| INCH-POUND |

MIL-C-12000H
27 September 1990
SUPERSEDING
MIL-C-12000G
7 May 1984

MILITARY SPECIFICATION

CABLE, CORD, AND WIRE, ELECTRIC; PACKAGING OF

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

1. SCOPE

1.1 Scope. This specification covers requirements for the preservation, packing, unitization, and marking of electric cable, cord, and wire for storage and domestic overseas shipments.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards and Regulations. The following specifications, standards, and regulations form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

PPP-B-576 - Boxes, Wood, Cleated, Veneer, Paper Overlaid.
PPP-B-585 - Boxes, Wood Wirebound.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC PACK

PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated.
PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636 - Boxes, Shipping, Fiberboard.
PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall.
PPP-B-1055 - Barrier Material, Waterproofed, Flexible.

MILITARY

MIL-C-17 - Cable, Radio Frequency, Flexible and Semirigid, General Specification for.
MIL-C-104 - Crates, Wood; Lumber and Plywood Sheathed, Nailed and Bolted.
MIL-P-116 - Preservation, Methods Of.
MIL-P-149 - Plastic Coating, Compound, Strippable (Hot Dipping).
MIL-R-3241 - Reels, Cable (reels DR-5( ), DR-( ), DR-8 ( ), RC-543( )/G, RL-159( )/U).
MIL-C-3774 - Crates, Wood, Open; 12,000 and 16,000 Pound Capacity.

STANDARDS

FEDERAL

FED-STD-123 - Marking for Shipment (Civil Agencies).

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.
MIL-STD-147 - Palletized Unit Loads.
MIL-STD-1186 - Cushioning, Anchoring, Bracing, Blocking, and Waterproofing With Appropriate Test Methods.

FEDERAL REGULATIONS

Code of Federal Regulations

OSHA

"(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal Agency responsible for issuance thereof.)"

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of

the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents which are current on the date of the solicitation (see 6.2).

ASTM

ASTM D 3950 - Nonmetallic Strapping.
ASTM D 3951 - Commercial Packaging Practices.
ASTM D 3953 - Flat Steel Strapping.

(Application for copies should be addressed to the ASTM, 1916 Race Street, Philadelphia, PA 19103.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT (NMFTA)

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT (UCC)

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, Il 60606.)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA WC26 - Wire and Cable Packaging Standard

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

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, 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 Preproduction pack. When specified (see 4.3 and 6.2) the contractor shall furnish a preproduction pack for examination and test within the time frame specified (see 6.2) to prove prior to starting production packaging, that the applied preservation, packaging, packing, and marking comply with the

requirements of this specification. Examination and test shall be as specified in section 4 and shall be subject to surveillance and approval by the government (see 6.5).

3.2 Materials. Material shall be as specified herein and in applicable specifications and standards, and other referenced documents. Materials not specified shall be selected by the contractor and shall be subject to all the provisions of this specification. Materials shall be free of defects which adversely affect performance or serviceability of the finished product (see 6.4).

3.2.1 New materials. The use of newly developed packaging materials or procedures are encouraged and recommended and shall be permitted under conditions specified herein, provided the are equal or better than the specified materials or procedures.

3.2.2 Certification of new materials. If the contractor desires to use materials or procedures other than those specified herein, he shall furnish to the contracting activity documented evidence in the form of a certificate of compliance (see 6.2.2), certified by a testing laboratory satisfactory to the contracting activity, that the material or procedure is equal to or exceeds the requirements specified herein. If, after a review of the material or procedure and the related certified documented evidence or the witnessing of the stipulated tests, it is the opinion of the contracting activity that the material or procedure meets or exceeds the requirements specified herein, authorization for use will be granted.

3.2.3 Safety. Materials used for the packaging of fiber optic cables shall present no environment or toxicological hazards as defined by current industry standards and shall comply with OSHA standards or applicable federal or state laws or regulations.

3.3 Identification marking. Identification shall be permanently and legibly marked directly on the reel or on a corrosion-resisting metal plate securely attached to the reel at the reel at the source of manufacturer. Identification shall include the manufacturer's model and serial number, name and trademark to be ready identifiable to the manufacturer.

3.4 Methods of preservation. Cleaning processes, drying procedures, preservatives, methods of preservation specified in the following paragraphs are listed in MIL-P-116 and shall conform to the requirements of MIL-P-116 and any applicable specifications.

