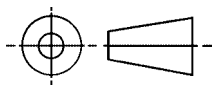
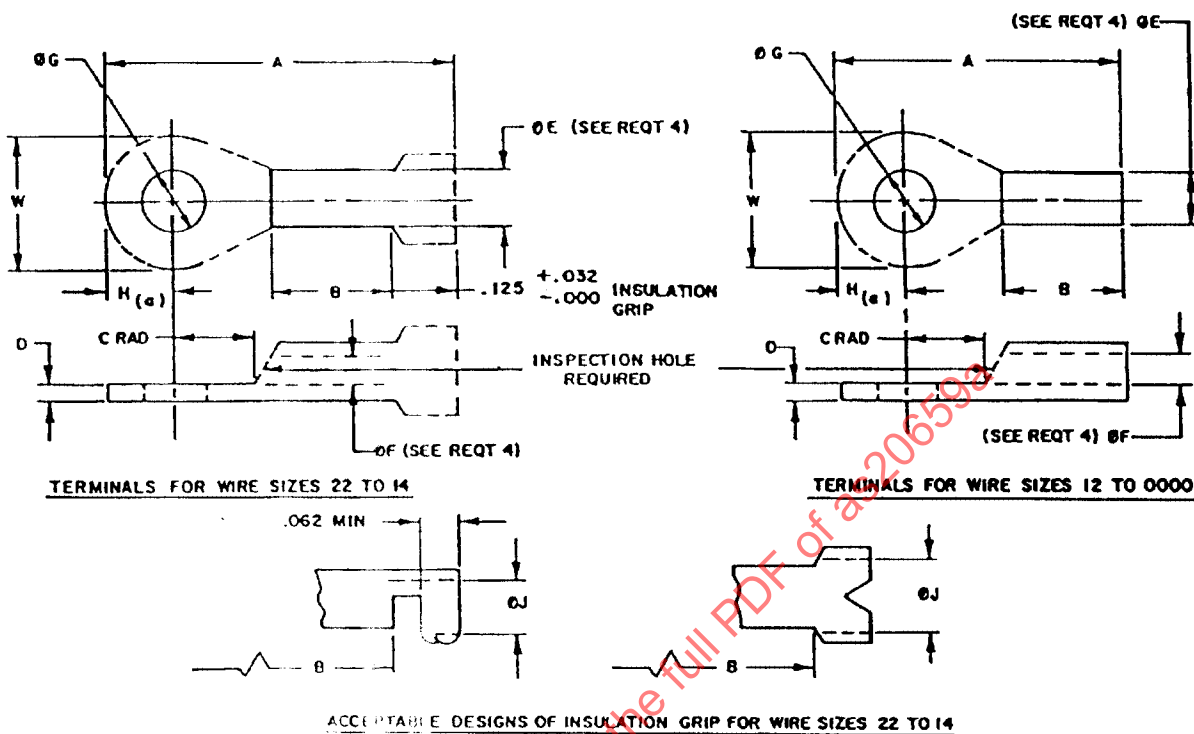


REV. A	FEDERAL SUPPLY CLASS 5940	
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PREPARED BY SUBCOMMITTEE AE-8C2		
SAE The Engineering Society For Advancing Mobility Land Sea Air and Space® 400 Commonwealth Drive, Warrendale, PA 15096-0001		AEROSPACE STANDARD TERMINAL, LUG, CRIMP STYLE, COPPER, UNINSULATED, RING TONGUE, TYPE I, CLASS I, FOR 175°C TOTAL CONDUCTOR TEMPERATURE
AS20659 SHEET 1 OF 7		REV. A

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF MIL-T-7928 LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DoDISS) SPECIFIED IN THE SOLICITATION.



NOTES:

1. "H" MAX AND MIN DIMENSION SHALL BE ONE-HALF OF "W" MAX AND MIN DIMENSIONS, RESPECTIVELY.
2. CONTOUR INDICATED BY PHANTOM LINES MAY VARY FROM THAT SHOWN TO SUIT INDIVIDUAL MANUFACTURER'S DESIGN.
3. WHERE SPLIT BARREL CONSTRUCTION IS USED, THE SPLIT SHALL BE PERMANENTLY SEALED AND NOT OPEN AS THE RESULT OF CRIMPING.
4. DIMENSIONS ARE IN INCHES.
5. METRIC EQUIVALENTS (TO THE NEAREST .01 MM) ARE GIVEN FOR GENERAL INFORMATION ONLY AND ARE BASED UPON 1 INCH = 25.4 MM.

