

INCH-POUND

MIL-DTL-12000K
6 September 2012

SUPERSEDING
MIL-DTL-12000J
29 September 2004

DETAIL 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, packaging, unitization, and marking of electric cable, cord, and wire for domestic and overseas storage and shipments.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 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 of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to Chief, LOGSA Packaging, Storage, and Containerization Center, ATTN: AMXLS-AT-P, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5097 or e-mail toby.pt@us.army.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>.

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2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards 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.

FEDERAL STANDARDS

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

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-17 - Cables, Radio Frequency, Flexible and Semirigid, General Specification for
MIL-C-3774 - Crates, Wood: Open 12,000- and 16,000-Pound Capacity
MIL-PRF-121 - Barrier Materials, Greaseproof, Waterproof, Flexible, Heat-Sealable

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129 - Military Marking for Shipment and Storage
MIL-STD-147 - Palletized Unit Loads
MIL-STD-1916 - DoD Preferred Methods for Acceptance of Product
MIL-STD-2073-1 - Military Packaging

(Copies of these documents are available online at <https://assist.dla.mil/quicksearch> or <https://assist.dla.mil> or from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents 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.

DEPARTMENT OF DEFENSE MANUAL

DoD 4140.65-M - Issue, Use, and Disposal of Wood Packaging Material (WPM)

(Copies of this document are available online at <http://www.dtic.mil/whs/directives> or through the applicable Service/Agency publications distribution office.)

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INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC)

International Standard for - Guidelines for Regulating Wood Packaging
Phytosanitary Measures Material in International Trade
(ISPM) 15

(Copies of ISPM standards are available online at www.ippc.int or from the IPPC Secretariat, FAO-AGPP, Viale Delle Terme di Caracalla, 00100 Rome, Italy, telephone (39) 06 5705 4812 or facsimile (39) 06 5705 6347.)

2.3 Non-Government publications. The following documents 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.

ASTM INTERNATIONAL

ASTM D1974/D1974M	-	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
ASTM D3950	-	Standard Specification for Strapping, Nonmetallic (and Joining Methods)
ASTM D3951	-	Standard Practice for Commercial Packaging
ASTM D3953	-	Standard Specification for Strapping, Flat Steel and Seals
ASTM D4169	-	Standard Practice for Performance Testing of Shipping Containers and Systems
ASTM D5118/D5118M	-	Standard Practice for Fabrication of Fiberboard Shipping Boxes
ASTM D5168	-	Standard Practice for Fabrication and Closure of Triple Wall Corrugated Fiberboard Containers
ASTM D5486/D5486M	-	Standard Specification for Pressure-Sensitive Tape for Packaging, Box Closure, and Sealing
ASTM D6251/D6251M	-	Standard Specification for Wood-Cleated Panelboard Shipping Boxes
ASTM D7478/D7478M	-	Standard Specification for Heavy Duty Sheathed Wood Crates

(Copies of ASTM International standards are available online at www.astm.org or from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, telephone (610) 832-9585, facsimile (610) 832-9555.)

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

National Motor Freight Classification Rules

(Copies are available online at <http://www.nmfta.org> or from the National Motor Freight Traffic Association, Inc., 1001 North Fairfax Street, Suite 600, Alexandria, VA 22314, telephone (703) 838-1810, facsimile (703) 683-6296.)

NATIONAL RAILROAD FREIGHT COMMITTEE, AGENT (NRFC)

Uniform Freight Classification Rules

(Copies are available online at <http://narps.org> or from the North America Railroad Professional Services, LLC (NARPS), 916 Champion Way, McDonough, GA 30252, telephone (678) 583-8296, facsimile (678) 583-9574.)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) ELECTRICAL EQUIPMENT MANUFACTURERS ASSOCIATION OF CANADA (EEMAC)

NEMA WC 26/EEMAC 201 – Binational Wire and Cable Packaging Standard

(Copies are available online at <http://www.nema.org> or from the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1752, Rosslyn, VA 22209.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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 First article pack. When specified (see 4.2 and 6.2) the contractor shall furnish a first article pack for examination and test within the time frame specified (see 6.2) to prove prior to starting production packaging, that the applied preservation, packing, packaging, 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 6.4).

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 that adversely affect performance or serviceability of the finished product.

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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 they are equal to-, 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, 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 the applicable federal laws, regulations, and standards for safety.

3.2.4 Wood Packaging Material (WPM). Non-coniferous (hardwood) and coniferous (softwood) packaging material used in supporting, protecting, or carrying a commodity (includes dunnage). Examples of WPM include but are not limited to pallets, skids, pallet collars, containers, crates, boxes, cases, bins, reels, drums, load boards, and dunnage. Wood packaging made of exempt materials but combined with solid wood components must still be treated and marked. Does not include processed wood materials and manufactured wood products. (WPM was previously known as non-manufactured wood packaging or solid wood packaging material.)

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 source of manufacturing. 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. The cleaning processes, drying procedures, preservatives, and methods of preservation specified in the following paragraphs are listed in MIL-STD-2073-1 and shall conform to the requirements of that standard and any applicable specifications.

