

MIL-T-16366F
 8 February 1980
 SUPERSEDING
 MIL-T-16366E (SH)
 26 November 1976
 (See 6 8)

MILITARY SPECIFICATION

TERMINALS, ELECTRICAL LUG AND CONDUCTOR SPLICES, CRIMP-STYLE

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

1 SCOPE

1.1 Scope. This specification covers electrical crimp-style lug terminals and conductor splices used for electrical cable connections

1.2 Classification. Crimp-style lug terminals and conductor splices shall be of the following types, as specified (see 6.2.1)

Type CCBC - Splices, conductor, cable connector, butt-crimp
 Type CCPC - Splices, conductor, cable connector, parallel-crimp
 Type CLC - Terminals, lug, cable, crimp
 Type CLCG - Terminals, lug, cable, crimp with water-seal insulation grip
 Type WTG - Terminals, lug, wire, with water-seal insulation grip

2 APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein

SPECIFICATIONS

FEDERAL

QQ-S-365 - Silver Plating Electrodeposited, General Requirements for
 PPP-B-566 - Box, Folding, Paperboard
 PPP-B-636 - Box, Shipping, Fiberboard
 PPP-B-665 - Box, Paperboard, Metal-Edged and Components
 PPP-B-676 - Box, Set-Up

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MIL-W-76 - Wire and Cable, Hook-Up, Electrical Insulated
 MIL-P-116 - Preservation-Packaging, Methods of
 MIL-C-915 - Cable and Cord, Electrical, For Shipboard Use, General Specification For
 MIL-T-10727 - Tin Plating, Electrodeposited or Hot-dipped, For Ferrous and Nonferrous Metals
 MIL-C-22520/25 - Crimping Tools, Hand or Power Operated, Wire Termination Tool, For Crimp-Style Electric Terminals.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
 MIL-STD-129 - Marking for Shipment and Storage
 MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 3112, Department of the Navy, Washington, D C 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter

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DRAWINGS

MILITARY

NAVSEA 803-5001027 - Electric Plant Installation Standard Methods

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer)

2 2 Other publications. The following document forms a part of this specification to the extent specified herein Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply

UNIFORM CLASSIFICATION COMMITTEE, AGENT
Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606)

3 REQUIREMENTS

3 1 First article. When specified (see 6 2 1), the contractor shall furnish sample units for first article inspection and approval (see 4 5 and 6 3)

3 2 Material. The material used for current-carrying parts of lug terminals and conductor splices shall be a copper alloy

3 2 1 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and shall be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified

3 3 Design. The lug terminals and conductor splices shall meet the applicable requirements of tables I through X, and as specified herein

3 3 1 Cable and wire fit. Unless otherwise specified (see 6.2 1), lug terminals and conductor splices shall conform to the applicable requirements when used on cables and wires conforming to MIL-C-915, and MIL-W-76, having diameters as specified in tables I, II, III, and V. Where cable or wire sizes are not specified (tables IV and VII through X), the cable diameters specified in the referenced specifications shall apply Lug terminals and conductor splices designated for use on several cable and wire sizes shall conform to the applicable requirements when used on all of the designated sizes

3 3 2 Method of crimping. The lug terminals and conductor splices shall be capable of being attached to cables and wires by crimping The method of crimping shall result in an attachment that will meet the performance requirements specified herein Where special tools are required, such tools shall be supplied with each type, as specified (see 6.2.1 and 6 4) When so crimped, cable strands shall not be severed nor shall the connector crack Special tools are defined as those tools not listed in the Federal Supply Catalog (copies of this catalog may be consulted in the office of the Defense Contract Administration Service (DCAS)).

3 3 3 Type CCBC splices, conductor, cable connector, butt-crip. Type CCBC splices shall be in accordance with the requirements of table I (and figure 1). They shall connect the ends of two conductors in such a manner that the ends are butted, or butted against conductor stops, and the axes of the conductor shall coincide

3 3 3 1 Sizes 3/5 to 9, inclusive. Type CCBC splices shall be made of light annealed seamless copper alloy tubing or light annealed strip or sheet copper alloy Splices made of flat stock with formed cylindrical barrels shall have brazed seams, or shall be provided with a seamless tubing with walls of sufficient thickness (not less than 0 008 inch) over the barrel part Splices shall depend on an indenture to secure the wire and shall enable an attachment to be made by normal use of a crimping tool in accordance with MIL-C-22520/25.

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3 3 4 Type CCPC splices, conductor, cable connector, parallel-crimp. Type CCPC conductor splices shall be of extruded copper alloy, copper alloy forgings, or light annealed copper alloy strip. Splices shall depend on an indenture to secure and join the conductors, and shall enable an attachment to be made by use of an installation tool specified by the contractor (see 6.4). Conductor splices shall be in accordance with the requirements of table II (and figure 2). They shall enable connection of two cables by clamping them together so that a line contact is made between the circumferences of the two cables with the axes parallel. Surfaces of the type CCPC conductor splices, other than contact surfaces, shall have a brushed copper finish. Contact surfaces shall be finished smooth.

3 3 5 Type CLC terminals, lug, cable, crimp. Type CLC lug terminals shall be in accordance with the requirements of table III except that unless otherwise specified (see 6.2.1), CLC type lug terminals shall be furnished without bolt holes. Where bolt holes are required, dimensions shall comply with table III unless otherwise specified (see 6.2.1). Unless otherwise specified (see 6.2.1), tongue shape shall be rectangular. The wire barrel for the conductor shall have the proper clearance over the conductor diameter (see figure 3) to permit ready assembly and crimping with the proper tool (see 3.3.2).

3 3 6 Type CLCG terminals, lug, cable, crimp, with water-seal insulation grip. Type CLCG lug terminals shall conform to all the requirements for type CLC (see 3.3.5 and table III), and those specified in table IV. Length and cable designation specified in table IV shall apply to lug terminals for single-conductor propulsion cables only. Application of the CLCG type lug terminal for general wiring shall be in accordance with NAVSEA Drawing 803-5001027, Section 1. Unless otherwise specified (see 6.2.1), lug terminals shall have a closed-end barrel and an enlarged extension or shroud at the center end of the barrel to receive the conductor insulation to permit water sealing by means of crimping (see figure 4). The wire barrel for the cable and the shroud or enlarged extension shall have proper clearance to permit ready assembly and to provide watertightness and pull-out strength after crimping. Overall length and shroud diameter of lug terminals for general wiring shall be determined by the cable to which the lug terminals are to be applied. Assembly of the lug terminal to the cable shall not require more than two operations, one, to attach the lug terminal to the conductor, and two, to compress the shroud around the conductor insulation.

3 3 7 Type WTG terminals, lug, wire, with-water seal insulation grip. Type WTG terminals shall be of light annealed seamless copper tubing or light annealed strip or sheet copper. Terminals made of flat stock with formed cylindrical barrels shall have a brazed seam or shall be provided with a seamless tubing having a wall of sufficient thickness (not less than 0.008 inch) over the barrel part. Type WTG wire terminals shall be designed for installation on wire sizes of 9402 circular mils and smaller. They shall be furnished in accordance with the requirements of table V and shall enable attachment to be made by use of a crimping tool in accordance with MIL-C-22520/25. Tongue configuration, bolt holes, and corresponding dimensions shall conform to tables VI through X, and figures 5 through 9 as applicable, in accordance with the listed tongue shape designation as specified (see 6.2.1). The wire terminal shall have a closed-end barrel. In addition, it shall have an enlarged extension at the outer end of the barrel to receive the conductor insulation to permit water sealing by means of crimping. Assembly of the terminal to the cable shall not require more than two operations, one, to attach the terminal to the conductor, and two, to compress the insulation collar or shroud around the conductor insulation.