FIGURE 1. INSULATION GRIP AND TERMINALS

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REQUIREMENTS:

1. MATERIAL: SOFT COPPER, QQ-C-502, CLASS A.
COPPER TUBING, ASTM B75-68.
GILDING METAL, 95 PERCENT COPPER, 5 PERCENT ZINC.
2. FINISH: TIN-PLATED. SEE ACQUISITION SPECIFICATION.
3. QUALIFICATION TESTING: FOR QUALIFICATION, TERMINALS SHALL BE TESTED WITH ANY ONE OF THE FOLLOWING WIRES: MIL-W-5086, MIL-W-16878, MIL-W-22759/1, 9 OR 11, OR MIL-W-81381/1, 3 OR 7. TERMINALS SHALL BE TESTED WITH TOOLING AS FOLLOWS: MIL-C-22520/24 HAND CRIMPING TOOL FOR SIZES 22 THROUGH 10; MS25441 CRIMPING TOOL AND MS90485 CRIMPING DIES FOR SIZE 8 AND LARGER. MIL-C-2194 CABLES SHALL BE USED FOR TESTING MS20659-161 THROUGH MS20659-166 TERMINALS WITH MIL-C-22520/25 CRIMPING TOOL AND MIL-C-22520/24 CRIMPING TOOL.
4. AVERAGE DIAMETER OF "E" AND "F" SHALL BE WITHIN SPECIFICATION DIMENSIONS: MAX AND MIN DIMENSIONS DUE TO OVALIZATION SHALL BE WITHIN 3% OF SPECIFICATION REQUIREMENTS.

NOTES:

1. TABLE 1 SHOWS DASH NUMBERS AND DIMENSIONS. TABLE II SHOWS THE RELATIONSHIP BETWEEN WIRE SIZE AND NAVY CABLE SIZE.
2. MS20659-1 THRU -61 DASH NUMBERS COVERED BY REVISION B, DATED 23 MAY 1963, ARE CANCELLED AFTER 1 MARCH 1969.
3. INTERCHANGEABILITY RELATIONSHIP: DASH NUMBERS MS20659-101 THROUGH -161 CAN REPLACE THE CANCELLED MS20659-1 THROUGH -61 PARTS, RESPECTIVELY. THE CANCELLED MS20659-1 THROUGH -61 PARTS CAN NOT ALWAYS REPLACE THE MS20659-101 THROUGH -161 PARTS. EXISTING GOVERNMENT STOCK OF CANCELLED PARTS MAY BE USED UNTIL EXHAUSTED.
4. CERTAIN PROVISIONS OF THIS SPECIFICATION SHEET ARE THE SUBJECT OF INTERNATIONAL STANDARDIZATION AGREEMENT (ASCC AIR STD 12/4). WHEN AMENDMENT, REVISION, CANCELLATION OF THIS SPECIFICATION SHEET IS PROPOSED WHICH WILL MODIFY THE INTERNATIONAL AGREEMENT CONCERNED, THE PREPARING ACTIVITY WILL TAKE APPROPRIATE RECONCILIATION ACTION THROUGH INTERNATIONAL STANDARDIZATION CHANNELS, INCLUDING DEPARTMENTAL STANDARDIZATION OFFICES, TO CHANGE THE AGREEMENT OR MAKE OTHER APPROPRIATE ACCOMMODATIONS.
5. THE CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES, HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT.

TABLE I. DASH NUMBERS AND DIMENSIONS.

