

INCH-POUND

MIL-DTL-13273A
25 October 2002
SUPERSEDING
MIL-C-13273(SigC)
24 February 1954

DETAIL SPECIFICATION

CORD, ELECTRICAL, (RETRACTILE, 2, 3, AND 4 CONDUCTOR, WD-9/U, WT-2/U, WF-4/U)

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

1. SCOPE

1.1 Scope. This specification covers 2, 3, and 4 cadmium copper alloy stranded retractile conductor electrical cords. These cords are insulated with a natural rubber compound encased in a Buna S or Buna S and natural rubber compound jacket which is vulcanized in a helical spring coil form to produce a cord which will extend and retract freely. These cords are designed for use on communications equipment at audio frequencies, with a temperature range of -0 to 60°C for continuous operation.

1.2 Classification. This specification covers the following retractile cords designated as follows:

Cordage WD-9/U (2 conductor)
Cordage WT-2/U (3 conductor)
Cordage WF-4/U (4 conductor)

2. APPLICABLE DOCUMENTS

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

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any other data that may improve this document should be sent to: Defense Logistics Agency, Defense Supply Center, Columbus (DSCC-VAI), P.O. Box 3990, Columbus, OH 43216-5000.

AMSC N/A
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FSC 6145

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 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).

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-C-3885 - Cable Assemblies and Cord Assemblies, Electrical.

STANDARD

FEDERAL

FED-STD-228 - Cable and Wire, Insulated; Methods of Testing.

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

2.3 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that 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 cited in the solicitation (see 6.2).

NATIONAL CONFERENCE OF STANDARDS LABS (NCSL)

NCSL Z540-1 - Calibration Laboratories and Measuring Test Equipment – General Requirements.

(Application for copies should be addressed to the National Conference of Standards Laboratories, 1800 - 30th Street, Suite 305B, Boulder, CO 80301-1032.)

2.4 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 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.

3.2 Materials. Materials shall be as specified herein. When a material is not specified, a material shall be used that enables the insulated wire to meet the performance requirements of this specification.

3.3 Conductor. Each conductor shall be equivalent to 511 circular mils (no. 23 AWG). It shall consist of 21 strands of no. 36 AWG tinned soft cadmium copper alloy, having a 1 percent nominal

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content of cadmium. It shall be bunch stranded with a lay not exceeding $\frac{3}{4}$ inch. Prior to stranding, the elongation of individual tinned soft cadmium copper alloy strands shall be not less than 10 percent, and the tensile strength shall not exceed 55,000 pounds per square inch. Subsequent to stranding, and prior to insulating, the elongation of individual strands shall be not less than 5 percent, and the tensile strength shall not exceed 58,000 pounds per square inch.

3.4 Insulation. The stranded conductors shall be insulated with a natural rubber compound capable of meeting the requirements specified herein.

3.4.1 Colors. The color of the insulation on the two conductors of the two conductor cord shall be black and white, respectively. The color of the insulation on the three conductors of the three conductor cord shall be black, white and red, respectively. The color of the insulation on the four conductors of the four conductor cord shall be black, white, red, and green respectively.

3.4.2 Sunproofing wax. The Buna S insulating compound shall contain not less than 2.5 pounds of approved sunproofing wax per 100 pounds of Buna S in the finished insulating compound.

3.4.3 Dimensions. The diameter of the insulated conductor shall not exceed 0.080 inch, and the minimum wall thickness at any point shall be not less than 0.010 inch.

3.4.4 Physical properties. The insulating compound shall conform to the following physical requirements before and after aging:

Unaged:	
Tensile strength, minimum P.S.I.	600
Elongation, minimum, percent	250
Set, maximum inch	$\frac{1}{2}$
After 96 hours aging in oxygen bomb at $70 \pm 1^\circ\text{C}$	
Tensile strength, minimum, P.S.I.	450
Elongation, minimum, percent	175

The insulation shall be capable of stripping freely from the conductor. The compound used shall contain not more than 0.5 percent of free sulfur after vulcanization.

3.5 Cabling. The insulated conductors shall be cabled together with a right hand lay of twist not greater than 1-1/2 inches.

