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AEROSPACE RECOMMENDED PRACTICE

SAE ARP9062

REV. A

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Aerospace
Operator Self-Verification Programs

RATIONALE

This document is being cancelled and superseded by ARP9162 published in 2005.

CANCELLATION NOTICE

This document has been declared "CANCELLED" as of November 2006 and has been superseded by ARP9162. By this action, this document will remain listed in the Numerical Section of the Aerospace Standards Index noting that it is superseded by ARP9162.

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FOREWORD

To continue to assure customer satisfaction, aerospace industry organizations must produce and continually improve safe, reliable products that meet or exceed customer and regulatory requirements. The globalization of the aerospace industry and the resulting diversity of requirements and expectations have complicated this objective.

This document standardizes, to the extent possible, Operator Self-Verification practices in the aerospace industry. Establishing common aerospace practices should result in improved quality and safety, decreased costs, and elimination or reduction of organization-unique requirements.

SAE ARP9062 Revision A

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1. SCOPE:

   Operator Self-Verification can apply to a variety of processes. The primary focus is on traditional manufacturing operations, but applications can be made wherever traditional inspection methods are employed. The practices recommended in this document are intended to identify the basic elements for structuring Operator Self-Verification programs within the aerospace industry; applicable to producers of commercial and military aircraft and weapons platforms, space vehicles, and all related hardware, software, electronics, engines and composite components. Operator Self-Verification programs are applied to improve overall efficiency and product quality to processes considered mature, as judged by the organization. Operator Self-Verification programs are not stand-alone processes, but augment existing quality management system standard requirements. The identified program elements are for voluntary organizational application, and are not intended for contractual flow-down unless otherwise stipulated through contractual agreement.

1.1 Purpose:

   To provide the recommended standard elements for Operator Self-Verification processes within the aerospace industry.

2. REFERENCES:

   The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publication:

   Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

   AS9100   Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

2.2 JSA Publication:

   Available from ???

   SJAC9100   Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

2.3 BSI Publications:

Available from ???

BS EN ISO 9000:2000   Quality management systems – Fundamentals and vocabulary

2.4 AECMA Publication:

Available from ???

prEN 9100   Quality Systems- Aerospace- Model for Quality Assurance in Design, Development, Production, Installation and Servicing

3. TERMS AND DEFINITIONS:

ACCEPTANCE: The establishment of a record that signifies verification that the product is compliant with all the specified requirements.

ESCAPED DEFECT: A defect discovered by someone other than the operator; provided the operator was given the training, instructions, and tools necessary to perform the verification task.

INDEPENDENT SURVEILLANCE: The entity performing the close observation/review of Operator Self-Verification is not dependent on or affiliated with the entity controlling the Operator.

MULTI TASKING: The use of more than one source to perform independent performance evaluations of an Operator Self-Verification process

OBJECTIVE EVIDENCE: Unbiased, factual data supporting the existence or verity of something. Objective evidence may be obtained through observation, measurement, test, or other means.

OPERATOR: The term used to identify the individuals or teams who physically perform the process. These individuals or teams can be referred to as "Individual Process Owners", "Approved Operators", "Approved Technicians", "Certified Process Team Members" or by other terminology suitable for the organization's program focus, cultural and customer environment.

OPERATOR COMPETENCY: A means of objectively determining that identified operators or team members, have the necessary skills and knowledge to undertake the role of self-verification.

OPERATOR SELF-VERIFICATION: Placement of the formal verification of applicable requirements in the hands of the operator.

3. (Continued):

ORGANIZATION: As used in this text, the term refers to "supplier organization" as listed in ISO 9000:2000.

PERIODIC OPERATOR REVIEW: Points, at periods of time established by the organization, at which an operator is to be assessed to determine whether re-training or initial training is required.

QUALITY MANAGEMENT SYSTEM: A set of interrelated elements established with policies and objectives to direct and control an organization with regards to quality.

RANDOM SURVEILLANCE: A point selected for an unannounced, independent close observation/review to assess the individual Operator Self-Verification Process.

REGULAR METRIC DATA REVIEW: An established point at which an operator and/or process is to be assessed via control metrics to determine quality of performance, where Operator Self-Verification is in place.

