generated under oversight of a user activity, provided the requirements used to generate the data is equal or greater than the requirements specified herein.

Table 9 - Qualification by similarity

Part being qualified (see 4.3.4)	Family of parts approved by similarity 1/
Receptacle, wall mount, crimp contact	Receptacle, crimp contact, in-line
Receptacle, wall mount, solder contact	Receptacle, solder contact, in-line
One shell Size from 10 to 16 range (small)	All shell sizes 10 to 16
One shell Size from 18 to 26 range (medium)	All shell sizes 18 to 26
One shell Size from 28 to 36 range (large)	All shell sizes 28 to 36
Highest density insert for service rating range "instrument"	All inserts with Instrument, A, and D service ratings
Highest density insert for service rating C	All inserts with C, B, and E service ratings
Solder connector (solder cup)	Connector solder cup
Receptacle, Bulkhead Feed-Thru, fixed contact	Receptacle, Bulkhead Feed-Thru, fixed contact 2/

1/ Supplier is required to provide a comparison of the specification dimensions to the component control drawing dimensions for shell sizes and configurations qualified by similarity. Date of drawing and drawing control number is required.
2/ Vibration not required.

4.3.5 Qualification Sample (see 4.3.4 for exceptions)

For each connector tested the supplier shall use the same materials, manufacturing procedures, and methods of inspection as would be used to provide the connector to a purchaser. Each connector subjected to qualification testing shall be provided with a counterpart connector for those tests requiring mating assemblies. The counterpart connectors provided for this purpose shall be new, previously qualified connectors or new connectors submitted for qualification testing. Suppliers not producing mating connectors shall submit data substantiating that tests were performed with approved counterpart connectors. Specimens of each item submitted for qualification shall be tested in the sequence when specified in Tables 7 or 8. The wire types shall be AS22759 or AS81044/12 tin or nickel coated conductors. The connector sample shall include the following designs:

a. A minimum of two connector specimens for each shell size range (see Table 9) and configurations specified in the detail specification. One connector shall have the pin insert in the plug and the socket insert in the receptacle. The other connector shall have the inserts reversed.

b. For crimp contact connectors, two cavities of each sample shall contain unwired contacts and sealing plugs in accordance with MS27488. As a minimum one connector shall be terminated with tin conductor wire and one with nickel conductor wire in accordance with Table 1.

c. The solder connectors shall be terminated with tin conductor wire in accordance with Table 1.

d. All crimp contact sizes with a minimum of six contacts for each size or as limited by the highest density insert for a contact size. Fifty percent of each contact size shall be wired with minimum diameter wire and 50% with maximum diameter wire in accordance with Table 1.

e. All solder contact sizes with a minimum of six contacts for each size or as limited by the highest density insert for a contact size. Solder connector contacts, except shell H, shall be soldered in accordance with J-STD-001.

f. Highest density insert for each service rating.

g. All shell materials and finishes.

h. For fluid resistance test, one solder and one crimp connector pair per fluid from any shell side range, finish, shell type, contact size, and contact type.

i. For air and water pressure resistance tests, one connector from each shell size range with any finish. All contact sizes and shell types are required.

j. For external bending moment only, one finish required.

k. For Radio Frequency Interference tests, one connector pair from shell size range 18 through 28.

4.4 Retention (Periodic) Qualification Inspection

Retention of qualification inspection shall occur every 36 months after the initial qualification date. The qualifying activity may shift the reporting date to accommodate testing schedules, but no later than 18 months from retention of qualification due date. Retention of qualification shall be in accordance with Table 7 Group 2 and 3.

a. Certification: If no production of the similarity family of products previously qualified has occurred for the entire reporting period, the Supplier may provide a certification to the qualifying activity that no changes in the product materials, manufacturing processes, or site of production has occurred for that family since the initial qualification Inspection. Certification for more than one reporting period shall not be permitted. The supplier shall contact the qualifying activity to determine the conditions of the certification. The supplier may be required to submit the certification on a specified form provided by the qualifying activity.

b. Component Production: If a qualified component from a similarity family has been produced in the retention period, a component from that family shall be submitted. Retention of qualification consists of the tests specified in Table 7 for initial qualification and shall be performed by qualifying activity.

4.4.1 Retention of Qualification Samples (see 4.3.3 and 4.3.4)

For each component tested the supplier shall use the same materials, manufacturing procedures, and methods of inspection as would be used to provide the component to a purchaser. Samples shall be the same as for initial qualification except finishes are limited to X, Y, Z, XS, YS, and ZS.

4.4.2 Retention of Qualification Test Report

The qualifying activity will provide certified Table 7 test results. The supplier shall furnish the qualifying activity one certified test report containing the following information:

a. A summary of results for tests specified for the Quality Conformance Requirements (see 4.6).

b. Corrective Action Reports (as applicable)

The supplier will maintain all results for a period of 6 years and provide the information to the qualifying activity on request.

4.5 Qualification Rejection

There shall be no failures during any examination or tests of the connectors submitted for qualification tests. If a failure occurs during sequence testing, the test sequence shall be stopped and the supplier shall take corrective action. The qualifying activity is required to approve any corrective action from the supplier before continuing the test sequence. The qualifying activity in consultation with the supplier will determine if additional tests are needed prior to continuing the test sequence.

4.6 Quality Conformance Inspection

4.6.1 Inspection of Product for Delivery

Inspection of product for delivery shall consist of group A inspection.

4.6.2 Group A Inspection

Group A inspection shall consist of all of the applicable tests specified in Table 10.

Table 10 - Group A inspection

Inspection 1/	Requirement Paragraph	Test Paragraph
Dimensions, materials, design, marking, and workmanship	3.1, 3.3, 3.4, 3.5.24, and 3.5.25	4.7.1
Dielectric withstanding voltage 2/	3.5.23	4.7.6
Insulation resistance - room temperature 2/	3.5.11	4.7.13

1/ 100% inspection.
2/ The supplier is permitted to use in-process controls for this requirement.

4.7 Methods of Examination and Tests

4.7.1 Visual and Mechanical Examination (see 3.1 through 3.4)

The connectors, accessories, and piece parts shall be visually and mechanically examined to ensure conformance with 3.1, 3.3, 3.4, 3.5.24, and 3.5.25. Certification of material compliance shall be provided to the qualifying activity for qualification. The use of in process controls to examine component parts, unrelated to lot sizes of finished connectors, is permitted in lieu of examination of these components in the finished connectors to ensure conformance of these component parts. A summary of these results shall be provided to the qualifying activity for qualification.

4.7.2 Magnetic Permeability (see 3.5.1)

The relative permeability shall be checked with an indicator conforming to ASTM A342. The connectors or accessories are permitted to be wired or unwired, as convenient, but shall not carry current.

4.7.3 Temperature Cycling-Thermal Shock (see 3.5.2)

Unmated connectors shall be tested in accordance with EIA-364-32 Test Condition I, except high temperature duration shall be +125 °C (247 °F). Connectors with solder contacts shall be tested with an accessory to secure the soldered wires. Immediately perform the dielectric withstand voltage at the completion of the last cycle.

4.7.4 Air Leakage - Solder Contact Receptacles (see 3.5.3)

The connector receptacle shall be tested for air leakage in both directions through the connector and not through the flange and mounting surface area in accordance with EIA-364-02. The pressure differential across the connector shall be 30 psi at a temperature of -55 °C, +0 °C, -5 °C (-67 °F, +0 °F, -9 °F).

4.7.5 Contact Retention (see 3.5.4)

The connector shall have all contacts in place during the test. The axial loads shall be in accordance with Table 11 and be applied to the mating end of the individual contacts. The test shall be performed in accordance with EIA-364-29 Method A for fixed connector contacts and Method B for crimp connector contacts.

