

PRODUCT SPECIFICATION

TWIN BNC COAXICON* CONNECTORS

1.0 SCOPE

1.1 This specification contains performance requirements and test procedures for the A-MP* Twin BNC COAXICON Connector Series. Connectors of this type are intended for use on various twin coaxial cables and are rated for peak voltages of 500 volts under normal operating conditions.

2.0 APPLICABLE DOCUMENTS

2.1 The following specifications and standards form a part of this specification to the extent specified herein.

2.1.1 Military Specifications:

Mil-P-19468	Polytetrafluorethylene
Mil-R-5847	Silicone Rubber

2.1.2 Federal Specifications:

QQ-B-626	Brass
QQ-B-750	Phosphor Bronze
QQ-C-530	Beryllium Copper
QQ-C-576	Copper
QQ-S-365	Silver Plating, Electrodeposited

2.1.3 Test Specifications:

Mil-C-45662	Calibration of Standards
Mil-Std-202	Test Methods for Electrical and Electronic Component Parts

2.1.4 AMP Specifications:

AMP-109-1	Definitions of Terms and Methods used in AMP Test Specifications
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3.0 REQUIREMENTS

3.1 Definitions. For the purpose of this specification, the following definitions shall apply.

3.1.1 Connector Assembly. A connector assembly consists of a mated plug and jack terminated to their respective cable.

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GPS-501-15

PRINT DIST		A		ECN C74-70		RP		5/1/72		SHEET 1 OF 6		NAME Twin BNC COAXICON Connectors	
LTR		REVISION RECORD		DR		CHK		DATE		LOC A		NO. 108-12006	
										AMP INCORPORATED		HARRISBURG, PENNA.	
										R. W. Prescott 4/3/72			
										J. H. Kelly 4/10/72			
										Thomas J. Harding 4/10/72			

- 3.1.2 Plug. The plug contains both a female and a male inner contact, separated from one another with a polarized inner dielectric. Plugs are designed for polarized mating to a compatible A-MP twin jack.
- 3.1.3 Jack. The jack contains both a female and a male inner contact, separated from one another with a polarized inner dielectric. Jacks are designed for polarized mating to a compatible A-MP twin plug.
- 3.2 Design and Construction. Connectors shall be of the design, construction and physical dimensions specified on the AMP Product Drawing.
- 3.3 Materials and Finish. The materials used in the construction of this product and the finish and plating shall be as specified on the AMP Product Drawing.
- 3.4 Functional Characteristics.

TABLE I

Impedance	Non Constant
Operating Voltage @ Sea Level	500 volts rms
Operating Temperature	-55°C to +85°C

- 3.5 Performance. Connectors shall be designed to meet the mechanical and electrical performance requirements specified herein. To verify compliance to this specification, the required samples shall be tested and shall meet the minimum performance requirements specified.
- 3.5.1 Examination of Product. When test specimens are examined as specified in Paragraph 4.6.1, there shall be no evidence of physical damage or any other defect that could render the specimen unsuitable for test.
- 3.5.2 Insulation Resistance. When tested as specified in Paragraph 4.6.2 at 500 volts DC, the insulation resistance between adjacent pin contacts and between pin contacts and outer shell of a connector assembly shall not be less than 5000 megohms.
- 3.5.3 Dielectric Withstanding Voltage. When tested as specified in Paragraph 4.6.3, a connector assembly shall withstand a test potential of 1500 vrms, 60 Hz for a period of one minute. There shall be no evidence of dielectric failure when tested between adjacent pin contacts and between pin contacts and the outer shell.

