PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the PIDG* taper pins, uninsulated taper pins and taper pin receptacle blocks.

1.2. Qualification

When tests are performed on the subject product line, the 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. 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 Specifications

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)

2.2. Military Specifications

A. MIL-G-45204: Gold Plating, Electrodeposited
B. MIL-M-20693: Molding Plastic, Polyamide
C. MIL-T-10727: Tin Plating, Electrodeposited
D. MIL-W-16878: Wire, Electrical, 600 Volt Copper

2.3. Federal Specifications

A. QQ-B-626: Brass, Leaded and Non-Leaded
B. QQ-N-290: Nickel Plating, Electrodeposited
C. QQ-S-365: Silver Plating, Electrodeposited

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LTR	REVISION RECORD	APP	DATE
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DR Fred Burkhardt 5/8/81
CHK Earl Olverman 5-11-81
APP David Taft 5-11-81

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NAME TAPER PINS AND RECEPTACLE BLOCKS, PIDG AND UNINSULATED

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

A. Taper pins: Brass, tin, silver or gold over nickel plating
B. Insulation: Nylon 6/6
C. Housing: Nylon 6/6 or polyethylene, high density

3.3. Ratings

A. Current: 22 amperes maximum
B. Operating Temperature: -55° to 105°C

3.4. Performance and Test Description

Taper pins shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 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 inspection plan.
ELECTRICAL		
Termination Resistance, Rated Current	Wire Size, AWG: 16; Test Current, ampere: 22; Resistance, milliohms maximum initial: 2	Measure potential drop of mated assemblies, see Figure 3; AMP Spec 109-25, calculate resistance.
Commoning Resistance, Rated Current	.5 milliohms maximum with test current of 22 ampere.	Measure potential drop of 2 closest common taper pin contacts, see Figure 4; AMP Spec 109-25, calculate resistance.
Dielectric Withstanding Voltage	1500 vac dielectric withstanding voltage, one minute hold. No breakdown or flashover.	Test between adjacent taper pins; pins closest to outside body, and pins closest to mounting hardware; AMP Spec 109-29-1.

Figure 1 (cont)

Test Description	Requirement	Procedure
Insulation Resistance	5000 megohms minimum initial.	Test between adjacent pins of mated connector assembly, AMP Spec 109-28-4.
MECHANICAL		
Vibration (a)	No discontinuities greater than 1 microsecond; termination resistance, rated current, 2 milliohms maximum final.	Subjected mated assembly to 10-55-10 Hz traversed in 1 munute at .06 inches total excursion; 2 hours in each of 3 mutually perpendicular planes; AMP Spec 109-21-1, cond A.
Physical Shock (a)	No discontinuities greater than 1 microsecond; termination resistance, rated current, 2 milliohms maximum final.	Subject mated assembly to 100 G's sawtooth in 6 milliseconds; 3 shocks in each direction applied along the 3 mutually perpendicular planes, total 18 shocks; AMP Spec 109-26-9, cond I.
Contact Retention	12 pounds minimum.	Apply axial load of 12 pounds to taper pin contacts; AMP Spec 109-30, except grip wire.
Durability	Measure contact retention force after last insertion.	Mate and unmate taper pin contacts 9 times using appropriate tools; examine for damage and reinsert; AMP Spec 109-27.
ENVIRONMENTAL		
Thermal Shock (a)	Dielectric withstanding voltage.	Subject mated assembly to 5 cycles between -55° and 105°C; AMP Spec 109-22.
Temperature-Humidity Cycling	500 megohms final insulation resistance; 800 vac minimum dielectric withstanding voltage at sea level.	Subject mated assemblies to 10 temperature-humidity cycles between 25° and 65°C at 95% RH; AMP Spec 109-23, method III, cond B, cold shock at -10°C.

Figure 1 (cont)

Test Description	Requirement	Procedure
Corrosion, Salt Spray	Termination resistance, rated current, 2 milliohms maximum final, contact retention.	Subject mated assemblies to 5% salt concentration for 48 hours; AMP Spec 109-24, cond B.

(a) Shall remain mated and show no evidence of damage, cracking or chipping.

Figure 1 (end)

3.6. Taper Pin Assembly Tests and Sequences

Test or Examination	Test Group (a)	
	1	2
	Test Sequence (b)	
Examination of Product	1, 10	1, 14
Termination Resistance, Rated Current	2, 9	2, 12
Commoning Resistance	3	3
Dielectric Withstanding Voltage	5	5, 8
Insulation Resistance	4	4, 7
Vibration	7	
Physical Shock	8	
Contact Retention		10, 13
Durability		9
Thermal Shock	6	
Temperature - Humidity Cycling		6
Corrosion, Salt Spray		11

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Section

Taper pin assemblies shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Each group shall consist of 3 ten position, 2 each of the 20, 30 and 60 position receptacles and 120 taper pins per type per group offered for testing shall be crimped on number 16 gage AWG wire.

B. Test Sequence

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

C. Acceptance

(1) All samples tested in accordance with this specification shall meet the stated tolerance limit.

(2) 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.

