

MILITARY SPECIFICATION

ADAPTER, CONNECTOR UG-1312()/U

1. SCOPE

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

2. APPLICABLE DOCUMENTS

2.1 Documents. - The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

PPP-B-566 Boxes, Folding Paperboard.
PPP-B-636 Boxes, Fiberboard.
PPP-B-676 Boxes, Set-up.
PPP-P-291 Paperboard, Wrapping, Cushioning.
PPP-T-45 Tape, Gummed, Paper, Reinforced and Plain, for Sealing and Securing.
PPP-T-97 Tape, Pressure-Sensitive Adhesive, Filament Reinforced.

MILITARY

MIL-P-116 Preservation, Methods of.
MIL-M-13231 Marking of Electronic Items.
MIL-F-14072 Finishes for Ground Signal Equipment.

STANDARDS

MILITARY

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129 Marking for Shipment and Storage.

MIL-STD-169 Extreme-Temperature Cycle.

MIL-STD-170 Moisture Resistance Test Cycle.

MIL-STD-202 Test Methods for Electronic and Electric Component Parts.

DRAWINGS

ELECTRONICS COMMAND

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

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

(Copies of specifications, standards, and drawings, required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer. Both the title and number or symbol should be stipulated when requesting copies.)

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 Castings.- Castings 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 materials, 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-F-14072 and the equipment drawings. (See 4.3).

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

3.7 Electrical requirements.—

3.7.1 Dielectric strength.— There shall be no evidence of a voltage drop when tested in accordance with 4.6. 1.

3.7.2 Insulation resistance.— When tested in accordance with 4.6.2, the insulation resistance shall be not less than 5,000 megohms.

3.8 Mechanical requirements.—

3.8.1 Immersion.— After being subjected to the tests specified in 4.7.1, the adaptors 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 Temperature cycling.— 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 Moisture resistance.— 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.- The adaptors shall be manufactured and assembled in accordance with the applicable portions of the following paragraphs herein: (See 4.9).

3.3 Cast and molded parts.

3.4 Cleaning

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of 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 services 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) Quality conformance inspection.

(1) Quality conformance inspection of equipment before preparation for delivery. (See 4.4).

(2) Quality conformance inspection of preparation for delivery. (See 4.10).

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

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

4.4 Quality conformance inspection of 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 contractor's inspection procedures and examine the contractor's inspection records. In addition, the Government--at its-- discretion-- may perform all or any part of the specified inspection to verify the contractor's compliance with specified requirements. Test equipment for Government verification inspection shall be made available by the contractor.

4.4.1 Group A inspection.- Each unit (100%) of each lot of equipment shall be inspected for conformance to all the inspection and test requirements of table I. Each lot will be subject to verification, utilizing the procedures of MIL-STD-105 using the general inspection levels and the AQLs indicated in table I. Group A inspection shall be performed in any order which is satisfactory to the Government.

Table 1 - Group A inspection

Inspection	Req. Para.	Insp. Para.	AQL	
			Major	Minor
Visual and mechanical	3.10	4.9	1.0%	4.0%
<u>Electrical</u>				
Dielectric strength	3.7.1	4.6.1)	1.0% for	
Insulation resistance	3.7.2	4.6.2)	the group	

4.4.2 Group B inspection.- This inspection, including sampling, shall conform to table II and to the special procedures for small-sample inspection of MIL-STD-105. The inspection level shall be S-4 for normal, tightened, and reduced inspection. Group B inspection shall normally be performed on inspection lots that have passed group A inspection and on samples selected from units that have been subjected to and met the group A inspection. The AQLs shall be as shown below.

Table II- Group B inspection

Inspection	Req. Para.	Insp. Para.	AQL
Immersion	3.8.1	4.7.1	1.5% defective
Interchangeability	3.8.2	4.7.2	4.0% defective

4.4.3 Group C inspection. - This inspection shall consist of the tests specified in table III and table IV 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 Group C-1 inspection.- This inspection shall consist of the tests specified in table III and shall be performed on 6 units every 3 months or every 1,000 units, whichever comes first.

Table III - Group C-1 inspection

Inspection	Req. Para.	Insp. Para.	Sampling
Shock drop	3.9.1	4.8.1	2 units
High humidity and high temperature	3.9.4	4.8.4	4 units

4.4.3.2 Group C-2 inspection.- This inspection shall consist of the tests specified in table IV and shall be performed on 6 units once each year or every 5,000 units, whichever comes first.

Table IV - Group C-2 inspection

Inspection	Req. Para.	Insp. Para.	Sampling
Temperature cycling	3.9.2	4.8.2)	2 units
Moisture resistance	3.9.3	4.8.3)	4 units

4.4.3.3 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 of 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 reinstated; however, final acceptance and shipment will be withheld until the group C reinspection results have shown that the corrective action was effective.

