INCH-POUND

MIL-C-27500G
AMENDMENT 1
23 FEB 1990

MILITARY SPECIFICATION

CABLE, POWER, ELECTRICAL AND CABLE SPECIAL PURPOSE, ELECTRICAL SHIELDED AND UNSHIELDED, GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-27500G, dated 9 May 1988, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2.1, legend for "B": Following "method of cable wire", add "and shield coverage".

1.2.1.1.1, delete and substitute:

"1.2.1.1.1 Identification method of cable wire (with shield coverage). When an unshielded cable or wire, or a cable with a minimum shield coverage of 85 percent is required, specify:

"-" for the preferred identification method,

"A" for optional identification method A.

"B" for optional identification method B.

When a minimum shield coverage of 90 percent cable shield coverage is required, specify:

"C" for preferred identification method.

"D" for optional identification method A.

"E" for optional identification method B."

PAGE 3

Jacket symbol 22, jacket material column, line 1: Delete "opaque". Line 4, delete "polyimide" and substitute "opaque polyimide".

PAGE 7

3.2.3.1.2, delete and substitute:

"3.2.3.1.2 Round copper or copper alloy strand size. Cables with braided shields using round copper or round copper alloy strands shall conform to shield group A or B. The core diameter referred to in group A or B shall be the nominal outside core diameter of the unshielded, unjacketed cable equal to the basic wire diameter multiplied by factor G from table IV. The following basic wires MIL-W-22759/11, MIL-W-22759/12, MIL-W-22759/16 through MIL-W-22759/19, MIL-W-22759/22, MIL-W-22759/23, MIL-W-22759/28 through MIL-W-22759/35, MIL-W-22759/41 through MIL-W-22759/46, and all active specification sheets of MIL-W-81381 and MIL-W-81044 shall conform to shield group B. All other braided shields with round shield strands shall conform to shield group A."

Group A Cable O.D.	Group B Cable O.D.	Shield size
.000 to .060 inch	.000 to .250 inch	38 AWG
.061 to .310 inch	.251 to .400 inch	36 AWG
.311 to .750 inch	.401 to 1.000 inch	34 AWG
.751 inch and larger	1.001 inches and larger	32 AWG

PAGE 8

3.2.3.2.3.2, line 5: Delete "before" and substitute "after".

3.2.3.4, delete and substitute:

"3.2.3.4 Shield coverage. The shield braid shall be applied in such a manner as to provide 85 or 90 percent minimum coverage for each individual shield (see 4.5.5) as specified by the part number (see 1.2.1.1.1)."

PAGE 10

3.4.1.1, delete and substitute:

"3.4.1.1 Unshielded, unjacketed cable, shielded singles, and shielded and jacketed singles. Cable product identification shall be imprinted on the insulation of wire number 1 (see 3.4.2), except on single shielded and jacketed constructions, having jacket styles (08, 23, 58, and 73). Single shielded and jacketed constructions having jacket styles (08, 23, 58, and 73) shall have the cable product identification marked on the surface of the jacket. The cable product identification shall conform to paragraph 3.4.3. The cable product identification shall not be required when the product identification is not required by the basic wire specification for that size wire."

PAGE 11

3.4.1.2, delete and substitute:

"3.4.1.2 Shielded cable (2 to 10 wires). The cable product identification shall be imprinted on a marker tape placed beneath the shield (see 3.4.4)."

3.4.1.3, delete and substitute:

"3.4.1.3 Jacketed cable (2 to 10 wires). The cable product identification shall be imprinted on the outer surface of the following jacket styles (08, 23, 58, and 73). All other jacket styles shall have cable product identification imprinted on a marker tape placed beneath the jacket."

3.4.1.4, delete and substitute:

"3.4.1.4 Shielded and jacketed cable (2 to 10 wires). The cable product identification shall be imprinted on the outer surface of the following jacket styles (08, 23, 58, and 73). All other jacket styles shall have cable product identification imprinted on a marker tape placed beneath the shield or jacket."

3.4.2, add: "The wire product identification may be omitted on wire number 1 when this wire carries the cable product identification (see 3.4.1.1)."

3.4.3, delete the last sentence and subparagraphs a. and b., and substitute the following:

"The distance between the end of one mark and the beginning of the next shall be:

a. Six to 18 inches if printed on the jacket (3.4.1.1, 3.4.1.3, and 3.4.14).

b. A maximum of 3 inches if on a marker tape (3.4.1.2, 3.4.1.3, and 3.4.1.4).

c. A maximum of 12 inches if on wire number 1 (3.4.1.1)."

PAGE 16

TABLE V, delete and substitute the following:

"TABLE V. Jacket wall thickness. 1/

Diameter of cable beneath jacket (inches)	Jacket Material			
	01	02	06	05, 09, 14, 15, 17, 18, 20, 21
	Inches Min Max			
Up to 0.150	0.010 to .020	0.005 to .009	0.010 to .015	0.007 to .015
0.151 to 0.200	0.015 to .025	0.006 to .010	0.010 to .015	0.010 to .020
0.201 to 0.250	0.020 to .030	0.007 to .011	0.010 to .015	0.010 to .020
0.251 to 0.300	0.025 to .035		0.010 to .015	0.010 to .020
0.301 to 0.400	0.030 to .040		0.015 to .025	0.013 to .020
0.401 to 0.500	0.040 to .050		0.015 to .025	0.013 to .020
0.501 to 0.600	0.050 to .065		0.020 to .030	0.020 to .030
0.601 to 0.700	0.060 to .075		0.020 to .030	0.020 to .030
0.701 to 0.750	0.070 to .085		0.020 to .030	0.020 to .030
0.751 to 0.800	0.075 to .090		0.020 to .030	0.020 to .035
0.801 to 1.000	0.080 to .095		0.020 to .030	0.020 to .035
Over 1.000	10 - 12.5% of diameter of cable beneath jacket		0.020 to .030	0.020 to .035

See footnotes at end of table.

