

**PRODUCT SPECIFICATION**

**1. SCOPE**

**1.1. Content**

This specification covers performance, tests and quality requirements for AMP\* TBC and TBC Plus two piece connectors. The receptacle contains a twin beam contact which mates to an .025 inch square post. Each receptacle and pin will provide a connection method on .100 inch centerlines. Connectors are available in three through six row configurations.

**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. Unless otherwise specified, latest edition of the document applies. 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. 114-25036: Application Specification
- E. 501-241: Test Report

**3. REQUIREMENTS**

**3.1. Design and Construction**

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

\* Trademark

Product Code: 5486, 5620

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<b>CONTROLLED DOCUMENT</b>				DR B. Beckley 07 Feb 94		<b>AMP</b> AMP Incorporated Harrisburg, PA 17106-3608	
This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision.				CHK W. Millhimes 10 Feb 94			
APP K. Parmer 14 Feb 94		NO <b>108-1188</b>		REV A	LOC B		
A	Revise per EC 0010-0399-94	<i>B/B</i>	<i>2/14/94</i>	PAGE 1 OF 6	TITLE CONNECTOR, INTERCONNECT, TBC AND TBC PLUS		
LTR	REVISION RECORD	APP	DATE				

### 3.2. Materials

- A. Housing: Thermoplastic, glass filled, UL94V-0
- B. Terminal:
  - (1) Receptacle: Beryllium copper
  - (2) Pin: Phosphor bronze

### 3.3. Ratings

- A. Current:
  - (1) 2.25 amperes at room ambient with not more than 2 adjacent or opposing circuits carrying this current
  - (2) 1 ampere with all contacts carrying this current
- B. Temperature: -65 to 125°C for gold contacts

### 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 environmental conditions per AMP Specification 109-1 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 114-25036.	Visual, dimensional and functional per applicable quality inspection plan.
<b>ELECTRICAL</b>		
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.	900 vac dielectric withstanding voltage. 1 minute hold. 0.5 milliamperes maximum leakage current.	Test between adjacent contacts of unmated connector and contacts to hardware. AMP Spec 109-29-1.
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum final.	Test between adjacent contacts of unmated connector and contacts to hardware. AMP Spec 109-28-4.
Temperature rise vs current.	30°C maximum temperature rise above ambient.	Subject samples to AMP Spec 109-151-2.

Figure 1 (cont)

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Test Description	Requirement	Procedure
<b>MECHANICAL</b>		
Vibration.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 10 G's, 10-500 HZ with 100 ma current applied. See Figure 4. AMP Spec 109-21-2.
Physical shock.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 100 G's half-sine shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4. AMP Spec 109-26-3.
Mating force.	70 grams maximum per contact.	Measure force necessary to mate connector assemblies from point of initial contact using free floating fixtures at rate of .5 inch per minute. Calculate force per contact. AMP Spec 109-42, Condition A.
Unmating force.	14 grams minimum per contact.	Measure force necessary to unmate connector assemblies at rate of .5 inch per minute. Calculate force per contact. AMP Spec 109-42, Condition A.
Durability.	See Note (a).	Mate and unmate connector assemblies for 250 cycles at maximum rate of 600 cycles per hour. AMP Spec 109-27.
<b>ENVIRONMENTAL</b>		
Thermal shock.	See Note (a).	Subject mated connectors to 5 cycles between -65 and 125°C. AMP Spec 109-22.

Figure 1 (cont)

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Test Description	Requirement	Procedure
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, Condition B.
Mixed flowing gas.	See Note (a).	Subject mated connectors to environmental class III for 10 days. AMP Spec 109-85-3.
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 125°C for 1000 hours. AMP Spec 109-43.

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

Figure 1 (end)

### 3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,9	1,5	1,6	1,8	1,3
Termination resistance, dry circuit	3,7	2,4	2,5		
Dielectric withstanding voltage				3,7	
Insulation resistance				2,6	
Temperature rise vs current					2
Vibration	5				
Physical shock	6				
Mating force	2				
Unmating force	8				
Durability	4		3		
Thermal shock				4	
Humidity-temperature cycling				5	
Mixed flowing gas			4		
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

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#### 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. All test groups shall each consist of 5 connectors. On individual contact measurements, measure a minimum of 30 contacts randomly from the 5 connectors. Test group 4 shall be unmounted.

###### B. 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 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.

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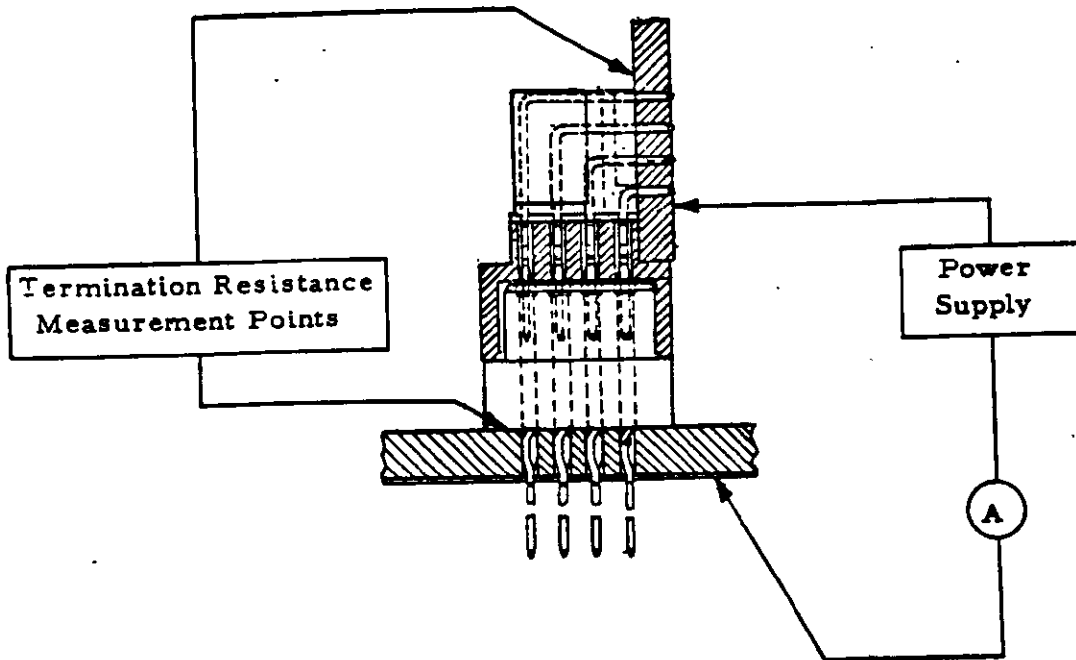


Figure 3  
Termination Resistance Measurement Points

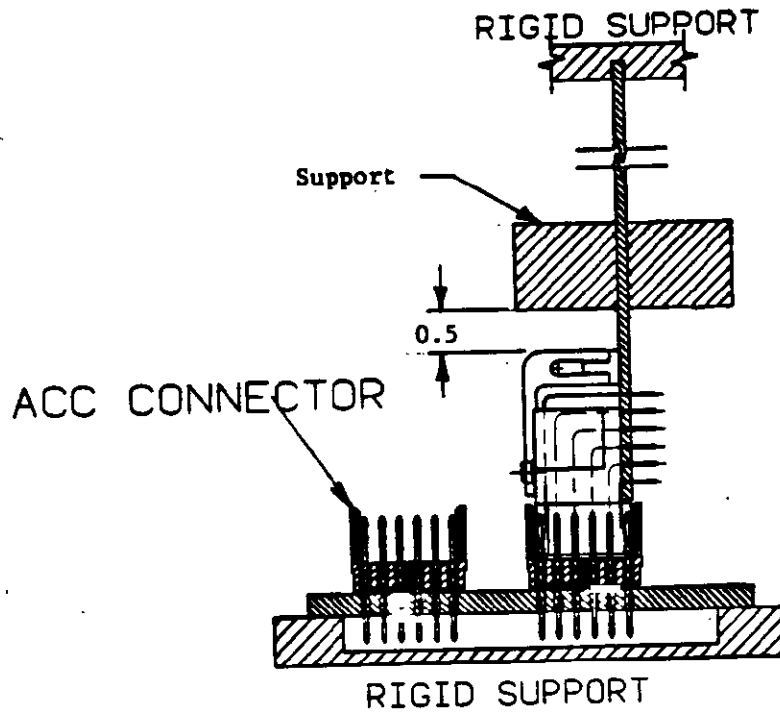


Figure 4  
Vibration & Physical Shock Mounting Fixture