

MIL-DTL-55512B
5 January 2024
 Superseding
 MIL-A-55512A (EL)
 29 August 1969

DETAIL SPECIFICATION

ADAPTER, CONNECTOR UG-1312()/U

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers an Adapter, Connector UG-1312()/U.(see 6.3).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-14072 Finishes for Ground Signal Equipment

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-202-107 - Thermal Shock
 MIL-STD-202-301 - Dielectric Withstanding Voltage
 MIL-STD-202-302 - Insulation Resistance
 MIL-STD-810 Environmental Engineering Considerations and Laboratory Tests
 MIL-STD-13231 Marking of Electronic Items

(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAI, P.O. Box 3990, Columbus OH 43218-3990 or email to RFConnectors@dlamail.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ECOM DRAWINGS (SIGNAL CORPS)

SC-GL-323394 Adapter Connector UG-1312()/U.
SC-DL-335344 Adapter Connector UG-1312()/u.

(Copies of these documents are available online at DSCC.cddwgs@dla.mil).

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The Adapter, Connector UG-1312()/U which this specification covers has male contacts on one end and female contacts on the second end. The adapter is used to interconnect Cable Assembly, Power, Electrical CX-4693()/U and /or CX-4694()/u.

3.2 Construction. The adapter, connector shall be constructed in accordance with the requirements of this specification and Electronics Command Drawing and Data List SC-DL-335344.

3.3 Cast and molded parts.

3.3.1 Casting. Casting shall be of uniform quality and condition, and free from cracks, harmful shrinkage, porosity, gas holes, foreign matter, and other injurious defects. The surface of the castings shall be free from pits, parting lines, porous areas, fins, ridges, modules, raised metal, and scale. All castings shall be completely cleaned prior to presentation for inspection. Castings shall not be plugged or welded, nor shall imperfections be filled in.

3.3.2 Molded parts. Molded parts shall be uniform in quality, condition, and color. The molded parts shall be clean, smooth, free from porous areas, foreign material, weak sections, bubbles, flash and any other injurious defects.

3.4 Cleaning. After assembly, the equipment shall be cleaned thoroughly and shall be free from foreign material.

3.5 Finish, protective. Equipment shall be given protective finish in accordance with MIL-DTL-14072 and the equipment drawings. (See 4.3),

3.6 Marking. Marking shall conform to MIL-STD-13231. (See 4.3).

3.7 Electrical requirements.

3.7.1 Dielectric strength. There shall be no evidence of a voltage drop when treated in accordance with 4.6.1.

3.7.2 Insulation resistance. When treated in accordance with 4.6.2, the insulation resistance shall be not less than 5,000 megohm.

3.8 Mechanical requirements.

3.8.1 Immersion. After being subjected to the tests specified in 4.7.1, the adaptor shall meet the requirement of Insulation resistance 3.7.2 and there shall be no evidence of water within the adaptor.

3.8.2 Interchangeability. Like units, assemblies and sub-assemblies, shall be physically and functionally interchangeable without modification of such items or of the adaptor. Individual items shall not be hand-picked for fit. Reliance shall not be placed on any unspecified dimension, characteristic, etc. (See 4.7.2)

3.9 Service conditions.

3.9.1 Shock drop. After being subjected to the test specified in 4.8.1, the adaptors shall be mechanically operable, and any physical damage shall be minor. The adaptors shall meet the electrical requirements of 3.7.

3.9.2 Thermal shock. After being subjected to the test specified in 4.8.2, the adaptors shall meet the electrical requirements of 3.7 and shall show no evidence of deterioration.

3.9.3 Temperature, relative humidity. After being subjected to the test specified in 4.8.3, the adaptors shall meet the requirements of Insulation resistance 3.7.2 and there shall be no evidence of deterioration.

3.9.4 High humidity and high temperature. After being subjected to the test specified in 4.8.4, the adaptors shall meet the requirements of Insulation resistance 3.7.2, and there shall be no evidence of deterioration.

3.10 Workmanship. Connectors and associated fittings shall be processed in such a manner as to be uniform in quality and shall be free from sharp edges, burrs and other defects that will affect life, serviceability or appearance.

3.11 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased 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.

4. VERIFICATION

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance or all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and service conform to prescribed requirements.

4.2 Classification of inspection. Inspection shall be classified as follows:

- a. Inspection covered by subsidiary documents (see 4.3).
- b. Conformance inspection (See 4.4 and 4.5).

