

MIL-E-45782B
Amendment 1
15 December 1980

MILITARY SPECIFICATION
ELECTRICAL WIRING, PROCEDURES FOR

This Amendment forms a part of Military Specification MIL-E-45782B, dated 28 December 1967.

Page 1

Add the following paragraph to bottom of page:

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Missile Command, ATTN: DRSMI-RSDS, Redstone Arsenal, AL 35898, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

Page 3

Delete: "MIL-W-7139 Wire electrical, polyterafluoroethylene-insulated, copper, 600 volt".

Delete: "MIL-F-21608 Ferrule, shield terminating, crimp style, brass", and substitute: "MIL-F-21608 Ferrule, shield terminating, crimp style".

Page 4

Delete: "MIL-I-23053 Insulation, tubing, electrical, heat-shrinkable." and substitute: "MIL I-23053 Insulation, tubing, electrical, heat-shrinkable, general specification for."

FSC 1430

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Delete: "MIL-S-23190 Strap, cable, adjustable, plastic." And substitute: "MIL-S-23190 Straps, clamps, and mounting hardware, plastic for cable harness tying and support."

Delete: "MIL-C-26482 Connectors, electric, circular, miniature, quick disconnect" And substitute: "MIL-C-26482 Connector, Electrical, (circular, miniature, quick disconnect, environment resisting) receptacles and plugs, general specification for."

Delete: "MIL-C-26500 Connectors, general purpose, electrical, miniature, circular, environment resisting, 200 deg C ambient temperature." And substitute: "MIL-C-26500 Connector, general purpose, electrical, miniature, circular, environment resisting, general specification for."

Delete: "MIL-C-27500 Cable, electrical, shielded and unshielded, aircraft and missile." And substitute: "MIL-C-27500 Cable, electrical, shielded and unshielded, aerospace."

Delete: "MIL-C-38300 Connectors, electrical, circular, multi-contact, high environment, quantitative reliability, general requirements for."

Delete: "MIL-S-45743 Soldering, manual type, high reliability, electrical connections; for missile systems, procedures for." And substitute: "MIL-S-45743 Soldering, manual type, high reliability, electrical and electronic equipment."

Delete: "MIL-W-81044 Wire, electric, cross linked polyalkene insulated, copper." And substitute: "MIL-W-81044 Wire electric, crosslinked polyalkene, crosslinked alkane-imide polymer, or polyarylene insulated, copper or copper alloy."

Add: "MIL-C-83723 Connector electrical (circular, environment resisting), receptacles and plugs, general specification for."

Page 5

Add: "MS3316 Tool, crimp, hand, for MIL-T-7928 Insulated terminals, 12-10." Add: "MS3367 Strap, tiedown, electrical component, adjustable, selfclenching, plastic, type I, class I. Delete: "MS17823 Tool, hand, for adjustable plastic cable straps."

Delete: "MS17824 Tool, hand, for adjustable plastic cable straps."

Delete: "MS18034 Strap, cable, adjustable plastic, Type I."

Delete: "MS20031 Connectors, receptacle, electric, solder type, jam nut mounting, hermetic seal."

Delete: "MS20032 Connectors, receptacle, electric, solder mounting hermetic seal."

Delete: "MS20659 Terminal, lug, crimp style, copper, uninsulated, class I.", And substitute: "MS20659 Terminal, lug, crimp style, copper, uninsulated, ring tongue, Type I, class I."

Delete: "MS25036 Terminal, lug, crimp style, copper, insulated, class I.", And substitute: "MS25036 Terminal, lug, crimp style, copper, insulated, ring tongue, bell mounted, type II class I."

Delete: "MS25037 crimping tool, hand for copper, insulated terminals."

Delete: "MS25181 Splice, electric, permanent, crimp style, copper, insulated, class I."

Add: "MS27470 Connector, receptacle, electric jam nut mounting, solder type, hermetic seal, series I."

Add: "MS27471 Connector, receptacle, electrical solder mounting, solder type, hermetic seal, series I."