Table 11 - Contact retention axial loads

Contact Mating End Size	Minimum Axial Load (Pounds)	
	Fixed Connector Contact	Crimp Connector Contact
16	10	25
12	15	30
8	20	50
4	20	60
0	25	75

4.7.6 Dielectric Withstanding Voltage at Sea Level (see 3.5.23)

A wired, unmated connector shall be tested in accordance with EIA-364-20 Method A Test Condition I, with the following details and exceptions:

a. The magnitude of the test voltage shall be as specified in Table 12. (For maximum recommended working voltages see application notes in 6.1.)

b. Fifty percent of the contacts available shall be tested, but in no case shall less than six dielectric withstanding voltage readings be taken. If the number of contacts is three or less, all contacts shall be tested. The test voltage shall be applied between each wired contact and each adjacent contact and the shell. If an insert has more than one service rating, similar connections shall be made for the different test voltages as needed.

c. For quality conformance testing, simulated contacts and special techniques are permitted to be used in performing this test.

Table 12 - Dielectric withstanding test voltages

Service Rating	Test Voltage (volts-rms)
Instrument	1000
A	2000
D	2800
E	3500
B	4500
C	7000

4.7.6.1 Dielectric Withstanding Voltage after Humidity at Sea Level (see 3.5.7)

The mated connector shall show no evidence of breakdown when the voltage indicated for the applicable service rating in Table 13 is applied between the two closest contacts and between the shell and the contacts closest to the shell in accordance with EIA-364-20 Method A Test Condition I, except the test voltage shall be applied for 5 minutes.

Table 13 - Test voltages after humidity

Service Rating	Test Voltage (volts-rms)
Instrument	300
A	750
D	1350
E	1875
B	2575
C	4500

4.7.6.2 Dielectric Withstanding Voltage a Sea Level for Group A Inspection (see 4.6.2)

Unmated connectors or insert assemblies shall show no evidence of breakdown when the applicable test voltage of Table 13 is applied between the two closest contacts, and between the shell (or simulated shell) and the contact closest to the shell in accordance with EIA-364-20 Method A Test Condition I. The period of application of voltage shall be 2 seconds minimum and simulated contacts are permitted to be used.

4.7.7 Sine Vibration (see 3.5.5)

A wired mated connector, without safety wire, shall be mounted to the vibration fixture and the wire leads clamped to non-vibrating points at least 8 inches (203.2 mm) from the rear of the connector. The clamping length shall be chosen to avoid resonance of the wire bundles or cables. All contacts shall be wired in a series circuit, and a current not greater than 100 mA shall flow through the series circuit during the test. The mated connector shall be vibrated in accordance with EIA-364-28 Test Condition III.

4.7.8 Low Impact Shock (see 3.5.6)

Mated connectors shall be tested in accordance with EIA-364-27, test condition A. Connectors shall be mounted and mated. All contacts shall be wired in a series circuit with a current that shall not be greater than 100 mA. The wire bundles or cables shall be clamped to structures that move with the connectors. A minimum of 8 inches (203.2 mm) of wire or cable shall be unsupported behind the rear of each connector.

4.7.9 Humidity (see 3.5.7)

Mated connectors shall be exposed to a relative humidity in accordance with EIA-364-31 Method II, at a temperature of 71 °C ± 2 °C (160 °F ± 7 °F) for 14 days. Immediately after exposure, without any forced drying, conduct the dielectric withstanding voltage test at sea level (see 4.7.6). Solder contact receptacles rear portion shall be force air dried at the lowest heat gun setting until the surface moisture between the exposed contacts is removed prior to the dielectric test.

4.7.10 Solder Contact Resistance (see 3.5.8)

The contact resistance shall be measured in accordance with EIA-364-06 on each contact pair. Contacts shall be stabilized at the required temperature for one hour prior to performing the test.

4.7.11 Connector Durability (see 3.5.9)

Counterpart connectors shall be manually mated and unmated in accordance with EIA-364-09.

4.7.12 Corrosion (see 3.5.10)

Perform corrosion test in accordance with EIA-364-26, Test Condition C. The plugs and receptacles shall be mated and unmated by hand 50 cycles then mated. The mating and unmating shall be accomplished so that the plugs and receptacles are completely separated during each cycle. The connectors shall then be subjected to the salt spray test for 452 hours mated, followed by 48 hours unmated then inspected in accordance with AIR4789.

4.7.13 Insulation Resistance - Room Temperature (see 3.5.11)

Unmated connectors shall be tested in accordance with EIA-364-21. Measurements shall be taken on the wire leads between the closest contacts and between the shell and a contact closest to the shell.

4.7.14 Insulation Resistance - Long Term Elevated Temperature (see 3.5.12)

Mated connectors shall be tested in accordance with EIA-364-17 Method A Test Condition 6 Duration D. Insulation resistance shall be measured in accordance with EIA-364-21 between at least two closest adjacent contacts, and between the shell and at least one contact closest to shell. All leads used to take the measurement shall extend outside environmental chamber. Measurements shall be made at the end of 1000 hours while the connectors are at the elevated temperature.

4.7.15 Fluid Immersion (see 3.5.13)

Unmated connectors (One connector plug and one mating receptacle) shall be tested in accordance with EIA-364-10 per fluid. Following the fluid immersion cycles, the connector shall be visually examined at 3X magnification for cracks and tears. Connectors shall be fully mated by hand with mating connectors that were immersed simultaneously in the same fluid, then unmated and examined for damage (cracks, tears, adhesion, etc.). The unmated connector shall be air dried for 24 hours then subjected to dielectric withstanding voltage at sea level (see 4.7.6).

4.7.16 Insert Retention (3.5.14)

Unmated connectors shall be tested in accordance with EIA-364-35. The maximum pressure shall be as specified in Table 14.

Table 14 - Insert retention test pressures

Shell Size	Pounds/inch^2 (kilogram/centimeter^2) Test Pressure
8 through 12	150 (10.5)
14 through 18	100 (7)
20 through 22	75 (5.3)
24 through 28	60 (4.2)
32 through 36	45 (3.2)

4.7.17 Moisture Resistance (see 3.5.15)

Connectors with straight rear accessory wired and mated to the counterpart connectors shall be subjected to the high humidity in accordance EIA-364-31 Test Condition A, Method III. The connector assembly shall be suspended vertically with the wires descending into the backshell with no splices within the chamber. The wires shall leave the chamber through vapor tight seals. Prior to the beginning of the test and at the end of the test period and while at the high humidity, the insulation resistance shall be measured in accordance the insulation resistance test on crimp contact connectors. The reading shall be taken between the closest contacts and between the shell and a contact closest to the shell.

The following details and exceptions shall apply:

a. Step 7a shall be performed only during the last cycle. Three hours minimum after the start of step 7a, during the final cycle and while the connectors are still subjected to high humidity, the insulation resistance shall be measured when the chamber temperature reaches 20 °C ± 5 °C (68 °F ± 18 °F) and condensation is observed on the connector.

b. After measuring the crimp connectors, the mated solder connector pairs shall be removed from the chamber and dried for 24 hours at room ambient. The insulation resistance shall then be measured in accordance the insulation resistance test. The reading shall be taken between the closest contacts and between the shell and a contact closest to the shell.

4.7.18 Water Pressure (see 3.5.16)

The connectors shall be immersed in tap water to a depth of 6 feet (1.83 m) for 48 hours as follows:

4.7.18.1 Solder Contact Receptacles

a. Flange mount receptacles shall be mounted at the base of the water tank and sealed using AS85049/130 flange sealing gaskets. Jam nut receptacles shall be mounted at the base of the water tank and sealed using O-ring seals provided as accompanying hardware. Fifty percent of the flange mount receptacles shall be front mounted and 50% shall be rear mounted. The terminal ends of all receptacles shall be external to the tank.

b. Fifty percent of the receptacle connectors tested shall be mated to their counterpart plugs. The plug connectors shall be terminated with applicable wire and fitted with their standard environmental seals. The terminal ends of the plugs shall be sealed to prevent water ingress into the connector. As an option, the terminal ends of the plugs may be external to the tank. At the end of the 48 hour immersion in the tank, while still mated and immersed in water, insulation resistance shall be measured in accordance with 4.7.13. The other 50% of the receptacles shall be tested unmated.

c. During the 48 hours water immersion, the mated receptacles shall be monitored for leakage of the panel seals and the unmated receptacles shall be monitored for leakage through or around the insert and contacts and for leakage of the panel seals.

