

Approved by \_\_\_\_\_Hugo Franco\_\_\_\_\_ date \_\_\_\_\_08/27/04\_\_\_\_\_

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**NOTICE:** This document applies to mission critical and single point of failure fasteners.:  
**DOCUMENT FOLLOWS:**

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**GSFC FASTENER INTEGRITY REQUIREMENTS MEMO**

The Suborbital Projects and Operations Directorate (SPOD) is requesting exclusion for SOD programs except as noted herein.

The sounding rocket and balloon programs are established efforts that share the relatively low cost, high risk, rapid response philosophy of obtaining a maximum in scientific return at a minimum cost. The programs have relied on comprehensive testing structural analysis, and inspection to serve as the check and balance for flight reliability.

To ensure the integrity of fasteners used in Code 800 flight programs, but in keeping with the nature of these programs, Code 800 will implement a new policy. This requires all future procurements of structural threaded fasteners intended to be used for flight hardware and safety critical (where a single failure could result in injury to personnel or damage to property or flight hardware by dropping or losing control of the load) nuts and bolts and GSE hardware to be procured from one of the following, or to include a requirement to meet a tensile load specification.

- a. Defense Industrial Supply center
- b. Vendors that appear on the approved sources list (Appendix I of GSFC Spec. S-313-100)
- c. Vendors supplying traceable certifications

A minimum sample of three items from each procurement will be tested to demonstrate compliance with the procurement specification, unless procured from sources a,b, or c above. Items exceeding the tensile test capability or which for other reasons are not suitable for tensile test may be hardness tested to determine equivalent strength. Organizations not having testing capabilities may send sample test items to the Experimental Mechanical Construction Section (Code 821.2) for testing.

Threaded fasteners which are single-point failure items on flight hardware or which have single-point failure with personnel safety implications on ground support equipment will be load tested and visually inspected in all cases.

This same policy will be imposed on the contractors for hardware provided in support of these programs. The flight experimenters, however, would be considered exempt from these policies although they would be informed of the concerns and the approved sources and would be offered the use of services of Code 821.2 for sample testing of threaded fasteners. Successful comprehensive testing of integrated systems will still provide the basis for final flight approval, except for the balloon program. The balloon program will continue to rely on structural analysis, inspection, and in the case of single-point failure fasteners, tensile or hardness testing will be performed. Safety critical items, in all cases, will continue to be emphasized.

If you have any questions about the implementation of this policy, contact the NSBF Engineering Manager through the Administration Assistant at (903) 723-8002.

## LIST OF GSFC-APPROVED MANUFACTURERS

(From: Appendix I, GSFC S-313-100)

Revision C 4-13-98

### 1.0 GSFC APPROVED MANUFACTURERS

Safe life or single point failure screws and bolts as defined in section 2.2 must be made by these manufacturers or by manufacturers that are audited by the developer. Screws or bolts may be purchased directly from the manufacturer or from any distributor. The following manufacturers typically will produce aerospace bolts and screws to NAS, MS, or NA specifications, as well as custom fasteners.

Air Industries, Garden Grove, CA. (714) 892 5571

Ameritech Fastener Mfg. Inc., Houston, TX (713) 939 7638

B&B Specialties Inc., Anaheim, CA. (714) 993 1600

BEK Level 1 Inc., Huntington, WV (304) 697 2323  
NDT certs from BEK Level 1 Fasteners not acceptable.

Butler Inc., Gardena, CA (310)323 3114

California Screw Products, Paramount, CA. (213) 633 6626

CBS Fasteners, Anaheim, CA (714) 779 6368

Champion Fasteners, Inc., Mount Holly, NJ (800) 755 2693

Fairchild Fasteners, Torrance, CA (310) 784 3453

Fastener Innovation Technology (FIT) Inc., Gardena, CA (310) 538 1111

Fastener Technology Corp., N. Hollywood, CA. (818) 764 6467

Federal Manufacturing Corp., Chatsworth, CA (818) 341 9825

Hi-Shear Corp., Torrance, CA (310) 326 8110

Huck Aerospace Fasteners, Lakewood, CA (310) 421 3711

Ideal Fasteners Inc., Anaheim, CA (714) 630 7840

J.I. Morris Co., Southbridge, MA (508) 764 4394

LFC Industries, Inc., Arlington, TX (817) 640 1322

Maney Aircraft, GS Aerospace Division, Ontario, CA (909) 390 2500

Mercury Aerospace Fasteners, N. Hollywood, CA (818) 982 4800  
Use of fasteners currently in stock only

MS Aerospace, Burbank, CA (818) 953 9080

P.B. Fasteners, Gardena, CA (310) 323 6222

Pilgrim Screw Corp., Providence, RI (401) 274 4090

Quality Aircraft Screw, Corona, CA (909) 270 3210

Rocket Air Supply, Inc., Arlington, TX (817) 640 5340

Saturn Fasteners, Burbank, CA (818) 846 7145

Screwcorp/Fairchild, City of Industry, CA (818) 369 3333

SPS Technologies, Jenkintown, PA (215) 572 3133

SPS Technologies-Western, Santa Ma, CA (714) 545 9311

Valley Todeco, Sylmar, CA (818) 367 2261

Van Petty, Inc., Newberry Park, CA (805) 498 4594

3V Fasteners, Corona, CA (909) 734 4391

West Coast Aerospace, Wilmington, CA (310) 518 3167

This list was derived from DQA Memo 97-349, "Flight Systems Mechanical and Propulsion Quality Assurance (MPQA) List of Approved Fastener Suppliers", Jet Propulsion Laboratory, Sept. 17, 1997 and the Ames Research Center DQA Approved Fastener Manufacturers List, Nov. 19, 1997.