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EIA STANDARD

EIA-364-25C

TP-25C

Probe Damage Test Procedure for Electrical Connectors

EIA-364-25C

(Revision of EIA-364-25B)

MAY 1998

ELECTRONIC INDUSTRIES ALLIANCE

ENGINEERING DEPARTMENT

Electronic Industries Alliance

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TEST PROCEDURE No. 25C

PROBE DAMAGE
TEST PROCEDURE FOR ELECTRICAL CONNECTORS

(From EIA Standards Proposal No. 4029, formulated under the cognizance EIA CE-2.0 Committee on National Connector Standards.)

1 Introduction

1.1 Scope

This standard establishes a test method to be followed for probe damage testing, intended primarily for round socket contacts in electrical connectors and possibly applicable to other type contacts as well. The purpose of this test is to simulate a form of field abuse of contacts during test by inserting probes into connector socket contacts.

2 Test resources

2.1 Equipment

The equipment required to perform the test shall be a probe damage tool similar to that shown in figure 1 and mounting fixtures similar to those shown in figures 2 and 3. The test pin shall be as shown in figure 1 and shall be of hardened steel and have a polished surface containing a 0.15 micrometer (6 microinch) to 0.25 micrometer (10 microinch) finish.

3 Test specimen

3.1 Description

3.1.1 The specimen shall consist of one socket contact assembled in its connector housing, unless otherwise specified in the referencing document.

3.1.2 The specimen may be wired as required by the referencing document.

3.1.3 Wires required for other tests may be terminated to the contacts.

3.2 Preparation

The contact shall be inserted into an appropriate connector or a suitable collet type holding device, as stated in the referencing document. The collet type holding device shall not support the contact in any way that differs from the support normally provided by the insert when the contact is installed in a connector to such an extent that such support would tend to defeat the purpose of this test.

4 Test procedure

4.1 Initial measurements

The specimen shall be visually and dimensionally inspected and have initial contact resistance and separating forces measured as specified in the referencing document.

4.2 Procedure

4.2.1 The connector or the collet device with the socket contacts fixed in place shall be mounted in a horizontal position to a rotating fixture to allow 360° hand rotation during test; see figures 2 and 3.

4.2.2 The probe damage tool, see figure 1, shall be inserted into the contact to a “B” dimension depth as illustrated in figure 1. The “B” dimension shall be both 1/2 and 3/4 of socket bore minimum depth specified in the referencing document. The depth of the socket insert dielectric material shall be added to probe length “B” when a connector holding device is used.

4.2.3 When the test setup is in conformance with 4.2.1 and 4.2.2 the fixture shall be slowly rotated once through 360° at a uniform rate, unless otherwise specified in the Specification, with the probe damage tool inserted in the contact so that the force is applied uniformly to the inside diameter of the socket. The test shall be repeated so that both insertion depths (i.e., 1/2 and 3/4) are tested.

4.3 Final measurements

Upon completion of the above test the specimen shall be visually and dimensionally inspected and the final contact resistance and separating forces measured as specified in the referencing document.

5 Details to be specified

The following details shall be specified in the referencing document:

5.1 Initial and final examination or measurement; see 4.1 and 4.3

5.2 Mounting of specimen, see clause 4. The collet device shall be defined in the referencing document

5.3 Number and size of samples to be tested

5.4 Probe depth if other than specified in 4.2.2

5.5 Number of 360° rotations indicated in 4.2.3 if other than one

6 Test documentation

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

6.1 Title of test

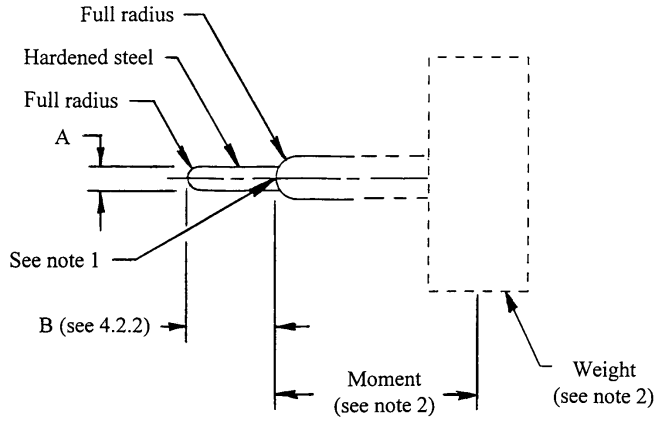
6.2 Sample description, including fixturing

6.3 Test equipment used, and date of last and next calibration

6.4 Test procedure

6.5 Values and observations

6.6 Name of operator and date of test



Contact size	Diameter, A mm ± 0.013 mm (in ± 0.0005 in)	Moment ± 10% m-N (in-lb)
4/0	12.70 (0.500)	0.904 (8)
2/0	10.31 (0.406)	0.904 (8)
0	9.07 (0.357)	0.904 (8)
2	7.19 (0.283)	0.452 (4)
4	5.72 (0.225)	0.452 (4)
6	4.52 (0.178)	0.452 (4)
8	3.61 (0.142)	0.452 (4)
10	3.18 (0.125)	0.226 (2)
12	2.39 (0.094)	0.226 (2)
16	1.588 (0.0625)	0.226 (2)
20	1.02 (0.040)	0.056 (0.5)
22	0.76 (0.030)	0.014 (0.125)
23	0.69 (0.027)	0.014 (0.125)
24	0.64 (0.025)	0.014 (0.125)

NOTES

1 Fulcrum point for calculating moment, cm-kg (in-lb)
2 The values for distances and weight may vary. The product of the weight and distance shall be equal to the moment specified above.
3 The weight and its shape may vary.

