DEFENSE LOGISTICS AGENCY
DLA LAND AND MARITIME
POST OFFICE BOX 3990
COLUMBUS, OH 43218-3990

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION 17 August 2012

SUBJECT: Initial Drafts of Commercial Item Descriptions (CIDs) see table below.

CID #	Project #	Title
A-A-XX159	6060-2012-003	Fiber Optic Connector, Hermaphroditic, Multiple Removable Termini
A-A-XX160	6060-2012-005	Removable Termini for Multiple Fiber Optic Connectors
A-A-XX161	6020-2012-001	Cable, Fiber Optic, Pierside Use Only, 12 Breakout Cable Count, Multiple Classes (single mode, multimode and mixed mode)

The initial drafts of the subject CIDs, dated 17 August 2012, can be viewed and downloaded from the DLA Land and Maritime-VA web site:

http://www.landandmaritime.dla.mil/Programs/MilSpec/initialdrafts.aspx

These CIDs provide information on the components and will be utilized in the procurement of these items.

Manufacturers desiring to be listed as a source, which meet the requirements of these CIDs, are requested to complete and submit the appropriate attached Certificates of Compliances along with any comments.

Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians or this office, as applicable, in sufficient time to allow for consolidating the department reply.

Please forward your comments or concurrence electronically to the project engineer listed below by COB 2 October 2012. This can be in the form of a return email, with or without an attached text file (see comment forms at the above web site). Any further coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

Lack of reply by the above due date will be interpreted as either no interest in or concurrence with these documents.

The point of contact for these documents is Mr. Gene Ebert, DLA Land and Maritime-VAT. The preferred method of contact is via email: eugene.ebert@dla.mil. Mr. Ebert can also be reached at 614-692-0729/DSN 850-0729, or by facsimile 614-692-6939/850-6939.

/S/

MICHAEL A. RADECKI
Chief
Electronic Components Branch

Attachments:
A-A-XX159, XX160 & XX161
Certificate of Conformance forms

A-A-XX159

CERTIFICATE OF COMPLIANCE
FOR COMMERCIAL ITEM DESCRIPTION (CID)

DLA Land and Maritime-VAT Contact: Gene Ebert, Phone 614-692-0729, FAX 614-692-6939

MANUFACTURER'S NAME AND LOCATION: _____

_____,

_____

CAGE _____

☐ I (We) have reviewed the enclosed CID and hereby certify that our product, currently designed as shown below and assembled at our plant location in:

_____

_____
(write "same" if applicable)
meets or exceeds the performance requirements of this CID.

☐ (We) have reviewed the enclosed CID and hereby certify that our product, currently designed as shown below and assembled at our plant location in:

_____

_____
(write "same" if applicable)
will meet this CID, provided that the attached comments are incorporated into the document.

CID Number	Manufacturer's P/N
A-A-XX159_____	_____

(attach cross reference table or additional certificate of compliance sheets as necessary)

I (We) understand that this certificate is not to be used nor construed as a guarantee of continued or indefinite availability for the described commercial item description. However, under present circumstances, we would expect to supply a separate certificate of compliance in company format pertaining to lot date code shipped on the order. On the basis of the statement checked above, please list us as a "known source of supply" on your commercial item description.

☐ No interest in this CID.

_____
AUTHORIZED SIGNATURE (S) (TITLE)

_____
(DATE) (TELEPHONE) (FAX)

NOTE: This draft, dated 17 August 2012 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. (Project 6060-2012-003)

INCH-POUNDS

A-A-XX159

COMMERCIAL ITEM DESCRIPTION

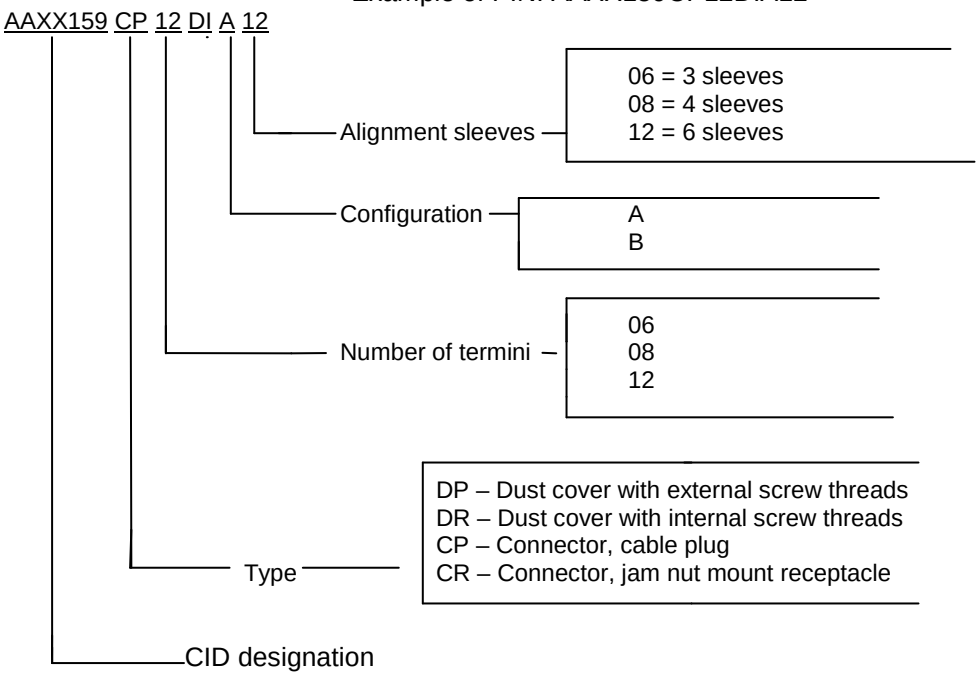
FIBER OPTIC CONNECTORS, HERMAPHRODITIC, MULTIPLE REMOVABLE TERMINI

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description (CID) covers the general requirements for fiber optic connectors, hermaphroditic, multiple removable termini item. Fiber optic connectors, hermaphroditic, multiple removable termini covered by this CID are intended for commercial/industrial applications.

2. CLASSIFICATION/PART OR IDENTIFICATION NUMBER (PIN). This CID uses a classification system which is included in the PIN as shown in the following example (see 7.1).

Example of PIN: AAXX159CP12DIA12



2.1 Type. The fiber optic connectors specified in this CID shall be referred to by the type designation CP for cable plug and CR for jam nut mounted receptacle. The dust covers specified in this CID shall be referred to by the type designator DP for one with external threads and DR for one with internal threads. The detachable socket insert (front insert) shall be referred to by the type designation DI-A for configuration A (one with captivated alignment sleeves) and by DI-B for configuration B (one with through holes for alignment sleeves).

2.2 Number of termini. The number of termini specified for both the connector and front insert shall follow the type designator as listed in table I. Number of termini does not apply to a dust cover.

Table I. Connector/dust cover/detachable socket insert types.

Type	Description 1/
DP	Dust cover with external screw threads, wire rope with fastener, for 6, 8, & 12 termini cable plugs.
DR	Dust cover with internal screw threads, wire rope with fastener, for 6, 8, & 12 termini jam nut mounted receptacles.
CP-6	Connector, 6 termini, cable plug without a detachable socket insert. 2/
CR-6	Connector, 6 termini, jam nut mount receptacle without a detachable socket insert.
CP-8	Connector, 8 termini, cable plug without a detachable socket insert. 2/
CR-8	Connector, 8 termini, jam nut mount receptacle without a detachable socket insert.
CP-12	Connector, 12 termini, cable plug without a detachable socket insert. 2/
CR-12	Connector, 12 termini, jam nut mount receptacle without a detachable socket insert.
DI-A-6	Detachable socket insert, front piece, configuration A, with 3 alignment sleeves.
DI-B-6	Detachable socket insert, front piece, configuration B, with through holes for alignment sleeves.
DI-A-8	Detachable socket insert, front piece, configuration A, with 4 alignment sleeves.
DI-B-8	Detachable socket insert, front piece, configuration B, with through holes for alignment sleeves.
DI-A-12	Detachable socket insert, front piece, configuration A, with 6 alignment sleeves.
DI-B-12	Detachable socket insert, front piece, configuration B, with through holes for alignment sleeves.

