

108-5102

Product Specification

35-Pos. L-JETRONIC Connector
Using Mini-Spring Receptacle

108-5102

NUMBER

AMP SECURITY CLASSIFICATION
Customer Release

1. Scope:

This specification covers product performance requirements and test methods of 35-Pos. L-JETRONIC Connector, using mini-spring receptacle contact.

2. Applicable Product Part Numbers:

The following products shall be governed under this product specification.

Part Number	Product Descriptions
170209-1	Mini-Spring Receptacle (Hereafter called, contact)
925379-1, 171714-2	35-Pos. Plug Housing " " "
925380-1 171715-2	35-Pos. Plug Housing Cover " " "
925204-1, 171716-2	Comb "

3. Definition of the Terms:

For the purpose of this specification, the following terms shall apply.

3.1 Contact:

An electrically conductive item designed for use in a multi-circuit connector housing, for convenience in multiple electrical connections.

3.2 Housing:

The insulating material (usually plastic that forms an encapsulement for contacts.) When pins and sockets (or receptacles) are inserted into a housing the assembly is referred to as a connector. In this product line, housings consist of 35-pos. plug housing, 35-pos. plug housing cover and comb.

3.3 Connector:

Connector is an assembly of multi-circuit contacts, housing encapsulement and accessory parts when applied, being readily assembled for use of circuit connection.

4. Materials:

4.1 Contact:

Contact shall be made of pretinned phosphor bronze, conforming to ASTM B 103.

4.2 Housing:

35- os. plug housing, 35-pos. plug housing cover and comb shall be made of glass-filled 6/6 Nylon resin.

		DR <i>[Signature]</i> 6-27-79			AMP (Japan), Ltd. TOKYO, JAPAN		
		CHK <i>[Signature]</i> 6-27-79			LOC	NO	REV
B	Revised RFA-1954	<i>[Signature]</i>	2/28	J	A	108-5102	B
A1	Revised RFA-1481	<i>[Signature]</i>	2/27	Product Specification			
A	Revised per RFA-295	<i>[Signature]</i>	2/27	SHEET			
LTR	REVISION RECORD	DR	CHK	DATE	1 OF 6		35-Pos. L-JETRONIC Connector

5. Product Design Feature Construction and Dimensions:

5.1 Contact:

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

5.2 Housing:

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

6. Temperature Rating and Applicable Wire Sizes:

6.1 Temperature Rating:

Continuous operating temperature of connector shall be within the range of between -30°C and +105°C including temperature rising caused by energized current in addition to environmental temperature where the connector is used.

6.2 Wire Size:


Contact P/N	Wire Size	Insulation Diameter
170209-1	0.5 - 2.27mm ² (#20-#14)	2.1 - 3.4mm

7. Summary of Performance Requirements and Test Methods:

When tested in accordance with the test methods specified in the applicable paragraphs of Para. 7.2, product contacts and connector assemblies shall be capable to exercise performance conforming to the requirements specified in Table 1.

Test Item	Para-graph	Performance	Requirements
Contact Insertion Force	7.2.1	7.8 N (800gf) Max.	
Contact Extraction Force	7.2.2	1 N (100gf) Min.	
Insulation Resistance	7.2.3	100MΩ (Min.)	
Dielectric Strength	7.2.4	No abnormalities shall be evident, being capable to withstand test potential of 1,000V AC for 1 minute.	
Current Leakage	7.2.5	3mA (Max.)	
Contact Retention Force	7.2.6	59 N (6kgf) Min.	
Crimp Tensile Strength	7.2.7	0.5mm ² (#20 AWG)	88.3 N (9kgf) Min.
		0.85mm ² (#18 AWG)	127.5 N (13kgf) Min.
		1.25mm ² (#16 AWG)	176.6 N (18kgf) Min.
		2.0 mm ² (#14 AWG)	245.3 N (25kgf) Min.

Table 1

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7.2 Test Methods:

7.2.1 Contact Insertion Force:

Fasten contact onto the head of tensile testing machine, and apply an axial push-in load to insert a gage tab specified in Fig. 1, by operating the head to travel with the speed at a rate of 100mm a minute. The force required to complete insertion shall be measured and recorded.