4.4.4 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 inspection 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 of preconditioning, the contractor shall precondition all samples selected by Quality Assurance Representatives immediately prior to testing.

4.6 Electrical tests.-

4.6.1 Dielectric strength.- The adaptors shall be tested in accordance with Method 301 of MIL-STD-202 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 Method 302, Condition B, of MIL-STD-202 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 Temperature cycling. - Two adaptors with caps in place shall be subjected to the temperature cycle shown on MIL-STD-169. The adaptors shall meet the requirements of 3.9.2.

4.8.3 Moisture resistance. - Four adaptors, 2 with caps in place and 2 without caps shall be subjected to 15 continuous 48-hour cycles. Temperature, relative humidity, and period of time for each portion of the cycle shall conform to MIL-STD-170. The adaptors shall meet the requirements of 3.9.3.

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).

4.10 Quality conformance inspection of preparation for delivery. - Preparation for delivery shall be inspected in accordance with MIL-P-116 to determine conformance to the requirements of section 5.

Table V - Classification of visual and mechanical defects

Classification	Defect
Major	<p>Wrong parts or materials.</p> <p>Deformed or damaged parts, inoperative or do not function properly in service.</p> <p>Improper machining resultant in sharp burrs or imperfections which would cause parts to be dangerous to handle or cause major difficulty in assembly.</p> <p>Missing or damaged parts so as to affect intended mechanical or electrical use.</p> <p>Threads missing, wrong size or so damaged as to prevent proper use.</p> <p>Corrosion which could cause mechanical, operational or electrical failure.</p> <p>Substandard finish on plated parts.</p>
Minor	<p>Deformed or damaged parts which do not affect operation or use in service.</p> <p>Markings not in accordance with the requirements.</p> <p>Finish is cracking, peeling or chipping.</p> <p>Burrs or imperfections on parts due to improper machining which will not interfere with assembly, disassembly or operation, or cause an unsafe condition in service.</p> <p>Scratches, cuts, abrasions, etc. with bare metal showing.</p>

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.- Preservation and packaging shall be Level A or C, as specified. (See 6.2).

5.1.1 Level A.-

5.1.1.1 Cleaning.- Adapter, Connector shall be cleaned in accordance with process C-1 of MIL-P-116.

5.1.1.2 Drying.- Adapter, Connector shall be dried in accordance with MIL-P-116.

5.1.1.3 Unit packaging.- Adapter, Connector shall be packaged Method III in accordance with MIL-P-116. Cushion each connector by wrapping in paperboard cushioning conforming to PPP-P-291. Secure cushioning with tape conforming to PPP-T-45. Place each cushioned connector within a close-fitting paperboard box, variety 1, style II, type A, class a, conforming to PPP-B-566. Closure shall be made in accordance with the appendix to the box specification.

5.1.1.3.1 Intermediate packaging.- Adapter, Connector packaged as specified in 5.1.1.3, bearing like stock numbers shall be placed in intermediate containers conforming to PPP-B-566, variety 1 or PPP-B-676. Intermediate containers shall be uniform in size and shape, shall be minimum cube and tare, and shall contain multiples of 5 unit packages not to exceed 10 lbs.

5.1.2 Level C.- Adapter, Connector shall be preserved and packaged in a manner that will afford adequate protection against corrosion, deterioration and damage during shipment from the supply source to the first receiving activity.

5.2 Packing.- Packing shall be Level A, B or C as specified. (See 6.2).

5.2.1 Level A.- A quantity of Adapters, Connector packaged as specified in 5.1, bearing like stock numbers shall be packed in a close-fitting fiberboard box conforming to PPP-B-636, W5c. Shipping containers shall not exceed the gross weight limitation of the box specification for special requirements use. Closure shall be in accordance with the appendix to the box specification.

5.2.1.1 Reinforcing.- Shipping containers shall be reinforced in accordance with the appendix to the box specification using tape conforming to PPP-T-97.

5.2.2 Level B.- A quantity of Adapters, Connector packaged as specified in 5.1 shall be packed in accordance with paragraph 5.2.1.

5.2.3 Level C.- Adapter, Connector packaged as specified in 5.1, bearing like stock numbers shall be packed in shipping containers in a manner that will afford adequate protection against damage to the package and its contents during shipment from the supply source to the first receiving activity. Shipping containers shall comply with the rules and regulations of the common carrier as applicable to the mode of transportation.

5.3 Marking.- In addition to any special marking required by the contract or order, interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129. (See 6.2).

6. NOTES

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.

(c) Level of packaging and level of packing required for shipment. (Level A, Level B, or Level C).

(d) The specific paragraphs of section 5 which are applicable to the particular procurement.

(e) When rough handling and functional tests are 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 of the contract, the contractor should apply for nomenclature in accordance with the applicable clause in the contract. (See 1.1).

CUSTODIAN

ARMY EL

Preparing activity

ARMY EL

Project No. 5935-A594