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- 3.5.4 Cable Retention. When tested as specified in Paragraph 4.6.4, the force required to pull the cable from a plug or jack shall not be less than 25 pounds.
- 3.5.5 Durability. After 200 cycles of mating and unmating as specified in Paragraph 4.6.5, there shall be no evidence of physical damage which could affect the mechanical or the electrical performance of the connectors.
- 3.5.6 Temperature Cycling. Upon completion of testing as specified in Paragraph 4.6.6 at +85°C and -55°C, connector assemblies shall show no evidence of physical damage and shall meet the requirements for Insulation Resistance, Paragraph 3.5.2 and Dielectric Withstanding Voltage, Paragraph 3.5.3.
- 3.5.7 Salt Spray. After being subjected to a 5% salt spray environment for 48 hours as specified in Paragraph 4.6.7, connector assemblies shall meet the requirements for Cable Retention, Paragraph 3.5.4.
- 3.5.8 Physical Shock. During the shock test as specified in Paragraph 4.6.8, eight shock pulses at 100 G's, there shall be no electrical discontinuities exceeding 10 microseconds duration. Upon completion of testing, there shall be no evidence of cracking, breaking, or loosening of component parts.
- 3.5.9 Vibration. During the vibration test as specified in Paragraph 4.6.9, at 10 - 2000 Hz for eight hours, there shall be no electrical discontinuities exceeding 10 microseconds duration. Upon completion of testing, there shall be no evidence of cracking, breaking, or loosening of component parts.

4.0 QUALITY ASSURANCE PROVISIONS

- 4.1 General Provisions. The quality provisions specified herein shall be employed in the manufacturing and testing of this product to assure normal production units meet the performance requirements of this specification.
- 4.2 Classification of Test.
- (A) Qualification Inspection (See 4.4)
 - (B) Quality Conformance Inspection (See 4.5)

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4.3 Test Conditions.

- 4.3.1 Measurements. Measurements shall be taken with instruments that have been calibrated in accordance with specification Mil-C-45662.
- 4.3.2 Laboratory Conditions. Unless otherwise specified, normal laboratory temperature, humidity, and atmospheric pressure shall be considered acceptable for test purposes.
- 4.3.3 Coaxial Cable. Coaxial cable used for testing shall be RG 108/U, in accordance with Mil-C-17.

4.4 Qualification Inspection.


- 4.4.1 Sample Selection. Connectors selected for test purpose shall be representative of current production. Preparation of test samples shall be conducted in accordance with AMP Instruction Sheets governing assembly and crimping technique.
- 4.4.2 Test Procedure. Qualification Inspection shall be conducted in accordance with Table II in the sequence specified. Each test group shall consist of 10 mated, cabled connector assemblies.

TABLE II

Test or Examination	Test Group and Sequence	
	I	II
Examination of Product	1	1
Insulation Resistance	2-7	2
Dielectric Withstanding Voltage	3-8	3
Cable Retention	9	6
Durability		4
Salt Spray		5
Physical Shock	4	
Vibration	5	
Temperature Cycling	6	

4.5 Quality Conformance Inspection.

- 4.5.1 Sample Selection. Unless otherwise specified, sampling procedures shall be in accordance with Mil-Std-105. Sampling and Acceptable Quality Levels shall be as specified in the applicable AMP Quality Inspection Plan. Dimensional requirements shall be in accordance with the applicable AMP Product Drawing.

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4.5.2 Test Procedure. Connectors supplied in accordance with this specification shall meet the requirements for Examination of Product in accordance with the applicable AMP Quality Engineering Procedure.

