A SPECIAL REPORT

Counterfeit Parts:

Increasing Awareness and Developing Countermeasures

March 2011

AEROSPACE INDUSTRIES ASSOCIATION

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1000 Wilson Boulevard, Suite 1700, Arlington, Virginia 22209 ■ www.aia-aerospace.org

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Counterfeit Parts: Increasing Awareness and Developing Countermeasures

Counterfeiting has a long and ignoble history, ranging from art and literature to manufactured goods. Unlike other industries, counterfeiting in the aerospace industry may have life or death consequences. We take the problem seriously. Thus, all stakeholders from industry and government must work together to effectively reduce the introduction of counterfeit parts into the aerospace supply chain and minimize their impact.

Though we know counterfeit parts enter the aerospace supply chain, the time and place of their entry is unpredictable. Managing this uncertainty has become more important due to the recent rise in the incidence of counterfeit reporting. We must reduce the entry and effects from counterfeit parts through increased diligence and active control measures. To accomplish this, it is necessary to have greater collaboration both within industry and with government.

The recommendations made in this report identify actions to be taken by industry and government and issues that require further study and collaboration. We strongly believe that the policy recommendations offered in this report form a basis for the aerospace industry to collectively recommend and develop solutions to problems stemming from the introduction of counterfeit parts. Moreover, we invite government and like-minded stakeholders to join us in designing those solutions.

This paper is the result of one part of the efforts of the Counterfeit Parts Integrated Project Team. We'd like to take this opportunity to thank the members of the IPT Executive Committee, which as of 2010 consisted of BAE Systems, The Boeing Company, Lockheed Martin Corporation, Parker Aerospace, Raytheon Company and Textron Inc., for their leadership, expertise and contributions to this process. A broad range of participants on the IPT have included members of AIA, other trade associations such as SAE International and the Industrial Fasteners Institute, and government agencies such as DOD, including Defense Criminal Investigative Services, Air Force, NAVAIR, Naval Sea Systems Command, Naval Criminal Investigative Service, Defense Logistics Agency, NASA, DOJ, FBI, Department of Homeland Security, Customs and Border Protection, Immigration and Customs Enforcement and the FAA. We are grateful for their ongoing efforts to address this vital issue.

Sincerely,

Marion C. Blakey
President and Chief Executive Officer

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EXECUTIVE SUMMARY

Industry, government and academic studies have increasingly detailed the growing threat and negative impact of the infiltration of counterfeit parts into product supply chains. The Department of Commerce's Bureau of Industry and Security (BIS) released a study in January 2010 (BIS Study) that quantifies the extent of infiltration of counterfeit electronic parts into U.S. defense supply chains.[1] The BIS study documented a growth in incidents of counterfeit parts across the electronics industry from 3,300 incidents in 2005 to more than 8,000 incidents in 2008.[2] This sharp increase in incidents, in only three years, clearly indicates that the volume of counterfeit parts is increasing and mitigation plans must be developed and implemented.

The introduction of counterfeit parts — whether they are electronic, mechanical or other — adversely affects the U.S. supply chain. Possible effects may include:

- For government:
  - National security or civilian safety issues
  - Costs of enforcement
  - Lost tax revenue due to illegal sales of counterfeit parts
- For industry:
  - Costs to mitigate this risk
  - Costs to replace failed parts
  - Lost sales
  - Lost brand value or damage to business image
- For consumers:
  - Costs when products fail due to lower quality and reliability of counterfeit parts
  - Potential safety concerns

The escalating infusion of counterfeit parts means that every aerospace and defense manufacturer is at risk. Electronic parts, for example, are integral to the function of every aerospace and defense industry platform delivered to government and civilian customers.

In August 2007, the Aerospace Industries Association (AIA) held a summit on counterfeit parts for its member companies. Relevant government agencies and industries, such as semiconductor manufacturers, were invited to speak on the challenges counterfeit parts present to air, space and defense stakeholders. A second meeting was held in December 2007, during which attendees decided to form an Integrated Project Team (IPT) that would identify and recommend problems

and solutions relating to counterfeit parts in the aerospace and defense industry supply chains. IPT participants include members of AIA, other trade associations and government agencies.

The AIA Counterfeit Parts-Integrated Project Team (CP-IPT) has developed specific recommendations that can be used by both the aerospace and defense industry and U.S. government. This paper covers procurement, reporting, disposition, obsolescence and electronic waste and includes recommendations for:

- Industry and government to deploy a total risk mitigation process as described in recently released SAE AS5553, "Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition."[3]
- Industry to improve counterfeit reporting, develop counterfeit parts control plans, improve management of part obsolescence and develop awareness and detection training.
- Government to strengthen the Government-Industry Data Exchange Program (GIDEP) process, including a provision for limited liability for those who accurately report counterfeit parts through GIDEP, as well as other improvements in the regulatory environment.

AIA encourages all parties vulnerable to the increasing availability of counterfeit parts to increase their awareness of this threat and to develop countermeasures. Counterfeit parts pose a danger to the aerospace and defense industry, to government and civilian customers and to national security.

INTRODUCTION

This paper presents background information on counterfeit parts in the aerospace and defense industry and the recommendations developed by the Aerospace Industries Association (AIA) Counterfeit Parts-Integrated Project Team (CP-IPT). The goal is to raise awareness and mitigate the risks associated with counterfeit parts.

Regardless of how counterfeit parts—whether electronic, mechanical or other—enter the aerospace and defense supply chain, they can jeopardize the performance, reliability and safety of aerospace and defense products. Authentic parts have known performance histories and adhere to the manufacturers' quality control plans, whereas counterfeit parts have unknown performance reliability and often limited quality controls. The cost of counterfeit parts entering the supply chain is greater than simple replacement of the counterfeit part. Ramifications could include potential product failure, warranty costs, inspections and testing, restocking, lost revenue, exfiltration of electronic data, loss of intellectual property such as trademark value and compromising national security. For space applications, the cost of mission failure may include the potential loss of entire platforms, such as satellites, due to inaccessibility for repair.

AIA CP-IPT meetings tended to focus on the risks from counterfeit electronic parts. But the recommendations developed and provided in this report apply to any type of counterfeited part used in the aerospace and defense industry.

BACKGROUND

Over the last 10 years, various countries, governments and industries have undertaken studies on the proliferation and economic impact of counterfeits. Until recently, none of the studies have specifically addressed the aerospace and defense industry. The U.S. Chamber of Commerce created the Coalition Against Counterfeiting and Piracy (CACP) in 2004 to "fight the growing threat of counterfeiting and piracy to the economy, jobs, and consumer health and safety."[4] The CACP has more than 700 members, from manufacturers to law firms and trade associations or organizations.[5] Goals of the CACP are fighting counterfeiting and piracy online, promoting legislation and publishing guidance for industry. The CACP manual for industry, *Intellectual Property Protection and Enforcement Manual: A Practical and Legal Guide for Protecting Your Intellectual Property Rights*,[6] focuses on ways brand owners can "take the initiative in the fight against counterfeiting and piracy" as well as related cases studies.[7]

In 2005, the Organisation for Economic Co-Operation and Development (OECD) was asked to conduct an assessment of the magnitude and scope of counterfeiting.[8] Industry research was carried out by associations distributing a survey. Approximately 80 industry survey responses were received. Industries that responded to the survey were: audio and visual, automotive, electrical components, food and drink, pharmaceuticals and tobacco. Aerospace/aviation industry associations did not respond to the survey. The 2005 study was a follow-up to a 1998 OECD report on the economic impact of counterfeiting.[9] The 1998 OECD report did not include a section on aircraft components although it did note that "very stringent controls exist for the supply of spare aircraft parts" as well as providing a discussion of Suspected Unapproved Parts (SUPs).[10]

In 2010, the Government Accountability Office (GAO) published two reports on counterfeit risk and impact: *Defense Supplier Base - DOD Should Leverage Ongoing Initiatives in Developing Its Program to Mitigate Risk of Counterfeit Parts* (Defense Supplier Base report)[11] and *Intellectual Property – Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods* (Observations on Efforts report).[12] The Defense Supplier Base report noted that "DOD is limited in its ability to determine the extent to which counterfeit parts exist in its supply chain because it does not have a department wide definition of the term "counterfeit" and a consistent means to identify instances of suspected counterfeit parts."[13] The report also identified some examples of counterfeit parts in DOD's supply chain, such as GPS receiver frequency standard oscillators, dual transistor, self locking nuts and brake shoes.[14]

The Intellectual Property GAO report focused more on the impact of counterfeiting and piracy on U.S. industry, the economy and government. The report also examined the commonly cited estimates of economic losses from counterfeiting:

