Connector, Crimp-Snap Terminal, .100 Inch Centerline

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP* Crimp-Snap Terminal .100 inch centerline series connector. The Crimp-Snap Terminal .100 product is a wire to board connection consisting of crimp-snap contacts seated in a housing that mates to .025 inch square post headers on .100 inch centerline and is designed to be terminated to 22 to 26 AWG wire.

1.2. Qualification

When tests are performed on the subject product line, 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. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between requirements of this specification and product drawing, the product drawing shall take precedence. In the event of conflict between 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. 114-16019: Application Specification
E. 501-341: 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.

3.2. Materials

A. Contact: Phosphor bronze, pre-tin or 30 microinch gold over nickel plating
B. Housing: Nylon, 6/6, natural, UL94V-0

3.3. Ratings

A. Voltage: 250 vac
B. Current: See Figure 4 for applicable current carrying capability
C. Temperature: -55 to 105°C

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3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-16019.	Visual, dimensional and functional per applicable quality inspection plan.
	ELECTRICAL	
Termination resistance.	6 milliohms maximum initial. 10 milliohms maximum final.	AMP 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	1000 megohms minimum initial. 100 megohms minimum final.	AMP Spec 109-28-4. Test between adjacent contacts of mated or unmated samples.
Dielectric withstanding voltage.	1 kvac at sea level. 1.3 milliamperes maximum leakage current.	AMP Spec 109-29-1. Test between adjacent contacts of mated or unmated samples.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	AMP Spec 109-45-1. Measure temperature rise vs current. See Figure 4.
	MECHANICAL	
Solderability.	Solderable area shall have minimum of 95% solder coverage.	AMP Spec 109-11-2. Subject header posts to solderability.
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-1. Subject mated samples to 10-55-10 Hz traversed in 1 minute with .06 inch maximum excursion. 2 hours in each of 3 mutually perpendicular planes. See Figure 5.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1. Subject mated samples to 50 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 5.

Figure 1 (cont)

Test Description	Requirement	Procedure
Durability.	See Note.	AMP Spec 109-27. Manually mate and unmate samples friction lock headers for 15 cycles at maximum rate of 10 cycles per minute.
Mating force.	2 pounds maximum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples with friction lock headers a distance of .200 inch from point of initial contact at a maximum rate of .5 inch per minute.
Unmating force.	.80 pound minimum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples from friction lock headers at a maximum rate of .5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 10 cycles between -55 and 105°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 792 hours.
Mixed flowing gas.	See Note.	AMP Spec 109-85-2. Subject mated samples to environmental class II for 14 days.

NOTE *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	1,9	1,7	1,5	1,3
Termination resistance	3,7	2,7		2,4	
Insulation resistance			2,5		
Dielectric withstanding voltage			3,6		
Temperature rise vs current		3,8			
Solderability					2
Vibration	5	6(c)			
Physical shock	6				
Durability	4				
Mating force	2				
Unmating force	8				
Thermal shock			4		
Humidity-temperature cycling		4(d)			
Temperature life		5			
Mixed flowing gas				3(e)	

NOTE

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Discontinuities shall not be measured. Energize at 18° C level for 100% loadings per AMP Specification 109-151.
(d) Precondition samples with 10 cycles durability.
(e) Gold plated samples only.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, 3 and 4 shall each consist of a minimum of 5 connector assemblies with a minimum of 30 data points. Test group 5 shall consist of a minimum of 5 headers with a minimum of 30 header posts.

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 the product or 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. If 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 the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

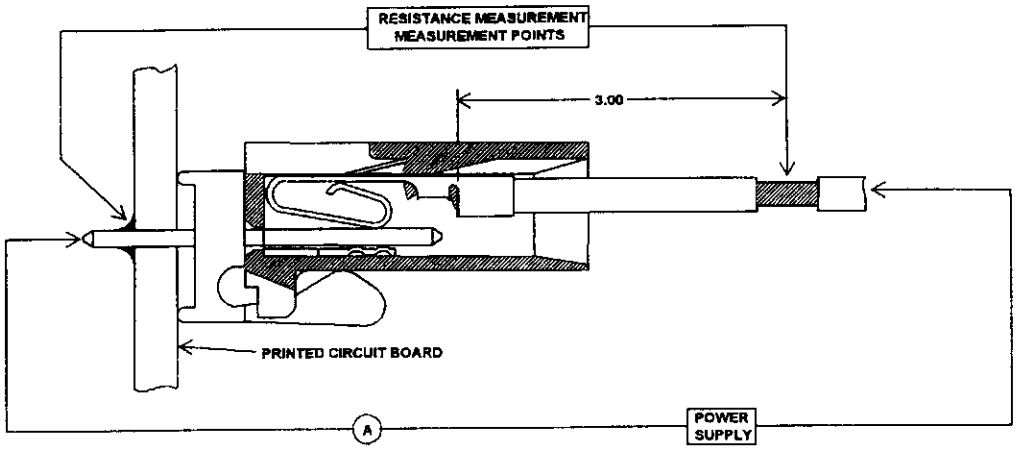

Figure 3
Termination Resistance Measurement Points

FINAL SINGLE CIRCUIT BASE CURVE
MAXIMUM WIRE SIZE

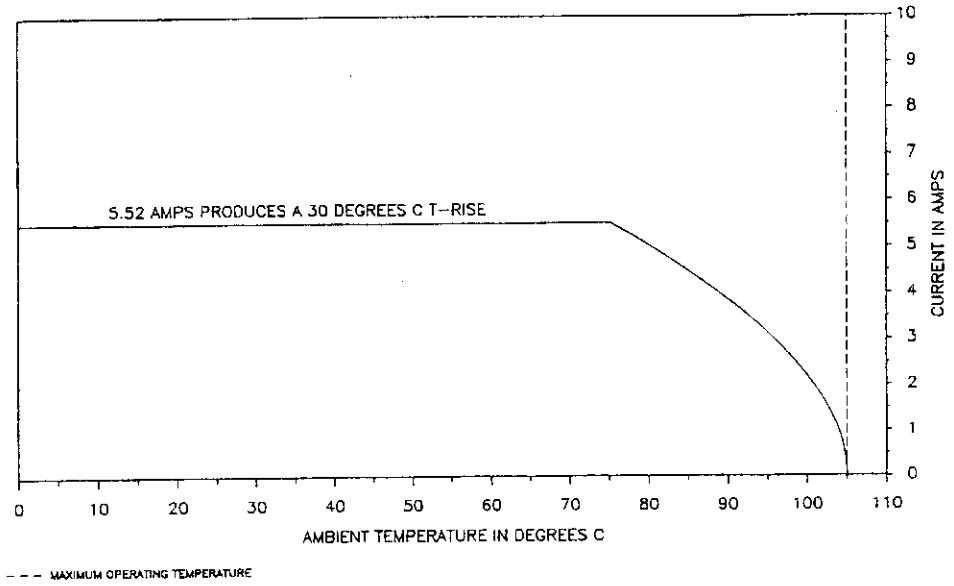

Figure 4A
Current Carrying Capability

Percent Connector Loading (20 position connector)	Wire Size AWG		
	26	24	22
Single Contact	0.74638	0.85868	1.0
50	0.50479	0.58073	0.67631
100	0.42088	0.48421	0.56390

NOTE

To determine acceptable current carrying capacity for percentage connector loading and wire gage indicated, use the Multiplication Factor (F) from the above chart and multiply it times the Base rated Current for a single circuit at maximum ambient operating temperature as shown in Figure 4A.

Figure 4B
Current Rating

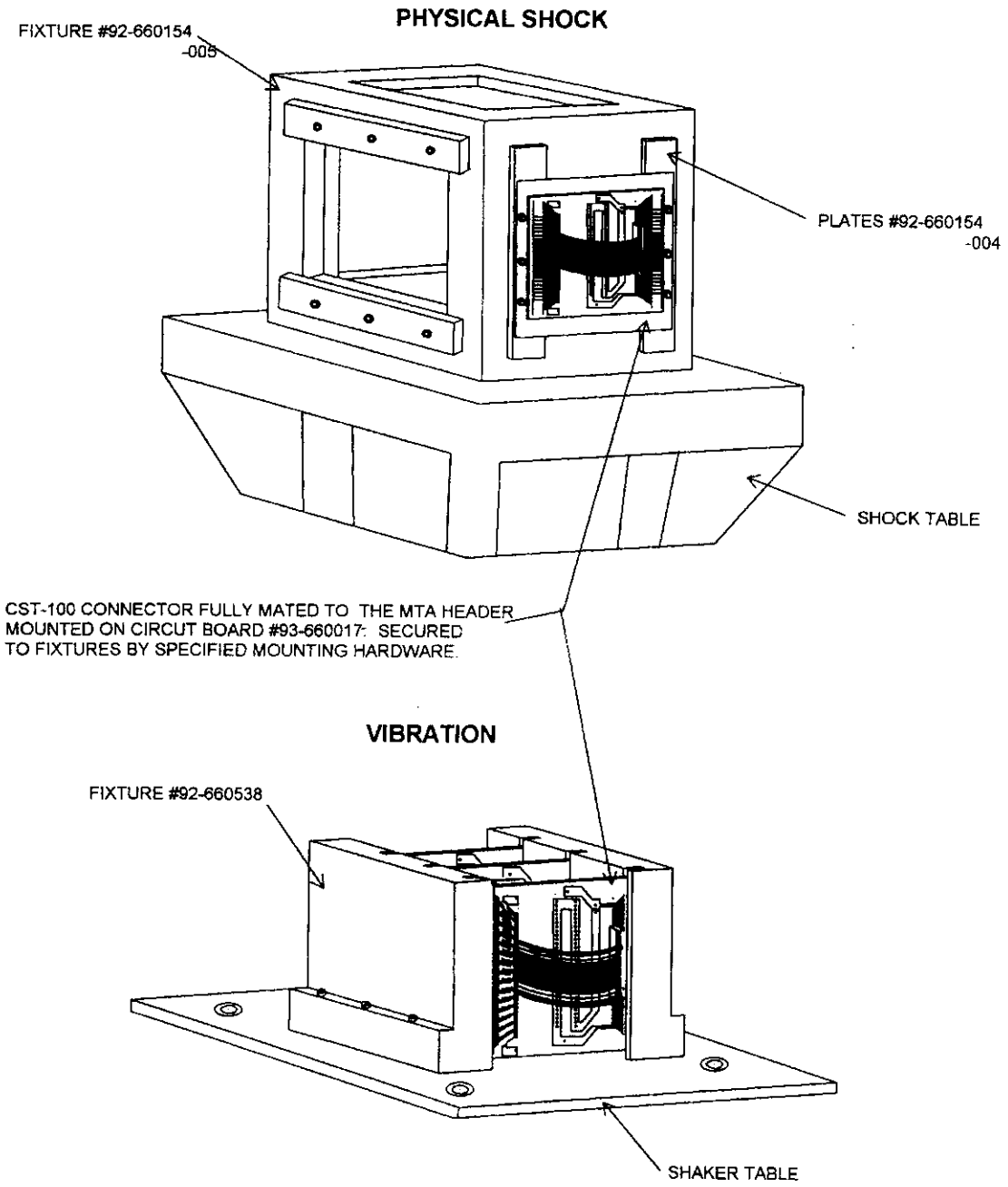

Figure 5
Vibration & Physical Shock Mounting Fixture