



# **Suspect/Counterfeit Items Awareness Training**

**U.S. Department of Energy  
Health, Safety and Security  
Office of Corporate Safety Analysis**

**This training document is in the process of being revised by the Office of Analysis (HS-24) through a partnership with the Energy Facility Contractors Group. In the interim, the Suspect/Counterfeit Headmark List (page 11) has been updated with the most current version.**

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**Suspect/Counterfeit Items Training  
Sponsored by the Office of Analysis (HS-24)**

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Copies of this booklet may be downloaded from the DOE HS-24 Suspect/Counterfeit-Defective Items website <http://www.hss.doe.gov/SESA/corporatesafety/sci/> along with other S/CI information.

## **Disclaimer**

This training manual provides information on individual components identified as suspect or counterfeit. Without additional information, the manufacturers or suppliers identified should not be considered as to have engaged in any wrongdoing. It is not necessarily a negative reflection on a supplier or manufacturer if their products are reported as Suspect/Counterfeit Items (S/CI). Reputable manufacturers and suppliers have a vital interest in preventing the manufacture and distribution of S/CI associated with their names. The supplier or manufacturer may have been victimized and is pursuing S/CI associated with its products in an aggressive, prudent, and professional manner to get these items off the market. Therefore, each particular case must be examined on its own merit without making premature conclusions about the fault or culpability of the manufacturer or supplier whose name is associated with the S/CI.

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## **Acknowledgment**

This training manual was developed with significant contributions by Roger Moerman, Technical Services Associates; Richard Green (DOE retired); and Lamar Palmer, MAS Consultants.

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## 1.0 INTRODUCTION

What does the fashion clothing, shoes and accessories industry have in common with the music and movie industries, the antique furniture industry, the computer software industry, the cat food industry, the auto industry, the aircraft industry, the medical industry and the Department of Energy? *All of these entities are plagued by counterfeit products.* The purchase of one of the 40 million bogus Swiss made watches sold each year around the world or counterfeited music or movies is one thing, but what about the manufacture and sale of counterfeited cat food, drugs, automobile brakes, airplane parts or components and parts used in a nuclear safety system. When it comes to counterfeit goods, including industrial materials, items, and equipment, no market is immune. Manufacturers of counterfeits violate patents and copyrights, both forms of intellectual property law. The effect of globalization has been that, if anything under the sun can be patented, then anything under the sun can be knocked off at a profit. “Knockoff” parts are a growing concern in industry: they are inferior in design and reliability. Knockoffs are similar to counterfeit parts, but evade the patent and trademark laws by avoiding actual manufacturer / brand names. Knockoffs are reverse-engineered to look like the OEM products; often labeled/marked with OEM part numbers, and the packaging is almost identical to the OEM design. For the purposes of the training, knockoffs will be categorized as suspect/counterfeit items.

When counterfeit parts are used there is no traceability of quality or integrity and when a part fails there is no warranty to back it up – no liability is incurred. More importantly, counterfeit parts in a system can injure or kill when components and systems fail as a result of the use of counterfeit materials. The worst confirmed accident in the air from counterfeit parts occurred in 1989 on a Convair 580 turboprop charter plane carrying 55 people from Oslo, Norway to Hamburg, Germany. At 22,000 feet over the North Sea, the tail section of the craft began vibrating violently and tore loose. The plane splattered over 3 miles of sea. Everyone aboard died. Norwegian investigators painstakingly dredged up 90 percent of the 36-year old plane and found the cause: bogus bolts, bushings and brackets. The charter company Partnair, went out of business, and the origin of the parts was never determined. (Lubbock Avalanche –Journal 1996) The Federal Aviation Administration estimates that 2 percent of the 26 million airplane parts installed each year are counterfeit, which equals approximately 520,000 parts. The June 10, 1996 cover story in *Business Week* found that bogus airplane parts played a role in at least 166 U.S. based incidents and malfunctions involving small aircraft during a 20-year period, 1973-1993.

A World Health organization survey of uncovered counterfeiting cases involving legal drugs in the early 1990s revealed that 51 percent the drugs involved carried no active ingredient whatsoever. Another 17 percent contained the wrong ingredient, and an additional 11 percent contained weaker than recommended concentrations of active medication. Some of these so-called ‘medications’ contained poisons capable of causing severe disability or death. Overall only 4 percent of counterfeit drugs in the survey contained the same quantity and quality of medication as their authentic counterparts. One in ten medicines sold worldwide is counterfeit – fake – with no medical effect but generates about \$32 billion dollars a year in sales for

counterfeit drug dealers. (Article -- *Counterfeits Kill: Nurses Target Counterfeit Medicines*, International Nurses Day, 12, May 2005)

The U.S. Chamber of Commerce estimates that 750,000 American jobs have been lost to counterfeiting and piracy. One small example: Eastman Machine Company in Buffalo, New York is a 4<sup>th</sup> generation family owned company started 1892 that has been producing top-of-the-line cutting machines used in the garment industry. In the 1990s, criminal networks abroad cloned Eastman products and began churning out counterfeits. The name the counterfeiters used was 'Westman.' They stole the designs, model numbers and even the color of Eastman's patented and trademarked products. The impact of these fakes was very real. Eastman sales dropped 50 percent. The workforce has diminished from 150 to less than 60.

([www.uschamber.com/counterfeiting](http://www.uschamber.com/counterfeiting))

Counterfeiting in auto parts is believed to be a 12 billion dollar a year business. Ford Motors indicates that counterfeit Ford replacement parts are costing the company a billion dollars a year. General Motors, working with authorities, has conducted nearly 500 raids and broken up more than 400 counterfeiting schemes since 1984. These raids resulted in seizing and destroying more than \$180 million dollars in potential fake parts.

Substandard materials are known within DOE as suspect/counterfeit items (S/CI). They pose immediate and potential threats to the safety of DOE and contractor workers, the public and the environment. Failure of a safety system due to an S/CI could also have security implications at the DOE facilities. Fortunately, there have been no major accidents or any loss of life within the complex resulting from S/CIs. However, over the years S/CIs have entered the procurement system(s) at DOE sites. Left unidentified and uncorrected these items do present potential risks. A wide variety of counterfeit items have been identified and documented that include:

- Fasteners (bolts and brackets)
- Ratchet straps/tie down straps
- Refurbished molded-case circuit breakers
- Transformers, fuses, resistors, switch gear
- Metal struts
- Pipe components, fittings, flanges, valves
- Material and testing certification

Examples of locations in which installed S/CI have been discovered include

- Cranes, elevators, and fork lifts: critical load paths;
- Vehicles: engines, brakes, or steering mechanisms;
- Aircraft: engines and attachments, wings, tails, and landing gear;
- Facilities: valves, compressors, and vessels used to contain radioactive fluids, high temperature or high-pressure steam or fluids, or other hazardous material or safety systems support safe operation or shutdown of a facility or process

In most cases, fraud is the cause of the problem. Some manufacturers have been known to misrepresent their products and intentionally use inferior materials and processes to manufacture

substandard items, whose properties can significantly vary from established standards and specifications. Companies or persons also alter markings to make materials appear to meet consensus standards. Unfortunately, a high percentage of these activities originate from foreign sources, sometimes with the knowledge of U.S. importers. They are in fact defrauding the government, industry and the public. Unfortunately, this problem continues to increase despite measures to detect and eliminate counterfeit, bogus, or unapproved items. In 1994, counterfeiting was estimated to be a \$20 billion dollar business worldwide. By the year 2000, it had expanded ten fold to a \$200 billion dollar business. Accurately gauging the size of the counterfeit market is impossible, but the World Customs Organization estimated the business was worth more than \$500 billion in 2005, representing 7% of world trade. To compare it to a legitimate business at the time, “the counterfeit industry is twice as big as Wal-Mart.” (Tim Phillips, *Knockoff – The Deadly Trade in Counterfeit Goods, The true story of the world’s fastest growing crime wave*, 2005)

Various industries have conducted surveys and studies as an attempt to understand this problem. Reports from these studies recommend that programs be developed to help train employees to identify suspect items and provide a process that encourages and promotes procurement, engineering, operations, maintenance, and inspection personnel to identify and eliminate substandard parts and materials. Removal of these parts and materials is the first step in the process. A system of prevention, established when all organizations are fully aware of the issues, must be implemented from the top down. Line management has to understand and endorse preventive measures. It takes the designer (who specifies the item), the buyer (who procures the item), the receiving inspector (who examines the item), the end user (who installs and operates the item), and the supplier (who supplies the item) communicating and working together to identify and resolve these problems ---then we will see positive results.

Allowing these unscrupulous business activities to take place is unacceptable. Detection of counterfeit, bogus, or unapproved products is possible, but identifying these items is every ones responsibility with the assistance of qualified personnel to aid in making the final determination.

## 2.0 DEFINITIONS

The following definitions are used in the S/CI training and apply to this participant handout.

**Certified Material Test Report.** A written and signed document that is approved by a qualified party and contains data and information that attests to the actual properties of an item and contains data and information that attests to the actual properties of an item and the actual results of all required tests.

**Counterfeit Item.** A counterfeit item is a suspect item that is a copy or substitute without legal right or authority to do so or one whose materials, performance, or characteristics are knowingly misrepresented by the vendor, supplier, distributor, or manufacturer. An item that does not conform to established requirements is not normally considered an S/CI if the nonconformity results from one or more of the following conditions, which should be controlled by site procedures as nonconforming items: defects resulting from inadequate design or production quality control; damage during shipping, handling, or storage; improper installation; deterioration during service; degradation during removal; failure resulting from aging or misapplication; or other controllable causes. (Reference; 10 CFR 830.120; and DOE O 414.1C, *Quality Assurance*; DOE G 414.1-3 *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements*).

**Critical Load Path.** A structural component (e.g., a bolt) in a crane, hoist, transporter, or other handling or lifting equipment that bears the load being lifted or moved, and whose failure could result in an operation safety problem or an unacceptable risk of injury to workers or the public.

**Defective Item.** A defective item or material is any item or material that does not meet the commercial standard or procurement requirements as defined by catalogues, proposals, procurement specifications, design specifications, testing requirements, contracts or the like. It does not include parts or services that fail or are otherwise found to be inadequate because of random failures or errors within the accepted reliability level (Reference: DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*, August 2003). Manufacturers generally notify their customers when defective items are identified through such mechanisms as recall notices. Such notices may be directly sent to customers, or may appear in Federal agency or industry.

**Nonconformance.** A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate.

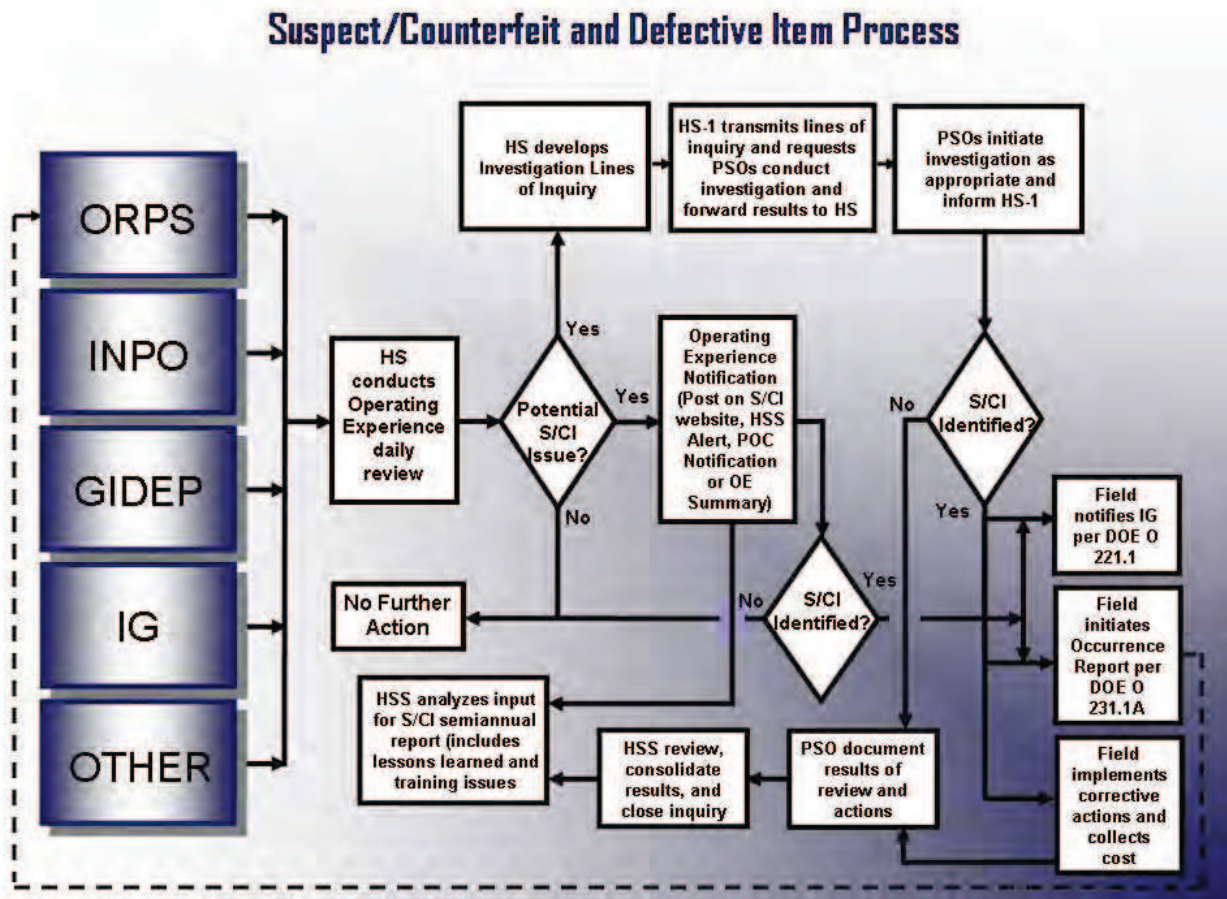
**Suspect Item.** A suspect item is one in which there is an indication by visual inspection, testing or other information that it may not conform to established Government – or industry –accepted specifications or national consensus standards. (Reference: 10 CFR 830.120; and DOE O 414.1C, *Quality Assurance*; DOE G 414.1-3 *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements*) *Suspect* items must be further investigated to determine whether they are counterfeit. When an item contains indications, but insufficient evidence, of irregularities such as noncompliance with agreed-upon specifications in the manufacturing process, it may be declared suspect.