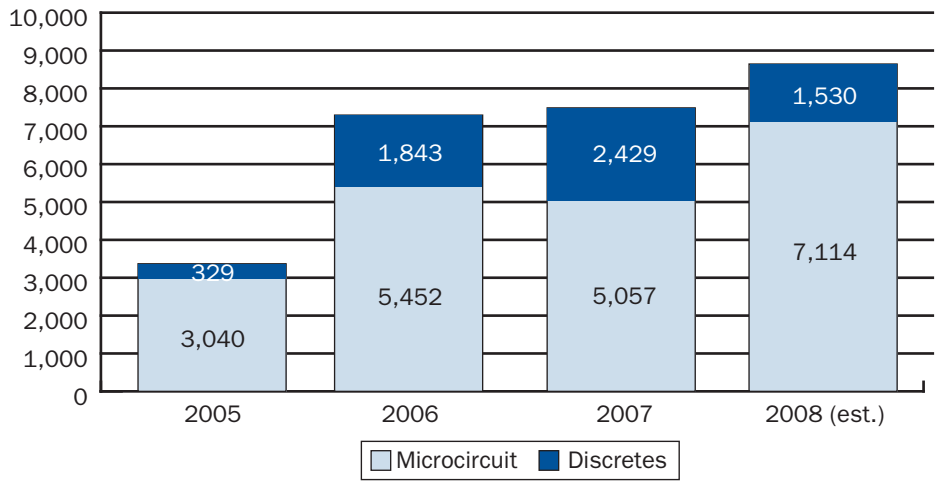
- "An FBI estimate that U.S. businesses lose $200-$250 billion to counterfeiting on an annual basis;"
- "A 2002 CBP press release contained an estimate that U.S. businesses and industries lose $200 billion a year in revenue and 750,000 jobs due to counterfeits of merchandise;" and
- "The Motor and Equipment Manufacturers Association reported an estimate that the U.S. automotive parts industry has lost $3 billion in sales due to counterfeit goods and attributed the figure to the Federal Trade Commission."

All three "commonly cited estimates of U.S. industry losses due to counterfeiting have been sourced to U.S. agencies, but cannot be substantiated or traced back to an underlying data source or methodology."[15]

Surveys of Interest to Aerospace and Defense Companies

The Department of Commerce's Bureau of Industry and Security (BIS) Office of Technology Evaluation (OTE), at the request of Naval Air Systems Command (NAVAIR), conducted a survey to provide "statistics on the extent of the infiltration of counterfeit electronic parts into U.S. defense and industrial supply chains, provide an understanding of industry and government practices that contribute to the problem and to identify best practices and recommendations for handling and preventing counterfeit electronics."[16] The OTE surveyed segments of the supply chain — original component manufacturers (OCMs), distributors and brokers, circuit board assemblers, prime contractors and subcontractors, and DOD agencies — and focused on electronic parts — discrete electronic components, microcircuits, bare circuit boards and assembled circuit boards.[17] The survey results show OCMs reporting an increase in counterfeit electronic incidents doubling from 3,369 in 2005 to 8,644 in 2008. (See Figure 1.) The total counterfeit incidents reported by prime/subcontractors during the same time period rose from 25 to 76.[18]

Figure 1: Increase in the Rate of Total Counterfeit Incidents at OCMs (DOC Study, Figure II-4 Total Counterfeit Incidents – OCMs [2005 – 2008])[19]



Source: The U.S. Department of Commerce, Office of Technology Evaluation, *Counterfeit Electronics Survey*, November 2009

Although survey data on counterfeit electronic parts have been frequently examined, the AIA CP-IPT team was unable to find survey data on counterfeit non-electronic parts, such as mechanical parts or materials, in the aerospace and defense industry. Mechanical parts include fasteners, connectors, bearings, studs, rings, shims, valves, springs, brackets, clamps and spacers.[20] Appendix II of the Defense Supply Base GAO report provides examples of counterfeit parts in DOD's supply

chain but does not provide any numbers as to how many parts are confirmed or are suspected.[21] Some reported non-electronic examples include self-locking nuts, titanium aerospace parts, aluminum parts, assorted small parts, brake shoes, body armor, rotor retaining nuts, bolt hook point belts and seatbelts.[22]

Why There Is Counterfeiting of Aerospace and Defense Parts

Profit is the primary incentive for counterfeiting. However, there are unique conditions that make aerospace and defense products susceptible to counterfeiting, including a long life cycle and diminishing manufacturing sources and material shortages (DMSMS) issues.[23] Aerospace and defense products are generally designed for a long life cycle. The B-52, for example, went into service in February 1955 with an anticipated retirement date of 2040. Other examples of long-flying aircraft are in Table 1.

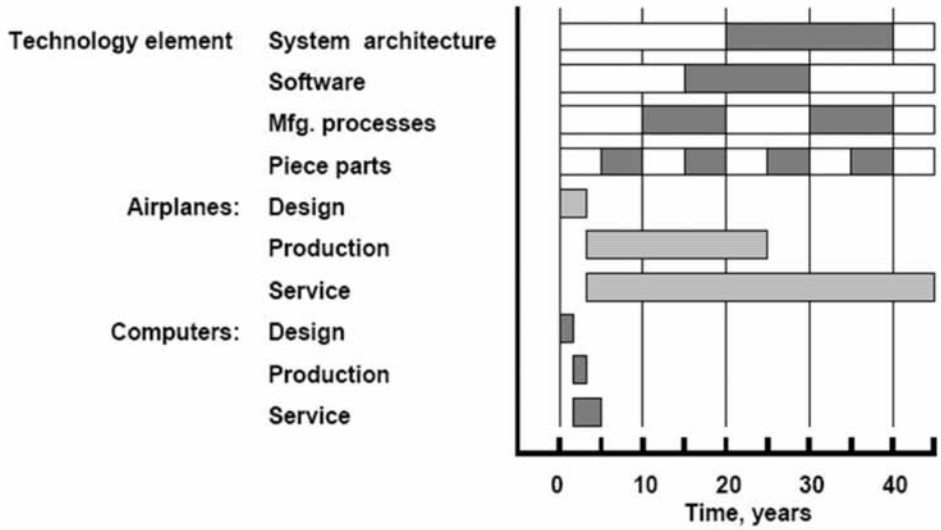
Table 1: Examples of Life Cycles of Aircraft

Aircraft	In service Date	Anticipated Retirement Date
DC-3	Dec 1935	Not determined
B-52	Feb 1955	2040
C-130	Dec 1957	Not determined
B737	Feb 1968	Not determined
L-1011	Apr 1972	Not determined
F-16	Aug 1978	Not determined
Space Shuttle	Apr 1981	2011

Figure 2 illustrates how, during the lifetime of an aircraft, the technologies — particularly electronic components such as microchips — change.[24] Currently, during the design, production and service life of an aircraft the computers used to design and support it will change nine or more times. The software used to design and support, the infrastructure used to store information for the aircraft and the infrastructure used to store, transmit receive information and communications will all change three times or more. Manufacturing processes used to assemble the aircraft will change two or more times and the system and subsystems used in the aircraft will change nine or more times. These rates of change may increase as technology evolves.

Therefore, supporting aerospace and defense products throughout their lifecycle sometimes requires the use of parts that may no longer be available from the OCM, original equipment manufacturer (OEM), authorized aftermarket manufacturer or through franchised or authorized distributors or resellers.[25] When parts and materials, such as microcircuits, are acquired through distribution channels other than those franchised or authorized by the original manufacturer, such as an independent distributor or broker,[26] there is the potential to receive parts that do not meet the original specifications. An electronic part, for instance, according to the BIS study, could be a "fake non-working product, new product remarked as a higher grade or an invalid part."[27]

Figure 2: Differences in the Life Cycle of a Computer and an Aircraft from Design to End of Service[28]

