NUMBER 108-2002

AMP SECURITY CLASSIFICATION —#—

PRODUCT SPECIFICATION

FASTIN-FASTON (MODULAR) CONNECTOR, "187" SERIES

1. SCOPE

This specification covers the general description and characteristics for multi-contact, "187" Series FASTIN-FASTON (Modular) Electrical Connector.

2. TYPE

This connector is made in the 3 circuit size accepting a wire range of 20-16 AWG. Either half, plug or cap, or both can be mounted.

3. PRODUCT DESCRIPTION

3.1. Design and Construction

Connectors are of the design, construction, and physical dimensions specified on the appropriate product drawing.

3.2. Material

A. Housings

The housings are molded of nylon.

B. Terminals

The terminals are fabricated of pre-tinned brass, conforming to ASTM B-36, copper alloy #260, or equivalent.

3.3. Crimp Data

The crimp heights for all applicable wire sizes are as specified on the crimp height data plate attached to each applicator (crimp heights are also specified on the applicator tooling parts list).

3.4. Connector Mating

Tab and receptacle housings are capable of being engaged and disengaged by hand without the aid of tools. Polarization of connectors prevents mismating.

3.5. Operating Temperature

Connectors have a maximum operating temperature of 105°C (221°F).

4. PRODUCT PERFORMANCE AND TEST REQUIREMENTS

4.1. Electrical Test

A. Test Requirement

When tested as specified in Para. 4.1.B., the potential voltage drop at the specified test shall not be greater than listed in Figure 1.

Maximum Potential Drop in Millivolts		
Wire Size	Test Current (Amperes)	Potential Drop (Millivolts)
20	4	8
18	7	13
16	10	17

FIG. 1

B. Test Method

The potential drop of each mated pair of terminals assembled in housings shall be measured at the test currents specified in Figure 1. The potential drop shall be measured across the entire contact mated length, and shall include 3 inches of wire from the end of the wire crimps as shown in Figure 3. Measurements shall be taken after the temperature of the wire has stabilized. The potential drop for 2 crimps and a friction joint is the difference between the millivolt drop of the 6 inches of wire and the total millivolt drop Y-Y.

4.2. Contact Resistance

A. Test Requirement

When tested as specified in Para. 4.2.B., the contact resistance across the mated terminals shall not exceed 2.0 milliohms. The maximum deviation between initial and final readings shall be 0.3 milliohms.

B. Test Method

Contact resistance shall be measured across the friction connection of the tab and receptacle (X-X in Figure 3) both initially and after 50 insertions using the following current-voltage conditions.

Short Circuit Current: 50 Milliamperes
Open Circuit Voltage: 50 Millivolts

4.3. Insulation Resistance

A. Test Requirement

When tested as specified in Para. 4.3.B., the insulation resistance shall not be less than 500K megohms between the two closest contacts or between contacts and ground potential.

B. Test Method

The insulation resistance shall be tested in accordance with MIL-STD-202. Method 302. Test Condition B (500 volts).

4.4. Contact Retention

A. Test Requirement

When tested as specified in Para. 4.4.B., the individual terminal retention force within housings shall be a minimum of 20 pounds.

B. Test Methods

The housings shall be filled with terminals. Measurements shall be made on individual terminals. The load shall be applied uniformly at approximately one pound per second.

4.5. Engagement. Disengagement Forces

A. Test Requirement

When tested as specified in Para. 4.5.B., the engagement force to mate housings shall not exceed 6 pounds per circuit. The mated assembly shall withstand a dead load of 6 pounds without disengaging.

B. Test Methods

The housings shall be filled with terminals. Either half. tab or receptacle housing shall be mounted and held stationary. The other half shall be engaged and disengaged at a uniform load of approximately one inch per minute.

4.6. Tensile

A. Test Requirement

When tested as specified in Para. 4.6.B., the minimum tensile force shall be as listed in Figure 2.

Tensile Force	
Wire Size	Force (Lbs.)
20	20
18	35
16	40

FIG. 2

B. Test Methods

Contacts crimped to a minimum 6 inch length of wire shall be placed in a standard tensile testing machine and sufficient force supplied to pull the wire out of the terminal or break the wire. The test shall be made with a head travel speed of one inch per minute.

5. APPROVALS

U.L. - (See U.L. File E-28476).

6. EQUIPMENT AND QUALIFICATIONS

The following pieces of equipment were used in the determination of values.

