

J-C-175F  
 January 23, 1980  
 SUPERSEDING  
 Fed. Spec. J-C-175E  
 February 7, 1975, and  
 Int. Fed. Spec. J-C-001686  
 March 13, 1972

FEDERAL SPECIFICATION

CABLE ASSEMBLY, POWER, ELECTRICAL, FOR 125-VOLT,  
 250-VOLT, AND 125/250-VOLT, 50 - 60 HZ, EQUIPMENT

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 Scope. This specification covers electrical cable assemblies, for permanent attachment to electrical appliances, including ranges and dryers, requiring no more than 100 amperes, with maximum ambient temperature of 60° C (140° F).

1.2 Classification.

1.2.1 Type designation. The type designation shall be in the following form, and as specified (see 6.2):

J-C-175	S	1	A	2	B	1	Y
Federal Specifi- cation number (1.2.2)	Underwriters' Laboratories type (1.2.3)	Style number (1.2.4)	Class letter (1.2.5)	Grade number (1.2.6)	Series letter (1.2.7)	Length number (1.2.8)	When yellow is required (1.2.9)

1.2.2 Federal Specification number. Cable assembly specification number is J-C-175.

1.2.3 Underwriters' Laboratories type.

- S - Cable (J-C-580-S-3CF\*\*/RRUJ), classes A thru J and T thru Y.
- ST - Cable (J-C-580-ST-3CF\*\*/TTJ), classes A thru J and T thru Y.
- SO - Cable (J-C-580-SO-3CF\*\*/RNJ), classes A thru J and T thru Y.
- STO - Cable (J-C-580-STD-3CF\*\*/TNJ), classes A thru J and T thru Y.
- SJ - Cable (J-C-580-SJ-3CF\*\*/RUJ), classes A, B, and C.
- SJT - Cable (J-C-580-SJT-3CF\*\*/TTJ), classes A, B, and C.
- SJO - Cable (J-C-580-SJO-3CF\*\*/RNJ), classes A, B, and C.
- SJTO - Cable (J-C-580-SJTO-3CF\*\*/TNJ), classes A, B, and C.
- SP-2 - Cable (J-C-580-SP-2-3CF2\*\*/RUJ), classes A and B.
- SPT-2 - Cable (J-C-580-SPT-2-3CF2\*\*/TUJ), classes A and B.
- SP-3 - Cable (J-C-580-SP-3-3CF2\*\*/RUJ), classes A, B, C, and D.
- SPT-3 - Cable (J-C-580-SPT-3-3CF2\*\*/TUJ), classes A, B, C, D, E, and T.
- SV - Cable (J-C-580-SV-3CF2/18RRJ).
- SVO - Cable (J-C-580-SVO-3CF2/18RNJ).
- SVT - Cable (J-C-580-SVT-3CF2\*\*/TTJ), classes A and B.
- SRD - Cable (J-C-580-SRD-3CF\*\*/RNJ), classes W, X, and Y.
- SRDT - Cable (J-C-580/SRDT-3CF\*\*/TTJ), classes W, X, and Y.
- Blank - Per MIL-C-3432, style 2.

\* Number of conductors (see 1.2.6).  
 \*\* Conductor AWG (see 1.2.5).

1.2.4 Style.

- 1 - Style 1 is J-C-580, cable, moderate temperature use (see 3.3.2.1).
- 2 - Style 2 is MIL-C-3432, cable, low temperature use (see 3.3.2.2) and is used with grade 3 only.

1.2.5 Class.

- A - 125 volt, 7 ampere, 50-60 Hz, 18 AWG, style 1, inactive.
  - B - 125 volt, 10 ampere, 50-60 Hz, 16 AWG, style 1, inactive.
  - C - 125 volt, 15 ampere, 50-60 Hz, 14 AWG, style 1.
  - D - 125 volt, 20 ampere, 50-60 Hz, 12 AWG, style 1.
  - E - 125 volt, 30 ampere, 50-60 Hz, 10 AWG, style 1.
  - F - 125 volt, 35 ampere, 50-60 Hz, 8 AWG, style 1, superseded by class P.
  - 1/ G - 125 volt, 50 ampere, 50-60 Hz, 6 AWG, style 1, not for military applications.
  - H - 125 volt, 60 ampere, 50-60 Hz, 4 AWG, style 1, superseded by class R.
  - J - 125 volt, 80 ampere, 50-60 Hz, 2 AWG, style 1, superseded by class S.
  - K - CO-03 HOF (3/18) 0340, style 2.
  - L - CO-03 HOF (3/16) 0365, style 2.
  - M - CO-03 HOF (3/18) 0410, style 2.
  - N - CO-03 HOF (3/16) 0435, style 2.
  - O - CO-03 HOF (3/14) 0565, style 2.
  - P - CO-02 HDF (2/6-2/10R) 0930, style 2.
  - R - CO-02 HDF (2/4-2/8R) 1100, style 2.
  - S - CO-02 HDF (2/1-2/5R) 1385, style 2.
  - T - 250 volt, 30 ampere, 50-60 Hz, 10 AWG, style 1.
  - 1/ V - 250 volt, 50 ampere, 50-60 Hz, 6 AWG, style 1.
  - W - 125/250 volt, 30 ampere, 50-60 Hz, 10 AWG, style 1.
  - 1/ X - 125/250 volt, 50 ampere, 50-60 Hz, 6 AWG, style 1.
  - Y - 125/250 volt, 50 ampere, 50-60 Hz, 6 AWG (8 AWG for ground wire), style 1.
  - Z - CO-03 HDF (3/6-3/10R) 1000, style 2.
- 1/ Not for military applications. For Federal applications, use NEMA WD-1 for connector configuration.