3 3 8 Finish. Contact surfaces of lug terminals and conductor splices shall have one of the following finishes as specified (see 6.2.1 and 6.7).

- (a) Plain
- (b) Tinned
- (c) Silver-plated

Any surface of a lug terminal or conductor splice through which there is to be a transfer of current shall be considered a contact surface. Mercury or solutions containing mercury in any form shall not be included in the finish coating or in any pre- or intermediate plating treatment of the terminals or splices.

3 3 8 1 Tin Plating. When specified (see 6.2.1), tin plating shall be in accordance with type I of MIL-T-10727 and shall be not less than 0.0025 inch thick (see 4.7.9).

3 3 8 1 1 Lug terminals and conductor splices (size 9 and smaller). Unless otherwise specified (see 6.2.1), lug terminals and conductor splices (size 9 and smaller) shall have conducting parts tin-plated over their entire surface. Bare copper exposed at slug-out points on lug terminals, in strip form, shall not in itself, be cause for rejection. The slug-out points shall not exceed 1/8 inch in width.

TABLE I Type CCBC splices, conductor, cable connector, butt-crimp (see Figure 1).

Number to appear on splices	Size designation			Rating (max)	Voltage drop		Pull-out (min)	Dimensions			Weight (min)		
	Standard cable size designation	Navy cable			Cable to splice	Cable to splice through splice		Overall length (min)	Overall diameter (approx)	Length of each barrel (min)			
		Size	Diameter over copper nominal										
1 - 2	3/5(1) 3/5(7) 1(1) 1(7) 1(10) 1-1/2(1) 1-1/2(7) 1-1/2(16) 1-1/2(41) 2(7)	Cm11	Inches	A	mV	mV	Pounds	Inches	Inches	Inches	Ounces		
		642	0.025	4			10						
		700	.030	4			10						
		1,022	0.32	7			15						
		1,020	0.39	8			16						
		1,005	0.38	8	4	25	15	5/8	0.150	1/4	0.03		
		1,624	0.40	11			24						
		1,624	0.49	11			24						
		1,608	0.49	11			23						
		1,630	0.49	11			24						
		1,779	0.48	11			24						
		2-1/2 - 4	2-1/2(1) 2-1/2(19) 2-1/2(26) 3(7) 4(1) 4(19) 4(41)	2,853	0.51	18			40				
				2,407	0.60	17			38				
				2,613	0.61	18			41				
2,828	0.60			21	4	25	43	5/8	150	1/4	0.4		
4,107	0.64			30			70						
3,828	0.72			29			70						
6 - 9	6(7) 6(19) 9(7) 9(37)	4,121	0.77	30			70						
		6,512	0.92	48	4	16	105						
		6,088	0.90	45	4	16	105						
		9,016	1.08	66	4	16	140	3/4	212	5/16	0.8		
		9,402	1.09	69	4	16	140						

See footnote at end of table

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TABLE I Type CCBC splices, conductor, cable connector, butt-cramp (see figure 1) - Continued

Number to appear on splices	Size designation				Rating (max)	Voltage drop		Pull-out (min)	Dimensions			Weight (min)	
	Navy cable					Cable/ splice to splice	Cable to cable through splice		Overall length (min)	Overall diameter (approx)	Length of each barrel (min)		Ounces
	Standard cable size designation	Size	Diameter over copper nominal	Cmil									
14	14(7)	14,340	0 136	Inches	A	7-1/2	mV	Pounds	Inches	Inches	Inches	Ounces	
23	23(7)	22,800	171		92	7-1/2	22	190	1-3/4	1/4	13/16	0 2	
30	30(19)	30,860	202		117	7-1/2	22	250	1-3/4	5/16	13/16	2	
40	40(19)	38,910	.226		142	7-1/2	22	290	2-3/8	5/16	1-1/8	4	
50	50(19)	49,080	254		165	7-1/2	22	340	2-3/8	5/16	1-1/8	5	
60	60(37)	60,090	282		189	7-1/2	22	390	2-5/8	3/8	1-1/4	6	
75	75(37)	75,780	317		215	7-1/2	22	440	2-5/8	7/16	1-1/4	8	
100	100(61)	99,060	363		253	7-1/2	22	500	2-7/8	1/2	1-3/8	9	
125	125(61)	124,900	407		300	7-1/2	22	600	2-7/8	1/2	1-3/8	12	
150	150(61)	157,600	457		345	7-1/2	22	675	3-1/8	9/16	1-1/2	15	
200	200(61)	198,700	514		400	7-1/2	22	750	3-1/8	5/8	1-1/2	17	
250	250(61)	250,500	577		465	7-1/2	22	900	3-3/8	11/16	1-5/8	24	
300	300(91)	296,400	628		540	7-1/2	22	1,000	3-3/8	3/4	1-5/8	28	
350	350(91)	349,800	682		595	7-1/2	22	1,120	4-1/8	13/16	2	40	
400	400(127)	413,600	742		670	7-1/2	22	1,125	4-1/8	7/8	2	45	
500	500(127)	521,600	832		740	7-1/2	22	1,325	4-3/8	15/16	2-1/8	50	
600	600(127)	657,600	936		860	7-1/2	22	1,500	4-5/8	1-1/16	2-1/4	80	
800	800(127)	829,300	1,050		1,000	7-1/2	22	1,750	5-3/4	1-1/4	2-13/16	130	
1,000	1,000(127)	1,046,000	1 180		1,190	7-1/2	22	2,000	6	1-3/8	2-15/16	170	
1,600	1,600(127)	1,662,000	1 485		1,375	7-1/2	22	3,000	6-1/8	1-1/2	3	240	
					1,800	7-1/2	22		6-3/4	1-15/16	3-3/16	400	

1/ The millivolt (mV) drop shall be an average drop with no single specimen having a potential drop exceeding 12 mV

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TABLE II Type CCPC splices, conductor, cable connector, parallel-cripp (see figure 2).

Number to appear on splice	Size designation				Rating (max)	Voltage drop		Pull-out (min)	Maximum overall dimensions			Max weight							
	Navy cable					Cable to splice	Cable to splice through splice		Height	Width	Length								
	Run	Tap	Size	Diameter over copper nominal															
9 - 9	9(7)	9(7)	9,016 9,016	Inch 0 108 108	A	mV 4	mV 16	Pounds 140 140	Inches 0 385	Inches 0 250	Inches 0 312	Ounces 0 10							
14 - 14	14(7)	14(7)	14,340 14,340	.136 .136	92 92	7-1/2	22	190 190	485	320	500	20							
23/40 - 14	23(7)	14(7)	22,800 14,340	.171 .136	117 92	7-1/2	22	250 190	755	490	750	80							
30/40 - 23	30(19)	23(7)	30,860 22,800	.202 .171	142 117	7-1/2	22	290 250	785	490	750	76							
30/40 - 30/40	30(19)	40(19)	30,860 30,860	.202 .202	142 142	7-1/2	22	290 290	840	495	750	80							
50/75 - 23	50(19)	23(7)	49,080 22,800	.254 .171	189 117	7-1/2	22	390 250	1 005	630	880	1 60							