Figure 1 - Test probe fixture

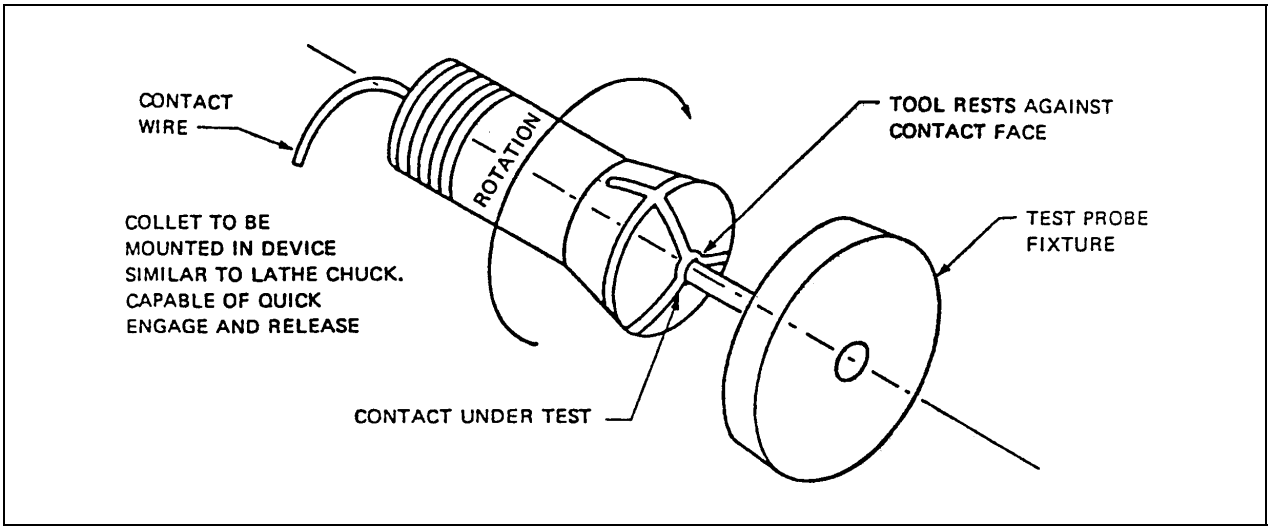


Figure 2 -Socket contact holding device for testing socket contacts

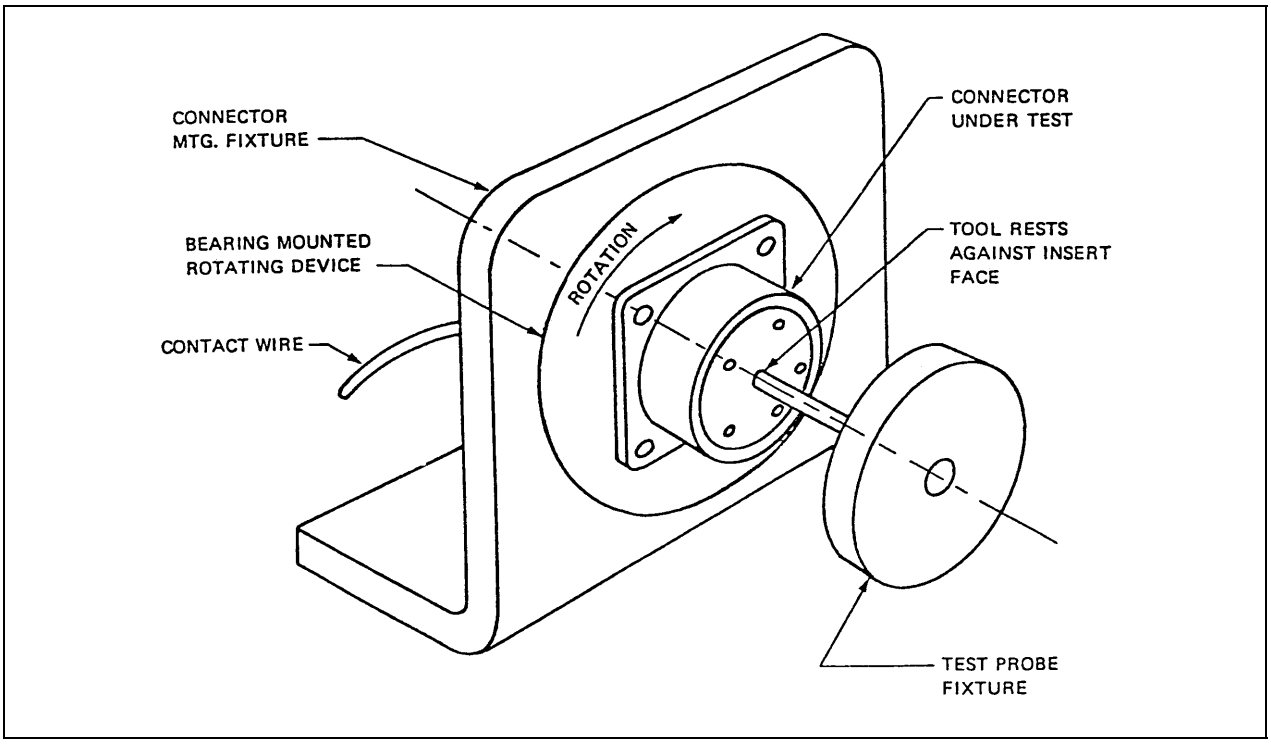


Figure 3 - Apparatus for testing nonremovable socket contacts within the connector

EIA Document Improvement Proposal

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