

DESIGN OBJECTIVES

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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 method for 205 Series FASTON Receptacle contacts (hereafter called contacts)

2. Material and Finish:

Receptacle contacts shall be made from brass strip conforming to Copper Alloy No. 260 of ASTM B36, and finished in accordance with the applicable customer product drawing(s).

3. Appearance:

Contact shall be free from damages, cracks, dirt and burrs, that are detrimental to contact functions.

4. Product Design Feature, Construction and Dimensions:

4.1 Construction:

Contacts are fabricated to mate suitably with tab contact that has predesignated thickness and width to form a proper termination. Since this contact line is designed for use without housing application, it lacks locking latch for securing in the connector housing.

4.2 Product Feature and Dimensions:

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

5. Performance Requirement:

5.1 Electrical Performance:

5.1.1 Termination Resistance:

When tested in accordance with the test method specified in Para. 7.1, termination resistance, consisting of resistance of frictional contact area and wire crimp, shall be not greater than the value specified in Table 1.

Wire Size (Nominal)		Test Current		Termination Resistance (mV/A)	Temperature Rising (C°)
mm <sup>2</sup>	(AWG)	A	DC		
0.3	(#22)	2		3	5
0.5	(#20)	4		3	10
0.85	(#18)	7		3	20
1.25	(#16)	10		3	30
2.0	(#14)	15		3	30

Table 1

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				CHK <i>[Signature]</i>		LOC J A	NO 108-5007
D2	Design Objectives	RFA 1905	Y.M	22 JEP 194			
D1	Revised RFA-1481			1-20-78			
D	Revised & Retyped per RFA-283			1-20-78			
LTR	REVISION RECORD	DR	CHK	DATE			
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## 5.1.2 Contact Resistance of Mating Area:

When tested in accordance with the test method specified in Para. 7.1, contact resistance of mating area shall be not greater than 2 mV/A.

## 5.1.3 Temperature Rising:

When tested in accordance with the test method specified in Para. 7.1, temperature rising of energized receptacle contact shall not exceed the value specified in Table 1.

## 5.2 Mechanical Performance:

## 5.2.1 Crimp Tensile Strength:

When tested in accordance with the test method specified in Para. 7.2, crimp tensile strength shall be not less than the value specified in Table 2.

Wire Size (Nominal)		Tensile Strength	
mm <sup>2</sup>	(AWG)	kg	(Pound)
0.3	(#22)	5.0	11.0
0.5	(#20)	8.0	17.6
0.85	(#18)	15.0	33.1
1.25	(#16)	20.0	44.1
2.0	(#14)	28.0	61.7

Table 2

## 5.2.2 Contact Insertion/Extraction Force:

When tested in accordance with the test methods specified in Para. 7.3 and 7.4, contact insertion and extraction force shall be conforming to the value specified in Table 3.

Contact Insertion Force (kg)	Contact Extraction Force(kg)	
	Initial	at 6th. Cycle
7.0 (Max.)	2.0 - 7.0	1.5 (Min.)


Table 3

## 6. Quality Assurance Provisions:

## 6.1 Environmental Conditions:

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

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

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## 6.2 Sample Preparation:

## 6.2.1 Test Specimens:

The test specimens to be employed for the tests under this specification, shall be prepared in accordance with the specified normal crimping procedure at correct crimp height by using applicable wires. For conducting insertion and extraction test, a gage tab having specified dimensions as shown in Table 4, shall be used. No sample shall be reused, unless otherwise specified.

Tab Thickness(mm)	Tab Part Number
0.51	60613-1
0.81	60613-2

Table 4

## 6.2.2 Applicable Wires:

Wire Size (Nominal)		Composition of Conductor		
mm <sup>2</sup>	(AWG)	Cross-Sectional Area (mm <sup>2</sup> )	Diameter of A Strand (mm)	Number of Strands
0.3	(#22)	0.31	0.18	12
0.5	(#20)	0.56	0.32	7
0.85	(#18)	0.88	0.32	11
1.25	(#16)	1.29	0.32	16
2.0	(#14)	2.09	0.32	26

