



DEUTSCH* Jiffy Splice System

1. INTRODUCTION

1.1. Purpose

This report summarizes the results of testing performed on DEUTSCH Jiffy Splice System to determine conformance to the requirements of product specification 108-151041, rev A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of the DEUTSCH Jiffy Splice System. Testing was performed at the TE Connectivity Industrial Commercial Transportation Laboratory in 2016. The test file numbers for this testing are listed in Figure 1. This documentation is on file at, and available from, TE Connectivity Industrial Commercial Transportation Laboratory.

Test Group	Test Report
1	IPD160711-01
2	IPD160711-02
3	IPD160711-03

Figure 1

1.3. Conclusion

The DEUTSCH Jiffy Splice System products listed in Paragraph 1.4 conform to the electrical, mechanical, and environmental performance requirements given in product specification 108-151041, rev A.

1.4. Test Specimens

Test specimens were representative of normal production lots. Specimens identified with the part numbers given in Figure 2 were used for testing.

DEUTSCH PART NUMBER	DESCRIPTION	TEST GROUP
JS-12-00	Jiffy Splice, Size 12	1-3
JS-16-00	Jiffy Splice, Size 16	
1060-12-0166	Size 12 S&F Pin, Nickel/Tin	
1062-12-0166	Size 12 S&F Socket, Nickel/Tin	
1060-16-0122	Size 16 S&F Pin, Nickel	
1062-16-0122	Size 16 S&F Socket, Nickel	

Figure 2

1.5. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15° to 35°C

Relative humidity: 25 to 75%

1.6. Qualification Test Sequence

Test	Test Group (a)		
	1	2	3
	Test Sequence (b)		
Examination of Product	1,9	1,6	1,3
Insulation Resistance	2,7	2	
Contact Resistance	3	3	
Temperature Life		4	
Thermal Shock	4	5	
Fluid Immersion	8		
Vibration	5		
Terminal Retention in Connector			2
Water Immersion	6		

- (a) Specimens were prepared in accordance with the production drawings and were selected at random from current production.
- Groups 1 through 3 specimens consisted of size 12 Jiffy Splice with DEUTSCH stamped and formed size 12 nickel/tin pins and socket contacts with 12AWG GXL wire.
 - Groups 1 through 3 specimens consisted of size 16 Jiffy Splice with DEUTSCH stamped and formed size 16 nickel pins and socket contacts with 16AWG SXL wire.
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- (b) Numbers indicate sequence that tests were performed.

Figure 3

2. TEST METHODS AND RESULTS

2.1. Examination of Product

Product was visually inspected for correct use of materials, proper construction, correct part number and insert markings, and over-all quality of workmanship. Poor molding fabrication, loose materials, damaged or improperly manufactured contacts, galling of metal parts, nicks and burrs of metal parts, and torn seals or cracked plastic were considered adequate basis for rejection.

2.2. Insulation Resistance

Using a 1000 VDC megohmmeter check each contact to all other contacts and the shell electrically connected together.

2.3. Contact Resistance

Using test currents per Figure 4. The resistance of an equal length wire (reference wire) shall be subtracted from the actual readings to determine the added resistance of the terminal. The reference wire shall be from the same reel as used for the connector wiring.

CONTACT SIZE	WIRE SIZE (AWG)	TEST CURRENT (amp)	MAXIMUM VOLTAGE DROP (mV)
12	12	25	100
16	16	13	100

Figure 4

2.4. Temperature Life

The wired mated samples were subjected to 1000 hours at +125°C without current flowing.

2.5. Thermal Shock

Test samples were subjected to 10 cycles. One cycle consisted of a soak time at -55°C, then transitioned within 2 minutes to an ambient temperature of +125°C with a soak time, and then transitioned back to -55°C within 2 minutes. The soak times were established as the time necessary to bring the internal connector temperature on test to within 5°C of each of the ambient temperatures.

2.6. Fluid Immersion

One test sample per fluid, Figure 5 was used and submerged at the specified temperature $\pm 3^\circ\text{C}$ for 5 min, then remove and allow to air dry for 24 h. This completes one cycle. Each test sample was subjected to a total of five cycles. Inspect for damage after the test.

Fluid	Temperature $\pm 3^\circ\text{C}$ ($\pm 5^\circ\text{F}$)
Motor Oil 30 weight	+60 [140]
Brake Fluid (disc type 1)	+60 [140]
Gasoline	+25 [77]
Diesel Fuel #2	+60 [140]
50/50 Antifreeze/Water mixture	+60 [140]
Transmission Oil 90 weight	+60 [140]

Figure 5

2.7. Vibration

- Sine Sweep: 10 to 2000 Hz
- Initial Displacement: 1.78 mm DA
- Maximum Acceleration: 20 G
- Test Duration: 12 hours
- Time per X,Y,Z axis: 4 hours
- Test Current first 3 hours each axis: 12AWG (17A), 16AWG (10A)

2.8. Terminal Retention in Connector

Crimped contacts were subjected to a direct pull for 1.0 minute using equivalent weights.

2.9. Water Immersion

The wired mated connectors were placed in an oven at +125°C for a minimum of 1 hours, then immediately placed in water with a 5% salt by weight content and 0.1 g/L wetting solution to a depth of 1 meter for 4 hours minimum. The free ends of the mated connectors remained out of the water to prevent wicking of the water through the open wires. Water temperature was +23°.

3. SUMMARY OF TESTING

3.1. Examination of Product—All Test Groups

Specimens were visually inspected and no evidence of physical damage detrimental to product performance was observed.

3.2. Insulation Resistance—Test Groups 1 and 2

All insulation resistance measurements were greater than 20 MΩ.

3.3. Contact Resistance—Test Groups 1 and 2

All contact resistance measurements were less than 100 mV.

3.4. Temperature Life—Test Groups 2

No evidence of physical damage was visible as a result of temperature life testing.

3.5. Thermal Shock—Test Group 1 and 2

No evidence of physical damage was visible as a result of thermal shock testing

3.6. Fluid Immersion —Test Groups 1

No evidence of physical damage was visible as a result of exposure to chemicals.

3.7. Vibration—Test Group 4

No discontinuities were detected during vibration testing. Following vibration testing, no cracks, breaks, or loose parts on the specimens were visible.

3.8. Terminal Retention in Connector—Test Group 3

All size 12 test samples met 30 lbf [133N] minimum and size 16 test samples met 25 lbf [111N] minimum while remaining in place during the 1.0 minute pull test.

3.9. Water Immersion—Test Group 1

All test sample insulation resistance measurements were greater than 20 MΩ.