CONNNNECTOR, SHORT POINT, POWER RECEPTACLE CONTACT

1. Introduction

1.1 Purpose

Testing was performed on AMP® Short Point Connectors with power receptacle contacts to determine its conformance to the requirements of AMP® Product Specification 1472-1 Rev. A.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the short point connectors with power receptacle contacts manufactured by the Printed Circuit Board Products Division of the Capital Goods Business Unit. The testing was performed between March 14, 1996 and July 8, 1996.

1.3 Conclusion

The Short Point Connectors with power receptacle contacts, listed in paragraph 1.5, meet the electrical, mechanical, and environmental performance requirements of AMP® Product Specification 1472-1 Rev A.

1.4 Product Description

The short point receptacle contact is a separable electrical connection device for mating to .025 inch square posts. It can be crimped to 20 to 32 AWG wire sizes and is intended to be used with a connector housing with centerline spacing of at least .100 inch.
The contacts are a Phosphor bronze duplex plated gold over nickel plating. The housing material is black Polyamide, glass filled, UL94V-0.

1.5 Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1	5	3-103240-2	32 Pos Double row header
1	5	104483-8	64 Pos Short point housing
1	320	104480-3	Short point contact with AWG22 wire

1.6 Qualification Test Sequence

	Test Group
Test or Examination	1
Examination of Product	1,9
Termination Resistance, Dry Circuit	2,7
Temperature rise vs current	3,8
Vibration	6
Temperature life	5
Mixed flowing gas	4

The numbers indicate sequence in which tests were performed.

2. Summary of Testing

2.1 Examination of Product

All samples submitted for testing were selected from normal current production lots.

2.2 Termination Resistance, Dry Circuit

All termination resistance measurements, taken at 20 milliamperes DC and 50 millivolts open circuit voltage were less than 15 milliohms initially and less than 20 milliohms after testing.

Test Group	Number of Data points	Condition	Termination Resistance Min	Max	Mean
1	30	Initial	4.07	4.80	4.452
	30	After Vibration	4.38	6.00	4.977

All values in milliohms

2.3 Temperature Rise vs Current

All samples had a temperature rise of less than 30°C above ambient when using a baseline rated current of 8.8 amperes and the correct derating factor based on the samples wiring configuration .

2.4 Vibration

Following vibration, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.5 Temperature Life

No evidence of physical damage to either the contacts or the connector was visible as a result of exposure to an elevated temperature.

2.6 Mixed Flowing Gas

No evidence of physical damage to either the contacts or the connector was visible as a result of exposure to the pollutants of mixed flowing gas.

3. Test Methods

3.1 Examination of Product

Product drawings and inspection plans were used to examine the samples. They were examined visually and functionally.

3.2 Termination Resistance, Low Level

Termination resistance measurements at low level current were made using a four terminal measuring technique (Figure 1). The test current was maintained at 20 milliamperes DC with an open circuit voltage of 20 millivolts DC.

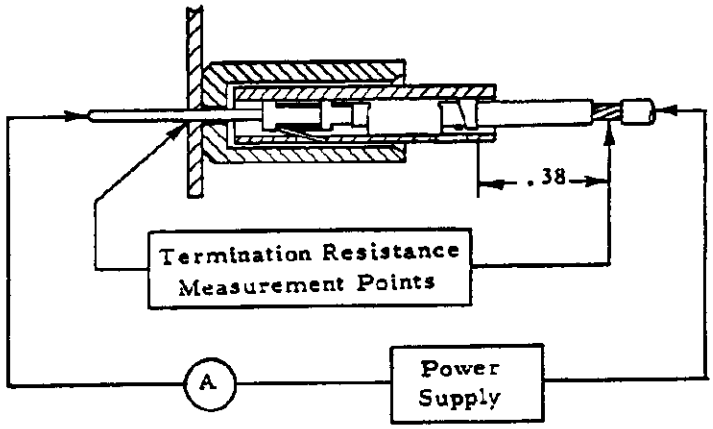

Figure 1
Typical Termination Resistance Measurement Points

3.3 Temperature Rise vs Specified Current

Temperature rise curves were produced by measuring individual contact temperatures at 5 different current levels. These measurements were ploted to product a temperature rise vs current curve. Thermocouples were attached to the contacts to measure their temperatures. The ambient temperature was then subtracted from this measured temperature to find the temperature rise. When the temperature rise of 3 consecutive readings taken at 5 minute intervals did not differ by more than 1°C the temperature measurement was recorded.

3.4 Vibration, Random

Mated connectors were subjected to a random vibration test, specified by a random vibration spectrum, with excitation frequency bounds of 5 and 500 hertz. The power spectral density at 5 hz was 0.000312 G^2/Hz. The spectrum sloped up at 6 dB per octave to a PSD of 0.04 G^2/Hz at 16 Hz. The spectrum was flat at 0.04 G^2/Hz from 16 to 500 Hz. The root-mean square amplitude of the excitation was 4.41 GRMS. This was performed for 15 minutes in each of three mutually perpendicular planes for a total vibration time of 45 minutes. Samples were energized with 3.5 amperes.

3.5 Temperature Life

Mated samples were exposed to a temperature of 105°C for 500 hours.

3.6 Mixed Flowing Gas, Class III

Mated connectors were exposed for 20 days to a mixed flowing gas Class III exposure. Class III exposure is defined as a temperature of 30°C and a relative humidity of 75% with the pollutants of Cl_2 at 20 ppb, NO_2 at 200 ppb, and H_2S at 100 ppb. Samples were durability cycled a minimum of 10 times before MFG testing.

4. Validation

Prepared by:

Terrance M. Shingara 7/16/96

Terrance M. Shingara
Test Engineer
Product Qualification Team
Americas Regional Laboratory

Reviewed by:

Robert S. Druckenmiller 7/17/96

Robert S. Druckenmiller
Supervisor
Product Testing
Americas Regional Laboratory

Approved by:

Edward Gill 8/21/96

Edward Gill
Manager
Engineering & Design Assurance
Capital Goods Business Unit