### 3.0 DOE S/CI PROCESS

The Office of Health, Safety and Security has taken a corporate leadership role and is accountable for ensuring the effective implementation of the Department’s S/CI process. This activity was formerly performed by the Department complex-wide Quality Assurance Working Group.

Below is a graphic depiction of the S/CI Process DOE has developed to aid in identifying suspect/counterfeit and defective items.



The S/CI process flow chart is included in the *Office of the Environment, Safety and Health Process Guide for the Identification and Disposition of Suspect/Counterfeit Items at Department of Energy Facilities*. The detailed Process Guide can be found on the Office of Corporate Safety Analysis Suspect/Counterfeit-Defective Items website at <http://www.hss.energy.gov/csa/csp/sci/> that includes S/CI-related information and links to other related websites.

#### **4.0 DOE DIRECTIVES AND GIDEP**

Current and draft directives and accompanying guidance relevant to S/CI can be found at <http://www.directives.doe.gov>. Also see Appendix D – References.

#### **Government-Industry Data Exchange Program (GIDEP)**

The GIDEP (Government-Industry Data Exchange Program) is a cooperative activity between Government and Industry participants seeking to reduce or eliminate expenditures of time and money by making maximum use of existing knowledge. The program provides a means to exchange certain types of technical data essential in the research, design, development, production and operational phases of the life cycle of systems and equipment. DOE participates in GIDEP and is directed by Office of Management and Budget (OMB) letter 91-3 to report S/CI related events to GIDEP for posting on their website found at <http://www.gidep.org>. OMB letter 91-3 can be found at <http://www.hss.energy.gov/csa/csp/sci/> on the Office of Corporate Performance Assessment website in the References area.

#### **5.0 DOE EH S/CI WEBSITE INFORMATION**

The Office of Corporate Safety Programs has developed, implemented, and maintains a website for relevant S/CI and defective item information and related reference documents at <http://www.hss.energy.gov/csa/csp/sci/>. The lessons learned program also maintains a web site for relevant operating experience at <http://www.hss.energy.gov/csa/analysis/ll/>.

#### **6.0 FASTENERS**

Since the 18th century, valuable information on fastener design, testing, manufacture, and service has been developed in such countries as the United States, United Kingdom, Germany, Holland, Austria, Japan, France, Belgium, Switzerland, and Italy. The time interval between the Second World War and the close of the 1960s has been termed the "golden era" of fastener development.

Although counterfeit fasteners were first detected in the U.S. in early 1985, it is a common belief that manufacturing began in 1979-80 when the second major escalation of oil prices occurred. Japan is very sensitive to energy (oil) costs and saw a chance to reduce energy consumption by using low-carbon, boron steel in bolt making.

About half a century of progress in developing fastener standards in the U.S. has been centered on the procedures of the American National Standards Institute, Inc., (ANSI) and the Industrial Fasteners Institute (IFI). The design engineers and managers of manufacturing and construction industries have consulted ANSI and IFI standards covering dimensions, geometry, and practice for a great number of mechanical fasteners. Further detailed information is also available from

engineering and production handbooks and other governing agencies that have produced nationally recognized fastener standards, including the American Society of Testing Materials (ASTM), the American Society of Mechanical Engineers (ASME), and the Society of Automotive Engineers (SAE).

Note: The Dingell Report (U.S. House Subcommittee Report of July, 1988) indicates that the problem may have started as early as 1974, but nothing is provided to substantiate the allegation.

## 6.1 Counterfeit Examples

Below are some comparisons of some standard bolts that have been identified as being counterfeit items that are marked exactly the same as ASTM bolts.

- ASTM A449, Type I
- SAEJ429, Grade 5

Headmarks on ASTM 449, Type 1 are identical to those on SAE J429, Grade 5. Grade 5 or 5.2 bolts that do not meet specifications due to improper heat treatment could result in bolt failure – usually a brittle failure from excessive hardness.













- ASTM A354, Grade BD
- SAE J429

Grade 8 head marks on A354; Grade BD is identical to SAE J429 Grade 8. Grade 8.2 bolts relax when subjected to temperatures greater than 500 degrees F as a result of chemistry and heat treatment methods, which differ from Grade 8.

IFI has data to show that bolts sold and marked, as Grade 8 may not even meet Grade 8.2 requirements. Manufacturers may not have had adequate controls on the heat treatment process which can result in bolts being too hard-high ultimate tensile strength (UTS), but brittle. The Grade 8 bolts may fail in high-stress applications at normal temperatures.

For additional information on bolt head markings based on the grade of the fastener, see Appendix III to ANSI B18.2.1. Copy of Appendix III is shown on the next page.

ANSI B18.2.1, Appendix III ASTM & SAE Grade Marking for Steel-Bolts and Screws

Grade Marking	Specification	Material
 No Mark	SAE - Grade 1	Low or medium carbon steel
	ASTM - A307	Low carbon steel
	SAE - Grade 2	Low or medium carbon steel
	SAE - Grade 5	Medium carbon steel, Quenched and tempered
	ASTM - A 449	
	SAE - Grade 5.2	Low carbon martensite steel, Quenched and tempered
	ASTM - A 325 Type 1	Medium carbon steel, Quenched and tempered Radial dashes optional
	ASTM - A 325 Type 2	Low carbon martensite steel, Quenched and tempered
	ASTM - A 325 Type 3	Atmospheric corrosion (weathering) steel, Quenched and tempered
	ASTM - A 354 Grade BC	Alloy steel, Quenched and tempered
	SAE-Grade 7	Medium carbon alloy steel, Quenched and tempered Roll threaded after heat treatment
	SAE-Grade 8	Medium carbon alloy steel, Quenched and tempered
	ASTM - A 354 Grade BD	Alloy steel, Quenched and tempered
	SAE - Grade 8.2	Low carbon martensite steel, Quenched and tempered
	ASTM - A 490 Type 1	Alloy steel, Quenched and tempered
	ASTM - A 490 Type 3	Atmospheric corrosion (weathering) steel, Quenched and tempered

## 6.2 Identification

Fasteners are not the only parts that are subject to counterfeiting. The list of components that have been identified to have been misrepresented, altered, counterfeited, used sold as new is growing every year. The best way to inform people of the problems is to provide a broad base of information from as many sources as possible for their review.

This section is a compilation of information from a number of sources such as the Department Of Energy, the National Board of Boiler and Pressure Vessel inspectors, and the Nuclear Regulatory Commission bulletins. The information covers material from a head mark list (next page) derived from customs investigations, to components and products that may be vulnerable to counterfeiting, to counterfeit detection traits, documentation detection traits, and contributing causes for receipt of these type materials.

In 1990 Public Law 101-592, 101<sup>st</sup> Congress “Fastener Quality Act” (FQA) was enacted. The Act is intended “To require that certain fasteners sold in commerce conform to the specifications to which they are represented to be manufactured, to provide for accreditation of laboratories engaged in fastener testing, to require inspection, testing, and certification, in accordance with standardized methods, of fasteners used in critical applications to increase fastener quality and reduce the danger of fastener failure and for other purposes.”

## 6.3 Major Amendments

The FQA has been amended several times since 1990; the major amendments are summarized below. According to the National Institute of Standards and Technology (NIST), U.S. Department of Commerce, the FQA signed by President Clinton on June 8, 1999 is “more focused and less burdensome.” The amendments include:

- **Eliminated Requirements:** The amended law no longer requires NIST to approve organizations that accredit fastener testing laboratories.
- **Covered Fasteners and Quality Assurance Systems:** Fasteners covered under the FQA are defined as limited to bolts, nuts, screws and studs (having a nominal diameter of 6 millimeters/0.25 inch or greater), or direct tension- indicating washers that are through-hardened) or meet a consensus standard that calls for through-hardening) and manufactured to standards and specification of consensus-standards organizations or government agencies that require a grade mark.

Many fasteners are exempt from coverage, including those that are:

1. Part of an assembly
2. Ordered for use as a spare, substitute, service, or replacement part, unless that part is in a package containing more than 75 of any such part at the time of sale or is contained in an assembly kit
3. Produced and marked as ASTM-A 307 Grade A
4. Produced in accordance with the ASTM-F 432 standard



5. Specifically manufactured for an aircraft if the quality is approved by the Federal Aviation Administration or by a foreign airworthiness authority
6. Manufactured in accordance with International Organization for Standardization (ISO) 9000, 9001, 9002, or TS16949; Quality System (QS) 9000; or other fastener quality assurance system defined by the law, or
7. Manufactured to a proprietary standard.

To encourage the use of quality management systems such as QS 9000, fasteners are exempt from the FQA if they are manufactured in a facility using such a system.

If an accreditation organization chooses not to follow ISO guidelines for registration and accreditation, they may submit documents to the NIST director that establish their own guidance/requirements for (1) accredited bodies to register manufacturing systems as meeting FQA quality assurance requirements, (2) accreditation of testing laboratories, and (3) approval of accreditation bodies to accredit testing labs.

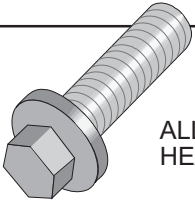
- **Reduced Paperwork:** To reduce paperwork record-keeping burdens, companies are allowed to transmit and store electronically all records on fastener quality provided there are reasonable means of authentication of the source of the document and reasonable protection against alteration. The record required for a covered fastener will be the record of conformance that identifies the fastener by description, lot number, and the manufacturer, and includes other information defined by the law.
- **Hotline (1-800-424-2980):** To combat the manufacture, sales, or distribution of fasteners that are fraudulent under the FQA, the Commerce Department has established and maintains a hotline for reporting alleged violations of the laws. All credible allegations are forwarded to the Attorney General.

NIST maintains an FQA Web site ([www.nist.gov/fqa](http://www.nist.gov/fqa)) that includes the text of the amended FQA and the text of a February 1999 Commerce Department study of the law. The site also contains procedures for implementing the FQA, a list of self-declared accreditation bodies, lists of accredited laboratories, and the fastener insignia register and recordal of the U.S. Patent and Trademark Office.

The Suspect/Counterfeit Headmark List is shown on the following page. All headmarks on this list are to be considered suspect/counterfeit and require no further testing.

The S/CI Headmark List is still relevant and bolts received need to be compared to the list. One example that brings this message home occurred in April, 2003. Lawrence Livermore National Laboratory received a shipment of bolts in from their approved bolt supplier. A random check of the bolts discovered a number of “KS” headmark bolts mixed in with other good bolts. The irony of this situation is that Kosaka Kogyo, manufacturer of “KS” bolts went out of business over 10 years earlier.