1/ Both the connector and detachable socket insert must be specified to obtain a complete part. Example: CP-12-DI-A-12 is a cable plug connector with 12 termini and a configuration A detachable socket insert.
2/ Cable plug includes a cable strain relief. No backshell is used with this configuration.

3. SALIENT CHARACTERISTICS.

3.1 Interface and physical dimensions. Fiber optic connectors, hermaphroditic, multiple removable termini supplied to this CID shall be as specified herein.

3.2 Performance requirements. The connectors and dust covers listed in table I shall meet the performance requirements specified in table II when tested with removable termini that conform to CID A-A-XX160. Once tested and approved, any change in construction or material shall require connector re-testing to this table.

Table II. Connector/dust cover test procedures and performance requirements.

Test procedure [15/]	Performance requirement
Group I tests: visual/dimensional/optical	
Size (TIA-455-13) [6/]	Dimensions per Appendix B
Workmanship (TIA-455-13) [6/]	No pits, burrs; mates properly; [1/]
Identification Markings (TIA-455-13) [6/]	Legible & permanent manufacturer name/logo
Insert Retention Axial Strength (Apply pressure 0.7 MPa (100 psi) at 0.07 MPa/sec (10 psi/sec) rate and for 1 minute. Test both forward and backward directions.) [6/]	No axial displacement detrimental to performance; [1/]
Insertion Loss, Initial (TIA/EIA-455-34, Methods A1 & B) [6/ 8/]	MM:0.5 dB avg, 0.75 dB max [12/] SM: 0.5 dB avg, 0.75 dB max [12/] SM: 0.25 dB avg, 0.5 dB max [13/]
Return loss (TIA-455-107) [6/ 8/]	MM: Not applicable SM: 30 dB min [12/] SM: 40 dB min [13/]
Group II tests: Mechanical	
Cable retention (TIA-455-6, Apply force □□181. pounds) for 10 minutes) [6/ 7/]	[1/ 2/]
External bending moment (apply 71 N-m (628 in-lb) for 1 minute at rate of 1.1 N-m/minute (10 in-lb/minute)) [6/ 7/]	[1/ 3/]
Coupling engage & disengage torque (apply radial torque to engage & disengage coupling ring to threads) [6/]	maximum applied torque allowed = 4.5 N-m (40 in-lb) [1/ 2/]
Twist (TIA-455-36, 1000 cycles at 12 cycles/minute, cable tension 48.9 N (11 lb) clamped at 10X cable outer diameter from connector) [6/ 7/]	No cable seal damage. [1/ 2/]
Mating durability (TIA-455-21, 1000 cycles) [6/]	[1/ 2/]
Return loss (TIA-455-107) [6/]	MM: Not applicable SM: 30 dB min [12/] SM: 40 dB min [13/]
Crush (TIA-455-26, Load □ [9/]	[1/ 2/]
Impact (TIA/EIA-455-2,method A) [6/ 7/]	[1/ 3/]
Insertion loss, maximum (TIA/EIA-455-34, methods A1 & B) [6/]	MM:1.0 dB avg, 1.25 dB max [12/] SM: 1.0 dB avg, 1.25 dB max [12/] SM: 0.75 dB avg, 1.0 dB max [13/]
Water pressure (Immerse in water for 48 hr to 0.17 MPa (25 psi) for mated pair, to 0.10 MPa (15 psi) for unmated pair.) [9/]	No water penetration into connector interior [1/ 3/]
Group III tests: Environmental	
Temperature humidity cycling (TIA/EIA-455-5, Type 2) [6/]	[1/ 2/]
Temperature cycling (TIA-455-3, -40°C/65°C for 5 cycles) [6/]	[1/ 2/]
Temperature life (TIA/EIA-455-4, 110°C for 240 hours) [6/ 14/]	[1/ 3/]
Return loss (TIA-455-107) [6/]	MM: Not applicable SM: 30 dB min [12/] SM: 40 dB min [13/]
Insertion loss, maximum (TIA/EIA-455-34, methods A1 & B) [6/]	MM:1.0 dB avg, 1.25 dB max [12/] SM: 1.0 dB avg, 1.25 dB max [12/] SM: 0.75 dB avg, 1.0 dB max [13/]

Table II. Connector/dust cover test procedures and performance requirements (continued).

Test procedure 15/	Performance requirement
Group III tests: Environmental	
Temperature humidity cycling (TIA/EIA-455-5, Type 2) 6/	1/ 2/
Temperature cycling (TIA-455-3, -40°C/65°C for 5 cycles) 6/	1/ 2/
Temperature life (TIA/EIA-455-4, 110°C for 240 hours) 6/ 14/	1/ 3/
Return loss (TIA-455-107) 6/	MM: Not applicable SM: 30 dB min 12/ SM: 40 dB min 13/
Insertion loss, maximum (TIA/EIA-455-34, methods A1 & B) 6/	MM:1.0 dB avg, 1.25 dB max 12/ SM: 1.0 dB avg, 1.25 dB max 12/ SM: 0.75 dB avg, 1.0 dB max 13/
Group IV tests: Materials	
Fungus resistance (TIA-455-56, parts only) 11/	4/
Salt spray (TIA-455-16, 500 hours at 35°C) 8/	5/
Ozone exposure (Test equipment per ASTM-D-1149; air velocity 2 ft/sec, 70 ± 5 °C, ozone concentration of 100 to 150 ppm for 2 hours) 11/	No evidence of excessive swelling or embrittlement in the connector seals.
Fluid immersion (TIA-455-12) Immerse in each fluid for 24 hours at 20 to 25 °C. 10/ 11/	No swelling, softening, fluid penetration, discoloration; no loss of sealing or ID marking. 3/

1/ No visual evidence of cracking, degradation, deterioration, distortion, separation, corrosion, etc.
2/ Change in optical transmittance 0.5 dB for MM (multimode), < 0.5 dB for SM (single mode) both during and after the test per TIA-455-20.
3/ Change in optical transmittance 0.5 dB for MM, < 0.5 dB for SM after the test per TIA-455-20.
4/ Materials shall show no, sparse or very restricted microbial growth and reproduction. Little or no chemical, physical or structural change shall be detectable.
5/ No visible evidence of salt penetration into the connector sealed area shall be observed. No corrosive effects shall be seen on the external connector parts that could be detrimental to the operation of the connector.
6/ Perform on two mated pair, cable plug-to-jam nut mount receptacle configuration.
7/ Perform on cable plug end only.
8/ Perform on two mated pair, cable plug-to-cable plug configuration.
9/ Perform on one mated pair and one unmated pair, cable plug-to-cable plug configuration.
10/ A 24 hour immersion shall be performed in the following fluids or the commercial equivalent: fuel oil (MIL-F-16884), turbine fuel (JP-5, JP-8 MIL-T-5624), isopropyl alcohol (TT-I-735), hydraulic fluid (MIL-H-17672 and MIL-H-5606), lubricating oil (MIL-L-17331, MIL-L-23699), Chevron Int'l Coolanol 25R (MIL-C-47220 Type IV), sea water (3% NaCl).
11/ May be performed on separate components versus an assembled connector.
12/ Requirement for average is average value of termini per connector. Values specified are those for standard optical signal level performance.
13/ Requirement for enhanced optical signal level performance. Different/revised polishing procedure may be used. Unless otherwise specified in the contract, tests for performance verification shall be performed to standard performance requirement.
14/ Test temperature may not be realistic for cable used to terminate connector. If so, double test time for every 10 °C decrease in the test temperature.
15/ When not specified, optical measurements shall be made at the 1300 nm wavelength window. A minimum of 8 fibers shall be monitored during testing. Each fiber shall be monitored individually with no fiber concatenation allowed. Both single mode and multimode fibers shall be monitored. Optical source launch conditions: For SM fiber use 30 mm diameter mandrel and for MM fiber use 70/70 restricted.

