Designation: F 1564 – 95 (Reapproved 2000)

Standard Specification for Structure-Mounted Insulating Work Platforms for Electrical Workers [1]

This standard is issued under the fixed designation F 1564; 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 This specification covers the design testing of mechanical and electrical characteristics of structure-mounted insulating work platforms used by electrical workers.

1.2 Platforms covered by this specification are singleworker platforms not exceeding 9 ft (2.75 m) in length. Platforms designed to support more than one worker at a time are beyond the scope of this specification.

1.3 Non-insulating platforms are not within the scope of this specification.

1.4 The use and maintenance of this equipment are beyond the scope of this specification.

1.5 The values stated in inch-pound units are to be regarded as the standard. The SI units given in parentheses are for information only.

1.6 The following safety hazards caveat pertains only to the test method portion, Section 9 of this specification: *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:*

F 711 Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live Line Tools[2]

F 819 Definitions of Terms Relating to Electrical Protective Equipment for Workers[2]

3. Terminology

3.1 *Definitions:*

3.1.1 Refer to Definitions F 819 for definitions of terms specific to this specification.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *design test*—a type of test made on a sample treated as representative of an industrial product. These tests will not be repeated in quantity production.

3.2.2 *discontinuities*—abrupt changes in surface that may trip an electrical worker or otherwise introduce a hazard to the worker (see 8.1).

3.2.3 *insulating distance*—the distance from the structure attachment point to the beginning of the work area of the platform.

4. Significance and Use

4.1 Insulating work platforms covered by this specification are designed to be used by electrical workers in conjunction with personal protective equipment while working on energized circuits. This shall include, but not be limited to:

4.1.1 Insulating gloves with protectors or insulating and insulated hotsticks, or both.

4.1.2 A fall protection device that does not compromise the electrical insulating protection of the platform.

4.2 The test procedures in this specification provide an objective means of determining if a platform meets minimum electrical and mechanical specifications. The methods permit testing of major components of the platform under controlled conditions.

4.3 The test procedures utilize objective criteria for evaluation and may be discontinued at any time defects are found.

5. Ordering Information

5.1 Orders for platforms under this specification should include the following information:

5.1.1 Length,

5.1.2 Pivot or non-pivot attachment, and

5.1.3 Single-point or rail-type attachment for worker.

6. Manufacture and Marking

6.1 Each platform covered by this specification shall be marked clearly and permanently with the maximum working load in the position used as well as the name of the manufacturer, month and year of assembly, and the ASTM designation.

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[1] This specification is under the jurisdiction of ASTM Committee F-18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.35 on Tools and Equipment.

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[2] *Annual Book of ASTM Standards*, Vol 10.03.

6.2 Each platform shall have a durable nonskid finish applied to the area of the platform on which the worker stands. This coating shall be nonconductive and shall permanently adhere to the surface.

7. Other Requirements

7.1 Each platform shall be free of areas that will trap water and debris that may impair the insulating effectiveness between the worker location and the structure attachment.

7.2 Each platform shall have a minimum overall length of 38 in. (96.52 cm) and an insulating distance of at least 12 in. (30.48 cm) from the structure attachment to the kick board or other suitable barrier. See Fig. 1 for details.

7.2.1 Any brace poles or attachments bridging the insulating section of the platform shall have a minimum of 12 in. (30.48 cm) of insulating distance. (See Fig. 1.)

7.3 Platforms covered by this specification shall be rated at a minimum working load of 500 lb (226.8 kg) with a minimum safety factor of 2.5 in fiberglass-reinforced plastic (FRP) material and in metal brackets and associated loadbearing components when installed in the manufacturer's recommended configuration on the structure.

7.4 All FRP tubular supports, such as hand rails, support struts, tripods, etc. shall meet the specifications set forth in Specification F 711.

7.5 All mounting hardware that is hand removable such as bolts and pins, shall be equipped with safety keepers.

8. Workmanship, Finish, and Appearance

8.1 Each platform shall be free of cracks, voids, or discontinuities in surface (except where, by design, the surface is discontinuous due to the installation of a kick board or other warning device).

8.2 All insulated surface areas providing electrical insulation and isolation of the work area from the structure shall be smooth for ease of cleaning.

