



# AERIAL Coverage

New standard **targets safety concerns** in DoD's supply chain

by Jim Clifford

## In 50 Words Or Less

- In the 1990s, the U.S. Department of Defense determined it needed to better manage its supply chain for equipment with safety critical applications.
- Policy has led to confusion. A new standard will address aviation critical safety items and ensure parts in the supply chain are safe and reliable.

**TO HARMONIZE REQUIREMENTS** across the supply chain for the management and control of U.S. Department of Defense (DoD) aviation critical safety items (CSIs), a standards publication group has reconciled final industry comments and is preparing to publish a new aviation, space and defense standard—AS9017.

The standard, *Control of Aviation Critical Safety Items*, is the result of a two-year, collaborative effort of member companies of the Americas Aerospace Quality Group (AAQG) and DoD representatives responsible for CSI policy on behalf of the branches of the armed services. The standard will be published by SAE Aerospace.

The publication group, the Americas Aerospace Quality Standards Committee (AAQSC), is affiliated with the AAQG and is now Technical Committee G-14 of SAE International.<sup>1</sup> The AAQSC, composed of individuals with technical expertise in aerospace and quality, is responsible for creating and developing aerospace and defense quality standards for the Americas, as well as developing the Americas' position for international quality standards, such as AS9100. The AAQSC is linked to AAQG project activity, but the group is composed of a larger population of quality professionals.

The AAQG is a cooperative organization within the Americas (North, Central and South America) formed to establish and maintain a dynamic cooperation based on trust among the Americas' aviation, space and defense companies on initiatives to improve quality performance and reduce cost throughout the value stream.

Without question, many realized there was opportunity to strengthen the value stream as it related to the DoD's supply chain. There were questions, however, on just how to accomplish such a complicated task and get everyone headed in the same direction.

### Safety concerns spark action

The U.S. government has always been serious about aviation safety. After "repeated receipt of defective, suspect, improperly documented, unapproved and fraudulent parts used in safety-critical applications"<sup>2</sup> in the 1990s, however, the government realized robust processes were required to manage aviation CSIs.

CSIs are defined as, "A part, an assembly, installation equipment, launch equipment, recovery equipment or support equipment for an aircraft or aviation weapon system that contains a characteristic which failure, malfunction, or absence of could cause a catastrophic or critical failure, resulting in the loss of or serious damage to the aircraft or weapon system, an unacceptable risk of personal injury or loss of life, or an un-commanded engine shutdown that jeopardizes safety."<sup>3</sup>

So, the government went to work.

According to the *Aviation Critical Safety Item*

*Handbook*: "In response, each DoD acquisition organization, program office, functional specialty, supply center, contract management office and contractor established and applied their own approaches for managing critical items. Although they (the individual organizations) all had the same intent (that is, to ensure the quality of safety-critical parts), the proliferation of terms, policies and procedures created unacceptable risks caused by gaps, confusion and error."<sup>4</sup>

The Joint Aeronautical Logistics Commanders' (JALC) group<sup>5</sup> followed this lead and issued policy in 2002 endorsing a coordinated and common approach to managing CSIs. The JALC appointed the Naval Air Systems Command (NAVAIR) as the lead agency to coordinate and issue joint policy and guidance.

In November 2003, the U.S. Congress passed a bill mandating the DoD to "prescribe in regulations a quality control policy for the procurement of aviation critical safety items and the procurement of modifications, repair, and overhaul of such items."<sup>6</sup>

During the next several years, NAVAIR led the way and made great strides in implementing the new law. Considerable policy, instructions, Defense Federal Acquisition Regulation clauses, Defense Logistic Acquisition Directives and guidance documentation were created to prescribe for the government the regulations required by the public law.<sup>7</sup>

Unfortunately, given the length of time during which these documents were published, there was some inconsistency and overlap in government instruction, and there weren't many defined requirements that could be applied to the contractors.

As a result, there was considerable variation in the actual contract requirements issued to contractors, and there was even more variation in how government agencies managed and oversaw the contractors' activities.

### Addressing variation

In this sometimes jumbled and disjointed environment, Jack Fletcher (formerly of Bell Helicopter and now a senior specialist of quality initiatives at NASA's jet propulsion laboratory) proposed in September 2007 to the AAQG that an aerospace standard be developed.

## STANDARD ANSWERS

After AS9017 is published, e-mail questions to the assigned Americas Aerospace Quality Group document representative. Find contact information at [www.iaqg.sae.org/iaqg/publications/AAQGstandardsregister.pdf](http://www.iaqg.sae.org/iaqg/publications/AAQGstandardsregister.pdf) (case sensitive).

