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Standard Test Methods for Electrically Insulating Plastic Guard Equipment for Protection of Workers [1]

This standard is issued under the fixed designation F 712; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 These test methods cover three electrical tests on plastic guards and assembled guard systems. They are:

1.1.1 *Method A*—Withstand voltage proof test,

1.1.2 *Method B*—Flashover voltage, and

1.1.3 *Method C*—Leakage current.

1.2 These methods cover, but are not limited to, the following typical guards:

1.2.1 *Conductor Guards and Connecting Covers*:

1.2.1.1 Line guards,

1.2.1.2 Line guard connectors,

1.2.1.3 Insulator covers, and

1.2.1.4 Deadend covers.

1.2.2 *Structure and Apparatus Covers*:

1.2.2.1 Pole guards,

1.2.2.2 Ridge pin covers,

1.2.2.3 Switch blade covers,

1.2.2.4 Arm guards,

1.2.2.5 Cutout covers, and

1.2.2.6 Structural barriers,

1.3 It is common practice for the user of this equipment to prepare instructions for the correct use and maintenance.

1.4 The use and maintenance of this equipment is beyond the scope of these test methods.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies[2]

2.2 *ANSI Standard:*

C39.5 Safety Requirements for Electrical and Electronic Measuring and Controlling Instrumentation[3]

3. Significance and Use

3.1 All three tests may be used for product design qualification.

4. Apparatus

4.1 *Voltage Source and Test Techniques*—See Test Method D 149. The test equipment shall have adequate power and provide relatively stepless variable test voltage that can be raised at a rate of approximately 1000 V/s ac or 3000 V/s dc.

4.2 *Energized Inner Electrodes*, in accordance with Table 1 and Table 2. The length should be sufficient to extend past the ends of the guard or guard assemblies where appropriate.

4.3 *Outer Ground Electrode*—A conductive material with size and location as indicated in Table 1.

4.4 *Shielded Cable*— To reduce the "room influence" when conducting ac leakage tests, the cable from the pickup electrode to the current-measuring device should be a shielded cable with the cable shield grounded.

5. Sampling

5.1 *Design Tests*— Samples shall consist of sufficient specimens of each product used in a specific guard system to form one of each assembly intended for field use.

5.1.1 The design tests will be used to qualify a specific product model and normally will not be repeated during production.

5.2 *Acceptance Tests*— A test sample shall consist of one or more specimens dependent on the percentage of the lot being tested.

5.2.1 A lot is represented either by all the guards produced in one production run or in one shipment.

5.2.2 Lots of new or unused guards shall have test specimens selected at random.

6. Installation of Assembled Guard System

6.1 The guard or assembled guard system is installed on a conductive electrode (Table 1) to be energized at various voltages in accordance with the rating of the guard and the type of test being conducted. The ground electrode shall be a

[1] These test methods are under the jurisdiction of ASTM Committee F-18 on Electrical Protective Equipment for Workers and are the direct responsibility of Subcommittee F18.25 on Insulating Cover-Up Equipment.

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[2] *Annual Book o0f ASTM Standards*, Vol 10.01.

[3] Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

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