

108-5060

Product Specification
"250" Series FASTIN-FASTON 12-Position Connector

1. Scope:

1.1 Scope:

This specification covers the general requirements for the housing blocks and contacts of the following part numbers among the 250 series FASTIN-FASTON connectors for intermediate wiring as well as for the panel mounting connection.

Product Part Numbers: 171259-1/3 Receptacle Housing
171260-1/3 Tab Housing
170151-2 Tab Contact (Single Tab Application)
42580-2 Tab Contact (Double Tab Application)
170092-4 Receptacle Contact

2. Material:

2.1 Contact:

2.1.1 Contact Material:

Contacts shall be fabricated of brass conforming to ASTM B 36 Copper Alloy 260.

2.1.2 Surface Finish:

The surface of the contacts shall be electro-tin plated specified in the applicable product drawing.

2.1.3 Design, Construction and Dimensions:


Design, construction and dimension of the contacts shall strictly conform to the applicable product drawing.

2.1.4 Applicable Wire Range:

Wire range applicable to crimp the contact shall be as specified in Table 1.

Contact Type	Part Number	Wire Range mm (AWG)	Insulation Range mm (Inch)
Tab	170151-2	0.75 - 2.27 (18-14)	3.1 - 4.0 (.122-.158)
Tab	42580-2	0.75 - 2.27 (18-14)	3.1 - 3.6 (.122-.142)
Receptacle	170092-4	0.75 - 2.27 (18-14)	3.1 - 4.0 (.122-.158)

Table 1

C2	Revised RFA-1974	2J	3/4	DR	<i>Y. Nakamura</i>		AMP (Japan), Ltd. TOKYO, JAPAN
C1	Revised RFA-1909	YK&T	1/4	CHK	<i>7-2-73</i>		
C	Revised RFA-1651	JF S.M.	8/10	APP	<i>7/11/73</i>	LOC	NO
B	Added -3 per RFA73-81					J	A
A	Revised RFA 73-62					108-5060	
LTR	REVISION RECORD	DR	CHK	DATE	SHEET 1 OF 7		
					Product Specification 250 Series FASTIN-FASTON 12-Pos. Connector		

2.2 Housing:

2.2.1 Housing Material:

Housing material shall be of molded phenolic conforming to JIS K 6915 GE.

2.2.2 Design, Construction and Dimensions:

Design, Construction and dimensions of the housing shall strictly conform to the applicable drawing.

3. Performance:

Item:

Termination Resistance : 3m Ω max. (Initial), 6m Ω max. (Final)

Insulation Resistance : 1,000M Ω min. (500V DC applied)

Dielectric Strength : No abnormalities shall occur at 2500V AC after 1 minute.

Salt Spray Test : To check overall resistance after conditioned.

Crimp Tensile Strength : 0.75 mm² 118 N (12.0 kgf) min.
1.25 mm² 177 N (18.0 kgf) min.
2.0 mm² 275 N (28.0 kgf) min.

Insertion Force : 34.3 N (3.5 kgf) max. for 170151-2 per position
54.0 N (5.5 kgf) max. for 42580-2 per position

Extraction Force : 4.9 N (0.5 kgf) min. per position

Contact Retention Force : 54.0 N (5.5 kgf) min. per position

Heat Resistibility : No abnormalities shall occur after conditioned.


Rated Insulation Voltage: Circuit nos. 1 and 11 ---- 501 - 660V
Circuit nos. 2 thru 10 and 12 ---- 251 - 380V

Operating Temperature : -30°C -- 100°C

3.1 Electrical Performance:

3.1.1 Overall Resistance:

When tested in accordance with the test method specified in 4.3.1, the resistance value shall be not more than 3m Ω (initial) and not more than 6m Ω after the test.

SHEET				AMP (Japan), Ltd. TOKYO, JAPAN	
2 OF 7		LOC	NO	REV	
		J	A	108-5060	C 2
NAME					
Product Specification					
.250 FASTIN-FASTON 12-Pos. Connector					

3.1.2 Insulation Resistance:

When tested in accordance with the test method specified in 4.3.2, the insulation resistance between contacts shall be no less than 1000MΩ.