3.5 Cleaning and drying. Prior to the application of preservative compound or paint, surfaces shall be cleaned and dried by any procedure that will not damage the item.

3.6 Preservation. Preservation shall be in accordance with MIL-STD-2073-1. If adequate and cost effective; commercial preservation in accordance with ASTM D3951 will be as specified (see 6.2).

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3.6.1 Military.

3.6.1.1 Unit pack. Cable, cord, and wire, including bare copper wire, shall be preserved by Method 10 (unless otherwise specified herein) in MIL-STD-2073-1. Coils on spools, in spool-type packages, or on reels (see 6.3) shall be 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 requirement 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-DTL-17; (3) varnished and bare wire; (4) nonwicking type wire; and (5) cable, cord, and wire preserved by Method 30, MIL-STD-2073-1, 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. 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 (102 mm).

b. The ends shall be sealed by dipping to a minimum 2 inch (51 mm) depth in a hot dipping, strippable plastic coating compound as recommended by the end seal manufacturer or contractor.

c. The ends shall be sealed with neoprene caps fastened with hose clamps or wire. Caps shall be approximately 4 inches (102 mm) 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 storage and 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.

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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 WC 26/EEMAC 201. 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 MIL-PRF-121, Type I or Type II, in accordance with MIL-STD-2073-1 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 in accordance with Method 31 or 32, MIL-STD-2073-1.
- c. The coil shall be preserved in accordance with Method 10, MIL-STD-2073-1, and placed in a closefitting box, conforming to ASTM D5118/D5118M, as applicable.

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 MIL-PRF-121, Type I or Type II, in accordance with MIL-STD-2073-1 and the wrap sealed with Type III or V waterproof tape in accordance with ASTM D5486/D5486M or with a waterproof adhesive.
- b. The spool shall be preserved in accordance with Method 31 or 32, MIL-STD-2073-1.
- c. The spool shall be preserved in accordance with Method 10, MIL-STD-2073-1, and placed in a close-fitting box conforming to ASTM D5118/D5118M, as applicable.

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 MIL-PRF-121, Type I or Type II barrier material and sealed with ASTM D5486/D5486M Type III or V waterproof tape or adhesive, or each spool- or reel-type package shall be preserved by Method 31 of MIL-STD-2073-1 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 in 3.6.1.7.1. When specified (see 6.2), reels shall be returnable (see 6.1.2 and 6.3) as specified below in 3.6.1.7.2. Unless otherwise specified (see 6.2), reel drum diameters, as related to cable, cord, and wire type, shall be as specified in NEMA WC 26/EEMAC 201. 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.

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Cable reels shall be overwrapped with MIL-PRF-121, Type I or Type II, 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.
- 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 Non-returnable reels. Non-returnable reels shall conform to NEMA WC 26/EEMAC 201. Reels shall be of a construction normally used for non-returnable 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 WC 26/EEMAC 201 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 than 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 0.062 inch (1.59 mm) on the cable side of the flange and clinch of 0.125 inch (6.35 mm). 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 inches (610 mm) 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 Commercial. The cable, cord, and wire shall be preserved/packaged in a manner that will insure adequate protection during shipping, handling, and storage. Packaging shall comply with applicable carrier rules and regulations (see 3.7.3). When specified (see 6.2), the cable, cord, and wire shall be preserved in accordance with ASTM D3951.

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3.7 Packing. Packing shall be in accordance with MIL-STD-2073-1. If adequate and cost effective; commercial packing in accordance with ASTM D3951 will be as specified (see 6.2).

3.7.1 Military - 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 ASTM D6251/D6251M and tested in accordance with ASTM D4169. Assembly, closure, and strapping shall be in accordance with the applicable box specification. Contents shall be cushioned, blocked and braced to prevent movement.

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 inches (1.07 m) in diameter. Reels under 42 inches (1.07 m) in diameter shall be protected with no less than a class 3 covering specified in NEMA WC 26/EEMAC 201. Lagging material shall be secured in place with two 0.500 inch (12.70 mm) by 0.015 inch (0.38mm) flat steel straps conforming to ASTM D3953 or equivalent non-metallic straps conforming to ASTM D3950.

3.7.1.2.2 Reels 42 inches (1.07 m) in diameter and over. Reels 42 inches (1.07 m) 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 inch (51 mm) lumber, and shall be positioned so that all boards touch adjacent boards. Boards shall be nailed to the wood flanges of reels using coated or chemically etched nails. Lagging shall extend to within 0.250 inch (6.35 mm) of the outside edges of the flanges. Lagging shall be strapped with 1.250 inches (31.75 mm) by 0.035 inch (0.89 mm) flat straps conforming to ASTM D3953. All straps shall be stapled to the lagging at intervals of approximately 15 inches (381 mm); 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 secured to wood reels with strapping as specified above without nailing. 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 WC 26/EEMAC 201 does 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 Military - 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 in:

- a. ASTM D5118/D5118M
- b. ASTM D5168
- c. ASTM D6251/D6251M

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Boxes conforming to ASTM D5118/D5118M shall be closed, sealed, and reinforced in accordance with ASTM D1974/D1974M. ASTM D5168 boxes shall be closed, sealed, and reinforced in accordance with the ASTM D5168 Appendix. Boxes fabricated to ASTM D6251/D6251M shall be strapped in accordance with the Supplementary Requirements Section of ASTM D6251/D6251M. Strapping of individual containers is not required when a load is unitized in accordance with 3.8. Contents shall be cushioned, blocked, and braced to prevent movement.