4.7.18.2 Crimp Contact Connectors and Accessories

Crimp contact connectors shall be tested the same as solder contact connectors, except the connectors shall be tested mated.

4.7.19 External Bending Moment (see 3.5.17)

The receptacles shall be mounted to a rigid panel. Before mating the plug to the receptacle, a bending moment test arm shall be threaded onto the rear of the plug shell. The fixture shall be of any design which will permit the application of the load except it must not provide support for the connector shell in front of the engaged threads (see Figure 1). An AS85049 heavy-duty straight accessory may be used as the fixture. After mating the plug and receptacle, the bending moment listed in Table 15 measured from the panel shall be applied. The load shall be applied at a rate of 10 pounds per second until the required load is applied. The load shall then be held for 1 minute.

4.7.20 Solder Contact Engagement and Separation Forces (see 3.5.18)

Socket contacts shall be tested in accordance with EIA-364-37, Method C. Contacts are permitted to be tested installed in the connector.

4.7.21 Resistance to Probe Damage for Solder Contacts (see 3.5.19)

Solder socket contacts shall be tested in accordance with EIA-364-25 followed by the contact engagement and separation forces test.

4.7.22 Shell Conductivity for Connectors except Finish A and S (see 3.5.20)

The shell to shell conductivity shall be measured in accordance with EIA-364-83. The test current used shall be 1 A ± 0.1 A at 1.5 VDC.

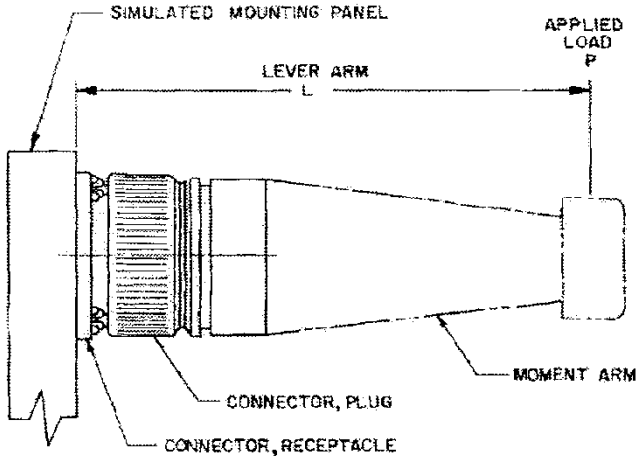


Figure 1 - External bending moment test setup

Table 15 - External bending moment

Shell Size	Bending Moment (inch-pound)	Bending Moment (N/m)
10SL	110	12.43
14S	300	33.90
16S, 16	370	41.80
18	420	47.45
20	450	50.84
22	520	58.75
24	570	64.40
28	630	71.18
32	750	84.74
36	810	91.52

4.7.23 Contact Insertion and Removal Force for Crimp Contact Connectors (see 3.5.21)

With the grommet relaxed contacts shall be removed and reinserted using the specified insertion and removal tools. The forces required to insert and remove the unlocked contacts shall be measured in accordance with EIA-364-5 on the first insertion and removal. The same contacts shall then be removed and reinserted nine more times. The contact insertion and removal forces shall be measured on the tenth insertion and removal on half, but not less than three of the contacts selected for this test.

4.7.24 Radio Frequency Interference (RFI) Test Method (see 3.5.22)

4.7.24.1 RFI Shielding Effectiveness

The RFI shielding effectiveness of mated connectors with RFI backshells shall be measured in a triaxial radio frequency leakage fixture. The RFI leakage from the conductor inside the connector in the inner coaxial line into the outer coaxial line shall be measured at the frequencies specified within a frequency accuracy of ±5%. The level of detected signal power shall be indicated by a tunable radio frequency field intensity meter isolated from the test circuit by a 10 dB pad. Care shall be taken to ensure that the signal is a result of RFI leakage from within the mated connector and not due to a faulty termination inside the fixture. All terminations inside the fixture, whether to the RFI backshells or between internal conductors, shall have a leakage of at least 10 dB less than the test requirement. The test arrangement shall be as shown on Figures 2 and 3.

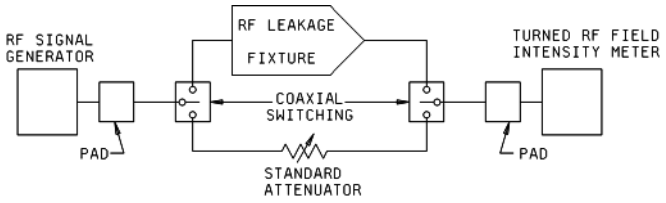


Figure 2 - Test system RFI leakage test

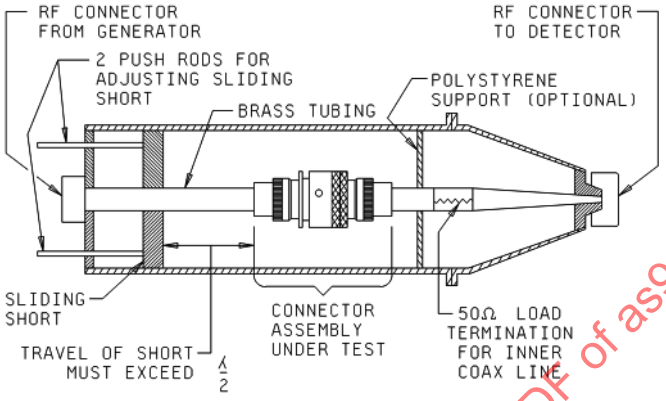


Figure 3 - RFI leakage test fixture

The signal source shall be set to the desired frequency. The signal shall be fed through a 10 dB isolation pad to a parallel circuit consisting of a coaxial switch (double pole, double throw or DPDT) so connected that the signal can be manually or electronically fed alternately to the fixture and to a variable 100 dB reference attenuator. The attenuator shall be adjustable in 1 dB steps and calibrated to ±3 dB.

a. The inserts may be removed from the connectors under test or the contacts removed and a hole drilled through the inserts to accommodate a center conductor of suitable geometry to provide a good 50 Ω impedance match with the ID of the mated connector shells and RFI backshells. Tapered transitions may be used to provide a means of changing diameters without introducing significant discontinuities in the line. The maximum VSWR in the inner coaxial line shall be 1.5. The outer shell of the test fixture shall be so constructed as to provide a good 50 Ω impedance match with the OD of the mated connector shells, coupling ring and RFI backshells. The maximum VSWR of the outer coaxial line shall be 1.5.

b. A sliding circumferential short shall be positioned behind the connector on the signal input end of the fixture to provide for tuning the outer coaxial line for maximum output at each test frequency. The allowable travel of this short shall be greater than 1/2 wave length at the lowest test frequency or 1.5 m minimum for 100 MHz. The inner coaxial line shall be terminated in a fixed 50 Ω load impedance behind the connector at the output end of the fixture.

c. The connectors used to couple together the various elements of the test system shall be of a low leakage type that have a nominal impedance of 50 Ω, a VSWR of less than 1.5, and a minimum leakage attenuation of 100 dB. The output impedance of the signal source and the input impedance of the detector shall be nominally 50 Ω with a maximum VSWR of 1.5. The input and output VSWR of the standard attenuator shall be less than 1.5 in the 20 to 100 dB range.

d. The relative signal level in the variable attenuator shall be equaled to that through the leakage fixture by adjusting the attenuator. The signal loss in the fixture can then be read from the setting on the variable attenuator.

4.7.24.2 RFI Finger Spring Force

RFI finger spring force shall be measured on one shell size 10, 14, and 22 through 28 RFI plug. The plugs shall be completely mated and unmated with counterpart receptacles less bayonet pins and inserts in accordance with EIA-364-13 Method A. On the initial mating and unmating the axial forces necessary to engage and separate shall be within the values listed in Table 6.

