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AEROSPACE INFORMATION REPORT

SAE AIR5493

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Requirements for Development, Implementation and Control of an Aerospace Auditor Training

INTRODUCTION

The programs for accrediting courses for Quality Management Systems (QMS) Lead Auditors are developed and administered by the ANSI-RAB NAP and similar national accreditation bodies. This document is designed to supplement those basic training requirements and set additional basic and advanced training provisions necessary for the aerospace industry.

Contained herein are special criteria that have been created for the training of auditors that perform audits to meet the requirements set forth by AIR5359 and for auditors who perform audits to support certification and recognition of quality management systems developed in response to AS9000 and AS9100 Quality Management System models.

The criteria introduced in this document are not intended to replace the certified auditor training recognized by the RAB, IRCA and other national accreditation bodies. Rather it is intended to supplement that training for those professions wishing recognition as "Aerospace Auditors" either basic or Industry Experienced per the requirements outlined in AIR5359 (see Section 7 of AIR5359).

Persons intending to enter these type of training programs should first review the requirements set forth by AIR5359 to determine if they have the necessary prerequisites satisfied, if it is their intention to become either an Aerospace Auditor or an Aerospace Industry Experienced Auditor.

TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790 SAE WEB ADDRESS: http://www.sae.org

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1. SCOPE:

This document shall be applied by accreditation bodies, registrars and other providers of training for the instruction of auditors or other professionals for specialization for the aerospace industry per the requirements of AIR5359. Additionally, this document applies to all organizations qualifying Aerospace Auditors in support of Aerospace Quality Systems standards AS9000 and AS9100.

1.1 Purpose:

The purpose of this document is to outline the process for establishing, controlling and standardizing qualified Aerospace Auditor training programs to satisfy the requirements established by AIR5359 in support of the recognition of AS9000 and AS9100 Aerospace Quality Management System standard.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification 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 Publications:

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

AIR5359	Requirements for Registration of Quality Systems to AS9000 or AS9100
AS9000	Aerospace Basic Quality System Standard
AS9100	Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

2.2 ANSI Publications:

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002.

ISO 8402	Quality - Vocabulary
ISO 9001:1994	Quality Systems - Model for Quality Assurance in Design Development, Production, Installation and Servicing
ISO 9002:1994	Quality Systems - Model for Quality Assurance in Production, Installation and Servicing
ISO 10011-1	Guidelines for Auditing Quality Systems - Auditing
ISO 10011-2	Guidelines for Auditing Quality Systems - Qualification criteria for quality system auditors
ISO 10011-3	Guidelines for Auditing Quality Systems - Management of audit programs

2.3 Federal Aviation Administration (FAA) Regulations:

Available from FAA, 800 Independence Avenue, SW, Washington, DC 20591.

Title 14 CFR Part 1 Definitions and Abbreviations
Title 14 CFR Part 21 Certification Procedures for Products and Parts

3. DEFINITIONS:

3.1 AAQG:

Americas Aerospace Quality Group - An SAE Aerospace Council subcommittee (G-14) of prime aerospace Original Equipment Manufacturers (OEMs). This group is chartered to develop common requirements for use by the aerospace industry for quality improvement.

3.2 AEROSPACE:

For the purposes of this document "Aerospace" is defined as the business of design, manufacture, overhaul, distribution and support of aerospace vehicles and engines, accessories and components parts, all ancillary and allied businesses, including aerospace vehicle operations.

3.3 AEROSPACE PRODUCT:

"Aerospace Product" shall mean an aircraft, rotocraft, guided weapon, spacecraft, other product designed travel through the air, inside or outside the ground effect, or to travel outside the influence of the earth's atmosphere or major components of these products such as engines or major sub-systems.

3.4 QUALIFIED AUDITOR:

A "Qualified Auditor" shall refer to an auditor that has met the requirements set forth in AIR5359, paragraph 7.1. Auditors conducting audits for OEMs in support of recognized shared audits at suppliers may be referred to as "Qualified Auditors" provided they meet the OEM's requirements which are to be the same or similar to AIR5359, paragraph 7.1.

3.5 AEROSPACE EXPERIENCE AUDITOR:

An "Aerospace Experience Auditor" shall refer to an auditor that has met the requirements set forth in AIR5359, paragraph 7.2. Auditors conducting audits for OEMs in support of recognized shared audits at supplies may be referred to as "Aerospace Experience Auditors" provided they meet the OEM's requirements which are to be the same or similar to AIR5359, paragraph 7.2.

3.6 REGISTRAR MANAGEMENT COMMITTEE (RMC):

The Registrar Management Committee (RMC) as used by this document is defined as three members of the AAQG and one member of ANSI-RAB NAP and two members of the Independent Association of Accredited Registrars (IAAR) on a limited basis. Further definitions are provided in AIR5359.

3.7 ACCREDITATION BODY:

National organization with responsibility for accreditation of registrars, auditors and training providers per the guidance provided by ISO/IEC Guide 61 and 62.

3.8 REGISTRAR(S):

A party that audits and registers the quality management system of organizations with respect to published quality management system standards and any supplementary documentation required under the system. Outside North America they are commonly referred to as certification bodies.

