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EIA STANDARD

TP-42B

Impact Test Procedure for Electrical Connectors

EIA/ECA-364-42B

(Revision of EIA-364-42A)

APRIL 1999

ELECTRONIC INDUSTRIES ALLIANCE

Electronic Components, Assemblies, Equipment & Supplies Association



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EIA-364-42B

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(From Standards Proposal Number 3985, formulated under the cognizance of the CE-2.0 National Connector Standards Committee.)

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TEST PROCEDURE NO. 42B
IMPACT TEST PROCEDURE
FOR
ELECTRICAL CONNECTORS

(From EIA Standards Proposal No. 3985, formulated under the cognizance EIA CE-2.0 Committee on National Connector Standards, and previously published in EIA-364-42A.)

1 Introduction

1.1 Scope

This standard establishes a method to determine the effects of impacts on electrical connectors.

1.2 Object

The object of this test procedure is to determine the ability of a connector to withstand impacts of the type that might be encountered when a connector is dropped to the floor. This test should only be performed on connectors designed to meet such requirements.

2 Test resources

2.1 Equipment

2.1.1 A test fixture similar to that shown in figure 1 shall be used. Unless otherwise specified, this fixture shall be capable of being mounted to any convenient, rigid, vertical structure at a height of 0.6 m (2 feet).

2.1.2 The impact surface shall be a concrete floor or a concrete slab at least 0.1 m (4 in) thick.

3 Test specimen

3.1 Description

A test sample shall consist of a plug, or a receptacle, or a mated plug and receptacle, as specified in the referencing document.

3.2 Preparation

The test sample shall be wired as intended for normal service, complete with accessories. Unless otherwise specified, the combined length of the pipe fixture and the connector cable shall be 2.1 m \pm 25 mm (7 ft \pm 1 in) with a minimum length of 457 mm (18 in) of cable. In the case of a mated sample, the connector on the free end shall be wired with 152 mm (6 in) leads.

4 Test procedure

4.1 The cable, with the sample attached, shall be securely fastened to the test fixture such that the cable assembly can hang freely.

4.2 Unless otherwise specified, the cable assembly shall be extended its full length from the test fixture to a drop height that is specified in table 1. Drop requirements shall be determined by the service class of the test sample. The sequence and number of drops shall be as indicated in table 1. The test sample shall fall by the pendulum action of the pipe and cable assembly and strike the impact pad. The radial orientation for each series of eight drops shall be dictated by using the index feature of the test fixture. Each drop shall originate from a different index position.

Table 1 - Drop height and number of drops

Drop height	Service class		
	Light	Moderate	Severe
2.4 m (8 ft)	-	8	8
1.8 m (6 ft)	8	-	8
1.2 m (4 ft)	-	8	8
0.6 m (2 ft)	-	-	8
0.1 m (4 in)	-	-	8
Total drops	8	16	40

4.3 Failures

Potential modes of failure resulting from this test are as follows:

4.3.1 Inability to mate or unmate

4.3.2 Broken parts or accessories

4.3.3 Electrical failure

4.3.4 Damage to seals

5 Details to be specified

The following details shall be specified in the referencing document:

- 5.1 Length of pipe and cable, if other than specified in 3.2
- 5.2 Drop height, if other than specified in 4.2
- 5.3 Number of impacts, if other than specified in table 1
- 5.4 Number of samples to be tested
- 5.5 Sample description (plug, receptacle, mated, unmated, etc.)
- 5.6 Acceptance criteria
- 5.7 Service class

6 Test documentation

Documentation shall contain the details specified in clause 5, with any exceptions, and the following:

- 6.1 Title of test
- 6.2 Sample description; including fixturing
- 6.3 Test equipment used, and date of last and next calibration
- 6.4 Test procedure
- 6.5 Values and observation
- 6.6 Name of operator and date of test