5. PACKAGING (SEE 6.3)

The requirements for packaging shall be in accordance with MIL-DTL-55330. Unless otherwise specified, acquisition information and supporting hardware shall be as specified in 6.3.

6. NOTES

NOTICE

This document references a part which may contain cadmium as a plating material. Consult local officials if you have questions concerning cadmium's use.

6.1 Intended Use

AS95234 includes reverse bayonet coupling, high current electrical connectors that are water tight and principally used in shipboard, ground vehicles and ground support equipment applications at -55 °C and +125 °C (-67 °F and +257 °F). The upper temperature is the maximum internal hot spot temperature resulting from any combination of electrical load and ambient conditions. Connectors include front release crimp contacts and solder contacts in sizes 16-16 through 0-0. AS95234 connectors are typically intermateable with similar reverse bayonet couple connectors, but are not interchangeable, because these connectors have defined AS85049 accessory threads. Suppliers should be contacted to determine to what extent these connectors can be mated with similar reverse bayonet couple connectors. These connector are not for aerospace applications (refer to AS50881).

6.1.1 Crimp Contact Connectors

Crimp contact connectors should have contacts installed in all positions when the connector is wired. Sealing plugs should be installed in the grommet holes when no wire is attached to the contact.

6.1.2 Crimp and Solder Connector Intermateable

Counterpart solder and crimp contact connectors are intended to be intermateable.

6.1.3 Wire Usage and Sealing with contacts

6.1.3.1 Size 6 Wire Soldered to a Size 4 Contact

It is intended that size 6 wire should be crimped or soldered to a size 4 contact because no size 6 contacts are provided and size 4 is the next larger.

6.1.3.2 Sealing on Smaller Wire Diameter Insulation

Satisfactory performance of connectors will be obtained if wire sizes are governed by Table 1. When the connector must be sealed to provide an environment resistant or water pressure joint on wire diameters smaller than specified in Table 1, AIR1329 is recommended to be followed. A length of shrink AS23053/5 Class 1 and 3, /8, /11, /12 Class 3, 4, and 5, or /18 Class 2 and 3 sleeving is recommended to be installed in back of the contact and shall protrude through the environmental or water proof seal. Elastomer grommets are generally qualified to seal on wires and electrical cables having smooth extruded insulations. Only one wire or cable per grommet hole is recommended. Sealing on tape wrapped, braided, striped, or other than smooth circular insulations should be specifically tested for compatibility. The connector is considered sealed, if the outermost sealing feature (web) is in full contact with the wire, when visually inspected. The wire should be installed so that transverse loads will not destroy the integrity of the sealing feature.

6.1.3.3 AS39029/112 Contact Bushings

Electrically conductive bushings as provided for in AS39029/112 should be used in crimping sizes 10, 6, and 2 wire in contact sizes 8, 4, and 0, respectively. Only one conductor should be used in crimp removable contacts.

6.1.4 Thru Bulkhead Connector Contacts

Performance of thru bulkhead contacts may be slightly different than AS39029/44 and /45 contacts.

6.1.5 Connector Service Voltage and Temperature Ratings

The connectors specified herein are designed to perform at the specified voltage service and temperature ratings for reasonable period of time, but the connector mean time between failures is a function of the application. If the connector longevity is a requirement, users are recommended to contact the qualified suppliers for support.

6.1.5.1 Working Service Voltage

The maximum recommended sea level working voltage is shown in Table 16 (see Appendix B).

Table 16 - Working voltages

Working Voltages	
Service Rating	(volts-rms)
Instrument	200
A	500
D	900
E	1250
B	1750
C	3000

6.1.5.2 Service Temperature Rating

Most of the materials used in the crimp connectors can be rated at -55 to +175 °C (-67 and +347 °F). Contact the qualified suppliers for more details on non-standard applications above +125 °C (+257 °F).

6.1.6 Water Protection

When used as specified the connector will withstand water exposure without a connector accessory, but AS85049 cable sealing connector accessories are recommended to provide a safety margin associated with application and maintenance. When flange connector receptacle sealing to a wall is required use AS85049/130.

6.1.7 MIL-DTL-24640 Shipboard Cable Applications

AS95234 connectors are designed to be used with MIL-DTL-24640 shipboard cables with AS81044/12 wires. When multiple conductor cables are used, careful assembly is required to ensure wire to grommet sealing.

6.2 Qualification Compliance (see 3.2)

With respect to products requiring qualification by the government, 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 (purchasers) is called to these requirements, and manufacturers (suppliers) 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.

6.2.1 Qualified Product List Evaluating Activity

The QPL Evaluating Activity (qualifying activity), for U.S. Department of Defense procurement purposes, is the Naval Air Systems Command (Code 4.4.5.3), 48298 Shaw Road, Bldg. 1461, Patuxent River, MD 20670-1900. Application for qualification tests shall be made in accordance with provisions governing qualification in SD-6 (see 2.2).

6.2.2 QPL Publication

The qualifying activity is required to provide a summarized list of all qualified sources on a public accessible electronic site. The summary shall include but is not limited to the supplier approved part number and related specification part number, a dedicated approval reference number, a supplier location where purchases may be requested and the manufacturing location of the component. The suppliers and products qualified to this specification are available on the qualifying activity website (http://www.navair.navy.mil/qpl/).

6.3 Acquisition Requirements

6.3.1 Acquisition documents must specify and or include the following:

a. Title, number, and date of this specification.

b. The complete part number in accordance (see 1.2).

c. If these connectors are furnished without contacts by part number (see 1.2 and 3.3.1).

6.3.2 Sealing Plugs

Except for contact sizes 0 and 4, sealing plugs for 15% of the number of contacts, but not less than one sealing plug shall be enclosed in the unit package. Connectors ordered without contacts are permitted to be ordered without grommet sealing plugs. For insert arrangements containing one contact of a particular size, sealing plugs shall not be supplied.

6.3.3 Spare Contacts

The quantity of crimp contacts required for the connector plus one spare contact for connector arrangements having 26 contacts or less and two spare contacts for arrangements over 26 contacts shall be included in the unit package. No spares shall be supplied with sizes 8, 4, and 0 contacts.

6.3.4 Dust Caps

Plastic dust caps in accordance with AS85049/138 shall be placed on the end of each connector.

6.4 Crimp Contacts

AS39029/44 and /45 crimp contacts may be ordered in bulk in accordance with AS39029.

6.5 Solder Contacts

Solder contacts are not to be ordered or qualified separately from the connectors (see Appendix C).

6.6 Metric Equivalent

Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch = 25.4 mm. Metric tables are provided as needed (see Tables A4, A5, etc.).

6.7 Revision Indicator

A 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 title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

PREPARED BY SAE AE-8C1 CONNECTORS COMMITTEE

APPENDIX A - CONNECTOR, REVERSE BAYONET COUPLING, INTERFACE (MATING) RECEPTACLE AND PUG DIMENSIONS WITH RECOMMENDED ACCESSORIES

A.1 CONNECTOR INTERFACE RECEPTACLE AND PLUG DIMENSIONS

Dimensions are in inches. Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch = 25.4 mm. Metric tables are provided as needed. Configuration within the dimensions specified is optional, except as specified in the detail specification. Connectors designed and manufactured to same part number (see 1.2) are electrically and mechanically interchangeable and shall meet all requirements of AS95234. The indicated dimensions only guarantee mechanical coupling with the inserts specified in Appendix B.