See footnote at end of table

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TABLE II Type CCPC splices, conductor, cable connector, parallel-cripp (see figure 2). - Continued

Number to appear on splice	Size designation				Rating (max)	Voltage drop		Pull-out (min)	Maximum overall dimensions			
	Navy cable					Cable/ splice to cable splice	Cable to cable through splice		Height	Width	Length	Max weight
	Run	Tap	Size	Diameter over copper nominal								
50/60 - 30/40	50(19)	-----	49,080	0.254	A	mV	mV	Pounds	Inches	Inches	Ounces	
	-----	30(19)	22,800	.202	189	-----	-----					390
	50(19)	-----	49,080	.254	189	-----	-----					290
	-----	40(19)	38,910	.226	165	-----	-----					390
	60(37)	-----	60,090	.282	215	7-1/2	22					440
	-----	30(19)	22,800	.202	142	-----	-----					290
50/60 - 50/60	60(37)	-----	60,090	.282	215	7-1/2	22	Pounds	Inches	Inches	Ounces	
	-----	40(19)	38,910	.226	165	-----	-----					440
	50(19)	-----	49,080	.254	189	-----	-----					390
	-----	50(19)	49,080	.254	189	-----	-----					390
	60(37)	-----	60,090	.282	215	7-1/2	22					440
	-----	60(37)	60,090	.282	215	-----	-----					440
100/125 - 30/40	100(61)	-----	99,060	.363	300	-----	-----	Pounds	Inches	Inches	Ounces	
	-----	30(19)	22,800	.202	142	-----	-----					600
	100(61)	-----	99,060	.363	300	-----	-----					290
	-----	40(19)	38,910	.226	165	-----	-----					600
	125(61)	-----	124,900	.407	345	7-1/2	22					340
	-----	30(19)	22,800	.202	142	-----	-----					675
125(61)	-----	124,900	.407	345	-----	-----	290					
-----	40(19)	38,910	.226	165	-----	-----	675					

See footnote at end of table

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TABLE II Type CGPC splices, conductor, cable connector, parallel-cripp (see Figure 2), - Continued

Number to appear on splice	Size designation				Rating (max)	Voltage drop		Pull-out (min)	Maximum overall dimensions			Max weight
	Navy cable					Cable to splice	Cable to splice through splice		Height	Width	Length	
	Run	Tap	Size	Diameter over copper nominal								
100/125 - 50/75	100(61)	-----	99,060	0.363	300	7-1/2	22	600	Inches	Inches	Ounces	
	-----	50(19)	49,080	0.254	189							
	100(61)	-----	99,060	0.363	300							
	-----	60(37)	60,090	0.282	215							
	100(61)	-----	99,060	0.363	300							
	-----	75(37)	75,780	0.317	253							
	125(61)	-----	124,900	0.407	345							
	-----	50(19)	49,080	0.254	189							
	125(61)	-----	124,900	0.407	345							
	-----	60(37)	60,090	0.282	215							
100/125 - 100/125	100(61)	-----	99,060	0.363	300	7-1/2	22	600	Inches	Inches	3.36	
	-----	100(61)	99,060	0.363	300							
	125(61)	-----	124,900	0.407	345							
	-----	125(61)	124,900	0.407	345							
100/200 - 50/75	150(61)	-----	157,600	0.457	400	7-1/2	22	750	Inches	Inches	4.00	
	-----	50(19)	49,080	0.254	189							
	150(61)	-----	157,600	0.457	400							
	-----	60(37)	60,090	0.282	215							
	150(61)	-----	157,600	0.457	400							
	-----	75(37)	75,780	0.317	253							
	200(61)	-----	198,700	0.514	465							
	-----	50(19)	49,080	0.254	189							
	200(61)	-----	198,700	0.514	465							
	-----	60(37)	60,090	0.282	215							
200(61)	-----	198,700	0.514	465								
-----	75(37)	75,780	0.317	253								

See footnote at end of table

TABLE II. Type CCPC splices, conductor, cable connector, parallel-crimp (see figures 2) - Continued

Number to appear on splice	Size designation				Rating (max)	Voltage drop		Pull-out (min)	Maximum overall dimensions			Max weight	
	Navy cable					Cable/ splice to cable through splice	mV		Inches	Inches	Inches		Ounces
	Run	Tap	Size	Diameter over copper nominal									
150/200 - 100/125	150(61)	-----	157,600	0.457	400	22	1.640	1.020	1.190	5.28			
	-----	100(61)	99,060	0.363	300								
	150(61)	-----	157,600	0.457	400							750	
	-----	125(61)	124,900	0.407	345							600	
	-----	100(61)	198,700	0.514	465							900	
	-----	200(61)	99,060	0.363	300							675	
150/200 - 150/200	150(61)	-----	157,600	0.457	400	22	1.640	1.020	1.190	4.80			
	-----	150(61)	157,600	0.457	400							750	
	200(61)	-----	198,700	0.514	465							900	
	-----	200(61)	198,700	0.514	465							675	
	-----	125(61)	124,900	0.407	345							900	
	-----	150(61)	157,600	0.457	400							750	

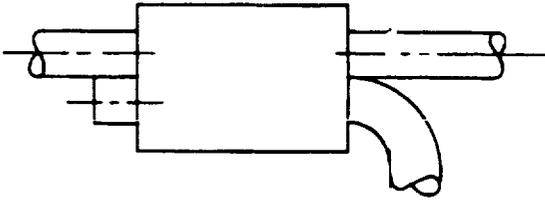
1/ The millivolt (mV) drop shall be an average drop with no single specimen having a potential drop exceeding 12 mV

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SH 11128A

FIGURE 1 Type CCBC, butt-crimp.



SH 11129A



FIGURE 2 Type CCPC, parallel-crimp.

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TABLE III Type CLC terminals, lug, cable, crimp (see figure 3).

