



AEROSPACE STANDARD

AS6174**REV. A**Issued 2012-05
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Superseding AS6174

Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel

RATIONALE

AS6174A corrects a significant error in the standard's material traceability requirement and makes compliance with this standard's material traceability feasible. It modifies the materiel traceability procurements requirements in 3.1.2.c, 3.1.2.f, and 3.1.6. AS6174A also establishes precedence and provision for use of slash sheet documents.

FOREWORD

To assure customer satisfaction, industry organizations must produce, and continually improve, safe, reliable materiel that meet or exceed customer and regulatory authority requirements. The globalization of industry and the resulting diversity of regional/national requirements and expectations has complicated this objective. End-product organizations face the challenge of assuring the quality and integrity of materiel purchased from suppliers throughout the world and at all levels within the supply chain. Suppliers and processors face the challenge of delivering materiel to multiple customers having varying quality expectations and requirements.

This document standardizes requirements, practices, and methods related to: (a) materiel management, parts management, supply chain management, procurement, inspection, test/evaluation to assure the authenticity and conformance of materiel being acquired, and (b) response strategies when suspect or confirmed counterfeit materiel is discovered. This standard is a capstone standard. AS5553 pertains directly to electronic parts, and supplements the guidance of this standard.

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1. SCOPE

1.1 Purpose

This SAE Standard standardizes practices to:

- a. maximize availability of authentic materiel,
- b. procure materiel from reliable sources,
- c. assure authenticity and conformance of procured materiel, including methods such as certification, traceability, testing and inspection appropriate to the commodity/item in question,
- d. control materiel identified as fraudulent/counterfeit,
- e. and report suspect or confirmed fraudulent/counterfeit materiel to other potential users and Authority Having Jurisdiction.

1.2 Application

This standard is recommended for use by all contracting organizations that procure materiel, whether such materiel is procured directly or integrated into assemblies or equipment. The requirements of this standard are generic and intended to be applied/flowed down to all organizations that procure materiel, regardless of type, size, and product provided.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. When a commodity specific slash sheet (e.g., AS6174/X) has been published, the applicable commodity slash sheet requirements take precedence over conflicting requirements within AS6174A. In the event of conflict between the text of this document and other references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
AS9003	Inspection and Test Quality System
ARP9009	Aerospace Contract Clauses
AS9100	Quality Management Systems - Requirements for Aviation, Space and Defense Organizations
AS9120	Quality Management Systems - Requirements for Aviation, Space and Defense Distributors

2.1.2 U.S. Government Publications

Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6396, <http://quicksearch.dla.mil/>.

MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-129	Military Marking for Shipment and Storage
MIL-STD-3018	Parts Management
SD-22	Diminishing Manufacturing Sources and Material Shortages (DMSMS) Guidebook
SD-19	Parts Management Guide

Available at www.dtic.mil/whs/directives/:

DoDM 4140.01	DoD Manual, Supply Chain Materiel Management
DoD 4160.21-M	DoD Manual, Defense Materiel Disposition Manual
DoDI 8320.04	DoD Instruction 8320.04, Item Unique Identification (IUID) Standards for Tangible Personal Property

Government-Industry Data Exchange Program (GIDEP) Operations Manual NAVSEA SO300-BT-PRO-010 (GIDEP Manuals and Guides are available from <http://www.gidep.org/>)

Government-Industry Data Exchange Program (GIDEP) Requirements Guide - NAVSEA SO300-BU-GYD-010 (April 2008) (<http://www.gidep.org/>)

OMB Policy Letter 91-3 Reporting Nonconforming Products (http://whitehouse.gov/omb/procurement_policy_letter_91-3)

Fastener Quality Act, Pub. L. 101-592, Nov. 16, 1990, 104 Stat. 2943 (15 U.S.C. 5401 et seq.) (available at www.gpo.gov), Search Bill Text for Multiple Congresses, 101ST CONGRESS (1989-1990), H.R.3000.ENR