3.7.2.2 Reels. Reels of cable preserved as required in 3.4 and 3.6 shall be shipped unboxed. Reels shall be protected with a covering specified in NEMA WC 26/EEMAC 201.

3.7.3 Commercial packing. The cable, cord, and wire shall be packed in a manner that will insure adequate protection during shipping, handling, and storage. Packing shall comply with the applicable carrier rules and regulations in the Uniform Freight Classification rules or National Motor Freight Classification rules. It must be cost-effective. When specified (see 6.2) the cable, cord, and wire shall be unit packed as specified in ASTM D3951.

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 are 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 as specified in 3.7 shall be packed together in a wood crate conforming to ASTM D7478/D7478M 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 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 activities. Shipments to military activities shall be marked in accordance with MIL-STD-129.

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

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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.3.12 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable 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 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article pack inspection (see 4.2).
- b. Quality conformance inspection (see 4.3).

4.2 First article pack inspection. When specified (see 3.1 and 6.2), a first article pack inspection shall be performed on one complete pack, packed as for shipment and meeting the requirements of this specification. This inspection shall include the examination of 4.5. The first article pack may be a preproduction model, first production model, or a production unit.4.3 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.5.4.4 Sampling. Sampling and inspection procedures shall be in accordance with the provisions and inspection level S-2 of MIL-STD-1916. 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.4.5 Examination. Each unit shall be examined for the defects marked "X" for the applicable level of protection in table I.

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TABLE I. Classification of Defects.

Classification Major:	Examination Defects	Requirements Paragraph	Level of Preservation	
			Military	Commercial
101	Material not as specified (each incorrect material shall constitute on defect).	3.2	X	X
102	Cleaning and drying not as required.	3.5	X	X
103	Level of preservation not as required.	3.6.1	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
105	Unit pack quantity other than specified. Length not as specified.	3.6.1.1.1	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	

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TABLE I. Classification of Defects (continued).

Classification Major:	Examination Defects	Requirements Paragraph	Level of Preservation	
			Military	Commercial
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	
117	Cables not wound properly and ends not 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 preservation not as required.	3.6	X	X

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TABLE I. Classification of Defects (continued).

Classification Major:	Examination Defects	Requirements Paragraph	Level of Packing		
			Military A	B	Commercial
123	Coils, spools, and spool- or reel-type packages not packed as specified.	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, and 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	
127	Marking missing, illegible, or incorrect. Special marking not applied when required. Precautionary marking not applied when required.	3.9 and 3.10	X	X	
128	Workmanship not adequate.	3.12			
129	WPM does not meet ISPM 15 requirements.	3.2.4	X	X	

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

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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. When a first article pack is required and the time frame required for submissions of the first article pack (see 3.1 and 4.2).
- c. Military or Commercial level of preservation and packing required (see 3.6, 3.6.2, 3.7, and 3.7.3).
- d. When end seals are to be in accordance with one of the methods specified in 3.6.1.3 (a) through (e).
- e. When special type of spool is required (see 3.6.1.5).
- f. When returnable reels conforming to NEMA WC 26/EEMAC 201 are required (see 3.6.1.7 and 3.6.1.7.2).
- g. When drum diameter of reel is other than specified (see 3.6.1.7).
- h. When straight lengths are required (see 3.7.1.3).
- i. When palletization is not required (see 3.8.1).
- j. When consolidated packing is required (see 3.8.2).

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

- a. Reel. Usually of multipiece construction with minimum flange diameter of 12 inches (305 mm) and maximum flange diameter of 108 inches (2.74 m).
- 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.
- c. Spool. Usually of either one-piece or multipiece construction with maximum flange diameter of 12 inches (305 mm). Gross weight usually does not exceed 25 lbs. (11.34 kg).
- 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.
- f. Lagging. The wood slats used to cover the reel opening to protect the cable.

6.4 First article pack. Any changes or deviations of production packs from the approved first article pack should be subject to the approval of the contracting officer. Approval of the first article pack will not relieve the supplier of his obligation to preserve, pack, package, and mark the cable in accordance with this specification.

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6.5 Subject term (key word) listing.

Coils
Preservation
Packing
Reels
Spools

6.6 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 – SM
Navy - YD
Air Force - 69
DLA – DH

Preparing Activity:

Army – SM

(Project PACK-2012-001)

Review Activities:

Army - AR, AT, AV, CR, MI
Navy - AS, MC, OS, SA, SH
Air Force – 85, 99
DLA – CC

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>.