A.1.1 Connector Receptacle Interface Configuration (see Figures A1 and A2 and Table A1)

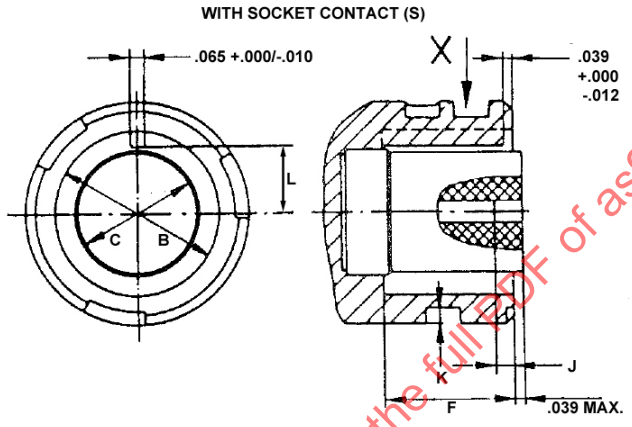


Figure A1 - Configuration and dimensions for receptacle connector with socket contact(s)

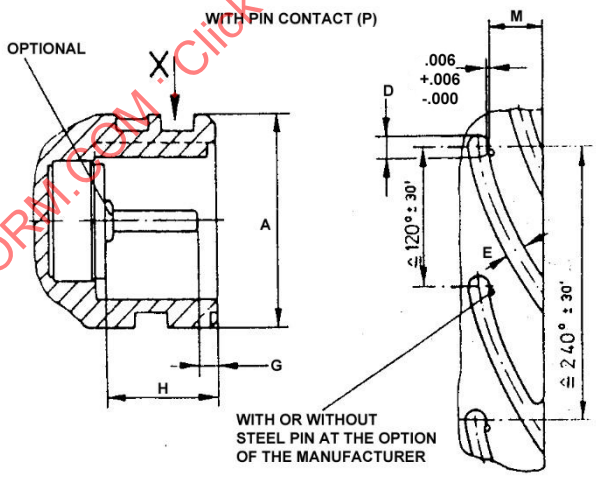


Figure A2 - Configuration and dimensions for receptacle connector with pin contact(s)

Table A1 - Figures A1 and A2 dimensions in inches (millimeters)

Shell Size	A +0.000/-0.006 (+0.000/-0.152)	B +0.012/-0.000 (+0.305/-0.000)	C		D +0.016/-0.000 (+0.406/-0.000)	E +0.032/-0.000 (+0.813/-0.000)	F Min
			Min	Max			
10SL	0.717 (18.2)	0.449 (11.4)	0.377 (9.58)	0.397 (10.1)	0.108 (2.74)	0.108 (2.74)	0.559 (14.2)
14S	0.969 (24.6)	0.681 (17.3)	0.505 (12.8)	0.525 (13.3)			
16S	1.079 (27.4)	0.811 (20.6)	0.630 (16.0)	0.650 (16.5)			
16					0.183 (4.65)	0.183 (4.65)	0.748 (19.0)
18	1.213 (30.8)	0.937 (23.8)	0.750 (19.1)	0.770 (19.6)			
20	1.347 (34.2)	1.059 (26.9)	0.905 (23.0)	0.925 (23.5)			
22	1.472 (37.4)	1.181 (30.0)	1.000 (25.4)	1.020 (25.9)			
24	1.610 (40.9)	1.307 (33.2)	1.125 (28.6)	1.145 (29.1)			
28	1.839 (46.7)	1.528 (38.8)	1.345 (34.2)	1.365 (34.7)			
32	2.102 (53.4)	1.780 (45.2)	1.595 (40.5)	1.615 (41.0)			
36	2.347 (59.6)	1.992 (50.6)	1.810 (46.0)	1.830 (46.5)			

Table A1 - Figures A1 and A2 dimensions (continued)

Shell Size	G Contact Size			H ± 0.012 (± .3)
	16S	16	12, 8, 4, & 0	
10SL	0.119/0.069 (3.02/1.75)	N/A	N/A	0.504 (12.8)
14S				
16S				
16	N/A	0.312/0.219 (7.93/5.56)	0.125/0.062 (3.18/1.57)	0.693 (17.6)
18				
20				
22				
24				
28				
32				
36				

Table A1 - Figures A1 and A2 dimensions (continued)

Shell Size	J Contact Size			K +0.008/-0.000 (+0.21)/-0.00)	L +0.016/-0.000 (+0.41/-0.00)	M +0.004/-0.002 (+0.10/-0.05)
	16S	16 & 0	12, 8, & 4			
10SL	N/A	N/A	N/A	0.071 (1.80)	0.165 (4.19)	0.248 (6.30)
14S					0.264 (6.71)	
16S					0.323 (8.20)	
16	N/A	0.281 (7.14) MAX	0.328 (8.33) MAX	0.079 (2.01)	0.323 (8.20)	0.378 (9.60)
18					0.382 (9.70)	
20					0.461 (11.7)	
22					0.508 (12.9)	
24					0.571 (14.5)	
28					0.681 (17.3)	
32					0.803 (20.4)	
36					0.913 (23.2)	

A.1.2 Connector Plug Interface Configuration (see Figures A3, A4, and A5 and Tables A2 and A3)

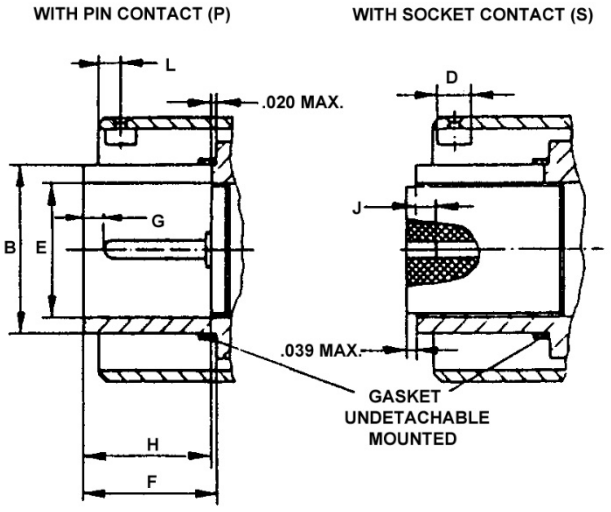


Figure A3 - Configuration and dimensions for plug connector with pin and socket contacts

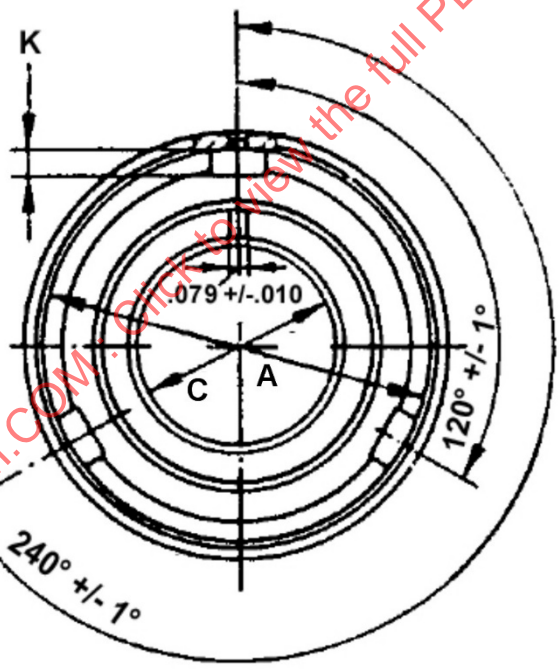


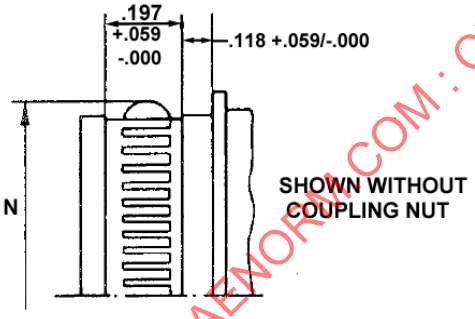
Figure A4 - Configuration and dimensions for plug connector with pin and socket contacts (rear view)

Table A2 - Figures A3 and A4 dimensions in inches (millimeters)