2.1.3 ISO Standards

Available from American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 12931	Performance criteria for authentication solutions for anti-counterfeiting in the field of material goods
ISO 15459	Information technology - Unique identifiers
ISO 9000	Quality Management Systems - Fundamentals and Vocabulary
ISO 9001	Quality Management Systems - Requirements

2.1.4 ASME Standards

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

Y14.100	Engineering Drawing Practices
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2.2 Acronyms and Abbreviations

ACORD	Association for Cooperative Operations Research and Development
ANSI	American National Standards Institute
ARP	SAE designation prefix for Aerospace Recommended Practice
AS	SAE designation prefix for Aerospace Standard
BOM	Bill of Materials
CAGE	Commercial and Government Entity
CBP	U.S. Customs and Border Protection
CoC	Certificate of Conformance
CoC/T	Certificate of Conformance and Traceability
C of C	Certificate of Conformance
COQC	Certificate of Quality Compliance
C-SAM	C-Mode Scanning Acoustic Microscopy
DAPS	Document Automation and Production Service
DLA	Defense Logistics Agency
DMS	Diminishing Manufacturing Sources
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
FAX	Facsimile
FBI	Federal Bureau of Investigation
GIDEP	Government-Industry Data Exchange Program
ICE	U.S. Immigration and Customs Enforcement
IP	Intellectual Property
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
IUID	Item Unique Identification
JIT	Just In Time
MDA	Missile Defense Agency
MIL-STD	Military Standard
NAS	National Aerospace Standard
NASA	National Aeronautics and Space Administration
OIG	Office of Inspector General
PM	Program Manager
PIND	Particle Impact Noise Detection
QAR	Quality Assurance Representative
QML	Qualified Manufacturers List
QPL	Qualified Products List
SD	DoD Defense Standardization Program Office prefix designation for Standard Document
STD	Standard
UUI	Unique Item Identifier

2.3 Terms and Definitions

For the purposes of this document, the terms and definitions stated in ISO 9000 and the following shall apply:

2.3.1 MATERIEL

Materiel in this standard refers to material, parts, assemblies, and other procured items (except for electronic parts, which are covered by AS5553).

2.3.2 MANUFACTURER

Manufacturer in this standard refers to the point of origin of any materiel covered by the standard, including factories, mills, foundries, mines, chemical plants, laboratories, etc.

2.3.3 SUSPECT MATERIEL

Materiel, items, or products in which there is an indication by visual inspection, testing, or other information that it may meet the definition of fraudulent materiel or counterfeit materiel provided below.

2.3.4 FRAUDULENT MATERIEL

Suspect materiel misrepresented to the customer as meeting the customer's requirements.

2.3.5 COUNTERFEIT MATERIEL

Fraudulent materiel that has been confirmed to be a copy, imitation or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive or defraud.

NOTE: The following diagram depicts the above relationships between Suspect, Fraudulent and Counterfeit Materiel. Suspect Materiel can become Fraudulent or Counterfeit Materiel through further evaluation and testing. All counterfeit materiel is fraudulent, but not all fraudulent materiel is counterfeit. There are legal distinctions between counterfeit and fraudulent materiel. Legal counsel and/or the OCM should be consulted to determine the nature and extent of these distinctions.

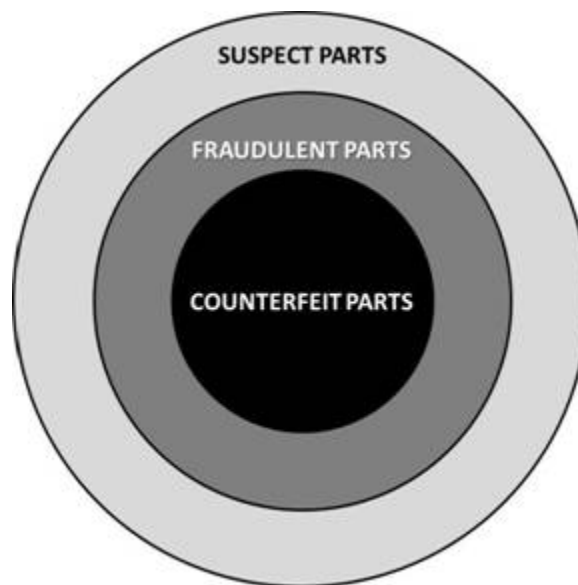


FIGURE 1

2.3.6 IDENTITY

Information such as the current design authority, original manufacturer, trademark or other intellectual property, performance, unique item identifier, part number, date code, lot number, testing methods and results, inspection, documentation, warranty, origin, ownership history, packaging, storage, handling, physical condition, previous use, etc.