1.2.6 Grade.

- 1/ 1 - Two-conductor cable (double insulated appliances only) (see 6.3.1).
  - 2 - Two-conductor cable with additional grounding conductor (see 6.3.2).
  - 3 - Three-conductor cable with additional grounding conductor (see 6.3.3).
- 1/ Inactive for use.

1.2.7 Series.

- A - Nonlocking plug, general grade connector, attached cord grip.
- B - Nonlocking plug, general grade connector, integrally molded.
- C - Nonlocking plug, hospital grade connector, attached cord grip.
- D - Nonlocking plug, hospital grade connector, integrally molded.
- E - Class L of MIL-C-22992 connector with attached cable grip.
- F - Locking plug, general grade connector, attached cord grip.
- G - Locking plug, general grade connector, integrally molded.
- H - Locking plug, hospital grade connector, attached cord grip.
- J - Locking plug, hospital grade connector, integrally molded.

1.2.8 Length.

- 1 - 1.5 feet long.
- 2 - 3.0 feet long.
- 3 - 4.0 feet long.
- 4 - 5.0 feet long.
- 5 - 6.0 feet long.
- 6 - 7.0 feet long.
- 7 - 8.0 feet long.
- 8 - 9.0 feet long.
- 9 - 10.0 feet long.
- N - Nonstandard (see 6.2d).

1.2.9 Color. Add a "Y" to the end of the type designation if the cord is to be safety yellow in color.

## 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.

### Federal Specifications:

J-C-580	- Cord, Flexible, and Wire, Fixture (Electrical, 0- to 600-Volt Service).
W-C-596	- Connector, Plug, Electrical; Connector, Receptacle, Electrical.
NN-P-71	- Pallet, Material Handling, Wood, Stringer Construction, 2 Way and 4 Way (Partial).
QQ-S-781	- Strapping, Steel, and Seals.
PPP-B-585	- Box, Wood, Wirebound.
PPP-B-601	- Boxes, Wood, Cleated Plywood.
PPP-B-621	- Box, Wood, Nailed and Lock Corner.
PPP-B-636	- Box, Shipping, Fiberboard.
PPP-T-60	- Tape, Packaging, Waterproof.
PPP-T-76	- Tape, Packaging, Paper (for Carton Sealing).

### Military Specifications:

MIL-P-116	- Preservation Packaging, Methods of.
MIL C 3432	- Cable and Wire, Electrical (Power and Control; Semi-Flexible, Flexible, and Extra-Flexible, 300 and 600 Volts).
MIL-C-22992	- Connectors, Plugs and Receptacles, Electrical, Waterproof, Quick Disconnect, Heavy Duty Type.
MIL-C-45662	- Calibration System Requirements.

### Federal Standards:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

### Military Standards:

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-147	- Palletized and Containerized Unit Loads 40 Inch X 48 Inch Pallets, Skids, Runners or Pallet Type Base.
MIL-STD-686	- Cable and Cord, Electrical, Identification Marking.
MIL-STD-794	- Part and Equipment, Procedure for Packaging and Packing of.
MIL-STD-1188	- Commercial Packaging of Supplies and Equipment.

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids, or request for proposal, shall apply:

### National Electrical Manufacturers Association (NEMA):

No. WD 1 - General Purpose Wiring Devices.

(Application for copies should be addressed to the National Electrical Manufacturers Association, Suite 300, 2101 L Street, N.W., Washington, DC 20037.)

Underwriters' Laboratories (UL), Inc. Standards

- No. 817 - Cord Sets and Power-Supply Cords.
- No. 498 - Attachment Plugs and Receptacles.

