NUMBER 108-5032

AMP SECURITY CLASSIFICATION Customer Release

DESIGN OBJECTIVES

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, AMP (Japan),Ltd makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, AMP (Japan),Ltd. may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

In case when "product specification" is referred to in this document, it should be read as "design objectives" for all times as applicable.

1. Scope:

This specification covers product performance requirements and test methods of 14-position, "250" FASTIN-FASTON connector for panel-mount application on power switchboard. For the purpose of this specification, the following part numbers shall apply:

171088-1, 171089-1	Tab Housing
171090-1 (14-Position)	Receptacle Housing
170092-2	Receptacle Contact

2. Applicable Wire Range:

For crimping termination on receptacle contact, the wires of #18 - 14 AWG (0.75-2.27mm^2) shall be used.

3. Applicable Documents:

The following specifications form part of this product specification to the extent specified herein.

3.1	JIS H 3321	Brass Strip and Coiled Sheet
3.2	JIS C 3316	600V Grade Polyvinyl Chloride Insulated Wires for Electrical Apparatus
3.3	ASTM B 103	Phosphor Bronze Plate, Strip and Rolled Bar
3.4	JIS K 6915	PM-EG Phenolic Molding Compounds
3.5	JIS H 3422	Free Cutting Brass Rods and Bars

4. Product Design Feature, and Constructions:

4.1 Materials Used to Fabricate Housing and Contact:

Housing and contact shall be made of the materials specified in the applicable customer product drawing(s).

4.2 Design Feature and Construction:

Product design feature and construction shall be conforming to the applicable customer product drawing(s).

4.3 Electrical Performance:

4.3.1 Termination Resistance:

When tested in accordance with the test method specified in Para. 5.3.1, termination resistance of connector termination area, consisting of frictional mating portion + wire crimps, shall be not greater than the value specified in Table 1.

LTR	REVISION RECORD	DR	CHK	DATE
B1	Design Objectives RFA 1905			2/6 '95
B	Revised per RFA-337			19-5-78

DR 19-5-78 CHK 19-5-78 APP 19-5-78

AMP (Japan), Ltd. TOKYO, JAPAN

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NAME Product Specification "250" FASTIN-FASTON Terminal Block

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Table 1

Number of Insertion at Measurement	Initial	30th. Cycle
Termination Resistance (mΩ)	2	10

4.3.2 Temperature Rising:

When tested in accordance with the test method specified in Para. 5.3.2, temperature rising of energized receptacle contact circuit shall be not greater than the value specified in Table 2.

Wire Size mm^2 (AWG)	Test Current (A) DC	Degree of Temperature Rising (^oC)
0.75 (#18)	10	30
1.25 (#16)	13	
2.0 (#14)	15	

Table 2

4.3.3 Insulation Resistance:

When tested in accordance with the test method specified in Para. 5.3.3, insulation resistance between adjacent contact shall be not less than 1,000MΩ.

4.3.4 Dielectric Strength:

When tested in accordance with the test method specified in Para. 5.3.4, connector assembly shall withstand test potential of 2,500V AC applied across the adjacent contacts for 1 minute, and shall show no abnormalities detrimental to connector functions.

4.3.5 Salt Spray:

When tested in accordance with the test method specified in Para. 5.3.5, termination resistance after exposure under salt spray for 72 hours, shall not exceed 3 mΩ.

4.4 Mechanical Performance:

4.4.1 Crimp Tensile Strength of Contact:

When tested in accordance with the test method specified in Para. 5.3.6, crimp tensile strength of receptacle contact shall be not less than the value specified in Table 3.

Wire Size mm^2 (#18)	Crimp Tensile Strength (kg)
0.75 (#18)	12
1.25 (#16)	18
2.0 (#14)	28

Table 3

4.4.2 Insertion and Extraction Force:

4.4.2.1 Connector Assemblies:

When tested in accordance with the test method specified in Para. 5.3.7.1, insertion and extraction force of connector assemblies shall not exceed the value specified in Table 4.