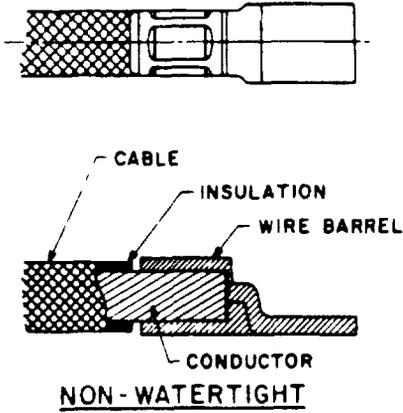
Number to appear on lug terminal	Size designation			Rating (max)	Voltage drop			Pull-out (min)	Width (max)	One bolt hole		Two bolt holes			
	Standard cable designation	Navy cable			Cable to lug terminal	Lug terminal to bus or stud	Cable to bus or stud			Bolt hole diameter (nominal)	Length (max)	Bolt hole		Length (max)	Distance between centers
		Size	Diameter over copper nominal									Diameter (nominal)	Inch		
14	14(7)	14,340	0.136	92	9	5	22	190	5/8	9/32	1-3/8	9/32	9/32	-----	-----
23	23(7)	22,800	0.171	117	9	5	22	250	11/16	9/32	1-1/2	9/32	9/32	-----	-----
30	30(19)	30,860	0.202	142	9	5	22	290	11/16	9/32	1-7/8	9/32	9/32	5/8	2-9/16
40	40(19)	38,910	0.226	165	9	5	22	340	11/16	9/32	1-7/8	9/32	9/32	5/8	2-3/8
50	50(19)	49,080	0.254	189	9	5	22	390	11/16	11/32	2-1/16	5/16	5/16	3/4	2-13/16
60	60(37)	60,090	0.282	215	9	5	22	440	3/4	11/32	2-1/16	5/16	5/16	3/4	2-3/4
75	75(37)	75,780	0.317	253	9	5	22	500	3/4	11/32	2-1/8	7/8	7/8	7/8	2-15/16
100	100(61)	99,060	0.363	300	9	5	22	600	7/8	11/32	2-1/8	7/8	7/8	7/8	2-7/8
125	125(61)	124,900	0.407	345	9	5	22	675	15/16	9/16	2-3/8	11/32	11/32	7/8	3
150	150(61)	157,600	0.457	400	9	5	22	750	1	9/16	2-3/4	3/8	3/8	1	3-7/16
200	200(61)	198,700	0.514	465	9	5	22	900	1-1/4	9/16	2-7/8	3/8	3/8	1	3-9/16
250	250(61)	250,500	0.577	540	9	5	22	1000	1-1/4	9/16	3	7/16	7/16	1-1/16	3-7/16
300	300(91)	349,800	0.628	595	9	5	22	1120	1-1/2	9/16	3-9/16	9/16	7/16	1-1/16	3-7/16
400	400(127)	413,600	0.742	740	9	5	22	1325	1-5/8	9/16	3-13/16	9/16	7/16	1-1/16	4-5/8
500	500(127)	521,600	0.832	860	9	5	22	1500	1-5/8	11/16	4-5/16	11/16	7/16	1-1/16	4-13/16
650	650(127)	657,600	0.936	1000	9	5	22	1750	1-7/8	11/16	5-1/4	11/16	7/16	1-1/8	5-11/16
800	800(127)	829,300	1.050	1190	9	5	22	2000	2	13/16	5-5/8	13/16	7/16	1-3/4	6-11/16
1000	1000(127)	1,046,000	1.180	1375	9	5	22	2350	2-3/8	13/16	6	13/16	7/16	1-3/4	6-7/8
1600	1600(127)	1,662,000	1.485	1800	9	5	22	3000	2-7/8	13/16	6-1/2	13/16	9/16	1-3/4	7-1/4

1/ Tolerance plus or minus 1/64 inch

TABLE IV Designation and length of type CLC terminals, lug, cable, crimp with water seal insulation grip (single conductor propulsion cable only). (See figure 4.)

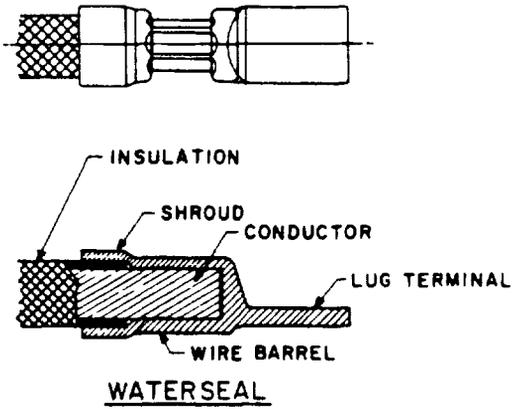
Cable type	Maximum length
SSGU-300	Inches 4-13/16
SSGU-400	5-1/8
SSGU-650	8-7/16
SSGU-800	9-1/8

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FIGURE 3 Type CLC non-watertight lug terminal-typical



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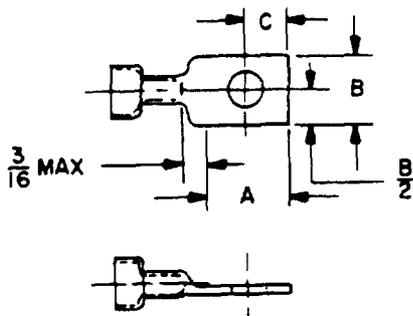
FIGURE 4 Type CLCG watertight lug terminal-typical

TABLE V Type WTG terminals, lug, wire, with water seal insulation grip.

Number to appear on lug terminal	Size designation		Rating (max)	Voltage drop		Pull-out (min)	Dimensions, inches ^{1/}										
	Standard cable size designation	Navy cable		Aver- age cable to lug terminal ^{1/} or stud ^{4/}	Aver- age cable to lug terminal ^{1/} or stud ^{4/}		Length of barrel (max) ^{5/}	Barrel diameter (min)	Thick- ness of barrel wall ^{5/}	Contact length of barrel (min)	Length of shroud (max)	Insula- tion of grip capa- city diame- ter ^{2/}					
													Diam- eter over copper nominal	Size			
1 - 2		Cmil	Inch	A	mV	mV	Pounds										
	1(1)	1022	0.032	7	1	1	15										
	1(7)	1020	0.038	8	1	1	16										
	1(10)	1005	.038	8	1	1	15										
	1-1/2(1)	1624	0.048	11	1	1	24										
	1-1/2(7)	1624	0.048	11	1	1	24										
	1-1/2(16)	1608	0.048	11	1	1	23										
	1-1/2(41)	1630	.048	11	1	1	24										
	2(7)	1779	0.048	11	1	1	24										
3/2-1/2 - 4																	
	2-1/2(1)	2583	0.051	18	1	1	40										
	2-1/2(19)	2407	.060	17	1	1	38										
	2-1/2(26)	2613	0.061	18	1	1	41										
	3(7)	2828	0.060	21	1	1	43										
	4(1)	4107	.064	30	1	1	50										
	4(19)	3828	0.072	29	1	1	50										
	4(7)	4497	0.076	30	1	1	50										
	4(41)	4121	0.077	30	1	1	50										
6 - 9																	
	6(7)	6512	0.092	48	1	1	60										
	6(19)	6088	0.090	45	1	1	60										
	9(7)	9016	0.108	66	1	1	100										
9(37)	9402	.109	69	1	1	100											

1/ Tolerance unless specified: Decimal dimensions ±0.005 inch
 2/ Tolerance: ±0.002 inch
 3/ Water-seal test of 4 7.8 not required when lug terminal size 2-1/2 - 4 is crimped to size 2-1/2 conductor
 4/ The mV drop shall be an average drop with no single specimen having potential drop exceeding 12 mV cable to lug terminal or 14 mV cable to bus or stud
 5/ Tolerance: ±0.003 inch
 6/ Minimum length of barrel shall be not less than specified in column "contact length of barrel"

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FIGURE 5 Type WTG terminals, square tongue, one bolt hole.TABLE VI Type WTG terminals, square tongue, one bolt hole.