Delete: "MS63042 Crimping tool, terminal, hand."

Add: "MS90387, Tool, hand, adjustable for plastic tiedown straps."

Delete: "AN3427 Crimping tool, electric cable terminal, hand."

Add: "MS90485, Die crimping tool, for use with MS20659 uninsulated wire terminals and external power plug socket contacts (for wire sizes 8 through 4/0)."

Page 6

Delete: "National Aerospace Standards Committee

NAS 702 Wire, electrical, insulated, copper hook-up and general purpose (for 105°C. service)"

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"NAS 1599 Connectors, general purpose, electrical, miniature circular, environmental resisting, 200°C. Maximum temperature."

("Application for copies should be addressed to the National Standards Association, Inc., 1315 Fourteenth Street, NW, Washington 5, DC)"

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Paragraph 3.2.2, line 2, delete: "or NAS 702."

Paragraph 3.2.5, delete entire paragraph and substitute: "3.2.5 Insulated conductors. Insulated conductors shall be in accordance with MIL-W-5086, MIL-W-16878, MIL-W-22759/1 (Class I), MIL-W-22759/2 (Class II), and MIL-W-81044."

Paragraph 3.2.6, line 2, delete: "MS20031" and substitute: "MS27470."

Paragraph 3.2.6, line 3, delete: "MS20032" and substitute "MS27471."

Paragraph 3.2.6, line 3, delete: "or NAS 1599."

Paragraph 3.2.6, line 2, delete: "MIL-C-38300." and substitute "MIL-C-83723".

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Paragraph 3.2.14, line, 2, delete: "MS18034."

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Paragraph 3.3.3.3.1.3, subparagraph b, line 4, delete: "1.5 inches" and substitute: "1.5 in. (38.1 MM)."

Page 12

Paragraph 3.3.3.3.1.3, subparagraph d, line 2, delete: "1/8" and substitute: ".125 inch (3.175MM)".

Paragraph 3.3.3.3.2, subparagraph b., line 2, delete: "0.005-inch", and substitute: "0.005 inch (.127MM)".

Paragraph 3.3.3.3.2, subparagraph b, line 4, delete: "0.040 inch" and substitute: "0.040 inch (1.016MM)".

Paragraph 3.3.3.3.2, subparagraph e, line 1, delete: "1/16 inch" and substitute: "0.062 inch (1.574 MM)", line 2 delete: "1/8 inch" and substitute: ".125 inch (3.175MM)".

Paragraph 3.3.3.3.2, subparagraph f, line 1, delete: "3/10 inch", and substitute: ".300 inch (91.440MM)".

Page 14

Paragraph 3.3.3.3.6, subparagraph c, line 2, delete: "0.010 inch" and substitute: "0.010 inch (.254MM)", subparagraph f, line 2, delete: "0.120 inch" and substitute: "0.120 inch (3.048MM)". Delete: "0.275 inch" and substitute: "0.275 inch (6.985MM)".

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Paragraph 3.3.3.3.7, subparagraph b, line 2, delete: "0.005 inch" and substitute: "0.005 inch (.127MM)".

Page 16

Paragraph 3.3.3.4. line 3, delete: "1/2 inch" and substitute: ".500 inch (12.700MM)".

Paragraph 3.3.3.4.1, line 4, delete: "1/4 inch" and substitute: ".250 inch (6.350MM)", line 5, delete: "5/8 inch" and substitute: ".625 inch (15.875 MM)".

Paragraph 3.3.4, subparagraph a, line 2, delete: "2 1/2 inches" and substitute: "2.500 inches (63.500 MM)".

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Paragraph 3.3.5.3, subparagraph b, line 5, delete: "15 pound" and substitute: "15 pound (5.598 Kg)".

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Paragraph 3.3.6.1, subparagraph c, line 2, delete: "MS25037 or MS63042" and substitute: "MS90413 or MS3316."