3.3 Marking. Fiber optic connectors, hermaphroditic, multiple removable termini supplied to this CID shall be marked with the manufacturer's (MFR's) standard commercial PIN. (NOTE: The part number marked on the unit pack shall be the CID PIN.)

3.4 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.5 Workmanship. Fiber optic connectors, hermaphroditic, multiple removable termini shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

3.6 Interchangeability. The fiber optic connectors and dust covers specified in this CID shall conform to appendix A for interchangeability verification and appendix B for dimensions required for interchangeability.

3.7 Sealing. Connector shall be designed so that an unmated cable plug and jam nut receptacle, as well as mated combinations of these connectors and dust covers, can meet the requirements of table II, as applicable.

3.8 Connector detachable socket inserts. The insert shall be comprised of two pieces, a detachable front insert and a fixed rear insert that meets inter-mateability requirements. Front insert is to include only the portion that covers the socket termini alignment sleeves. (See appendix B, figures 4, 5 and 6).

3.9 Socket insert configurations. There shall be two configurations for the front socket insert. In one configuration, configuration A, the termini are to be retained in the connector rear insert and alignment sleeves in the front insert when the front insert is separated from the connector. In the other configuration, configuration B, termini with alignment sleeves are to be retained in the connector rear insert when the front insert is separated from the connector.

3.10 Captivated socket head cap screw. A captivated socket head cap screw (compatible with 5/64 inch Allen wrench) is to be used as the attachment actuator for securing the two insert pieces.

3.11 Linear position of termini cavities. Linear position of the termini cavities shall be established when the mating end faces of the front and rear inserts are joined. (See appendix B, figure 8).

3.12 Rear insert. Rear insert shall have sufficient depth to engage with and retain the spring retaining clip on the socket termini. The rear insert shall be keyed and secured to prevent rotation within the plug and receptacle connectors.

3.13 Front insert configuration A.

3.13.1 Alignment sleeves. Front insert shall contain alignment sleeves as part of the insert and conform to applicable figures in appendix B.

3.13.2 Termini. Termini are to be retained in the connector rear insert and alignment sleeves in the front insert when the front insert is separated from the connector.

3.13.3 Insert. Insert shall be keyed so that the front and rear inserts are engaged and aligned properly prior to front insert contacting socket termini.

3.13.4 Front insert. Once front insert is detached, there shall be direct access to termini end faces.

3.13.5 Alignment sleeve material. Alignment sleeve material shall be ceramic. Alignment sleeve may have a slot/opening running axially along the entire length.

3.14 Front insert configuration B.

3.14.1 Front insert. Front insert shall contain alignment sleeve clearance cavities and conform to applicable figures in appendix B.

3.14.2 Termini. Termini with alignment sleeves are to be retained in the connector rear insert when the front insert is separated from the connector.

3.14.3 Insert. Insert shall be keyed so that the front and rear inserts are engaged and aligned properly prior to front insert contacting socket termini alignment sleeves.

3.14.4 Termini alignment. Once termini alignment sleeves are removed, the front socket insert shall be detachable for termini end face cleaning.

3.15 Strain relief. The strain relief on the cable plug shall be re-enterable (field repairable) for maintenance purposes. Strain relief shall be achievable using the approved Navy tooling described in table 1H of NAVSEA Drawing 7325763. The limits on the cable outer diameter for each cable plug shall be as listed in table III.

Table III. Cable outer diameter limits for cable plug strain relief.

Connector plug type	Minimum cable outer diameter mm (inches)	Maximum cable outer diameter mm (inches)
CP-6	6.50 (.256)	9.50 (0.374)
CP-8	11.00 (.433)	13.70 (0.540)
CP-12	14.00 (0.551)	16.20 (0.639)

3.16 Connector protective caps. All connectors specified in this CID shall be provided with a disposable cap or cover. The cap shall be free of mold release, lubricants, or any other contaminants.

3.17 Connector/termini interchangeability. All connectors (with the same termini count), dust covers, accessories and replaceable parts of the same type listed in this CID shall be physically and functionally interchangeable without need for modification of such items or of the mating equipment and shall be interoperable with their counterpart connectors. Refer to Appendix A for interchangeability test procedures and requirements.

3.18 Identification markings. The connector shall be marked with a yellow band and either the manufacturer's name, CAGE Code or logo.

3.19 Plating. An environmentally friendly and abrasion resistant plating shall be used on the aluminum connector and dust covers that conforms to the following requirements:

3.19.1 Dimensional compatibility. Connector shall conform to the dimensional requirements in appendix B.

3.19.2 Application constraints. Connector with an environmentally friendly and abrasion resistant plating shall meet the 500 hour salt spray requirement and show no signs of surface plating degradation when examined visually after 500 mating cycles, including any applicable wrench tightening. Connector plating shall withstand other test conditions in table II.

3.19.3 Environmental exposure resistant. Connector with environmentally friendly and abrasion resistant plating shall be resistant to fungus, ozone and ultraviolet (UV) light.

3.19.4 Color. The connector color shall be non-reflective.

3.20 Accessories. Dust covers shall be equipped with insulated, coated, braided steel wire rope and a means of mounting to the connector or panel/interconnection box, as applicable. Jam nut mounted receptacle shall be equipped with jam nut per appendix B, figure1.

3.21 Optical transmittance instrumentation stability. Optical transmittance instrumentation shall be subjected to the following stability tests before table II testing is performed. The first test should consist of measuring the transmitted power through each channel once every minute for a 4 hour period. The second test should consist of measuring the transmitted power through each channel once every 30 minutes for a 96 hour period. The data for each channel should be analyzed to determine average transmittance, minimum and maximum transmittance, the standard deviation of the transmittance, and the minimum and maximum percent deviation of transmittance.

3.22 Fabrication compatibility. Insertion and removal of termini with respect to the connectors specified in this CID shall be achievable using the approved Navy tool kit described in NAVSEA Drawings 6872813 and 7325763.

3.23 Socket termini for detachable socket inserts. Socket termini to be used with a configuration A front socket insert are to be purchased without the alignment sleeves. Socket termini to be used with a configuration B front socket insert are to be purchased with the alignment sleeves.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with 23.403 of the Federal Acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

5.2 Interchangeability conformance. As a precursor to market acceptability, the interchangeability requirements in Appendix B of this CID shall be met.

5.3 Market acceptability. Connectors and dust covers procured to this CID shall have demonstrated commercial market acceptability. Suppliers will demonstrate market acceptability by showing that they have sold more than 50 fiber optic, multiple termini connectors to commercial customers and have been selling the product for greater than 2 years.

5.4 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer’s own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The Government reserves the right to require proof of such conformance.

5.5 Market acceptance. The following market acceptance criteria are necessary to document the quality of the product to be provided under this CID:

a. The company producing the item must have been producing a product meeting the requirements of this CID for at least 2 years.

b. The company producing the item must have sold 1000 units meeting this CID in the commercial marketplace over the past 2 years.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 PIN. The PIN should be used for Government purposes to buy commercial products to this CID. See section 2 for PIN format example.

7.2 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website http://www.epa.gov/osw/hazard/wastemin/priority.htm. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

7.3 Commercial and Government Entity (CAGE) code. For ordering purposes, inventory control, and submission of these fiber optic connectors, hermaphroditic, multiple removable termini to DLA Land and Maritime under the Military Parts Control Advisory Group (MPCAG) evaluation program, CAGE code 58536 should be used.