(Application for copies should be addressed to the Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago, IL 60611; 1285 Walt Whitman Road, Melville, Long Island, NY 11747; or 1655 Scott Boulevard, Santa Clara, CA 95050.)

3. REQUIREMENTS

3.1 Materials.

3.1.1 Reclaimed and recycled materials. Reclaimed and recycled materials are authorized for use provided there is no appreciable effect on performance such that the requirements of this specification cannot be met.

3.1.2 Fire and casualty hazards of cable assemblies. Each contractor shall submit proof, satisfactory to the contracting agency, that the cable assemblies conform to the applicable requirements of the published standards and the methods of tests in the Underwriters' Laboratories, Inc. (UL) Standards No. 498 and 817. The UL listing mark and, in the case of hospital grade assemblies, the UL green dot shall be accepted as evidence that the cable assemblies conform to this requirement. Compliance with this preliminary requirement in regard to fire and casualty hazards does not absolve the contractor from complete compliance with the requirements of this specification in order to secure acceptance of his material.

3.2 Design and construction.

3.2.1 Cables. The cable shall be composed of 2, 3, 4, or 6 stranded flexible insulated conductors 18 AWG through 1 AWG and shall conform to J-C-580 or MIL-C-3432, as applicable.

3.2.1.1 Low temperature use (style 2). When style 2, low temperature use, is required, the cable shall comply with MIL-C-3432.

3.2.1.2 Moderate temperature use (style 1). The cable shall comply with J-C-580 when style 1, moderate temperature is required.

3.2.1.3 Color. The cables shall be color coded in accordance with MIL-STD-686. When required (see 1.2.9), the cable shall be yellow.

3.2.2 Plug connectors. The plug connector for every cable assembly shall be either cord grip attached or integrally molded with the cable jacket. The connector shall be of the series specified (see 1.2.7).

3.2.2.1 Attached plug connector. Attached plug connectors shall conform to W-C-596, MIL-C-22992 class L, or (for Federal applications only) NEMA WD-1. W-C-596 shall be used if it covers the configuration required.

3.2.2.2 Integrally molded connectors. When the plug connector is integrally molded with the cable jacket, the blade configuration shall conform to NEMA WD-1 with a solid face "dead front" construction with no insulating discs permitted. The material of integrally molded connectors shall be the same as the cable jacket. MIL-C-22992 class L connectors shall not be used.

3.2.3 Terminal lugs. The cable assembly shall have terminal lugs permanently secured to the conductor end opposite the plug connector. The ampere rating of the cable assembly and of the terminal lugs shall be the same.

3.2.4 Strain relief. A strain relief shall be provided on the terminal lug end of the cable assembly so that a pull exerted on the cable will not be transmitted directly to the binding screw terminals of a fitting.

3.2.5 Finished cable assembly. The finished cable assembly shall be constructed with the cable and either a three-prong grounding plug connector or a four-prong grounding plug connector having the same current rating, voltage rating, and configuration as specified in table I. The connector shall be either integrally molded or attached by a cord grip to the cable jacket. The other end of the cable assembly shall have terminal lugs with strain reliefs. Two-prong plugs are inactive.

TABLE I. Cables and applicable attached connectors.

Applicable class	Connector configuration	Connector part number
C, O		WC596/13-3
D		WC596/42-1
E		WC596/69-1
P	 MS14054-05 (Insert)	MIL-C-22992 MS90557C 28405SY
<u>1/</u> G		NEMA L5-30P
R	 MS90565-05 (Insert)	MIL-C-22992 MS90557C 32405SX
S	 MS14055-05 (Insert)	MIL-C-22992 MS90557C 44405SW
T	 Nonlocking	NEMA 6-30P
	 Locking	WC596/78-1
<u>1/</u> V		NEMA 6-50P
W	 Nonlocking	NEMA 14-30P
	 Locking	WC596/117-1
Z	 MS14057-07 (Insert)	MIL-C-22992 MS90557C 28407SW
<u>1/</u> X, Y		NEMA 14-50P

1/ Not for military applications.

3.2.6 Cable assembly lengths. Unless otherwise specified (see 6.2), the cable shall be of the length specified in 1.2.8. This length shall be measured from the plug connector to the point at which the free conductors enter the cable jacket.

3.3 Performance. The cable assemblies shall be tested in accordance with 4.3.2.

3.3.1 Cables. Cables shall be tested in accordance with 4.3.2.1.

3.3.2 Connectors. Connectors shall be tested in accordance with 4.3.2.2.

3.3.2.1 Hospital grade connectors. Connectors rated hospital grade shall meet the test of 4.3.2.2.1.

3.4 Workmanship. Cable assemblies shall be processed in such a manner as to be uniform in quality and shall be free from defects that will affect life or serviceability.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor 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 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 contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-C-45662.

