



Standard Practice for Inspection Procedure for Use of Anaerobic Thread Locking Compounds with Studs¹

This standard is issued under the fixed designation F 1179; 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 practice covers an inspection procedure to ensure that studs installed with an anaerobic thread locking compound have achieved the necessary backout resistance.

1.2 *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. General Requirements

2.1 Application of anaerobic compounds, used as a method for locking threaded fasteners, shall be in accordance with the anaerobic compound manufacturer's recommendations.

2.2 *Responsibility for Inspection*—Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein.

2.3 *Government Inspection System*—For U.S. Navy procurements, each organization shall maintain an inspection system to ensure that all of the requirements of this practice are being met wherever anaerobic compounds are used for locking threaded fasteners.

3. Stud Installation Verification

3.1 Verification of fastener locking effectiveness of anaerobic compounds, after the manufacturer's recommended setting period, shall be in accordance with the following:

3.1.1 Witness installation and removal through a distance of three threads beyond the locking element of a previously unused nut (annular plastic ring locking element type) on two studs in each joint bolt circle containing more than three studs.

3.1.1.1 Locate selected studs 180° apart or as close thereto as possible.

3.1.1.2 Examine only one stud in applications having three studs or less.

3.1.2 Accept the assembly if no turning motion of the studs is observed during nut installation or removal. Also, accept the

assembly if a slight initial turning motion (up to ¼ turn) of the studs is observed, and no further turning motion of the studs is observed, during nut installation or removal. A small initial turning of the set stud represents a breaking or powdering of the locking compound which actually increases resistance to any further turning motion.

3.1.2.1 Do not restrain studs from turning during the test by any method other than the locking compound in the set end of the stud.

3.1.3 Reject each stud assembly if the requirements for acceptance of 3.1.2 are not met. If one assembly is rejected, all studs in that bolt circle shall be similarly checked (see 3.1.1 and 3.1.2). Remove and clean all rejected studs in accordance with the manufacturer's recommended procedures, reinstall, and reinspect.

3.1.3.1 Reinspection shall consist of selecting two of the reinstalled studs, if four or more studs require reinstallation, or one stud if less than four studs require reinstallation, and performing procedures 3.1.1, 3.1.2, and 3.1.3.

3.1.4 If assembly is accepted after step 3.1.2, each stud in the bolt circle shall be permanently marked (scribe or electro-etched) on the exposed end with a line oriented radially in relation to the center of the bolt circle.

4. Joint Assembly Inspection

4.1 Joint assembly shall be completed and final torque applied:

4.1.1 Note the position of the orientation line (see 3.1.4) on the studs. If the orientation line position indicates that studs have not turned more than ¼ turn, accept the joint assembly.

4.1.2 If the orientation line position indicates one or more studs have turned more than ¼ turn, reject the joint, disassemble the joint, and remove and clean the studs which failed in accordance with the manufacturer's recommended procedures, reinstall, and reinspect.

4.1.3 Reinspection of the stud shall consist of procedures 3.1.1, 3.1.2, and 3.1.3.

4.1.4 Reinspection of the joint assembly shall consist of procedures 4.1.1 and 4.1.2.

4.1.5 Repeat the removal and reinstallation procedure until the orientation line shows that studs have not turned more than ¼ turn during the final torquing.

¹ This practice is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.07 on General Requirements.

Current edition approved Sept. 30, 1988. Published December 1988.

5. Keywords

5.1 anaerobic compound; inspection; locking threaded fastener

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).