3.5 Cleaning and drying. Prior to the application of preservative compound or paint, surfaces shall be cleaned by process C-1 and dried by any applicable procedure of MIL-P-116.

3.6 Preservation. Preservation shall be level A or C as specified (see 6.2).

3.6.1 Level A.

3.6.1.1 Unit pack. Cable, cord, and wire, including bare copper wire, shall be preserved method III (unless otherwise specified herein) furnished in

coils, on spools, in spool type packages, or on reels (see 6.3) as specified in the applicable specification for the item or as indicated in the contract. Only cable, cord, and wire of the same classification shall be contained on any one coil, spool, spool or reel type package, or reel.

3.6.1.1.1 Unit pack quantities. Unless otherwise specified in the item specification, the unit pack quantity (see 6.3) shall be one unit of issue quantity specified in the contract or purchase order for a single stock number. This shall include the requirements for length.

3.6.1.2 Cable bending radius. The minimum bend radius shall be 10 times the cable diameter for unarmored sheaths and 15 times the cable diameter for armored sheaths, including formed metal strips.

3.6.1.3 End seals. All types of cable, cord, and wire (except (1) hermetically sealed lead-sheathed cable, (2) semi-rigid cable with solid extruded polytetrafluoroethylene (PTFE) dielectric core conforming to 3.5.2.1 (j) of MIL-C-17, (3) varnished and bare wire, (4) nonwicking type wire, and (5) cable, cord, and wire preserved submethod IC shall have both ends of every length sealed to prevent entry of moisture. End seals will be of such quality to withstand normal storage and handling without decay, loosening, cracking, or otherwise losing its ability to prevent the entry of moisture. Cable, cord, and wire preserved submethod IC do not require sealed ends. When specified (see 6.2), one of the following methods shall be used to seal ends:

a. The end shall be wrapped with waterproof tape applied over the end and extending back from the end approximately 4 inches (").
b. The ends shall be sealed by dipping to a minimum 2" depth in compound conforming to MIL-P-149.
c. The ends shall be sealed with neoprene caps fastened with hose clamps or wire. Caps shall be approximately 4" in length.
d. The ends shall be sealed with heat shrinkable plastic end caps secured to the ends of cable in a manner that will retain the caps firmly in place during shipment.
e. The ends terminated with epoxy plugs for bonding of the cable core and sheath components together. The diameter of the plug shall be less than the cable's outside diameter.

3.6.1.3.1 Lead-sheathed cable. Lead-sheathed cable shall have the sheath extended over the core and closed to form a tight seal.

3.6.1.4 Coils. Coils of cable, cord, and wire shall be uniform, compact, and of sufficient diameter to prevent excessive bending or hardening of the cable, cord, and wire. The inside diameter of coils of cable shall be the same diameter as specified for drums in NEMA WC26. Each individual coil shall be tied or secured at a minimum of three places equidistantly spaced around the circumference of the coil. Each coil shall be protected by one of the following means:

a. The coils shall be wrapped spirally with barrier material conforming to PPP-B-1055, class B-3, H-5 or M-1, with not less than 50% overlap, and the wrap secured with at least four evenly spaced strips of waterproof tape.

b. The coil shall be preserved submethod IC-2 or IC-3.
c. The coil shall be preserved method III placed in a closefitting box conforming to PPP-B-636, class weather-resistant with the box waterproofed by the application of tape in accordance with the appendix thereto.

3.6.1.5 Spools. Unless otherwise specified (see 6.2) spools (see 6.3) shall be of a type, size, construction, and material normally used for the product in commercial practice. Cable shall be wound evenly on spools in accordance with commercial practice to obtain uniformity compactness, and provide for unwinding in a continuous manner when used. Each spool shall be protected by one of the following means:

a. The spool shall be wrapped spirally with barrier material conforming to PPP-B-1055, class H-3 or L-2, and the wrap sealed with waterproof tape or with waterproof adhesive.
b. The spool shall be preserved submethod IC-2 or IC-3.
c. The spool shall be preserved method III placed in a closefitting box conforming to PPP-B-636, class weather-resistant with the box waterproofed by the application of tape in accordance with the appendix thereto.

