AMP

QUALIFICATION TEST REPORT

MODULAR JACK, KEYSTONE

6 POSITION AND 8 POSITION

501-82 Rev. 0

Product Specification:	108-6053
CTL No.:	1244-008-002
Date:	10/28/88
Classification:	Unrestricted
Prepared By:	T. Shingara

*Trademark of AMP Incorporated

Table of Contents

TS/kd
(R1244TS2)

AMP

AMP INCORPORATED

HARRISBURG, PENNSYLVANIA 17105 PHONE: 717-564-0100 TWX: 510-657-4110

CORPORATE TEST LABORATORY

Qualification Test Report
Modular Jack, Keystone
6 Position and 8 Position

1. Introduction

1.1 Purpose

Testing was performed on the AMP* Keystone Modular Jack to determine if it meets the requirements of AMP Specification 108-6053.

1.2 Scope

This report covers the electrical, mechanical and environmental performance of the Keystone Modular Jack made by Communications Products Division. The testing was performed between August 1, 1988 and September 22, 1988.

1.3 Conclusion

The Keystone Modular Jack meets the electrical, mechanical and environmental performance requirements of Product Specification 108-6053.

1.4 Product Description

The Keystone Modular Jack is designed for panel mounting, and provides a means of terminating discrete wires to standard telephone jacks that accept standard telephone line cord plugs. The insulation displacing terminals are designed to terminate 19-28 AWG solid or stranded copper wire having a maximum overall diameter of 0.065.

1.5 Test Samples

Samples were taken randomly from current production. The following samples were used:

Test Group	Quantity	Part Number	Description
1 thru 7	70	554578-1	8 Pos Keystone Jack
1 thru 7	70		8 Pos Modular Plug
1 thru 7	30		8 Conductor Cable

*The Modular Plug was supplied with no part number.

1.6 Qualification Test Sequence

	Test Groups						
Test or Examination	1	2	3	4	5	6	7
Examination of Product	1	1	1	1	1	1	1
Termination Resistance, Dry Circuit		2,4	2,4	4,6			2
Dielectric Withstanding Voltage	2						4,6
Insulation Resistance						2,4	3,7
Vibration			3				
Mating Force				2			
Unmating Force				3			
Surge Test						3	
Contact Retention					3		
Plug Retention					2		
Contact Normal Force	3						
Durability				5			
Humidity-Temperature Cycling							5
Life		3					

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 Communication Products Division.

2.2 Termination Resistance, Dry Circuit - Groups 2,3,4,7

All termination resistance measurements met the specification requirement of 50 milliohms or less change in resistance after testing. (See Figure 1.)

Group	Condition	No. of Contacts	Min.	Max.	Mean
2	After Life	80	-1.4	6.2	1.92
3	After Vibration	80	-3.3	40.5	2.78
4	After Durability	80	-2.8	4.7	1.01
7	After Humidity	80	-2.4	18.8	3.10

All values are in milliohms.

2.3 Dielectric Withstanding Voltage - Groups 1,7

There was no dielectric breakdown or flashover when the test voltage was applied between adjacent conductors of the modular jack, and between the modular jack mated with a modular plug.

2.4 Insulation Resistance - Groups 6,7

All insulation resistance measurements were greater than the 500 megohm specification minimum initially, after surge testing and after Humidity-Temperature cycling.

2.5 Vibration - Group 3

During vibration testing, there were no discontinuities of the contacts greater than one microsecond. Following vibration, there were no cracks, breaks or loose parts on the connector assemblies.

2.6 Mating Force - Group 4

All mating forces were less than the 5 pound specification maximum.

2.7 Unmating Force - Group 4

All unmating forces were less than the 5 pound specification maximum.

2.8 Surge Test - Group 6

Following surge testing, there were no cracks, breaks or loose parts on the connector assemblies.

2.9 Contact Retention - Group 5

No terminals dislodged from their housings during testing.

2.10 Plug Retention - Group 5

No electrical discontinuities were detected during testing, and all assemblies remained mated.

2.11 Contact Normal Force - Group 1

All contacts had a required normal force greater than 100 grams.

2.12 Durability - Group 4

There was no physical damage to the samples as a result of 200 cycles of durability.

2.13 Humidity-Temperature Cycling - Group 7

After Humidity-Temperature cycling, there was no evidence of physical damage.

2.14 Life - Group 2

After life testing, there was no evidence of physical damage.

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, Dry Circuit

A four-terminal measuring technique was used. The current was maintained at 100 milliamperes, with an open circuit voltage of 50 millivolts.

3.3 Dielectric Withstanding Voltage

A test potential of 1000 Vac was applied between the adjacent conductors of the modular jack alone, and between the modular jack mated with a modular plug.

3.4 Insulation Resistance

Insulation Resistance was measured between adjacent circuits of the unmated modular jacks. A voltage of 100 VDC was applied for two minutes, and the insulation resistance was measured.

3.5 Vibration

Mated connectors were subjected to vibration having sinusoidal motion. The amplitude was 0.06 inch, double amplitude. The vibration frequency was varied between the limits of 10 and 55 Hz, and returned to 10 Hz in 1 minute. This cycle was performed 15 times in each of three mutually perpendicular planes. Connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.6 Mating Force

With the latch depressed, the force required to mate the plug and jack was measured. A free floating fixture was used, and the rate of travel was 0.5 inch/minute.