**SUSPECT/COUNTERFEIT PART HEADMARK LIST:  
A Resource Aid for Identifying Legacy Fasteners**



ALL GRADE 5 AND GRADE 8 FASTENERS WHICH DO NOT BEAR ANY MANUFACTURERS' HEADMARKS



Grade 5



Grade 8

GRADE 5 FASTENERS WITH THE FOLLOWING MANUFACTURERS' HEADMARKS:



MARK  
J



MARK  
KS

GRADE 8 FASTENERS WITH THE FOLLOWING MANUFACTURERS' HEADMARKS:



MARK  
A



MARK  
KS



NF



RT



H



FM



M



KY



MS



J



Hollow Triangle (CA TW JP YU) (Greater than 1/2 inch dia)



E



UNY

GRADE 8.2 FASTENERS WITH THE FOLLOWING HEADMARKS:



MARK  
KS

GRADE A325 FASTENERS WITH THE FOLLOWING HEADMARKS:

- |        |  |         |
|--------|--|---------|
|        |  | MARK    |
| Type 1 |  | A325 KS |
| Type 2 |  |         |
| Type 3 |  |         |

Headmarkings are usually raised – sometimes indented.

KEY: CA-Canada, JP-Japan, TW-Taiwan, YU-Yugoslavia

## 6.4 Stainless Steel Fasteners

In November 1993, the IFI issued a Fastener Advisory regarding 18-8 stainless steel bolts. The advisory warned about a “bait and switch” tactic in which a distributor takes an 18-8 bolt (indicated by two radial lines 90 degrees apart), but no manufacturer’s marking, and sells them as ASTM A320 Grade B8 bolts after hand-stamping B8 on the heads.

As a result of this IFI Advisory, DOE sites conducted a search of facility stores for stainless steel fasteners with hand-stamped B8 grade marks. Hundreds of stainless steel bolts with hand stamped B8 grade markings, along with a variety of other raised and depressed head and manufacturer’s markings were identified in facility stores throughout the DOE complex.

An inspection of shop stock at a Hanford Site facility revealed bolts with three different raised grade marking, 18-8, 304, and F593C, along with raised manufacturers’ identifications of DK, H, HP, C, SO, CS, PMC, TH, THE, and a STAR. The majority of the remaining samples found at Hanford exhibited raised grade markings of 18-8 and 304, with a B8 grade marking and manufacturer’s identification hand-stamped into the head of the bolt.

Finally, a few samples did not display any manufacturer’s markings. Most of the bolts discovered were purchased with the specification to meet a national consensus standard, American Society for Testing and Materials (ASTM) A193, B8 Class 1 rather than the ASTM A320 standard discussed in the IFI warning.

The Savannah River Site also conducted a site-wide search of facility stores with similar results. A total of 159 stainless steel fasteners with hand-stamped B8 grade marks and raised or hand-stamped manufacturer’s symbols were found. Fifteen stainless steel fasteners that had no manufacturer’s symbol were also found.

The requirements of the ASTM A193 standard regarding fastener marking and certification are very similar to those required by the ASTM A320 standard discussed in the IFI Advisory. The ASTM A193 standard requires that grade and manufacturer’s identification symbols be applied to the heads of bolts that are larger than ¼” in diameter. The standard, however, does not specifically differentiate between raised and depressed head markings, but states only that “for the purposes of identification marking, the manufacturer is considered the organization that certifies that the fastener was manufactured, sampled, tested, inspected in accordance with this specification.” In other words, the standard allows for some of the required marking to be formed into the head of the bolt (either raised or lowered) during manufacturing, and the rest to be applied later on via hand-stamping.

Since ASTM A193 does not differentiate between raised and depressed marking, these fasteners can be counterfeited in the same way as the ASTM A320 fasteners discussed in the November 1993 IFI warning. For example, distributors can procure 18-8 stainless steel bolts that were manufactured by anonymous party, and without conducting the necessary upgrading process or certification testing, a second party could hand-stamp B8 and a



manufacturer's marking into the heads to indicate that the fasteners exhibit the mechanical and chemical properties required of ASTM A193 Grade B8 Class 1.

A listing of suspect stainless steel fastener head marks is shown on the next page.

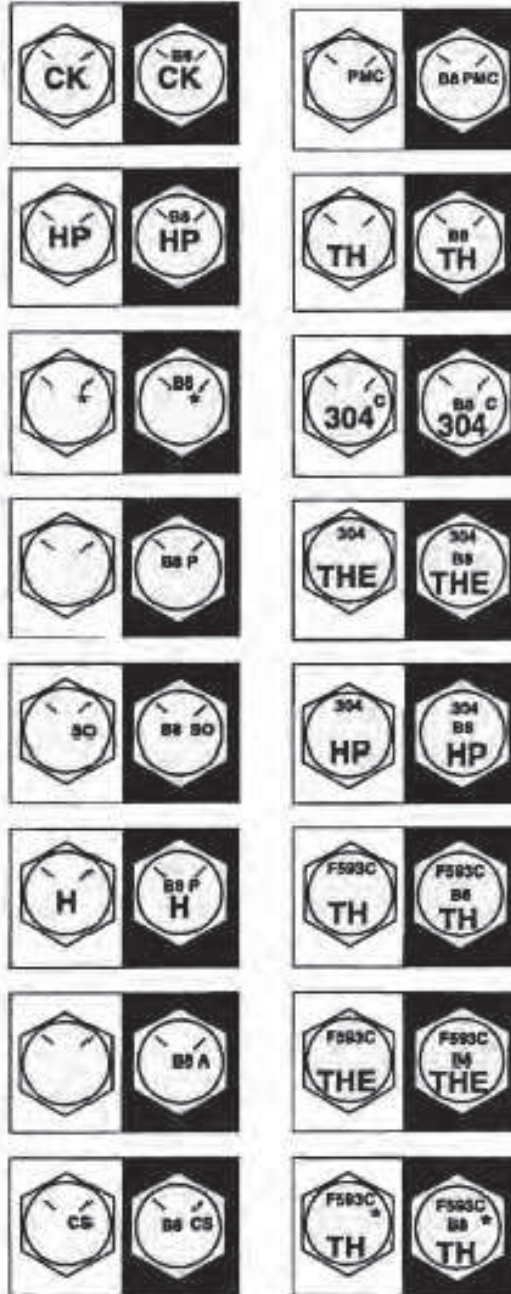
For all practical applications the best rule of thumb is as follows: "when a bolt is discovered with dual headmark stamping (both raised and depressed), the bolt should be considered suspect. Following the definitions of suspect this would then require that an investigation take place to ensure the bolt meets the requirements and is not counterfeit. If the item is found to be counterfeit, the item should be processed in accordance with DOE requirements and the contractor S/CI program.

SUSPECT STAINLESS STEEL FASTENER  
HEADMARK LIST

Examples of stainless steel fasteners that have been upgraded from 18-8 to ASTM A320 or ASTM A193 Grade B8 after hand stamping. The last three examples show samples of fasteners to indicate conformance to two non-compatible standards, ASTM A193 and ASTM F 593C.

Any bolt on this list should be treated as defective without further testing and process in accordance with HNF-PRO-301. Note: This list was originally Published by DOE/EH-0196, Issue No. 97-6

If any of these fasteners are located, contact your facility B/C Point of Contact (POC) for instructions. The POC list is on the Hanford Intranet at: <http://docs.ri.gov/han.info/hianect/hianect.doc>. Scroll to the end of the document for the list.



## **APPENDIX A**

### **COMPONENTS AND PRODUCT INFORMATION**

#### **Components and Products Vulnerable To Misrepresentation**

- Moderate or low cost items with high turnover usage rate
- May be widely used in non-critical and critical applications
- Easily copied by secondary market suppliers
- Often by-passing the supplier, and drop shipped to the customer
- Substantially lower priced than market value or competitors pricing

The following is a reproduction of United States NRC, Office of Nuclear Reactor Regulation, Attachment 3, IN 898-70, Supplement 1, April 26, 1990:

#### **1. General Items**

- Spare/replacement kits from vendors other than the Original Equipment Manufacture
- Elastomer – “O” rings, seals
- Lubricants
- Adhesives
- Electrical connectors
- Metal Framing components (i.e. flat plate fittings, post bases, beam clamps, channel)
- Flanges

#### **Electrical Items**

- Motor control centers - complete units
- Components
- Starters
- Starting coils
- Contactors
- Contactor kits
- Overload relays
- Starter control relays
- Overload heaters
- Protective/control relays
- DC power supplies/chargers
- AC inverters
- Current/potential transformers
- Exciters/regulators
- Bus transfers/auto bus transfers
- Motor generators sets
- Generators
- Rewindable motors

- Printed circuit boards
- Fuses
- Splices Vacuum breakers (BWR)
- Indicators/controllers
- Panel lights/switches
- Transmitters/instrument switches
- Isolation devices

### **3. Mechanical Items**

- Welding Materials
- Rod
- Wire
- Flux
- Small piping products
- Small structural members (pip supports)
- Spent fuel pool cooling pumps and similar pumps
- Ultimate heat sink supply manual valves and similar valves
- Valves

### **4. Diesel Generator Items**

- Diesel speed governors
- Diesel fuel transfer pumps
- Diesel injection pumps

### **5. Lifting Materials**

- Slings
- Hooks
- Cables
- Shackles

## **APPENDIX B**

### **SUSPECT INDICATIONS LIST**

The table is reproduced here and has been updated with information through June 2000. The authors have also added additional information through December 2003. Added information appears in italics for clarity. Components with the following indications are considered suspect:

#### **I. PIPING AND PIPING COMPONENTS (INCLUDING MECHANICAL AND METAL PRODUCTS)**

##### **A. General Indications**

- Used component appearance
- Unusual or inadequate packaging
- Foreign newspapers used as packaging
- Scratches on component outer surface
- Evidence of tampering
- Components with no markings
- Pitting or corrosion
- External weld or heat indications
- Questionable or meaningless numbers
- Typed labels
- Evidence of hand-made parts
- Painted stainless steel
- Ferrous metals that are clean and bright
- Excess wire brushing or painting
- Ground off casting marks with stamped marks in the vicinity
- Ground off logo mark
- Signs of weld repairs
- Threads showing evidence of wear or dressing
- Inconsistency between labels
- Old or worn nameplates
- Nameplates that look newer than the component
- Missing manufacturer's standard markings and logos
- Overlapping stamps
- Different colors of the same part
- Traces of Prussian Blue
- No specification number
- No size designation

- Missing pressure class rating
- Other missing designations per the specification
- Evidence of re-stamping
- Deficient welds on chemical/nuclear shipping casks
- Thinner than expected
- Parts identified as “China” only, or “Korea,” “Mexico,” “Thailand,” “India”
- Excess certification logos (i.e. “UL,” “FM,” “CGA,” “AGA”) all on one valve body – not normal, usually will have one or two logos plus ANSI or ASME

### **B. General Valve Indications:**

- Wrench marks on valve packing glands, nuts, and bolts
- Nameplates attached with screws rather than rivets
- Poor fit between assembled valve parts
- Dirty internals
- Scratched or marred fasteners or packing glands
- Gate valve: gate off-center when viewed through open end
- Fresh sand-blasted appearance of valve bodies, eyebolts, fittings, stems
- Loose or missing fasteners
- Different types of hand wheels on valves of the same manufacturer
- Some parts (e.g., hand wheels) look newer than rest of the valve
- Improper materials (e.g., bronze nut on a stainless stem)
- Post-manufacturing alteration to identification/rating markings
- Indication of previous joint welding
- Excessive standards markings (e.g. UL, FM, CGA, AGA) (may need to check with manufacturer literature for what standards they use)
- Valves will not open or close, even when wrench applied.
- Substandard valves mixed in with standard valves (substitution)

### **C. Specific Valve Indications:**

Valves produced by the following manufacturers generally have the following features and are considered suspect if they are missing these features.

#### **Crane Valves:**

- Body cast or forged markings:
  - Crane name
  - Pressure rating
  - Pattern number
- Nameplate Information:
  - Made from stainless steel (silver color) with black lettering
  - Attached by drive screws OR attached on valve stem underneath handle. Valve size pressure class, operating pressure at temperature
  - Body material
- Seat material on valve body and valve seat

- Stem trim material and heat treat conditions
- Certification data – military specification, if applicable
- Drawing number Shop Order Number (SO#)
- Body cast or forged markings including the name “Crane”
- Valve class
- Valve size
- Grade of steel
- Melt number

**Powell Valves (Wm. Powell Co.):**

- Body cast or forged markings including the name “Powell”
- Valve class
- Valve size
- Grade of steel
- Melt number
- Nameplate Information:
  - Riveted to valve body OR attached to valve stem underneath handle
  - Attached with single end welded wire (small valves)
  - Serial number
  - Valve size
  - Figure number
  - Body style
  - Valve stem, disc, and seat type
  - Strength at temperature
  - Strength at 100°F
  - The Wm. Powell Co. Cin., Oh. Made in U. S. A.