The initial project proposal spelled out the situation and the opportunity for improvement: “Left to our own devices, multiple sets of requirements will be developed and flowed down to suppliers. We all share the same suppliers. Common suppliers will be receiving different sets of flow-down documents creating confusion and possible conflict.”<sup>8</sup>

The project success criteria were defined as:

1. Develop a consistent set of requirements flowed down to shared suppliers.
2. Develop consistent evaluation criteria for suppliers.
3. Cost savings for suppliers and prime contractors.<sup>9</sup>

Developers of the new standard met considerable resistance, in part because many in the supply chain did not produce DoD products. In addition, many in the supply chain that actually did produce DoD products had not yet recognized variations across the supply chain. Some prime contractors mistakenly believed that control of CSIs did not apply to them because of the limited activity they had encountered to date.

In 2008, the reins of AAQG project leadership passed to Michele Gagne, a program manager at Bell Helicopter. Under her leadership, the development of the standard reached new heights: The amount of supply chain variation eventually became visible to a majority of AAQG members, the DoD service branches signed on as full partners in writing the standard, and a majority of AAQG companies reached a consensus in creating common requirements for the entire supply chain for CSI management.

### Building the standard

From that point, several formal and informal ballots across the industry were held to identify key requirements for suppliers that supported government policy. At the same time, any requirements proposed needed to be carefully crafted to ensure they didn’t conflict with existing prime contractor requirements. Organizations involved at this stage of the standard’s development included the AAQG, SAE, the Aerospace Industries Association and government agencies.

The standard eventually was organized according to the AS9100<sup>10</sup> process structure (that is, the “eight elements”), so AS9017 requirements were considered to be an addition to (and complementary to) the applicable AS9100 requirements.

The majority of the new standard’s requirements are contained in the “Product Realization” and “Measurement, Analysis and Improvement” sections. The stan-

dard outlines the requirements a supplier must have in its system for key processes, such as: CSI identification; customer communications; planning; process control; production changes; purchasing flow down; identification and traceability; work transfers; product process verification (also known as first article inspection); and control of nonconforming material and audits.

The AS9017 standard is intended to be contractually flowed to suppliers via the prime or first-tier contractor. This will make it auditable for compliance as a customer requirement as part of a quality management system audit. AS9017 is not intended as a standard for registration via a third party.

Currently, there are no intentions to mandate the government to flow this standard to prime contractors. The government could accept it as a mutual contractual requirement, however, if it is proposed by a contractor in response to a request for proposal.

As of October, the standard has passed all AAQG/AAQSC ballot cycles. The standard—with final ballot comments incorporated—has been submitted to the SAE International Aerospace Council for the last official SAE endorsement (ballot) before publication. Publication is expected during the fourth quarter of 2009. **QP**

### REFERENCES AND NOTES

1. An chart showing AAQSC as the Technical Committee G-14 of SAE International is found at [www.sae.org/standardsdev/aerospace/aeroorgchart.pdf](http://www.sae.org/standardsdev/aerospace/aeroorgchart.pdf).
2. JALC, *Aviation Critical Safety Item Handbook*, draft version, Sept. 14, 2007.
3. The National Defense Authorization Act, U.S. Congress, Nov. 24, 2003, also known as Public Law 108-136, [www.gpoaccess.gov/serialset/cdocuments/sd108-11/pdf/pl108-136.pdf](http://www.gpoaccess.gov/serialset/cdocuments/sd108-11/pdf/pl108-136.pdf). Specifically, see Sec. 802, “Quality control in procurement of aviation critical safety items and related services,” p. 1,141.
4. JALC, *Aviation Critical Safety Item Handbook*, see reference 2.
5. The JALC is composed of the commanders of Naval Air Systems Command, the Marine Corps, the U.S. Army, the U.S. Coast Guard, the Defense Logistics Agency, Defense Contract Management Agency, NASA and the Federal Aviation Administration.
6. The National Defense Authorization Act, see reference 3.
7. Much of the initial and current policy and guidance documentation can be found at the Defense Supply Center’s CSI policy website, [www.dscr.dla.mil/externalweb/userweb/aviationengineering/technicaloversight/csiguideance-andpolicy.htm](http://www.dscr.dla.mil/externalweb/userweb/aviationengineering/technicaloversight/csiguideance-andpolicy.htm).
8. Jack Fletcher, “Proposed Project Plate for Critical Safety Items—Quality System Standard,” presented to the Americas Aerospace Quality Group, Sept. 20, 2007.
9. *Ibid.*
10. International Aerospace Quality Group (IAQG), *(AS/EN/JIS-Q) 9100—Quality Management Systems—Aerospace—Requirements*, IAQG, 2009.

### WEB RESOURCES

- Americas Aerospace Quality Group: [www.sae.org/aaqg](http://www.sae.org/aaqg).  
 SAE International Aerospace: <http://aerospace.sae.org>.



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