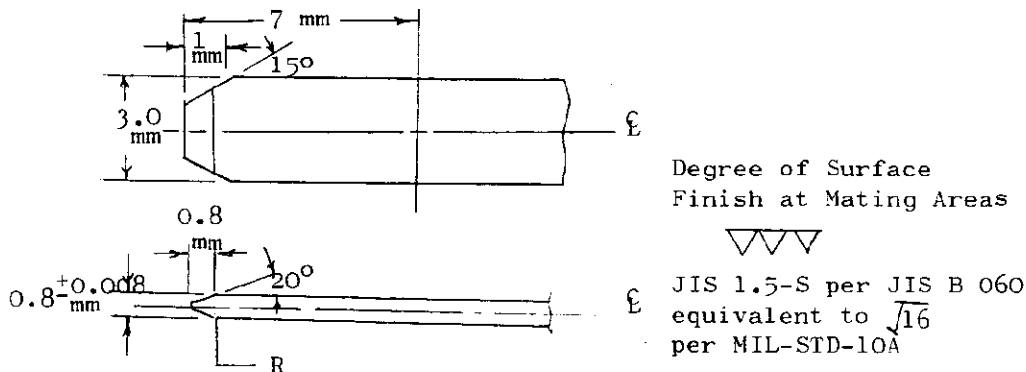


Fig. 1

7.2.2 Contact Extraction Force:

Fasten contact onto the head of tensile testing machine, and apply an axial pull-off load to extract mated gage tab of specified size as shown in Fig. 1, by operating the head to travel with the speed at a rate of 100mm a minute. The force required to complete extraction shall be measured and recorded.

7.2.3 Insulation Resistance:

Measure insulation resistance between the adjacent contacts and between the contacts and the ground by connecting the contacts as shown in Fig. 2, by applying test potential of 500V DC.

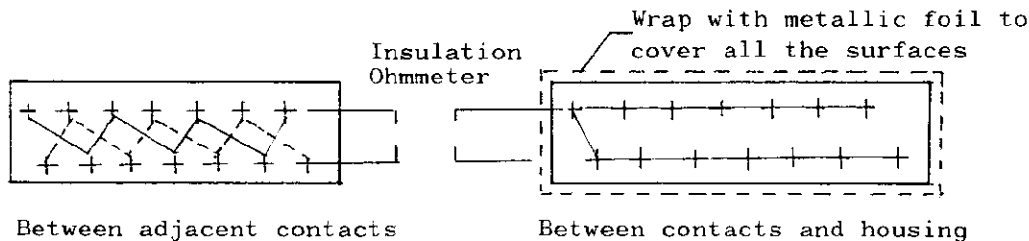


Fig. 2

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7.2.4 Dielectric Strength:

Contact-loaded connector assembly shall be tested for dielectric withstanding strength by applying test potential of 1,000V AC between the adjacent contacts and between the contacts and the ground for 1 minute as shown in Fig. 2.

7.2.5 Current Leakage:

Contact-loaded connector assembly shall be exposed under the test atmosphere at $60 \pm 5^\circ\text{C}$ with the relative humidity of 90-95% for 1 hour in the test chamber, and after the specified duration the sample connector shall be tested by applying test current at 12V DC between the adjacent contacts as shown in Fig. 3.

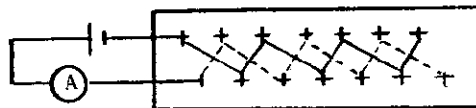


Fig. 3

7.2.6 Contact Retention Force:

Load a contact into housing cavity which is crimped on an approximately 100mm long, 0.85mm^2 wire, and fasten them 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 100mm a minute. Contact retention force is determined when the contact is dislodged or wire is broken.

7.2.7 Crimp Tensile Strength:

Fasten an approximately 100mm long wire-crimped contact onto the head of tensile testing machine, and apply an axial pull-off load to the crimped wire end by operating the head to travel with the speed at a rate of 100mm a minute. Crimp tensile strength is determined when the wire is broken or is pulled off from the wire crimp.