3.1.3 Dielectric Strength:

When tested in accordance with the test method specified in 4.3.3, the connector assembly shall show no abnormalities after the voltage test at 2500V AC for one minute is applied.

3.1.4 Salt Spray Test:

When tested in accordance with the test method specified in 4.3.4, the insulation resistance value after the test shall conform to as specified in 3.1.1.

3.2 Mechanical Performance:

3.2.1 Crimp Tensile Strength:

When tested in accordance with the test method specified in 4.3.5, the tensile strength of the crimped part shall be not less than the values specified in Table 2.

Wire Size mm ² (AWG)	Tensile Strength (min.)
0.75 mm ² (#18)	118 N (12.0 kgf)
1.25 mm ² (#16)	177 N (18.0 kgf)
2.00 mm ² (#14)	275 N (28.0 kgf)

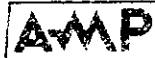
Table 2

3.2.2 Insertion Force:

When tested in accordance with the test method specified in 4.3.6, the insertion force for one pole of the connector shall be as specified in Table 3.

Combination of the Contacts Receptacle Tab.	Insertion Force (max.)
170092-4 Vs. 170151-2	34.3 N (3.5 kgf)
170092-4 Vs. 42580-2	54.0 N (5.5 kgf)

Table 3

SHEET				AMP (Japan), Ltd. TOKYO, JAPAN	
3 OF 7		LOG J	NO A	108-5060	REV C2
NAME					
Product Specification .250 FASTIN-FASTON-12-Pos. Connector					

3.2.3 Extraction Force:

When tested in accordance with the test method specified in 4.3.6, the extraction force of the contacts per one pole shall be 4.9 N (0.5 kgf) minimum.

3.2.4 Contact Retention Force:

When tested in accordance with the test method specified in 4.3.7, the individual contact retention force in the connector cavity shall be 54.0 N (5.5 kgf) minimum.

3.2.5 Heat Resistibility:

When tested in accordance with the test method specified in 4.3.8, there shall be no crack, breakage and deformation etc. in the housing and the connector assembly can function normally.

3.2.6 Rated Insulation Voltage:

The rated insulation voltage of this connector varies according to the circuit and shall be as specified in Table 4. However, the values are for the case when all the circuits operate below 25A.

Rated Insulation Voltage	Circuit No.
501 - 660 V	No. 1 & 11
251 - 380 V	No. 2 thru 10 & 12

Table 4

3.2.7 Operating Temperature:


The operating temperature range of the connector shall be $-30^{\circ}\text{C} \sim +100^{\circ}\text{C}$

4. Quality Assurance Provisions:

4.1 Environmental Conditions:

Performance test shall be conducted under the following environmental conditions.

Room Temperature : $15^{\circ}\text{C} - 25^{\circ}\text{C}$
Humidity : 45 % - 85 %
Atmospheric Pressure : 101 kPa (760mmHg)

SHEET				AMP (Japan), Ltd. TOKYO, JAPAN	
4 OF 7		LOG	A	NO	REV
		J		108-5060	C ₂
NAME					
Product Specification .250 FASTIN-FASTON 12-Pos. Connector					

4.2 Testing:

4.2.1 Test Sample:

The specimen used for this testing shall be the unused samples crimped to specified crimping heights on wires specified in Table 4, and no sample shall be used again for retesting.

4.2.2 Wire:

The wires used for conducting this test shall be JIS C 3316 (vinyl wires for electrical equipment) specified in Table 5.

Wire Size (mm ²) (AWG)	Conductor Composition		Testing Current (A)
	Strand Dia. (mm)	No. of Strands	
0.75 mm (#18)	0.18 mm	30	12
1.25 mm (#16)	0.18 mm	50	15
2.0 mm (#14)	0.26 mm	37	20

Table 5

4.3 Test Method:

4.3.1 Overall Resistance:

Terminals are fitted into the housing and the overall resistance of one set of these terminals is measured by using the test current specified in Table 5. Overall resistance is measured for the complete fitting including 75mm of wire from the crimp as shown in Figure 1, after the temperature has been stabilized. The resistance value is calculated by subtracting the resistance of 150 mm of the wire from the measured value between Y - Y'.