**Vogt, Henry Machine Co., Inc.:**

- Body cast or forged markings:
  - The name “Vogt”
  - Pressure rating
  - Pattern number
  - Size
  - Material specification
  - Two-code ID – a 3-letter code and a 4-digit code
- Nameplate Information
  - Made from aluminum with electrochemical etched lettering
  - Attached on valve stem underneath handle
  - Valve size
  - Pressure class, operating pressure at temperature
  - Body material
  - Internal seat material or internal H.F.
  - Stem trim material
  - Specification number Drawing Number
  - Pressure rating

**Walworth Valves:**

- Body Cast or forged markings
  - The name “Walworth”
  - Pressure class
  - Size
  - Heat code
  - Serial number (stamped)
- Nameplate information
  - Made from aluminum
  - Attached by drive screws
  - Attached to cover at times
  - Valve size
  - Pressure class and operating pressure at temperature
  - Body material
  - Internal seat material or H.F.
  - Stem trim material and heat treat conditions
  - Figure number
  - Serial number
  - Location of Manufacture
  - Item code number

**Masoneilian—Dresser Valves:**

- Masoneilian or Worthington Controls stamped on nameplate
- MD or Masoneilian on valve body

**II. ELECTRICAL COMPONENTS****A. General Indications:**

- Screwdriver marks on terminals
- Different screw types or materials on terminals
- Handwritten or typed rather than stamped tags
- Missing tags (usually UL approval tag)
- Pitted or worn contacts and lugs
- Not in manufacturer’s box or container
- Signs of paint or smoke
- Insufficient nameplate information
- Missing terminals
- Screws used in place of rivets
- Body worn or discolored
- Rough metal edges
- Scratched or marred surfaces
- Metal color inconsistencies
- Modified or re-stamped nameplates
- Improper fastening of nameplates



- Plastic parts of different colors
- Discolored or faded manufacturer's labels
- Past due calibration stickers (internal and external)
- Broken or damaged solder terminations
- Broken or damaged termination lugs
- Contact surfaces that do not mate properly
- Lubrication that appears to be old
- Shipping in plain packaging (no manufacturer bar code)
- Used or damaged parts in new packaging

**B. Specific Indications: Molded Case Circuit Breakers:**

- Handle modified to change ampere rating
- Style is no longer manufactured
- Unusual packaging: bulk packaging, generic packages, and cheap appearance
- Refurbisher's name on breaker
- Broken seal between halves
- Contradicting amperage ratings

**Fuses:**

- Label missing or weathered
- Wear marks on bases

**Power (Draw out) Circuit Breakers:**

- Different color or shape of over current devices
- Suspicious- looking auxiliary trip devices

**Motor Starters:**

- Poor fitting or wrong voltage rated operating coil

**Motor Control Centers:**

- Breakers that are not easily opened or closed with compartment door closed
- Exposed buss work with compartment doors open

**Electromechanical Relays:**

- Poor or loose-fitting relays

**Potter-Brumfield Relay:**

- Sloppy coil lead solder joints
- Painted relay base grommets (normally clean)
- Terminal strips fastened with eyelets
- Painted rivets fastening the terminal strip to the relay housing
- Termination screws in brown paper bags (should be in clear, heat-sealed plastic bags)
- Use of bubble wrap (plastic with Styrofoam should be used)
- Repainted inner bell surface
- Missing or inconsistent date codes, inspection stamp, and test stamp

- Incorrect shaft relay cover clearance, shaft play, and lack of bearing lubricant
- Tops of rotor shafts painted a color other than black
- Non-uniform numbers stamped on the contact decks, indicating decks made up from various relays
- Incorrect coil (i.e., 125 VDC relay with 200 VDC coil)

**Capacitors:**

- Polished surfaces scratched or dented
- Termination lugs scarred
- Buildup of debris and dirt in termination guards
- Plain packaging (no manufacturer bar codes)

**III. FASTENERS**

**A. General Indications:**

- No manufacturer's or grade mark (unless certified to a specification not requiring marking)
- Evidence of machining marks
- Poor thread form, evidence of wear, or dressing
- Headmarks shown on the Suspect Fastener Headmark List
- Foreign manufacturer not meeting Public Law 101-592
- No markings for nuts or washers packaged with labels indicating that they were manufactured to a code or MIL-SPEC which requires marking
- Headmarkings are marred, missing, or appear to have been altered
- Headmarkings are inconsistent with a hear/lot
- Double stamping
- Metric and SAE stamping
- Headmarks with raised marks and depressed marks on same bolt (not normal manufacturing process)

**IV. DOCUMENTATION AND CERTIFICATION:**

**A. General Indications:**

- Use of correction fluid or correction tape
- Type style or pitch change is evident
- Documentation has missing (or illegible) signature, initial, or data
- Document is excessively faced or unclear
- Inconsistent technical data
- Certification or test results are identical between items when normal variations should be expected
- Document is not traceable to the items procured
- Technical data are inconsistent with code or standard requirements
- Documentation is not delivered as required on the purchase order, or in an unusual format
- Lines on forms are bent, broken, or interrupted indicating that data have been deleted or exchanged by "cut and paste"

- Handwritten entries are on the same document where typed or pre-printed data exist
- Data on a single line are located at different heights
- Product recall
- Chemical alloy composition totals 100% (or >99.75%) as shown on Certified Material Test Report (CMTR)
- Heat and lot numbers are same for different materials in same order (i.e. 6010 and 7018 weld wire cannot be manufactured from same heat and lot of material.)

## **V. STAINLESS STEEL WIRE ROPE:**

### **A. General Indications:**

- No or incomplete documentation
- Noticeable alteration of documentation (refer to Documentation and Certification section)

## **VI. LIFTING MATERIALS**

### **A. General Indications:**

- Original markings ground off and re-stamped
- Altered markings on identification tags
- Used appearance of items (i.e. straps appear worn, or hook have indications of previous use)
- Parts identified as “China” only, or “Korea,” “Mexico,” “Thailand,” “India”
- No or incomplete documentation (refer to Documentation and Certification Section)
- Red hooks not labeled with Crosby Group markings (“Crosby” or “CG”) Crosby has the Crosby Red Carbon Steel Hook U.S.A. Trademark, Registration #2,108,103.

The following information was reproduced from a Safety Engineering News Bulletin issued by Sandia National Laboratory, Albuquerque, New Mexico. Contact person for this information is Betty Fleming, SNL.

- ASTM B30.10, *Hooks*, for importing requires that the manufacturer’s identification be forged, cast, or die-stamped on a low-stress or non-wearing area of the hook.

The following are excerpts concerning shackles from DOE-STD-1090-2004; *Hoisting and Rigging Standard (Formerly Hoisting and Rigging Manual)* located at <http://www.hss.energy.gov/nuclearsafety/techstds/standard/std1090-04/toc.html>

DOE-STD-1090-2004

### 12.3 SHACKLES

Chapter 12 Page 12-10, Rigging Accessories

#### 12.3.1 GENERAL

- a. Shackles are made of drop-forged steel bent into shape. They are strong, closed attachments that will not come unhooked. The size is specified by the diameter of the body. Avoid side pulls on the shackle body.
- b. Shackle pins should fit free without binding. Do not substitute a bolt for the shackle pin.
- c. Each shackle body shall be permanently and legible marked by the manufacturer. Raised or stamped letters on the side of the bow shall be used to show:
  - Manufacturer's name or trademark
  - Size
  - Rated capacity
- d. Shackles that are not properly marked shall be permanently removed from service.

#### 15.1 SHACKLES

Page A-17 Appendix A Procurement Guidelines

- a. Suggested requirements include, but are not limited to the following:
  1. Each shackle body shall be permanently and legibly marked in raised or stamped letters on the side of the shackle bow with the identifying manufacturer's name or trademark, shackle size, and the recommended safe working load.
    - a. Grade A regular strength shackle pins and bolts shall be unmarked;
    - b. Grade B high strength shackle pins and bolts shall be marked by the raised or stamped letters "HS" on the head.
    - c. Shackle markings shall be raised or stamped letters of the maximum height permitted by the size of the shackle component being marked.
  2. Grade A shackles (Regular Strength), together with their pins and bolts shall be forged from carbon steel. Grade B shackles (High Strength) together with their pins and bolts shall be forged from alloy steel.
  3. Shackles shall have minimum 5 to 1 safety factor.
  4. Shackle samples shall be subjected to proof loads of 200 percent of the rated capacity.
  5. Shackle pins shall fit freely without binding and seat properly.
  6. Shackles shall be sufficiently ductile so that, when fractured, the fractured member shall show a permanent distortion before breaking.

## APPENDIX C

### SUSPECT/COUNTERFEIT ITEMS (S/CI) FOUND AT DOE FACILITIES

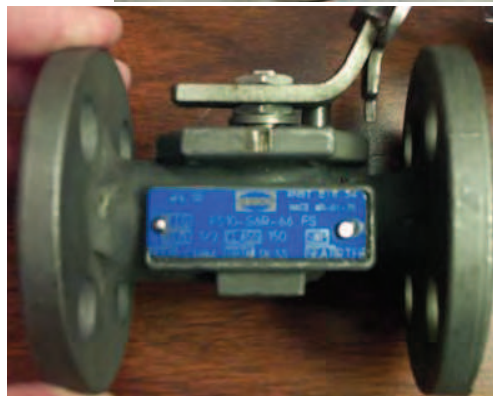
The following photographs include suspect/counterfeit items and documentation found at Department of Energy facilities. Many of the examples present good quality items to view against the problematic items.

DOE facilities are encouraged to forward photographs of new S/CI via e-mail to [thomas.e.williams@hq.doe.gov](mailto:thomas.e.williams@hq.doe.gov). This will help assist in future updates of this photographic inventory.

When viewing the photos, please understand that the captions and statements that accompany them represent the result of research for that particular item. It is always important to assure that sufficient research is conducted on items deemed initially “suspect” to reach a final declaration that is based on relevant information.

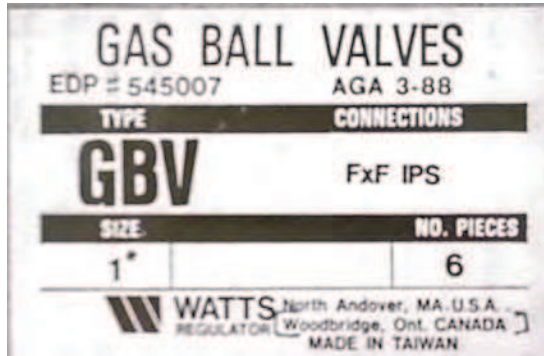
For example, the photo of the clamp with the “*CHINA*” marking and the caption “*zinc-coated beam clamp counterfeit*” on page 42 is the result of research leading to the declaration that this particular clamp is counterfeit. The “*CHINA*” marking was an initial clue that led to a declaration of the item being “suspect” or “suspect/counterfeit” depending on the site use of the terms, but was not initially declared as “counterfeit.” When conducting research to make a final declaration on an item, it is very often necessary to trace the item back to its origins and look into documents such as purchase orders, contracts and certifications. Subsequently, it is possible that a site might receive a “*CHINA*” marked clamp such as this and site policy prohibits non-domestic items on the site for use in operations. However, after conducting research, it might be revealed that there was no input from QA or engineering or safety that set specifications or standards for the purchase order and the procurement staff did not seek that information before sending out the request. This then could result in a vague purchase order being generated and sent to the vendor. The vagueness may not preclude “*CHINA*” marked items from being supplied. The vendor might then supply a “*CHINA*” marked clamp from their inventory. Further, the contract with the vendor might be silent on S/CI prohibitions. So, the site gets what it ordered, but not what it wanted. In such an example, the item declared initially as “suspect” would not become “counterfeit”, because the error was on the part of the site, and no evidence of intent-to-defraud was identified. Hence, it is important to understand that when viewing a picture such as the “*CHINA*” marked clamp, it does not mean that all clamps marked “*CHINA*” are “counterfeit.”

**Flanges Received as “New” at the Savannah River Site – note clamp marks, different rivet sizes on tag, scratches, groove in bolt hole, lack of cleanliness**





## Suspect/Counterfeit Labeling



The WATTS Gas Ball Valve label above is S/CI because WATTS does not have a Woodbridge, Ontario, Canada facility



The blue and white colored GE label above is authentic. GE does not affix black and white labels on boxes for this item nor should the product number be handwritten without any proper GE labeling.