	Initial (kg)	30th. Cycle (kg)
Insertion Force (Max.)	35	35
Extraction Force(Min.)	7	5

Table 4

4.4.2.2 Contacts:

When tested in accordance with the test method specified in Para. 5.3.7.2, insertion and extraction force of mating pair of contacts shall not exceed the value specified in Table 5.

	Initial (kg)
Insertion Force (Max.)	3.6
Extraction Force (Min.)	0.7

Table 5

When tested in accordance with test method specified in Para. 5.3.7.1, contacts and connector assemblies shall show no abnormalities, after 30 cycles of insertion and extraction conditioning.

4.4.3 Contact Retention Force:

When tested in accordance with the test method specified in Para. 5.3.8, contact retention force shall be not less than 5.5 kg per contact position.

4.4.4 Heat Resistibility:

When tested in accordance with the test method specified in Para. 5.3.9, connector housing shall show no abnormalities after exposure under elevated temperature at 100°C for 3 hours, and functionally serviceable without defect.

4.4.5 Retention Force of Mounting Ear of Receptacle Housing:

When tested in accordance with the test method specified in Para. 5.3.10, mated receptacle housing shall withstand a pull-off load of 25 kg applied to mounting ear portion of housing.

5. Quality Assurance Provisions:

5.1 Environmental Conditions:

Unless otherwise specified, all the tests shall be conducted in any combination of the following test conditions.

Temperature: 15 - 35°C
Relative Humidity: 45 - 75%
Atmospheric Pressure: 650 - 800mmHg

5.2 Test Specimens:

All the test specimens employed for the tests under this product specification shall be prepared by means of AMP specified crimping procedure on applicable application tooling by using wires of specified sizes. Unless otherwise specified, no sample shall be reused for testing.

5.2.2 Applicable Wire Sizes:

The wires used for preparation of samples under this product specification shall be conforming to JIS C 3316, 600V Grage Polyvinyl Chloride Insulated Wires for Electrical Apparatus, having strand composition as shown in Table 6.

Cross-Sectional Area (mm^2)	Wire Size (AWG)	Conductor Strands Composition	
		Diameter of a Strand(mm)	Number of Strands
0.75	(#18)	0.18	30
1.25	(#16)	0.18	50
2.0	(#14)	0.26	37

Table 6

5.3 Test Method:

5.3.1 Termination Resistance:

Wire-crimped contacts are loaded in housing cavities, and mated pair of connector assemblies are tested for termination resistance, by applying test current across X - X_1 in Fig. 1. From the measured value, the resistance of crimped wires are deducted, and termination resistance is calculated.

5.3.2 Temperature Rising:

Contact loaded and mated pair of connector assemblies are tested for temperature rising by applying test current whose intensity is specified in Table 2. Temperature reading shall be done after temperature rising becomes stabilized by applying thermocouple secured on wire crimped portion of receptacle contact as shown in Fig. 1. Crimped wire shall be long enough for heat dissipation.

5.3.3 Insulation Resistance:

Insulation Resistance of mated pair of connector assemblies shall be tested in accordance with Test Condition B, Test Method 302 of MIL-STD-202, by applying test potential of 500V between the adjacent contacts in the mated pair of housings.

5.3.4 Dielectric Strength:

Dielectric Strength of mated pair of connector housing assemblies shall be tested in accordance with Test Method 301 of MIL-STD-202, by applying test potential of 2,500V AC between the adjacent contacts in the mated pair of housings.

5.3.5 Salt Spray:

Connector assemblies shall be subject to undergo the salt spray test in accordance with Test Method 101C of MIL-STD-202, by exposing under salt spray having 5% concentration for 72 hours. After exposure, connector assemblies shall be reconditioned and dried in the room temperature, and termination resistance of mated contacts is measured. The measured value shall be compared with initial reading that is obtained before exposure conditioning.