Tongue shape	A	B	C ^{9/}	Bolt hole diameter	
				Max	Min
	Inch	Inch	Inch	Inch	Inch
L-15 ^{1/2/}	5/15/32	1/ 5/16	1/ 5/32	0.178	0.168
L-162/	5/13/32	1/ 5/16	1/ 5/32	.178	.168
L-172/	5/11/32	1/ 5/16	1/ 5/32	.178	.168
L-493/	5/ 3/8	1/ 1/4	1/0.183	10/0.130 x 0.200	
L-50	5/21/32	1/ 15/32	1/21/64	.205	.260
L-51	5/21/32	1/ 7/16	1/21/64	.228	.221
L-52	5/31/32	1/ 3/8	1/ 9/32	.178	.168
L-53	5/ 7/16	1/ 5/16	1/ 7/32	.152	.142
L-54 ^{4/}	5/11/32	1/ 5/16	1/ 1/8	.152	.142
L-55	Equivalent of two L-53 terminals with barrels at opposite ends, bolt hole concentric				
L-56 ^{5/}	5/21/32	1/ 5/16	1/ 1/8	.152	.142
L-57	1/ 5/16	5/0.234	5/0.117	.136	.129
L-58	1/ 1/4	5/ 218	5/ 117	.122	.114
L-59	5/ 3/8	1/ 1/4	1/ 3/16	.152	.142
L-61	5/ 1/2	1/ 5/16	1/ 1/4	.178	.168
L-63	5/ 1/2	1/ 5/16	1/ 1/4	.203	.193
L-64	5/21/32	1/ 3/8	1/21/64	.228	.221
L-80	5/0.701	5/0.390	1/0.321	.178	.168
L-81	5/ .482	5/ .302	1/ .227	.152	.142
L-82	5/ .482	5/ .302	1/ .227	.178	.168
L-83	5/ .328	5/ .227	1/ .167	.136	.129

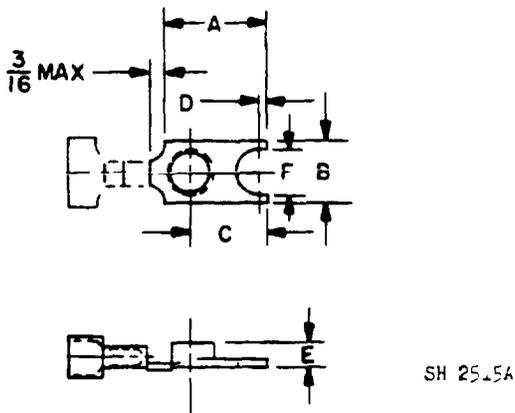
See footnotes at end of table

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TABLE VI Type WTG terminals, square tongue, one bolt hole. - Continued

Tongue shape	A	B	C ^{1/}	Bolt hole diameter	
				Max.	Min
	Inch	Inch	Inch	Inch	Inch
L-84	6/0 450	8/0 237	1/0 195	0 152	0 142
L-85	6/ .450	8/ .237	1/ 195	.122	114
L-86	6/ .296	8/ 237	1/ 143	122	114

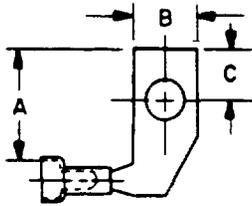
- 1/ Tongue with 3/32-inch lip at end
- 2/ Tongues L-15, 16 and 17 mounted on same stud, distance between axes of barrels 9/64 inch minimum, 15/64 inch maximum
- 3/ Tongue with 3/32-inch lip at end, for mounting three terminals on the same stud
- 4/ Tongue with 3/32-inch lip on left side, looking over tongue toward barrel
- 5/ Tongue with 3/16-inch lip on end, with bolt hole 1/8 inch from edge of left side, looking over tongue toward barrel
- 6/ Tolerance Plus or minus 1/32 inch
- 1/ Tolerance Plus or minus 0 01 inch
- 8/ Tolerance Plus or minus 0 005 inch
- 9/ On tongues provided with lips on the end, measure to inside edge of lip
- 10/ Rectangular bolt hole Tolerance $\pm 0 0005$ inch

FIGURE 6. Type WTG terminals, square tongue, one bolt hole with boss reinforcing at hole.TABLE VII Type WTG terminals, square tongue with boss reinforcing at bolt hole.

Tongue shape	A ^{1/}	B	C	D	E	F	Bolt hole diameter
	Inch	Inch	Inch	Inch	Inch	Inch	Inch
L-46	19/32	5/16	11/32	1/16	0.084	7.32	0 169
L-47	7/16	1/4	3/16	----	3/64	0 140	148 $\pm 0 005$
L-602 ^{1/}	23/32	5/16	11/32	----	3/64	----	169

- 1/ Tolerance Plus or minus 1/32-inch when A is less than 1/2 inch
Plus or minus 1/16-inch when A is 1/2 inch or more
- 2/ Tongue with 1/16-inch lip at end

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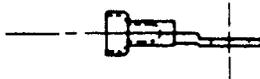
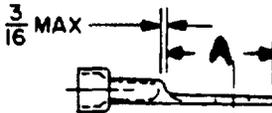
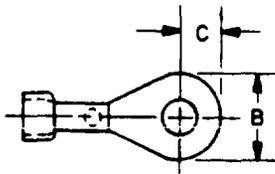


FIGURE 7 Type WGT terminals, tongue for flat terminals.

TABLE VIII Type WGT terminals, tongue for flat terminal.

Tongue shape	A	B	C	Bolt hole diameter
	Inch	Inch	Inch	Inch
L-431/	$1/2 \pm 1/32$	$3/8 \pm 0.01$	$1/4 \pm 0.01$	0.169 ± 0.005

1/ Design for use either right or left hand by inverting terminal



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FIGURE 8 Type WGT terminals, round or rounded tongue, one bolt hole.

TABLE IX Type WGT terminals, round or rounded tongue, one bolt hole.

Tongue shape	A1/	B2/	C2/	Bolt hole diameter
	Inch	Inch	Inch	Inch
L-33	5/16	1/4	1/8	$0.1423/$
L-32	3/8	3/8	3/16	$1944/$
L-36	11/32	5/16	5/32	$1944/$
L-35	21/32	1/2	1/4	$3185/$
L-66	3/4	19/32	19/64	$3805/$
L-67	1	23/32	23/64	$5055/$

See footnotes at top of next page

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- 1/ Tolerance Plus 1/32 inch
- 2/ Tolerance Plus 0 015 inch
- 3/ Tolerance Plus 0 017 inch, minus 0
- 4/ Tolerance Plus 0 019 inch, minus 0
- 5/ Tolerance Plus 0 015 inch, minus 0

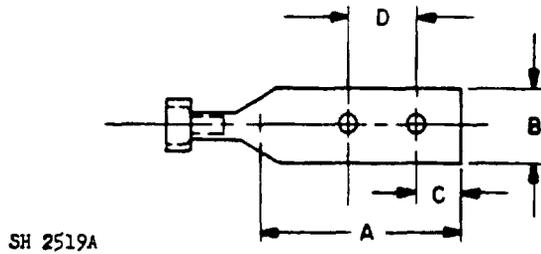


FIGURE 9 Type WTG terminals, square tongue, two bolt holes.

TABLE X Type WTG terminals, square tongue, two bolt holes.

Tongue shape	A $\pm 1/32$	B ± 0.0312	C ± 0.01	D ± 0.01	Bolt hole diameter ± 0.010
	Inches	Inch	Inch	Inch	Inch
L-5	1-3/4	3/8	3/16	7/8	0.173
L-28	7/8	3/8	3/16	5/16	.187
L-30	1-1/8	3/8	3/16	1/2	.187

3 3 8 2 Silver plating. When specified (see 6 2 1), silver plating shall be in accordance with grade B of QQ-S-365. The finish shall be type I (matte), except that type II (semi-bright) is permissible. The finish shall be not less than 0 0003 inch thick (see 4 7 9).

3 4 Performance requirements. Lug terminals and conductor splices shall conform to the following requirements, when crimped to each of the specified wire sizes with the applicable tool specified in 3 3.2.

3 4 1 Temperature rise. Lug terminals and conductor splices shall be designed to carry the rated load continuously with a temperature rise of not more than 5 degrees Celsius ($^{\circ}\text{C}$) above that of the cables to which they are connected (see 4 7 2).

3 4 2 Pull-out strength. Lug terminals and conductor splices shall be attached so that the cable or wire will not pull out nor will they break or become distorted to the extent that they are unfit for further use before the minimum pull-out force specified in tables I, II, III, and V is attained (see 4 7 3).