3.6.1.6 Spool or reel type packages. Spools or reel type packages (see 6.3) containing cable, cord, and wire shall be of fiberboard, plastic, or composition material and shall be completely self-contained protective units or boxes from which cable, cord, and wire can be withdrawn without disassembly of the unit or box. The construction of the package shall be such as to provide either a stationary or movable spool or reel within the unit or box. The ends of the cable, cord, and wire shall be secured to prevent unwinding. Each spool or reel type package shall be completely wrapped with barrier material conforming to PPP-B-1055, class H-3 or L-2 and the wrap sealed with waterproof tape or adhesive, or each spool or reel type package shall be preserved method IC-2 utilizing the spool or reel type package as the container.

3.6.1.7 Reels. Unless otherwise specified herein, reels (see 6.3) shall be nonreturnable as specified below. When specified (see 6.2), reels shall be returnable (see 6.1.2 and 6.3) as specified below, or shall conform to MIL-R-3241. Unless otherwise specified (see 6.2), reel drum diameters, as related to cable, cord, and wire type, shall be as specified in NEMA WC26. Cable, cord, and wire shall be wound evenly on reels in accordance with commercial practice to obtain uniformity, compactness, and provide for unwinding in a continuous manner when used. Cable reels on shall be overwrapped with a 30-30-30 barrier material to provide a dust cover and moisture barrier. Overwraps shall not be required for the following types of cable, cord, or wire:

a. Waterproof cable (see 6.3).
b. Fluorinated ethylene propylene or PTFE sheathed cable, cord, or wire.
c. Cable subject to water tank testing.
d. Reels where solid fiberboard type packing material is acceptable.

3.6.1.7.1 Nonreturnable reels. Non returnable reels shall conform to NEMA WC26. Reels shall be of a construction normally used for nonreturnable applications and suitable for shipments. The arbor hole in wood and plywood

reels, with a gross weight of 2,500 pounds or more, shall be reinforced with a metal bushing or a metal plate to prevent excessive wear due to reeling and unreeling.

3.6.1.7.2 Returnable reels. Returnable reels (see 6.1.2 and 6.3) shall conform to NEMA WC26 as specified (see 6.2), and the following specific requirements:

a. Wood utilized in the flange plies and drum staves shall be free from decay, shakes, cracks, compression wood, red heart, wrap, or twist, loose or unsound knots, and pitch pockets which are wider that one-third of the width of the piece in which located.
b. All wood flanges made of the two plies shall be at right angles to each other. Flanges of three plies shall be 45 degrees to 60 degrees to each other.
c. Nails shall be machine driven in concentric circles with a minimum countersink of 1/16" on the cable side of the flange and clinch of 1/8". When screws are utilized, they shall be applied by turning in their holes the full distance of the threaded portion and shall not be driven in with a hammer. Flat head screws shall be turned so their heads do not protrude above the surface of the wood.
d. After the nuts on flange bolts are tightened, the bolt ends shall be peened.
e. Wood staves, which constitute the drum, shall be shaped and assembled in the flange grooves so as to form a continuous smooth surfaces.
f. The exposed portions of wood reels shall be painted or otherwise suitably protected from weathering under outdoor storage conditions.
g. The arbor hole shall be of a diameter normally used in commercial practice. The arbor hole in wood reels, 24" in diameter and larger, shall be reinforced with substantial metal bushings or a metal plate to prevent excessive wear due to reeling and unreeling.
h. All parts of the metal reels shall be given a suitable protective finish.

3.6.2 Level C. The cable, cord, and wire shall be packaged in a manner which will insure arrival at the destination in a satisfactory condition. Packaging shall comply with applicable carrier rules and regulations (see 3.8). When specified (see 6.2), the cable, cord, and wire shall be preserved in accordance with ASTM D 3951.

3.7 Packing. Packing shall be levels A, B, or C as specified (see 6.2).

3.7.1 Level A.

3.7.1.1 Coils, spools and spool or reel type packages. Coils, spools, and spool or reel type packages shall be packed in boxes conforming to PPP-B-585, class 3; PPP-B-601, overseas type; or PPP-B-621, class 2. Assembly, closure, and strapping shall be in accordance with the appendix of the applicable box specification. Contents shall be cushioned, blocked and braced to prevent movement in accordance with MIL-STD-1186.