4.6 Test Methods.

- 4.6.1 Examination of Product. Each test specimen shall be thoroughly examined prior to test for evidence of physical damage, improper assembly, or any other defect that could render the specimen unsuitable for test.
- 4.6.2 Insulation Resistance. Connector assemblies shall be tested in accordance with Method 302, Test Condition B of Mil-Std-202. Measurements shall be performed between adjacent pin contacts and between each pin contact and the outer shell. The 500 VDC test potential shall be applied for a period of 2 minutes before recording the Insulation Resistance. Connectors shall meet the performance requirements specified in Paragraph 3.5.2.
- 4.6.3 Dielectric Withstanding Voltage. Connector assemblies shall be tested in accordance with Method 301 of Mil-Std-202. The test voltage shall be applied between adjacent pin contacts and between each pin contact and the outer shell. The voltage shall be applied at a rate of approximately 500 volts per second and shall be held at the voltage specified in Paragraph 3.5.3 for a period of one minute.
- 4.6.4 Cable Retention. Connectors being tested shall be attached to a fixture and placed between the jaws of a tensile testing machine. The braid and inner conductors of the cable shall be soldered together to create an equal pull on both, and placed between the other jaws of the tensile machine. An axial force shall then be applied between the cable and the connector at a rate of one inch per minute. The connector shall not break or separate from the cable at any force less than that specified in Paragraph 3.5.4.
- 4.6.5 Durability. Connector assemblies shall be mated and un-mated by hand for a total of 200 times. Each mating shall include the utilization of the locking collar of the connector. After conditioning, the connectors shall meet the performance requirements specified in Paragraph 3.5.5.
- 4.6.6 Temperature Cycling. Un-mated connectors shall be subjected to 5 cycles of temperature cycling in accordance with Method 102, Test Condition D of Mil-Std-202. During the final temperature cycle, connector assemblies shall be mated and un-mated at the end of each temperature extreme exposure. Upon completion, the connectors shall meet the performance requirements of Paragraph 3.5.6.

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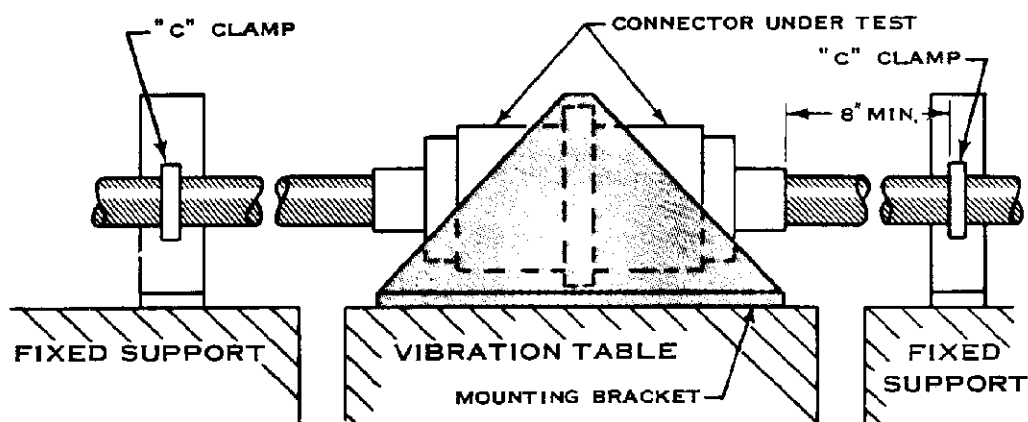
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- 4.6.7 Salt Spray. Connector assemblies shall be subjected to salt spray in accordance with Method 101, Test Condition B of Mil-Std-202. After the 48 hour exposure to the salt fog environment, connectors shall be washed, shaken, air blasted, and then permitted to dry for 24 hours at 40°C. The connectors shall meet the performance requirements of Paragraph 3.5.7.
- 4.6.8 Physical Shock. Connector assemblies shall be subjected to the physical shock test in accordance with Method 213, Test Condition I of Mil-Std-202. Four shock pulses shall be performed in each of two planes perpendicular to each other and to the major axis of the connectors. Throughout the test, all connectors shall be wired in series and a D.C. current of 0.1 ampere shall be applied. Instrumentation shall be incorporated to detect electrical discontinuities as short as 10 microseconds. Connectors shall meet the performance requirements of Paragraph 3.5.8.
- 4.6.9 Vibration. Connector assemblies, mounted as illustrated in Figure I, shall be subjected to vibration in accordance with Method 204, Test Condition B of Mil-Std-202. Testing shall be for four hours in each of two planes, mutually perpendicular to each other and to the major axis of the connectors. Throughout the test, connectors shall be wired in series and a D.C. current of 0.1 ampere shall be applied. Instrumentation shall be incorporated to detect electrical discontinuities as short as 10 microseconds. Connectors shall meet the performance requirements of Paragraph 3.5.9.

FIGURE I



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