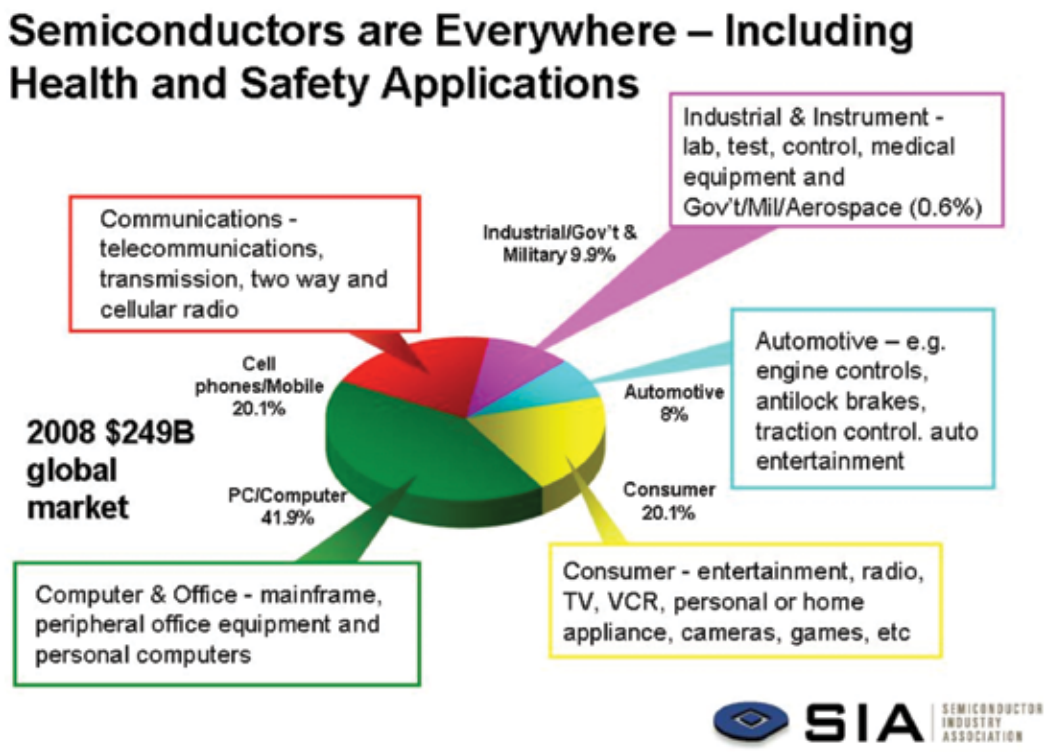


Counterfeit electronic parts may pose the greatest risk to aerospace and defense programs in cost, schedule, safety and overall mission success. However, the aerospace and defense industry, as shown in Figure 3, is not a large consumer of electronic parts. In fact, the aerospace industry accounts for less than one percent of the global semiconductor market. This lack of leverage for electronic parts makes the necessary task of mitigating risks difficult and expensive. Additionally, the same supply chain for electronic parts to the aerospace and defense industry is also supporting consumer industries, such as cell phones, computers, etc.

Integrated Project Team

In August 2007, AIA held a meeting for members, "Counterfeiting Summit: What it is and Solutions." Government agencies and industries were invited to speak on the challenges that counterfeit parts present to air, space and defense stakeholders. At a follow-up meeting in December 2007, attendees decided to form an IPT that would identify and recommend solutions in response to the potential of counterfeit parts entering the supply chain. Participants on the IPT have included members of AIA, other trade associations such as SAE International and the Industrial Fasteners Institute, and government agencies such as the DOD including Defense Criminal Investigative Services, the Air Force, NAVAIR, Naval Sea Systems Command, Naval Criminal Investigative Service, Defense Logistics Agency (DLA), National Aeronautics and Space Administration (NASA), Department of Justice, the Federal Bureau of Investigation (FBI), Department of Homeland Security, Customs and Border Protection (CBP), Immigration and Customs Enforcement and the Federal Aviation Administration (FAA). As part of the scope of the IPT, a team statement was developed including a plan of action.[29]

Figure 3: Prevalence of Semiconductors within the Global Market[30]



Source: WSTS

In April 2008, six task teams were formed around "actionable deliverables:" Policy and Acquisition, Counterfeit Parts Plan, Verification Process, Program Management Guide, Technical Guidance and Enforcement. The recommendations presented in this paper are a result of task-team activity over the last two years.

Definition of Counterfeit

One of the first actions by the AIA CP-IPT was to define "counterfeit part." Definitions can differ depending on the product. For instance, the federal government can prosecute sellers of counterfeit product under The Trademark Counterfeiting Act, 18 U.S. C § 2320(a): "Whoever; intentionally traffics or attempts to traffic in goods or services and knowingly uses a counterfeit mark on or in connection with such goods or services, or intentionally traffics or attempts to traffic in labels, patches, stickers, wrappers, badges, emblems, medallions, charms, boxes, containers, cans, cases, hangtags, documentation or packaging of any type or nature, knowing that a counterfeit mark has been applied thereto, the use of which is likely to cause confusion, to cause mistake, or to deceive."[31] The FAA Advisory Circular 21-29C, Detecting and Reporting Suspected Unapproved Parts defines counterfeit part at 3(d): A part made or altered to imitate or resemble an "approved part" without authority or right, and with the intent to mislead or defraud by passing as original or genuine.[32]

When the AIA CP-IPT began meeting in 2007, the DOD had not defined "counterfeit part." With assistance of the participants, the AIA CP-IPT developed the following definition of counterfeit part:

> *Counterfeit parts are defined as a product produced or altered to resemble a product without authority or right to do so, with the intent to mislead or defraud by presenting the imitation as original or genuine.*[33]

Subsequent to the AIA CP-ITP definition of counterfeit parts, SAE G19 developed a definition included in AS5553 (April 2009). The definition of counterfeit parts continues to be discussed and refined in various government and industry forums.

DISCUSSION TOPICS

Procurement/Supplier Selection

Procurement policies and selection of suppliers creates an opportunity to significantly reduce the risk of counterfeit parts from entering the supply chain. Acquisition by the U.S. government is generally controlled by the Federal Acquisition Regulations (FAR), the Defense Federal Acquisition Regulation Supplement (DFARS) for defense contractors, and the Federal Aviation Regulations for FAA contracts (FAA FAR). The regulations, in general, set requirements for procurement by the government, including full and open competition. FAR 6.3[34] allows the U.S. government to contract without providing for full and open competition but only in limited cases such as "only one responsible source and no other suppliers or services will satisfy agency requirements"[35] or "unusual and compelling urgency."[36] Under the FAA FAR, "the FAA may contract with a single source when in FAA's best interest and the rational basis for the decision is documented."[37]

The BIS Study did include questions on procurement in the surveys sent to the DOD organizations and "only 28 percent of the DOD organizations said that the DFARS contains sufficient provisions to prevent counterfeit parts from infiltrating the defense supply chain."[38] One reason given as to why the DFARS was inadequate was that "the DFARS does not specifically discuss counterfeit electronics."[39] One of the recommendations in the BIS Study for the government was to "clarify the criteria in the FAR, including DFARS, to promote the ability to award electronic parts contracts on the basis of 'best value' rather than on the basis of 'lowest price' or 'low bid'."[40]

The Defense Supplier Base observed that "DOD parts can be purchased through the use of automated systems that have limited visibility on suppliers and can increase the risk of purchasing counterfeit parts."[41]

DLA Land and Maritime (previously Defense Supply Center Columbus) has addressed automated ordering by establishing a Qualified Suppliers List for Distributors (QSLD)[42] for items in Federal Supply Class (FSC) 5961 (Semiconductor Devices and Associated Hardware) and 5962 (Microcircuits, Electronic) as a way of reducing counterfeit electronic parts. The QSLD, effective in August 2009, requires a distributor be qualified for and listed on the QSLD to receive a contract award for the FSC 5961 or 5962. DLA Troop Support (previously Defense Supply Center Philadelphia)[43] maintains a Qualified Suppliers List for Manufacturers (QSLM), and a QSLD for bulk metals, class two and three threaded fasteners, fiber rope, cordage, twine and tape, rivets, o-rings and quick release pins. Manufacturers and distributors must be audited to remain on these lists. In addition, the government maintains MIL-HDBK-57, which is a registry of the fastener head markings from every known manufacturer to aid in traceability.[44]

SAE AS5553 also provides guidance for industry and government in purchasing of electronic parts, and the guidance can be applied to any type of aerospace and defense part purchase. The standard requires that potential suppliers should be assessed for determining the risk of receiving counterfeit parts and that a list of approved suppliers shall be maintained.

Unlike defense procurement, the FAA has developed a "system for the accreditation of civil aircraft parts distributors on the basis of voluntary industry oversight" (also known as the Voluntary

Industry Distributor Accreditation Program) and formally established third party accreditation of distributors.[45] A distributor, according to AC 00-56A, is "any person engaged in the sale or transfer of parts for installation in appliances and type-certificated aircraft, aircraft engines, or propellers."[46] AC 00-56A lists the quality systems standards that are acceptable under the program.[47]

AIA Recommendations

- Industry members should adopt SAE AS5553 to mirror DOD and NASA adoption[48] of the standard. AS5553 can be used by both aerospace and defense companies.
- Industry and government should develop purchasing processes that reduce the risk of purchasing counterfeit parts. This can be accomplished by developing a QSLD. The list should be part of an Approved Suppliers List and managed by Quality and Procurement. The distributors on the QSLD could be approved to the following criteria:
  - A quality process assessment should be performed to verify that each distributor has the necessary processes in place to be able to mitigate the risk of receiving, storing and shipping potential counterfeit devices.
  - There is due diligence to ensure that distributors with GIDEP alerts generated have effectively implemented corrective action.
  - The distributors maintain accurate records regarding the purchase of material that can be easily accessed when needed by their customers. If complete, these records will trace the history of these components back to the OCM.
- AIA recommends that government procurement organizations:
  - Establish Qualified Suppliers Lists that comport with existing competition policy in 10 U.S.C. § 2319. For an example, refer to DSCC-QSLD-5961/5962 A, 8 April 2009, Criteria and Provisions for QSLD.
  - Provide training for their personnel on counterfeit parts and impacts to government procurement processes and costs.