3.6 Jacket. The cabled conductors shall be jacketed with a smooth dense, Buna S compound or Buna S, natural rubber blend compound. The amount of natural rubber in the jacket compound shall not exceed 25 percent by weight of the total Buna S and natural rubber in the compound. The jacketing compound shall contain not less than 4 pounds of an approved type of sunproofing wax per 100 pounds of the total of Buna S and natural rubber in the jacket compound after vulcanization into the construction, the average diameter of the 2-conductor cord shall be 0.220 ± 0.010 inch, and the average diameter of the 3 and 4-conductor cordage shall be $0.250 \pm .010$ inch. The average diameter shall be taken as the mean of the maximum and minimum diameter in any cross-section of the straight length of cord. The jacket thickness at any cross-section of cord shall be not less than 0.010 inch. The minimum jacket thickness on the straight portion of the cord shall be 0.020 inch. The jacket shall be free stripping from the insulation.

3.6.1 Jacket physical properties. After vulcanization, the jacket shall have the following physical properties measured on straight portions of the cord.

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3.6.1.1 Jacket physical properties before aging. The tensile strength of the jacket shall be not less than 1200 pounds per square inch. The jacket elongation shall be not less than 175 percent.

3.6.1.2 Jacket physical properties after aging. After accelerated aging for a period of 96 hours in an oxygen bomb at a pressure of 300, plus or minus 10 PSI, and a temperature of $70^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the tensile strength of the jacket shall be not less than 1000 pounds per square inch, and the elongation shall be not less than 100 percent.

3.7 Electrical cord construction. The jacketed electrical cord shall be helical in form with adjacent turns contiguous to form a helical cord having a straight length of cord on each end tangent to the helical coil. The finished electrical cord shall have a left-hand lay in its helical section. The finished electrical cord shall have a smooth and uniform jacket. The helix shall have an overall diameter of not more than 7/8 inch for the 2-conductor cords, and shall not exceed 1-1/8 inch for 3 and 4-conductor cords. The length of the helical portions, and the length of the straight ends shall be as specified on the detail drawings.

3.8 Electrical cord extensile and retractile characteristics. The electrical cord prior to meeting any extensile and retractile requirements shall first be conditioned by extending the coiled portion of the cord to five times its retracted length and allowing it to retract freely six times. After this conditioning, the adjacent coils shall be contiguous when the cord is on a horizontal surface.

3.8.1 Stretching. The finished cords shall be capable of being extended to four times its retracted length, 60,000 times, at a rate of not more than 40 cycles per minute. During any stretching cycle, the resistance of any conductor shall not vary more than 5 percent and the maximum resistance of any conductor at or corrected to 68°F . shall not exceed the maximum value at the start of the test by more than 10 percent. After completion of the stretching test, the cordage shall return to within 20 percent of its original retracted length within one hour.

3.8.2 Extended length

3.8.2.1 Extended under load. The finished cord when suspended vertically shall be capable of extension at room temperature to at least 2-1/2 times its retracted length under a load of eight ounces for 2-conductor cord and ten ounces for 3 and 4-conductor cord.

3.8.2.2 Extended, no load. The finished cord when suspended vertically shall be capable of extension at room temperature to 5 times its retracted length; if released immediately it shall return to within 10 percent of its retracted length within five minutes.

3.8.3 Low temperature extension.

3.8.3.1 Low temperature extension ($-40 \pm 2^{\circ}\text{F}$). After conditioning by placing for not less than 20 hours in a compartment maintained at a temperature of $\text{minus } 40 \pm 2^{\circ}\text{F}$, a suitable coiled portion of the cord shall permit extension to 4 times its retracted length without fracture of the jacket, conductor insulation, or conductors. Upon release, and while still exposed to the conditioning temperature, the cord shall retract to not more than 200 percent of its original length 30 seconds after being released on a horizontal surface. Frictional restraint shall be relieved by tapping on the surface. Force to extend its retracted length within 5 seconds shall not exceed 20 pounds. The actual values shall be recorded and forwarded with preproduction sample test data.

3.8.3.2 Low temperature extension ($-65 \pm 2^{\circ}\text{F}$). After conditioning by placing for not less than 20 hours in a compartment maintained at a temperature of $\text{minus } 65 \pm 2^{\circ}\text{F}$, a suitable coiled portion of the cord shall permit extension to 4 times its retracted length without fracture of the jacket, conductor

insulation, or conductors. Upon release, and while still exposed to the conditioning temperature, the cord shall retract to not more than 200 percent of its original length 30 seconds after being released on a horizontal surface. Frictional restraint shall be relieved by tapping on the surface. Force to extend its retracted length within 5 seconds shall not exceed 20 pounds. The actual values shall be recorded and forwarded with preproduction sample test data.