2.3.7 AUTHENTIC

Produced with legal right or authority granted by the legally authorized source.

2.4 Related Definitions

AFTERMARKET MANUFACTURER: A manufacturer that meets one or both of the following criteria:

- a. The manufacturer is authorized by the original manufacturer to produce and sell replacement materiel, usually due to an original manufacturer decision to discontinue production of materiel. Materiel supplied is produced from dies, molds, or other manufacturing equipment that has been
 1. transferred from the original manufacturer to the aftermarket manufacturer,
 2. produced by the aftermarket manufacturer using original manufacturer tooling and intellectual property (IP), or
 3. produced by the aftermarket manufacturer through redesign to match the original manufacturer's specifications without violating the original manufacturer's intellectual property rights (IPR), patents, or copyrights.
- b. The manufacturer produces materiel by emulating or reverse-engineering obsolete materiel to satisfy continuing customer needs without violating the original manufacturer's intellectual property rights, patents, or copyrights.

APPROVED SUPPLIER: Suppliers that are formally assessed by the current design activity or the original manufacturer, determined to be a trusted source that will reliably provide authentic and conforming materiel, and entered on a register of approved suppliers.

AUTHORITY HAVING JURISDICTION: A statutory authority can differ between countries, the term is used to refer to the governmental organization at the federal, national, state, or local entity having statutory authority to respond to, enforce, or prosecute anti-counterfeiting laws. Examples are Customs and Judicial bodies.

AUTHORIZED RESELLER: An entity who has a legally binding relationship with the legally authorized source, but does not provide direct product support to the customer.

AUTHORIZED SUPPLIER: Aftermarket manufacturers as defined above, and suppliers authorized by the current design activity or the original manufacturer to produce and/or sell materiel (i.e., franchised distributors).

BROKER: In the independent distribution market, brokers are professionally referred to as independent distributors. See definitions for "broker distributor" and "independent distributor".

BROKER DISTRIBUTOR: A type of independent distributor that works in a "Just in Time" (JIT) environment. Customers contact the broker distributor with requirements identifying information such as the part number, quantity, target price, and date required. The broker distributor searches the industry and locates parts or other materiel that meet the target price and other customer requirements.

CERTIFICATE OF AUTHENTICITY (C of A): A statement to the effect that all materiel items listed above furnished on this contract are genuine, new and unused unless otherwise specified in writing herein; are suitable for the intended purpose; are not defective, suspect, or counterfeit; have not been provided under false pretenses; and have not been materially altered, damaged, deteriorated, or degraded.

CERTIFICATE OF CONFORMANCE (C of C, CoC): A document provided by a supplier formally declaring that all buyer purchase order requirements have been met. The document may include information such as manufacturer, distributor, quantity, lot and/or date code, inspection date, etc., and is signed by a responsible party for the supplier.

CERTIFICATE OF CONFORMANCE AND TRACEABILITY (CoCT): A certificate of conformance required by certain U.S. military specifications which requires documented traceability from the QPL/QML manufacturer through delivery to the U.S. Government if the material is not procured directly from the approved manufacturer.

COMMODITY LEVEL TRACEABILITY: The requirement to trace lifecycle management to a commodity for specified events related to acquisition, validation of authenticity, property accountability, storage, operation, maintenance, safety, physical security, retirement, and disposal by each commodity, e.g., a stock numbered product and/or a lot or batch of a product.

CURRENT DESIGN ACTIVITY: The organizational entity currently responsible for the design of materiel. This may be the original design activity or a design activity to which the design responsibility has been transferred.

