



Designation: E 164 – 9703

An American National Standard

Standard Practice for Ultrasonic Contact Examination of Weldments¹

This standard is issued under the fixed designation E 164; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This practice covers techniques for the ultrasonic A-scan examination of specific weld configurations joining wrought ferrous or aluminum alloy materials to detect weld discontinuities (Note 1). The reflection method using pulsed waves is specified. Manual techniques are described employing contact of the search unit through a couplant film or water column.

1.2 This practice utilizes angle beams or straight beams, or both, depending upon the specific weld configurations. Practices for special geometries such as fillet welds and spot welds are not included. The practice is intended to be used on thicknesses of 0.250 to 8 in. (6.4 to 203 mm).

NOTE 1—This practice is based on experience with ferrous and aluminum alloys. Other metallic materials can be examined using this practice provided reference standards can be developed that demonstrate that the particular material and weld can be successfully penetrated by an ultrasonic beam.

NOTE 2—For additional pertinent information see Practice E 317, Terminology E 1316, and Practice E 587.

1.3 Values stated in inch-pound units are to be regarded as the standard. SI units are given for information only.

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.*

2. Referenced Documents

2.1 ASTM Standards:

E 317 Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo-Testing Examination Systems Without the

¹ This practice is under the jurisdiction of ASTM Committee E-7 E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.06 on Ultrasonic Method.

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