Page 19

Table I, under heading marked "maximum outside diameter of conductor (inches)" delete entire column and substitute:

"0.052 (1.320MM)
0.077 (1.955MM)
0.122 (3.098MM)
0.172 (4.368MM)
0.219 (5.562MM)
0.277 (7.035MM)
0.352 (8.940MM)
0.387 (9.829MM)
0.437 (11.099MM)
0.497 (12.623MM)
0.552 (14.020MM)
0.619 (15.722MM)

Paragraph 3.3.6.3, subparagraph a, line 3, delete: "1/8 inch" and substitute: ".125 inch (3.175MM)".

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Paragraph 3.3.7.1, subparagraph c, line 1 delete: "or".

Paragraph 3.3.7.1, subparagraph c, line 2 delete: "MS25037" and substitute: "MS90413 or MS3316."

Paragraph 3.3.7.1, subparagraph c, line 1, delete: "AN-3427" and substitute: "MS90485."

Page 22

Table II, under column marked, strip length (inches), delete entire column and substitute:

"Strip Length (Inches)	(MM)
0.187	4.749
0.250	6.350

0.250	6.350
0.312	7.924
0.437	11.099
0.500	12.700
0.500	12.700
0.625	15.875
0.625	15.875
0.687	17.449
0.812	20.624
0.812	20.624
0.875	22.225"

Table III, under column marked, Insulation Sleeve Length (Inches), delete entire column and substitute:

"Insulation sleeve length (inches)	(MM)
1.312	33.324
2.125	53.975
2.125	53.975
2.406	61.112
2.406	61.112
2.531	64.287
2.781	70.637
2.812	71.424
2.937	74.599"

Page 23

Paragraph 3.3.8, delete last sentence.

Page 24

Table IV delete entire table and substitute:

Table IV. Assembly diameter and stitching interval	
Assembly Diameter	Interval (Maximum)
.250 in (6.350MM)	.750 in (19.050MM)
.500 in (12.700MM)	1.500 in (38.100MM)
1.000 in (25.400MM)	2.000 in (50.800MM)
over 1.000 in (25.400MM)	3.000 in (76.200MM)

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Note under Table IV, delete last sentence and substitute: "(example: Harness size .375 in. (9.525 MM), use .750 in. (19.050MM) stitching interval."

Page 26

Paragraph 3.3.11, delete torque values and substitute:

TORQUE FT-LBS	TORQUE Kg
4	1.814
7	3.175
9	4.082
11	4.989
13	5.896
17	7.711

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Table V, delete entire table and substitute:

"TABLE V. TENSILE STRENGTH REQUIREMENTS

WIRE SIZE (AWG)	TENSILE STRENGTH TERMINAL LUGS, SPLICES AND ONE-PIECE FERRULES		TWO-PIECE FERRULES	
	POUNDS	Kg	POUNDS	Kg
26	7	3.175		
24	10	4.535		
22	15	6.803	18	8.164
20	19	8.618	20	9.071
18	38	17.236	40	18.143
16	50	22.679		
14	70	31.751		
12	110	49.895		
10	180	81.646		
8	225	102.058		
6	300	136.077		
4	400	181.436		
2	550	249.475		
1	650	294.835		
0	700	317.514		
00	750	340.194		
000	825	374.213		
0000	875	396.893		

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Paragraph 3.5.2, line 1, delete: "MS25181", and substitute: "MIL-T-7928/3".

Page 30

Paragraph 3.7.1, line 3, delete: "or".

Paragraph 3.7.1, line 3, delete: "or MS25037" and substitute: "MS90413 or MS3316."

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Paragraph 3.7.4, line 2, delete: "MS17823, MS17824." and substitute: "MS90387."

Page 34

Paragraph 4.6.1.2.2.2, line 6, delete: "257 degrees Fahrenheit (F) (minimum)" and substitute: "257 degrees Fahrenheit (F) (125 degrees celsius) minimum"

Line 6, delete: "85 degrees F (minimum)." and substitute: "85 degrees F (29 degrees C) minimum."

