

MIL-C-15987F  
 26 June 1972  
 SUPERSEDING  
 MIL-C-15987E  
 27 January 1967  
 (See 6.5)

## MILITARY SPECIFICATION

### CABLE ASSEMBLIES, POWER, ELECTRICAL

(WITH GROUNDING, FOR 440-VOLT PORTABLE EQUIPMENT)

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

#### 1. SCOPE

1.1 This specification covers electrical power cable assemblies having a Navy-type grounded plug connector connected to one end, for 440-volt, 3-phase alternating current (a.c.) circuits that require a current of 20 amperes or less continuously. It also covers the requirements for connecting the other end of the cable assembly to a piece of portable electric equipment such as a drill. Grounding is accomplished by a green conductor in the cable assembly.

#### 2. APPLICABLE DOCUMENTS

- 2.1 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

##### MILITARY

MIL-C-915 - Cable, Electrical, Special Purpose, General Specification For.  
 MIL-R-2726/3 - Receptacle, Plug, Electrical, 4-Pin, Grounded, 40 Ampere,  
 450-Volt Alternating Current (Symbol No. 717.1).  
 MIL-R-2726/24 - Receptacle, Plug, Electrical, Connector, 25-Ampere, 500-Volt,  
 3-Phase Grounded (Symbol No. 707.1).  
 MIL-E-17555 - Electronic and Electrical Equipment, Accessories and Repair  
 Parts: Packaging and Packing of.  
 MIL-S-19622/19 - Packing Assemblies for Nylon Stuffing Tube, Size 3 and 4T.  
 MIL-I-45208 - Inspection System Requirements.

#### STANDARDS

##### MILITARY

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

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

#### 3. REQUIREMENTS

3.1 General requirements. Unless otherwise specified in the contract or order, the cable assembly shall be 25 feet + 1 foot in length measured from the plug connector to the point of entrance into the portable equipment housing. One end of the ground conductor shall be securely attached to the portable electric equipment and electrically connected within the equipment casing to the metallic or conducting structure such that all exposed metallic or conducting portions will make adequate electrical contact with the grounding conductor. Where the portable equipment contains or includes a transformer, the ground conductor shall also make adequate contact with any exposed metallic or conducting structure of the transformer. The other end of the grounding conductor shall be connected to the grounding contact in the plug connector. The cable shall be reinforced with an insulating rubber tubing where it is connected to the portable equipment in order to protect the cable from sharp bends, and shall be securely clamped or anchored to the portable equipment structure by insulating type clamps in a manner to prevent mechanical strain on the conductor connections and to avoid interference with the operation of the portable equipment (see 4.4).

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3.2 Cable. The cable shall conform to type FHOF-9 of MIL-C-915.

3.3 Plug connector. The plug connector shall conform to symbol 707.1 of MIL-R-2726/24 symbol 717.1 of MIL-R-2726/3 as required (see 6.1 and 6.2).

3.4 Warning plate. A warning plate, securely and permanently fastened to the cable in a location where it will be conspicuous to the user but will not interfere with the functions of the portable electric equipment, shall be provided. The warning plate shall contain the following:

"WARNING - Connect green conductor to ground with a rounded type plug connector."

3.5 Packing. The packing for the plug connector shall be in accordance with part number M19622/19-0005 of MIL-S-19622/19.

3.6 Workmanship. The workmanship shall be such as to enable the cable assembly to meet all the requirements of this specification.

#### 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 in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by 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 supplies and services conform to prescribed requirements.

4.1.1 Inspection system. The supplier shall provide and maintain an inspection system acceptable to the Government for supplies and services covered by this specification. The inspection system shall be in accordance with MIL-I-45208 (see 6.2 and 6.3).

4.1.2 Test reporting. Test results shall be recorded by the supplier on test forms prepared by the supplier. Provision shall be made for recording of all required data. Each test report form shall be identified by the number of this specification and by the particular test paragraph number and its title.

4.1.3 Test reports. After acceptance of the first lot, one file copy of all test data shall be forwarded to the Naval Ship Engineering Center and to any other activities specified (see 6.2). The data shall be bound into a 9 by 11-1/2 inch binder. The cover and title page shall give sufficient information to identify the equipment. A table of contents shall be included and list each test required by 4.3 and 4.4. No special test format will be required. However, each test shall be prefaced by the name of the test and applicable test paragraph. The data submitted shall be copies of the actual data taken on the test floor and not retyped data. The forms used shall allow sufficient columns to make instrument corrections and necessary calculations.

#### 4.2 Sampling for quality conformance inspection.

4.2.1 Inspection lot. All cable assemblies of identical design and composition manufactured under essentially the same conditions and at essentially the same time and offered for delivery at one time shall be considered a lot for purposes of inspection.

4.2.2 Sampling for visual examination. A random sample of cable assemblies shall be selected from each lot in accordance with MIL-STD-105, inspection level S-2 for the examination specified in 4.3.1. The acceptable quality level (A.Q.L.) shall be 1.5 percent.