3 4 3 Vibration. After crimping, lug terminals and conductor splices shall not become loose or show distortion under vibration when subjected to the test of 4 7 4.

3 4 4 Voltage drop. The average voltage drop through the lug terminals and conductor splices at rated loads shall not exceed the values shown in the applicable tables specified herein (see 4 7 5).

3 4 5 Current overloads. When subjected to the test of 4 7 6, lug terminals and conductor splices shall operate at the current overloads (percentages of the maximum load amperes (A) specified in the applicable tables herein) without more than a proportionate increase in the voltage drop over that determined for the maximum current rating. After being allowed to cool to a normal temperature incident to operation at rated load, the voltage drop shall still be within the limits shown in the applicable tables herein.

3 4 6 Salt spray (corrosion). When subjected to the test of 4 7 7, the specimens shall exhibit no signs of flaking, peeling or other loss of finish plating.

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3 4 7 Water sealing. Type CLCG and WTG lug terminal shrouds shall exclude water from the lug terminal under a minimum hydrostatic gage pressure of 25 pounds per square inch (lbs/in²) when tested in accordance with 4 7 8

3 5 Identification marking. Each lug terminal and conductor splice shall have molded or stamped on the surface the manufacturer's name or trademark and the cable connector size or sizes to be used

3 6 Technical data. The contractor shall prepare technical data in accordance with the data ordering documents included in the contract (see 6 2 2)

3 7 Workmanship. Lug terminals and conductor splices shall be uniform in quality and shall be free from flaking, peeling or other loss of finish plating, and free from sharp edges, distortion or other defects which will affect life or serviceability

4 QUALITY ASSURANCE PROVISIONS

4 1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements

4 1 1 Test equipment and inspection facilities. Test measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with the data ordering documents included in the contract (see 6 2 2)

4 1 2 Submission of test reports and samples. Unless otherwise specified (see 6 2 1) the tested items along with a report covering the inspection and tests for first article inspection shall be furnished to the Naval Sea Systems Command (see 6 2 2). The tested items shall be appropriately identified to indicate the test to which each was subjected

4 2 Classification of inspection. Inspections herein are classified as follows

- (a) First article inspection (see 4 5)
- (b) Quality conformance inspection (see 4 6)

4 3 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the "General Requirements" of MIL-STD-202

4 4 Preparation of samples.

4 4 1 Assembly to conductors. All lug terminals and conductor splices shall be crimped on the cable or wire, by the testing activity, using the applicable crimping tool (see 3 3 2). The size of cable or wire shown in the applicable table shall be used when performing the specified tests. Where a lug terminal or conductor splice is designed to cover a range of wire or cable sizes, the specified number of sample units for testing shall be selected for both the minimum and maximum wire or cable size within the wire range

4 4 2 Temperature stabilization. Voltage drop measurements shall be made after the temperature of the wire or cable has stabilized. Temperature stabilization shall be determined by three consecutive readings within plus or minus 1° C at intervals of 3 minutes each.

4 5 First article inspection. First article inspection shall be performed by the contractor, after award of contract and prior to production, at a location acceptable to the Government. First article inspection shall be performed on sample units which have been produced with equipment and procedures normally used in production. First article approval is valid only on the contract under which it is granted, unless extended by the Government to other contracts

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4.5.1 Sample size. Ten lug terminals and conductor splices of each type and size, (and for WTG, the tongue shape) in a contract shall be subjected to first article inspection.

4.5.2 Inspection routine. The sample shall be subjected to the inspections specified in table XI, in the order shown. All sample units shall be subjected to the inspection of Group I. The sample units shall then be divided into groups II and III, as shown in table XI, and subjected to the inspection for their particular group.

TABLE XI First Article Inspection.

Inspection	Requirement paragraph	Test Method paragraph
<u>Group I (all sample units)</u>		
Visual and dimensional examination	3.2, 3.3, 3.5, and 3.7	4.7.1
<u>Group II (5 sample units)</u>		
Finish (when applicable)	3.3.8.1, 3.3.8.2	4.7.9
Temperature rise	3.4.1	4.7.2
Voltage drop	3.4.4	4.7.5
Current overload	3.4.5	4.7.6
Vibration	3.4.3	4.7.4
Temperature rise	3.4.1	4.7.2
Voltage drop	3.4.4	4.7.5
Water sealing (WTG and CLCG)	3.4.7	4.7.8
Pull-out strength	3.4.2	4.7.3
<u>Group III (5 sample units)</u>		
Temperature rise	3.4.1	4.7.2
Voltage drop	3.4.4	4.7.5
Salt spray (corrosion)	3.4.6	4.7.7
Temperature rise	3.4.1	4.7.2
Voltage drop	3.4.4	4.7.5
Pull-out strength	3.4.2	4.7.3

4.5.3 Failures. One or more failures shall be cause for refusal to grant first article approval.

4.6 Quality conformance inspection.

4.6.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection.

4.6.1.1 Inspection lot. An inspection lot shall consist of all lug terminals and conductor splices of the same type and size, (and for WTG, the tongue shape), produced under essentially the same conditions, and offered for inspection at one time.

4.6.2 Group A inspection. Group A inspection shall consist of the examination and tests specified in table XII.

4.6.2.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for special inspection levels. The acceptable quality level (AQL) shall be as specified in table XII. Major and minor defects shall be as defined in table XIII.

TABLE XII Group A inspection

Inspection	Requirement paragraph	Test Method paragraph	AQL			Sampling Plan
			Major	Minor	Test	
Visual and Dimensional examination	3.2, 3.3, 3.5, and 3.7	4.7.1	1.0	4.0	---	S-4
Pull-out strength	3.4.2	4.7.3	---	---	0.65	S-1

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TABLE XIII Classification of defects.

Category	Defects
Critical	None defined
Major	
101	Type, size, and tongue shape (if applicable) not as specified
102	Current-carrying parts of lug terminals not copper alloy as specified
103	Finish (contact surface) not plain, tinned, silver-plated, as specified
104	Apertures for cable (and bus bar) or wire, and insulation (if applicable) not within specified dimension
105	Barrel (if applicable) defective, seam not brazed or not provided with seamless tubing over barrel (if applicable), or not as specified
106	Dimensions of tongue not within the specified tolerance
Minor	
201	Marking, manufacturer's name or trademark missing, not permanent, illegible, incorrect, or not as specified
202	Overall dimensions and weight exceed the allowable
203	Evidence of distortion, or cable loosened from terminals or splices, or workmanship defective

4 6 2 2 Rejected lots. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

4 6 3 Periodic Inspection. Periodic inspection shall consist of group B inspection. Except when the results of this inspection show non-compliance with the applicable requirements, delivery of products which have passed group A shall not be delayed pending the results of this periodic inspection.

4 6 3 1 Group B inspection. Group B inspection shall consist of the inspections specified in table XIV, in the order shown. Ten sample units shall be selected from inspection lots that have passed group A inspection, and shall be divided into three groups as shown in table XIV.

TABLE XIV Group B inspection.