Suspected Counterfeit Part Reporting

Reporting of counterfeits is crucial to aerospace and defense companies and government entities as it allows them to search their inventory for possible receipt of the suspected counterfeit part. However, companies may not always report outside their organization for a variety of reasons. In mid-2008, the AIA CP-IPT conducted a survey of the IPT and other AIA committees to identify potential obstacles to reporting counterfeit parts via the Government Industry Data Exchange Program (GIDEP).[49] Participants were surveyed on the benefits of membership in GIDEP and reporting of suspect counterfeit parts. The survey participants identified the top two benefits from information on counterfeit components published in GIDEP as: "avoiding and intercepting suspect counterfeits discovered by others" and "identifying suppliers associated with suspect counterfeits." A third benefit

was "learning about ways to help my organization combat the counterfeit components problem." The top reason for not being a member of GIDEP was "my organization uses other resources that we believe to be more effective than GIDEP (e.g. ERAI, government agency data sources)."

GIDEP was selected as the predominant reporting organization by the participants. The top two reasons for not reporting counterfeit parts to GIDEP or any other organization were "legal or liability issues (e.g. exposure to third party lawsuits) encumber reporting" and "my organization's business process does not support reporting non-conforming material findings outside of the organization."

GIDEP issued an interim policy change regarding "Reporting Suspect Counterfeit Parts and Materials" in September 2010 to "facilitate and encourage the reporting of suspect counterfeits until such time as federal policy and an appropriate supporting procedure can be determined and implemented."[50] Under the current GIDEP policy, members are asked to identify the supplier of the part or material when reporting a suspect counterfeit in the database. However, as also evidenced in the AIA survey, GIDEP members are "hesitant or not permitted to identify the supplier due to potential legal issues or other concerns."[51] If the "true" manufacturer or supplier is not identified when submitting a report, "current GIDEP policy limits the use … to only a Problem Advisory" and prevents the "reporter from alerting the community via a Safe-Alert or Alert when the severity or likelihood of the failure is known."[52] Under the interim guidance, the category of supplier is to be provided: OCM, Aftermarket Manufacturer, Independent Distributor, Broker/Broker Distributor.[53] The alert also requires that the "report includes a detailed description of the problem, as well as evidence that supports the conclusion, e.g., detailed reports, photos, lab tests, etc."[54] The interim guidance was to be renewed or expire on December 15, 2010.

The BIS Study results provided similar reasons why contractors do not report counterfeit parts to GIDEP:

- were not aware of GIDEP or that it tracked counterfeit incidents;
- did not believe they had enough incidents to warrant reporting;
- attempted to resolve the issue directly with the supplier or manufacturer;
- used another system to report counterfeit parts, such as ERAI or FAA; or
- believed only OCMs and OEMs report to GIDEP.[55]

Reports of suspected counterfeit parts can also be submitted to the FAA's Suspect Unapproved Parts Program, ERAI, and the Independent Distributors Electronics Association (IDEA).

When counterfeit parts are reported to the FAA's Suspected Unapproved Parts Program,[56] the FAA investigates the SUP and the result of the investigation is made available as an Unapproved Parts Notifications (UPN) on the FAA website.[57] SUP reports can also be submitted through the Aviation Safety Hotline Office.[58] Advisory Circular AC 21-29C, "Detecting and Reporting Suspected Unapproved Parts," provides guidance as to what is a "suspected unapproved part," and "counterfeit part."[59] AC 21-29C also provides information and the form on how to report a SUP.

A comparison between the SUP and GIDEP databases is shown in Table 2. While reporting and viewing of reports in GIDEP is limited to GIDEP members, the SUPs program does not require membership to view the UPNs or report to the FAA. In discussions with GIDEP, it was learned that currently UPNs are added to the GIDEP database.

Table 2: Civil Aviation and Defense Aerospace Reporting of Counterfeit Incidents

Aerospace, Space and Defense Sources of Information About Counterfeit Incidents

SUP Reporting	GIDEP Reporting
Reported by industry participants to FAA	Cooperative effort between government and industry participants for any project or program
Contains part information	Contains part information
Affected Part or material	Affected Part or material
Description of failure	Description of failure/how identified as counterfeit
No rebuttal after FAA investigation	Provides time for rebuttal of report
Identification of provider	Identification of provider
Not searchable—only FAA investigated reports posted	Searchable reports
Voluntary reporting	Voluntary reporting
Only for FAA related activities	Applicable to all branches of USG

ERAI is a "privately held global information services organization that monitors, investigates and reports issues that are affecting the global supply chain of electronics."[60] Suspect and confirmed incident reports may be submitted by the public.[61] Searching of submitted incidents is limited to ERAI members or subscribers.

IDEA is a nonprofit trade association that "represents quality and ethically oriented independent distributors of electronic components."[62] IDEA maintains a database of reported suspect and confirmed counterfeit incidents. IDEA provides additional benefits for a membership fee.[63]

AIA Recommendations

- Companies and government should report into a database so the extent of the problem of counterfeit parts in the supply chain can be known and the proper response can be undertaken. The use of GIDEP as the database for reporting of suspect counterfeit parts has several advantages. GIDEP is not a fee-based service and is managed by the government, allowing it to protect sensitive information or the detection methods used to identify counterfeit parts or materials. The GIDEP reporting process includes a response time for the reported suspect company to rebut the report. It is imperative that all reports are made as quickly after detection as possible. This will enable the system to provide early notification so that all parties affected can take steps to minimize the effect of counterfeit suspected parts. As more companies experience receipt of counterfeit parts, they will want or need to establish or review their processes to mitigate the risk. However, as shown by the CP-IPT study, there is a concern about legal or liability issues if a company reports counterfeit parts to GIDEP.

- Companies should review databases, such as GIDEP, before purchasing from a potential new supplier. Databases can provide information on the product delivery performance of the company as experienced by other companies in the database. A GIDEP report where the company outlines how their processes and procedures change with no additional reports, i.e. counterfeit parts, indicates positive actions to mitigate the risks. Repeated reports on one company could indicate a systemic problem and the presence of poor processes and procedures.

AIA recommends that the U.S. Government:

- Ensure that the Defense Standardization Program Office has sufficient resources to update the GIDEP database so that more companies submit reports of counterfeit parts; increase understanding of the GIDEP reporting process; improve selection of the appropriate report types and preparation instructions, and consider what information is required to report a suspect counterfeit part. This will include:
    - Providing guidance to defense contractors, defense agency procurement organizations and the aerospace and defense industry supply chain on participating in GIDEP as the way for industry and government organizations to alert each other of possible counterfeit parts.
    - Improving the GIDEP system to speed the dissemination of information as quickly as possible.
    - Establishing a database, such as GIDEP, as the sole repository for receiving and disseminating counterfeit part reports. For industry sectors where FAA is the regulatory authority, compliance to FAA requirements must still be met.

AIA recommends that GIDEP and all associated participants should strive for complete, transparent and timely information to enable more effective strategies and policies to combat counterfeiting in a practical and pragmatic manner. AIA supports such pilot programs intending to increase GIDEP participation and timeliness, but AIA recommends proceeding cautiously regarding the loss of important information, such as supplier identification, in an attempt to increase reporting. AIA recommends DOD continue to explore mechanisms that increase reporting without sacrificing important information.

To this end, the DOD Office of Standardization has instituted a pilot program to allow GIDEP users to opt out of identifying suppliers who provided known or suspect counterfeit parts. The pilot is intended to increase the amount of GIDEP reporting by easing the potential liability concerns for companies.

Counterfeit Part Disposition

Proper disposition of known or suspected counterfeit parts prevents their reintroduction into the supply chain. If a part is returned to the supplier, whether an authorized distributor, OCM, or independent broker, it is subject to resale to meet market needs. Resale of returned product has the potential to reintroduce known or suspected counterfeit parts into the supply chain. Returning counterfeit parts to the supplier allows counterfeiters to learn that their attempts were detected.

In civil aviation, 14 CFR § 43.10 governs disposition of life-limited aircraft parts.[64] The FAA has also published a Best Practice Scrap or Salvageable Aircraft Parts and Materials.[65] The Best Practice recommends mutilation of scrap parts and materials to prevent misrepresentation. Mutilation includes grinding, burning, removal of a major integral feature, permanent distortion of parts and materials, cutting a significant size hole with a cutting torch or saw, melting, sawing into many small pieces and removing manufacturer identification, part, lot, batch and serial number. Removing the identification and part markings without rendering the part useless is not an acceptable option and increases the opportunity for counterfeiting.

If a part has been reported in a UPN, potential consumers are advised to quarantine the product to prevent installation until a determination can be made regarding their eligibility for installation, or removed and replaced to prevent failure during installation or returned to the company for disposition. As part of the UPN, the FAA has a section in which they ask for "any information on the discovery of the above referenced parts from any source, the means used to identify the source, and the actions taken to remove them from the aircraft and/or parts inventories."[66] Holders of a UPN may not have a contractual right to scrap or mutilate a part – repair stations do not own the part that they work on.