3.7.1.2 Reels. Reels of cables shall be shipped unboxed in accordance with the following applicable requirements.

3.7.1.2.1 Reels under 42" in diameter. Reels under 42" in diameter shall be protected with no less than a class 3 covering specified in NEMA WC26. Lagging material shall be secured in place with two 1/2 by 0.015" flat steel straps conforming to ASTM D 3953 or equivalent nonmetallic straps conforming to ASTM D 3950.

3.7.1.2.2 Reels 42" in diameter and over. Reels 42" in diameter and over shall be completely enclosed with wood lagging. Thickness of boards shall be equal to one-half or more of the total thickness of wood reel flanges, but not thicker than nominal 2" lumber, and shall be positioned so that all boards touch adjacent boards. Boards shall be nailed to the wood flanges of reels coated or chemically etched nails. Lagging shall extend to within 1/4" of the outside edges of the flanges. Lagging shall be strapped with 2 3/4" by 0.023" flat straps conforming to ASTM D 3953. All straps shall be stapled to the lagging at intervals of approximately 15"; however, where straps are applied directly over the perimeter of the flanges of the reel, the strapping may be secured by nailing. Notched and recessed lagging may be lagging, secured to wood reels with strapping specified above without nailing of lagging, shall be 1-1/4" by 0.035". Lagging on metal flanges shall be secured by notching the lagging, which shall be suitable thickness to fit the flanges, and then securing the lagging with the strapping specified above. I-beam reels conforming to NEMA WC26 do not require lagging to be notched.

3.7.1.3 Straight lengths. When specified (see 6.2), semi-rigid cables shall be packed in straight lengths as specified in the item specification, contract, or purchase order.

3.7.2 Level B.

3.7.2.1 Coils, spools, and spool or reel type packages. Coils, spools, and spool or reel type packages shall be packed in boxes as specified:

a. PPP-B-576, class 2, style optional.
b. PPP-B-585, class 2, style optional.
c. PPP-B-591, class II, style optional.
d. PPP-B-601, domestic type, style optional.
e. PPP-B-621, class 1, style optional.
f. PPP-B-636, class weather-resistant, type, variety, grade, and style optional, closure method V.
g. PPP-B-640, class 2 style optional, closure 30.2.

Assembly, closure, and strapping shall be in accordance with the appendix of the applicable box specification. Strapping of individual containers is not required when a load is unitized in accordance with 3.6. Contents shall be cushioned, blocked, and braced to prevent movement in accordance with MIL-STD-1186.

3.7.2.2 Reels. Reels of cable preserved as required in 3.4 shall be shipped unboxed. Reels shall be protected with a covering specified in NEMA WC26.

3.7.3 Level C. The cable, cord, and wire shall be packed in a manner which will insure arrival at the destination in a satisfactory condition. Packing shall comply with the applicable carrier rules and regulations in the Uniform

Freight Classification rules or National Motor Freight Classification rules. When specified (see 6.2) the cable, cord, and wire shall be unit packed as specified in ASTM D 3951.

3.8 Unitization.

3.8.1 Palletization. Unless otherwise specified (see 6.2), material packed in accordance with 3.7 shall be palletized in accordance with MIL-STD-147 when the following criteria is met:

a. Load to consist of four or more unskidded containers; and,
b. Load shall utilize a minimum of 80 percent of the pallet base.

3.8.2 Consolidation. When specified (see 6.2) cable, cord, and wire packed specified in 3.7 shall be packed together in a wood crate conforming to MIL-C-104 or MIL-C-3774 with the type, class and style at the contractor's option. Contents shall be anchored, blocked, or braced to prevent movement in accordance with the appendix to the applicable crate specification.

3.9 Marking.

3.9.1 General. In addition to any special marking specified in the applicable specification for the item, or contract, interior packages and shipping containers shall be marked as specified herein. Marking for cable, cord, or wire shall include the date of manufacture. Marking of each spool and reel shall be located on the flange area whenever possible and shall be applied in a manner designed to preclude the possibility of the marking becoming illegible during its use.

3.9.2 Military agencies. Marking shall be in accordance with MIL-STD-129.

3.9.3 Civil agencies. Shipments to civil agencies shall be marked in accordance with FED-STD-123.

3.10 Special precautionary markings.

3.10.1 Lead-sheathed cable. Reels of lead-sheathed cable shall be marked as follows:

KEEP UPRIGHT DO NOT LAY ON SIDE.