7.4 Source of documents.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-5606	-	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordinance
MIL-DTL-5624	-	Turbine Fuel, Aviation, Grades JP-4 and JP-5.
MIL-DTL-16884	-	Fuel, Naval Distillate.
MIL-PRF-17331	-	Lubricating Oil, Steam Turbine and Gear, Moderate Service.
MIL-PRL-17672	-	Hydraulic Fluid, Petroleum Inhibited
MIL-PRF-23699	-	Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number O-156.
TT-I-735	-	Isopropyl Alcohol

(Copies of these documents are available online at https://assist.dla.mil/quicksearch/ or https://assist.dla.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

FEDERAL REGULATIONS

FAR	-	Federal Acquisition Regulations (FAR)

(Copies of these documents are available online at www.acquisition.gov/comp/far/index.html or from the U.S. Government Printing Office, 732 North Capital Street, NW, Washington D.C. 20401.)

Other Publications

ASTM INTERNATIONAL

ASTM-D-1149 - Standard Test Methods for Rubber Deterioration – Cracking in an Ozone Controlled Environment…..

(Copies of these documents are available online at http://www.astm.org or from the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

TIA-455-2	-	Impact Test Measurements for Fiber Optic Devices
TIA-455-3	-	FOTP-3 Procedure to Measure Temperature Cycling Effects on Optical Fiber Units, Optical Cable, and Other Passive Fiber Components
TIA/EIA-455-4	-	FOTP-4 Fiber Optic Component Temperature Life Test
TIA/EIA-455-5	-	FOTP-5 Humidity Test Procedure for Fiber Optic Components
TIA-455-6	-	FOTP-6 Cable Retention Test Procedure for Fiber Optic Cable Interconnecting Devices
TIA-455-12	-	FOTP-12 Fluid Immersion Test for Fiber Optic Components
TIA-455-13	-	FOTP-13 Visual and Mechanical Inspection of Fiber Optic Components, Devices and Assemblies
TIA-455-16	-	FOTP-16 Salt Spray (Corrosion) Test for Fiber Optic Components
TIA-455-20	-	FOTP-20 IEC 60793-1-46 Optical Fibres-Part 1-46: Measurement Methods and Test Procedures-Monitoring of Changes in Optical Transmittance
TIA-455-21	-	FOTP-21 Mating Durability of Fiber Optic Interconnecting Devices
TIA-455-26	-	FOTP-26-A Crush Resistance of Fiber Optic Cable Interconnecting Devices
TIA/EIA-455-34	-	FOTP-34 Interconnection Device Insertion Loss Test
TIA-455-36	-	FOTP-36 Twist Test for Fiber Optic Connecting Devices
TIA-455-56	-	Test Method For Evaluating Fungus Resistance of Optical Fiber and Cable
TIA-455-107	-	FOTP-107 Determination of Component Reflectance or Link/System Return Loss Using a Loss Test Set

(Copies of these documents are available online at www.tiaonline.org or from the Telecommunications Industry Association, 2500 Wilson Boulevard, Suite 300., Arlington, VA 22201.)

NAVAL UNDERSEA WARFARE CENTER DIVISION NEWPORT (USRD)

NAVSEA Drawing 6872813	-	Tool kit, MIL-C-28776, Fiber Optic, Navy Shipboard
NAVSEA Drawing 7325763	-	Pierside connectivity, terminated support kit for fiber optic ST connector and termination

(Copies of these documents are available online at http://www.npt.nuwc.navy.mil/USRD/ or from the Underwater Sound Reference Division, Code 216, Building 1171-B, 1176 Howell St., Newport, RI 02841-1708.)

7.5 Ordering data. The contract or order should specify the following:

a. CID document number, revision, and CID PIN.

b. Product conformance provisions.

c. Packaging requirements.

7.6 Commercial products. As part of the market analysis and research effort, this CID was coordinated with the following manufacturers of commercial products. At the time of CID preparation and coordination, these manufacturers were known to have commercial products that would meet the requirements of this CID. (NOTE: This information should not be considered as a list of approved manufacturers or be used to restrict acquisition to only the manufacturers shown.)

MFR's CAGE	MFR's name and address
CAGE	**Manufacturer's NAME** **Manufacturer's ADDRESS** **Manufacturer's ADDRESS (Continued)** **Manufacturer's PHONE NUMBER** **Manufacturer's FAX NUMBER (if applicable)** **Manufacturer's GENERIC E-MAIL (if applicable)** **Manufacturer's URL (if applicable)**
CAGE	**Manufacturer's NAME** **Manufacturer's ADDRESS** **Manufacturer's ADDRESS (Continued)** **Manufacturer's PHONE NUMBER** **Manufacturer's FAX NUMBER (if applicable)** **Manufacturer's GENERIC E-MAIL (if applicable)** **Manufacturer's URL (if applicable)**

7.7 Part number (P/N) supersession data. These CID PINs supersede the following MFR's P/N's as shown. This information is being provided to assist in reducing proliferation in the Government inventory system.

TABLE #. P/N supersession data.

Dash number (see table I) AA**BBBBB**	MFR's CAGE	MFR's P/N 1/	MFR's CAGE	MFR's P/N 1/
001	**BBBBB**	**BBBBBBB**	**BBBBB**	**BBBBBBB**
002	**BBBBB**	**BBBBBBB**	**BBBBB**	**BBBBBBB**

1/ The manufacturer's P/N shall not be used for acquisition to the requirements of this CID. At the time of preparation of this CID, the aforementioned commercial products were reviewed and could be replaced by the CID PIN shown. For actual part marking requirements see 3.3**.**

7.8 Government users. To acquire information on obtaining these hermaphroditic fiber optic connectors, from the Government inventory system, contact DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218-3990, or telephone (614) 692-0729.

APPENDIX A

FIBER OPTIC MULTIPLE REMOVABLE TERMINI CONNECTOR INTERCHANGEABILITY REQUIREMENTS

Interchangeability. All connectors (with the same termini count) having the same part number (such as CP-12) and tools shall be physically and functionally interchangeable without need for modification of such items or of the mating equipment and shall be interoperable with their counterpart connectors. Interchangeability shall be performed on separate components and assemblies than those used for and as a precursor to any quality assurance provisions for market acceptability or product conformance inspections.

1. Interoperability of counterpart connectors. Interoperability of the termini and connector shall be performed as specified in 1a and 1b and table I.

   a. Plug and receptacle. This test is applicable for connector plugs and receptacles being considered.

      (1) Test sample configuration. Different plug and receptacle sources shall be mated as specified in the table I. This test is repeated with all previously certified sources of plugs and receptacles that are identified as being interchangeable and previously certified sources of termini.

      (2) Tests performed. Tests shall be performed as specified in 1b using each plug and receptacle configuration specified in table I.

   b. Optical performance test for interoperability.

      (1) Test method. Test shall be performed to TIA/EIA-455-34, Methods 1A and B. Power meter or test set with a wide area detector and adapters specifically for A-A-XX160 termini and ST connector plug interface shall be used. One terminus pigtail shall be used to simulate the pre-cut cable. The terminus is inserted into the termini adapter (at detector end) and a measurement obtained. Next, perform the post-cut cable measurement. The terminus is inserted into the connector plug and mated with the mating terminus in the connector receptacle. The ST connector on the mating terminus pigtail is inserted into the ST connector adapter (at detector end) and a measurement obtained.

      (2) Test requirement. The different between the pre-cut and post cut cable measurements shall be < 0.75 dB for multimode fiber and < 0.75 dB for single mode fiber.

Table I. Interchangeability test variations.

Test variation	Connector receptacle	Termini socket	Connector plug	Termini pin
1	X	A	Y	A
2	Y	A	X	A
3	Y	A	Y	A

X = Previously certified connector
Y = Candidate connector
A = Previously certified termini

2. Insert-terminus compatibility.

a. Test sample configuration. Termini from a previously certified source shall be placed in the connectors specified in table I. This test is performed to verify conformance to termini insertion and removal force level requirements.

b. Test performed. Tests shall be performed as specified in 2c and 2d using test variation 3 specified in table I. A minimum of 6 socket termini and 6 pin termini shall be tested.

c. Termini insertion and removal force test.