4. GENERAL CRITERIA:

In order to establish an acceptable training program for consideration under this program the following minimum set of criteria must be satisfied:

4.1 Prerequisite:

4.1.1 prior to any training as an Auditor for aerospace the individual must have already received training in one of the ways described in 4.2, dependent on: (1) why the individual is attending this training and, (2) how the training upon completion is to be applied.

4.1.2 If the attendee intends to perform aerospace audits for the purpose of registration under the guidance set forth by AIR5359, the attendee shall have successfully completed a NAP accredited ISO 9001 auditor course.

4.1.3 If the attendee's intention is to perform internal or (2nd party or shared) unaccredited audits, the attendee shall have received internally or externally developed training in auditing per the requirements established in ISO 10011-2.

4.1.4 If the attendee's intent is to acquire information on AS9000, AS9100, AIR5359, no auditor certification is expected and the final examination may be waived.

4.2 Course Offerings:

These courses may be given under three different sets of circumstances:

4.2.1 Commercially Offered Courses:

a. Public Venues - An offering of accredited courses open to the public where the individual attendee pays a fee. These courses are openly advertised and must be run on a non-discriminatory basis.

b. Private Venues - Approved courses provided by a course provider to an individual or organization's own employees. The course is not open to the general public, nor is it advertised for consideration. The private organization and the course provider enter into a contract covering cost, frequency, location, dates, etc., but the course must otherwise meet all of the requirements of a commercially offered course. These courses may contain company proprietary information, case studies, etc., which must be appropriately protected.

4.2.2 In-House Offered Accredited Courses: Accredited course developed and provided internally to a company's own employees. These courses are accredited courses run specifically by, and for, the employees of a specified organization. This organization controls the attendance. Specific arrangements may be made by the company to include other attendees (e.g., purchasers, subcontractors, etc.). It is not advertised or publicly offered. Aerospace OEMs may wish to have their In-House Courses accredited, however, they are not required to do so if used solely for the purpose of qualifying their auditors.

4.2.3 In-House Offered Non-Accredited Courses: Unaccredited courses developed and provided internally. The course is not approved by any outside organization. Results and status of this training are for internal use only. These courses are run specifically by, or for, the employees of the OEM. The OEM controls attendance. Specific arrangements are made by the OEM to include other attendees (e.g., purchasers, subcontractors, etc.). It is not advertised publicly.

4.3 Course Approval:

Approval of a training course depends on objective evidence of a course provider's performance in two general areas:

4.3.1 Conduct of course activities, including:

a. content which covers, by explanation and examples, all topics required by AAQG or the OEM for each course (see 4.4.1 for content requirements);

b. detailed attendee learning objectives which specify the attendee performance required and the conditions under which attendee performance will be measured; and

c. the quality control methods that will be used to measure attendee evaluation/examination, instructor performance and overall course performance.

4.3.2 Administration of the course offerings, results, and continuous improvement methodologies used at the organization's offices, including:

a. creation and maintenance of a training program that can be audited to these criteria, and

b. the criteria for selecting course instructors, the procedures used to evaluate their delivery of the course to attendees and a list of all instructors' names.

4.4 Training Programs:

4.4.1 Registrars and OEMs must have an auditor training program, and records thereof, for AS9000 or AS9100 requirements. Content of the training program as defined by the AAQG is:

a. AS9000 and/or AS9100
b. AS9000 Appendix 1 or AS9101 (the checklist) or equivalent
c. AIR5359
d. FAA Requirements (Title 14 CFR Part 21)

4.4.2 Registrars shall document their auditor training program, and it shall be reviewed and approved by the accreditation body during the accreditation process.

4.4.3 OEMs shall document their training programs, and they shall be reviewed during their AS9000 or AS9100 registration process.

4.4.4 Commercial course providers that are not OEMs or registrars shall document their auditor training program and submit it to the AAQG RMC or the national accreditation body for approval.

4.4.5 Documentation of the training program shall include the items listed in 4.3.1 and 4.3.2 and the following:

a. Actual copies of materials used in training on the following subjects: AS9000 and/or AS9100, AIR5359 and FAA Rules and Requirements.

b. A resume of personnel that are leading or conducting the training. This person must have teaching/training experience, ISO 9000 RAB or internationally recognized Lead Auditor approval and 4 years minimum aerospace experience in the last 10 years, as per AIR5359.

5. COURSE CONTENT:

5.1 This course shall provide training in the principles and practices of auditing of quality management systems as related to the most current revision of AS9000, AS9100, and ISO 10011-1, -2, and -3. Training shall be provided in the methods for assuring the conformance of the organization's quality management system documentation to the requirements of AS9000 and/or AS9100. This training shall also include methods for assuring the organization's conformance to the provisions of this documentation (Quality Manual, System Procedures, Work Instructions, etc.).