Inspection	Requirement paragraph	Test Method paragraph
<u>Group I (4 sample units)</u>		
Finish (when applicable)	3 3 8 1, 3 3 8 2	4 7 9
<u>Group II (3 sample units)</u>		
Vibration	3 4 3	4 7 4
Temperature rise	3 4 1	4 7 2
Voltage drop	3 4 4	4 7 5
Current overload	3 4 5	4 7 6
Water sealing (type WTG and CLCG)	3 4 7	4 7 8
Pull-out strength	3 4 2	4 7 3
<u>Group III (3 sample units)</u>		
Salt spray (corrosion)	3 4 6	4 7 7
Temperature rise	3 4 1	4 7 2
Voltage drop	3 4 4	4 7 5
Pull-out strength	3 4 2	4 7 3

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4.6.3.1.1 Sampling Plan. Inspection shall be performed at each 24-month period of production, regardless of the number of contracts for the particular size and type during the 24-month period. Should production be broken for more than 24 months, the resumption of production shall constitute the beginning of a new 24-month production period. The sampling shall consist of 10 samples of each size of the types manufactured during the 24-month production period.

4.6.3.1.2 Failures. If one or more units fail to pass group B inspection, the samples shall be rejected.

4.6.3.1.3 Disposition of samples. Samples which have been subjected to group B inspection shall not be delivered on the contract.

4.6.4 Rejected sample. If a sample fails to pass group B inspection, the manufacturer shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured using essentially the same materials and processes, and which are considered subject to the same failure. Acceptance and shipment of the product shall be discontinued until corrective action has been taken. After the corrective action has been taken, group B inspection shall be repeated on additional sample units. Group A inspection may be reinstated in the event of failure of group B inspection, however, final acceptance and shipment shall be withheld until the group B inspection has shown that the corrective action was successful.

4.7 Methods of inspection.

4.7.1 Visual and dimensional examination. Lug terminals and conductor splices shall be examined to verify that materials, design, construction, physical dimensions, marking, and workmanship are in accordance with the requirements of this specification.

4.7.2 Temperature rise. Temperature rise tests shall be made during operation at rated loads specified in the applicable tables. These tests may be combined with the current overload test (see 4.7.6). The measurement shall be made 1/2 hour after the temperature has reached a constant value. The temperature of the cable or wire shall be measured 6 inches from the crimped end of the specimen. Failure to meet the requirements of 3.4.1 shall be cause for rejection.

4.7.3 Pull-out strength. Specimens shall be placed in a standard tensile testing machine and sufficient force applied to pull the cable or wire out of the lug terminal or splice or break the wire or sample. The travel speed of the head shall be 1/2 inch per minute. Failure to meet the requirements of 3.4.2 shall be cause for rejection.

4.7.4 Vibration. The terminals or splices shall be attached to a length of cable or wire. The lug terminal under test shall be rigidly mounted to the vibration table with the opposite end of the cable or wire secured to a stable support. One end of the cable or wire of the conductor splice under test shall be rigidly mounted to the vibration table and the opposite end of the cable or wire shall be secured to a stable support. The splice shall be approximately midway between the support and table. The sample units shall be vibrated for 2 hours on each of the perpendiculars to the axis of the cable or wires at an amplitude of 1/16 inch (total excursion of 1/8 inch), at a cycling frequency of 10 to 55 to 10 Hertz (Hz). The cycling frequency shall be accomplished in 1 minute. There shall be no evidence of the cable or wire becoming loose or signs of distortion.

4.7.5 Voltage drop. The voltage drop shall be measured while operating at the rated loads specified in the applicable tables and after the temperature of the wire has stabilized (see 4.4.2). These tests may be combined with the current overload test (see 4.7.6). When the voltage drop exceeds the specified limit, it shall be considered a failure (see 3.4.4).

4.7.5.1 Points of measurement. Voltage drop measurements shall be made at the following test points:

- (a) Cable to splice or lug terminal. This drop shall be considered as the average of readings between four points on the wire entry end of the splice or the intersection of the tongue and barrel of the lug terminal and corresponding points on the cable periphery as consistently close to the wire barrel as possible, but not touching.

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- (b) Lug terminal to bus bar or stud. This drop shall be considered as the average of readings between four points on the bus bar or stud, as consistently close to the tongue as possible without touching it, and four points across the junction of the terminal tongue and wire barrel
- (c) Total drop from cable to bus or stud. This drop shall be considered as the average of readings between four points on the bus bar or stud as consistently close to the tongue as possible without touching it, and four points on the cable or wire periphery as consistently close as possible, but not touching the cable or wire entry end of the barrel
- (d) Total drop from cable to cable through splice. This drop shall be considered as the average of readings between four points on the cable periphery as consistently close as possible, but not touching the splice

4 7 6 Current overload. Test specimens shall be subjected to currents at rated load, and after temperature stabilization, at overloads of 125 percent rated load for 2 hours and 150 percent rated load for 5 minutes. Voltage drop shall be measured at the test points specified in 4 7 5 1 while loads of 100 percent, 125 percent, 150 percent and 100 percent, respectively, are being applied. The voltage drops shall conform to requirements specified in 3 4 5

4 7 7 Salt spray (corrosion). Lug terminals and conductor splices shall be subjected to the salt spray test in accordance with method 101 of MIL-STD-202. The following details and exceptions shall apply

- (a) Test condition - A
- (b) Measurement after test - The sample units shall be examined for flaking, peeling or other loss of finish plating on electrical contact surfaces

4 7 8 Water sealing (applicable to types WTG and CLCG only). Stranded cable or wire specimens 18 inches long in accordance with MIL-C-915 and MIL-W-76 shall be installed in the lug terminals to be tested. The WTG type terminals shall be tested on cable conductors of both synthetic resin-insulated and extruded silicone rubber-insulated types in accordance with MIL-C-915. The terminal end of the cable specimen shall be inserted in the pressure chamber through a terminal tube, and shall be subjected to a hydrostatic gage pressure of 25 lb/in² for a period of 30 minutes. The specimen shall then be reversed and the butt end of the cable shall be subjected to a hydrostatic gage pressure of 25 lb/in² for a period of 30 minutes. There shall be no leakage under either condition of test (see 3 4 7)

4 7.9 Finish. When applicable, finish plating tests shall be conducted in accordance with QQ-S-365 on silver-plated terminals and MIL-T-10727 on tin-plated terminals (see 3 3.8 1 and 3 3.8.2)

4 8 Inspection of packaging. Sample packages or packs and the inspection of the preservation, packaging and packing, and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

5 PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition. For the extent of applicability of the packaging requirements of referenced documents listed in section 2, see 6.6)

5 1 Preservation-packaging. Preservation-packaging shall be Level A or C as specified (see 6 2 1).