## Brooks (Philadelphia, PA) Transient Voltage Surge Suppressor

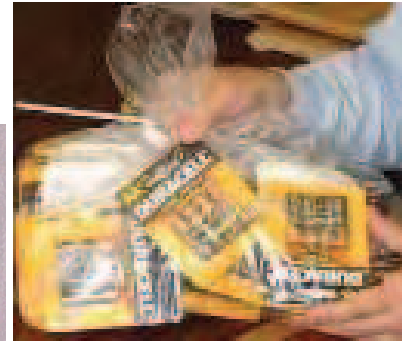


### Found at DOE Headquarters in Germantown, MD

This item was initially deemed “suspect” because of the label statement that reads, “*The effect of this product on connected equipment...has not been evaluated by UL.*” However, discussion with Underwriters’ Laboratory (UL) representatives revealed that this is acceptable language accompanying the UL listing logo. In the guides for product types found on the UL Online Certifications Directory website at <http://www.ul.com/onlinetools.html>, UL states when specific factors have not been evaluated. The guides can be accessed by conducting a Specific Search using the UL Standard Number associated with the product type. The UL standard number associated with Transient Voltage Surge Suppressors is “1449”. After the word “LISTED” on the label, “977E” has been rubbed out. The Model number on the back of the item is VCN-66. The product had been performing as intended when the label statement was questioned.



## Counterfeit DURACELL® Batteries

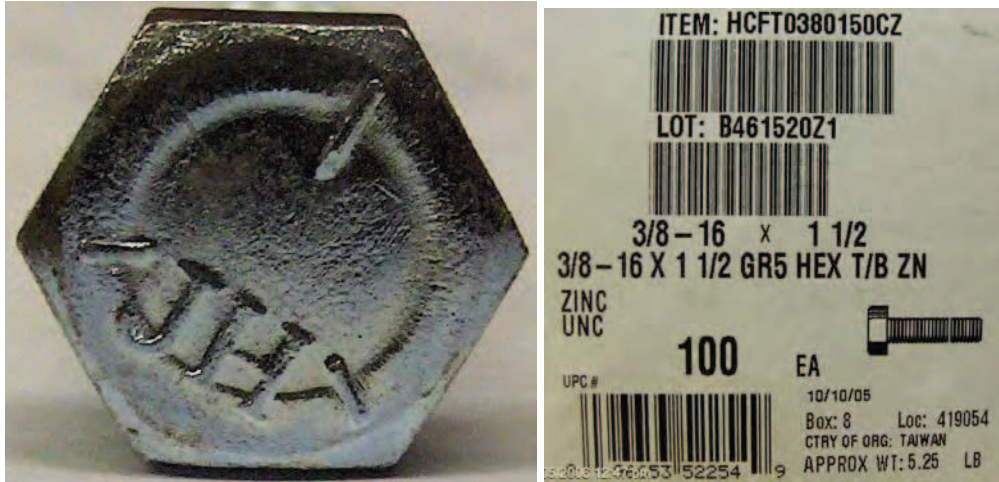


Authentic **DURACELL®** battery on the left. Counterfeit **DURACELL®** batteries on the right spell the name the same as the authentic batteries.



On the left - Examples of DURACELL clones simulating trademarked DURACELL colors (note several are leaking). Some have flimsy casings that crush easily under pressure by hand. The counterfeit batteries on the right the batteries are spelled differently but constitute trademark infringement (black and gold copper top).

## Jinn Her “JH” Grade 5 Hex Bolt from the West Valley Demonstration Project



This Jinn Her “JH” Grade 5 Hex Bolt from the West Valley Demonstration Project (WVDP) was received in December 2005. Jinn Her “J” headmarks on grade 5 and grade 8 high-carbon steel fasteners are deemed counterfeit. However, Jinn Her has the “JH” insignia currently registered in the U.S. through the U.S. Patent and Trademark Office. The fasteners were ordered as domestic, yet the supplier provided the foreign-made Jinn Her fasteners from Taiwan. The fasteners were tested and found to meet WVDP specifications. WVDP has chosen to use these fasteners. This insignia (headmark) appears on the FQA Register of Active Fastener Insignias at <http://www.uspto.gov/web/offices/tac/fqa/fqa.htm>.

## Suspect/Counterfeit Bulletproof Vests Manufactured by Second Chance Body Armor, Inc



Bulletproof vests manufactured by Second Chance Body Armor, Inc. ("Second Chance"), which contains Zylon<sup>®</sup>, a fiber manufactured and sold by Toyobo Co., Ltd. and Toyobo America, Inc., and sold by Second Chance and its distributors under the trade names ULTIMA, ULTIMAX, and TRIFLEX. These vests fail to meet the performance characteristics for which they were warranted, degrading at a quicker than expected rate from light, humidity, and temperature. Allegedly, the defective condition of the vests was withheld from the marketplace. Upwards of 20% of the ammunition fired at these vests penetrated the fabric.

**Comparison of 1/2" Lever Handle with  
Check low pressure gas valve – Plug style**

Left – Counterfeit  
Markup similar to McDonald

Right – Good  
A.Y. McDonald



Left – Counterfeit

Right – Good





**1/2" Forged CSA Ball Gas Valve – Good**

UL logo  
(Underwriters' Laboratory)



CSA logo  
(Canadian Standards Association)



**1/2" Forged CSA Ball Gas Valve  
Good**

Top View

McDonald logo

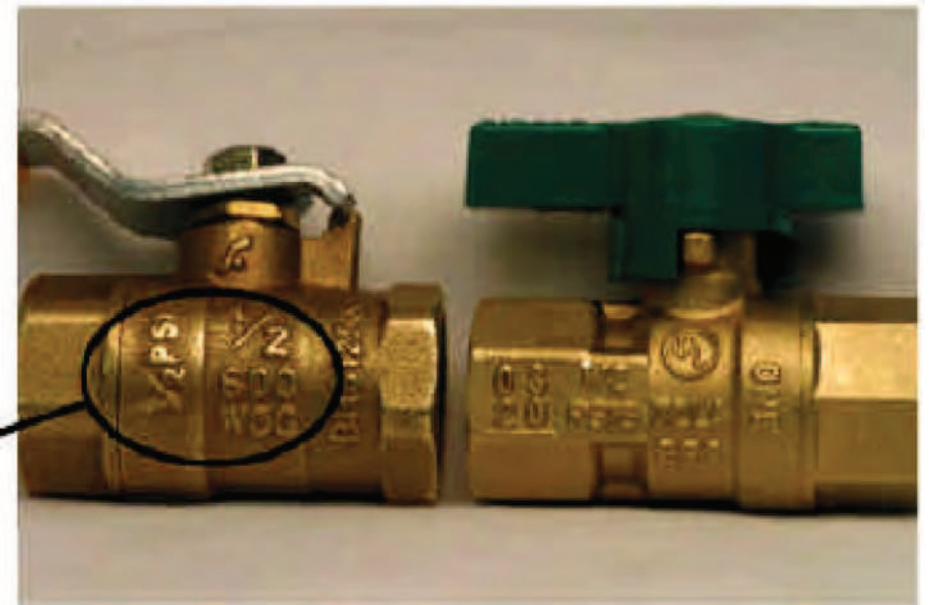


**Comparison between two 1/2" Forged CSA Ball  
Gas Valves**

Left - Counterfeit

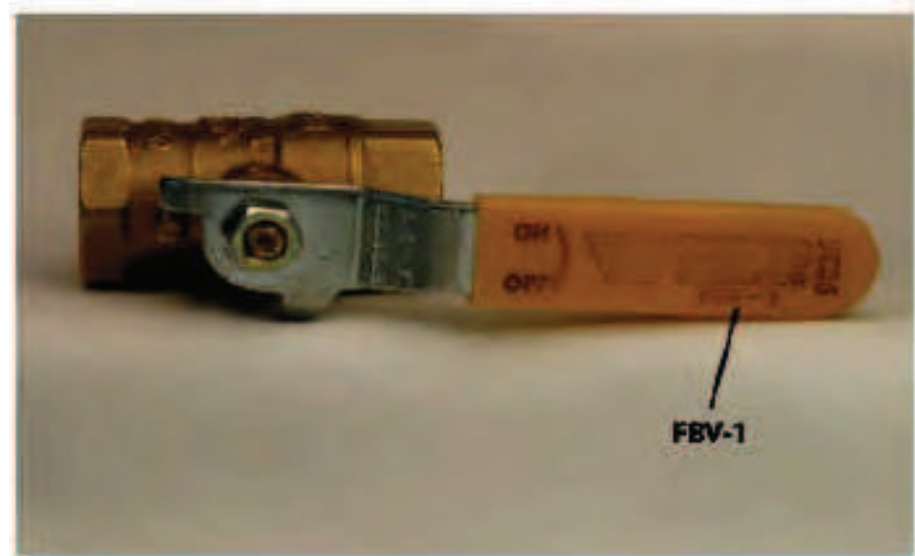
Right - Good

Conflicting information  
1/2 psi - 608 WOG



### 1/2" Forged Ball Gas Valves Counterfeit

Handle marked Watts Regulator FBV-1  
Watts doesn't manufacture a FBV-1 series valve.



Taiwan stamped on the back of handle.  
Watts doesn't have a facility in Taiwan.

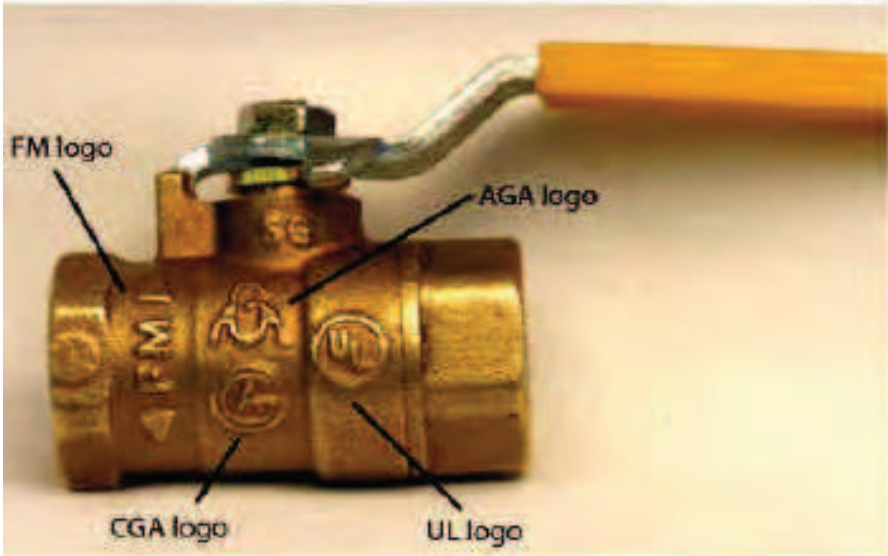


# 1/2" Forged Ball Gas Valves Counterfeit

Four logos:

- FM (Factory Mutual)
- AGA (American Gas Association)
- CGA (Canadian Gas Association)
- UL (Underwriters Laboratory)

Watts only manufactures to UL and CGA



1/2 psi and 600 WOG markings





**Comparison of two 1" lever handle with check  
low pressure gas valves - plug style**

Left - Counterfeit  
Will not close; appears fused.