AIA Recommendations

- Companies should develop their internal disposition plan with the assistance of their procurement, legal and quality personnel.
    - The disposition plan should also address supplier payment conditions when counterfeit material is discovered.
- The government should develop guidance on disposition that may be used by industry.
    - The government should identify the appropriate agency/department to act as a single point of contact for counterfeit parts and materials.

Component Obsolescence

As discussed earlier in the Background section, semiconductor parts in particular have life cycles far shorter than aerospace and defense products. Since the OCM is generally no longer manufacturing the semiconductor product, if the authorized distributor has none in stock, independent distributors are sought to obtain the components. Redesign to eliminate obsolete parts is expensive, time consuming and affects configuration management and qualification baseline for fielded products.

Escrowing of intellectual property is one way to provide access to obsolete part design and manufacturing information. The Defense Microelectronics Activity (DMEA) provides a government sponsored intellectual property escrow solution and is a source of information for microelectronics-manufacturing on demand:[67]

A key part of DMEA's support is an aggressive policy of licensing intellectual property from multiple semiconductor manufacturers. DMEA stores the instructions for producing a component instead of the components themselves. This creates a new definition for commercial off-the-shelf technology: technology that is permanently supportable on demand, even though it is not available from the original commercial provider.[68]

DOD has also developed a guidebook titled SD 22 that is "a compilation of the best practices from across the department for managing the risk of obsolescence for electronic, electrical, and mechanical parts."[69] The guidebook provides a proactive approach to DMSMS.

Obsolescence and replacement parts are addressed differently for civil aviation parts. A Parts Manufacturer Approval (PMA) is needed from the FAA to "produce and sell FAA approved aircraft parts that are eligible for installation of FAA type certificated aircraft."[70] The FAA has established Parts Manufacturer Approval Procedures for evaluating and issuing the PMA in Order 8110.42C.[71] The order includes the requirements for a manufacturer to become PMA certified.

AIA Recommendations

- Industry should take proactive steps to deal with component obsolescence by using component lifecycle analysis tools based on EIA-724 lifecycle prediction curves. This will help predict when components are in the last phases of their lifecycle and are heading towards obsolescence and may become difficult to obtain and require acquisition through non-franchised sources.[72] Component lifecycle analysis tools should also be used to prevent new designs from using parts in the mature phase of their lifecycle and to monitor the components that are used in production for lifecycle changes.

- Review SD-22, "Diminishing Manufacturing Sources and Material Shortages, A Guidebook of Best Practices and Tools" for best practices that can be implemented to manage obsolescence.

AIA recommends the government:

- Implement a consistent approach to proactive obsolescence management by requiring that any response to a production and support contract proposal contain a definitive plan to deal with component obsolescence. This plan must contain a means to assure the availability of these components from a trusted source.

- Develop a process that establishes intellectual property vaults, administered by an independent third party, and that contains the data required to produce those components that have become obsolete. This data would be available for use by U.S. manufacturers that have been identified as "trusted sources" for these components. One such program currently available is the DMEA.[73]

- Most surplus parts and materials are sold without original documentation. This makes determining the pedigree of the part or material difficult, if not impossible. Even though documents can be counterfeited as well, clear and legible information on the original documentation allows easier traceability of surplus parts. Government should establish requirements in government defense contracts to consign and /or sell all surplus material with

OEM/OCM traceability to a trusted source that would make it available to U.S. manufacturers, when needed, with original traceability documentation.

Counterfeit Parts Control Plan

Companies should develop a counterfeit parts control plan to outline what processes a company will use in mitigating the risk, disposition and reporting of counterfeit parts. A company that procures electronic parts should have a plan to ensure counterfeit parts are not received into inventory, utilized in manufacturing or inadvertently sold to other parties. SAE AS5553 describes the elements needed in a counterfeit parts control plan, including purchasing processes, purchasing information and material control.

SAE is currently developing a new standard: AS6081, *Counterfeit Electronic Parts; Avoidance – Distributors* that will provide guidance to distributors who purchase electronic parts. Using this standard, certified parts distributors may reduce the risk of procuring counterfeit electronic parts. AIA encourages member companies to monitor the progress of AS6081.

AIA Recommendations

- The aerospace and defense industries should follow the government's adoption of SAE AS5553, which provides the requirements that should be in a control plan.
- Industry should develop a counterfeit parts control plan in their companies that documents the processes used for avoidance, detection, risk mitigation, disposition and reporting of counterfeit parts, including:
  - Assessing the long-term availability of authentic parts and part sources.
  - Having an obsolescence program in place to manage the life cycle of their products by using a DMSMS plan.
  - Assessing potential sources of supply to determine the risk of receiving counterfeit parts.
  - Maintaining a list of screened and approved suppliers.
  - Clearly stating in each purchase order the preference to procure directly from OCM's or authorized suppliers.
  - Continuously monitoring of these sources to verify that they are following the requirements.
  - Specifying the ability to trace the pedigree of all components to their original or aftermarket manufacturer.
  - Developing a component quality plan that assures detection of counterfeit parts, including minimum inspection and test requirements.

- Having a documented process to initiate an investigation once counterfeit parts are detected to include methods of segregating and disposing of these parts.
- Having a documented process to report suspected counterfeit product to customers, internal organizations and government reporting organizations such as GIDEP.

- Government and the aerospace and defense industry should review for adoption SAE AS6081,[74] which will suggest ways to mitigate risks of purchasing and supplying counterfeit electronic parts.
- Government and the aerospace and defense industry should monitor activities of other domestic and international associations engaged in addressing counterfeit parts, especially in the area of legislative changes and standards.

Standards for Mechanical Parts and Materials

While the scope of the AIA CP-IPT meetings focused on counterfeit electronic products in the aerospace and defense industry, the industry uses everything from rivets, fasteners, composites and adhesives to metallic materials in manufacture of their products. All have the potential to be counterfeited. As referenced in the Defense Supplier Base report on mitigation of risk of counterfeit parts, counterfeiting is not limited to electronic parts. AIA considers these recommendations provided throughout to generally apply to mechanical parts and materials.

The AIA CP-IPT investigated technical directives to mitigate the risk of receiving counterfeit parts and materials for non-electrical or non-electronic parts such as machined and fabricated metal parts, fasteners, composites and other non-metallic parts. For some of the mechanical parts, such as non-aerospace fasteners, processes have been established to reduce the risk of introducing counterfeit product in the supply chain.[75] Organizations that have attained a robust and effective Quality Management System (such as AS9100), supplemented with a counterfeit parts prevention plan, are more likely to successfully mitigate the threat of counterfeit parts.

DLA Troop Support has developed a QSLM and a QSLD for bulk metals, class 2 and 3 threaded fasteners, fiber rope, cordage, twine and tape, rivets and quick release pins.[76] The criteria and provisions for each of the commodities are provided on the DLA Troop Support website. Establishing a QSLM and a QSLD for certain items allows DLA to "pre-qualify manufacturers and/or distributors to supply categories of procured items based on an assessment of the provider's applied process controls."[77]

The verification working group (part of the control plan task team) recommended that the methodology and approach used for electronic parts, such as SAE AS5553, would be useful for mechanical parts.[78]

AIA Recommendation

- Industry and government should assist various groups creating standards in the area of mechanical parts and materials.

Training

Reporting of counterfeit part incidents indicates that this will continue to be an issue for the aerospace and defense industry. There is a need for training courses on industry vulnerability, the level of threat, procurement practices, mitigation strategies, testing/inspection procedures and reporting practices.

A web-based training course, CLL032, is available at the Defense Acquisition University website.[79] The course is "designed to allow participants to learn about different types of commercial and industry nonconforming, suspect, and counterfeit items, how these items are entering into the commercial and DOD supply chains, the economic impact these items have, and how to develop basic skills for identifying possible non-conforming and suspect counterfeit items."[80] One of the lessons is learning "how to mitigate the risks involved in the procurement of these items and how to report these items through proper channels."[81] Another source of training is IDEA, which conducts inspector training using its publication, *Acceptability of Electronic Components Distributed in the Open Market.*[82]

AIA Recommendations

- Companies should develop and conduct training for employees in the areas of the procurement, detection, reporting and disposition of counterfeit parts.
- Companies should take advantage of industry symposiums and the activities of industry organizations and standards organizations to learn about counterfeit parts and how to prevent them from entering their supply chain. Some sources of information are AIA,[83] the CACP,[84] The Center for Advanced Life Cycle Engineering,[85] American National Standards Institute[86] and NASA.[87]

Duties of Importers

When importing goods into the United States, the importer "files entry documents for goods with the port director at the goods' port of entry."[88] The imported goods are legally entered into the United States after the shipment arrives at the port of entry, delivery has been authorized by U.S. CBP and the estimated duties have been paid."[89] Documents required for entry include the entry manifest, evidence of right to make entry, a commercial invoice, packing lists (if appropriate) and other documents if needed to determine merchandise admissibility.[90] The entry manifest does not require the source of offshore supply/manufacture or a declaration as to the authenticity of goods.

