



IPC-TM-650 TEST METHODS MANUAL

1.0 Scope

1.1 To determine the ability of electrical contacts to withstand forces tending to displace them from their proper location within the connector insert and to resist contact pull out. These forces may be the result of (a) loads on wire connected to the contact, (b) forces required to restrict contact "push through" during assembly of removable type contacts into connector inserts, during assembly of removable type contacts into connector inserts, (c) forces produced by mating of contacts during connector mating, (d) dynamic forces produced by vibration and shock during normal use of the connectors, and (e) forces relating to bundling strains on wire.

2.0 Reference Documents

2.1 Information in this section is intended to parallel the test method described in EIA-RS-364/TP-29.

3.0 Test Specimen

3.1 A plug and/or receptacle with a full complement of contacts.

4.0 Apparatus

4.1 Force gauge, of suitable range and accuracy to provide measured values accurate within 2 percent.

4.2 Contact removal and insertion tools as required by the connector specification.

4.3 Steel test probes to adapt the force gauge plunger to the front or wiring end of the particular contact (male, female, or hermaphroditic) under test.

4.4 Device for applying the required load.

Number 3.2	
Subject Contact Retention, Connectors	
Date 7/75	Revision A
Originating Task Group N/A	

5.0 Procedure

NOTE: All contact positions of the insert shall be filled during this test.

5.1 All back shell hardware and compression rings shall be removed to expose the wire side of the connector.

5.2 If possible, the test shall be conducted before wires have been attached to the contacts.

5.3 The unmated plug or receptacle shall be mounted such that an axial load can be applied by the force gauge. A minimum of 1/4 inch clearance shall be provided on the opposite side of the insert to permit any "push through" that might occur.

NOTE: The direction(s) in which the test is to be conducted shall be determined from the individual connector specification. If two-directional testing is required, the specified number of samples shall be divided into equal groups (one group for each test).

5.4 An axial load shall be applied to the contact at a rate of approximately one (1) pound per second until the force specified in the detail specification is reached. The specified force shall be maintained for a minimum of five (5) seconds.

6.0 Notes

6.1 Acceptance criteria shall be established in terms of (a) the difference in contact position before and during the application of the specified axial force and/or (b) the difference in contact position before and after the application of the specified axial force.