4.3 Inspection covered by subsidiary documents. The following shall be inspected under the applicable subsidiary document as part of the inspection before preparation for delivery:

<u>Item</u>	<u>Where reacquired</u>
Finish	3.5
Marking	3.6

4.4 Quality conformance inspection or equipment before preparation for delivery. The contractor, to demonstrate compliance with specified requirements, shall perform the inspection specified in 4.3 and 4.4.1 through 4.4.4. This does not relieve the contractor of his responsibility for performing any additional inspection which is necessary to control the quality of the product and to assure compliance with all specification requirements. The Government will review and evaluate the contractors inspection procedures and examine the contractor's inspection records. In addition, the Government at its discretion may perform all or any part or the specified inspection to verify the contractors, compliance with specified requirements.

4.5.1 Group A inspection. Group A inspection shall consist of the inspection specified in [table II](#) in the order shown.

4.5.1.1 Sampling plan (group A). [Table I](#) tests shall be performed on a production lot basis. Samples shall be selected in accordance with [table II](#). If one or more defects are found, the lot shall be screened for that particular defect and defective parts removed. A new sample of parts shall be selected in accordance with [table II](#) and all group A tests again performed. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification. When defects have no effect on the use or performance of the subject parts, reworking of the parts may be permitted upon approval of the Government. Such allowances are infrequent and only apply to particular circumstances.

Table I. Group A inspection

Inspection	Requirement	Test method
Visual and Mechanical	3.10	4.22
Construction	3.2	
Castings	3.3.1	
Molding	3.3.2	
Cleaning	3.4	
Finish	3.5	
Marking	3.6	4.6
Electrical		
Dielectric Strength	3.3.7.1	4.9
Insulation Resistance	3.7.2	4.10

*All electrical and air-pressure defects are considered major.

TABLE II. Inspection level.

Lot size	Visual and mechanical inspection
1 to 19	All
20 to 280	20
281 to 1,200	47
1,201 to 3,200	53
3,201 to 10,000	68
10,001 to 35,000	77
35,001 to 150,000	96
150,001 to 500,000	119
500,001 and over	143

4.5.2 Group B inspection. Group B inspection shall consist of the inspections specified in [table IV](#) in the order shown, and shall be made on sample units which have been subjected to and passed the group A inspection. Connectors having identical piece parts may be combined for lot purposes and shall be in proportion to the quantity of each PIN numbered connector produced.

4.5.2.1 Group B sampling plan. A sample of parts shall be randomly selected in accordance with [table IV](#). If one or more defects are found, the lot shall be screened for that particular defect and defects removed. After screening and removal of defects, a new sample of parts shall be randomly selected and subjected to all tests in accordance with [table III](#). If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification.

4.5.2.2 Disposition of sample units. Sample units which have passed all the group B inspection may be delivered on the contract or purchase order, if the lot is accepted. Any connector deformed or otherwise damaged during testing shall not be delivered on the contract or order.

Table III. Group B inspection

Inspection	Requirement	Test method
Immersion	3.8.1	4.7.1
Interchangeability	3.8.2	4.7.2

TABLE IV. Inspection level.

Lot size	Visual and mechanical inspection
1 to 19	All
20 to 280	20
281 to 1,200	47
1,201 to 3,200	53
3,201 to 10,000	68
10,001 to 35,000	77
35,001 to 150,000	96
150,001 to 500,000	119
500,001 and over	143

4.4.3 Group C inspection. This inspection shall consist of the tests specified in table V and shall be performed on samples that have been subjected to and met group A and group B inspection. Sample units shall be selected at random without regard to their quality except that the samples selected at the start of production shall be selected from the first units produced.

4.4.3.1 Sampling plan. Six sample units of the same PIN shall be selected from the lot.

4.4.3.2 Failures. If one or more sample units fails to pass group C inspection, the lot shall be considered to have failed.

4.4.3.3 Disposition of sample units. Sample units which have been subjected to group C inspection shall not be delivered on the contract or order.

Table V. Group C inspection

Inspection	Requirement	Test method
Shock drop	3.9.1	4.8.1*
High humidity and high temperature	3.9.4	4.8.4
Thermal shock	3.9.2	4.8.2*
Temperature, relative humidity	3.9.3	4.8.3

*Sample units subjected to this inspection shall not be furnished on contract.

4.4.3.4 Noncompliance. The contractor shall immediately report, in writing, each group C failure occurrence, including details of the failure and characteristics affected. The contractor shall immediately investigate the cause of failure and further report the results of investigation and details of the proposed corrective action in (i) the process and materials, as applicable, and (ii) all units or product which were manufactured under the same conditions and which the Government considers subject to the same failure. Reports shall be forwarded to the responsible technical activity designated in the contract through the Quality Assurance Representative. After corrective action has been taken, additional sample units shall be subjected to group C inspection (all inspections, or the inspections which the sample failed, at the option of the Government) and groups A and B inspection may be reinstituted; however, final acceptance and shipment will be withheld until the group C reinspection results have shown that the corrective action was effective.

