

Commercial BNC Coaxial Bulkhead Jacks**1. SCOPE****1.1. Content**

This specification covers performance, tests and quality requirements for the AMP* commercial BNC dual crimp coaxial bulkhead jacks.

1.2. Definitions

For the purpose of this specification, the following definitions shall apply:

- A. Connector assembly: Consists of a bulkhead jack and a standard mating plug terminated to their respective cable.
- B. Connector: May be either a plug or a jack as described below.
- C. Plug: Contains the male inner contact and a rotating outer collar for locking purposes.
- D. Jack: Contains the female inner contact and bayonet locking tabs.

1.3. 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 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. 110-12020: Test Report

2.2. Military Specifications

- A. MIL-C-17: Cable, Coaxial, Radio Frequency
- B. MIL-I-17214: Indicator, Permeability, Low-Mu
- C. MIL-STD-1344: Test Methods For Electrical Connectors

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials and finish shall be as specified on the applicable product drawing.

3.3. Ratings

- A. Voltage: 500 volts rms
- B. Temperature: -55 to 85°C
- C. Nominal impedance: 50 ohms

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 are 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.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Contact resistance.	Inner contact: 2 milliohms maximum initial. 3 milliohms maximum final. Outer contact: 1 milliohm maximum.	MIL-STD-1344, Method 3004. 1 ampere dc test current with an open circuit potential of 50 millivolts.
Dielectric withstanding voltage.	1500 volts rms, 1 minute hold.	MIL-STD-1344, Method 3001. Test between center contact and outer shell.
Insulation resistance.	5000 megohms minimum.	MIL-STD-1344A, Method 3003. Test between center contact and outer shell.
Permeability.	2 mu maximum.	MIL-I-17214. Measure permeability using 2 mu pellet.
Corona.	5 picocoulombs maximum.	Test corona at 70000 feet simulated altitude.

Figure 1 (cont)

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Test Description	Requirement	Procedure
RF high potential.	No evidence of dielectric breakdown or flashover.	Instantaneously apply RF potential of 1000 volts, 5 MHz between center contact and outer shell and hold for 1 minute.
MECHANICAL		
Vibration.	No discontinuities of 1 microsecond or longer duration. See Note.	MIL-STD-1344, Method 2005, Test Condition III. Subject mated connectors to 10 to 2000 Hz traversed in 20 minutes. 3 hours in each of 3 mutually perpendicular planes. See Figure 3.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	MIL-STD-1344, Method 2004, Test Condition G. Subject mated connectors to 100 G's sawtooth shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 3.
Mating characteristics.	2 pounds maximum.	Insert gage 1 to depth of .125 inch and remove. Then measure force necessary to insert gage 2 to depth of .125 inch at maximum rate of .5 inch per minute. See Figure 4.
	2 ounces minimum.	Insert gage 1 to depth of .125 inch and remove. Insert gage 2 to depth of .125 inch and remove. Insert gage 3 to depth of .125 inch and then measure force necessary remove gage 3 at maximum rate of .5 inch per minute. See Figure 4.
Cable retention.	No loss of electrical continuity. See Note.	Apply 15 pound tensile load between cable and connector at rate of 1 inch per minute. Hold for 30 seconds and check electrical continuity using low voltage test light. With connector in fixed position, hold cable at a point 10 times the cable diameter from the connector and bend to 90° from connector axis and reverse 180°. Repeat this procedure 4 times and check electrical continuity using low voltage test light.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Locking lug retention.	Locking lugs shall not be damaged or dislodge from connector body. See Note.	Apply 25 pound axial load to connector at rate of 100 pounds per minute and hold for 1 minute.
Durability.	See Note.	Mate and unmate connector assemblies for 500 cycles at maximum rate of 12 cycles per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	MIL-STD-1344, Method 1003, Test Condition A. Subject unmated connectors to 5 cycles between -55 and 85°C.
Moisture resistance.	200 megohms final insulation resistance. 1500 vac (rms) dielectric withstanding voltage. See Note.	MIL-STD-1344, Method 1002, Type II. Subject mated connectors to 240 hours of moisture resistance.
Salt spray corrosion.	See Note.	MIL-STD-1344, Method 1001, Test Condition B. Subject unmated connectors to 5% salt spray concentration for 48 hours.

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
	Test Sequence (b)	
Examination of product	1	1
Contact resistance (c)	5,7	5,8,10,13
Dielectric withstanding voltage		6,12,16
Insulation resistance	4	4,15
Permeability	3	3
Corona		17
RF high potential		18
Vibration		7
Physical shock		9
Mating characteristics	2,9	2
Cable retention		19
Locking lug retention	10	20
Durability	6	
Thermal shock		11
Moisture resistance		14
Salt spray corrosion	8	

NOTE

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Measure center contact resistance only.

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 and shall be selected at random from current production. All test groups shall consist of 3 jacks and standard mating plugs. Connectors shall be crimped to 12 inch length of cable conforming to MIL-C-17. Current equalizers shall be located 11 inches from the back of the connector on the braid and 11.5 inches on the center conductor. A 3 foot length of cable shall be prepared with current equalizers spaced 34 inches apart on the braid and 35 inches on the center conductor. Cable resistance between equalizers shall be measured using 1 ampere dc test current. Resistance shall be divided by distance between equalizers in inches to determine milliohm per inch value for both braid and center conductor. These values shall be used when determining contact resistance.

B. Test Sequence

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

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

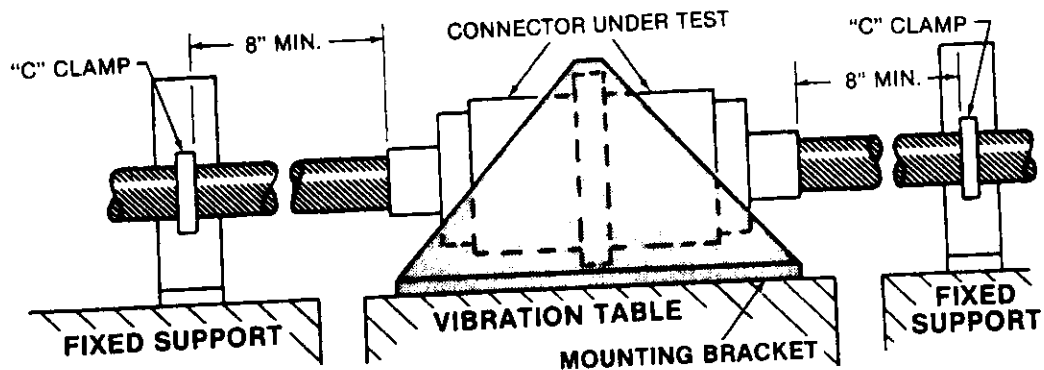


Figure 3
Vibration & Physical Shock Mounting Fixture

Gage Number	Gage Diameter
1	.057
2	.054
3	.052

Figure 4
Mating Characteristics Gages