



SURFACE VEHICLE RECOMMENDED PRACTICE

J122™

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Cancelled 2017-01

Superseding J122 MAY1998

Surface Discontinuities on Nuts

RATIONALE

To advance the goal of harmonization, SAE J122 is cancelled and superseded by ASTM F812, Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series.

CANCELLATION NOTICE

This Technical Report has been declared "CANCELLED" as of January 2017 and has been superseded by ASTM F812. By this action, this document will remain listed in the respective index, if applicable. Cancelled Technical Reports are available from SAE.

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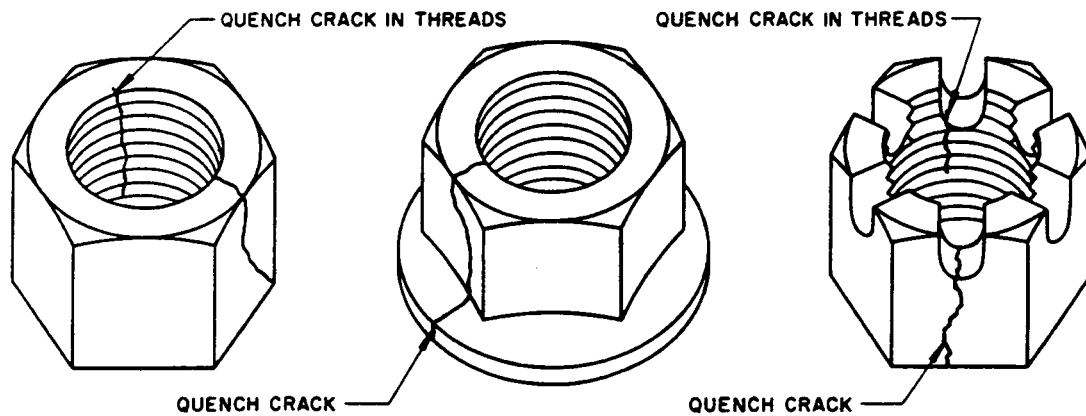
Full document details: SAE J122_201701

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1. **Scope**—This SAE Recommended Practice defines, illustrates, and specifies allowable limits for the various types of surface discontinuities that may occur during the manufacture and processing of metric-series nuts, in sizes 6.3 to 25 mm and inch-series nuts in sizes 1/4 to 1 in, inclusive, which are primarily intended for use in automotive assemblies.
 - 1.1 The basic recommended practice does not include inspection sampling requirements. It is intended that the purchaser shall specify in the original inquiry and purchase order the inspection sampling requirements which the producer must satisfy to demonstrate the acceptability of nuts with respect to surface discontinuities. Appendix A outlines inspection sampling plans applicable when such requirements are not specified by the purchaser in the original inquiry and purchase order.
2. **References**
 - 2.1 **Applicable Publication**—The following publication forms a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.
 - 2.1.1 ASTM PUBLICATION—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

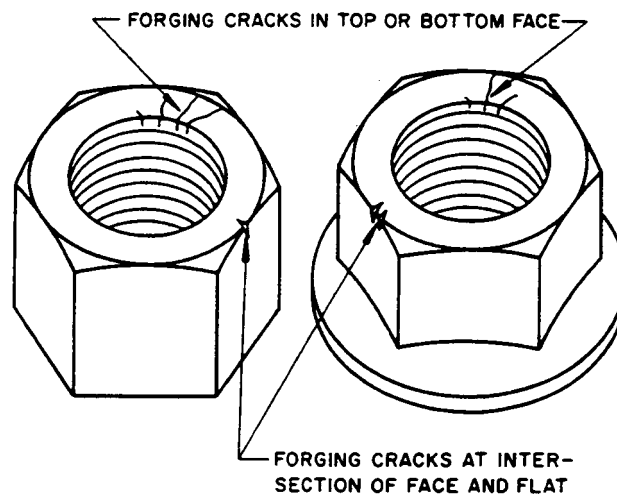
ASTM A 194—Steel Nuts for High Pressure and High Temperature Service
3. **Types of Surface Discontinuities**—For the purpose of this recommended practice, surface discontinuities on nuts are divided into 11 "types," defined as follows:
 - 3.1 **Cracks**—A crack is a clean (crystalline) fracture passing through or across the grain boundaries without inclusion of foreign elements. Cracks are normally caused by overstressing the metal during forging or other forming operation, or during heat treatment. Where parts are subjected to significant reheating, cracks usually are discolored by scale.
 - 3.1.1 **QUENCH CRACKS**—Quench cracks may occur during heat treatment due to excessively high thermal and transformation stresses. They usually traverse an irregular and erratic course on the surface of the nut. Typical quench cracks are shown in Figure 1.



NOTE: Quench cracks of any depth, any length, or in any location on a nut are not permissible discontinuities.

FIGURE 1—TYPICAL QUENCH CRACKS

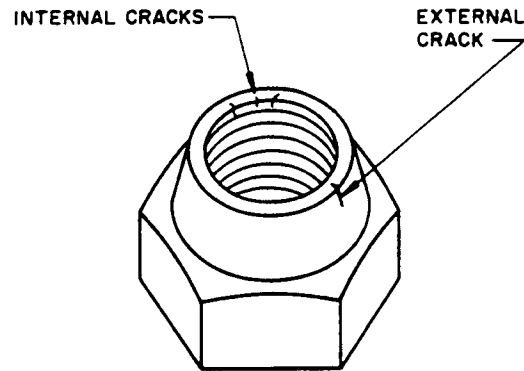
- 3.1.2 **FORGING CRACKS**—Forging cracks may occur during the cutoff or forging operations and are located on the top and bottom face of the nut, and at the intersection of the face and flat. Typical forging cracks are shown in Figure 2.



NOTE: Forging cracks are permissible discontinuities if within the limits specified in paragraph 4.2.2.2.

FIGURE 2—TYPICAL FORGING CRACKS

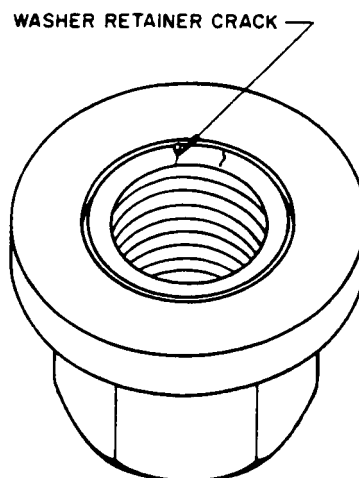
- 3.1.3 **LOCKING ELEMENT FORMATION CRACKS**—These cracks may occur due to the application of pressure against the nut when introducing the locking element into prevailing torque nuts. Cracks of this type are usually located in the vicinity of the locking element and may either be on the internal or external surface. Typical locking element formation cracks are shown in Figure 3.



NOTE: Locking element formation cracks located on the external surface of the nut are not permissible discontinuities.
Locking element formation cracks located on the internal surface of the nut are permissible discontinuities if within the limits specified in paragraph 4.2.3.1.

FIGURE 3—TYPICAL LOCKING ELEMENT FORMATION CRACKS ON PREVAILING-TORQUE NUTS

- 3.1.4 **WASHER RETAINER CRACK**—A washer retainer crack is an opening in a lip or hub of metal used for captivating a washer on a nut. Washer retainer cracks may occur when pressure is applied to the lip or hub during assembly of the washer. Such cracks are limited to the contour of the hub or lip used for retaining purposes. Typical washer retainer cracks are shown in Figure 4.



NOTE: Washer retainer cracks are permissible discontinuities.

FIGURE 4—TYPICAL WASHER RETAINER CRACKS