Right - Good



Comparison of markings

Left - Counterfeit  
CI (Coalition of Indian Industries) marking

Right - Good  
McDonald marking



**Comparison of three valves**  
**All foreign by indicators on valves**  
**Top - Good**  
**Middle - Counterfeit**  
**Bottom - Good**

McDonald manufacturer  
Clear manufacturer per standards

Unknown manufacturer

McDonald manufacturer  
Clear manufacturer per standards



## 1" Forged Ball Gas Valve

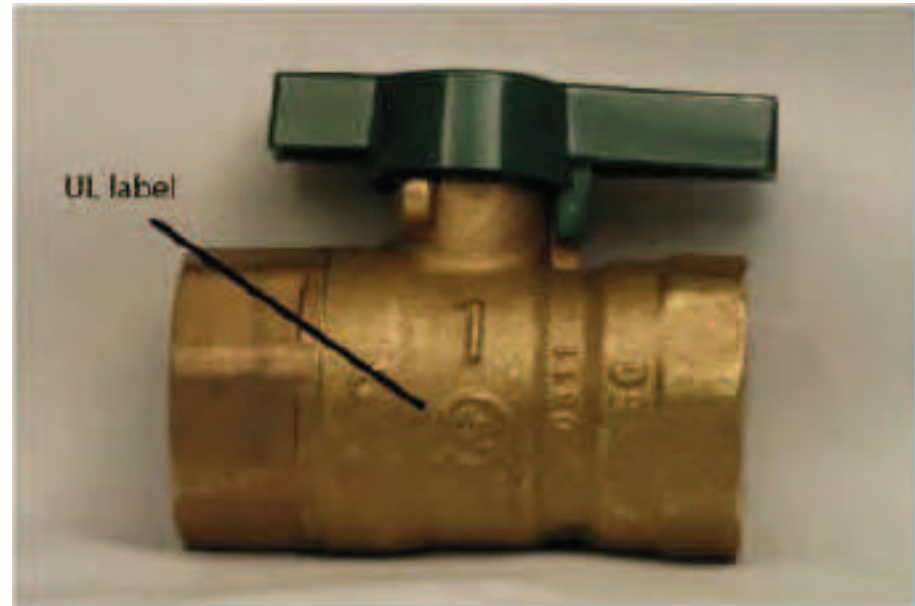
Good

McDonald valve manufactured  
in Italy



**1" Forged Ball Gas Valve  
Good**

McDonald valve manufactured in Taiwan  
UL (Underwriters' Laboratory) label marking  
Refer to page 33 for comparison



McDonald valve manufacturer in Taiwan  
Opposite side view  
Refer to page 33 for comparison



**1" Forged Ball Gas Valve  
Counterfeit**

Unknown manufacturer  
1/2 psi marking  
Represented as new  
No manufacturer marking  
Refer to page 33 for comparison

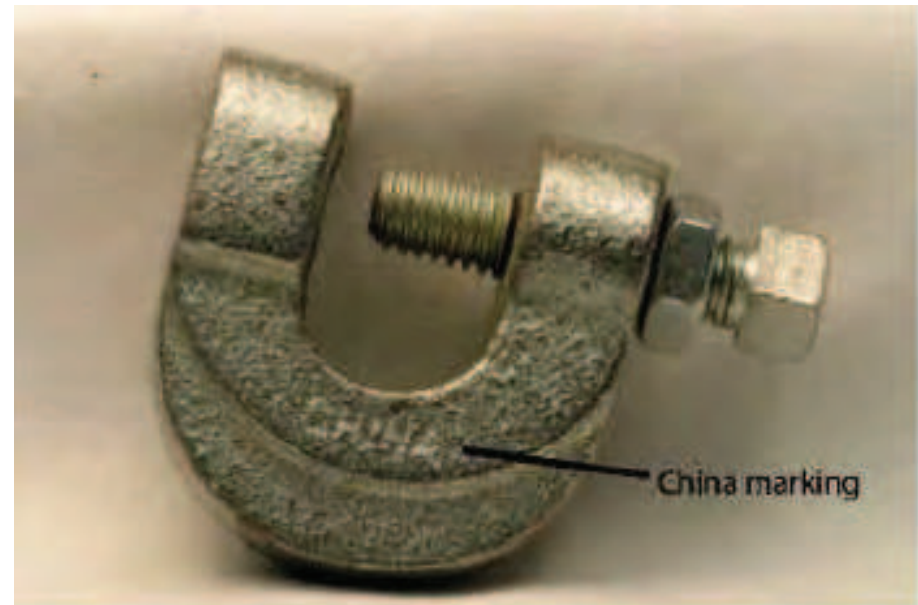


Unknown manufacturer  
Opposite side view  
Refer to page 33 for comparison



**Zinc-Coated Beam Clamp  
Counterfeit**

Product ordered domestic  
Label on box indicated domestic  
All products inside marked with "China"  
No manufacturing name or logo on part  
Supplied by a B-Line distributor



**Beam Clamp  
Counterfeit**

No manufacturing name or logo on part  
No part number or size





## GE Molded Case Circuit Breaker Counterfeit

### End view

Label marked General Electric and "GE"  
Manufacturer stopped marking with both indicators over 20 years ago  
Label very worn



### Top view

Represented as being new in condition shown



## GE Molded Case Circuit Breaker



Sold as new by supplier  
Indications of being used or refurbished  
Label worn and torn

### Counterfeit

Potting material in bottom screw hole tampered with;  
should be smooth and even with surface of case  
Appears dirty and worn  
Represented as being new in the condition above

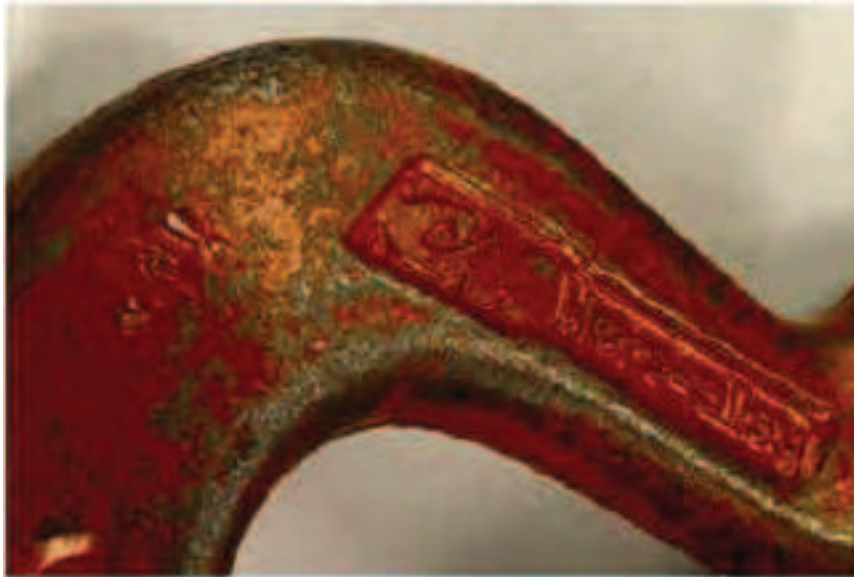


## Comparison of two Latching Eye Hooks

### Both Counterfeit



**NOTE:** If you order carbon-steel hooks (without specifying the Crosby brand) and receive hooks that are painted red but not identified as Crosby, consider the hooks suspect. The Crosby Group, Inc. has a trademark on painting its carbon-steel hooks red and does not license others to manufacture such hooks. If you discover suspect hooks like these, we suggest that you call the Crosby Group at (800) 772-1500 as a courtesy so that they can investigate and address the issue of potential trademark infringement. Further, the hooks should be evaluated according to hoisting and rigging guidelines to ensure that they have all the proper certifications, the manufacturer is traceable, and the hooks meet specifications. If the hooks were ordered new but show signs of wear, or if they appear to be improperly marked, consider the hooks suspect and counterfeit. Do not return the hooks to the source from which they were purchased.



Represented as being new in condition shown above  
Appearance very worn  
Are correct manufacturer markings for orange hook



Red color is the Crosby Group, Inc. trademark-patented color  
Represented as being new in condition shown above  
Appearance very worn

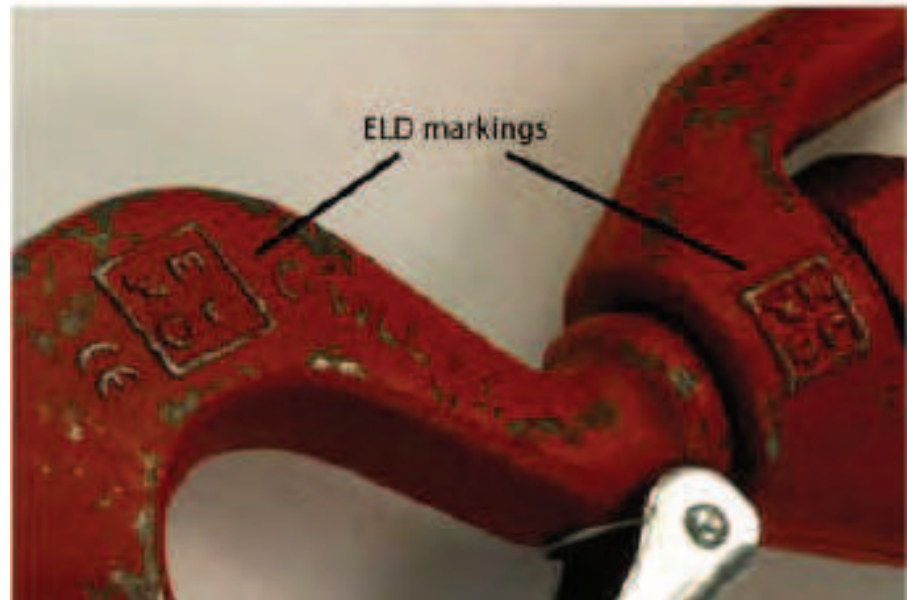
### Swivel Hook - Red Counterfeit

See note on page 45

Color of hook is RED. Crosby Group, Inc. has the patent, trademark registration for the color RED in the United States




Hook received from Crosby distributor and represented as being Crosby.  
Marking on hook "ELD," not "CG" or "Crosby" - Crosby markings



See note on page 45.

SENT BY LOS ALAMOS NAT'L LAB 1 2- 7- 1 4:01PM QUALITY MANAGEMENT - 301 320 8830: # 3/ 3



**JAMES A. CHRISTOPHER**  
DIRECTOR TECHNICAL SERVICE

November 2, 2000

Ken Brundt  
Los Alamos National Laboratory  
P.O. Box 1663  
P949  
Los Alamos, New Mexico 87545

**RE:** Red Swivel Hook with forged ELD letters

Dear Ken:

From your description the referenced hook is not a Crosby product.

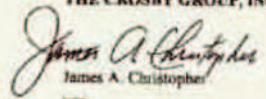
This hook should not be expected to perform the same in use as the Crosby S-322 Red Carbon Steel Swivel Hook.

We have enclosed a copy of The Crosby Red Carbon Steel Hook U.S.A. Trademark, Registration # 2,108,103.

Anyone importing red carbon steel hooks into the U.S.A. for sale, or offer to sell is violating Crosby's Intellectual Property Rights.

Sincerely,

**THE CROSBY GROUP, INC.**



James A. Christopher

Enclosures


1198

**the Crosby group, inc.**

GENERAL OFFICES  
2901 DAWSON ROAD (74110-6040)  
P.O. BOX 3128  
TULSA, OKLAHOMA 74101-3128  
TELEPHONE 918-634-4111  
CROSBY FAX NO. 918-634-3447

Int. Cl.: 6  
Prior U.S. Cls.: 2, 12, 13, 14, 23, 25 and 50  
**United States Patent and Trademark Office**  
Reg. No. 2,108,103  
Registered Oct. 28, 1997

**TRADEMARK  
PRINCIPAL REGISTER**




CROSBY GROUP, INC. THE (DELAWARE CORPORATION)  
2901 DAWSON ROAD  
TULSA, OK 74101-3128

FOR EYE HOOKS, SWIVEL HOOKS, GRAB HOOKS AND SLIP HOOKS, ALL MADE OF CARBON STEEL, IN CLASS 6 (U.S. CLS. 2, 12, 13, 14, 23, 25 AND 50)  
FIRST USE 4-5-1949, IN COMMERCE 4-0-1967  
OWNER OF U.S. REG. NOS. 154409 AND 1,822,312

THE DRAWING IS LINED FOR THE COLOR RED.  
THE MARK CONSISTS OF THE COLOR RED USED TO COVER THE GOODS. THE PORTION OF THE DRAWING SHOWN IN BROKEN LINES IS TO SHOW THE POSITIONING OF THE MARK AND NO CLAIM IS MADE TO THE DESIGN OF THE GOODS.  
SEC. 8(f).