Line 8, delete: "70 (plus or minus 5) degrees F" and substitute: "70 (+ 5) degrees F (21 degrees C + 3)"

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Paragraph 4.6.2.1.1, line 4, delete: "310 degrees F." and substitute: "310 degrees F (154 degrees C)."

Paragraph 4.6.2.1.2, line 5, delete: "1-inch per-minute." and substitute: "1 inch-per-minute (25.4 MM per-minute)"

Paragraph 4.6.2.2.1.1, line 5, delete: "310 degrees F.)" and substitute: "310 degrees F.) (154 degrees C)."

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Paragraph 4.6.2.2.1.2, line 5, delete: "1 inch per minute" and substitute: "1 inch per minute (25.4 MM per minute)"

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Paragraph 4.6.2.2.2, line 5, delete: "1 inch per minute" and substitute: "1 inch per minute (25.4 MM per minute)".

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Paragraph 6.5, delete last sentence.

Page 40

Table VI, under column marked "A" dimension of 3.5.3.1, delete entire column and substitute:

INCHES	MILLIMETERS
.156	3.962
.180	4.572
.187	4.749
.207	5.257
.235	5.969
.261	6.629

Table VII, column three, delete entire column and substitute:

WEIGHT OF 30 INCH (762MM)

LENGTH OF SHIELD

GRAMS	OUNCES
4.50	.144
9.50	.305
10.50	.337
6.25	.200
7.80	.250
10.10	.324
11.60	.372
6.40	.205
6.50	.208
10.85	.348
8.40	.270
13.20	.424
13.40	.430
7.60	.244
15.20	.488
21.00	.675
21.00	.675

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Figure 4, delete: "5/16" and substitute: ".312 (7.9MM)"

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Figure 8, delete: "1 1/2 inches" and substitute: "1.5 inches (38.1MM)"

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Figure 10, delete: "1/8" both places and substitute: ".125 (3.175MM)"

Figure 11, line 1, delete: "1/4 plus or minus 1/8 inch" and substitute: ".250 (6.350MM) plus or minus .125 inch (3.175MM)"

Figure 11, line 2, delete: "7/8 to 1 1/2 inches normal", and substitute: ".875 (22.225MM) to 1.5 inch (38.100MM)"

Figure 11, line 4, delete: "2 inches" and substitute: "2 inches (50.800MM)"

Figure 11, line 5, delete: "3 1/2 inches" and substitute: "3.500 inches (88.900MM)"

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Figure 24, line, 2, delete: "1/32 minimum, plus 3/64 maximum" and substitute: "0.031 inch (0.795MM) minimum, plus .046 inch (1.191MM) maximum"

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Figure 26, line 4, delete: "1/32 minimum, plus 3/64 maximum" and substitute: "0.031 inch (0.795MM) minimum, plus 0.046 inch (1.191MM) maximum"

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Figure 28, line 2, delete: "1/32 minimum, plus 3/64 maximum" and substitute: "0.31 inch (0.759MM) minimum, plus 0.046 inch (1.191MM) maximum".

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Figure 37, line 3, delete: ".060 + .005" and substitute:
"0.060 inch (1.524MM) + 0.005 inch (0.127MM)"

In drawing, delete: "0.125 min" and substitute: "0.125 inch
(3.175MM)", three places.

Page 65

Figure 42, line 1, delete: "3 inches" and substitute: "3 inches
(76.200MM)". In drawing delete: "1.5" two places, and substitute:
"1.5 inch (38.100MM)". Delete: "3.0*", and substitute: "3.0*
inches (76.200MM)".

Figure 43, in drawing, delete: "2 inches (Max)" and substitute:
"2 inches (50.800MM) max".

Page 66

Figure 44, in drawing delete: "3/32 inch minimum" and substitute:
.093 inch (2.382MM) minimum".

Custodians:
Army-MI

Preparing activity:
Army-MI

Project No. 1430-0102

Review activities:
Army-CR, ER

User activities:
Army-AR
Navy-CG, OS, MC

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