4.2.3 Sampling for tests. A random sample of cable assemblies shall be selected from each lot in accordance with MIL-STD-105 inspection level S-2 for the tests specified in 4.4. If any one sample fails in the tests the entire lot represented by the sample shall be subject for rejection.

#### 4.3 Quality conformance inspection.

4.3.1 Visual examination. Each of the sample cable assemblies selected in accordance with 4.2.2 shall be examined to verify conformance with all of the requirements of this specification which do not involve tests. If any cable assembly contains one or more defects, the equipment shall not be offered for delivery, and if the number of nonconforming cables in any sample exceeds the acceptance number for that sample, this shall be cause for rejection of the lot represented by that sample.

#### 4.4 Test procedures.

4.4.1 The grounding circuit of the equipment shall be tested by placing a current of not more than 10 or less than 8 amperes through the grounding circuits for a period of not less than 1 minute. This shall be done with the portable electric equipment insulated from the ground, except for grounding, which may result from connection of the ground lead itself. The ground terminal or simulated grounding contact of the receptacle connector mated with the plug shall be connected to one end of the circuit and the exposed metal portion of the portable electric equipment shall be connected by means of a test clip to the other end of the circuit. This circuit shall be placed in series with an ammeter and some means of limiting the current to the specified value. The means of limiting the current may be a resistance inserted in the circuit or a commercially available stepdown transformer supplying power to the circuit. The potential drop through the ground connection when carrying between 8 and 10 amperes shall be measured by means of a voltmeter having a full scale deflection of not more than 15 volts connected between a metal portion of the portable electric equipment in electrical contact with the grounding circuit, and the ground terminal or simulated grounding contact of the receptacle connector mated with the plug. This potential shall not exceed 3 volts, and no arcing or burning in the grounding circuit shall be evident.

4.4.2 The insulation resistance between any two power conductors and between all power conductors and the ground conductor shall be measured by a megohmmeter. The resistance shall be not less than 200 megohms except that, if a lesser value is specified for the electric device to which attached, the lesser value shall be used as the minimum megohm value for acceptance of the cable assembly.

4.5 Inspection of preparation for delivery. Cable assemblies, plug connectors and packages shall be inspected to determine conformance with section 5 of this document.

#### 5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, packing and marking. Cable assemblies and plug connectors shall be preserved and packaged level A or C, packed level A, B or C as specified (see 6.2), and marked in accordance with MIL-E-17555.

#### 6. NOTES

6.1 Intended use. The cable assemblies covered by this specification are intended for use with shipboard 340-volt portable electric equipment.

6.1.1 Plug connector, symbol 717.1 of MIL-R-2726/3 is used in cable assembly for use with the following receptacles which are specified in ship construction:

- (a) Receptacle and switch connector, symbol 915.1 of MIL-R-2726/19.
- (b) Receptacle connector, symbol 1147.1 and 1147.3 of MIL-R-2726/16.
- (c) Triple outlet, symbol 765.6 of MIL-R-2726/49.

6.1.2 Plug connector, symbol 707.1 of MIL-R-2726/24 is required on cable assembly for ships equipped with the following receptacles:

- (a) Receptacle connector, Drawing 9-S-4864-L.
- (b) Receptacle connector, Drawing 9000-S6202-74214

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Symbol number of plug to suit receptacles on ship (see 3.3).
- (c) Quality assurance requirements (see 4.1.1).
- (d) Name of activity to receive copy of test report (see 4.1.3).
- (e) Levels of preservation, packaging, packing and marking required (see 5.1).

6.3 Management control system document. The following management control system document should be included on DD form 1660:

- (a) MIL-I-45208 (see 4.1.1).

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6.4 Stock numbers. The applicable stock numbers are as follows:

Type PHOF-<sup>a</sup> cable 986145-260-8807.  
 Symbol 707.1 plug connector, stocked in two parts as follows:  
 Shell - Stock number 9N5935-243-1285.  
 Insert - Stock number 1H5935-242-0026.  
 Plug connector, symbol 717.1 - Stock number H5935-952-4200.  
 Packing assembly, M/19622/19-0005 - Stock number 5975-202-2595.

6.5 THE MARGINS OF THIS SPECIFICATION HAVE BEEN MARKED "\*" TO INDICATE WHERE CHANGES (ADDITIONS, MODIFICATIONS, CORRECTIONS, DELETIONS) FROM THE PREVIOUS ISSUE WERE MADE. THIS WAS DONE AS A CONVENIENCE ONLY AND THE GOVERNMENT ASSUMES NO LIABILITY WHATSOEVER FOR ANY INACCURACIES IN THESE NOTATIONS. BIDDERS AND CONTRACTORS ARE CAUTIONED TO EVALUATE THE REQUIREMENTS OF THIS DOCUMENT BASED ON THE ENTIRE CONTENT IRRESPECTIVE OF THE MARGINAL NOTATIONS AND RELATIONSHIP TO THE LAST PREVIOUS ISSUE.

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Army - EL  
 Navy - SH

## Review activities:

Army - EL  
 Navy - SH

## User activities:

Army - ME  
 Navy - OS

## Preparing activity:

Navy - SH  
 (Project 6150-0130)

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