As CBP is the "nation's premier border enforcement agency,"[91] part of their mission is to stop or confiscate counterfeit parts that importers are attempting to bring into the United States.[92] CBP officers contact the rights holder for confirmation that the confiscated product is counterfeit. CBP officers, however, are limited in what information they can provide to the rights holder (*ie.*, the owner of the trademark or copyright). The *Procedure on detention of articles subject to restriction,*[93] limits the information CBP can disclose to the trademark or trade name owner: date of importation, port of entry, description of the merchandise, quantity involved and the country of origin of the merchandise. Samples may also be provided to the owner of the trademark or trade name if a bond has been furnished to CBP. However, the information provided by a customs officer under 19

C.F.R. § 133.25 may not be enough for the rights holder to make a determination as to whether the detained product is infringing on their intellectual property rights or is legitimate. In some cases the owner of the trademark or trade name may need additional information to determine whether the product is infringing, such as the batch number, lot number, serial numbers and the expiration date — or even a photo of the items.

Several years ago, CBP reviewed the disclosure of the additional information requested by the rights holder and decided that the "agency must comply with limitations on disclosure imposed by the Trade Secrets Act and what is currently in 19 C. F. R § 133.25, *Procedure on detention of articles subject to restriction*."[94] The Intellectual Property Rights Enforcement Subcommittee of the Commercial Operations Advisory Committee presented a resolution at the July 30, 2009 public meeting but it was not accepted.[95]

Placing a provision in the Customs Reauthorization Bill (S. 1631) has been suggested as a solution that would allow CBP personnel to share identifying information with trademark owners, allowing them to determine whether a product is genuine or counterfeit. The provision would permit CBP to provide photographs of the complete component's markings and other shipping artifacts to the OCM or other trademark rights holders, who then would notify CBP of their assessment concerning the authenticity of the product. AIA co-signed a letter in November 2009 that urged the Senate to include such a provision.[96]

AIA Recommendations

- Passage of S. 1631, Customs Reauthorization Bill or similar legislation that would allow CBP the statutory authority to consult trademark rights holders (e.g. OCMs) for assistance in determining whether or not imported goods are authentic.

- The U.S. government should codify or implement 19 U.S.C. § 1484(d)(2), which would require importers to accurately report the authenticity of their imported goods and require them to certify to the government as a condition of import facts such as the source of offshore supplier/manufacturer:

  > *(2) The Secretary, in prescribing regulations governing the content of entry documentation, shall require that entry documentation contain such information as may be necessary to determine whether the imported merchandise bears an infringing trademark in violation of section 1124 of title 15 or any other applicable law, including a trademark appearing on the goods or packaging.*

Disposal of Electronic Waste

Electronic waste (e-waste) is any refuse consisting of discarded electronic devices and components, new or old, functioning or non-functioning.[97] E-waste has been documented as the source of some counterfeit parts, especially electronic parts.[98] Controlling e-waste will become more difficult in the future. First, the economic incentives for counterfeiters to use e-waste as component material are self evident. Second, the availability of e-waste globally will continue to increase. A United Nations Environment Programme report released in February 2010 "predicted that by 2020, e-waste from

computers would grow by up to 400 percent from 2007 levels in China and South Africa."[99] Reducing or stopping the export of e-waste from the United States and Europe, therefore, may have little impact on the problem of counterfeit electronic components. According to a GAO study, proper recycling of e-waste does not appear to be economically viable at this time.[100] Clearly, counterfeiters will continue to have ample incentives and sources of e-waste components in the future.

Though counterfeit parts from e-waste comprise a risk to the aerospace and defense industry's supply chain, the risks can be mitigated. For example, Hewlett Packard has developed an intriguing approach to e-waste recycling.[101] HP developed a shared responsibility model that emphasizes product stewardship — leveraging the expertise and innovation of the private sector — to effectively manage discarded e-waste at lowest cost without imposing a burden on the government. Federal programs to share and certify e-waste best practices include EPA's Responsible Recycling Practices certification program (R2)[102] and the Federal Electronics Challenge.[103]

AIA Recommendation

- Industry and government should review and implement best practices for recycling of e-waste.

APPENDICES

AIA Counterfeit Parts Integrated Project Team Statement, April 2008

The following is a statement issued by the CP-IPT in April 2008 to communicate the direction and scope of the team.

Issue

Counterfeit parts and materials[104] can jeopardize the performance, reliability and safety of aerospace and defense products. Over the last several years, increasing amounts of counterfeit material have been introduced into the supply chain. Due to diminishing manufacturing source issues, the aerospace and defense industries may have difficulty in continuing to obtain manufactured products designed years ago to support fielded and new systems. The challenge of avoiding counterfeit parts and materials occurs when defense contractors and the government are obliged to purchase both electronic and non-electronic parts and materials to support fielded and new systems from independent distributors/brokers.

Background

Aerospace and defense products are targets for counterfeiters because the systems are intended for use over extended time, leaving them vulnerable to obsolescence of parts, materials, subsystems and technologies. As the time of system use increases, a substantial number of the parts required to support aerospace and defense products are no longer available from the original equipment/component manufacturers (OEMs/OCMs) or through franchised or authorized suppliers. The U.S. aerospace and defense product manufacturer and government, however, both take on risks when acquiring parts and materials through distribution channels other than those franchised or authorized by the original manufacturer.

Independent distributors provide a necessary function within the supply chain. But we have not yet developed a consistent set of standards and inspection requirements that can flow throughout the supply chain to ensure consistent application and mitigation of the risk of using counterfeit parts.

Challenges

In today's supply chain environment, government, industry and suppliers must be vigilant in order to avoid the purchase of counterfeit parts and materials. With an increasingly complex supply chain, extra diligence must be given to identification, tracking, inspection and management of parts throughout the supply chain to ensure that the authenticity of critical parts and materials is not compromised. This management requires a new partnership and understanding of programmatic and technical risks among all levels of the supply chain, including:

- Government owners and operators,
- Civilian aerospace owners and operators,
- Weapons and systems integrators,
- OEMs / OCMs,
- Sub-system manufacturers,
- Distributors,
- Parts and materials manufacturing companies, and
- Depots and repair stations.

AIA Counterfeit Parts IPT Plan of Action

To address the challenges of today's supply chain environment, AIA has established a CP-IPT. The AIA CP-IPT is working in concert with government agencies, original manufacturers, industry associations and independent distributors. Objectives of the CP-IPT are to:

- Engage the U.S. government in discussions concerning acquisition and procurement policies to avoid introducing counterfeit parts and materials into aerospace and defense products;
- Create a set of standards for government, defense and space industry to ensure that the risk of introducing counterfeit parts and materials is minimized without sacrificing the benefits of buying commercially available parts;
- Engage the U.S. government in discussions concerning enforcement of policies to avoid the introduction of counterfeit products into the U.S.

Glossary of Acronyms and Terms

AIA	Aerospace Industries Association
ASL	Approved Suppliers List
BIS	Bureau of Industry and Security
CACP	Coalition Against Counterfeiting and Piracy
CP-IPT	Counterfeit Parts-Integrated Project Team
DFARS	Defense Federal Acquisition Regulation Supplement
DLA	Defense Logistics Agency
DMEA	Defense Microelectronics Activity
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DOD	Department of Defense
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FSC	Federal Supply Class
GAO	Government Accountability Office
GIDEP	Government-Industry Data Exchange Program
IDEA	Independent Distributors Electronics Association
IPT	Integrated Project Team
NASA	National Aeronautics and Space Administration
NAVAIR	Naval Air Systems Command
OCM	Original Component Manufacturer
OECD	Organization for Economic Co-Operation and Development
OEM	Original Equipment Manufacturer
OTE	Office of Technology Evaluation
PMA	Parts Manufactures Approval
QSLD	Qualified Suppliers List for Distributors
QSLM	Qualified Supplier List for Manufactures
SUP	Suspected Unapproved Parts
UPN	Unapproved Parts Notifications

Endnotes

1 U.S. Department of Commerce Bureau of Industry and Security Office of Technology Evaluation, "Defense Industrial Base Assessment: Counterfeit Electronics" available at http://www.bis.doc.gov/defenseindustrialbaseprograms/osies/defmarketresearchrpts/final_counterfeit_electronics_report.pdf (January 2010).

2 *Id.*, p. 11.

3 Available for purchase from http://www.sae.org/.

4 http://www.theglobalipcenter.com/pages/coalition-against-counterfeiting-and-piracy.

5 http://www.theglobalipcenter.com/sites/default/files/programs/resources/04.29.2010_CACP_Membership_List.pdf.

6 http://www.theglobalipcenter.com/sites/default/files/documents/Brand_Enforcement_Manual_FINAL.pdf.

7 *Id.* at pg. 4.

8 http://www.iccwbo.org/uploadedFiles/BASCAP/Pages/OECD-FullReport.pdf.

