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Fasteners

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Preface

Revision A was the Initial Release of 99-02008 written by Brian Klatt 04/16/91 and checked by R. F. Goeke on 04/16/91.

Revision B issued a General Revision on 01/20/06.

Revision C issued a new format and general editorial update on 07/16/14.

Please note that the document number 99-02008, was erroneously assigned to the document entitled Receiving Inspection Testing of Discrete Parts on 07/24/95 and is being reassigned to 99-02011 during this revision.

1.0 Purpose

This procedure provides guidance for selection and procurement of fasteners.

2.0 Scope

This procedure applies to all fasteners used by MKI on flight hardware. Fasteners are defined as bolts, screws, nuts, anchor nuts, rivets, shear pins, helical and cylindrical inserts, and setscrews that join components and transfer load.

3.0 Applicable Documents

NASA/GSFC 541-PG-8072.1.2 Goddard Space Flight Center Integrity Requirements

4.0 Fastener Selection

Goddard Space Flight Center Fastener Integrity Requirements, NASA/GSFC 541-PG-8072.1.2 must be used as a guide in selection of fasteners for flight hardware. Fasteners with the designation MS (Military Standard) or NAS (National Aerospace Standard) are preferred.

5.0 Procurement

Fasteners shall be procured directly from the fastener manufacturer or the fastener manufacturer's authorized distributor. No other source is acceptable. This will help avoid counterfeit parts. Residual inventory shall not be used unless the requirements of this procedure have been met.

5.1 Documentation

Certificate of Compliance (C of C) must accompany the fasteners. In addition to the manufacturer's Chemical and Physical test data, specific to the manufacturing lot, must accompany the fasteners. Material test reports are not required for nuts, screws, helical inserts and cylindrical inserts of size #8 (4mm) and smaller nor for rivets and shear pins of size 5/32" (4mm) and smaller nor for setscrews.

5.2 Visual Inspection

A preliminary visual inspection to assure lot uniformity shall be performed as 1X on the entire fastener lot. Visual inspection for finish and other characteristics requiring visual inspection by the appropriate procurement specification shall be performed at 10X magnification, on a sampling basis as listed below.

5.3 Chemical and Physical Tests

If the manufacturer's chemical and physical test data is not available, MKI must have chemical and physical tests performed on a sample of the fasteners. Sample size and acceptance criteria shall be as listed below.

6.0 Sampling

Lot Size	Samples	Accept Criteria
1 to 50		0 defective
51 to 100	5	0 defective
101 to 500	7	0 defective
501 to 1200	8	0 defective
1201 and over	9	0 defective

7.0 Non-Destructive Evaluation

All Fasteners (100%), used in Safety Critical applications must be subjected to non-destructive evaluation. Acceptable NDE methods include visual inspection, dye penetrant, X-ray, eddy current, and magnetic particle inspections.

8.0 Traceability

Mission Assurance shall retain procurement documentation, including the manufacturer's chemical and physical test data. This includes chemical and physical test data from tests done by or for MKI.

Fastener manufacturer and lot date code shall e recorded in the Assembly Work Order (AWO), created by MKI.