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Let's Get Tough on Counterfeiters

Scott L. Spencer
Publisher



A new U.S. Senate Committee on Armed Services report documents the extent to which counterfeit electronic parts have infiltrated U.S. military systems. According to the report, counterfeits have flooded the supply chain, risking the performance and reliability of critical defense systems. These parts made it into the Traffic Alert and Collision Avoidance Systems (TCAS), the Special Operations Forces' A/MH-6M helicopter, the Navy's Integrated Submarine Imaging System, the

Army's Stryker Mobile Gun, and more.

Bogus parts in the U.S. military supply chain are nothing new, although their pervasiveness seems to be on the rise. Two incidents related to personal experience come to mind. While I was working for a major defense contractor we received a shipment of diodes from a supplier. They were accompanied by all the required Certificates of Compliance and were marked with the appropriate JANTX V designation. The parts easily moved through incoming inspection and onto the assembly floor. When infant-mortality failures attributed to these diodes began to surface during board level screening, the QC department went to work. Their conclusion alleged that the supplier had simply re-marked the suspect parts to suggest that they had undergone Group A, B, and C testing with profit and sales goals driving the deception.

Pressure to Ship

In another situation a PIN Diode phase shifter intended for use in an airborne avionics system failed at the system level during mechanical screening. The device was removed from the system and sent to the reliability lab for failure analysis. The unit was delidded to reveal a half-inch piece of loose buss wire floating inside the driver section of the device. The unit had been purchased to a detailed Source Control Drawing that required full compliance to Mil-Std-883, including Particle Impact Noise Detection (PIND) testing. When PIND testing is done properly, a sub-micron particle inside a device is enough to excite the transducer and reveal the presence of foreign matter, akin to shaking an empty milk carton with a BB inside. Upon investigation it was concluded that the test was never performed: the supplier claimed the necessary test equipment was out for calibration and there was pressure to make an end-of-month shipment.

I have had highly reputable suppliers relate incidents of receiving a field return for evaluation, only to conclude that their firm did not manufacture the component, even though it was marked with their logo, part number and FSCM number.

In each instance, the product supplied was made in imitation of something else with the intent to deceive—the very definition of “counterfeit.”

The Senate Committee’s investigation has revealed just how widespread the problem has become. Over a two-year period the investigation uncovered 1,800 cases of suspected counterfeiting involving over one million parts.

National and Economic Security

While the Committee’s investigation focused on the risk that counterfeits pose to U.S. national security and the safety of U.S. military personnel, the Semiconductor Industry Association estimates that counterfeit electronics account for over \$7.5 billion in lost revenue and nearly 11,000 lost American jobs annually.

Among the conclusions reached in the Senate Committee report is that the DoD lacks knowledge of the scope and impact of counterfeit parts on critical defense systems, and reporting to the Government-Industry Data Exchange Program (GIDEP) is sorely lacking. Government contracts that permit contractors to recover costs incurred as a result of their own failure to detect counterfeit electronic parts do not encourage the adoption of aggressive counterfeit-avoidance and -detection programs. Ironically, many contractors include in the Terms and Conditions imposed on their suppliers a provision that allows the Buyer to recover costs associated with the repair, rework, and replacement of non-conforming materials including counterfeit electronic parts.

As a result of these activities and investigations the Committee Chairman and Ranking Member introduced an amendment to the FY 2012 National Defense Authorization Act to address weaknesses in the

supply chain and promote the adoption of aggressive counterfeit-avoidance practices by DoD and the defense industry. Most suppliers of electronic parts used in defense and aerospace systems have put in place internal procedures that assure the authenticity and conformance of purchased parts, and require the control and reporting of counterfeit

parts to other potential users and Government investigative authorities.

General Patrick O’Reilly, Director of the Missile Defense Agency, summarizes the situation: “We do not want a \$12 million missile defense interceptor’s reliability to be compromised by a \$2 counterfeit part.”