4.2 Quality conformance inspection.

4.2.1 Sampling for quality conformance inspection.

4.2.1.1 Inspection lot. All cable assemblies of the same type designation manufactured under essentially the same conditions, and offered for delivery at one time shall be considered a lot.

4.2.1.2 Sampling for examination and tests. A random sample of cable assemblies shall be selected from each lot in accordance with MIL-STD-105 at inspection level II.

4.3 Methods of inspection.

4.3.1 Visual examination. The sample cable assemblies selected in accordance with 4.2.1.2 shall be visually examined to verify conformance with this specification. Defects are classified as shown in table II. The acceptable quality level (AQL) is 1.0 percent defective, major. (See 3.1, 3.2, and 3.4.)

TABLE II. Classification of defects in accordance with MIL-STD-105.

Defects
<p>Critical:</p> <p style="padding-left: 40px;">Grounding wire color not green.</p> <p>Major:</p> <p style="padding-left: 40px;">Cable type designation not as specified.</p> <p style="padding-left: 40px;">Male connector broken, cracked, contacts loose or male connector not as specified.</p>

TABLE II. Classification of defects in accordance with MIL-STD-105 - Continued.

Defects
<p>Major - Continued</p> <p>Cable jacket (outside cover) cracked, split, or bruised.</p> <p>Strain relief or terminal lugs not provided separately furnished cable assemblies.</p> <p>Packaging, packing, and marking not as specified.</p>

4.3.2 Cable assemblies. Cable assemblies shall be tested in accordance with UL 817 and W-C-596 (see 3.3).

4.3.2.1 Cables. Cables shall be tested or certified to J-C-580 for style 1 and MIL-C-3432 for style 2, as applicable (see 3.3.1).

4.3.2.2 Connectors. The connectors shall meet the applicable requirements of W-C-596, MIL-C-22992 class L or, for Federal applications only, WD-1 (see 3.3.2).

4.3.2.2.1 Hospital grade. Hospital grade connectors shall be tested to the hospital grade requirements of W-C-596 (see 3.3.2.1).

4.4 Inspection of packaging. Except when commercial packaging is specified, the sampling and inspection of the preservation and interior package marking shall be in accordance with the group A and B quality conformance inspection requirements of MIL-P-116. The sampling and inspection of the packing and marking for shipment and storage shall be in accordance with the quality assurance provisions of the applicable container specification and the marking requirements of MIL-STD-129. The inspection of commercial packaging shall be as specified in the contract (see 6.2).

## 5. PREPARATION FOR DELIVERY

5.1 Preservation. Preservation shall be level A, C or commercial, or as specified (see 6.2).

### 5.1.1 Level A.

5.1.1.1 Cleaning. Cable assemblies shall be cleaned in accordance with MIL-P-116, process C-1.

5.1.1.2 Drying. Cable assemblies shall be dried in accordance with MIL-P-116.

5.1.1.3 Preservative application. Preservatives shall not be used.

5.1.1.4 Unit packs. Each cable assembly shall be individually unit packed in accordance with MIL-P-116, submethod IC-2, insuring compliance with the applicable requirements of that specification.

5.1.1.5 Intermediate packs. Intermediate packs are not required.

5.1.2 Level C. The level C preservation for cable assemblies shall conform to the MIL-STD-794 requirements for this level.

5.1.3 Commercial. The commercial preservation of cable assemblies shall be in accordance with the requirements of MIL-STD-1188.

5.2 Packing. Packing shall be level A, B, C or commercial, or as specified (see 6.2).

5.2.1 Level A. The packaged cable assemblies shall be packed in fiberboard containers conforming to PPP-B-636, class weather resistant, style optional, special requirements. In lieu of the closure and waterproofing requirement in the appendix of PPP-B-636, closure and waterproofing shall be accomplished by sealing all seams, corners and manufacturer's joints with tape, two inches minimum width, conforming to PPP-T-60, class 1 or PPP-T-76. Banding (reinforcement requirements) shall be applied in accordance with the appendix to PPP-B-636 using nonmetallic or tape banding only.

5.2.2 Level B. The packaged cable assemblies shall be packed in fiberboard containers conforming to PPP-B-636, class domestic, style optional, special requirements. Closures shall be in accordance with the appendix thereto.

