

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP\* Power Ring housing and respective terminal assemblies.

1.2. Qualification

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

2. APPLICABLE DOCUMENTS

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

2.1. AMP Documents

- 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)
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
- D. 114-2087: Application Specification
- E. 501-164: Test Report

2.2. Commercial Documents

UL 486A: Wire Connectors and Soldering Lugs, Standard for

3. REQUIREMENTS

3.1. Design and Construction

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

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Product Code: 1072,1073

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### 3.2. Materials

- A. Contact: Brass, plain or tin plated
- B. Housing: Phenolic, black
- C. Hardware: Steel, zinc or nickel plated.

### 3.3. Ratings

- A. Voltage: 250 vac
- B. Current: See Figure 2 for applicable current carrying capability
- C. Temperature: -55 to 150°C

### 3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient temperature unless otherwise specified.

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-2087.	Visual, dimensional and functional per applicable quality inspection plan.
<b>ELECTRICAL</b>		
Termination resistance, dry circuit.	1 milliohm maximum crimp resistance. 2 milliohms maximum total resistance.	Subject contacts to 50 mv open circuit at 100 ma maximum. See Figure 4A. AMP Spec 109-6-1.
Dielectric withstanding voltage.	1.5 kvac 60 Hz dielectric withstanding voltage. 1 minute hold. No breakdown or flashover.	Test between adjacent live contacts and between live contacts and conductive surface to which housing is mounted. AMP Spec 109-29-1.
Insulation resistance.	5000 megohms minimum.	Test between adjacent contacts of connector assembly. AMP Spec 109-28-4.
Current cycling.	See Note (a).	Subject contacts to 500 cycles at 125% rated current for 45 minutes "ON" and 15 minutes "OFF". AMP Spec 109-51, Condition B, Test method 4.
Temperature rise vs current.	50°C maximum temperature rise at specified current. See Figure 2.	Measure temperature rise vs current. AMP Spec 109-45-1.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Static heating, contact.	Wire Test T-Rise Size current maximum AWG amperes °C 6 95 50	Measure temperature rise of contacts. See Figure 4B. AMP Spec 109-45-1.
<b>MECHANICAL</b>		
Vibration, sinusoidal, low frequency.	No discontinuities greater than 1 microsecond. See Note (a).	Subject connectors to 10-55-10 Hz traversed in 1 minute at .06 inch total excursion. 2 hours in each of 3 mutually perpendicular planes. AMP Spec 109-21-1.
Strength of housing.	See Note (a).	Torque screws in contacts assembled in housings to 50 inch/pounds using torque wrench.
Contact insertion force.	10 pounds maximum per contact.	Measure force to insert contact into housing. AMP Spec 109-41.
Contact retention force.	Contacts shall not dislodge.	Apply axial load of 30 pounds to contacts in forward direction. AMP Spec 109-30.
Crimp tensile.	Wire Size Crimp Tensile AWG pounds minimum 18 20 16 30 14 50 12 70 10 80	Determine crimp tensile at rate of 1 inch per minute. 1 minute hold at specified load. AMP Spec 109-16.
<b>ENVIRONMENTAL</b>		
Thermal shock.	See Note (a).	Subject connectors to 25 cycles between -40 and 125°C. AMP Spec 109-22.
Humidity-temperature cycling.	See Note (a).	Subject connectors to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-3, Condition B.
Temperature life.	See Note (a).	Subject mated connectors to temperature life for 24 hours duration. AMP Spec 109-43, Test level 11.

(a) Shall remain intact and show no evidence of damage, cracking or chipping.

Figure 1 (end)

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Rated Current vs Ambient Temperature Rating  
for  
I<sub>rms</sub> or I<sub>dc</sub>, Maximum Wire Gage, Continuous Operating