3.7 Unmating Force

With the latch depressed, the force required to unmate the plug and jack was measured. The rate of travel was 0.5 inch/minute.

3.8 Surge Test

Mated plugs and jacks were subjected to five 1000 volt surges of each polarity. Each surge had a rise time of less than 5 microseconds, and a decay of about 1000 microseconds.

3.9 Contact Retention (AMP-BARREL Terminal)

An axial load of 11 pounds was applied to each terminal and held for 60 seconds. The force was applied in a direction of removal of contacts.

3.10 Plug Retention

An axial load of 20 pounds was applied to each plug and held for 60 seconds. The force was applied in a the direction of removal of the plug from the jack. Electrical continuity was monitored.

3.11 Contact Normal Force

With part of the housing removed to access the contacts, a force was applied to each contact to cause the contact to deflect a position 0.237 inches below the modular plug mating surface. This force was measured.

3.12 Durability

Connectors were mated and unmated 500 times by hand, at a rate of 20 cycles per minute.

3.13 Humidity-Temperature Cycling

Mated connectors were exposed to 10 cycles of humidity-temperature cycling. One cycle took 12 hours, and consisted of cycling the temperature between 5°C and 60°C. The relative humidity was held at 95%. During the final cycle, a 500 Vac dielectric withstanding voltage test was performed.

3.14 Life

Mated connectors were exposed to 10 cycles of humidity-temperature cycling. One cycle took 12 hours, and consisted of cycling the temperature between 5°C and 60°C. The relative humidity was held at 95%. After cycling, the samples were mated and unmated 200 times.

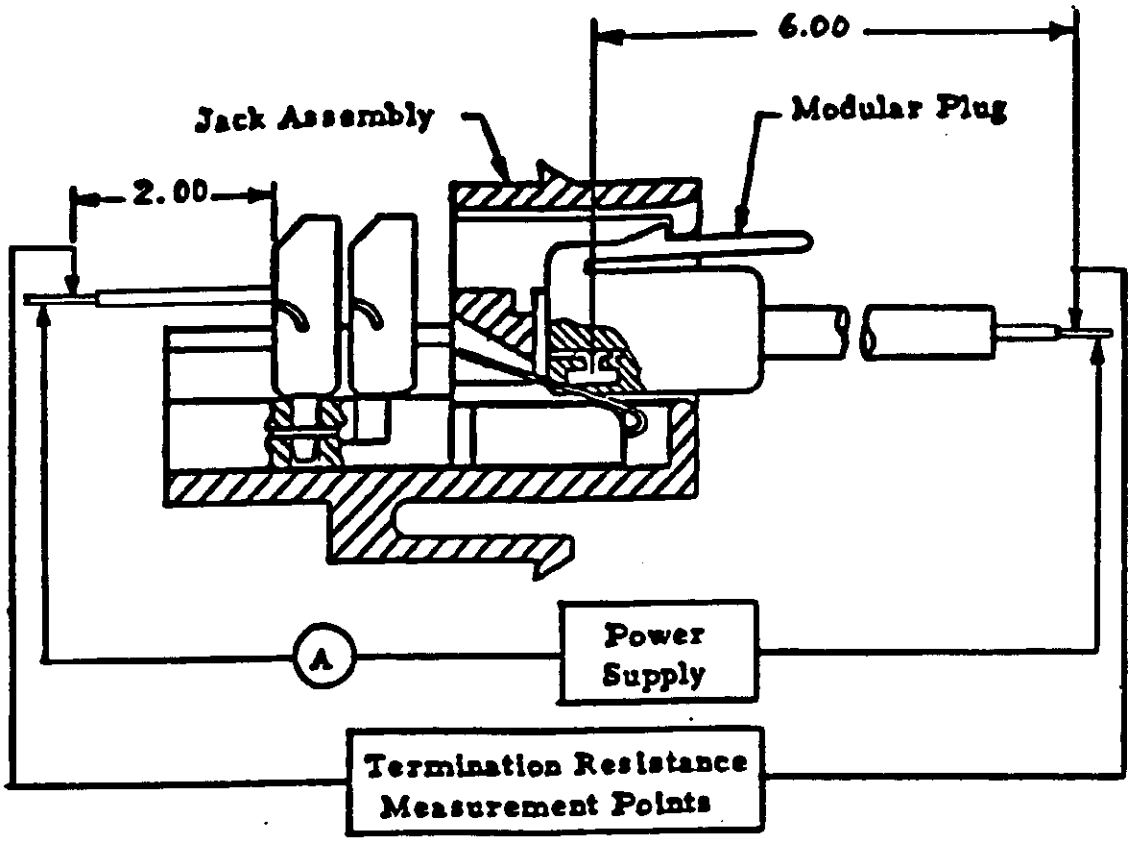

Figure 1

Termination Resistance Measurement Points
Millivolt drop (resistance) due to the 6 inch and 2 inch wire lengths shall be subtracted from all readings

4. Validation

Prepared by:

T.M. Shingara — 10/19/88

T.M. Shingara
Test Engineer
Design Assurance Testing
Corporate Test Laboratory

Reviewed by:

Richard G. Groft — 10/19/88

R. A. Groft
Supervisor
Design Assurance Testing
Corporate Test Laboratory

Approved by:

E. Ralston
Manager
Product Assurance
Communications Products Division