5.3.6 Contact Crimp Tensile Strength:

Wire-crimped contact shall be fastened onto the head of tensile testing machine, and tested for crimp tensile strength of the contact by applying an axial pull-off load to the end of crimped wire end. Tensile strength of wire-crimped portion is determined when the wire is broken or is pulled off from the wire crimp.

5.3.7 Insertion/Extraction Force:

5.3.7.1 Contact loaded connector assemblies shall be fastened onto the head of tensile testing machine in the manner that the connector halves are mated and unmated as the head is operated. Insertion and extraction force of the connector assemblies shall be measured by operating the head with the speed at a rate of 100mm a minute.

5.3.7.2 Contact:

Insertion and extraction force of a pair of contacts shall be tested by fastening the contacts onto the head of tensile testing machine in the manner that the parts are mated and unmated as the head is operated. Insertion and extraction force of the contacts shall be measured by operating the head with the speed at a rate of 100mm a minute. Mating tab used for the test shall be AMP No. 171088-1 and 171089-1 having thickness of 0.8 $\pm$0.015mm.

5.3.8 Contact Retention Force:

Contact-loaded housing shall be fastened onto the head of tensile testing machine, and contact retention force is tested by applying an axial pull-off load to the end of crimped wire, by operating the head with the speec at a rate of 100mm a minute.

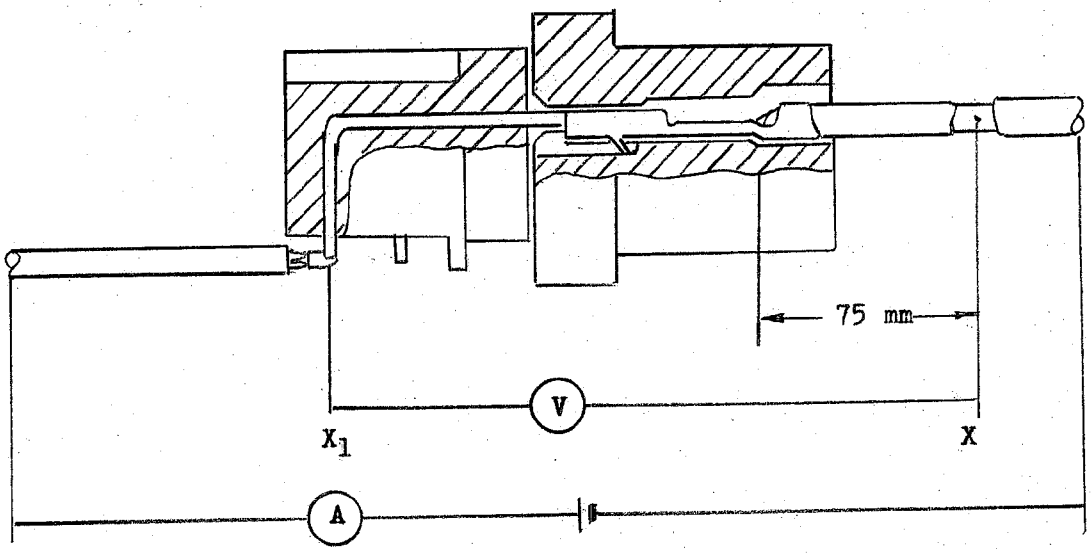
5.3.9 Heat Resistibility:

Heat resistibility of housing is tested by exposing under testing heat at 100°C in an oven for 3 hours. After conditioning, the sample housing is removed out and inspected in accordance with the procedure.

5.3.10 Mechanical Withstanding Strength of Monting Ear of Receptacle Housing:

Fasten receptacle housing onto the head of tensile strength testing machine, and apply a pull-off load to mounting ear portion of receptacle housing until it is broken, by operating the head to travel with the speed at a rate of 100mm a minute.

Fig. 1



Note:

At "X" point, remove insulation and soldered smoothly to provide fine contact surface for applying measuring probe.

At "X_1" point, lead wire must be soldered.