8. Quality Assurance Provisions:

8.1 Test Conditions:

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

Atmospheric Pressure:	86.7 - 107kPa
Temperature:	(650 - 800mmHg)
Relative Humidity:	15 - 35°C
	45 - 75%

8.2 Test Specimens:

All the test samples to be employed for the tests shall be prepared in accordance with the AMP specified crimping procedure by using wires of the specified size, and crimped contact shall be conforming to AMP Application Specification 114-5015, Crimping Miniature Spring Receptacle Contacts. No sample shall be reused, unless otherwise specified.

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8.2.3 Applicable Wire:

All the test samples shall be crimped on any of the following wires of the specified sizes.

Wire Size(Nominal)		Strand Composition		Cross-sectional Area	
mm ²	(AWG)	Diameter of a Strand (mm)	Number of Strands	mm ²	Circular Mil Area (CMA)
0.5	(#20)	0.32	7	0.56	1,111
0.85	(#18)	0.32	11	0.88	1,746
1.25	(#16)	0.32	16	1.29	2,540
2.0	(#14)	0.32	26	2.09	4,128

Table 2

9. Special Instructions for Handling Products:

Reasonable care shall be taken not to damage products during crimping and assembly processing. All the products shall be conforming to the requirements of this specification, and the crimped contacts shall be conforming to AMP Application Specification 115-5015, Crimping Miniature Spring Receptacle Contacts.

9.1 Bundling Wires At Assembly:

At contact loading and assembly into housing, wires shall be neatly arranged in the terminating area around housing, and all other accessory parts such as self-tapping screws, "O" rings, rubber boots and wrapping tapes shall be applied accordingly.

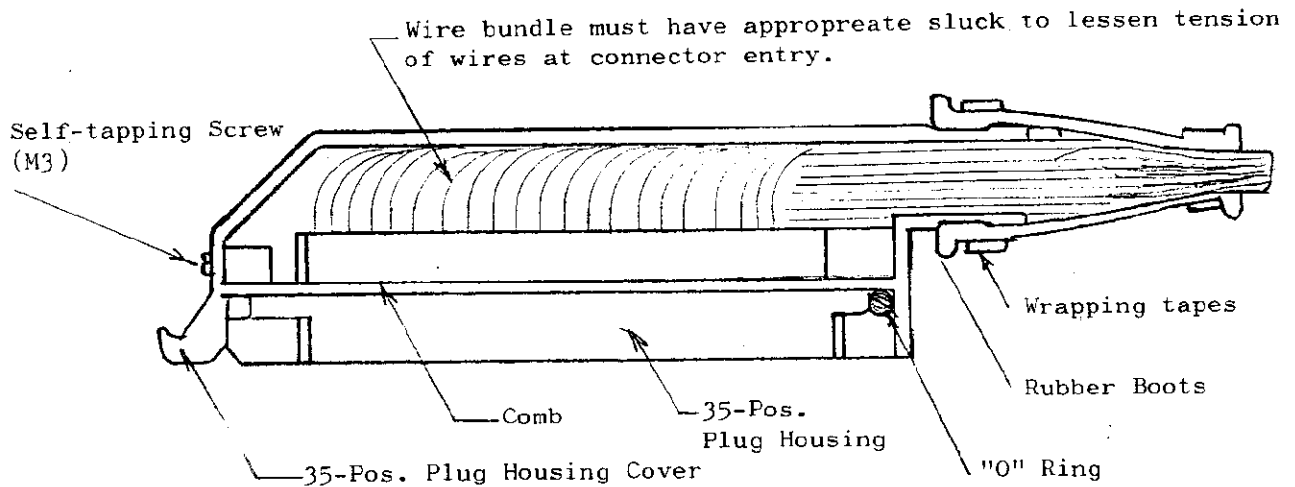


Fig. 4


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9.3 Application Tooling:

For crimping contacts and extraction of contacts from housing, AMP specified appropriate application tooling shall be used. Crimping and extraction procedures shall be in accordance with the instruction sheets attached to the tools.

10. Applicable Documents:

JASO D 605 Multi-Connectors for Automotives
 114-5015 Application Specification, Crimping Mini-Spring Receptacle Contacts

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