9 ECD, "The Economic Impact of Counterfeiting," available at http://www.oecd.org/dataoecd/11/11/2090589.pdf (1998).

10 *Id.* at page 15.

11 http://www.gao.gov/new.items/d10389.pdf.

12 http://www.gao.gov/new.items/d10423.pdf.

13 Defense Supplier Base report, p. i.

14 *Id.*, pp. 24-25.

15 Observations on Efforts report, pp. 18-19.

16 BIS Report, p. i.

17 *Id.*, Appendix A Glossary, p. 212.

18 *Id.*, p. 109. Figure V-3 on p. 109 shows the results of the survey graphically. In 2007, there were 93 incidents before dropping to 76 in 2008.

19 The BIS study defines a microcircuit as an integrated circuit product (hybrids/multi-chip modules were counted as microcircuits). Discretes are defined as individual components, such as capacitors, diodes, resistors, transistors, that can be mounted on a circuit board to form a working electronic system. Incidents are defined as occurrences, reports, or transactions pertaining to electronic parts suspected and/or confirmed to be counterfeit. For example, a report involving 10 copies of a single electronic part model equals one incident. Occurrences, reports, and transactions involving three separate electronic part models equal three separate incidents, regardless of the volume counterfeit parts for any given model. *See* BIS Study, Appendix A Glossary, p. 212.

20 *See* Academy of Aerospace Quality Presentations, "Mechanical Parts' available at http://aaq.auburn.edu/?q=node/117 for a description of the mechanical parts.

21 Defense Supplier Base report, p. 26.

22 *Id.*, pp. 24-26.

23 *See* DOD's DMSMS Knowledge Sharing Portal for more information (http://www.dmsms.org/).

24 The model for the semiconductor industry is known as Moore's law: "The number of transistors incorporated in a chip will approximately double every 24 months." *See* Moore's law at http://www.intel.com/about/companyinfo/museum/exhibits/moore.htm.

25 The BIS study provides a definition of some of the listed terms. On p. 8, the BIS Study describes Original component manufacturers (OCM): "Their products are purchased and consumed by parts distributors, circuit board assemblers, prime contractors and subcontractors, and the Department of Defense (DOD)." On p. 39, on Franchised or authorized distributors or resellers the BIS Study staes: "Authorized distributors are companies that have exclusive rights with an OCM or original equipment manufacturer (OEM) to market, store, and ship OCM/OEM products, subject to legal conditions set by the manufacturers." An original equipment manufacturer (OEM) is generally defined as the manufacturer of an item, i.e. aircraft or automobile. An authorized aftermarket manufacturer is generally defined as a company who has been authorized by the OCM to produce and sell parts. For a more in-depth discussion of the terms, please see the Definitions section of the SAE standard, AS 5553. The Defense Supplier Base report also provides definitions of the terms on page 3.

26 The BIS study provides a definition of independent distributor and brokers as "independent distributors and brokers sell parts acquired from various entities without an exclusive OCM/OEM agreement to do so."

27 BIS study, p. 15. On p. 39, the BIS study discusses the industry perception that authorized distributors are always providing authentic parts: "Throughout much of the electronics industry, authorized distributors have anecdotally been seen as trusted sources of supply, providing authentic parts with extremely low risk of product substitutions or counterfeits. Unauthorized distributors, however, are assumed to be more risky and have less control over the quality of the product they sell. OTE survey data shows that these preconceptions confuse the true nature of the counterfeiting problem. Many authorized distributors assume the parts they acquire directly from OCMs are legitimate and do not require testing. However, survey data shows that

some authorized distributors also assume parts purchased outside of their OCM agreements are legitimate and do not require careful screening. This practice, combined with buying back excess inventory from customers, has introduced counterfeits into the inventories of authorized distributors."

28 Lloyd Condra, "Combating Electronic Component Obsolescence by Using Common Processes for Defense and Commercial Aerospace Electronics" available at http://www.dsp.dla.mil/app_uil/content/documents/ndia_article.pdf September 13, 1999.

29 *See* "AIA Counterfeit Parts Integrated Project Team Statement," April 2008, attached under Appendices.

30 World Semiconductor Trade Statistics (WSTS), *Source:* WSTS/Semiconductor Industry Association, used with permission.

31 18 U.S.C. § 2320. For more information on Prosecuting Intellectual Property Crimes, see http://www.cybercrime.gov/ipmanual/index.html.

32 http://www.faa.gov/documentLibrary/media/Advisory_Circular/21-29C%20chg%201.pdf.

33 The definition of "counterfeit product" can vary depending on the industry. For instance, under the US Food, Drug and Cosmetics Act, 21 U.S.C. § 321(g)(2), The term "counterfeit drug" means a drug which, or the container or labeling of which, without authorization, bears the trademark, trade name, or other identifying mark, imprint, or device, or any likeness thereof, of a drug manufacturer, processor, packer, or distributor other than the person or persons who in fact manufactured, processed, packed, or distributed such drug and which thereby falsely purports or is represented to be the product of, or to have been packed or distributed by, such other drug manufacturer, processor, packer, or distributor.

34 https://www.acquisition.gov/far/html/Subpart%206_3.html.

35 FAR 6.302-1.

36 FAR 6.302-2.

37 *See* 3.2.2.4 Single-source selection: "This rational basis may be based on actions necessary and important to support FAA's mission, such as emergencies, standardization, and only source available to satisfy a requirement within the time required." Available at: http://fasteditapp.faa.gov/ams/do_action?do_action=ViewSection&SORT=YES&sectionUID=FAA_2633&contentUID=4&contentVersionUID=null.

38 BIS Study, p. 157.

39 *Id.*

40 *Id.*, p. 208.

41 Defense Supplier Base report, p. 11.

42 http://www.dscc.dla.mil/offices/sourcing_and_qualification/offices.asp?section=QSL.

43 *See* http://www.dscp.dla.mil/gi/Prod_Services/QSL.ASP.

44 *See* http://www.dscp.dla.mil/contract/pdf/MIL-HDBK-57E.pdf.

45 *See* Advisory Circular AC No: 00-56A, available at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/list/AC%20 00-56A/$FILE/AC00-56A.pdf

46 *Id.*

47 Acceptable quality system standards include ASA-100 (Aviation Suppliers Association), ISO 9000 series (American National Standards Institute), GAPSA 100 (General Aviation Parts Suppliers Association), NADCAP AS 7103 and AS 7104 (Society of Automotive Engineers), and TAC 2000 (Transonic Aviation Consultants, Inc.).

48 The U.S. Department of Defense adopted SAE AS5553 on 31 August 2009. The adoption notice is available through the ASSIST database online at: https://assist.daps.dla.mil/. NASA Policy Directive NPD8730.2C - "NASA Parts Policy", was issued November 3rd, 2008, and applies for all NASA operations.

49 See http://www.gidep.org/. GIDEP is a system for the exchange of information between government and industry. GIDEP membership is open to U.S. or Canadian industrial organization that supplies items or services (directly or indirectly) to the U.S. Government or to the Canadian Department of Defense; a U.S. or Canadian government department, agency, or activity; or licensed U.S. Public Utilities Company. Incident submissions are open to the public; however, only members have access to the GIDEP data. There is no charge for GIDEP membership. Among participating organizations are: US Army, Navy, Air Force, Defense Logistics Agency, National Aeronautical and Space Administration, Department of Energy, Department of Labor, Department of Commerce, General Services Administration, Federal Aviation Administration, US Postal Service, National Institute of Standards and Technology, National Security Agency, as well as, the Canadian Department of National Defence.

50 http://www.gidep.org. Click on About GIDEP, then Op manual and then "GIDEP Interim Policy on Reporting of Suspect Counterfeit Parts and Materials."

51 *Id.*

52 *Id.*

53 *Id.* The member is to refer to SAE Aerospace Standard AS5553 for definitions of the categories.

54 *Id.*

55 BIS Study, p. 132. The Report also identified what authorities authorized distributors and end-users are told to contact in case of counterfeit incidents: their company and no one. *See* Figure B-6 on p. 218.

56 *See* http://www.faa.gov/aircraft/safety/programs/sups/. The SUP Program was established in 1993 "to coordinate efforts and address issues posed by the entry of 'unapproved parts' into the United States aviation system." *See* AC 21-29C on p. 6 available at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/19e778e91d6914ef862576bf00599418/$FILE/AC21-29CCHG%201.pdf The SUP Program Office was established on November 13, 1995 but was realigned in 2007 into Flight Standards Service (AFS) and the Aircraft Certification Service.

57 *See* http://www.faa.gov/aircraft/safety/programs/sups/upn/.

58 *See* http://www.faa.gov/aircraft/safety/programs/sups/.

59 *See* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/19e778e91d6914ef862576bf00599418/$FILE/AC21-29CCHG%201.pdf. A counterfeit part is a part made or altered to imitate or resemble an "approved part" without authority or right, and with the intent to mislead or defraud by passing as original or genuine. A suspected unapproved part is a part, component, or material that is suspected of not meeting the requirements of an "approved part." A part that, for any reason, a person believes is not approved. Reasons may include findings such as different finish, size, color, improper (or lack of) identification, incomplete or altered paperwork, or any other questionable indication.