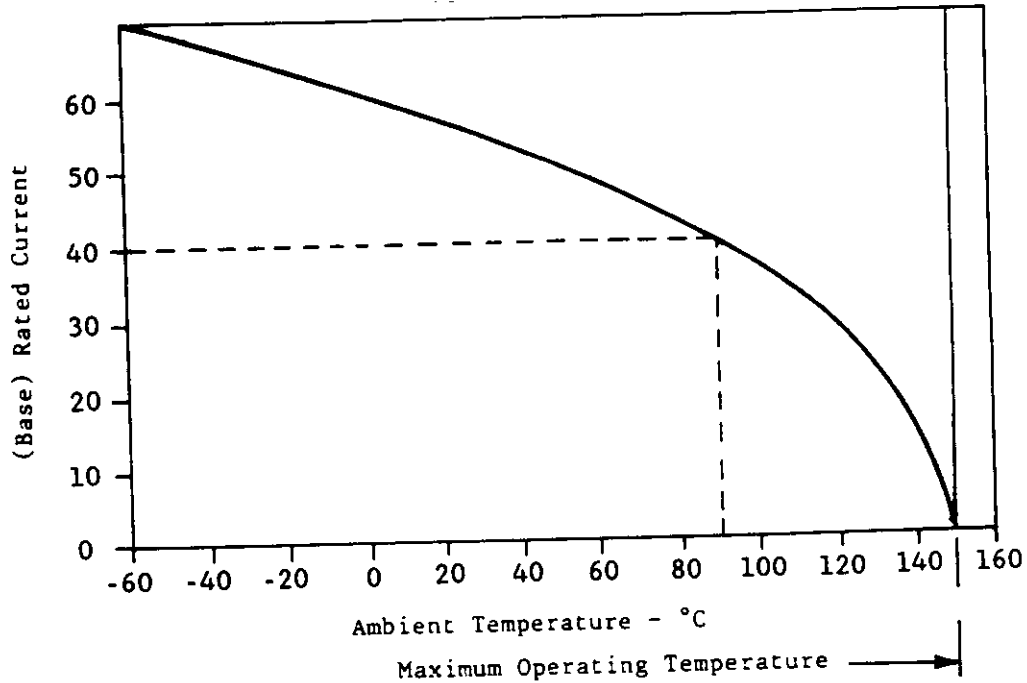


Figure 2  
Current Carrying Capability

3.6. Product Qualification and Requalification Tests

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1	1,9	1,8	1,3	1,5
Termination resistance, dry circuit	3,5	2,7			2,4
Dielectric withstanding voltage			3,7		
Insulation resistance			2,6		
Current cycling					3
Temperature rise vs current		3,8			
Static heating, contact				2	
Vibration	4	6			
Strength of housing	6				
Contact insertion force	2				
Contact retention force	7				
Crimp tensile	8				
Thermal shock			4		
Humidity-temperature cycling		4	5		
Temperature life		5			

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.

Figure 3

#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1. Qualification Testing

###### A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, 3 and 5 shall consist of 3 connector assemblies (9 contacts total) on both minimum and maximum wire for each type of terminal. Test group 4 shall consist of 5 contacts prepared as indicated in Figure 4B with 6 AWG, 7 strand wire. All wire sizes shall be stranded and consist of 7 strands. All wire shall be applied in accordance with AMP Specification 114-2087.

###### B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

##### 4.2. Requalification Testing

If changes significantly affecting form, fit, or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

##### 4.3. Acceptance

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

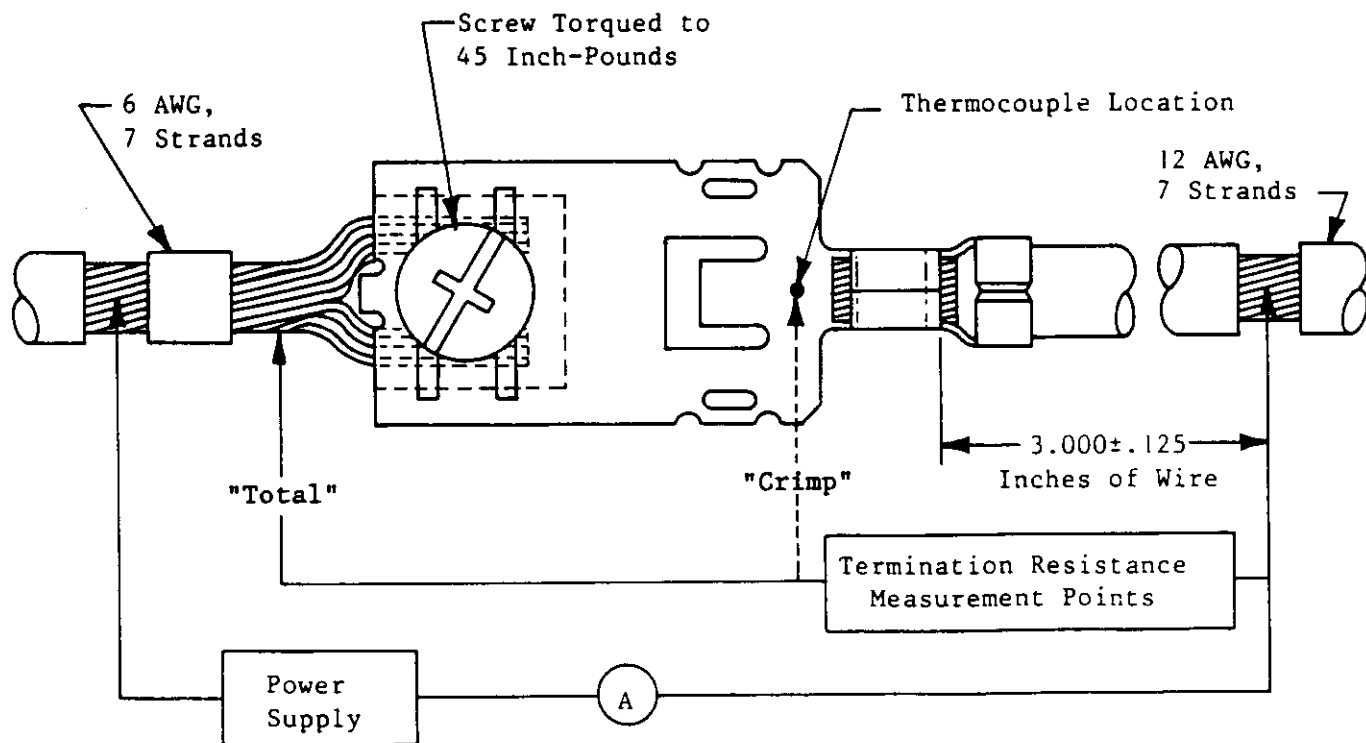
##### 4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

