



Standard Test Method for Acoustic Emission Testing of Insulated and Non-Insulated Digger Derricks¹

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1. Scope

1.1 This test method covers a procedure for acoustic emission (AE) testing of digger derricks.

1.1.1 *Equipment Covered*—This test method applies to special multipurpose vehicle-mounted machines, commonly known as digger derricks. These machines are primarily designed to dig holes, set poles, and position materials and apparatus.

1.1.1.1 Insulated and non-insulated type digger derricks may be evaluated with this test method.

1.1.1.2 Digger derricks, if so equipped to position personnel or equipment, or both, may also be evaluated with this test method in conjunction with Test Method F914.

1.1.2 *Equipment Not Covered*—Excluded from this test method are general-purpose cranes designed only for lifting service and machines primarily designed only for digging holes.

1.2 The AE test method is used to detect and area-locate emission sources. Verification of emission sources may require the use of other nondestructive test (NDT) methods, such as radiography, ultrasonic, magnetic particle, liquid penetrant, and visual inspection.

1.3 **Warning**—This test method requires that external loads be applied to the superstructure of the vehicle under test. During the test, caution must be taken to safeguard personnel and equipment against unexpected failure or instability of the vehicle or components.

1.4 *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.*

¹ This test method is under the jurisdiction of ASTM Committee F18 on Electrical Protective Equipment for Workers and is the direct responsibility of Subcommittee F18.55 on Inspection and Non-Destructive Test Methods for Aerial Devices.

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2. Referenced Documents

2.1 ASTM Standards:²

E94 Guide for Radiographic Examination

E114 Practice for Ultrasonic Pulse-Echo Straight-Beam Contact Testing

E164 Practice for Contact Ultrasonic Testing of Weldments

E569 Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation

E610 Terminology Relating to Acoustic Emission (Withdrawn 1991)³

E650 Guide for Mounting Piezoelectric Acoustic Emission Sensors

E750 Practice for Characterizing Acoustic Emission Instrumentation

E976 Guide for Determining the Reproducibility of Acoustic Emission Sensor Response

E1417/E1417M Practice for Liquid Penetrant Testing

E1444/E1444M Practice for Magnetic Particle Testing

F914 Test Method for Acoustic Emission for Insulated and Non-Insulated Aerial Personnel Devices Without Supplemental Load Handling Attachments

2.2 Other Standards:

ASNT Recommended Practice SNT-TC-1A—Personnel Qualification and Certification in Nondestructive Testing⁴

ANSI A10.31 Digger Derricks—Safety Requirements, Definitions, and Specifications⁵

EMI Nomenclature and Specifications for Truck-Mounted Extensible Aerial Devices, Articulating Aerial Devices, Digger-Derricks⁶

3. Terminology

3.1 Definitions:

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American Society of Nondestructive Testing, 4153 Arlingate Plaza, Caller #28518, Columbus, OH 43228.

⁵ Available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

⁶ Available from the Equipment Manufacturer's Institute, 410 N. Michigan Ave., Chicago, IL 60611.