60 *See* http://www.erai.com/. ERAI has a charge for membership which provides additional benefits.

61 http://erai.com/information_sharing_high_risk_parts.aspx. Test reports or substantiating information that the part is counterfeit must be provided as part of the submission. See http://erai.com/information_sharing_file_complaint.aspx for information required to file a complaint.

62 *See* http://www.idofea.org/.

63 *Id.*

64 *See* http://edocket.access.gpo.gov/cfr_2005/janqtr/pdf/14cfr43.10.pdf .

65 *See* http://www.faa.gov/aircraft/air_cert/production_approvals/mfg_best_practice/media/BPSCRSALPTS.pdf .

66 As an example, *see* UPN 2009-200700141, Acme Components Company SMLJ15CD TR-T Diodes – Produced without Parts Manufacturer Approval available at http://www.faa.gov/aircraft/safety/programs/sups/upn/media/2009/upn_2007-00141.pdf .

67 *See* http://www.dmea.osd.mil/about.html.

68 http://www.dmea.osd.mil/story5.html.

69 SD-22, "Diminishing Manufacturing Sources and Material Shortages, A Guidebook of Best Practices and Tools for Implementing a DMSMS Management Program," available at http://www.dau.mil/pubscats/PubsCats/SD-22_FINAL%20low-res.pdf.

70 http://www.faa.gov/aircraft/air_cert/design_approvals/pma/pma_prod.

71 http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgOrders.nsf/0/d1d550bbc2c82dd386257472005724ef/$FILE/Order%208110.42C.pdf.

72 EIA-724 defines a Product Life Cycle curve model for use by the electronics industry to standardize the terms and definitions used to describe the life cycle status of a product. When required by the customer, a component or piece of equipment needs to be identified as to where it is in its life cycle. Such information can be useful when specifying parts for use in new systems or as replacements in existing systems. This information shall be classified by phases or stages on the Product Life Cycle curve. The same classification shall be used across the electronics industry. The time remaining in the phase or stage and the time until the end of the product's life are also required. The time must be expressed in years

73 *See* http://www.dmea.osd.mil/about.html.

74 Currently under development.

75 *See* Fastener Quality Act (FQA) at http://ts.nist.gov/WeightsAndMeasures/fqa.cfm.

76 *See* http://www.dscp.dla.mil/gi/Prod_Services/QSL.ASP. The website includes a list of qualified companies as well as a list of removed companies.

77 *Id.*

78 A group is being formed under the auspices of SAE to address this issue.

79 *See* https://learn.dau.mil/html/scorm12/course/course_index.jsp?course_id=809360&scorm_version=3&roster_id=-231.795638662830 87&version=2&course_prefix=CLL&course_number=032&course_suffix=&mode=browse&course_name=Preventing%20Counterfeit%20Parts%20from%20Entering%20the%20DoD%20Supply%20System&mode_id=10&section_id=.

80 *Id.*

81 *Id.*

82 *See* http://www.idofea.org/training.

83 *See* Aerospace Industries Association, "Calendar of Events," at http://www.aia-aerospace.org/newsroom/calendar_of_events.

84 *See* Coalition Against Counterfeiting and Piracy at http://www.theglobalipcenter.com/pages/coalition-against-counterfeiting-and-piracy.

85 *See* CALCE, "Upcoming Events," at http://www.calce.umd.edu/cgi-bin/entityTools/webmultidbhtmledb.cgi?1997/workshops+events.trp.

86 *See* ANSI, "Upcoming ANSI Events," at http://www.ansi.org/meetings_events/upcoming_overview.aspx?menuid=8.

87 *See* NASA/JPL Western Region Manufacturing Techology Transfer Center (MTTC), "Catalog of Classes," at http://mttc.jpl.nasa.gov/training/courses/course_catalog.html.

88 *See* "Importing into the United States, A Guide for Commercial Importers," available at http://cbp.gov/linkhandler/cgov/newsroom/publications/trade/iius.ctt/iius.pdf, p. 11.

89 *Id.*, p. 12.

90 *Id.*, p. 12.

91 *Id.*, p. 1.

92 *See* Customs Directive, 2310-010A, "Detention and Seizure Authority for Copyright and Trademark Violations" available at http://cbp.gov/linkhandler/cgov/trade/legal/directives/2310-010a.ctt/2310-010a.pdf, December 11, 2000.

93 19 C.F.R. § 133.25

94 http://www.cbp.gov/xp/cgov/trade/trade_outreach/coac/subcommittee_activities/ipr_enforcement/ IPR Minutes October 9, 2008

95 http://www.cbp.gov/xp/cgov/trade/trade_outreach/coac/meetings/0805/. The resolution that was read to the COAC for approval:

> The Intellectual Property Rights Enforcement Subcommittee, the Commercial Operations Advisory Group (COAC), strongly supports the development of new enforcement tools and authorities to empower enforcement personnel in detecting, detaining, and seizing counterfeit and pirated merchandise.
>
> CBP interprets the Trade Secrets Act to prohibit with very limited exceptions CBP officers and other enforcement personnel from disclosing to rightholders information on suspected IPRinfringing goods. Disclosure of additional information would help rightholders assist CBP in determining whether particular trademark goods or counterfeits or copyright works are pirated.
>
> The subcommittee supports amendments and/or clarifications of the Trade Secrets Act or other appropriate customs laws to permit CBP officers and other appropriate enforcement personnel to disclose to rightholders information contained on a suspected trademark and copyright infringing goods themselves, including codes and other markings on the goods.

96 *See* http://www.aia-aerospace.org/assets/letter_111309.pdf

97 For general information on e-waste *see* http://www.epa.gov/wastes/conserve/materials/ecycling/faq.htm. For statistics on the management of used and end-of-life electronics in general, *see* http://www.epa.gov/wastes/conserve/materials/ecycling/manage.htm. For regulations and standards on used electronics, *see* http://www.epa.gov/wastes/conserve/materials/ecycling/rules.htm.

98 *See generally* the Basel Action Network website at http://www.ban.org/index.html. *See also* United Nations University. "Hazardous E-Waste Surging in Developing Countries." *ScienceDaily,* 23 February 2010, available at http://www.sciencedaily.com/releases/2010/02/100222081911.htm .

99 *Reuters*, "E-waste to hit developing world hard," available at http://news.cnet.com/8301-11128_3-10457390-54.html citing United Nations Environment Programme, Recycling – From E-waste to Resources" available at http://www.unep.org/PDF/PressReleases/E-Waste_publication_screen_FINALVERSION-sml.pdf.

100 *See* "Electronic Waste Observation on the Role of the Federal Government in Encouraging the Recycling and Reuse" (http://www.gao.gov/new.items/d05937t.pdf)

101 *See* http://www.environmentalleader.com/2010/02/15/hp-bans-e-waste-exports-from-rich-nations-to-developing-ones/ and HP U.S. federal issue brief, http://www.hp.com/hpinfo/abouthp/government/us/ewaste.html

102 The EPA's Responsible Recycling Practices certification program (R2) provide a set of guidelines for accredited certification programs to assess electronics recyclers' environmental, worker health and safety, and security practices. The voluntary R2 practices include general principles and specific practices for recyclers disassembling or reclaiming used electronics equipment including those electronics that are exported for refurbishment and recycling. *See* http://www.epa.gov/osw/conserve/materials/ecycling/r2practices.htm

103 The Federal Electronics Challenge (FEC) is a partnership program that encourages federal facilities and agencies to (1) purchase greener electronic products, (2) reduce impacts of electronic products during use and (3) manage obsolete electronics in an environmentally safe way. End of life resources can be found at: http://www.federalelectronicschallenge.net/resources/eolmngt.htm and http://www.epa.gov/osw/conserve/materials/ecycling/pubs.htm.

104 Counterfeit Part: A product produced or altered to resemble a product without authority or right to do so, with the intent to mislead or defraud by passing the imitation as original or genuine.

Aerospace Industries Association

The Aerospace Industries Association was founded in 1919, only a few years after the birth of flight. The nation's most authoritative and influential voice of the aerospace and defense industry, AIA represents nearly 150 leading aerospace and defense manufacturers, along with a supplier base close to 200 associate members.

AIA represents the nation's leading designers, manufacturers and providers of:

- Civil, military and business aircraft
- Homeland and cybersecurity systems
- Helicopters
- Materiel and related components
- Unmanned aerial systems
- Equipment services
- Space Systems
- Missiles
- Aircraft engines
- Information technology

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Aero-Mark, LLC
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AGC Aerospace & Defense
AirDat LLC
Alcoa Defense
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Aerospace Industries Association
1000 Wilson Boulevard, Suite 1700
Arlington, VA 22209-3928
703-358-1000
www.aia-aerospace.org

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