DESTRUCTIVE TESTING: A systematic, logical, detailed examination of materiel during various stages of physical disassembly, conducted on a sample of completed materiel from a given lot, wherein materiel is examined for a wide variety of design, workmanship, and/or processing problems. Information derived from destructive testing may be used to:

- a. preclude installation of inauthentic materiel or materiel having obvious or latent defects
- b. aid in disposition of materiel that exhibits anomalies
- c. aid in defining improvement changes in design, materials, or processes
- d. evaluate supplier production trends

DISPOSITION: Decisions made by authorized representatives within an organization concerning future treatment of nonconforming materiel. Examples of dispositions are to scrap, mutilation, use-as-is (normally accompanied by an approved variance/waiver), retest, rework, repair, or return-to-supplier.

FRANCHISED DISTRIBUTOR: A distributor with which the original manufacturer has a contractual agreement to buy, stock, re-package, sell and distribute its product lines. Franchised distributors normally offer the product for sale with full manufacturer flow-through warranty. Franchising contracts may include clauses that provide for the original manufacturer's marketing and technical support inclusive of, but not limited to, failure analysis and corrective action, exclusivity of inventory, and competitive limiters.

GIDEP (GOVERNMENT-INDUSTRY DATA EXCHANGE PROGRAM): A cooperative activity between U.S. and Canadian government and industry participants seeking to reduce or eliminate expenditures of resources by sharing technical information essential during research, design, development, production and operational phases of the life cycle of systems, facilities and equipment.

INDEPENDENT DISTRIBUTOR: A distributor that purchases new materiel with the intention to sell and redistribute it back into the market. Purchased materiel may be obtained from original manufacturers or contract manufacturers (typically from excess inventories), or from other independent distributors. Resale of the purchased materiel (re-distribution) may be to original manufacturers, contract manufacturers, or other independent distributors. Independent distributors do not have legally binding relationships with current design activities or original manufacturers.

ITEM LEVEL TRACEABILITY: The requirement to trace lifecycle management to an individual item for specified events related to acquisition, validation of authenticity, property accountability, storage, operation, maintenance, safety, physical security, retirement, and disposal by a single instance of an item.

ITEM UNIQUE IDENTIFICATION (IUID): IUID is a materiel identification system instituted by the United States Department of Defense (DoD) in accordance with International Organization for Standards (ISO) standards including ISO 15459 to uniquely identify a discrete tangible item and distinguish it from other like and/or unlike tangible items. Tangible items are distinguished from one another by the assignment of a unique item identifier (UII) in the form of a unique data string and encoded in a Data Matrix bar code symbol which is placed on the item. The same approach has been adopted by the North Atlantic Treaty Organization, the Air Transport Association, American National Standards Institute, individual companies, etc. A UII is only assigned to a single instance of an item and is never reused. Once assigned to an item, the UII is never changed, even if the item is modified or re-engineered.

LEGALLY AUTHORIZED SOURCE: The current design activity or a supplier authorized by the current design activity or the original manufacturer to produce an item.

NONDESTRUCTIVE TESTING (NDT): Can also be described as Nondestructive Inspection (NDI) or Nondestructive Evaluation (NDE). NDT encompasses a wide variety of analytical techniques used in science and industry to evaluate the properties of materials, components, subcomponents, or systems without damaging or permanently altering them. See E.1.3 for further details.

OPEN MARKET: The trading market that buys or consigns primarily original manufacturers' and contract manufacturers' excess inventories of new materiel and subsequently utilizes these inventories to fulfill supply needs of other original manufacturers and contract manufacturers, often due to urgent or obsolete materiel demands.

ORGANIZATION: In the context of this document, it refers to procurement and design activity entities (government and contractor), and sub-tier materiel suppliers and producers.

ORIGINAL MANUFACTURER: An organization that designs and/or engineers and produces materiel and is pursuing or has obtained the intellectual property rights to that materiel. Notes:

- a. The materiel and/or its packaging are typically identified with the original manufacturer's trademark.
- b. Original manufacturers may contract out manufacturing and/or distribution of its product.
- c. Different original manufacturers may supply product for the same application or to a common specification.