Shell Size	A +0.008/-0.000 (+0.21)/-0.00)	B +0.000/-0.012 (+0.00/-0.31)	C Min	C Max	D +0.000/-0.004 (+0.00/-0.12)	E +0.005/-0.000 (+0.13/-0.00)	F
10SL	0.724 (18.4)	0.445 (11.3)	0.377 (9.58)	0.397 (10.1)	0.102 (2.59)	0.398 (10.1)	.531 (13.5) +/- 0.008 (0.2)
14S	0.976 (24.8)	0.673 (17.1)	0.505 (12.8)	0.525 (13.3)		0.526 (13.4)	
16S	1.087 (27.6)	0.803 (20.4)	0.630 (16.0)	0.650 (16.5)		0.651 (16.5)	
16	1.087 ((27.6)	0.803 (20.4)	0.630 (16.0)	0.650 (16.5)	0.177 (4.50)	0.651 (16.5)	.717 (18.2) +/- 0.008 (0.2)
18	1.224 (31.1)	0.929 (23.6)	0.750 (19.1)	0.770 (19.6)		0.776 (19.7)	
20	1.358 (34.5)	1.051 (26.7)	0.905 (23.0)	0.925 (23.5)		0.932 (23.7)	
22	1.484 (37.7)	1.173 (29.8)	1.000 (25.4)	1.020 (25.9)		1.026 (26.1)	
24	1.622 (41.2)	1.299 (33.0)	1.125 (31.8)	1.145 (29.1)		1.151 (38.4)	
28	1.850 (47.0)	1.520 (38.6)	1.345 (34.2)	1.365 (34.7)		1.370 (34.8)	
32	2.114 (53.7)	1.768 (44.9)	1.595 (40.5)	1.615 (41.0)		1.620 (41.1)	
36	2.358 (59.9)	1.980 (50.3)	1.810 (46.0)	1.830 (46.5)		1.838 (46.7)	

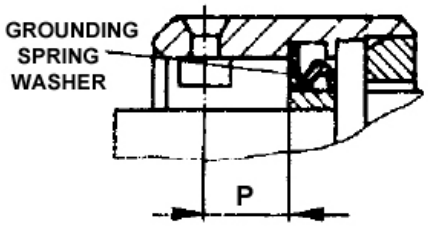
Table A2 - Figures A3 and A4 dimensions in inches (millimeters) (continued)

Shell Size	G Contact Size 16S	G Contact Size 16	G Contact Size 12, 8, 4, & 0	H ±0.020 (±5.08)	J Contact Size 16S	J Contact Size 16 & 0	J Contact Size 12, 8, & 4	K +0.002/-0.006 (+0.051/-0.152)	L Max
10SL 14S 16S	0.119/0.069 (3.02/1.75)	N/A	N/A	0.504 (12.8)	N/A	N/A	N/A	0.063 (1.60)	0.110 (2.79)
16 18 20 22 24 28 32 36	N/A	0.301/0.231 (7.65/5.87)	0.119/0.069 (3.02/1.75)	0.693 (17.6)	N/A	0.281 (7.14) MAX	0.328 (8.33) MAX	0.071 (1.80)	0.134 (3.40)



FOR OTHER DIMENSIONS
AND DATA SEE TABLE 2

Option 1



CONSTRUCTION WITH
GROUNDING SPRING

Option 2

Figure A5 - Configuration and dimensions for plug connector with EMI/RFI grounding spring

Table A3 - Figure A5 dimensions in inches (millimeters)

Shell Size	N Min	P ±0.006 (±0.152)
10SL	0.476 (12.1)	0.217 (5.51)
14S	0.705 (17.9)	
16S	0.835 (21.2)	
16		
18	0.961 (24.4)	0.386 (9.80)
20	1.087 (27.6)	
22	1.209 (30.7)	
24	1.335 (33.9)	
28	1.555 (39.5)	
32	1.811 (46.0)	
36	2.024 (51.4)	

Table A4 - Metric equivalents for Figures A1 through A5

Inches	Millimeters	Inches	Millimeters	Inches	Millimeters
0.0006	0.015	0.039	0.99	0.079	2.01
0.010	0.25	0.059	1.50	0.118	3.00
0.012	0.30	0.065	1.65	0.197	5.00
0.020	0.51				

A.1.3 Connector (Plug and Receptacle) Rear End Configuration for AS85049 Accessory (see Figure A6 and Tables A5 and A6)

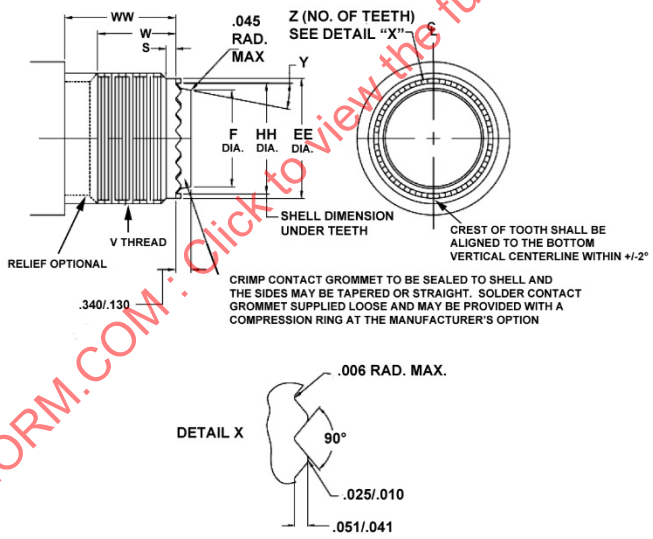


Figure A6 - Connector back end configuration

Table A5 - Figure A6 dimensions (metric equivalents)

Inches	Millimeters	Inches	Millimeters	Inches	Millimeters
0.006	0.15	0.041	1.04	0.130	3.30
0.010	0.25	0.045	1.14	0.340	8.64
0.025	0.64	0.051	1.30		

Table A6 - Figure A6 dimensions in inches (millimeters)

Shell Size	V Thread Class 2A	EE Dia	F Dia 1/	HH Dia ±0.005 (±0.127)	S ±0.005 (±0.127)	W Min Thread	WW Min 2/	Y Max Angle	Z No. of Teeth
10SL	0.625-24 UNEF	0.562 (14.3) 0.555 (14.1)	0.405 (10.3) 0.380 (9.65)	0.502 (12.8)				20 degrees	15
14S	0.875-20 UNEF	0.804 (20.4) 0.797 (20.2)	0.665 (16.9) 0.590 (15.0)	0.743 (18.9)				29 degrees	24
16S 16	1.000-20 UNEF	0.929 (23.6) 0.922 (23.4)	0.790 (20.1) 0.715 (18.2)	0.868 (22.1)				29 degrees	30
18	1.0625-18 UNEF	0.984 (25.0) 0.977 (24.8)	0.869 (22.1) 0.794 (20.2)	0.924 (23.5)	0.065 (1.65)	0.310 (7.87)	0.330 (8.38)	27 degrees	33
20	1.1875-18 UNF	1.109 (28.17) 1.102 (27.99)	0.994 (25.3) 0.919 (23.3)	1.049 (26.6)				27 degrees	36
22	1.3125-18 UNEF	1.234 (31.3) 1.227 (31.2)	1.119 (28.4) 1.044 (26.5)	1.174 (29.8)				27 degrees	39
24	1.4375-18 UNEF	1.359 (34.5) 1.352 (34.3)	1.244 (31.6) 1.159 (29.4)	1.299 (33.0)				29 degrees	42
28	1.750-18 UNS	1.613 (41.0) 1.603 (40.7)	1.465 (37.2) 1.394 (35.4)	1.520 (38.6)				27 degrees	54
32	2.000-18 UNS	1.863 (47.3) 1.853 (47.1)	1.715 (43.6) 1.640 (41.7)	1.770 (45.0)	0.095 (2.41)	0.487 (12.4)	0.510 (13.0)	28 degrees	63
36	2.250-16 UN	2.113 (53.7) 2.103 (53.4)	1.930 (49.0) 1.855 (47.1)	1.985 (50.4)				27 degrees	72

1/ Diameter of any exposed portion of the grommet.
2/ Length to accommodate accessory.

