

TENTATIVE

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the AMPPOWER* HEAVY DUTY Lugs and Splices WHEN TERMINATED TO COPPER CONDUCTORS

1.2. Qualification

When tests are performed on the subject product line, UNLESS STATED OTHERWISE the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the PRODUCT QUALITY Inspection Plan and Product Drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent noted herein. In the event of conflicts the order of precedence is

- a) The product Drawing
- b) this specification
- c) Amp Procedures and Commercial Standards.

2.1. AMP Specifications

- A. 109-22; THERMAL SHOCK, PROCEEDURE FOR (SAME As MIL- ECT.
- B. 109-24; SALT SPRAY, PROCEEDURE FOR (SAME AS MIL- ETC.
- C. 109-25; CRIMP RESISTANCE, PROCEDURE FOR (SAME AS MIL- ETC.

2.2. Commercial Standards

- A. NEMA-CC-3-1973 Connectors for Use Between Aluminum or (REV: 1978) Aluminum-Copper Overhead Conductors. (This standard is used only to the extent that it pertains to copper conductors).
- B. UL 486-A: Wire conductors and Soldering Lugs for Use With Copper Conductors

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<p>TENTATIVE</p> <p>This specification is based on design objectives and is strictly tentative. Although preliminary test data may exist the specification is subject to change based on the results of additional testing and evaluation.</p> <p>Accordingly, AMP Incorporated makes no representation or warranty expressed or implied that the product described herein will comply with this specification.</p>				DR		<p>AMP AMP INCORPORATED Harrisburg, Pa. 17105</p>	
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				1 OF 6		CONNECTOR LUGS AND SPLICES HEAVY DUTY AMPPOWER	
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3. REQUIREMENTS

3.1. Design and Construction

CONNECTORS shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Material

High Conductivity Wrought Copper Alloy-Tube Annealed, Electro Tin Plated

3.3. Ratings

- A. ANSI Current: 130% of TEST CURRENT, TABLE I
- B. UL Current: 63% of TEST CURRENT, TABLE I

3.4. Performance and Test Description

Connectors shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

Test Description	Requirement	Procedure
Examination of Product	Meet requirements of product drawings.	Visual, dimensional and functional per applicable Quality Inspection Plan.
ELECTRICAL		
Termination Resistance, Specified Current of TABLE I	2 MILLivolts MAX divided BY TEST Current of TABLE I,	Measure potential drop of connector assembled in a chain, Figure 3 and AMP Spec 109-25. Calculate MILLIVOLT DROP AS Volts, CONNECTOR/WIRE LESS Volts, EQUAL WIRE LENGTHS.
Static Heating	Temperature rise 50°C maximum above ambient with TEST CURRENT of TABLE I	Per UL 486-A,

Figure 1 (cont)

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Test Description	Requirement	Procedure
Heat Cycle Test	1. THE TEMPERATURE OF THE CONNECTOR SHALL NOT EXCEED THE TEMPERATURE OF THE CONTROL CONDUCTOR IS RAISED TO 100°C ABOVE AMBIENT BY I ² R HEATING. meet the requirements for termination resistance throughout the test as specified.	250 EQUAL ON/OFF CYCLES PER NEMA-CC-3. DURATION UP TO 4/0- 2HRS UP TO 500- 3HRS ABOVE 500- 4HRS SEE TABLE I, NOTE b for recommended initial current values.

MECHANICAL

Crimp Tensile (Pullout)	200 LBS or 5% of WIRE TENSIL WHICHEVER is LARGER. SEE TABLE I for test VALUES.	Apply tensile per UL 486A @ 1 inch/min. Hold 1 minute @ test Load then pull to failure.
Secureness Test	The connection between the conductor and the specimen set shall be intact after being subjected to the test for 30 minutes.	Subject specimen to secureness test of UL 486-A SECTION 10.

ENVIRONMENTAL

Thermal Shock	No physical damage. Termination resistance, (a).	Subject connectors to 5 cycles between 0° and 150°C; AMP Spec 109-22.
Corrosion, Salt Spray	No physical damage. Termination resistance, (a).	Subject connectors to 5% salt concentration for 30 days; AMP Spec 109-24.

Note:

- (a) The Termination Resistance shall not EXCEED TWICE (2*) the initial value AFTEREITHER THE THERMAL SHOCK AND/OR CORROSION ENVIRONMENT.

Figure 1 (end)

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3.5. Connector Qualification and Requalification Tests and Sequences

Test or Examination	Test Group (a)		
	1	2	3
	Test Sequence (b)		
Examination of Product	1	1	1
Termination Resistance, Specified Current	2,4	2	
Static Heating			3
Heat Cycle	3		
Crimp Tensile (Pullout)	5		4
Secureness			2
Thermal Shock, TERMINATION RESISTANCE		3	
Corrosion, TERMINATION RESISTANCE		5	
Termination RESISTANCE, FIG 1 Note a		4,6	

(a) See Para 4.1.A

(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Test Plan

Qualification tests and the sequence of testing shall be to the plan of Figure 1.

B. Sample Selection

Each group shall consist of 16 lugs or 8 splices selected at random from production. As a minimum they shall consist of 4 each (24 splices) of maximum, minimum and two intermediate sizes. The total number of splices for all groups shall be 48 lugs or splices.

C. Sample Preparation

The samples shall be terminated to COPPER CONDUCTORS, COMMERCIAL STRANDING as follows:

Group 1: - up to 2/0 - 12 inches
 up to 500 MCM - 24 inches
 above 500 MCM - 36 inches

A terminal - not to be qualified - shall be terminated at the opposite end (s) to allow for daisy chaining.