PACKAGING: Packaging refers to the manner in which materiel is packaged in preparation for use. The determination of packaging types is determined by product sensitivities such as moisture, physical characteristics, etc., as well as the method (manually, or by use of automated equipment) to be used to place the materiel into its application.

REFURBISHED: Materiel that has been cleaned, freshened, painted, polished or renovated in an effort to restore it to a "like new" condition.

RESELLER: An entity providing materiel who may or may not have a legally binding relationship with the legally authorized source and is serving only as an agent of the transaction.

SLASH SHEET: For the purposes of this standard, an addendum and/or appendix like supplement to the basic standard that specifies requirements for a specifically defined commodity and its supply chain. Each slash sheet is balloted and released separately from the basic standard..

STOCKING DISTRIBUTOR: A type of independent distributor that stocks large inventories typically purchased from original manufacturers and contract manufacturers. The handling, chain of custody, and environmental conditions for materiel procured from stocking distributors is generally better known than for product bought and supplied by broker distributors.

SUPPLIER: Within the context of this document, a blanket description of all sources of supply for a materiel (e.g., original manufacturer, franchised distributor, independent distributor, broker distributor, stocking distributor, aftermarket manufacturer) who may or may not have a legally binding relationship with the legally authorized source. This relationship generally includes direct product support, training and marketing support from the legally authorized source and provides direct product support to the customer.

SUPPLY CHAIN TRACEABILITY: Documented evidence of materiel's supply chain history. This refers to documentation of all supply chain intermediaries and significant handling transactions, such as from original manufacturer to distributor, or from excess inventory to broker to distributor.

UNIQUE ITEM IDENTIFIER (UII): A globally unique and unambiguous identifier that distinguishes an item from all other like and unlike items. The UII is a concatenated value that is derived from a UII data set of one or more data elements encoded in an IUID compliant Data Matrix bar code symbol. The UII is intended to be a permanent mark placed on a single instance of an item of materiel and cannot be changed over the life of that item.

UNUSED (NEW SURPLUS): Materiel that has not been previously used. A shipment of unused materiel can contain mixed date codes, lot codes, or countries of origin, and should be received in unused factory or third party packaging. The materiel may have minor scratches or other physical defects as a result of handling, but should be in good condition and should not be refurbished. The materiel should be guaranteed to meet the manufacturer's full specifications.

UPDATED: Assessment which results in the extension of materiel ratings to meet the performance requirements of an application in which the materiel is used outside the manufacturer's specification range.

UPSCREENED: Additional materiel testing performed to produce materiel verified to specifications beyond the standard materiel's rated parameters.

USED (REFURBISHED OR PULLED): Materiel that has been installed and used, but subsequently removed from its application. Used materiel may be received in non-standard packaging (i.e., bulk), and may contain mixed lots, date codes, be from different facilities, etc. Materiel may have physical defects such as scratches, faded markings, chemical residue or other signs of use, but should be intact. Used materiel may be sold with a limited warranty. Used materiel marketed as refurbished should meet the industry definition of refurbished, or should be sold as used or pulled product.

3. REQUIREMENTS

3.1 Materiel Authenticity Assurance Plan

The organization shall develop and implement a materiel authenticity assurance plan that documents: (a) its processes used for assuring that only authentic and conforming materiel is procured from legally authorized sources, and (b) its planning to be used for risk mitigation, disposition, and reporting in the event any counterfeit materiel is encountered in its supply chains. The control plan shall include the processes described in 3.1.1 through 3.1.7.

NOTE: The material authenticity assurance plan is subject to customer approval, and may be disapproved if it does not incorporate appropriate guidance from the appendices considered necessary to provide for an appropriate level of assurance for procuring authentic and conforming materiel – see Appendix D for sample contract clauses.

3.1.1 Authentic and Conforming Materiel Availability

The materiel authenticity assurance processes shall maximize availability of authentic and conforming, originally designed and/or qualified materiel throughout the product's life cycle, including management of materiel obsolescence. Organizations shall modify/develop their risk management policies to direct immediate identification of items and supply sources susceptible to counterfeiting for enhanced product assurance. Information and guidance for ensuring authentic and conforming materiel availability is provided in Appendix A.