(1) Test method. Non-terminated pin and socket termini shall be inserted into a previously certified connector using a terminus insertion tool. Measure the force required to insert each terminus. A terminus removal tool shall then be engaged to unlock each terminus. Measure the force required to remove each unlocked termini.

(2) Test requirement. The termini insertion force and the force required to remove unlocked termini shall not exceed 98 N (22.0 lb).

d. Termini retention force test.

(1) Test method. Test shall be performed on non-terminated pin and socket termini one at a time. Terminus shall be inserted into a previously certified connector. An axial compressive load shall be applied to the front face of the terminus tending to push the terminus to the rear of the connector insert. A pre-load not greater than 13.3 N (3 lb) may be used to seat the terminus for the initial measurement. Axial loads shall be applied at a rate of 4.4 N/s (1.0 lb/s) up to a maximum load 98 N (22.0 lb). The maximum load shall be maintained for at least 5 seconds.
(2) Test requirement. Termini shall be retained in their inserts up to a maximum load of 98 N (22.0 lb).

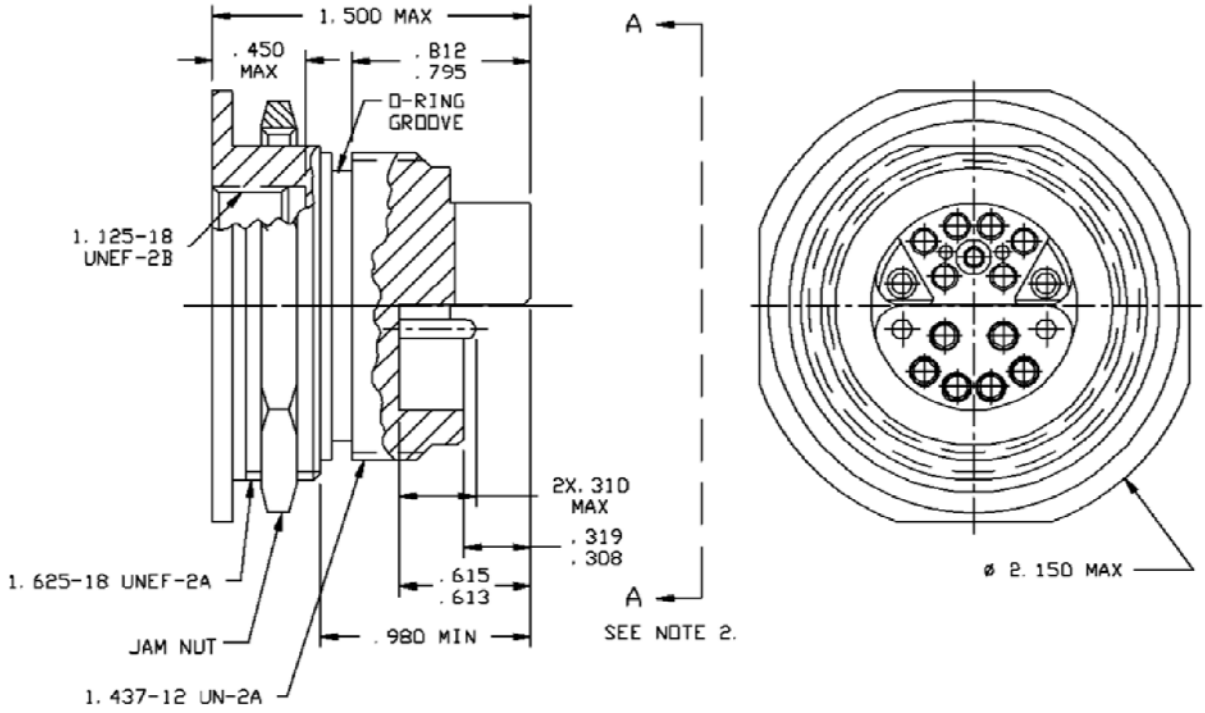
3. Installation and removal tools inspection. Tools supplied shall be listed on NAVSEA Drawings 6872813 and 7325763. Tools shall be used during termini/connector assembly and testing to verify performance.

APPENDIX B

FIBER OPTIC MULTIPLE REMOVABLE TERMINI CONNECTOR
INTERCHANGEABILITY DIMENSIONS

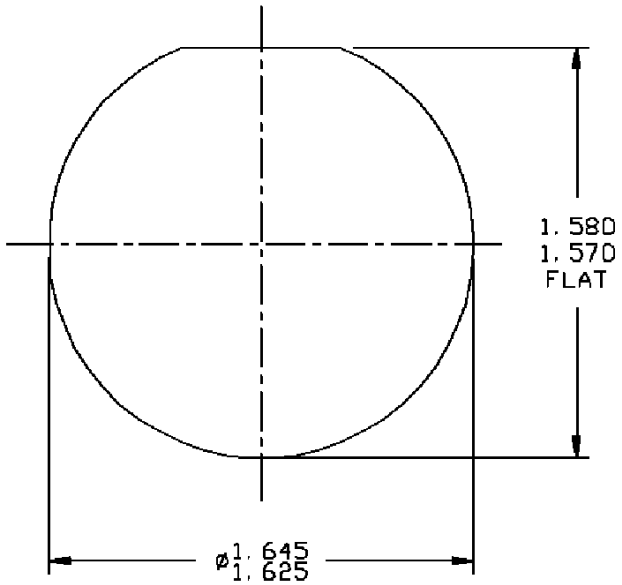
This appendix has the figures with interchangeability dimensions for the connector and dust cover as listed in the following table:

Figure number	Description
1.	Interchangeability dimensions for jam nut mounted receptacle
2	Interchangeability dimensions for jam nut mounted receptacle panel cut out
3.	Interchangeability dimensions for cable plug - in forward position
4	Interchangeability dimensions for cable plug - in back position
5	Interchangeability dimensions for 6 termini front face configuration (common for cable plug and jam nut mounted receptacle)
6	Interchangeability dimensions for 8 termini front face configuration (common for cable plug and jam nut mounted receptacle)
7	Interchangeability dimensions for 12 termini front face configuration (common for cable plug and jam nut mounted receptacle)
8	Interchangeability dimensions for detachable socket insert and alignment sleeve (common for cable plug and jam nut mounted receptacle)
9	Interchangeability dimensions for insert cavity configuration
10	Interchangeability dimensions for dust cover, jam nut mounted receptacle
11	Interchangeability dimensions for dust cover, cable plug



1. Dimensions are in inches.
2. For view of front face see figures 4, 5, and 6.

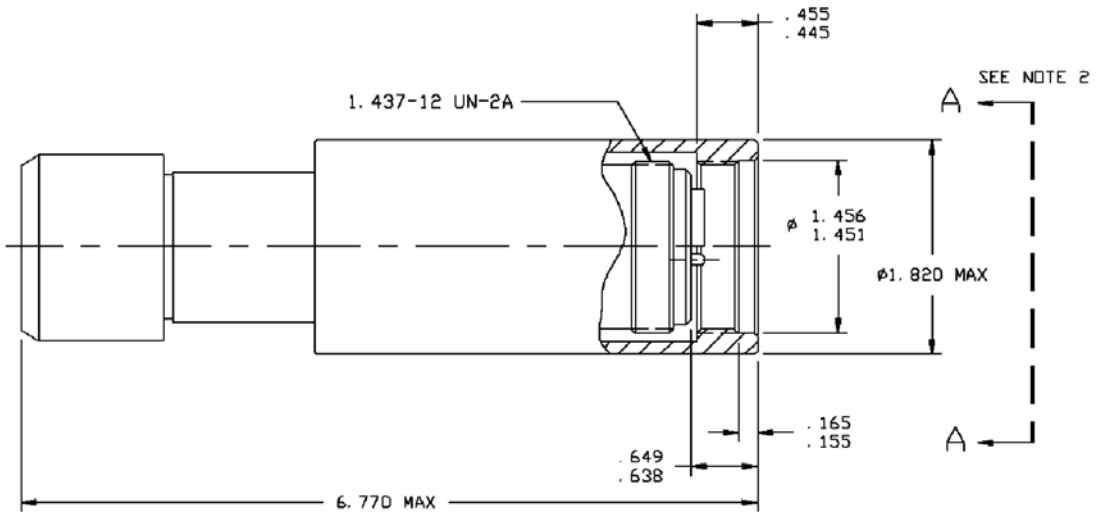
FIGURE 1. Interchangeability dimensions for jam nut mounted receptacle.



