

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification contains performance requirements and test procedures for the qualification of AMP\* Crimp-On Receptacles. This method of termination provides a removable sliding contact which will retain its performance characteristics after numerous applications to its respective terminal post. The receptacles are designed to provide a reliable electrical and mechanical termination to .022" x .036" terminal posts on a .100" x .150" minimum grid. The receptacle provides a crimp barrel to accept 22, 24, or 26 gage stranded wire.

1.2. Qualification

When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents constitute a part of this specification to the extent specified herein. In the event of conflict between requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. AMP Specifications

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1.  
(Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364, see Figure 4)

2.2. Military

- A. MIL-W-16878 Wire, Electrical, Insulated, High Temperature

3. REQUIREMENTS

3.1. Design and Construction

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

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 FOREIGN PATENTS AND/OR PATENTS PENDING.

		DR		<b>AMP</b>   AMP INCORPORATED Harrisburg, Pa. 17105	
		CHK <i>James E. Lynch 4/2/83</i>			
		APP <i>B. J. ...</i>			
		LOC	NO	REV	
		B	108-14016	A	
		SHEET		TITLE	
		1 OF 7		AMP CRIMP-ON Receptacles for .022" X .036" Terminal Post	
ST	A	ECN-6571	APP	DATE	
14	LTR	REVISION RECORD	APP	DATE	

### 3.2. Materials

Materials utilized in the manufacture of this product shall be in accordance with the applicable AMP Product Drawing.


### 3.3. Ratings

- A. Current: 3 amperes maximum
- B. Operating Temperature: -55° to 85°C

### 3.4. Performance and Test Description

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

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure			
Examination of Product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable inspection plan.			
<b>ELECTRICAL</b>					
Termination Resistance, Dry Circuit (low level)	Wire Size, AWG	Resistance, Milliohms Maximum			
		<u>Initial</u> <u>Final</u>			
	22	8.0    9.0			
	24	9.0    10.0			
26	14.0    15.0	Subject mated contacts to 50 mv open circuit at 50 ma maximum, see Figure 3; AMP Spec 109-6, Cond. C.			
Temperature Rise vs Current (a)	Temperature rise, 30°C above ambient maximum.		T-rise at rated current, 3 amperes AC, see Figure 3, AMP Spec 109-45-1.		
<b>MECHANICAL</b>					
Vibration (b)	No discontinuities greater than 10 micro-seconds		Subject mated contacts to 15 G's, 10-2000 Hz with 100 ma current applied; AMP Spec 109-21-3.		
Figure 1 (cont)					
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Test Description	Requirement	Procedure								
Physical Shock (b)	No discontinuities greater than 10 micro-seconds.	Subject mated contacts to 100 G's sawtooth in 6 milliseconds; 3 shocks in each direction applied along the 3 mutually perpendicular planes total 18 shocks; AMP Spec 109-26-9.								
Unmating Force	8 ounces minimum 30 ounces maximum	Mate and unmate receptacles 10 times. During the 10th unmating, measure the force required. When measuring force, unmate at 1 inch per minute; AMP Spec 109-42, Cond. A.								
Crimp Tensile	<table border="1" data-bbox="636 665 1049 806"> <thead> <tr> <th data-bbox="636 665 801 715">Wire size, AWG</th> <th data-bbox="801 665 1049 715">Crimp Tensile pounds minimum</th> </tr> </thead> <tbody> <tr> <td data-bbox="636 715 801 756">22</td> <td data-bbox="801 715 1049 756">12.5</td> </tr> <tr> <td data-bbox="636 756 801 796">24</td> <td data-bbox="801 756 1049 796">8.0</td> </tr> <tr> <td data-bbox="636 796 801 816">26</td> <td data-bbox="801 796 1049 816">4.5</td> </tr> </tbody> </table>	Wire size, AWG	Crimp Tensile pounds minimum	22	12.5	24	8.0	26	4.5	Determine crimp tensile at a rate of 1 inch/minute; AMP Spec 109-16.
Wire size, AWG	Crimp Tensile pounds minimum									
22	12.5									
24	8.0									
26	4.5									
<b>ENVIRONMENTAL</b>										
Thermal Shock (b)	No physical damage	Subject mated contacts to 5 cycles between -55° and +85°C; AMP Spec 109-22.								
Humidity, Steady State (b)	No physical damage	Subject mated contacts to steady state humidity at 40°C and 90-95% RH, 4 days; AMP Spec 109-23, Method II, Cond. A.								
Corrosion, Salt Spray (b)	No physical damage	Subject mated contacts to 5% salt concentration for 48 hours; AMP Spec 109-24, Cond. B.								
<p>(a) Maximum rated current that can be carried by this product is limited by maximum operating temperature, which is 85°C and temperature rise of contacts, which is 30°C. Variables which shall be considered for each application are: wire size, contact size, contact material, and ambient temperature.</p> <p>(b) Shall remain mated and show no evidence of damage, cracking, or flaking.</p> <p style="text-align: center;">Figure 1 (end)</p>										
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### 3.6. Receptacle Tests and Sequences

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of Product	1	1	1	1	1
Termination Resistance, Dry Circuit	2-5	2-5	2-5-8		2-6-8
Temperature Rise vs Current	3-6	3-6	3-9		3-9
Vibration			6		5
Physical Shock			7		
Unmating Force			10		4
Crimp Tensile				2	10
Thermal Shock			4		
Humidity, Steady State	4				
Corrosion, Salt Spray		4			7

(a) Test Groups 1 thru 4 are for Qualification testing and Test Group 5 is for Requalification every 3 years, see para. 4.