5.2 The course shall be structured to cover, explain, and illustrate with examples the following:

a. the course format, attendee requirements and how the attendee will be evaluated;

b. specific requirements and guidelines of the current revisions of AS9000, AS9100 and ISO 10011;

c. overview of the types of audits (e.g., system; process; product; internal; external; first-, second-, and third-party; compliance; pre-assessment; registration; surveillance);

d. purpose of the audit, stressing the need for independence of the auditor from the function being audited;

e. the importance of audits related to the QMS;

f. the audit process, including audit planning, structure, timing, document review, checklists, opening and closing meetings, reporting, and record keeping;

g. aerospace auditors' personal qualifications and conduct, including personal attributes, audit management capabilities, interviewing techniques;

h. audit techniques and procedures, including scope determination (auditing by department or system element across department boundaries), sampling, non-conformity reports, objective evidence, communication and documentation of non-conformities and observations, audit team meetings, classification of non-conformities, note taking, and conducting meetings;

i. post-audit follow-up on non-conformities and closing-out of corrective actions and potential benefits of including follow-up in an internal audit program;

j. roles of audit team members and others associated with the team and the audit, including audit team leader, auditor, observer, trainee auditor, trainee team leader, witness, expert, guide;

k. encouragement of the attendees to use the terminology of ISO 9000:2000; as employed by the ISO 9000 series standards, AS9000, and AS9100;

l. AIR5359 Requirements for Registration of Quality Systems to AS9000 or AS9100;

m. establishing an audit path or trail and when to deviate;

n. determining an audit schedule based upon past audit experience;

o. degree of importance based upon the type of business; and

p. the focus of an audit of company procedures, schedules, programs, forms, and protocols for auditing and the application of AS9000 and AS9100.

5.3 Course material can be tailored based upon previous training attained by the auditor. If the auditor has previously successfully completed an NAP accredited or an AAQG or OEM approved ISO 9000 based auditor course, then the tailored course shall include the items identified in bold from the above list.

6. COURSE STRUCTURE AND FACILITIES:

6.1 Duration and Organization:

6.1.1 The total course time devoted to direct instruction and to assigned team and individual activities shall be over a minimum of 5 days with a one hour examination (40 hours total). For a tailored course, where auditors have successfully completed an RAB accredited or OEM approved ISO 9000 based auditor course, the time must be at least 4 hours plus at least one half hour additional time for completion of an examination that covers the differences between the ISO 9000 series standards and AS9000 and/or AS9100 (consideration for additional time for AS9100 should be given).

6.1.2 If the course is given through interpreters, this time shall be increased accordingly to allow for complete understanding. Time devoted to metals, breaks, or other free time is not included in the calculation of the course duration.

6.1.3 Each attendee shall actively participate in workshop, case studies, auditor role playing, and/or actual auditing of the organization as part of the structured class activities. At least 40% of the total course time shall be used for such activities.

6.1.4 Any case studies shall be designed to cover the important aspects of the standard and shall be aerospace industry related.

6.1.5 The course shall be structured and conducted so that each attendee is subjected to realistic audit practices and conditions. This may include actual practice audits. When attendees participate in actual audit situations, transit time to and from the audit site and delay time is not counted as part of the course time.

6.1.6 Training aids, such as commercial training videos, videos produced during the course to record and review performance of attendees, CDs or interactive training tools that are directly relevant may be used to supplement the training by the instructors.

6.1.7 Attention to time schedule, course content, elements of the standard, instructor conduct, and other course requirements are considered essential to the presentation of an acceptable program. Evaluators will assess these areas carefully as they relate to the acceptability of the course and instructors.

6.2 Class Size; Attendance:

6.2.1 The number of attendees in a class is recommended to be no greater than thirty, nor fewer than four. Under rare and exceptional circumstances, AAQG or the OEM may grant specific written approval for a course provider to conduct a course offering for fewer than four attendees.

6.2.2 Attendees shall be required to be in attendance for the full duration of the course. Failure to do so shall be reflected in the attendee's continuous and final evaluations. The instructor shall determine if the attendee has met the course objectives and if not, recommend remediation to the attendee for course completion.

6.3 Number of Instructors:

6.3.1 Each course offering shall be presented by at least one instructor, who shall be actively involved in the instruction and evaluation for the full length of the course. Additional resource people or trainee instructors may be used for specific subjects or activities; however, the one instructor remains responsible for the entire course offering.

6.3.2 When activities (e.g., written quizzes or preparation of checklists) involve neither instruction nor evaluation, and do not require the availability of the instructors for explanation, clarification or counsel, at least one instructor shall be present. The instructor shall be present during the entire exam to assure good examination practice.

6.4 Facilities:

6.4.1 The course provider shall see that suitable facilities for training are provided, including classroom, audio-visual and other training equipment, and facilities for team activities. Suitable meal and break arrangements must be planned in advance and communicated to attendees.

7. EVALUATION OF ATTENDEES:

Each attendee shall be evaluated using two independent elements, both of which shall be satisfied if the attendee is to satisfactorily complete the course:

a. a written examination that covers the application of audit principles and practices to AS9000 and/or AS9100; and

b. the continuous evaluation, done independently by the instructor, of the attendee's attitude, auditing capability, written and verbal skills, and performance as a team member and in role playing. Each attendee shall be informed of conduct or behavior not compatible with that expected of a certified auditor and made aware of the actions needed to correct this conduct.