STABLE AND UNDER CONTROL PROCESS: A process which has operated within the established control metric criteria for an acceptable period of time, as established by the organization, and all assignable nonconformity causes have been eliminated via corrective action.

SURVEILLANCE: The act of close observation or review of an activity, operation or process.

VERIFICATION: Confirmation through the provision of objective evidence that specified requirements have been fulfilled.

4. GENERAL:

Operator Self-Verification places formal verification of applicable requirements in the hands of the operator, and should be employed to augment existing, robust quality management systems to provide continued system improvement. Development and implementation of an effective Operator Self-Verification program affects the overall awareness and operating culture of the organization, and promotes significant reduction in the requirement for traditional inspections. Integration of Operator Self-Verification into the work process, establishes process and operator performance metrics, and through regular surveillance reviews, allows the operators to control and improve the quality of the products. Operator Self-Verification programs are voluntary (by organization), can be implemented on a selective or organizational wide basis, and provide the methods that reduce the cost of quality, improve defect prevention and detection, improve efficiency and productivity, eliminate waste, and require operator accountability.

4. (Continued):

Operator Self-Verification enriches employees through promoting active involvement in the manufacture and improvement of products. It also promotes streamlining of product and process flows, enhances the potential for product improvement, and provides greater customer satisfaction. Operator Self-Verification programs should highlight the responsibility/accountability for product quality, promote employee pride of ownership, recognize superior performance, and provide operators with enhanced ability to control process performance.

5. BASIC REQUIRED ELEMENTS:

In addition to an existing, documented quality management system, objective evidence of the following items must be available to allow the organization to demonstrate compliance to this recommended practice.

- Documented Operator Self-Verification candidate processes

- Development of plans for Operator Self-Verification program implementation

- Documented training and competency of Self-Verification operators

- Development of metrics for oversight of process and operator performance

- Documented implementation and maintenance for Self-Verification processes

6. APPLICATION:

The basic elements of Operator Self-Verification programs are essential in complying with this practice. However, the details of these elements are left to the discretion of the contractor based on organization needs.

Effective and continued communication with the customer and/or regulatory authority representatives, as well as with the entire spectrum of company personnel that will be affected by program, is essential and vital to deploying self-verification programs. Effective, two-way communications helps to build the necessary broad base of participation; employee understanding, involvement and commitment; promotes customer acceptance and satisfaction with the program and its results; and avoids unnecessary remedial activities, change costs and delays in implementing the program.

6. (Continued):

Effective program implementation also requires the development of a broad based plan that will inform all personnel involved of the objectives and intent, formalize actions required, ensure management commitment and establish the timetable for goal completion. In addition to the plan, the contractor should establish and formally document the process for program implementation and operation. The documentation should provide program philosophy and operational perspective to company and customer personnel. Subordinate documentation can be developed and deployed, as deemed necessary, to provide direction and instructions for the work force, management and other administrative personnel.

6.1 Identification of Candidate Operator Self-Verification Processes:

When identifying potential processes for Operator Self-Verification, either selectively or on an organizational wide basis, the organization should consider and select processes based on: acceptable levels of perceived risk associated with the candidate process and elimination of traditional inspection methods; demonstrated stability and maturity of the process; and process generated non-conformities within the established process performance review period/cycle time. Operator Self-Verification must not include those processes considered by the organization, customer, and regulatory authorities as "critical processes" (those that mandate traditional inspection for review and acceptance), unless adequate mitigation of risk is agreed to and in place, and proper delegation has been specified .

The selection process is most effective when performed by multi-disciplined groups. The combined efforts of organizations such as Manufacturing, Quality Assurance, Manufacturing Engineering, Engineering, and other organizations offer a more diverse overview of candidate processes.

6.2 Development of Plans for Operator Self-Verification Implementation, Maintenance and Continuous Improvement:

In developing the plans for implementation of Operator Self-Verification, the organization should consider at a minimum:

- Requirements for comprehensive training programs

- Establishing operational baselines to assist in determining improvement resulting from Operator Self-Verification program implementation

- Changes to documentation for transfer of inspection activities

- Documented alternative courses of action for processes found to be operating outside quality metric criteria

- Methods for operators to determine process compliance to requirements and to regulate the process to maintain that compliance