3.10.2 End sealing. Cable in accordance with 3.6.1.3 shall contain the following warning on each unit pack:

WARNING: KEEP ENDS SEALED. MOISTURE DAMAGES CABLE.

3.11 Workmanship. Workmanship shall be of such quality so as to provide adequate protection, when packaged in accordance with the requirements contained herein, to prevent corrosion, deterioration, and physical damage during handling, shipment, and storage.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, 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 this document where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Material inspection. The contractor is responsible for insuring that supplies and materials are inspected for compliance with all the requirements specified herein and in applicable referenced documents.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. Preproduction pack inspection (see 4.3).
b. Quality conformance inspection (see 4.4).

4.3 Preproduction pack inspection. When specified (see 3.1 and 6.2), a preproduction pack inspection shall be preformed on one complete pack, packed as for shipment and meeting the requirements of this specification. This inspection shall include the examination of 4.6. The preproduction pack may be a preproduction model, first production model or a production unit. If a preproduction model is used, any preservation, packaging, and packing shall be removed by the contractor at no expense to the Government, when requested by the Government to facilitate comparison of the preproduction model and the production units.

4.4 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.6.

4.5 Sampling. Sampling and inspection procedures shall be in accordance with MIL-STD-105. A unit of product shall consist of one exterior container or one unitized load, as applicable. All units of the same classification, offered for delivery at one time, shall be considered a lot for the purpose of inspection (see 6.7).

4.6 Examination. Each unit shall be examined for the defects marked "X" for the applicable level of protection in table I.

TABLE I. Classification of Defects.

Classification	Examination Defects	Requirements paragraph	Level of protection A	B	C
Major:					
101	Material not as specified (each incorrect material shall constitute one defect)	3.2	X	X	X
102	Cleaning and drying not as required	3.5	X	X	X
103	Level of preservation not as required	3.6.1	X		X
104	Cable, cords, or wire of different classification contained on same coil, spool, spool or reel type package, or reel.	3.6.1.1	X	X	X
105	Unit pack quantity other than specified. length not as specified.	3.6.1.1.1	X	X	X
106	End seals not provided when required; or, not as specified.	3.6.1.3	X		
107	Lead-sheathed cable not sealed as specified.	3.6.1.3.1	X		
108	Inside diameter of coils not as required	3.6.1.4	X		
109	Coils not tied or secured as specified	3.6.1.4	X		
110	Coils not protected by any one of the specified methods	3.6.1.4	X		
111	Spools not of contractor's standard practice.	3.6.1.5	X		
112	Cable, cord, or wire not wound properly and ends not brought out and secured when specified.	3.6.1.5	X		
113	Spools not protected by one of the specified methods	3.6.1.5	X		
114	Spool or reel type packages not constructed as specified and end of cable not secured	3.6.1.6	X		
115	Spool or reel type packages not wrapped or preserved as specified	3.6.1.6	X		
116	Reel drum diameters not as specified	3.6.1.7	X		

TABLE I. Classification of Defects. (continued)

Classification	Examination Defects	Requirements paragraph	Level of protection A	B	C
Major:					
117	Cables not wound properly and ends brought out and secured when required	3.6.1.7	X		
118	Barrier material missing or not as specified; not sealed as specified	3.6.1.7	X		
119	Reels not constructed as specified	3.6.1.7.1, 3.6.1.7.2	X		
120	Arbor hole in wood reels not reinforced as specified	3.6.1.7.1	X		
121	Wood utilized does not meet requirements. Number of plies and arrangement in flanges not as specified. Nails and screws not applied as specified. Bolt ends not peened. Wood staves not shaped and assembled in flange grooves to form smooth surfaces	3.6.1.7.2 (a) through (e)	X		
121	Commercial not adequate	3.6.2			X
122	Level of packing not as specified	3.6	X	X	X
123	Coils, spools, and spool or reel type packages not packed as specified. Contained not as required	3.7.1.1	X	X	
124	Reels not protected with lagged as required. Lagging not as specified. Lagging not secured as specified	3.7.1.2.1, 3.7.1.2.2, & 3.7.2.2	X		
124	Protective covering not as required	3.7.1.2.1	X	X	
125	Commercial not adequate	3.7.3			X
126	Loads not palletized when required	3.8	X	X	X
127	Marking missing, illegible, or incorrect. Special marking not applied when required. Precautionary marking not applied when required	3.9 & 3.10	X	X	X
128	Workmanship not adequate	3.12			

5. PACKAGING

(This section is not applicable to this specification.)