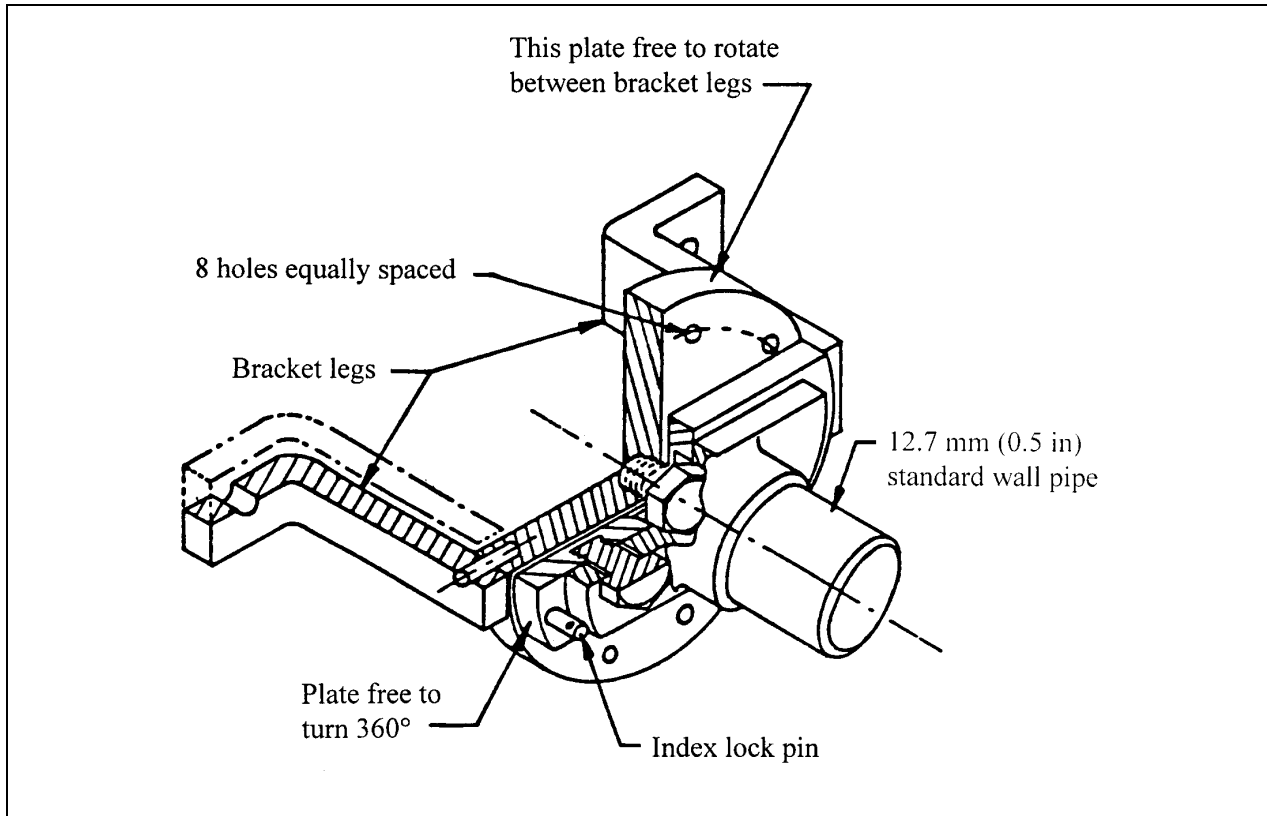


Figure 1 - Typical test fixture

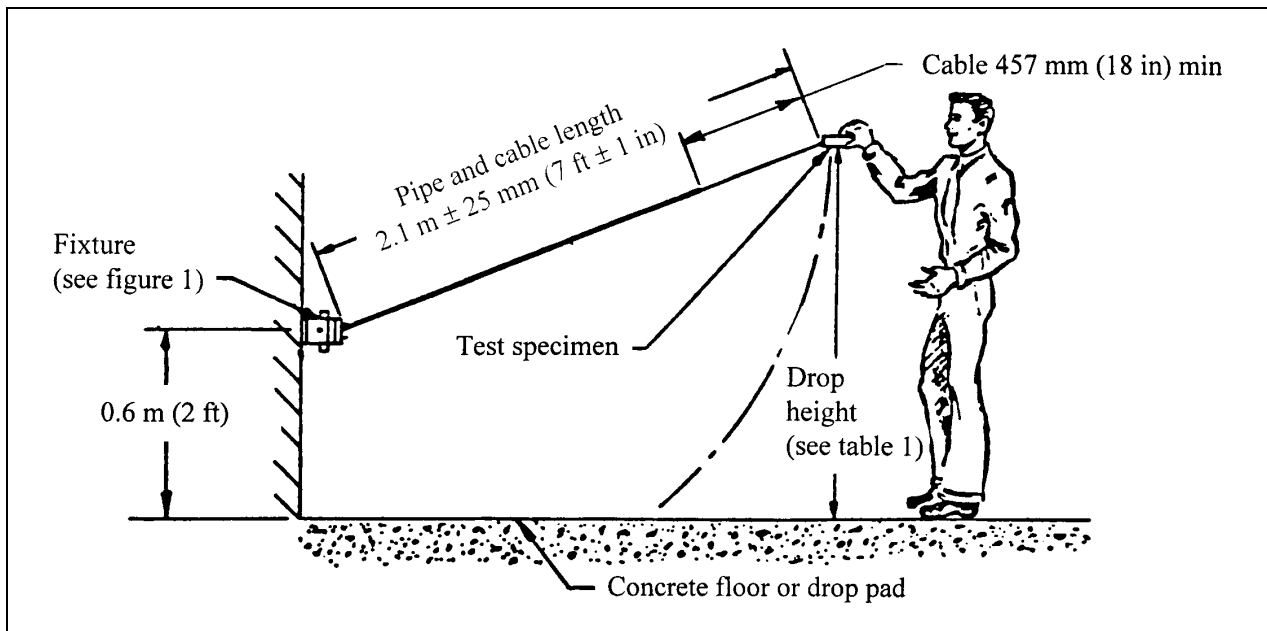


Figure 2 - Impact test procedure, see table 1

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