Table 5

## 7. Test Method:


## 7.1 Termination Resistance:

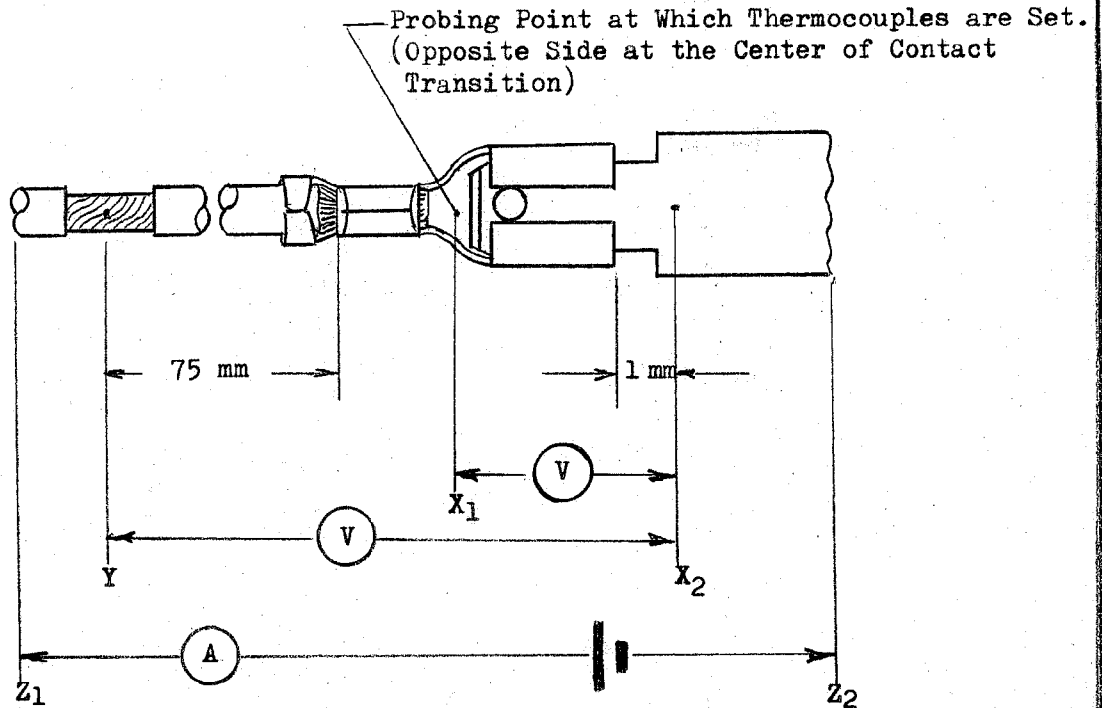
Contact resistance of total terminated areas and frictional contact area only is measured by millivolt drop method. DC test current of specified intensity shall be applied to the terminated circuit across  $Z_1$  and  $Z_2$  as shown in Fig. 1 and Table 1. Terminated wire must be conforming to Table 5, having appropriate length for heat dissipation affected by energized test current. One set of test specimens shall consist of wire crimped receptacle contact and mated tab of specified size.

Millivolt drop measurement shall be done after temperature rising of the circuit becomes stabilized, by reading millivolt drop between  $Y - X_2$  and  $X_1 - X_2$  respectively on DC ammeter connected at each probing point. The measured value includes resistance of crimped wire of 75mm in length. Therefore, resistance of wire must be deducted from the total measured value before calculating termination resistance.

Resistance of frictional contact area must be obtained by calculation from the measured value across  $X_1 - X_2$  of the circuit to which DC test current of 4A must be applied.

Temperature rising must be measured by using a set of thermocouples at reversed  $X_1$ , after temperature rising becomes stabilized under energized test current specified in Table 1.

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- X<sub>1</sub>: At the center of contact transition= equidistant to wire crimp and frictional contact area.
- X<sub>2</sub>: On the tab contact at the center line, 1mm apart from the mating edge of receptacle contact.
- Y: On the wire 75mm apart from wire crimp--- Remove insulation from the area adjacent to the determined point. To eliminate variation of measured value, this area must be soldered uniformly.

7.2 Crimp Tensile Strength:

Fasten a contact which is crimped on an approximately 100 mm long wire, onto the head of tensile testing machine, and apply an axial pull-off load to the crimped wire by operating the head to travel with the speed at a rate of approximately 100 mm a minute. Crimp tensile strength is determined when the wire is broken or is pulled out of the wire crimp. For this test insulation crimp must be not associated.

7.3 Contact Insertion Force:

Fasten a receptacle contact onto the head of tensile testing machine, and operate the head to insert gage tab into receptacle contact with the speed at a rate of approximately 100mm a minute. Contact insertion force is determined when the force required to complete contact mating, is measured.

7.4 Contact Extraction Force:

Fasten a receptacle contact which is mated with counterpart gage tab onto the head of tensile testing machine, and operate the head to extract gage tab from the receptacle contact with the speed at a rate of approximately 100mm a minute. Contact extraction force is determined when the force required to unmate the contacts, is measured.

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