PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the AMP* receptacle contact connectors with ACTION PIN* posts. These receptacle connectors mate with AMP-HDI* .025 square pin electrical connectors, providing a 2 piece interconnection method on .100 inch centers. Connectors are available in 2, 3 and 4 row configuration.

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 form a part of this specification to the extent specified herein. In the event of conflict between the 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 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. 108-26003: Contact, ECONOMATE*, ACTION PIN
E. 114-9010 : Application Specification
F. 501-158 : Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

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Product Code: 5478

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AMP Incorporated
Harrisburg, PA 17105-3608

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TITLE CONNECTOR, RECEPTACLE CONTACT, ACTION PIN.

3.2. Material

A. Contacts:

(1) Receptacle: Phosphor bronze, gold over nickel plating
(2) Pin: Phosphor bronze or brass, gold over nickel plating

B. Housing: Thermoplastic, glass filled, UL 94V-0

3.3. Ratings

A. Current: 3 amperes maximum per contact, 2.25 amperes continuous per contact at room ambient, with not more than 2 adjacent or opposing circuits carrying this current.

B. Operating temperature: -65° to 125°C for gold contacts.

3.4. Performance and Test Description

Connectors shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of Product	Meet requirements of product drawing and AMP Spec 114-9010.	Visual, dimensional and functional per applicable inspection plan.
ELECTRICAL		
Termination Resistance, Dry Circuit	15 milliohms maximum initial; 20 milliohms maximum final.	Subject mated contacts assembled in housing to 50 mv open circuit at 100 ma maximum, see Figure 3; AMP Spec 109-6-1.
Dielectric Withstanding Voltage	Test voltage rms: 900, 200; Altitude feet: sea level, 70,000. 2 milliamperes maximum leakage current.	Test between adjacent contacts of unmated connector and between contacts and mounting hardware; AMP Spec 109-29-1.
Insulation Resistance	5000 megohms minimum initial; 1000 megohms minimum final.	Test between adjacent contacts of unmated connector and between contacts and mounting hardware; AMP Spec 109-28-4, 500 volt potential.

Figure 1 (cont)

Test Description	Requirement	Procedure
	MECHANICAL	
Vibration, Sinusoidal High Frequency	No discontinuities greater than 1 microsecond. See note (a).	Subject mated connectors to 15 G's, 10-2000 Hz traversed in 20 minutes; 4 hours in each of 3 mutually perpendicular planes; AMP Spec 109-21-3.
Physical Shock	No discontinuities greater than 1 microsecond. See note (a).	Subject mated connectors to 100 G's sawtooth shock pulses of 6 milliseconds duration; 3 shocks in each direction applied along the 3 mutually perpendicular planes total 18 shocks; AMP Spec 109-26-9.
Mating Force	7 ounces maximum average per contact	Measure force necessary to mate connector assembly after 3 unmonitored cycles, incorporating free floating fixtures at a rate of .5 inch/minute; AMP Spec 109-42, cond.A calculate force per contact
Unmating Force	.4 ounce minimum average per contact	Measure force necessary to unmate connector assembly, at a rate of .5 inch/minute; AMP Spec 109-42, cond.A. Calculate force per contact.
Contact Retention	Contact shall not dislodge from its normal locking position	Apply axial load of 3 pounds to individual contacts, see Figure 4; AMP Spec 109-30.
Durability	See note (a).	Mate and unmate pin and receptacle connectors for 250 cycles at a maximum rate of 250 cycles/hour; AMP Spec 109-27.

Figure 1 (cont)

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal Shock	See note (a)	Subject mated connectors to 5 cycles between -65° and 125°C; AMP Spec 109-22.
Humidity-Temperature Cycling	See note (a).	Subject mated connectors to 10 humidity-temperature cycles between 25° and 65°C at 95% RH; AMP Spec 109-23-3, method III, cond. B.
Mixed Flowing Gas	See note (a).	Subject mated connectors to environmental class III for 20 days; AMP Spec 109-85-3
Temperature Life	See note (a).	Subject mated connectors to temperature life at 118°C for 33 days duration; AMP Spec 109-43.