3.1.2 Purchasing

The procurement/purchasing processes shall:

- a. Assess potential sources of supply to determine their likelihood of delivering authentic and conforming materiel. Assessment actions may include surveys, audits, review of product alerts, and review of supplier quality data to determine past performance. Guidance: Appendix B.
- b. Maintain a register of approved suppliers, including the scope of the approval, to assure the highly likely supply of authentic and conforming materiel. Guidance: Appendix B.
- c. When possible, procure directly from original manufacturers, authorized suppliers, or other legally authorized sources on the approved supplier/source register/list. When the procurement item/material is not available from the authorized chain, then risk management provisions shall be incorporated from the material authenticity assurance plan. Refer to 3.1.2.f.
- d. Assure that approved/ongoing sources of supply are maintaining effective processes for assuring the delivery of authentic and conforming materiel. Assurance actions should include a request of the adoption of processes which are in accordance with documents such as ISO 12931, see applicable documents 2.1.3; and may include where appropriate testing (destructive, non-destructive, functional, measurements, etc.), surveys, audits, review of product alerts, and review of supplier quality data to determine past performance.

- e. Assess the likelihood that sources other than original manufacturers or authorized suppliers can deliver authentic and conforming materiel. Where applicable, this shall be accomplished and documented when it is necessary to procure from other than the original manufacturer or an authorized supplier.
- f. Implement risk management provisions, including risk assessment and risk mitigation per the materiel authenticity assurance plan, when traceability to an authorized source is not readily available or an authorized source is not available. Guidance and information regarding industry best practices for supply chain commodity and item level traceability are provided in Appendix C.
- g. Specify flow-down of applicable requirements of this document to appropriate contractors, their sub-contractors, and distributors. In the event that one or more supply chain intermediaries do not have a materiel authenticity assurance plan compliant to this document, a risk analysis shall be considered for every application of the materiel. Guidance: Appendix D.

3.1.3 Purchasing Information

The documented process shall specify contract/purchase order quality requirements to maximize the likelihood of being provided authentic and conforming materiel. Examples of procurement quality requirements and clauses are provided in Appendix D.

Procurement of material shall be subject to the applicable contract requirements pertaining to Fraud and Falsification (F&F). This shall include, but may not be limited to, the applicable pass-down clauses identified in Appendix D.

3.1.4 Verification of Purchased Product

The documented processes shall assure detection of any counterfeit materiel prior to formal product acceptance. The rigor of the verification process shall be commensurate with product risk. Product risk is determined by the criticality of the materiel and the assessed likelihood of receiving counterfeit materiel. Examples of verification actions include: review of data deliverables, visual inspection (including research on marking requirements, Item Unique Identification (IUID) scan, testing, non-destructive evaluation and destructive testing). Guidelines concerning the performance of risk-based product assurance are provided in Appendix E.

3.1.5 In-Process Investigation

The documented processes shall address the detection, verification, and control of any in-process (post acceptance) and in-service suspect counterfeit materiel.

3.1.6 Materiel Control

The documented processes shall specify methods for manufacturers to:

- a. Control excess and nonconforming materiel to prevent it from entering the supply chain under fraudulent circumstances.
- b. Control/destroy any suspect or confirmed counterfeit materiel to preclude its use or reentry into the supply chain.
- c. Establish a process to ensure the supply chain is not compromised by any material being returned. Manufacturers/suppliers and their approved supply chain shall implement an effective returns process which segregates and assesses the returned items until validated as authentic and unused.

Guidelines for control of materiel are provided in Appendix F.

3.1.7 Reporting

The documented processes shall assure that all occurrences of counterfeit materiel are reported, as appropriate, to internal organizations, customers, government reporting organizations, industry supported reporting programs, and criminal investigative authorities. Guidance: Appendix G.

4. NOTES

- 4.1 A change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

PREPARED BY SAE COMMITTEE G-21, COUNTERFEIT MATERIEL