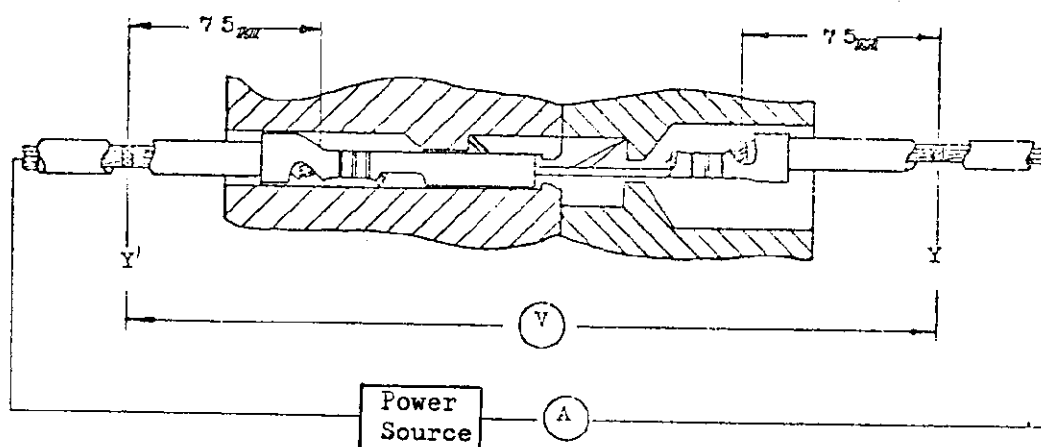


Figure 1

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5 OF 7

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NO

108-5060

REV
C2

NAME

Product Specification
.250 FASTIN-FASTON 12-Pos. Connector

4.3.2 Insulation Resistance:

Insulation resistance is measured in accordance with the method specified in Test Method 302, Test Condition B of MIL-STD-202 by applying 500V between adjacent terminals of the fitted housing and using insulation resistance meter.

4.3.3 Dielectric Strength:

Dielectric strength is measured in accordance with the method specified in Test Method 301 of MIL-STD-202 by applying 2500V AC between the adjacent terminals of the fitted housing for 1 minute.

4.3.4 Salt Spray Test:

This test is performed in accordance with the test method specified in Test Method 101, Test Condition A of MIL-STD-202 by measuring the overall resistance after 96 hours of spray. Salt Concentration of the salt water is 5 %.

4.3.5 Tensile Strength of Crimped Part:

The crimped terminal and the wire of approx. 100 mm length of wire are fixed up in tensile tester and work on at 100 mm per minute speed. The crimp part tensile strength is the value for which the wire breaks or detaches from the crimped part.

4.3.6 Insertion Force and Extraction Force:


Tab Housing and receptacle housing fitted with the terminals are worked on in the axial direction at a speed of 100 mm per minute and the force required for the first insertion or extraction is measured.

4.3.7 Terminal Retention Force:

Terminal crimped with about 100 mm of wire is placed in the housing, the housing and the wire are fixed up in tensile testing machine and operate on at a speed of 100 mm per minute. Terminal retention force is the value for which the terminal detaches from the housing.

4.3.8 Heat Resistibility:

Housing is kept in an environment of $100^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 6 hours and then air-cooled.

SHEET				AMP (Japan), Ltd. TOKYO, JAPAN
6 OF 7	LOC J	A	NO 108-5060	REV C ₂
NAME Product Specification .250 FASTIN-FASTON 12-Pos. Connector				

5. Assembly Method:

Assembly methods for this connector shall be as specified in Table 5.

	Housing		Q'ty	Product Description	Part Number	Q'ty
	Product Description	Part Number				
	Tab Housing	171260-1 " -3		Tab Tab	170151-2 42580-2	12 24
Tab Side			1			
Receptacle Side	Receptacle Housing	171259-1 " -3	1	Receptacle	170092-4	12

Table 6

The number of tab contacts are for the case in which one of the sides is used alone.

42580-2 can be used as a combination of two pieces but 170151-2 and 42580-2 can not be used in the same circuit.

SHEET

7 OF 7

AMP

AMP (Japan), Ltd.
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LOC

J

NO

A

108-5060

REV

C 2

NAME

Product Specification
.250 FASTIN-FASTON 12-Pos. Connector