DASH NO.	WIRE SIZE	STUD SIZE	A MAX	B MIN	C MIN RAD	D		ϕE	ϕF	ϕG		ϕJ MIN	W		MIL-E-16366 (SHIPS) REFERENCE
						MAX	MIN			MAX	MIN		MAX	MIN	
167	22-18	2 (.086)			.115					.098	.090		.260	.178	
138		4 (.112)	.890		.125					.122	.114		.320	.210	L 33, 1-2
101		6 (.138)			.172					.152	.142		.320	.305	L 35, 1-2
102		10 (.190)	.968	.250	.172	.045	.023	.140	.073	.203	.193	.120	.540	.450	L 65, 1-2
161		5/16 (.312)	1.187		.284			.115	.052	.338	.323		.540	.450	L 65, 1-2
125		3/8 (.375)	1.309		.328					.400	.385		.733	.703	L 67, 1-2
162		1/2 (.500)	1.536		.378					.525	.510				L 67, 1-2
135	16-14	4 (.112)	.947		.125					.122	.114		.265	.234	
103		6 (.138)	.955		.172					.152	.142		.327	.297	L 33, 2-1/2-4
126		6 (.138)	.947		.125					.203	.193	.153	.266	.234	
104		10 (.190)	.955	.250	.172	.053	.029	.162	.095	.327	.313		.540	.450	L 36, 2-1/2-4
163		5/16 (.312)	1.249		.284			.145	.081	.400	.385		.540	.450	L 65, 2-1/2-4
127		3/8 (.375)	1.290		.328					.525	.510		.733	.703	L 66, 2-1/2-4
164		1/2 (.500)	1.593		.378					.162	.142		.317	.290	L 67, 2-1/2-4
165	12-10	6 (.138)	.955		.172					.203	.193		.391	.365	L 33, 6-9
105		10 (.190)	.989	.250	.296			.230	.139	.338	.323		.547	.485	L 65, 6-9
128		5/16 (.312)	1.156		.328	.080	.037	.210	.129	.400	.385		.598	.536	L 66, 6-9
166		3/8 (.375)	1.172		.378					.525	.510		.733	.703	L 67, 6-9
166		1/2 (.500)	1.718		.378					.178	.168		.429	.386	
140		8 (.164)	1.150		.234					.203	.193		.478	.435	
107	8	10 (.190)	1.219	.315	.265	.084		.272	.185	.215	.260		.590	.547	
141		1/4 (.250)	1.219		.296			.260	.176	.400	.385		.833	.680	
108		5/16 (.312)	1.297		.328					.525	.510		.503	.460	
129		3/8 (.375)	1.545		.440					.203	.193		.623	.580	
142		1/2 (.500)	1.545		.440					.318	.323		.833	.700	
142		1/2 (.500)	1.545		.440					.400	.385				
130	6	10 (.190)	1.312		.238					.525	.510		.503	.460	
109		1/4 (.250)	1.312		.265					.203	.193		.628	.480	
131		5/16 (.312)	1.437	.375	.305	.084	.043	.316	.232	.318	.323		.648	.605	
110		3/8 (.375)	1.437		.328			.255	.225	.400	.385		.833	.700	
143		1/2 (.500)	1.676		.440					.525	.510				
143		1/2 (.500)	1.676		.440					.203	.193				
144	4	10 (.190)	1.400		.276					.275	.260		.628	.480	
111		1/4 (.250)	1.400	.437	.308	.096	.047	.380	.290	.318	.323		.648	.605	
132		5/16 (.312)	1.489		.328			.365	.280	.400	.385		.833	.710	
112		3/8 (.375)	1.489		.328					.525	.510				
145		1/2 (.500)	1.721		.440					.203	.193				
145		1/2 (.500)	1.721		.440					.325	.310				

AEROSPACE STANDARD

TERMINAL, LUG, CRIMP STYLE, COPPER,
UNINSULATED, RING TONGUE, TYPE I, CLASS I, FOR 175°C
TOTAL CONDUCTOR TEMPERATURE

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TABLE I. DASH NUMBERS AND DIMENSIONS - CONTINUED.

DASH NO.	WIRE SIZE	STUD SIZE	A MAX	B MIN	C MIN RAD	D		ØE	ØF	ØG		ØJ MIN	W	
						MAX	MIN			MAX	MIN		MAX	MIN
146		10(.190)								.203	.193			
147		1/16(.312)	1.732	.565	.343	1.00	.074	.172	.355	.275	.260		.711	.668
148	2	3/16(.375)						.450		.338	.323			
149		7/16(.437)	1.895		.453				.388	.400	.385		.804	.740
150		1/2(.500)								.463	.448			
151		5/16(.312)	1.845		.383					.525	.510			
152	1	3/8(.375)	1.980	.565	.453	.125	.070	.527	.398	.275	.260		.783	.740
153		7/16(.437)						.505	.388	.400	.385		.887	.740
154		1/2(.500)								.463	.448			
155		5/16(.312)	2.045	.630	.418			.578	.458	.525	.510		.903	.860
156		3/8(.375)	2.092		.453	.125	.070	.558	.438	.275	.260			
157	0	7/16(.437)								.338	.323			
158		1/2(.500)	2.320	.700	.473	.129	.075	.640	.520	.400	.385		.956	.913
159		5/16(.312)						.620	.500	.463	.448			
160	00	3/8(.375)								.525	.510			
161		7/16(.437)	2.455	.718	.513	.140	.085	.714	.577	.338	.323		1.053	1.010
162		1/2(.500)						.690	.557	.400	.385			
163		5/16(.312)								.463	.448			
164	000	3/8(.375)								.525	.510			
165		7/16(.437)	2.755	.734	.560	.150	.095	.784	.645	.338	.323		1.148	1.095
166		1/2(.500)						.760	.622	.400	.385			
167		5/16(.312)	2.955		.765					.463	.448			
168	0000	3/8(.375)								.525	.510			
169		7/16(.437)								.668	.651			
170		1/2(.500)	2.911							.785	.770		1.268	1.200
171		5/8(.625)								.910	.895			
172		3/4(.750)												
173		7/8(.875)												