AMPOWER* Terminals & Splices, Large

1. INTRODUCTION

1.1. Purpose

Testing was performed on AMPOWER* Terminals and Splices to determine their conformance to the requirements of AMP* Product Specification 108-30200-2 Rev. A.

1.2. Scope

This report covers the electrical and mechanical performance of the AMPOWER Terminals and Splices. Testing was performed at the Americas Regional Laboratory between 20Nov97 and 30Jan98. The test file number for this testing is CTL 3050-000-032. This documentation is on file at and available from the Americas Regional Laboratory.

1.3. Conclusion

The AMPOWER Terminals and Splices, listed in paragraph 1.5., meet the electrical and mechanical performance requirements of AMP Product Specification 108-30200-2 Rev A.

1.4. Product Description

The AMPOWER Terminals and Splices are designed for large power cables and leads. These terminals and splices are ideally suited for continuous operation, such as generators, motors and welders.

1.5. Test Samples

The test samples were representative of normal production lots, and the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1	10	326305	Terminal with 750 MCM copper wire
1	6	324468	Splice with 750 MCM copper wire

Figure 1

1.6. Qualification Test Sequence

Test or Examination	Test Group
	1
	Test Sequence
Examination of product	1,7
Millivolt drop	2,5
Static heating	4
Crimp tensile	6
Secureness	3

NOTE *The numbers indicate sequence in which tests were performed.*

Figure 2

2. SUMMARY OF TESTING

2.1. Examination of Product

All samples submitted for testing were representative of normal production lots. A Certificate of Conformance was issued by the Product Assurance Department of the General Products Business Unit. Where specified, samples were visually examined and no evidence of physical damage detrimental to product performance was observed.

2.2. Millivolt Drop

All millivolt drop measurements of terminals, taken at specified current, were less than 4.0 millivolts initial, and 6.0 millivolts final. All millivolt drop measurements of splices, taken at specified current, were less than 5.0 millivolts initial, and 9.0 millivolts final.

Test Group	Number of Data Points	Condition	Wire Gage (MCM)	Test Current (amperes)	Millivolt Drop		
					Min	Max	Mean
Terminals							
1	10	Initial	750	785	3.02	3.65	3.26
		Final			3.33	4.34	3.52
Splices							
1	12	Initial	750	785	2.03	2.57	2.35
		Final			1.99	2.85	2.33

NOTE *All values in millivolts*

Figure 3

2.3. Static Heating

No splice or terminal exceeded the 50°C maximum temperature rise above ambient.

2.4. Crimp Tensile

All tensile values for splices and terminals were greater than 1000 pounds for samples crimped on 750 MCM wire.

2.5. Secureness

No evidence of physical damage was visible as a result of a secureness test.

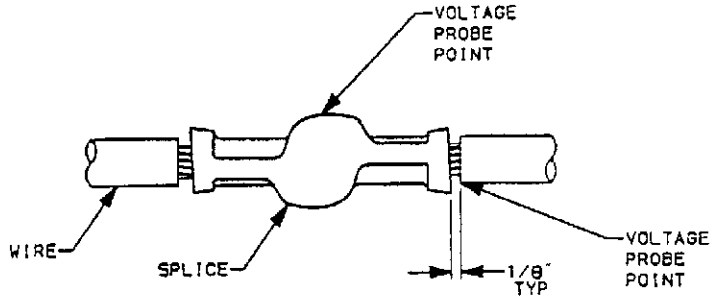
3. TEST METHODS

3.1. Examination of Product

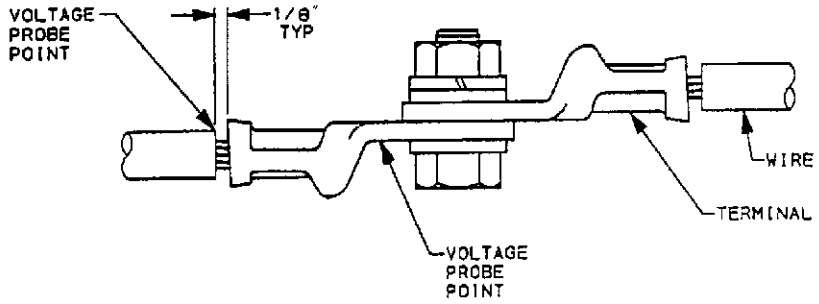
Where specified, samples were visually examined for evidence of physical damage detrimental to product performance.

3.2. Millivolt Drop

Millivolt drop measurements at specified current were made using a 4 terminal measuring technique (Figure 4).



Voltage Probe Points For Splices



Voltage Probe Points For Terminals

Figure 4
Typical Voltage Drop Measurement points

3.3. Static Heating

Temperature rise was measured at specified current. Thermocouples were attached to individual terminals (splices) to measure their temperatures. The ambient temperature was then subtracted from this measured temperature to find the temperature rise. When the temperature rise of 3 consecutive readings taken at 5 minute intervals did not differ by more than 1°C, the temperature measurement was recorded.

3.4. Crimp Tensile

An axial tensile load was applied (at a crosshead rate of 1.0 inches per minute) to each sample, until a load of 1000 pounds was reached. The load was held for 1 minute.

3.5. Secureness

Terminals (splices), terminated to 750 MCM wire, were mounted in a vertical position to a secureness testing machine. The free end of the conductor was passed through a 1 1/4" diameter bushing, which was cycled in a 3" diameter circle in a horizontal plane, at a rate of approximately 9 rpm. The distance between the top of the bushing and the mouth of the connector was 19.5 inches. A 110 pound weight was suspended from the free end of the conductor. Each sample was cycled for a period of 30 minutes.