##### 4.5. Certification

This product has been Recognized under the Component Recognition Program of Underwriters Laboratories Inc., Electrical File No. E60677 (Power Block) and No. E13288 (Power Ring) and certified by the Canadian Standards Association File No. LR7189-87 (Power Block) and No. 47787-6 (Power Ring).

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Note: Termination resistance equals millivolt drop divided by test current less resistance of 3 inches of wire.

Figure 4A

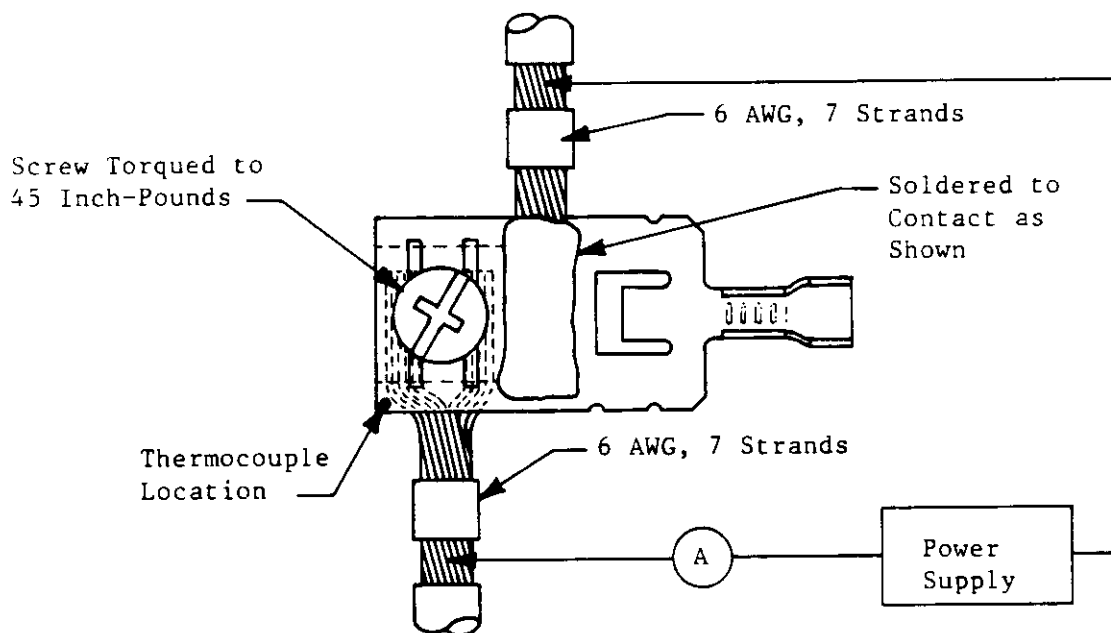


Figure 4B  
Resistance and Temperature Measurement Points