AMPOWER* Terminals & Splices, Small

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 Rev. O.

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 23May97 and 08Aug97.

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 Rev O.

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. Terminals and splices (small) cover the wire ranges AWG 6 thru AWG 4/0.

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 Nbr	Description
1,2	10 ea.	325603	Terminal with AWG 4/0 wire
1,2	6 ea.	324461	Splice with AWG 4/0 wire
1,2	10 ea.	325203	Terminal with AWG 2 wire
1,2	6 ea.	324457	Splice with AWG 2 wire

1.6. Qualification Test Sequence

Test or Examination	Test Groups	
	1	2
	Test Sequence	
Examination of Product	1,7	1,6
Millivolt Drop	2,5	2,4
Static heating	4	
Crimp tensile	6	5
Secureness	3	3

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

2. SUMMARY OF TESTING

2.1. Examination of Product - All Groups

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 - Groups 1 and 2

All millivolt drop measurements, taken at specified current were less than 5.0 millivolts.

Test Group	Nbr of Data points	Condition	Wire Gage	Test Current	Millivolt Drop Min	Max	Mean
			TERMINALS				
1	10	Initial	2	170A	2.32	2.85	2.621
		Final			2.37	3.19	2.690
		Initial	4/0	360A	2.64	3.35	2.961
		Final			2.93	3.29	3.065
2	10	Initial	2	170A	2.39	2.81	2.576
		Final			2.49	2.97	2.670
		Initial	4/0	360A	3.00	3.48	3.264
		Final			2.95	3.34	3.150
			SPLICES				
1	12	Initial	2	170A	1.57	2.63	1.887
		Final			1.64	2.57	2.023
		Initial	4/0	360A	1.67	2.11	1.869
		Final			1.70	2.09	1.904
2	12	Initial	2	170A	1.49	2.33	1.883
		Final			1.73	2.51	2.041
		Initial	4/0	360A	1.66	1.99	1.758
		Final			1.71	1.95	1.883

All values in millivolts

2.3. Static Heating - Group 1

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

2.4. Crimp Tensile - Groups 1 and 2

All tensile values for splices and terminals were greater than 180 lbs for samples crimped on AWG 2 wire and greater than 450 lbs for samples crimped to AWG 4/0 wire.

2.5. Secureness - Groups 1 and 2

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

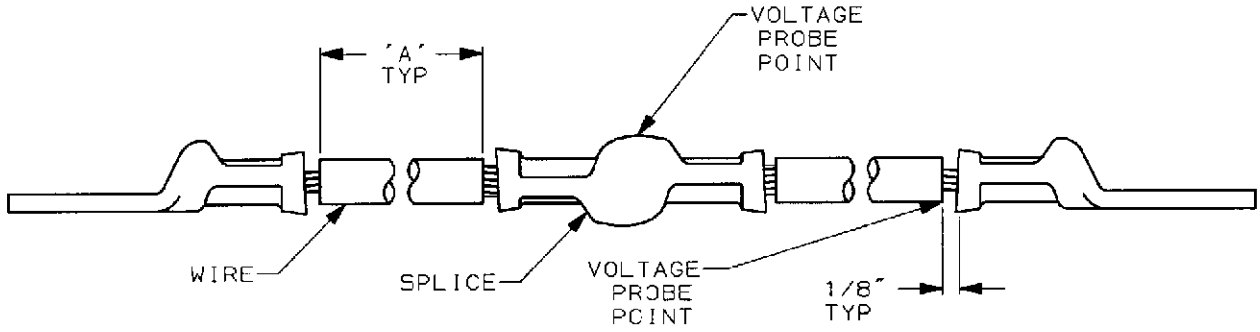
3. TEST METHODS

3.1. Examination of Product

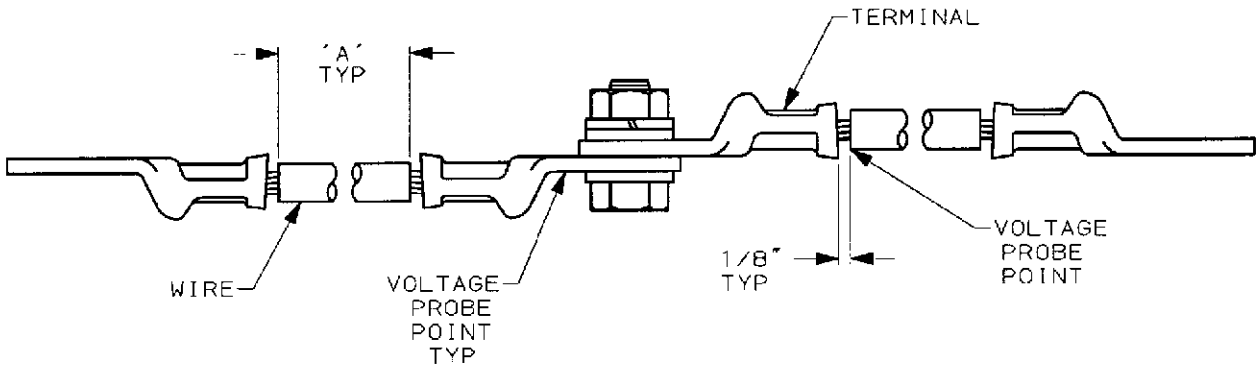
Where specified, samples were visually examined for evidence of physical damage detrimental to product performance.

3.2. Millivolt Drop

Millivolt drop measurements at specified current were made using a 4 terminal measuring technique (Figure 1).



Voltage Probe Points For Splices



Voltage Probe Points For Terminals

Figure 1
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 load was applied (at a crosshead rate of 1.0 inches per minute) to each sample in a direction as to pull the wire out of the crimp.

3.5. Secureness

Terminals(Splices) were connected to a secureness testing machine. The appropriate weights and bushings (per UL486A) were used. Each sample was cycled for a period of 30 minutes.

4. VALIDATION

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