9. Test Methods

9.1 Test each design of insulating work platform covered by this specification dielectrically and mechanically in accordance with the following procedures:

9.1.1 *Electrical Test*:

NOTE 1—Equivalent direct-current (DC) test voltages are under consideration at this time and will be inserted at a later date.

9.1.1.1 As shown in Fig. 2, the 12-in. (30.48-cm) insulating segment of the assembled platform shall withstand a 100-kV alternating-current (ac) potential for 5 min. Passing this test is indicated by the following: no flashover between electrodes; the surface between electrodes does not increase in temperature; and when using ground return metering, the maximum leakage current is less than 100 μa at 100-kV ac.

9.1.1.2 The electrodes shall be two spiral springs, ⅝ to 1-in. (15.6 to 25-mm) diameter. Wind each spring of spring steel wire, 40 ± 5 thousandths in. (1 mm) in diameter. Wrap the springs around the platform board so spring contact is maintained on the entire surface. When applied across the test specimen, the distance between individual coils of a spring shall be less than 0.25 in. (0.64 cm).

9.1.1.3 Attach the test leads to the springs making sure all sharp edges remain inside the springs. Use high-voltage cable such as metal conductor spark plug wire for the power lead and use shielded cable, similar to RG-58, for the ground lead. Attach the inner conductor of the shielded cable to the ground spring and to the ground return meter of the metering circuit. Strip back 2 in. (5.08 cm) of the shield and float the shield on the spring end. Attach the shield to the ground lug on the test set.

NOTE 2—Use a true RMS meter with a crest factor of seven or greater.

9.1.1.4 Apply potential to the test segment. Increase the voltage gradually (less than or equal to 10 kV per second) to 100 kV and maintain for 5 min. Read the maximum leakage