3.8.4 High temperature retraction.

3.8.4.1 High temperature retraction (+150°F ± 2°F). While the coiled portion is extended to 3 times its retracted length, the cords shall be conditioned by placing in an air oven maintained at a temperature of 150°F ± 2°F for 20 hours. While maintaining at this temperature, the coiled portion of the cord shall then be capable of complying with the following: After the coiled portion is extended further to 5 times its retracted length and returned to its original retracted length and stretched and returned in this manner for a total of 3 times, the coiled portion shall not exceed 275 percent of its original retracted length when the cord is held vertically for 15 seconds.

3.8.4.2 High temperature retraction (+185°F ± 2°F). While the coiled portion is extended to 3 times its retracted length, the cords shall be conditioned by placing in an air oven maintained at a temperature of 185°F ± 2°F for 20 hours. While maintaining at this temperature, the coiled portion of the cord shall then be capable of complying with the following: After the coiled portion is extended further to 5 times its retracted length and returned to its original retracted length and stretched and returned in this manner for a total of 3 times, the coiled portion shall not exceed 275 percent of its original retracted length when the cord is held vertically for 15 seconds.

3.8.5 Retraction after static loading. At room temperature, 30 minutes after being placed on a flat surface, the retracted length of the cord shall be not more than 110 percent of its original retracted length after the coiled portion of the cord has been extended to 250 percent of its original retracted length by the cord being secured at one end and hung vertically with a weight attached to the lower end for 48 hours.

3.9 Electrical requirements.

3.9.1 DC resistance. The resistance of the stranded conductor shall not exceed 0.030 ohms per foot at 68°F.

3.9.2 Dielectric strength and insulation resistance. The electrical cord shall withstand without dielectric breakdown, a potential of 500 volts dc (350 volts rms ac) for not less than 2 seconds, and shall have an insulation resistance not less than 1000 megohms with the potential applied between each conductor and the remaining conductors connected together.

3.10 Preproduction test evaluation. The contractor shall submit 24 each retractile cords of each type with test data, for preproduction test evaluation to determine compliance with the technical requirements of this specification. Failure to meet the requirements of this specification will require corrective action and resubmission of samples and test data.

3.11 Treatment of textiles. The cords shall comply with MIL-C-3885, Treatment of Textiles.

3.12 Workmanship. Cords shall be uniform in shape and free of kinks, splints, cuts, cracks, abrasions, peeled surfaces, and any imperfections that can affect performance.

4. VERIFICATION

4.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspections shall be used. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with NCSL Z540-1 or equivalent.

4.2 Classification of inspections. The inspection requirements specified herein are classified as conformance inspection (see 4.4).

4.3 Inspection conditions. Unless otherwise specified in the applicable test method, inspections shall be conducted under the following environmental conditions.

- a. Temperature: 15°C to 35°C.
- b. Pressure: Normal atmospheric.
- c. Humidity: Prevailing ambient (25 to 90 percent relative).

4.4 Conformance inspection. Conformance inspection shall consist of groups A, B, and group C and shall be performed on every lot of cord procured under this specification.

4.4.1 Inspection lot. Unless otherwise specified (see 6.2), a lot shall consist of all cord of the same PIN, produced under essentially the same conditions on the same machine, which is presented for inspection and shipment at one time.

4.4.2 Unit of product. The unit of product shall be a continuous length of cord of the quantity offered for inspection on one coil, one reel, or one spool, as applicable.

4.4.3 Group A inspection. Group A inspection shall be in accordance with table I. Group A inspection may be performed at an appropriate stage of the manufacturing operation rather than on the finished cord. The inspections shall be performed on every lot of cord acquired under this specification.

TABLE I. Group A inspection.

Inspection	Requirement	Verification
Visual and mechanical inspection of finished wire on reels	3.12	4.5.1
Tensile strength and elongation of strands	3.3	4.5.2
Visual and mechanical inspection of completed cord assembly	3.12	4.5.3
Electrical test of finished wire	-	-
Continuity	-	4.5.4
DC Resistance	3.9.1	4.5.5
Dielectric strength and insulation resistance	3.9.2	4.5.6
Electrical tests of finished cord assembly	-	-
Continuity	-	4.5.4
DC resistance	3.9.1	4.5.5
Dielectric strength and insulation resistance	3.9.2	4.5.6

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4.4.4 Group B inspection. Group B inspection shall consist of the inspections specified in table II. Group B inspection shall be performed on sample specimens that have been subjected to and have passed the group A inspection. Group B inspection shall be performed in any order on randomly selected sample specimens (see 4.4.6) from an inspection lot.