A.1.4 Connector Full Mate Indicator Marking (see Figures A7 and A8)

On the outer surface of the plug coupling ring, a yellow dot shall be placed over the shank of the rivet in three places (see Figure A7). On the outer surface of the receptacle, the yellow dots shall be placed as shown in Figure A8 and the dots shall be located as follows:

a. For receptacle shell size 16 (insert 40) the yellow dots shall be located at the end of the ramp, approximately 0.225 inches (5.59 mm) from center to center.

b. For receptacle shell size 10SL (insert 16, pin sockets) the yellow dots shall be located approximately 0.180 inches (4.5.7 mm) above the ramp.

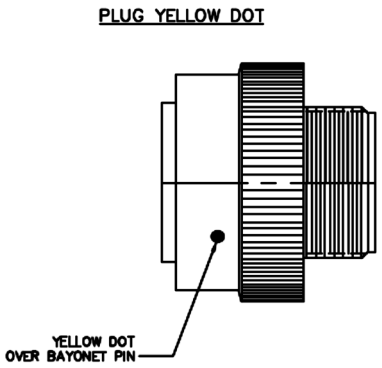


Figure A7 - Connector plug full mate indicator

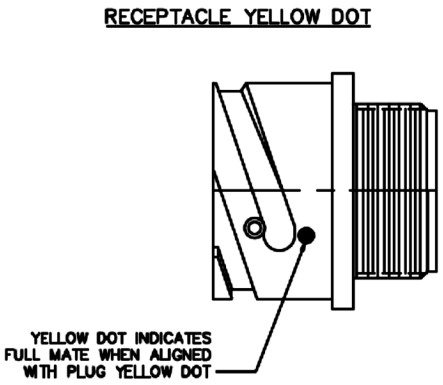


Figure A8 - Connector receptacle full mate indicator

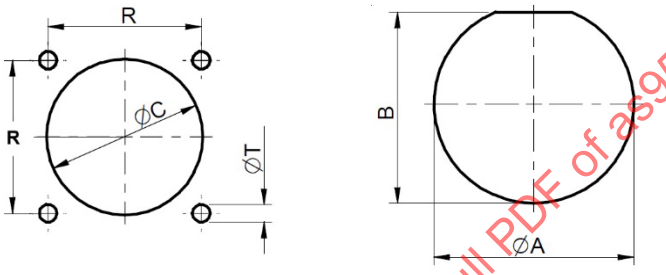


Figure A9 - Connector panel cutout/mounting hole details

Table A7 - Figure A9 dimensions

Shell Size	Front Panel Mounting			Rear Panel Mounting			Jam Nut Receptacles	
	C Diameter +0.010/-0.000 (+0.254/-0.000)	R ±0.004 (±0.1)	T Diameter ±0.005 (±0.127)	C Diameter +0.010/-0.000 (+0.254/-0.000)	R ±0.004 (±0.1)	T Diameter ±0.005 (±0.127)	A Diameter +0.010/-0.000 (+0.254/-0.000)	B +0.000/-0.014 (+0.000/-0.36)
10SL	0.670 (17.0)	0.716 (18.2)	0.134 (3.4)	0.752 (19.1)	0.716 (18.2)	0.177 (4.5)	0.882 (22.40)	0.827 (21.00)
14S	0.787 (20.0)	0.906 (23.0)	0.134 (3.4)	1.004 (25.5)	0.906 (23.0)	0.177 (4.5)	1.132 (28.75)	1.079 (27.40)
16S	0.906 (23.0)	0.967 (24.6)	0.134 (3.4)	1.114 (28.3)	0.967 (24.6)	0.177 (4.5)	1.258 (31.95)	1.219 (30.95)
16								
18	1.043 (26.5)	1.063 (27.0)	0.134 (3.4)	1.248 (31.7)	1.063 (27.0)	0.177 (4.5)	1.382 (35.10)	1.329 (33.75)
20	1.181 (30.0)	1.158 (29.4)	0.134 (3.4)	1.378 (35.0)	1.158 (29.4)	0.177 (4.5)	1.508 (38.30)	1.451 (36.85)
22	1.299 (33.0)	1.252 (31.8)	0.134 (3.4)	1.508 (38.3)	1.252 (31.8)	0.177 (4.5)	1.632 (41.45)	1.577 (40.05)
24	1.417 (36.0)	1.374 (34.9)	0.154 (3.9)	1.646 (41.8)	1.374 (34.9)	0.177 (4.5)	1.758 (44.65)	1.707 (43.35)
28	1.654 (42.0)	1.563 (39.7)	0.154 (3.9)	1.874 (47.6)	1.563 (39.7)	0.217 (5.5)	2.008 (51.00)	1.951 (49.55)
32	1.909 (48.5)	1.752 (44.5)	0.177 (4.5)	2.138 (54.3)	1.752 (44.5)	0.217 (5.5)	2.258 (57.35)	2.203 (55.95)
36	2.165 (55.0)	1.937 (49.2)	0.177 (4.5)	2.382 (60.5)	1.937 (49.2)	0.217 (5.5)	2.508 (63.70)	2.455 (62.35)

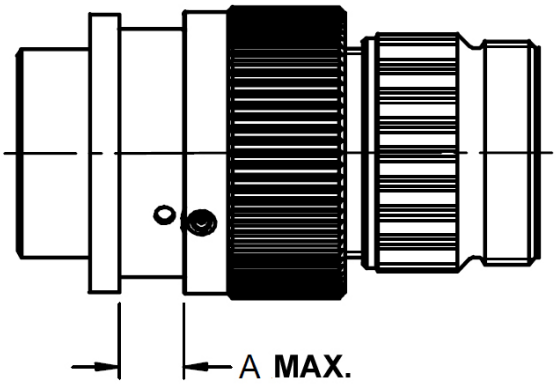


Figure A10 - Panel thickness details

Table A8 - Figure A10 dimensions

Shell Size	Dimension A (Maximum)
10SL	0.146 (3.7)
14S	
16S	
16	
18	
20	
22	
24	0.207 (5.25)
28	
32	0.240 (6.10)
36	

A.1.5 When cable and wire support is required, the standard connector accessories in Table A9 are recommended.

Table A9 - AS85049 connector accessories recommended for AS95234 connectors

SAE Accessory Detail Specification AS85049/	Detail Specification Title
/1 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)
/2 1/	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)
/6	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, 45°, SHIELD TERMINATION, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
7	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, 45°, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/8	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, 90°, SHIELD TERMINATION, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/9	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, 90°, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/10	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, STRAIGHT, SHIELD TERMINATION, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/11	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, ENVIRONMENTAL, CABLE SEALING, STRAIGHT, CATEGORY 1A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)

/23	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, NONENVIRONMENTAL, 45°, SHIELD TERMINATION, CATEGORY 3A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/24	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, NONENVIRONMENTAL, 90°, SHIELD TERMINATION, CATEGORY 3A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/25	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, NONENVIRONMENTAL, STRAIGHT, SHIELD TERMINATION, CATEGORY 3A (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/31	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, NONENVIRONMENTAL, STRAIGHT, NON-SELF-LOCKING AND SELF-LOCKING, CATEGORY 3B (FOR MIL-DTL-5015 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/41 1/	CONNECTOR ACCESSORIES, ELECTRICAL, NON-ENVIRONMENTAL, STRAIN RELIEF, STRAIGHT, CATEGORY 4C (FOR AS50151 SOLDER TYPE, V THREAD OF MS310X, CLASSES A, B, C, OR K CONNECTORS AND AS85049 ACCESSORIES)
/42 1/	CONNECTOR ACCESSORIES, ELECTRICAL, NONENVIRONMENTAL, STRAIN RELIEF, STRAIGHT, CATEGORY 4A (FOR AS50151 SOLDER TYPE, V THREAD OF MS310X CLASSES A, B, C OR K CONNECTORS)
/60	CONNECTOR ACCESSORIES, ELECTRICAL, ADAPTER, SHRINK BOOT, CATEGORY 5 (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/82	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, STRAIGHT, SELF-LOCKING, SHIELD BAND TERMINATION (RFI/EMI), SHRINK SLEEVE ACCOMMODATION, CATEGORY 3B (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3 AND MIL-DTL-83723 SERIES III CONNECTORS)
/83	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, 45°, SELFLOCKING, SHIELD, BAND TERMINATION, (RFI/EMI), SHRINK SLEEVE ACCOMMODATION, CATEGORY 3B (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3 AND MIL-DTL-83723 SERIES III CONNECTORS)