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

Figure 2

#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1. Qualification Testing

###### A. Sample Section

Receptacles shall be prepared in accordance with applicable Instruction Sheets. Ten test specimens shall be formed for Test Groups 1 thru 4 by crimping 1 receptacle to each end of a 2 + .02 inch length of appropriate size wire which is certified to MIL-W-16878, Type E or ET. When a mating post is required, posts used shall have a minimum 50 millionths gold.

###### B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2, Test Groups 1 thru 4.

###### C. Acceptance

- (1) All samples tested in accordance with this specification shall meet the stated tolerance limit.
- (2) Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken.

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#### 4.2. Requalification Testing

Requalification shall be performed a minimum of once every three years. Testing shall be performed on 24 receptacles as specified in Test Group 5, Figure 2. All samples tested shall meet the stated tolerance limit.

#### 4.3. Quality Conformance Inspection

The applicable AMP inspection plan 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.

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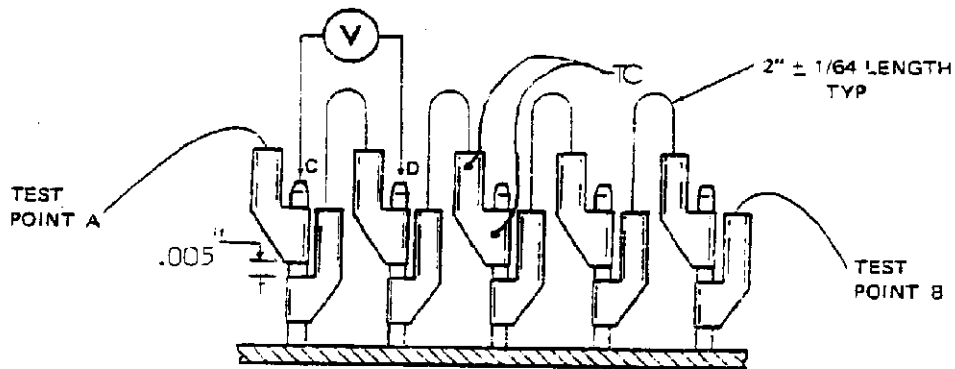
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NOTES:

- (a) Apply current at Test Points A and B.
- (b) Measure Voltage Drop at Test Points C and D.
- (c) Calculate resistance as voltage drop divided by current. This includes the interface resistance of 2 crimps and 2 contacts of receptacle to post, and the bulk resistance of 2 inches of wire, 2 receptacles, and terminal post material.
- (d) For Temperature Rise vs. Current test, apply 3 amperes at Points A and B and mount thermocouples on each receptacle at locations marked TC.

Figure 3

Resistance and Temperature Measurement Points

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AMP Test Spec No	Title	Commercial Reference (a)	Military Reference (a)
109-6	DC Dry Circuit Measurements of Separable Electrical Connections	EIA RS-364, TP-23 ASTM B 539-70	MIL-STD-1344, Method 3002
109-16	Crimp Tensile Strength Test Procedure for Electrical Connectors	EIA RS-364, TP-8	MIL-STD-1344, Method 2003
109-21	Vibration Test Procedure for Electrical Connectors	EIA RS-364, TP-28	MIL-STD-1344, Method 2005 MIL-STD-202, Method 201 MIL-STD-202, Method 204
109-22	Thermal Shock Test Procedure for Electrical Connectors	EIA RS-364, TP-32	MIL-STD-1344, Method 1003 MIL-STD-1344, Method 1010 MIL-STD-202, Method 107
109-22	Thermal Shock Test Procedure for Electrical Connectors	EIA RS-364, TP-32	MIL-STD-1344, Method 1003 MIL-STD-1344, Method 1010 MIL-STD-202, Method 107
109-23	Humidity Test Procedure for Electrical Connectors	EIA RS-364, TP-31	MIL-STD-1344, Method 1002 MIL-STD-202, Method 103 MIL-STD-202, Method 106
109-24	Salt Spray Corrosion Test Procedure for Electrical Connectors	EIA RS-364, TP-26 ASTM B 117-64	MIL-STD-1344, Method 1001 MIL-STD-202, Method 101
109-26	Mechanical Shock, Specified Pulse Test Procedure for Electrical Connectors	EIA RS-364, TP-27	MIL-STD-1344, Method 2004 MIL-STD-202, Method 213
109-42	Mating and Unmating Force, Test Procedure for	EIA RS-364, TP-13	MIL-STD-1344, Method 2013
109-45	Electrical Stability, Test Procedure for		

(a) Where no reference exists, AMP has originated the document from various sources or there is no awareness of an acceptable document.

Figure 4