4.2. Quality Conformance Inspection

The applicable AMP inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

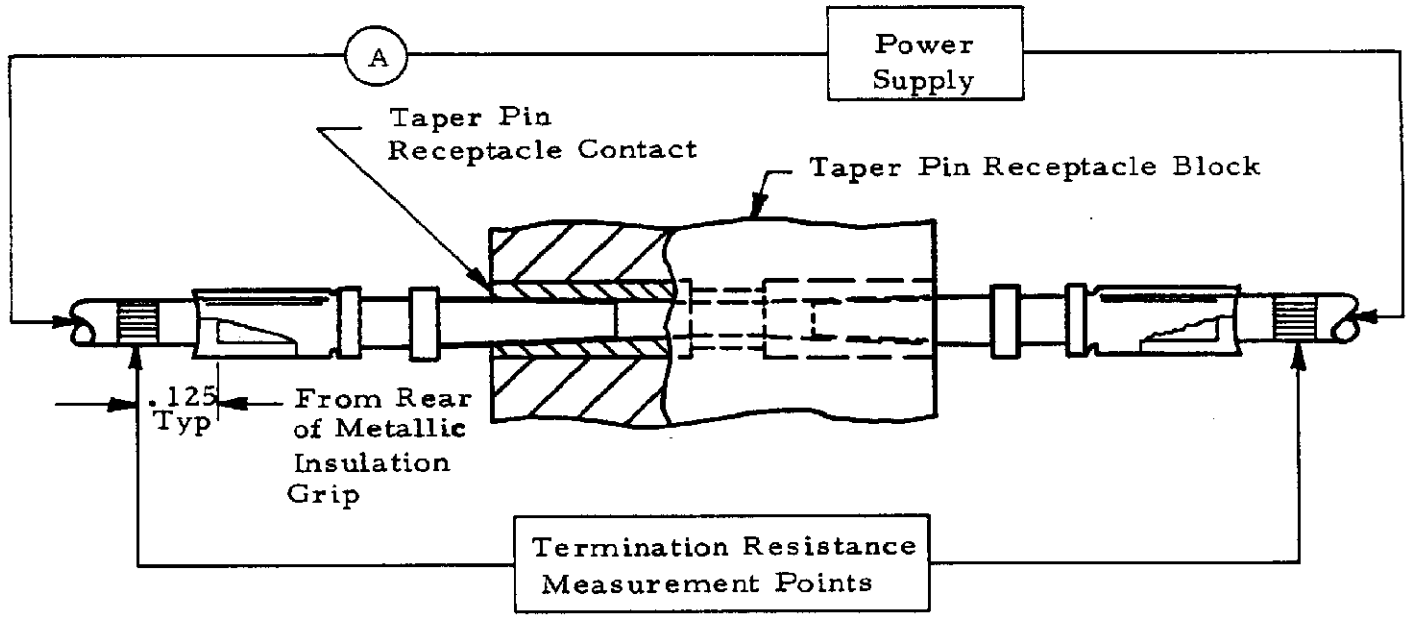
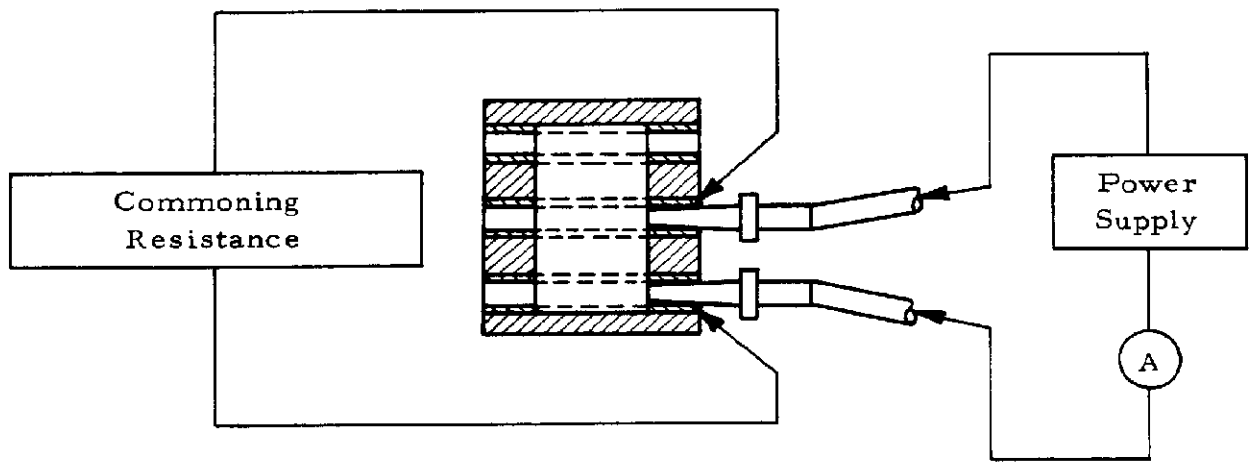


Figure 3

Resistance Measurement Points



Note: This reading shall be taken on the receptacle.

Figure 4

Commoning Resistance Measurement Points

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