6.1. Hunter Tensile Tester, Model D-150T

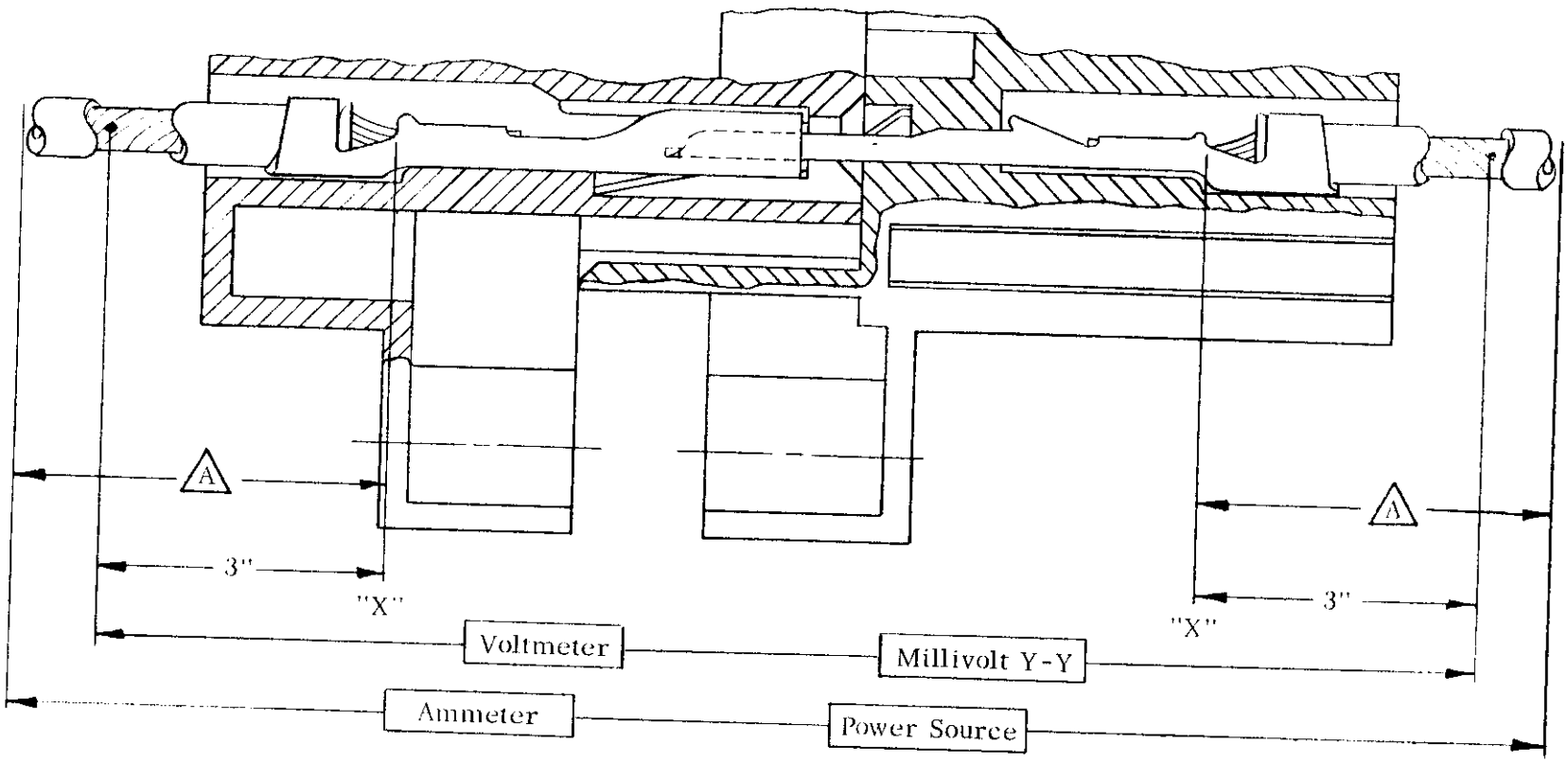
6.2. Mideastern Megatrometer, E1-1-78

6.3. Keithly Milli-Microvolt Meter. Electronics measurements power supply. C624A

6.4. Weston Ammeter. Model 433 or 904

6.5. Hewlet-Packard Vacuum Tube Voltmeter. Model 400H

6.6. Minneapolis-Honeywell Temperature Potentiometer. Model 2714.



△A - 3 foot minimum length of continuous lead (for heat dissipation).

Y-Y - measure across the contact wire crimp. Insulation may be cut back for making this measurement.

V - Suitable instrument for measuring M.V. drop.

FIG. 3