5 1 1 General. Lug terminals and conductor splices of one type (see 1.2) shall be preserved-packaged in unit quantities as specified (see 6 2 1)

5 1 1 1 Level A. Lug terminals and conductor splices shall be cleaned and dried in accordance with the requirements of MIL-P-116. Unless otherwise specified (see 6 2 1), selection of the cleaning process and drying procedures shall be at the contractor's option. Material shall be protected in accordance with the following MIL-P-116 methods

- (a) Plain finished items, Method IA
- (b) Tinned finished items, Method III
- (c) Silver finished items, Method IA

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Unless otherwise specified (see 6 2 1), selection of the sub-method under Method IA shall be at the contractor's option

5 1 1 1 Unit or intermediate containers. Unit or intermediate containers shall conform to PPP-B-566, PPP-B-676, PPP-B-665 or PPP-B-636. Selection of the box type, style or other options specified in the applicable selected container specification shall be at the contractor's option. Box closure shall conform to the applicable box specification or appendix thereto, except when fiberboard boxes (PPP-B-636) are of the weather resistant class, their closure, waterproofing and reinforcing shall be in accordance with Method V of the appendix to PPP-B-636

5.1 2 Level C. Lug terminals or conductor splices (see 5 1 1) shall be packaged to afford protection against corrosion, deterioration and physical damage during shipment from the supply source to the first receiving activity for immediate use. The contractor's normal preservation-packaging method may be used when such meets the requirements of this level

5 2 Packing. Packing shall be Level A, B or C as specified (see 6 2 1)

5 2 1 Levels A and B. Lug terminals or conductor splices, packaged as specified in 5 1, shall be packed for shipment in fiberboard boxes conforming to PPP-B-636, Class-weather resistant for Level A, and Class-domestic for Level B. Unless otherwise specified (see 6 2 1), box selection as to type, variety, grade, style or other options shall be at the contractor's option. Class-weather resistant boxes shall be closed, waterproofed and reinforced in accordance with Method V of the appendix to the box specification. Unit or intermediate fiberboard boxes conforming to Class-weather resistant and closed, waterproofed and reinforced as specified herein need not be overpacked for shipment.

5 2.2 Level C. Lug terminals and conductor splices, packaged as specified (see 6 2 1), shall be packed in containers which will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply to the Uniform Freight Classification Rules or other regulations as applicable to the mode of transportation

5 3 Marking. In addition to any special marking required (see 6 2 1), interior (unit and intermediate) packages and exterior shipping containers shall be marked in accordance with MIL-STD-129. In addition, placement of marking shall be in accordance with MIL-STD-129 and MIL-P-116

6 NOTES

6 1 Intended Use.

6 1 1 Type CCBC. Type CCBC conductor splices are primarily intended to permanently splice two cables

6 1 2 Type CCPC.

6 1 2 1 Shore application. Conductor splices are intended to permanently splice two cables, or tap off a cable run, or ground equipment onto a ring buss

6 1 2.2 Shipboard use. For shipboard use, conductor splices are intended to connect the conductors of the grounding system in wood ships.

6 1.3 Type CLC. Type CLC terminals are intended for use wherever the standard solderless type lug terminals are used, and also for those applications where the operating temperatures are normally higher than is permissible for such solder-type lugs. Use with flexible cable may necessitate using the next larger size lug, for a given circular mil area because of the larger outside diameter of the flexible conductors

6.1.4 Type CLCG. Type CLCG terminals are intended for use where water sealing of cables is specified.

6.1.5 Type WTG. Type WTG wire terminals are intended for use in the same manner as cable terminals except that they should be used on the smaller wire or cable sizes where cable sealing is specified.

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6 2 Ordering data.6 2 1 Acquisition requirements. Acquisition documents should specify the following

- (a) Title, number, and date of this specification
- (b) Type required (see 1 2)
- (c) First article samples required (see 3 1 and 4 5)
- (d) Number and size required (see applicable table)
- (e) When lug terminals and conductor splices design is for cable and wires other than as specified (see 3 3 1)
- (f) Special tools required (see 3 3 2 and 6 4)
- (g) Where special tongue shapes or bolt holes are required for type CLC Where required bolt holes are other than as specified (see 3 3 5)
- (h) Where bolt holes are required for type CLCG lug terminals Where required bolt holes are other than as specified (see 3 3 6).
- (i) Tongue shape identification for type WTG (see 3 3 7 and tables VI through X)
- (j) Contact surface finish (see 3 3 8, 3 3 8 1, 3 3 8 2 and 6 7)
- (k) First article test samples to be submitted with test reports (see 4 1 2)
- (l) Unit quantities (see 5 1 1)
- (m) Selection of the level of packaging and level of packing required (see 5 1 and 5 2).
- (n) Selection of submethod (see 5 1 1 1)
- (o) Selection of cleaning and drying (see 5 1 1 1)
- (p) Selection of box options (see 5 1 1 1 1 and 5 2 1)
- (q) Special marking (see 5 3)

6 2 2 Data requirements. When this specification is used in a contract which invokes the provision of the "Requirements for Data" of the Defense Acquisition Regulation (DAR), the data identified below, which are required to be developed by the contractor, as specified on an approved Data Item Description (DD Form 1664), and which are required to be delivered to the Government, should be selected and specified on the approved Contract Data Requirements List (DD Form 1423) and incorporated in the contract. When the provisions of the "Requirements for Data" of the DAR are not invoked in a contract, the data required to be developed by the contractor and required to be delivered to the Government should be selected from the list below and specified in the contract

Paragraph	Data requirements	Applicable DID	Option
4 1 1	Calibration system requirements	UDI-T-23742A	N/A
4 1 2	Test reports	DI-I-2072	N/A

(Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer. Unless otherwise indicated, the issue in effect on date of invitation for bids or requests for proposal shall apply.)

6 2 2 1 The data requirements of 6 2 2 and any task in section 3, 4, or 5 of the specification required to be performed to meet a data requirement may be waived by the contracting/acquisition activity upon certification by the offeror that identical data were submitted by the offeror and accepted by the Government under a previous contract for identical item acquired to this specification. This does not apply to specific data which may be required for each contract regardless of whether an identical item has been supplied previously (for example, test reports)

6 3 First article inspection. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection as to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract

6 4 Tools. Types CLC and CLCG terminals and CCPC and some larger size CCBC conductor splices may require the use of special tools for attaching them to the cables or wires. In acquiring such types for standard stock, particular attention should be given to the present and contemplated future use of the particular size involved, availability of special tools acquired with previous awarded lots, and the quantity, in order that the unit cost

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will not be unduly increased, should be taken into consideration when ordering Type CCBC conductor splices, sizes 3/5 to 9, inclusive and type WTG terminals may be attached to the cables or wires by normal use of the universal crimping tool (see MIL-C-22520/25)

6 5 Bolt holes. Since the lugs require bolt holes to fit the studs with which they are used, they should be ordered without bolt holes except for specific applications where the stud size and other applicable dimensions are known at the time of ordering

6 6 Subcontracted material and parts. The packaging requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped

6 7 Contact surface. Cable lug contact surfaces bolted to aluminum or copper surfaces should have tinned finish (See 3 3.8, 3 3 8 1 and 3 3 8 2) In acquiring cable lugs for standard stock, they should be ordered without finish, and be contact-surface treated later, if and when used for such applications

6 8 Changes from previous issue. "#" are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes

User activities
Army - ME,MI

Preparing activity
Navy - SH

(Project 5940-0865)

INSTRUCTIONS In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification 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.

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COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 5523)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362-5101



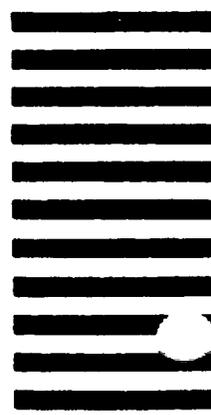
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1 DOCUMENT NUMBER	2 DOCUMENT TITLE
3a. NAME OF SUBMITTING ORGANIZATION	4 TYPE OF ORGANIZATION <i>(Mark one)</i> <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER <i>(Specify)</i> _____
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5 PROBLEM AREAS	
a. Paragraph Number and Wording	
b. Recommended Wording	
c. Reason/Rationale for Recommendation	
6 REMARKS	
7a. NAME OF SUBMITTER <i>(Last, First, MI) - Optional</i>	b. WORK TELEPHONE NUMBER <i>(Include Area Code) - Optional</i>
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b. Recommended Wording	
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