4.4.4.1 Group B sampling. A random sample shall first be selected from the lot. The sample size shall be based on the inspection lot size from which the sample was selected for group A inspection. Inspection sample size shall be in accordance with table IV.

TABLE II. Group B inspection.

Inspection	Requirement	Verification
Insulation and jacket, tensile strength, elongation and set	-	4.5.7
Extended length	3.8.2	4.5.8

4.4.5 Group C inspection. Group C inspection shall consist of the inspections specified in table III. Group C inspection shall normally be performed on sample specimens that have been subjected to and have passed group A and B inspections.

4.4.5.1 Group C sampling. One cord per 1000 feet for each inspection shall be randomly selected and inspected in any month that the cord is produced.

TABLE III. Group C inspection.

Inspection	Requirement	Verification
Static load	3.8.5	4.5.9
Retraction	3.8.3.1	4.5.10
Stretch	3.8.1	4.5.11
Oxygen-bomb aging	-	4.5.12

4.4.6 Specimen length. Unless otherwise specified herein, the specimen shall be of the length specified in the applicable test method.

TABLE IV. Inspection sample.

Lot size ^{1/}	Accept on zero sample size
1 to 8	2
9 to 90	3
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	36
3,201 to 10,000	38
10,001 to 35,000	46

^{1/} Lot size is based on the number of units of product (see 4.4.2).

4.4.7 Rejected lot. Failure of a lot to pass any test or inspection constitutes failure of the lot and the lot shall be rejected. If an inspection lot is rejected, the contractor may rework the lot to correct the defects, or screen out the defective units and resubmit the lot for re-inspection. Such lots shall be separated from new lots and shall be identified as re-inspected lots.

4.4.8 Non-compliance. If a sample fails to pass any of the inspections, the contractor shall notify the cognizant inspection activity of such failure and take corrective action on the materials or processes, or both, as warranted, on all units of the product. Acceptance and shipment of the product shall be discontinued until corrective action has been taken. After the corrective action has been taken, the inspections shall be repeated on replacement articles. (This includes all tests and examinations, or only the test that the original sample failed, at the option of the cognizant inspection activity.) Where group A inspection is re-instituted, final acceptance and shipment shall be withheld until group B or C inspection has shown that the corrective action was successful. In the event of failure after re-inspection, information concerning the failure shall be provided to the cognizant inspection activity.

4.5 Methods of inspection.

4.5.1 Visual and mechanical inspection of finished wire on reels. The stranded wire shall be visually inspected on reels for workmanship and miscellaneous defects before the insulating jacket is applied.

4.5.2 Tensile strength and elongation of strands. The tensile strength and elongation of strands shall be tested in accordance with method 3211 of FED-STD-228 to determine compliance with the requirements of 3.1.

4.5.3 Visual and mechanical inspection of completed cord assembly. The completed cord assembly shall be visually inspected for workmanship and miscellaneous defects.

4.5.4 Continuity. The finished cord shall be tested for continuity using a potential of not more than 10 volts. A suitable indicator such as a flashlight bulb shall be placed in the circuit.

4.5.5 DC resistance. DC resistance shall be measured in accordance with method 6021.1 of FED-STD-228 to determine compliance with 3.9.1. An equivalent ac resistance measuring instrument may be used as an alternative to method 6021.1.

4.5.6 Dielectric strength and insulation resistance. An instantaneous potential of 500 volts dc (350volts rms) shall be applied for not less than 5 seconds between each conductor and the remaining conductor or conductors connected together. Immediately after the dielectric-strength test, the insulation resistance shall be measured with a galvanometer or other approved instrument, using a dc potential of not less than 125 nor more than 500 volts applied for 1 minute between each conductor and the remaining conductor or conductors connected together. If a dc potential of 500 volts is used for the insulation-resistance measurement, the 500-volt dielectric-strength test may be omitted. The insulation-resistance test may be terminated after 5 seconds if the galvanometer has ceased fluctuating and the reading indicates that a steady or increasing insulation-resistance value has been obtained. The 500 volt dielectric strength test and the insulation resistance test may be combined by using a megger or other approved instrument which generates 500 volts dc. The voltage of the megger shall be continuously applied for not less than 5 seconds between each conductor and all other conductors connected together. If a correction factor is employed, the manufacturer shall demonstrate that it is accurate for the compound used. If the requirement for insulation resistance cannot be met at ambient humidity conditions exceeding 50 percent relative humidity, the sample units shall then be retested for acceptance at a relative humidity of 50 ± 10 percent.