Table A9 - AS85049 connector accessories recommended for AS95234 connectors (continued)

SAE Accessory Detail Specification AS85049/	Detail Specification Title
/84	CONNECTOR ACCESSORIES, ELECTRICAL, BACKSHELL, 90°, SELFLOCKING, SHIELD BAND TERMINATION, (RFI/EMI), SHRINK SLEEVE ACCOMMODATION, CATEGORY 3B (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3 AND MIL-DTL-83723 SERIES III CONNECTORS)
/109	CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, STRAIGHT, NON-SELF LOCKING AND SELF LOCKING, PRE-ATTACHED SHIELD TERMINATION (RFI/EMI), BOOT ACCOMMODATION, CATEGORY 3B (FOR MIL-DTL-83723 SERIES III, AS50151 SERIES I & II, AS81703 SERIES III, AND MIL-DTL-26482 SERIES II CONNECTORS)
/111	CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, 90 DEGREE, SELF LOCKING AND NON-SELF LOCKING, PRE-ATTACHED SHIELD TERMINATION (RFI/EMI), BOOT ACCOMMODATION, CATEGORY 3B (FOR MIL-DTL-83723 SERIES III, AS50151 SERIES I & II, AS81703 SERIES III, AND MIL-DTL-26482 SERIES II CONNECTORS)
/118	CONNECTOR ACCESSORIES, ELECTRICAL, STRAIN RELIEF, STRAIGHT SELF-LOCKING, NON-SELF-LOCKING, CATEGORY 4B (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/120	CONNECTOR ACCESSORIES, ELECTRICAL, STRAIN RELIEF, 90° SELF-LOCKING AND NON-SELF-LOCKING, CATEGORY 4B (FOR AS50151 CRIMP, MIL-DTL-26482 SERIES 2, AS81703 SERIES 3, AND MIL-DTL-83723 SERIES III CONNECTORS)
/128	SHIELD BAND, CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, CATEGORY 7 (FOR AS85049/82 - /90, /93, /109 - /117 ACCESSORIES)
/130	CONNECTOR ACCESSORIES, ELECTRICAL GASKETING MATERIAL, CONDUCTIVE/NON-CONDUCTIVE, FLANGE MOUNT, CATEGORY 7
/139	BUSHING, CABLE CLAMP TO CABLE, TELESCOPING FOR AS85049 CABLE CLAMPS CATEGORY 9
/144	CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, STRAIGHT, NON-SELF LOCKING AND SELF LOCKING, MS “V” THREAD, CATEGORY 3B (FOR MIL-DTL-83723 SERIES III, AS50151 SERIES II & III, AS81703 SERIES III, MIL-DTL-26482 SERIES II AND AS95234 CONNECTORS)
/145	CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, 45°, NON-SELF LOCKING AND SELF LOCKING, MS “V” THREAD, CATEGORY 3B (FOR MIL-DTL-83723 SERIES III, AS50151 SERIES II & III, AS81703 SERIES III, MIL-DTL-26842 SERIES II AND AS95234 CONNECTORS)
/146	CONNECTOR ACCESSORIES, ELECTRICAL BACKSHELL, 90°, NON-SELF LOCKING AND SELF LOCKING, MS “V” THREAD, CATEGORY 3B (FOR MIL-DTL-83723 SERIES III, AS50151 SERIES II & III, AS81703 SERIES III, MIL-DTL-26482 SERIES II AND AS95234 CONNECTORS)

1/ These accessories will not mate directly to the AS95234 rear connector accessory thread and can only be used in conjunction with AS85049/144, /145, or /146 adapters.

APPENDIX B - CONNECTOR, BAYONET COUPLING, SHELL SIZE CONTACT SPACING AND INSERT ARRANGEMENTS

B.1 MINIMUM MECHANICAL SPACING AND CREEPAGE

Unless otherwise specified in MIL-STD-1651, minimum mechanical spacing and creepage distance shall be as shown in Table B1.

Table B1 - Minimum mechanical spacing and creepage

Minimum Contact Spacing in inches (millimeters)		
Service Rating	Air Spacing	Creepage Distance
Instrument	N/A	1/16 (1.59)
A	1/16 (1.59)	1/8 (3.18)
D	1/8 (3.18)	3/16 (4.76)
E	3/16 (4.76)	1/4 (6.35)
B	1/4 (6.35)	5/16 (7.94)
C	5/16 (7.94)	1 (25.4)

B.2 DEFINITIONS

The terms specified herein are generally accepted by the electrical and electronics industries and commonly used in electrical connector engineering practice. An illustration of some of the terms used is shown below:

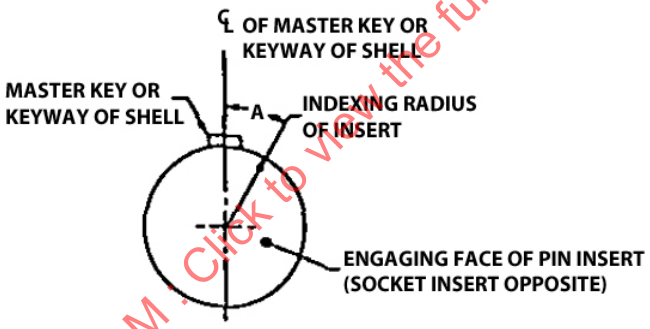


Figure B1 - Illustration of terms

B.3 GENERAL REQUIREMENTS

Insert arrangements shall be in accordance with MIL-STD-1651 with additional arrangements shown herein. Insert arrangements are as specified in Table B2.

Table B2 - Insert arrangements listed by shell size

Shell Size	Arrangement Number	Service Rating	Number of Contacts	Contact Size	Drawing Location
10SL	3	A	3	16	MIL-STD-1651
	4	A	2	16	
14S	1	A	3	16	
	2	INST	4	16	
	4	D	1	16	
	5	INST	5	16	
	6	INST	6	16	
	7	A	3	16	
	9	A	2	16	
16S	1	A	7	16	
	3	B	1	16	
	4	D	2	16	

16	A11 1/	A	2	12	Figure B3
	2	E	1	12	MIL-STD-1651
	7	A	2	16	
			1	8	
	9	A	2	16	
			2	12	
	10	A	3	12	
	11	A	2	12	
	12	A	1	4	
18	1	A	4	16	
		INST	6	16	
	3	D	2	12	
	4	D	4	16	
	5	D	1	16	
			2	12	
	6	D	1	4	
	7	B	1	8	
	8	A	7	16	
			1	12	
	9	INST	5	16	
			2	12	
	10	A	4	12	
	11	A	5	12	
	12	A	6	16	
	13	A	3	12	
			1	8	
	14	A	1	16	
			1	4	
	15	A	4	12	
	20	A	5	16	
	22	D	3	16	
	29	A	5	16	

Table B2 - Insert arrangements listed by shell size (continued)

Shell Size	Arrangement Number	Service Rating	Number of Contacts	Contact Size	Drawing Location
20	A9	A	9	12	Figure B2
	2	D	1	0	MIL-STD-1651
	3	D	3	12	
	4	D	4	12	
	5	E	2	16	
	6	D	3	16	
	7	D	4	16	
		A	4	16	
	8	INST	4	16	
			2	8	
	9	D	1	12	
		A	7	16	
	11	INST	13	16	
	12	A	1	16	
			1	4	
	13	A	4	16	
	14	A	3	12	
			2	8	
	15	A	7	12	
	16	A	7	16	