(a) Shall meet visual requirements, show no physical damage, and shall meet requirements of additional tests as specified in the Test Sequence in Figure 2.

Figure 1 (end)

3.6. Connector Qualification and Requalification Tests and Sequences

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of Product	1,9	1,9	1,6	1,5	1,5
Termination Resistance, Dry Circuit		3,7	2,5	2,4	2,4
Dielectric Withstanding Voltage	2,7				
Insulation Resistance	3,6				
Vibration		5			
Physical Shock		6			
Mating Force		2			
Unmating Force		8			
Contact Retention	8				
Durability		4			
Thermal Shock	4		3		
Humidity-Temperature Cycling	5		4		
Mixed Flowing Gas					3(c)
Temperature Life				3(c)	

(a) See Para 4.1.A
(b) Numbers indicate sequence in which tests are performed
(c) Precondition samples with 10 cycles durability

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. All test groups shall consist of 3 connectors of the greatest number of positions of each type offered. Unless otherwise specified, randomly select and identify a minimum of 12 contacts per row per test specimen for all groups.

B. Sample Preparation

Test group 1 test specimens shall not be mounted onto printed circuit wiring boards. Test groups 2, 3, 4 and 5 shall be mounted onto printed circuit wiring boards prior to testing.

C. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

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

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. 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. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable AMP quality 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.

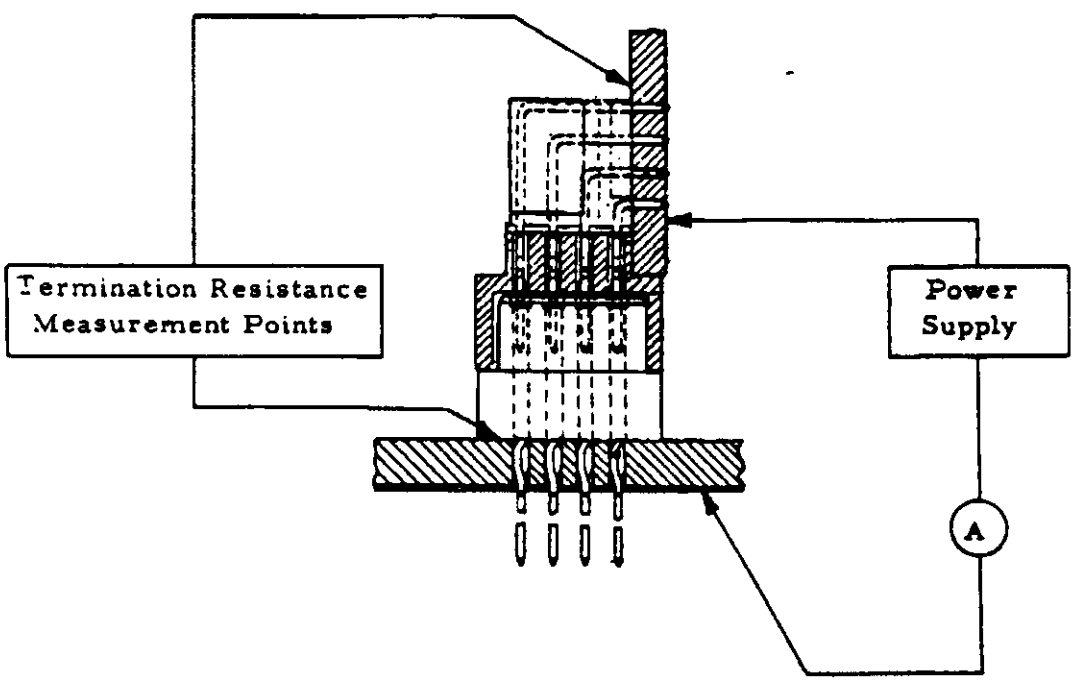

Figure 3
Termination Resistance Measurement Points

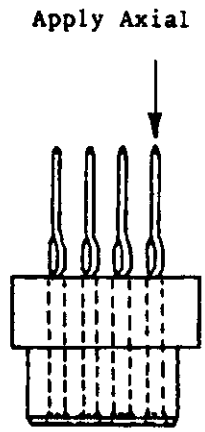

Figure 4
Contact Retention Testing