5.2.3 Level C. The level C packing for cable assemblies shall conform to the MIL-STD-794 requirements for this level.

5.2.4 Commercial. The preserved cable assemblies shall be packed in accordance with the requirements of MIL-STD-1188.

5.2.5 Unitized loads. Unitized loads, commensurate with the level of packing specified in the contract or order, shall be used whenever total quantities for shipment to one destination equal 40 cubic feet or more. Quantities less than 40 cubic feet need not be unitized. Unitized loads shall be uniform in size and quantities to the greatest extent practicable.

5.2.5.1 Level A. Cable assemblies, packed as specified in 5.2.1, shall be unitized on pallets in conformance with MIL-STD-147, load type I, with a fiberboard cap (storage aid 4) positioned over the load.

5.2.5.2 Level B. Cable assemblies, packed as specified in 5.2.2, shall be unitized as specified in 5.2.4.1 except that the fiberboard caps shall be class domestic.

5.2.5.3 Level C. Cable assemblies, packed as specified in 5.2.3, shall be unitized as specified in MIL-STD-794 except that conformance to MIL-STD-147 is not required.

### 5.3 Marking.

5.3.1 Levels A, B and C. In addition to any special marking required by the contract (see 6.2), each unit pack, exterior container and unitized load shall be marked in accordance with MIL-STD-129. When specified (see 6.2), the marking of domestic shipments for civil agencies shall be in accordance with Fed. Std. No. 123.

5.3.2 Commercial. Commercial marking shall be in accordance with the requirements of MIL-STD-1188.

### 5.4 General.

5.4.1 Exterior containers. Exterior containers (see 5.2.1, 5.2.2 and 5.2.3) shall be of a minimum tare and cube consistent with the protection required and shall contain equal quantities of identical stock numbered items to the greatest extent practicable.

5.4.2 Packaging inspection. The inspection of these packaging requirements shall be in accordance with 4.5.

#### 5.4.3 Army procurements.

5.4.3.1 Level A and B packing. For level A packing, the fiberboard containers shall not be banded but shall be placed in a close fitting box conforming to PPP-B-601, overseas type; PPP-B-621, class 2, style 4 or PPP-B-585, class 3, style 2 or 3. Closure and strapping shall be in accordance with applicable container specification except that metal strapping shall conform to QQ-S-781, type I, finish A. When the gross weight exceeds 200 pounds or the container length and width is 48 x 24 inches or more and the weight exceeds 100 pounds, 3 x 4 inch skids (laid flat) shall be applied in accordance with the requirements of the container specification. If not described in the container specification, the skids shall be applied in a manner which will adequately support the item and facilitate the use of material handling equipment. For level B packing, fiberboard boxes shall be weather resistant as specified in level A and the containers shall be banded (see 5.2.1 and 5.2.2).

5.4.3.2 Level A and B unitization. For level A and B unitization, softwood pallets conforming to NN-P-71, type IV, size 2 shall be used. Weather resistant fiberboard caps shall also be used for level B unitization. The loads for both levels shall be bonded to the pallets by strapping conforming to QQ-S-781, type I, finish A or shrink film (see 5.2.5.1 and 5.2.5.2).

## 6. NOTES

6.1 Intended use. The cables covered by this specification are intended for permanent attachment to electrical equipment such as portable power tools, test equipment and appliances. Cables with hospital grade plugs are intended to be used on medical equipment.

6.2 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- a. Title, number, and date of this specification.
- b. Type designation (see 1.2.1).
- c. Cable length, if other than specified.
- d. Level of preservation and packing required (see 5.1 and 5.2).
- e. Special marking required (see 5.3.1).
- f. Inspection of commercial packaging (see 4.4).
- g. If Federal Standard No. 123 is required for civil agency marking (see 5.3.1).

6.3 Definitions. These definitions shall apply for this specification.

6.3.1 Two-conductor cable. Two-conductor cable is that which has only the two main conductors without grounding conductors (see 1.2.6).

6.3.2 Two-conductor cable with additional grounding conductor. A cable which contains two main conductors, plus one or more grounding conductors (see 1.2.6).

6.3.3 Three-conductor cable with additional grounding conductor(s). A cable which contains three main conductors, plus one or more grounding conductors (see 1.2.6).

MILITARY CUSTODIANS:

Army - CR  
Navy - SH  
Air Force - 99

Review Activities:

Army -  
Navy - AS  
Air Force - 17, 85  
DLA - GS

User Activities:

Army -  
Navy - MC, CG

CIVIL AGENCY COORDINATING ACTIVITIES:

DOT - ACO  
DC GOVT - DCG  
GSA - FSS  
INTERIOR - BPA  
NASA - JFK

Preparing Activity:

DLA - ES

Project 6150-0148