SER. NO. 74-62366, FILED 2-2-1992  
TERESA M. RUFF, EXAMINING ATTORNEY

Proud of uncompromising quality...  
CROSBY Clips & Rings, LERUIS Lead Binders, MUGSOCK Blocks & Shelves, CROSBY WESTERN Blocks, NATIONAL Hoisting Systems  
Plants and Offices in: Jacksonville, Arkansas - Los Angeles, California - Atlanta, Georgia - Chicago, Illinois - Tulsa, Oklahoma - Heidelberg, Pennsylvania  
Düsseldorf, Germany - Tokyo, Osaka, Washington - Toronto (Stamper), Ontario - Rotterdam, England - Melsbier (P.O.), Belgium - Cergy St. Christophe, France

PART OF THE  CROSBY GROUP OF COMPANIES

SENT BY LOS ALAMOS NAT'L LAB 1 2- 7- 1 4:01PM QUALITY MANAGEMENT - 301 320 8830: # 3/ 3

**TRADEMARK  
PRINCIPAL REGISTER**



CROSBY GROUP, INC. THE (DELAWARE CORPORATION)  
2901 DAWSON ROAD  
TULSA, OK 74101-3128

FOR EYE HOOKS, SWIVEL HOOKS, GRAB HOOKS AND SLIP HOOKS, ALL MADE OF CARBON STEEL, IN CLASS 6 (U.S. CLS. 2, 12, 13, 14, 23, 25 AND 50)  
FIRST USE 4-5-1949, IN COMMERCE 4-0-1967  
OWNER OF U.S. REG. NOS. 154409 AND 1,822,312

THE DRAWING IS LINED FOR THE COLOR RED.  
THE MARK CONSISTS OF THE COLOR RED USED TO COVER THE GOODS. THE PORTION OF THE DRAWING SHOWN IN BROKEN LINES IS TO SHOW THE POSITIONING OF THE MARK AND NO CLAIM IS MADE TO THE DESIGN OF THE GOODS.  
SEC. 8(f).

SER. NO. 74-62366, FILED 2-2-1992  
TERESA M. RUFF, EXAMINING ATTORNEY



**Ratchet tie-down without strap  
Counterfeit**

Bolt in ratchet is a Grade 8 with no manufacturer marking, which is on the DOE Suspect/Counterfeit Headmark list.

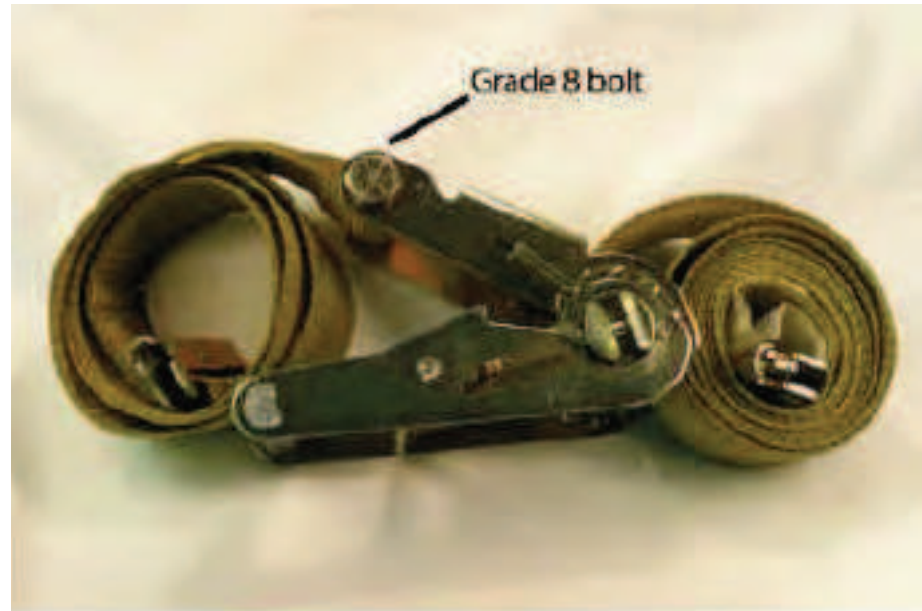


Close-up of Grade 8 bolt



### Ratchet Strap Tie-Down Counterfeit

Bolt in ratchet is Grade 8 with a manufacturer marking of "H," which is on the DOE Suspect/Counterfeit Headmark list.



Close-up of Grade 8 bolt



**Shackle  
Counterfeit**

No manufacturer markings.  
“China” is marked; however, this is unacceptable as standard requires the manufacturer’s name or trademark.



**Spring Clip  
Counterfeit**

Bottom view

No manufacturer's name or logo on part  
No part numbers or size



Side view

No manufacturer's name or logo on part  
No part numbers or size





### Square Washers/Spacers

Received in the same box together

Left - has proper markings. Good.

Right - has no markings. Unknown manufacturer.



### Stainless Steel "T" Weldolet Counterfeit

Grind marks where information was removed  
New information stamped on



## Comparisons of Square D Breakers

Left - Counterfeit  
No amperage rating on end of switch  
Original number filed off

Middle and Right - Good  
20-amp rating clearly displayed



## Square D Breakers Both Good

Clearly marked amperage rating on end of switch

Rating on top switch is silk-screened  
(Square D started silk-screen process  
in 2003)  
Rating on bottom switch is molded



## Square D Circuit Breakers

### Counterfeit

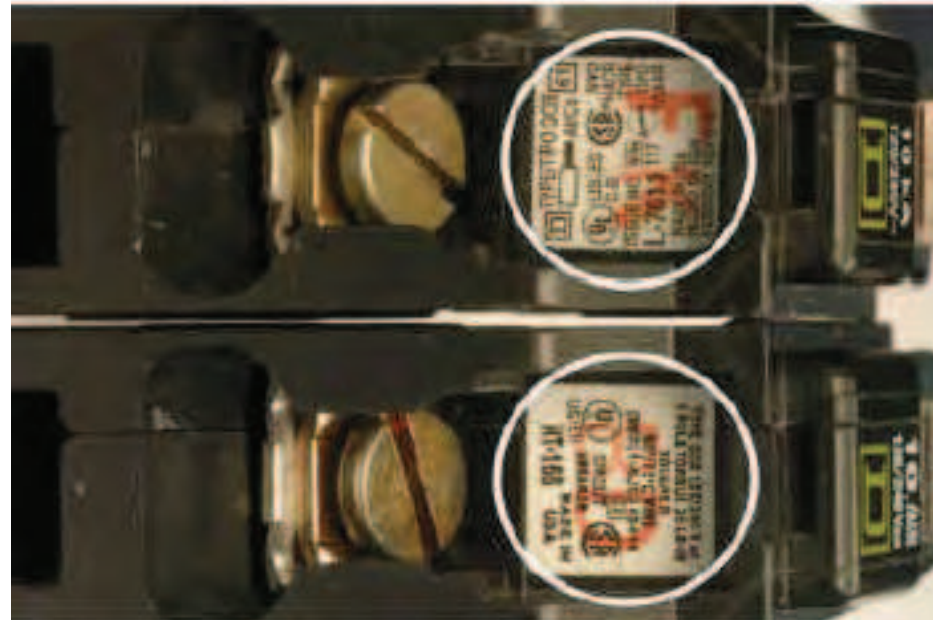
Copied UL label taped on side of breaker



### Good Breakers

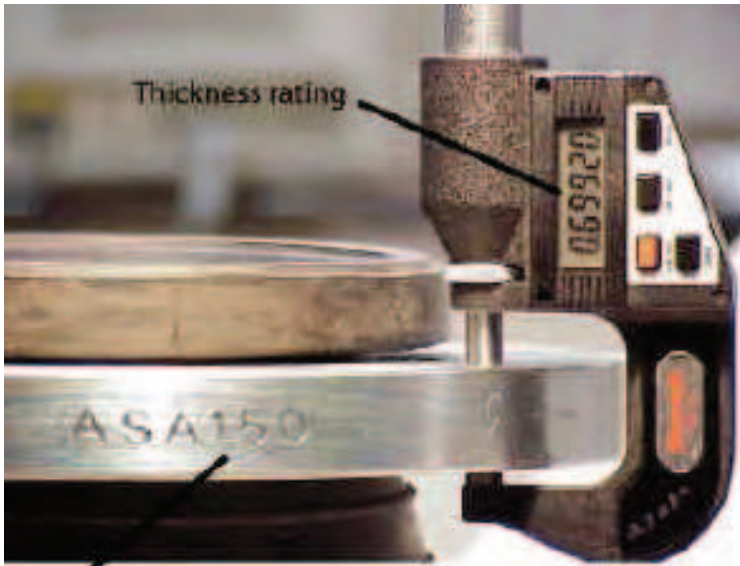
"UL" label on end of switch (black lettering on white background - two larger pinkish-red letters stamped on label)

Manufacturer can identify date period manufactured from two larger letters

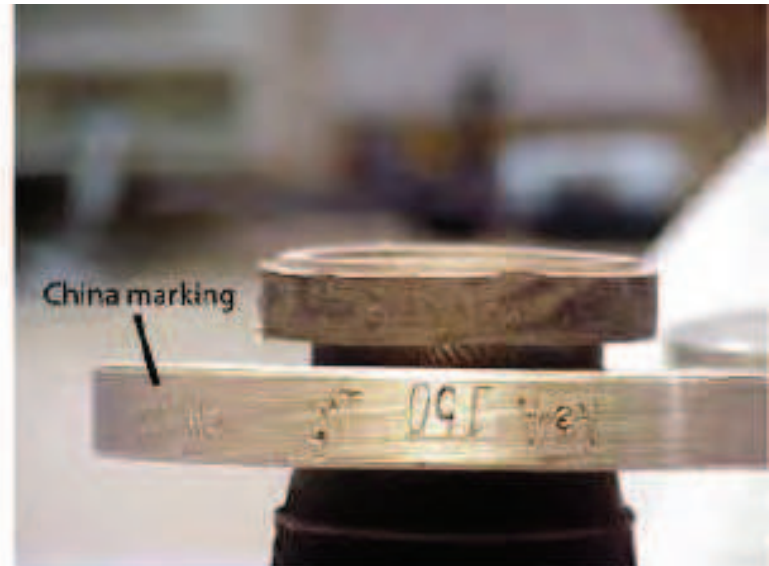




## Expansion Connectors Counterfeit



150 lb. rated flange  
Should be 0.940" thick - 0.000+0.125  
This one is 0.69920" thick.



Apparently hand-stamped. No manufacturer marking. "China" unacceptable as manufacturer. NO STANDARD MARKING (i.e. B16.5). No material type identified



**AMERICAN FILLER METALS CO.** **Counterfeit Certificate**

U.S. AND CAN. OFFICE - MINNETONKA, MINN. 55345  
PHONE (612) 835-8121 • FAX (612) 835-8122 • TOLL-FREE 1-800-541-1111

CERTIFIED MATERIAL TEST REPORT

Customer: AME 6010 Alloy: 6061

Material: 6061-T6

Order Number: 1000 Size: 1/2" Dia Qty: 1000

Dist. Order No.: 0001 Heat No.: 1000

Date Shipped: 1-18-88

Aluminum	99.00	Titanium	0.00
Magnesium	0.80	Iron	0.05
Copper	0.03	Chromium	0.03
Zinc	0.00	Manganese	0.01
Phosphorus	0.00	Nickel	0.00
Sulfur	0.00	Lead	0.00
Antimony	0.00	Other	0.00
Fluorine	0.00		
Barium	0.00		
Strontium	0.00		
Calcium	0.00		
Sodium	0.00		
Potassium	0.00		
Hydrogen	0.00		
Carbon	0.00		
Nitrogen	0.00		
Oxygen	0.00		
Total	100.00		

This certification is provided by American Filler Metals Inc. with the understanding that if the product covered does not conform to the stated specifications, there shall be no personal liability on any kind by the undersigned. Furthermore, the obligation and liability for such non-conformance by American Filler Metals Inc. will be limited to all furnishing the purchase with a product conforming to the stated specifications, at no additional charge, or to refund the full purchase price paid for such non-conforming product. American Filler Metals Inc. will not be liable for consequential damage.

Product Form \_\_\_\_\_  
Quantity \_\_\_\_\_  
Size \_\_\_\_\_  
Description \_\_\_\_\_

*[Signature]*  
Authorized Representative

Compare to other counterfeit certificate for E6010.

