AMP*

QUALIFICATION TEST REPORT

Tel-Splice Connector

501-88 Rev. 0

Product Specification:	108-6021, Rev. E
CTL No.:	1216-033-003
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Classification:	Unrestricted
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AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
Tel-Splice Connector

1. Introduction

1.1 Purpose

Testing was performed on AMP's Tel-Splice Connector to determine if it meets the requirements of AMP Product Specification 108-6021, Rev. E.

1.2 Scope

This report covers the electrical, mechanical and environmental performance of the Tel-Splice Connector, manufactured by the Communications Products Division of the Signal Transmission Products Group. The testing was performed between May 16, 1988 and January 24, 1989.

1.3 Conclusion

The Tel-Splice Connector meets the electrical, mechanical and environmental performance requirements of AMP Product Specification 108-6021, Rev. E.

1.4 Product Description

AMP Tel-Splice Connectors provide an economical and reliable means of splicing telephone cable conductors. The connectors incorporate an insulation displacement type contact and polypropylene housings. Flame retardant connectors, with clear polycarbonate housings, are also available. Any combination of solid copper wire, 26-19 AWG can be terminated in one connector (2- or 3-Wire, Half-Tap, or Clearing Splice). Straight bridge and Half-Tap splices can be made with these connectors. The terminals are manufactured from tin-plated copper alloy. These connectors are available in both filled and unfilled versions.

1.5 Test Samples

The samples were taken randomly from current production, and the following samples were used for test:

Test Group	Quantity	Part Number	Description
1,2,3,4,5	50	552795-2	2 Wire Filled Splice 19 AWG Wire
1,2,3,4,5	50	552795-2	2 Wire Filled Splice 26 AWG Wire

1.6 Similar Products

The following products, although not tested, qualify by similarity:

Part Number	Description
X-552678-X	3 Wire Splice
X-554656-X	3 Wire Splice
X-553759-X	3 Wire Flame Retardant Splice
X-552795-X	2 Wire Splice
X-554655-X	2 Wire Splice
X-553395-X	2 Wire Flame Retardant Splice
X-553017-X	2 Wire Half Tap Splice

1.7 Qualification Test Sequence

Test or Examination	Test Groups 1	2	3	4	5
Examination of Product	1	1	1	1	1
Termination Resistance, Dry Circuit	2,4	2,4			
Dielectric Withstanding Voltage				2	
Insulation Resistance/Immersion			2		
Tensile					2
Temperature Cycling		3			
Temperature Life	3				

The numbers indicate sequence in which tests were performed.

2. Summary of Testing

2.1 Examination of Product - All Groups

All samples submitted for testing were selected from normal production lots. They were inspected and accepted by the Product Assurance Department of the Automotive/Consumer Business Group.

2.2 Termination Resistance, Dry Circuit - Groups 1 & 2

All termination resistance measurements taken at 50 milliamperes dc and 50 millivolts open circuit voltage were less than the specification requirement of 30.0 milliohms maximum initial and 2.0 milliohms maximum change in resistance.

Group	Condition	Samples	Min.	Max.	Mean
1	After Heat Age	20	0.000	0.075	0.082
2	After Thermal Cycling	20	-0.030	0.015	-0.011

All values in milliohms.

2.3 Dielectric Withstanding Voltage - Group 4

There was no dielectric breakdown or flashover below the 2500 Vac specification minimum.

2.4 Insulation Resistance/Immersion - Group 3

All insulation resistance measurements were greater than the specification requirement of 100 megohms minimum after each of the five cycles of salt solution immersion.

Cycle #	Time	Minimum
Initial	2.0 Hours	6.0×10^6
Cycle 1	74.0 Hours	8.0×10^6
Cycle 2	146.0 Hours	6.0×10^6
Cycle 3	318.0 Hours	3.0×10^6
Cycle 4	390.0 Hours	1.0×10^7
Cycle 5	462.0 Hours	7.0×10^6

All values in megohms.

2.5 Tensile - Group 5

All tensile values were greater than the specification requirement of 75% of the mean wire breaking strength.

Wire Size	Spec. Min.	No. of Samples	Min.	Max.	Mean
19 AWG	28.125	20	34.00	37.25	35.74
26 AWG	6.045	20	7.30	8.50	7.95

All values in pounds.

2.6 Temperature Cycling - Group 2

There was no evidence of physical damage to the connector as a result of exposure to temperature cycling extremes.

2.7 Temperature Life - Group 1

There was no evidence of physical damage to the connector as a result of exposure to a temperature of 100°C for 1000 hours.

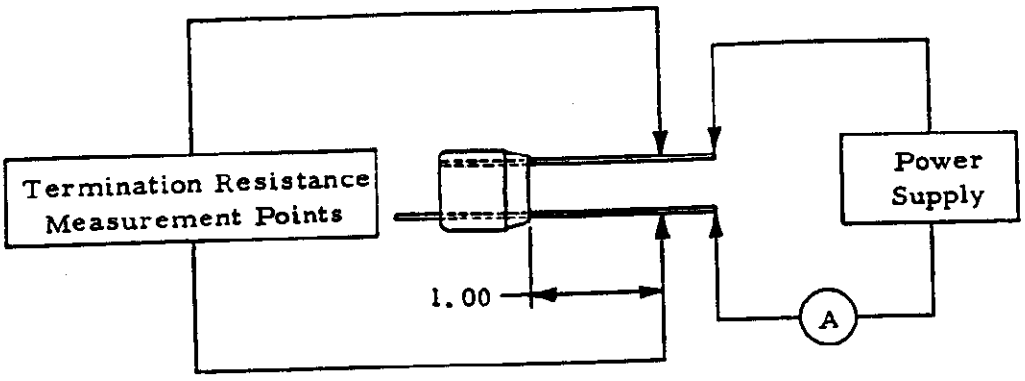
3. Test Methods

3.1 Examination of Product

The product drawings and inspection plans were used to examine the samples. They were examined visually, dimensionally and functionally.

3.2 Termination Resistance, Low Level

Termination resistance measurements at low level current were made, using a four-terminal measuring technique. The test current was maintained at 50 milliamperes dc, with an open circuit voltage of 20 millivolts dc.



3.3 Dielectric Withstanding Voltage

A test potential of 8000 Vac was applied between the sample and a copper electrode immersed in a 5% salt water solution. This potential was applied, at a rate of 500 volts per second, until 8000 volts or breakdown was reached.

3.4 Insulation Resistance/Immersion

Connectors were subjected to 5 cycles of immersion in 5% salt solution. Each cycle was 72 hours of immersion, followed by 72 hours at ambient.

Insulation Resistance was measured between both wires and a copper electrode placed in the salt solution. A voltage of 250 Vdc was applied for 1 minute, and the insulation resistance was then measured.

3.5 Crimp Tensile

An axial load was applied to each sample, at a crosshead rate of 1 inch per minute. This load was applied until destruction.

3.6 Temperature Cycling

Connectors were exposed to 512 cycles of temperature cycling. Each cycle lasted 8 hours and consisted of cycling the temperature between -40°C and 60°C. The samples were at each extreme for one hour, with a three-hour transition.

3.7 Temperature Life

Samples were subjected to 1000 hours at an elevated temperature of 100°C.

4. Validation

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