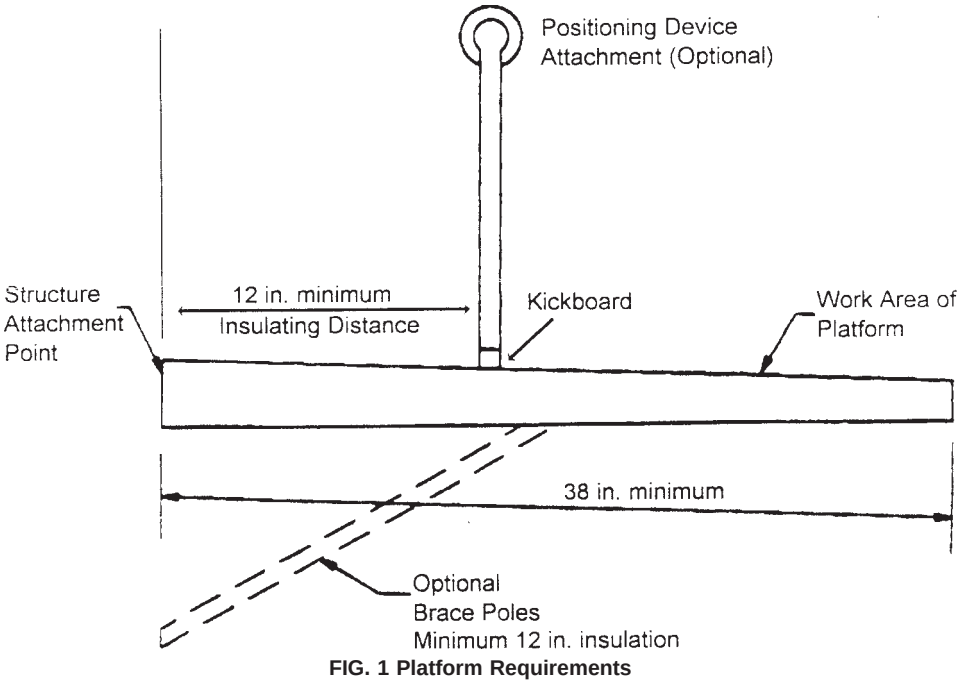

FIG. 1 Platform Requirements

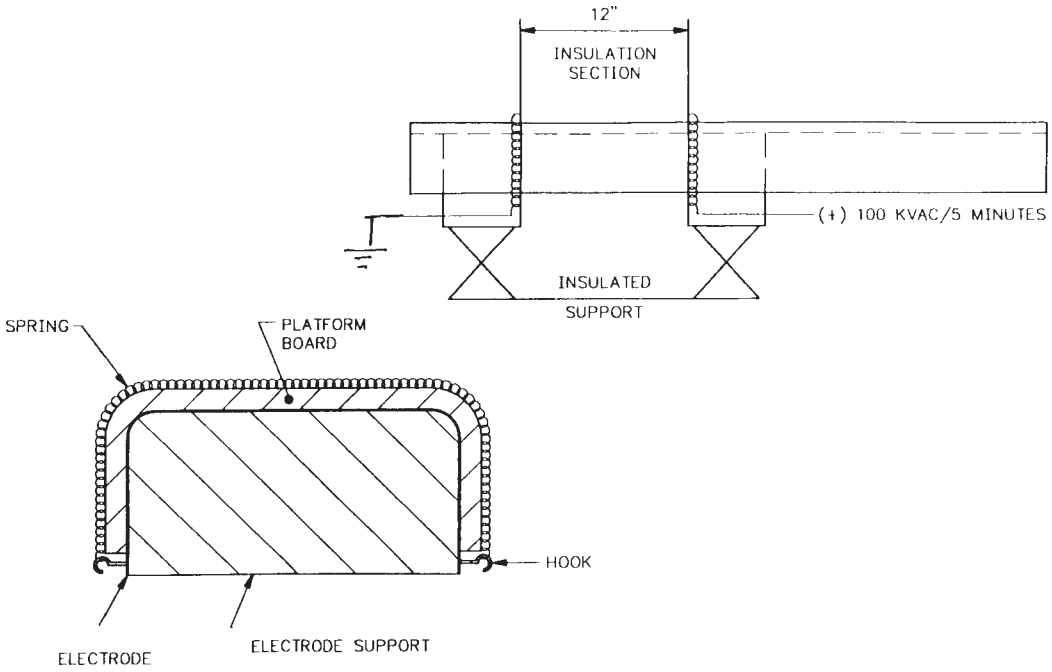

FIG. 2 Insulating Segment of Platform

current indicated by the ground return meter. A leakage in excess of 100 µa at 100-kV ac signifies a failure. The platform board shall be rejected for a failure of any test segment.

9.1.2 The nonskid finish areas (see 6.2) of the platform shall withstand a proof test ac voltage of 30 kV per foot (30.48 cm) for 5 min.

9.1.3 An acceptable dielectric test setup is illustrated in Fig. 2.

9.2 *Mechanical Test*:

9.2.1 Test each platform design mechanically in accordance with the following subsections.

9.2.1.1 Install the platform and its associated mounting hardware on a rigid test structure allowing the measurement of the deflection of the platform under controlled loading. If support or brace poles are used, set them at the limit of acceptable angles that will apply the maximum stress to the pivot point and attachments.

9.2.1.2 Attach the load to the platform at a point 2 in. (5.08 cm) from the outer end and distributed over an area not to exceed 30 in.^{2} (193.56 cm^2). Increase the load in pounds at a maximum rate of 1000 lb (453.60 kg) per minute until the working load of the device is reached. At working load, deflection shall not exceed 1 in. (2.54 cm) per foot (30.48 cm) of overall length, with a maximum deflection of 4 in. (10.16 cm).

9.2.1.3 After recording the data at working load, the load on the same platform shall be increased to two and one half (2.5) times working load at the same rate and held for 5 min. The platform shall withstand this loading without visible damage such as cracks, delamination, permanent deformation, or discoloration.

9.2.1.4 The platform shall withstand two and one half (2.5) times working load at all brace pole angles and pivotal mounting angles without visible damage such as cracks, delamination, permanent deformation, or discoloration.

9.2.1.5 A worker positioning device and its attachment to the platform shall withstand a static load test of 500 lb (226.8 kg) in any direction without visible signs of damage.

10. Inspection and Certification

10.1 Each platform manufactured and inspected under this specification shall also be inspected for workmanship and quality by the supplier.

10.2 When specified in the purchase order or contract, a producer's or supplier's certification shall be furnished to the purchaser certifying that the product by specific serial number has been manufactured in accordance with this specification and has been found to meet the requirements.