1. Specifications numbers are the same on both certificates.
2. Heat numbers are the same on both certificates.
3. Total of chemical alloys should be between 99% and 100% (Report totals 164.4% - Max. capable is 100%)

**AMERICAN FILLER METALS CO.** **Counterfeit Certificate**

U.S. AND CAN. OFFICE - MINNETONKA, MINN. 55345  
PHONE (612) 835-8121 • FAX (612) 835-8122 • TOLL-FREE 1-800-541-1111

CERTIFIED MATERIAL TEST REPORT

Customer: AME 6010 Alloy: 6061

Material: 6061-T6

Order Number: 1000 Size: 1/2" Dia Qty: 1000

Dist. Order No.: 0001 Heat No.: 1000

Date Shipped: 1-18-88

Aluminum	76.90	Titanium	0.00
Magnesium	0.80	Iron	0.05
Copper	0.03	Chromium	0.03
Zinc	0.00	Manganese	0.01
Phosphorus	0.00	Nickel	0.00
Sulfur	0.00	Lead	0.00
Antimony	0.00	Other	0.00
Fluorine	0.00		
Barium	0.00		
Strontium	0.00		
Calcium	0.00		
Sodium	0.00		
Potassium	0.00		
Hydrogen	0.00		
Carbon	0.00		
Nitrogen	0.00		
Oxygen	0.00		
Total	76.90		

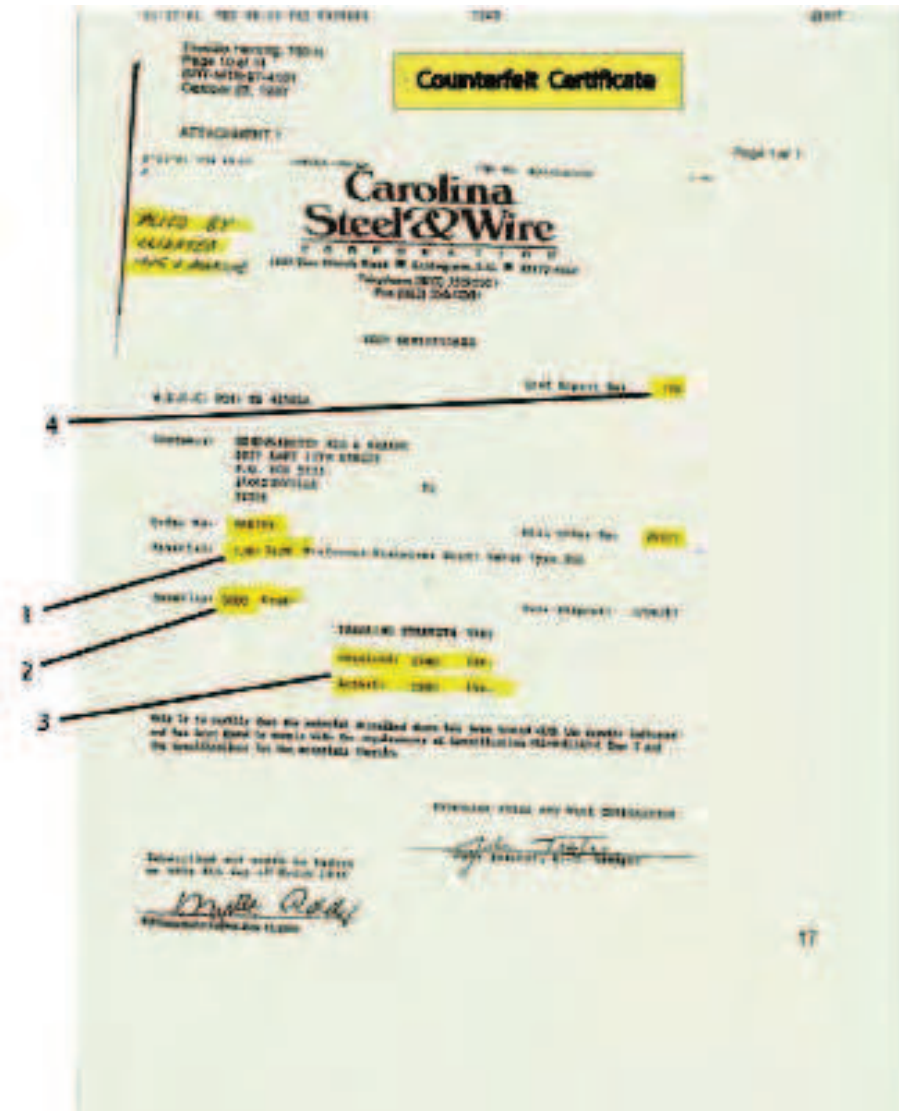
This certification is provided by American Filler Metals Inc. with the understanding that if the product covered does not conform to the stated specifications, there shall be no personal liability of any kind by the undersigned. Furthermore, the obligation and liability for such non-conformance by American Filler Metals Inc. will be limited to all furnishing the purchase with a product conforming to the stated specifications, at no additional charge, or to refund the full purchase price paid for such non-conforming product. American Filler Metals Inc. will not be liable for consequential damage.

Product Form \_\_\_\_\_  
Quantity \_\_\_\_\_  
Size \_\_\_\_\_  
Description \_\_\_\_\_

*[Signature]*  
Authorized Representative

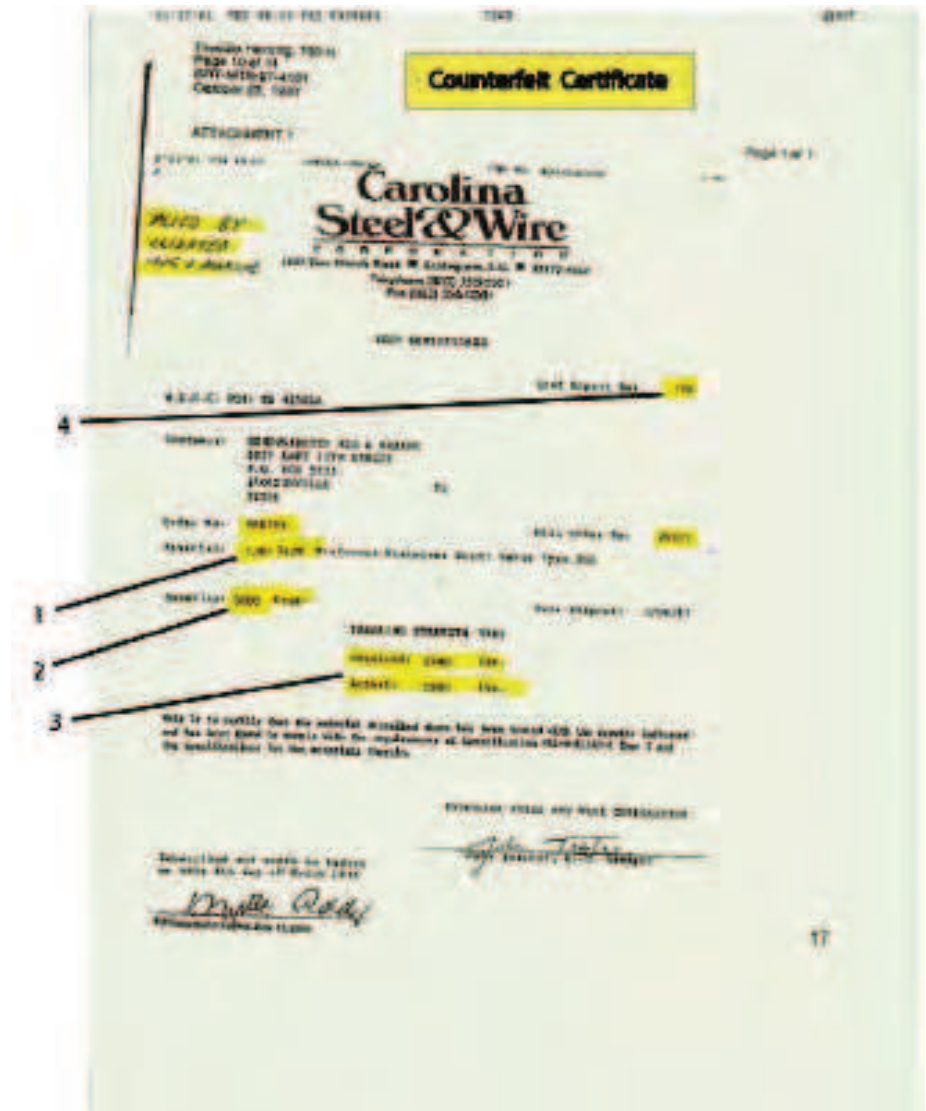
Compare to other counterfeit certificate for F7018.

1. Specification numbers are the same on both certificates.
2. Heat numbers are the same on both certificates.
3. Total of chemical alloys should be between 99% and 100% (Report totals 76.9%. What alloys are in the remaining 23.1%?)



Compare with manufacturer's certificate.

1. Material size altered
2. Quantity altered
3. Breaking strength altered
4. Same test report number



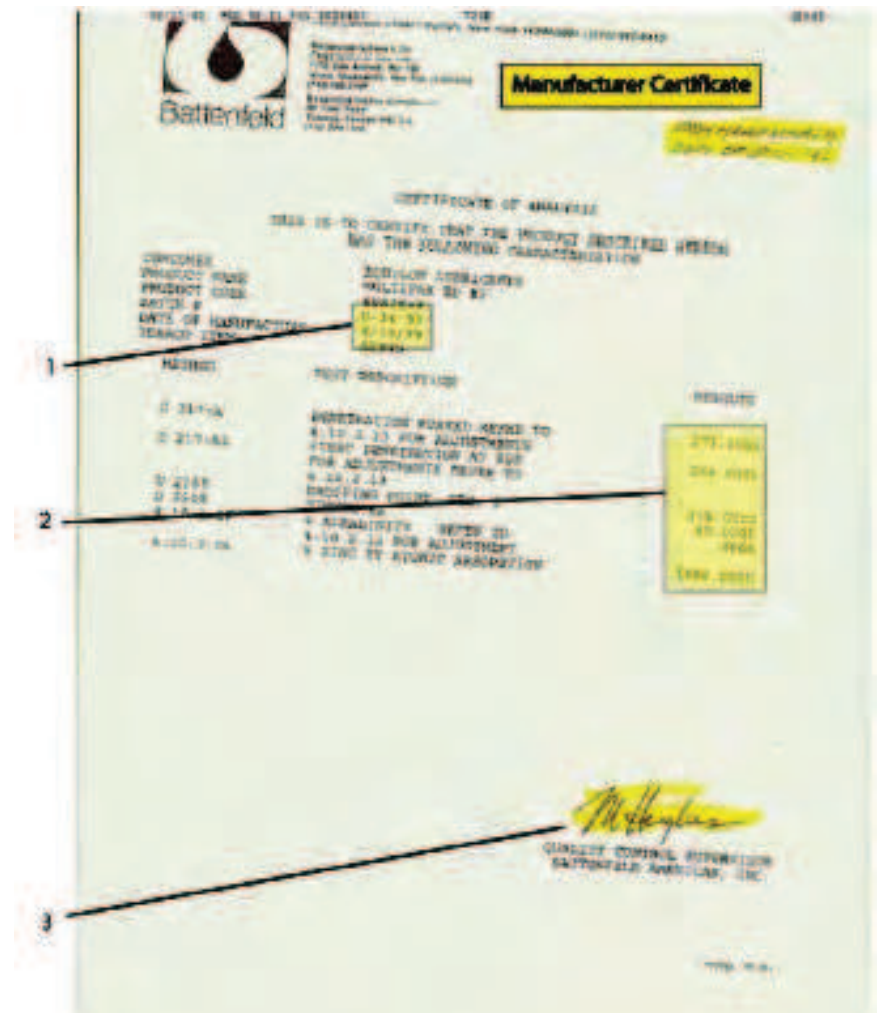
Original - same font throughout

Compare with information on counterfeit certificate.

1. Material size altered
2. Quantity altered
3. Breaking strength altered
4. Same test report number



- Compare with manufacturer's certificate.
1. Info - different font
  2. Results altered
  3. Added information not on original
  4. Signature forged



- Original – Same font throughout, original signature  
Compare with counterfeit certificate.
1. Info – different font
  2. Results altered
  3. Signature forged



## APPENDIX D

### REFERENCES

Current and draft directives and accompanying guidance relevant to S/CI can be found at <http://www.directives.doe.gov>.

10 CFR 830.120

DOE O 414.1C, *Quality Assurance*

DOE G 414.1-3, *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements*

DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*

## APPENDIX E RESOURCES

American National Standards Institute  
11 W. 42<sup>nd</sup> Street  
New York, New York 10036

American Society for Testing and Materials  
1916 Race Street  
Philadelphia, Pennsylvania 19103-1187

American Society of Mechanical Engineers  
United Engineering Center  
345 E. 47<sup>th</sup> Street  
New York, New York 10017

DOE Office of Health, Safety and Security  
Office of Corporate Safety Analysis, HS-30  
DOE Germantown  
19901 Germantown Road  
Germantown, Maryland 20874

Industrial Fasteners Institute  
East Ohio Building  
1717 East Ninth Street, #1105  
Cleveland, Ohio 44114-2879

Government-Industry Data Exchange Program  
Operations Center  
P.O. Box 8000  
Corona, California 91718-8000

Society of Automotive Engineers  
400 Commonwealth Drive  
Warrendale, Pennsylvania 15096-0001

Underwriters' Laboratory  
1655 Scott Boulevard  
Santa Clara, California 95050

United States Department of Commerce  
National Institute of Standards and Technology  
Building 411  
Gaithersburg, Maryland 20899

United States Nuclear Regulatory Commission  
Washington, DC 20555