*TABLE V. Jacket wall thickness - Continued. 1/

Diameter of cable beneath jacket (inches)	Jacket Material			
	08,10	11	12,22	23
	Inches Min Max			
Up to 0.150	0.005 to .010	0.0035 to .0055	0.003 to .0055	0.005 to .010
0.151 to 0.200	0.006 to .012	0.0035 to .0055	0.003 to .0055	0.006 to .011
0.201 to 0.250	0.007 to .014	0.0035 to .0055	0.003 to .0055	0.007 to .012
0.251 to 0.300	0.007 to .014	0.0035 to .0055	0.003 to .0055	0.007 to .013
0.301 to 0.400	0.007 to .014	0.006 to .009	0.0045 to .0075	0.008 to .014
0.401 to 0.500		0.006 to .009	0.0045 to .0075	0.009 to .017
0.501 to 0.600		0.0095 to .0135	0.007 to .011	0.010 to .018
0.601 to 0.700		0.0095 to .0135	0.007 to .011	0.012 to .022
0.701 to 0.750		0.0095 to .014	0.007 to .011	0.014 to .024
0.751 to 0.800		0.0095 to .014	0.007 to .011	0.014 to .024
0.801 to 1.000		0.0095 to .014	0.007 to .011	0.016 to .030
Over 1.000				0.020 to .040

1/ Jacket materials not shown shall have a minimum wall thickness of .010 inch.

PAGE 17

TABLE VII, delete and substitute the following:

*TABLE VII. Quality conformance inspection.

Group	Test	Requirement	Test method
I	Shield coverage	3.2.3.4	4.5.5
	Braid angle	3.2.3.3	4.5.5
	Identification of product	3.4	4.5.1
	Jacket wall thickness	3.2.4	4.5.12
	Cable jacket removability	3.2.4	4.5.18
	Cable diameter	3.6	4.6
	Cable weight	3.7	4.7
II	Cold bend	3.3.4	4.5.6
	Thermal shock	3.3.5	4.5.9
	Aging stability	3.3.5.1	4.5.10
	Jacket, tensile strength elongation	3.2.4.1	4.5.12.1
	Blocking	3.3.6	4.5.16
	Flammability	3.3.7	4.8
	Impulse dielectric	3.3.1.1	4.5.3.3
	Crosslinked verification	3.3.10	4.5.11

4.7.2, delete and substitute:

"4.7.2 Calculated. The finished cable maximum weight shall be calculated by the following procedures. If fillers/binder tapes are used, the maximum calculated cable weight requirement shall be increased by 7 percent.

a. Unshielded and single shield cables.

Cable weight (pounds/1,000 feet) = (W x 1.02 x n) + K x d (2.23 x d + b x B) +2720 x t x S (b x B +4.45 x d + 2 x t).

b. Double shielded and jacketed cables.

Cable weight (pounds/1,000 feet) = (W x 1.02 x n) + K x d (8.91 x d + 2 x b x B + 2 x t) + 4760 x t x S (7 x d + b x 6 + 3.5 x t).

c. Double shielded and single jacket.

Cable weight (pounds/1,000 feet) = (W x 1.02 x n) + K x d (2.23 x d + b x B) + K x d (6.68 x d + b x B) + 2720 x t x S (b x B + 8.90 x d + 1.5 x t).

Where W = Maximum weight of component wires, pounds/1,000 feet.
b = Maximum dimensions of component wires, in inches.
n = Number of conductors in the cable.
d = Shield wire diameter or thickness (for flat braids), in inches (= 0 for unshielded cables).
t = Minimum jacket wall thickness from 4.5.12 (= 0 for unjacketed cables).
B = Effective geometry factor from column B of table IV.
S = Effective specific gravity of jacket material from table X.
K = 14,570 for copper shields and 12,750 for stainless steel shields (90% minimum shield coverage) or 12,750 for copper shields and 11,150 for stainless steel shields (85% minimum shield coverage)."

PAGE 24

TABLE IX, delete and substitute:

"TABLE IX. Test mandrel diameters.

Finished cable diameter (inches)	Cold bend (4.5.6); Crosslinked verification (4.5.11); Blocking (4.5.16); Immersion (4.5.13) (inches)	Finished cable diameter (inches)	Thermal shock (4.5.9); Aging stability (4.5.10) (inches)
0 to 0.125	3	0 to 0.083	.75
		0.084 to 0.111	1.0
0.126 to 0.250	6	0.112 to 0.139	1.25
		0.140 to 0.194	1.75
0.251 to 0.360	10	0.195 to 0.250	2.25
		0.251 to 0.334	3.0
0.361 to 0.750	18	0.335 to 0.444	4.0
		0.445 to 0.556	5.0
0.751 to 1.200	30	0.557 to 0.667	6.0
		0.668 to 0.889	8.0
1.201 to 2.000	48	0.890 to 1.111	10.0
		1.112 to 1.556	14.0
		1.557 to 2.000	18.0

PAGE 25

6.2.1d, delete and substitute:

"d. Wire number identification color code (see 3.2.1.1) if, other than preferred."

CONCLUDING MATERIAL

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

Review activities:
Army - AR, MI
Air Force - 11, 99
DLA - ES, IS

Preparing activity:
Air Force - 85

Agent:
DLA - ES

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