4.4.3.5 Reinspection of conforming group B and group C sample units. Unless otherwise specified, sample units which have been subjected to and passed group B or group C inspection, or both, may be accepted on contract, provided that they are resubjected to and pass group A inspections after repair of all visible damage.

4.5 Preconditioning. The contractor shall be permitted to precondition the adaptors prior to performing any electrical tests. The preconditioning shall consist of removing surface moisture from the equipment by wiping, drying, blowing or heating. The application of heat shall be limited to 3 minutes. For those equipments subjected to Moisture resistance 4.8.3 and High humidity and high temperature 4.8.4 without protective covers, a 24 hour waiting period in an ambient room temperature is permitted. However, if the contractor exercises this option or preconditioning, the contractor shall precondition all samples selected by Quality Assurance Representative immediately prior to testing.

4.6 Electrical tests.

4.6.1 Dielectric strength. The adaptors shall be tested in accordance with MIL-STD-202-301 to determine compliance with the requirements of 3.7.1. A potential of 3,500 volts rms(4,949 volts dc) shall be applied between each contact in turn and remaining contacts connected together to the housing ground.

4.6.2 Insulation resistance. The adaptors shall be tested in accordance with MIL-STD-202-302, Condition B, to determine compliance with the requirements of 3.7.2. The insulation resistance shall be measured between each contact in turn and the remaining contacts connected together to the housing. The measurement shall be made after 1 minute electrification.

4.7 Mechanical tests.

4.7.1 Immersion. The adaptors shall be immersed to a depth of 3 feet of water for 16 hours to determine compliance with 3.8.1. The test shall be performed with caps in place.

4.7.2 Inspection for interchangeability. The adaptors shall be gaged, using the appropriate gages listed on SC-GL-323394 to determine conformance to the physical and functional interchangeability requirement of 3.8.2. When a mechanical value is not within specified or design limits, it shall be considered a major defect.

4.8 Service tests.

4.8.1 Shock drop. Two adaptors shall be dropped a distance of 36 inches at random for a total of 12 drops. Six drops shall be made with the cap on and the remaining 6 drops shall be made with the cap off. The floor or barrier receiving the impact shall be 2 inch fir backed by concrete or a rigid steel frame. Adaptors shall meet the requirement of 3.9.1.

4.8.2 Thermal shock Connectors shall be subjected to temperature cycling in accordance with [MIL-STD-202-107](#) Test Condition B. At the extreme temperatures, the connector shall be mated and unmated and the contact resistance measured to determine compliance with the requirement specified in 3.9.2.

4.8.3 Temperature, relative humidity. Connectors shall be subjected to continuous cycling for five 48-hour cycles. Temperature, relative humidity, and period of time shall conform to 520.2 of Standard MIL-STD-810. The connectors shall then be removed from the humidity chamber and allowed to dry for a period of approximately 24 hours at $25^{\circ} \pm 5^{\circ}\text{C}$, with the relative humidity controlled at 50 ± 5 percent. The connectors shall be subjected to the test specified for insulation resistance in [4.11](#). (See [3.17](#))

4.8.4 High humidity and high temperature. Four adaptors, 2 with caps in place and 2 without caps shall be placed in a chamber at $86^{\circ}\text{F} \pm$ and a relative humidity of 92 to 98 percent. The temperature and humidity shall be maintained continuously for 5 days. The adaptors shall meet the requirements of 3.9.4.

4.9 Visual and mechanical inspection. The adaptors shall be examined for the defects listed in table V. (See 3.10).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see [6.2](#)). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The Adapter, connector covered by this specification is used to interconnect cable assemblies of communication systems. (See 3.1).

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification and any amendment thereto.
- b. Type required.

6.3 Nomenclature. - The parentheses in the nomenclature will be deleted or replaced by a letter identifying the particular design; for example, Adapter, Connector UG-1312E/U. As soon as possible after the award or the contract, the contractor should apply for nomenclature in accordance with the applicable clause in the contract. (See 1.1).

6.5 Subject term (keyword) listing.

Castings
Interchangeable
Temperatures
Immersion

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians
Army - CR
DLA - CC

Preparing activity
DLA - CC

(Project 5935-2024-005)

Review activities:
Army - AV, EA, MI
Navy - MC

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>.