Group 2: All sizes - 15 inches
 An equalizer shall be placed 12 inches from the rearopening

Group 3: All sizes - 24 inches

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D. Acceptance

- (1) All samples shall test to the limits specified.
- (2) Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

4.2. Requalification Testing

The applicable AMP QUALITY Inspection Plan what plan and where is it specified in Para 2.0 will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

TABLE I
TEST CURRENT AND TENSIL for COPPER CONDUCTORS

WIRE SIZE AWG	COPPER CONDUCTORS	
	TEST CURRENT AMPS	TENSIL LBS
6	95	200
4	125	200
2	170	200
1/0	230	250
2/0	265	300
3/0	310	350
4/0	360	450
250 MCM	405	500
300 MCM	445	550
400 MCM	545	650
500 MCM	620	800
700 MCM	755	1000

Notes:

- a) FOR CONNECTOR SIZES OTHER THAN THOSE LISTED THE TEST CURRENT AND TENSIL MAY BE OBTAINED BY LINEAR EXTRAPOLATION OF THE DESIGNATED CROSS SECTIONAL AREA.
- b) RECOMMENDED HEAT CYCLE CURRENTS ARE 150% FOR COPPER CONDUCTORS AND 130% for ALUMINIUM CONDUCTORS.

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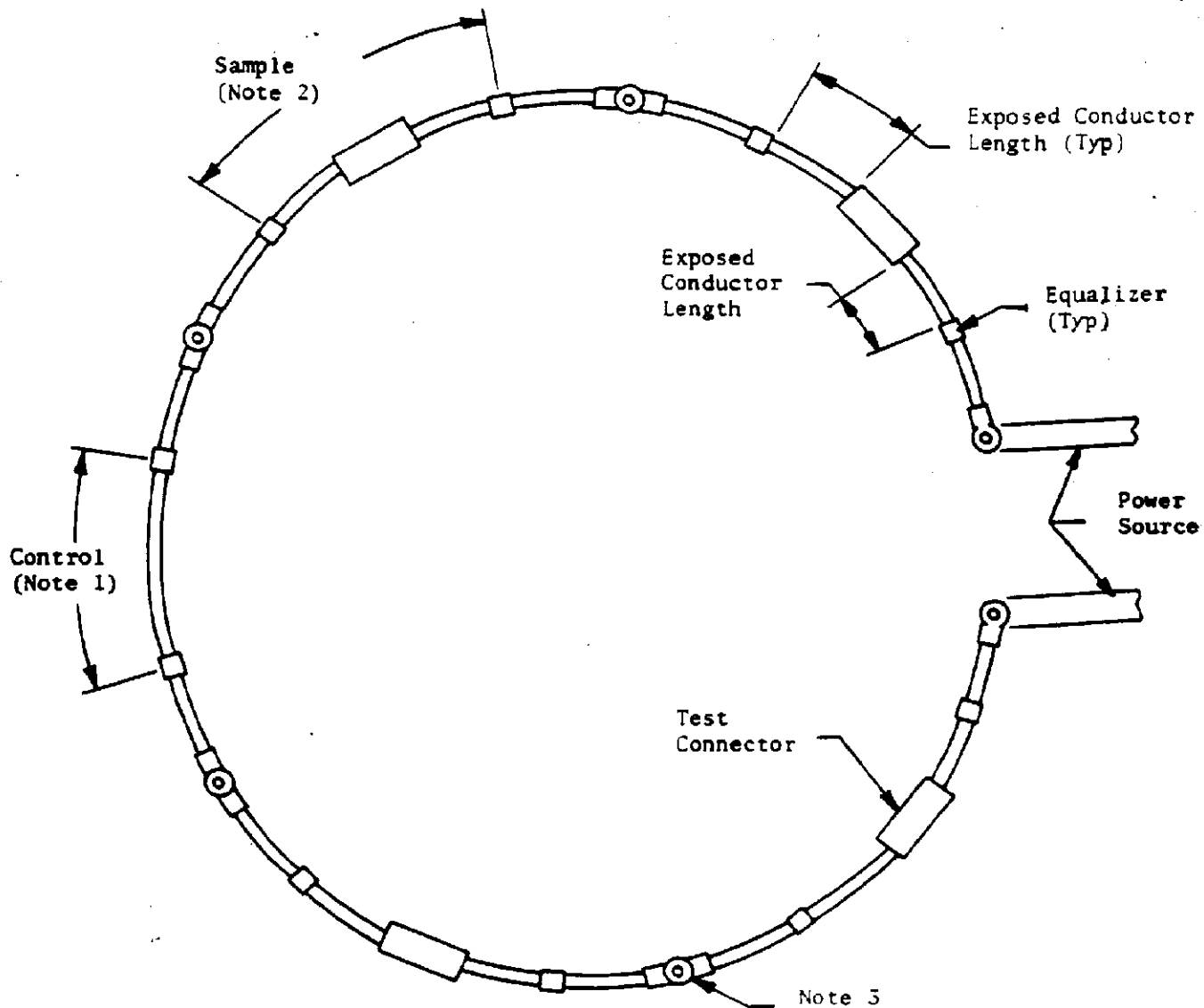
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Notes:

1. Control length is equalizer to equalizer as shown.
2. Sample length is equalizer to equalizer as shown.
3. Individual specimens may be connected in series with terminals, splices or continuous sections of conductor.

Figure 3
Loop Configuration

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