PANEL CUTOUT
.150 MAX THICKNESS

NOTES:
1. Dimensions are in inches.

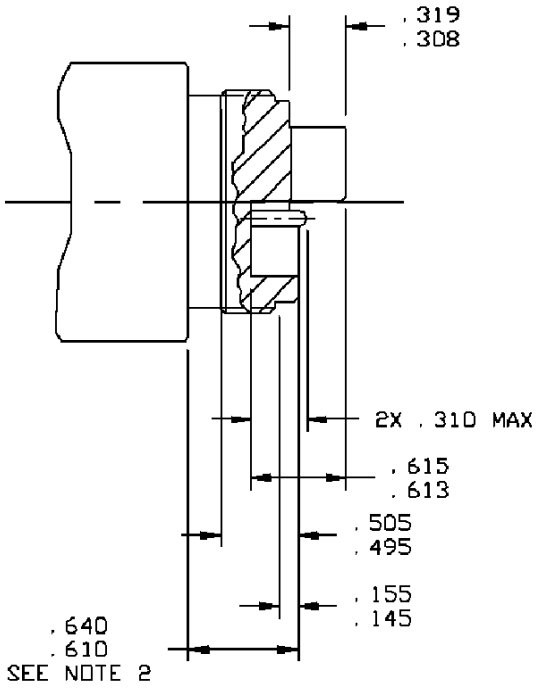
FIGURE 2. Interchangeability dimensions for jam nut mounted receptacle panel cut out.



Notes:

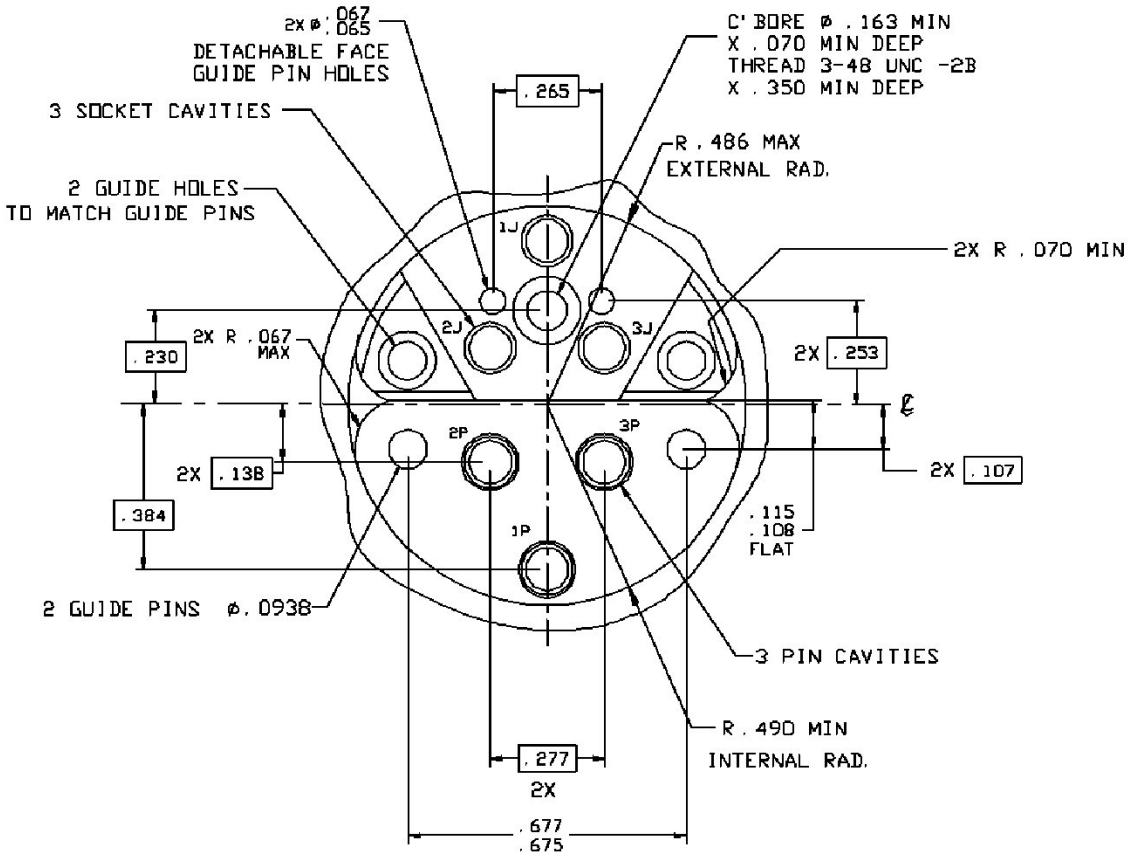
1. Dimensions are in inches.
2. For view of front face, see figures, 4,5 and 6.

FIGURE 3. Interchangeability dimensions for cable plug - in forward position.



NOTES:
1. Dimensions are in inches.

FIGURE 4. Interchangeability dimensions for cable plug - in back position.

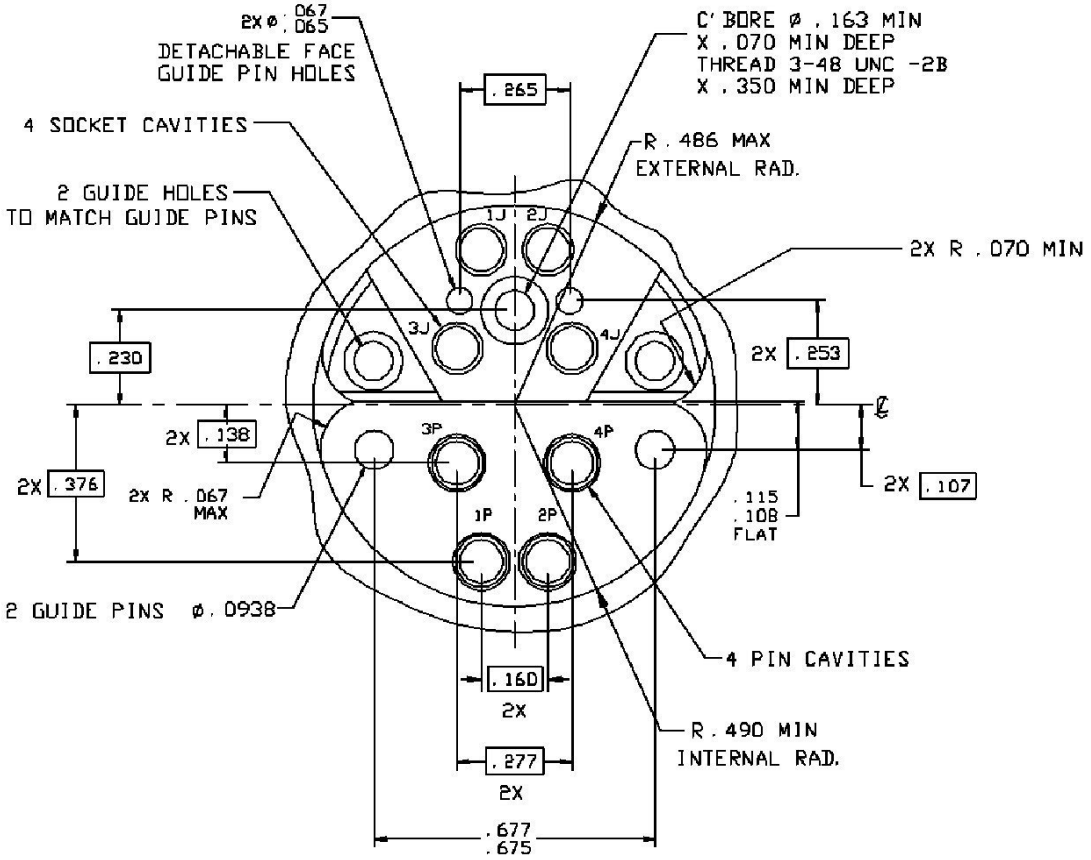


VIEW A-A

NOTE:

1. Dimensions are in inches.

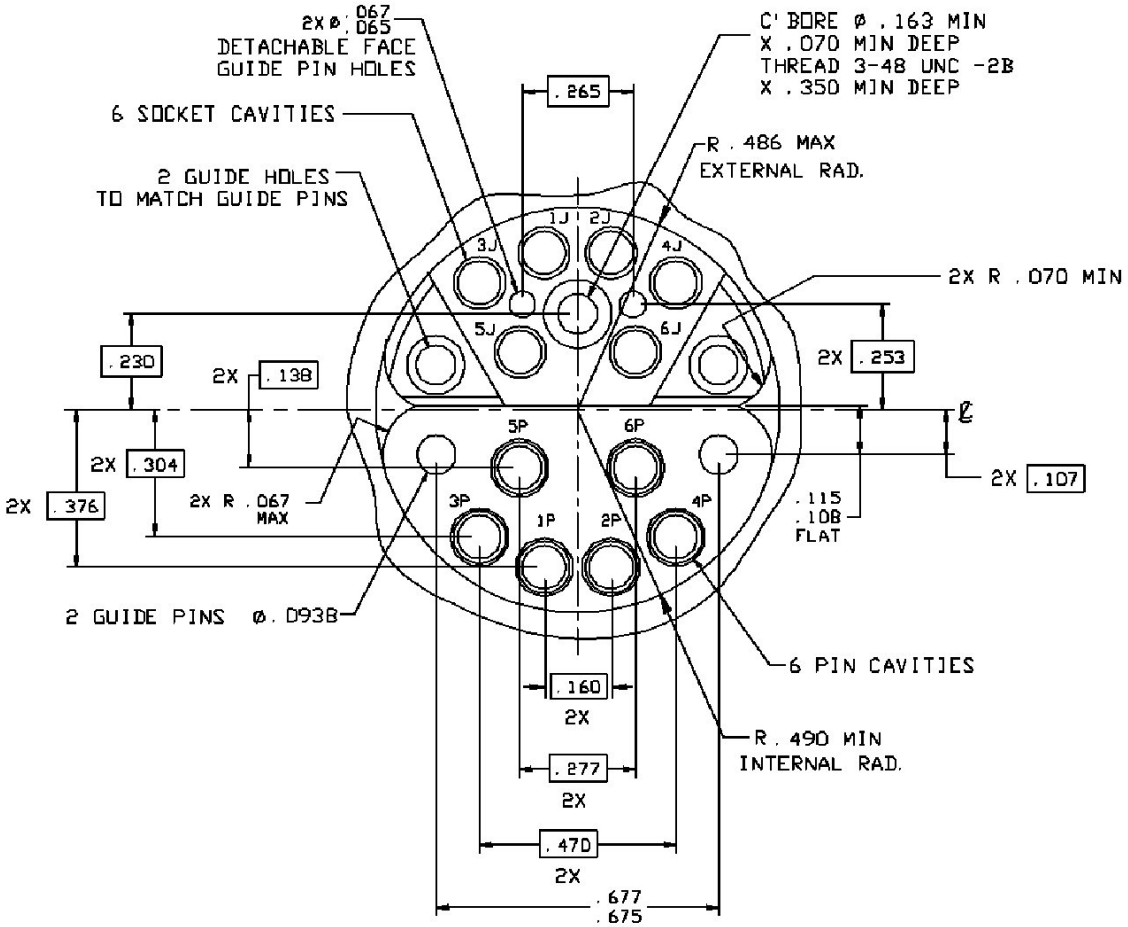
FIGURE 5. Interchangeability dimensions for 6 termini front face configuration (common for cable plug and jam nut mounted receptacle).



VIEW A-A

Note:
1. Dimensions are in inches.

FIGURE 6. Interchangeability dimensions for 8 termini front face configuration (common for cable plug and jam nut mounted receptacle).

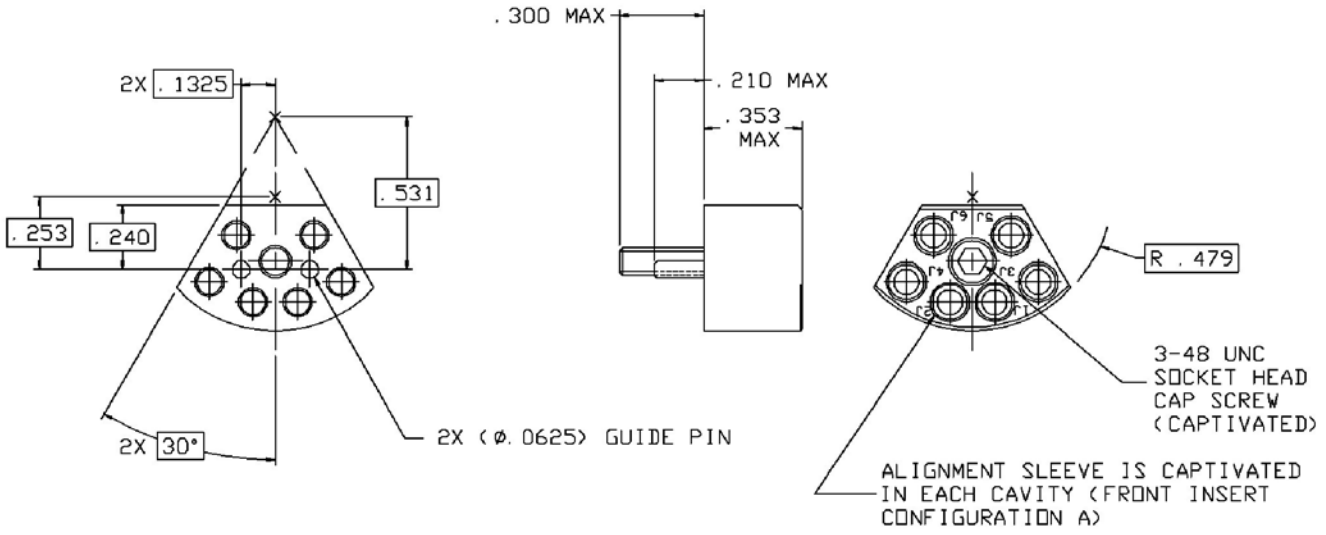


VIEW A-A

Note:

1. Dimensions are in inches.

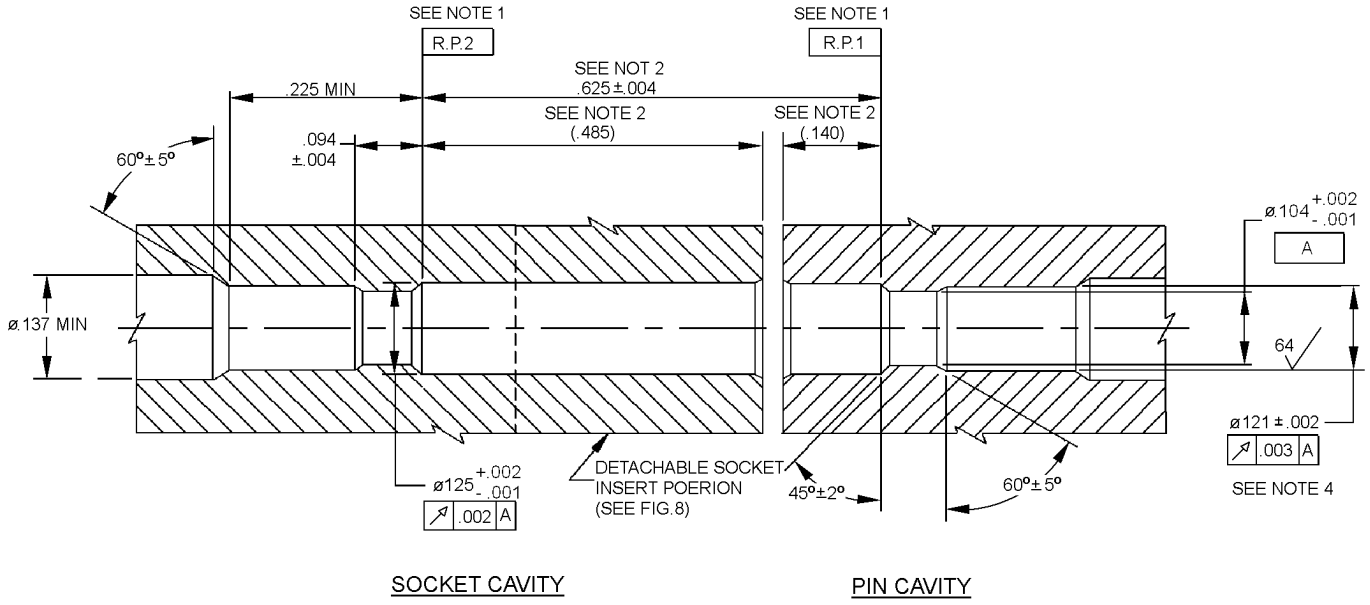
FIGURE 7. Interchangeability dimensions for 12 termini front face configuration (common for cable plug and jam nut mounted receptacle).



Note:

1. Dimensions are in inches.

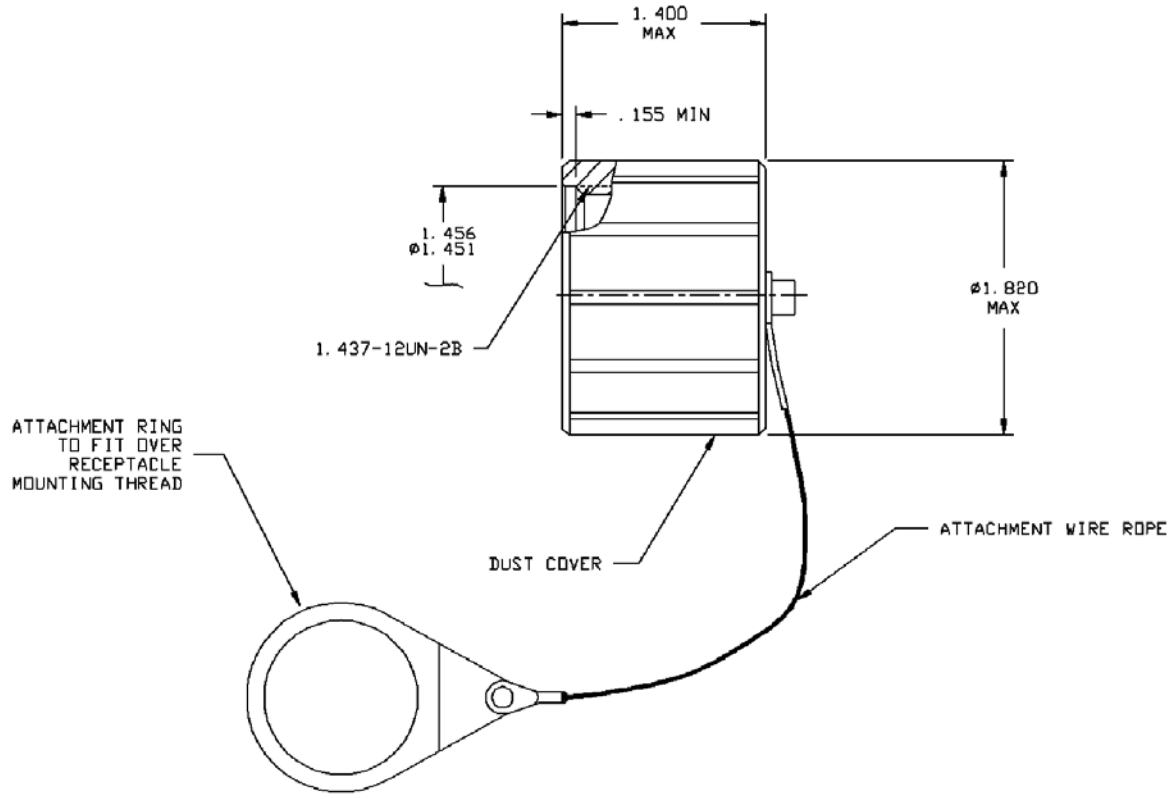
FIGURE 8. Interchangeability dimensions for detachable socket insert and alignment sleeve (common for cable plug and jam nut mounted receptacle).



NOTE:

1. Dimensions are in inches.

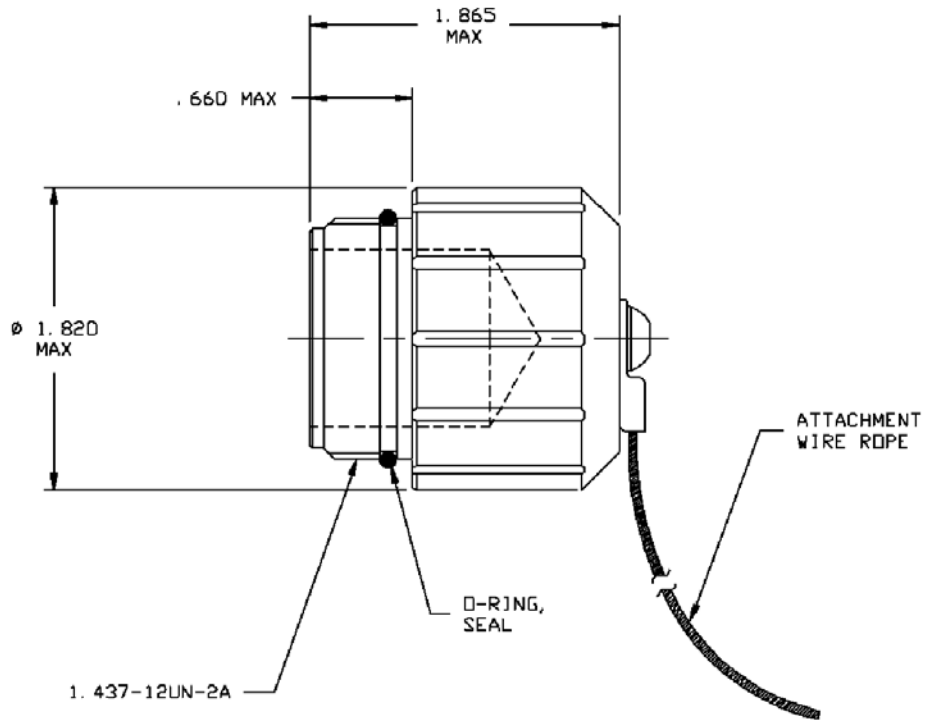
FIGURE 9. Interchangeability dimensions for insert cavity configuration.



Note:

1. Dimensions are in inches.

FIGURE 10. Interchangeability dimensions for dust cover, jam nut mounted receptacle.



Note:

1. Dimensions are in inches.

FIGURE 11. Interchangeability dimensions for dust cover, cable plug.

MILITARY INTERESTS:

Custodians:
NAVY - SH

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FAS

Preparing activity:

DLA-CC

Project 6060-2012-003

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil .