

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance requirements for the AMP-LEAF* connector assembly, with lubricated tin plated contacts.

1.2. Qualification

When testing or inspecting the subject product, this document shall always be supported by the applicable Product Drawing and by 109-9000, Packaging Components Division Connector Test Methods. In case of conflict the order of document precedence is as follows:

- A. Product Drawing
- B. This Product Specification
- C. 109-9000: Packaging Components Division Connector Test Methods

2. APPLICABLE DOCUMENTS

2.1. Applicable portion of the following documents form a part of the manufacturing control of this product.

MIL-T-10727: Tin Plating, Electrodeposited or Hot Dipped

2.2. The following documents describe handling and use of this product.

- A. 109-9000: Packaging Components Division Connector Test Methods
- B. MIL-STD-1344: Test Methods for Electrical Connectors
- C. MIL-STD-275: Printed Wiring for Electronic Equipment

3. PERFORMANCE REQUIREMENTS

3.1. Ratings

- A. Current: 5 amperes maximum per contact
- B. Temperature: -40° to 85°C

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DIST 14				DR <i>Fred R. Randall</i> 5/8/80	AMP AMP INCORPORATED Harrisburg, Pa.		REV 0	
				CHK <i>H. Wagan</i> 5/9/80				
				APP <i>E. S. Sklar</i> 5/9/80	LOC B	NO A		108-9043
				SHEET 1 OF 5				CONNECTOR, AMP-LEAF, TIN PLATED CONTACT
	LTR	REVISION RECORD	APP	DATE				

3.2. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure																
Examination of Product	Meet requirements of drawing.	Dimensional and visual.																
ELECTRICAL																		
Termination Resistance, Low Level	.010 ohm maximum, with wire AWG 20 or larger.	50 mv maximum open circuit, 100 ma maximum short circuit.																
Termination Resistance, Rated Current	.010 ohm maximum, with wire AWG 20 or larger.	5 amperes.																
Crimp Resistance	<table><tr><td>Resistance, milliohms</td><td></td></tr><tr><td>Wire Size, Current, maximum AWG</td><td>ampere</td></tr><tr><td>Initial</td><td>Final</td></tr><tr><td>26</td><td>1.0</td></tr><tr><td>24</td><td>3.0</td></tr><tr><td>22</td><td>5.0</td></tr><tr><td>20</td><td>7.5</td></tr><tr><td>18</td><td>10.0</td></tr></table>	Resistance, milliohms		Wire Size, Current, maximum AWG	ampere	Initial	Final	26	1.0	24	3.0	22	5.0	20	7.5	18	10.0	Measure potential drop across crimped contact between wire as it enters the wire barrel and the end of the wire barrel nearest the contact transition.
Resistance, milliohms																		
Wire Size, Current, maximum AWG	ampere																	
Initial	Final																	
26	1.0																	
24	3.0																	
22	5.0																	
20	7.5																	
18	10.0																	
Insulation Resistance	5,000 megohms minimum initial; 1,000 megohms minimum final.	500 vdc.																
Dielectric Withstanding Voltage	<table><tr><td>Test Voltage, rms</td><td>Altitude, feet</td></tr><tr><td>1800</td><td>Sea Level</td></tr><tr><td>675</td><td>50,000</td></tr></table> 2 milliamperes maximum leakage current.	Test Voltage, rms	Altitude, feet	1800	Sea Level	675	50,000	Unmated connector, test between adjacent contacts, and contacts to mounting hardware.										
Test Voltage, rms	Altitude, feet																	
1800	Sea Level																	
675	50,000																	
Current Cycling	Crimp resistance shall not exceed maximum final value.	125% rated current for 30 minutes, 15 minutes no current, total 50 cycles.																
MECHANICAL																		
Durability	No mechanical damage; meet limits of contact separation force.	50 matings and unmatings using maximum gage .070, for .000150 minimum tin-lead.																
Contact Engaging Force	24 ounces maximum per contact pair.	Maximum thickness gage .070.																

Figure 1 (cont)

AMP		AMP INCORPORATED Harrisburg, Pa.		SHEET <u>2</u> OF <u>5</u>	
LOC B	A	NO 108-9043	REV 0		
NAME CONNECTOR, AMP-LEAF, TIN PLATED CONTACT					

Test Description	Requirement	Procedure												
Contact Separation Force	2 ounces minimum per contact pair.	Size 3 times with maximum thickness gage .070. Check with minimum thickness gage .054.												
Connector Mating Force	24 ounces maximum per contact pair.	Maximum thickness gage .070.												
Vibration	No interruption of continuity greater than 1 microsecond. No physical damage.	10-55 Hz; .06 inch total excursion; mated with printed circuit board.												
Shock (Specified Pulse)	No interruption of continuity greater than 1 microsecond. No physical damage.	100 G's, 6 millisecond, sawtooth; mated with printed circuit board.												
Contact Retention (Crimped Contacts)	Contacts shall not dislodge from normal locking position.	Axial load of 10 pounds applied to contact lead, AWG 20 or larger.												
Crimp Tensile	<table><tr><td>Wire Size, AWG</td><td>Tensile Strength, pounds minimum</td></tr><tr><td>26</td><td>5</td></tr><tr><td>24</td><td>8</td></tr><tr><td>22</td><td>12</td></tr><tr><td>20</td><td>20</td></tr><tr><td>18</td><td>30</td></tr></table>	Wire Size, AWG	Tensile Strength, pounds minimum	26	5	24	8	22	12	20	20	18	30	Axial tensile load as shown. Wire shall not separate from contact.
Wire Size, AWG	Tensile Strength, pounds minimum													
26	5													
24	8													
22	12													
20	20													
18	30													

ENVIRONMENTAL

Temperature Cycling	No evidence of physical damage.	-40° to 85° C, 5 cycles.
Humidity, Steady State	Meet insulation resistance and dielectric withstanding voltage.	Unmated, 90 - 95%, RH, 40° ± 2° C, 96 hours.

Figure 1 (end)

SHEET 3 OF 5	AMP		AMP INCORPORATED Harrisburg, Pa.	
	LOC B	A	NO 108-9043	REV 0
NAME CONNECTOR, AMP-LEAF, TIN PLATED CONTACT				

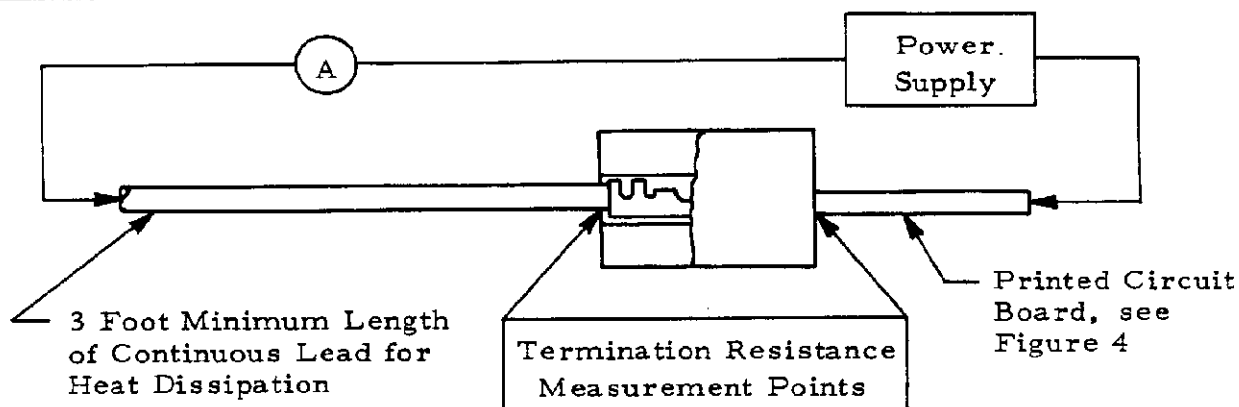


Figure 2
Termination Resistance Test Circuit

3.3. Connector Tests and Sequence

Test or Examination	MIL-STD-1344 Method	109-9000 Requirement Paragraph	Test Group (a)		
			1	2	3
			Test Sequence (b)		
Examination of Product		5.1	1	1	1
Termination Resistance, Low Level	3002.1	5.2	2, 12	3, 13	
Termination Resistance, Rated Current	3004.1	5.3	3, 13	4, 14	
Crimp Resistance		5.17			2, 4
Insulation Resistance	3003.1	5.4	4, 10	5	
Dielectric Withstanding Voltage	3001.1, Cond. 1 & 3	5.5	5, 11	6	
Current Cycling		5.18			3
Durability	2016	5.10	7	9	
Contact Engaging Force	2014	5.6		7	
Contact Separation Force	2014	5.7	8	8, 10	
Connector Mating Force	2013.1	5.8.A		2	
Vibration	2005.1, Cond I	5.12		11	
Shock (Specified Pulse)	2004.1, Cond G	5.13		12	
Contact Retention (Crimped Contacts)	2007.1	5.16	14	15	
Crimp Tensile	2003.1	5.19			5
Temperature Cycling (c)	1003.1, Cond A	5.11	6		
Humidity Steady State	1002.2, Type I, Cond B	5.14	9		

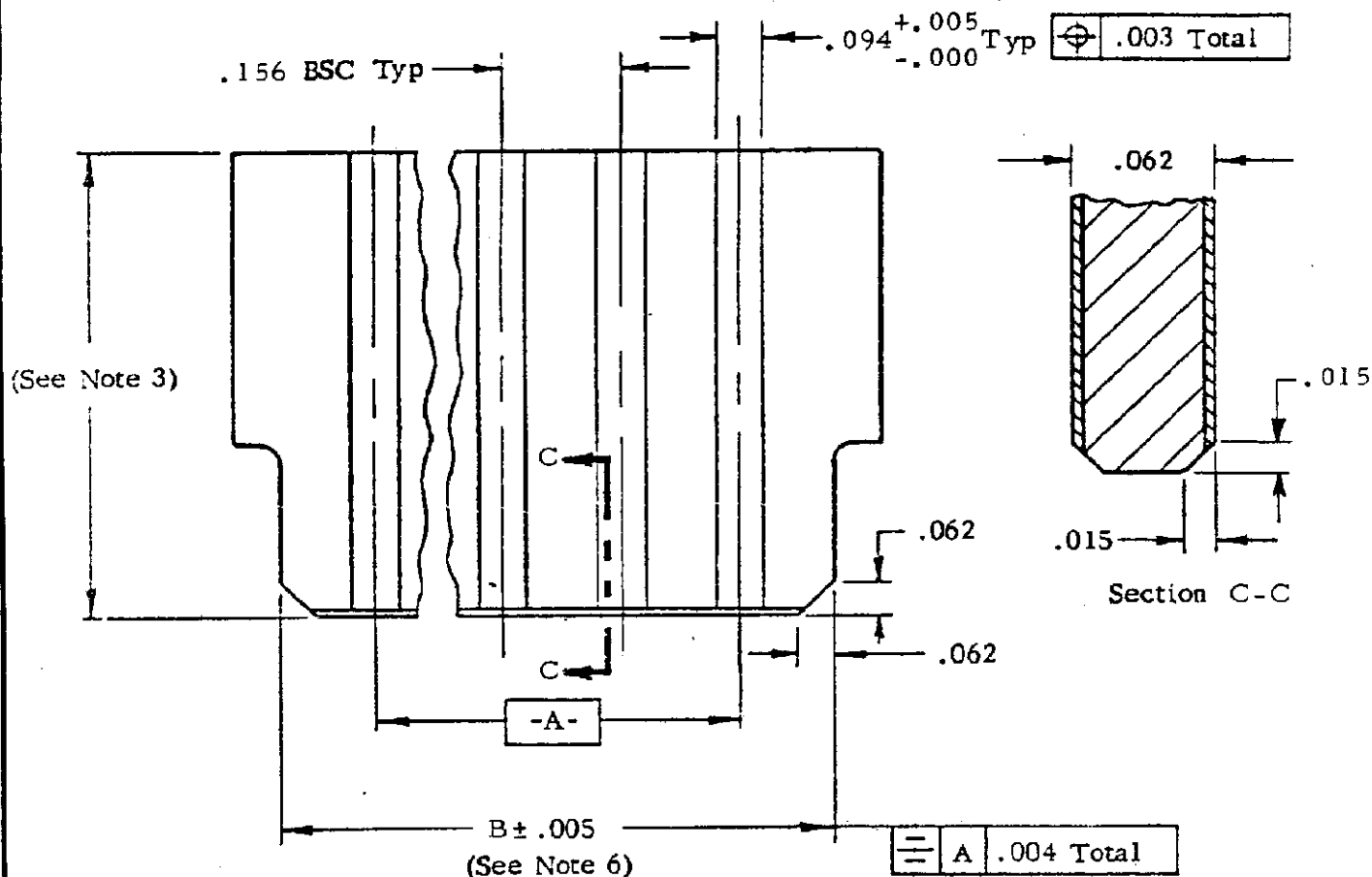
AMP		AMP INCORPORATED Harrisburg, Pa.		SHEET 4 OF 5	
LOC B	NO A	108-9043		REV 0	
NAME CONNECTOR, AMP-LEAF, TIN PLATED CONTACT					

- (a) See Para 3.4.
 (b) Number indicates sequence in which tests are performed.
 (c) Lower temperature limit -40°.

Figure 3

3.4. Selection of Test Samples

- A. Test samples shall consist of 6 connectors of the greatest number of positions of each connector type offered, 3 each test groups 1 and 2. Two additional specimens shall be selected from the least number of positions offered and tested in test group 2.
- B. Thirty contacts of each style and desired wire size shall be tested to test group 3.



Notes:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is $\pm .005$.
3. The test card shall extend $4.00 \pm .02$ from the receptacle after insertion.
4. Number of contacts shall be the same as on the corresponding printed wiring connector.
5. Printed circuit test board shall be 2 ounces copper and tin-lead plated per MIL-STD-275.
6. This dimension shall be the minimum connector card slot length minus .008.
7. Conductor configuration optional beyond card slot depth.
8. Printed wiring shall be identical on both sides.

Figure 4
Printed Circuit Board

SHEET 5 OF 5		AMP AMP INCORPORATED Harrisburg, Pa.	
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