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 requirements of this specification may be used for the preservation, packing, unitization, and marking of cable, cord, and wire for storage and domestic and overseas shipments. This specification may be referenced in whole or in part in specifications, contracts, purchase orders, or packaging instructions covering cable, cord, and wire.

6.1.2 Returnable reels. Returnable reels (see 6.3) are intended for immediate use requirements.

6.2 Acquisition requirements. Acquisition documents should specify the following :

a. Title, number, and date of this specification.
b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents reference (see 2.1.1 and 2.2).
c. When a preproduction pack is required and the time frame required for submissions of the preproduction pack (see 3.1 and 4.3).
d. Level of preservation and packing required (see 3.6 & 3.7).
e. When end seals shall be in accordance with one of the methods specified in 3.6.1.3 (a) through (d).
f. When special type of spool is required (see 3.6.1.5).
g. When returnable reels conforming to NEMA WC26 or MIL-R-3241 are required (see 3.6.1.7 and 3.6.1.7.2).
h. When drum diameter of reel is other than specified (see 3.6.1.7).
i. When commercial preservation and packing shall be in accordance with ASTM D 3951 (see 3.6.2 and 3.7.3).
j. When straight lengths are required (see 3.7.1.3).
k. When palletization is not required (see 3.8.1).
l. When consolidated packing is required (see 3.8.2).

6.3 Definitions. For the purpose of this specification, the following definition shall apply:

a. Reel. Usually of multipiece construction with minimum flange diameter of 12" and maximum flange diameter of 108".
b. Returnable reel. A reel supplied by a contractor to the Government, for the purpose of returning the reel to the contractor when the contents have been removed - at which time the fee, if made, is returned to the Government.
c. Spool. Usually of either one-piece or multipiece construction with maximum flange diameter of 12". Gross weight usually does not exceed 25 lb.
d. Spool or reel type packages. Usually a small self-contained unit or box containing a spool or reel as an integral part of its construction and from which the cable can be withdrawn without disassembly of the unit or box.
e. Unit pack quantity. The amount of cable contained on one coil, spool, or reel type package.

6.4 Superseded standards. NEMA WC26, Wire and Cable Packaging Standard, has replaced the following standards:

WC6 - Minimum Drum Diameter of Reels for Cables.
WC20 - Dimensions and Capacities of Returnable Reels for Wires and Cables.
WC21 - Nonreturnable Reels for Wire and Cables.
WC22 - Construction of Steel Fluted Returnable Reels for Wire and Cables.
WC25 - Protective Coverings for Wire Cable Reels.

6.5 Preproduction pack. Any changes or deviations of production packs from the approved preproduction pack shall be subject to the approval of the contracting officer. Approval of the preproduction pack shall not relieve the supplier of his obligation to preserve, package, pack and mark the cable in accordance with this specification.

6.6 Recycled materials. Recycled materials are encouraged for use as long as they meet the requirements specified herein and in applicable specifications, standards, and other reference documents (see 3.1).

6.7 Sampling procedures. Recommended Inspection level is S-2 and acceptable Quality level is 2.0 (see 4.5).

6.8 Use in lieu of. This specification shall be used by DoD in lieu of MIL-C-12000.

6.9 Subject term (key word) listing.

Preservation
Packing
Reels

6.10 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
Army - CR
Navy - YD
Air Force - 85

Review Activities:
Army - AR, AT, SM, MI, ME
Navy - AS, OS, SA
Air Force - 99
DLA - IS, ES

User Activity:
Navy - MC, SH

Preparing Activity:
Navy - YD

(Project PACK-0793)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-C-12000H	1990 September 27

3. DOCUMENT TITLE
CABLE, CORD, AND WIRE, ELECTRIC; PACKAGING OF

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE *(Include Area Code)* (1) Commercial (2) AUTOVON *(If applicable)*	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE *(Include Area Code)*	
K. A. POLLOCK, Project Manager Equipment Criteria Development Division	(1) Commercial (805) 982-5612	(2) AUTOVON 551-5612
c. ADDRESS *(Include Zip Code)* Commanding Officer (156) Naval Construction Battalion Center Port Hueneme, CA 93043-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	