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4.5.7 Buna S insulation and jacket. Conformance with the physical requirements for the Buna S insulation and jacket shall be determined by subjecting specimens removed from the completed cord to the following tests. Unless otherwise specified herein all tests shall be conducted in an atmosphere as specified in section 6 of FED-STD-228.

4.5.7.1 Tensile strength. Tensile strength shall be determined in accordance with method 3021 of FED-STD-228.

4.5.7.2 Elongation. Elongation shall be determined in accordance with method 3031 of FED-STD-228. The elongation after aging shall be based on the bench marks applied before aging.

4.5.7.3 Set. Set shall be determined in accordance with method 3161 of FED-STD-228 except that:

- a. Bench marks shall be 2 inches apart.
- b. The test specimens shall be stretched so that the distance between bench marks is 6 inches; they shall then be released within 5 seconds.
- c. Set shall be determined 1 minute after the beginning of release.

4.5.8 Extended length. The finished cord shall be tested to determine compliance with 3.8.2.

4.5.9 Static load. The finished cord shall be given a static load test to determine compliance with 3.8.5.

4.5.10 Retraction. The finished cord shall be tested to determine compliance with 3.8.3.1.

4.5.11 Stretch. The finished cord shall be tested to determine compliance with the requirements of 3.8.1. Compliance with these requirements shall be determined by measuring the resistance of the conductors and inspection of the jacket at the start of the test, and after 60,000 cycles are completed.

4.5.12 Oxygen-bomb aging. Oxygen-bomb aging shall be performed in accordance with method 4011 of FED-STD-228, except that the aging period shall be 96 hours, as specified in section 3.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point packaging activity within the Military Department or Defense Agency, or within the Military Department's Systems Command. Packaging data retrieval is available from the managing Military Department or Defense Agency automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. These cords are designed for use on communications equipment at audio frequencies, with a temperature range of 0 to 60°C for continuous operation. It is designed for extension in normal service up to five times its nominal retracted length.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Type designation and PIN (see 1.2).
- c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).
- d. Packaging requirements (see 5.1).
- e. Place of final inspection.

6.3 Antioxidants. Antioxidants which have been found satisfactory for use in synthetic-rubber compounds are di-N, N-phenyl-para-phenylene diamine, or di-N, N-secondary butyl-para-phenylene diamine, or both: these may be obtained as part of a proprietary chemical mixture or as a single chemical such as JZF (Naugatuck Chemical) or Tenamene 2 (Tennessee Eastman). The quantity found satisfactory for use for insulating compounds is 1.0 pound of antioxidant of which 0.5 pound (minimum) is as described above per 100 pounds of raw synthetic rubber, and for jacketing compounds 2.0 pounds of antioxidant of which 1.0 pound (minimum) is as described above per 100 pounds of raw synthetic rubber.

6.4 Acceptable sunproofing wax. Information as to approved sunproofing wax may be obtained from the procuring activity.

6.5 Additional testing. It should be understood that additional inspection and non-destructive testing may be performed by the Government inspector when considered necessary to determine compliance with this specification and other applicable documents. The government inspector, therefore, may withdraw materials or parts, temporarily from production for such inspection and testing performed either at a government laboratory or the contractor's plant.

6.6 Subject term (key word) listing.

Cordage
Cadmium-copper-alloy stranded conductor
Buna S
Natural rubber
Vulcanization

6.7 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 - CR
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC
(Project 6145-2326)

Review activity:
Army - MI

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, and send to preparing activity.
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 MIL-DTL-13273A	2. DOCUMENT DATE (YYYYMMDD) 20021025
3. DOCUMENT TITLE CORD, ELECTRICAL, (RETRACTILE, 2, 3, AND 4 CONDUCTOR, WD-9/U, WT-2/U, WF-4/U)			
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME <i>(Last, First, Middle Initial)</i>		b. ORGANIZATION	
c. ADDRESS <i>(Include zip code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN <i>(if applicable)</i>		7. DATE SUBMITTED (YYYYMMDD)
8. PREPARING ACTIVITY			
a. NAME Defense Logistics Agency Defense Supply Center, Columbus		b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial 614-692-0571 (2) DSN 850-0571	
c. ADDRESS <i>(Include Zip Code)</i> DSCC-VAI P.O. Box 3990 Columbus, Ohio 43216-5000		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6621 Telephone 703 767-6888 DSN 427-6888	