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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE INFORMATION REPORT

SAE AIR5359

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Requirements for Registration of Quality Systems to AS9000 or AS9100

INTRODUCTION

The aerospace industry requires that all elements of the production and supply chain operate to levels of quality and performance that assure safe and reliable products. Quality systems must be designed to assure that all aspects of the design, manufacture and support of aerospace products meet their intended functions. In parallel with the aerospace industry's development of quality systems, as a means of ensuring that products comply with exacting requirements, equal importance has been attached to the role of quality systems assessment.

The American Aerospace Quality Group (AAQG) in cooperation with many aerospace companies developed specific requirements for quality systems that are to be implemented and maintained by the complete production and supply chain in the manufacture of products used in aviation and space applications. This procedure was developed in response to the move by the aerospace industry to standardize requirements and the potential pooling of resources, recognizing the highly professional and effective assessment of the supplier quality systems by the aerospace industry with oversight by the regulatory agencies of the Government. This procedure provides for continued integrity and credibility for the registration of those quality systems while recognizing the wealth of experience accrued by aerospace companies over many decades.

This procedure is approved for use by members of the AAQG, aerospace industry companies and suppliers and the Registrar Accreditation Board (RAB) or other Accreditation Bodies. This procedure addresses the following issues:

a. Assessment of quality systems by accredited registrars
b. The principles for determining the content and duration of assessments
c. Reporting and control of nonconformance
d. The form of registration recommendations
e. Validity period for registration
f. Minimum standards of qualification and experience for aerospace auditors employed by registrars
g. Authentication of aerospace auditors by registrars, Accreditation Bodies and the AAQG

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1. SCOPE:

This procedure shall be applied by ANSI-RAB or other Accreditation Bodies to registrars that meet the criteria of 5.2 of this document, when specified by an aerospace company requiring assessment and/or registration of their quality system to the requirements of this procedure.

The quality system standard shall be AS9000 or AS9100 and shall be applied to the supplier's complete Quality System that covers aerospace products.

1.1 Purpose:

The purpose of this procedure is to outline the process for providing aerospace companies and their suppliers with assessment and registration of their quality systems, by accredited third-party registrars.

2. REFERENCES:

2.1 SAE Publications:

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

AS9000 or AS9100 Aerospace Standard - Aerospace Basic Quality System Standard

2.2 ANSI Publications:

Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 8402	Quality - Vocabulary
ISO 9001	Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing
ISO 9002	Quality Systems - Model for Quality Assurance in Production, Installation and Servicing
ISO 9003	Quality Systems - Model for Quality Assurance in Final Inspection and Test
ISO 9004-1	Quality Management and Quality System Elements - Guidelines
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
ISO/IEC Guide 62	General Requirements for Bodies Operating Assessments and Certification/ Registration of Quality Systems
ANSI-RAB R1	National Accreditation Program Criteria for Bodies Operating Registration of Quality Management Systems (latest revision)

3. DEFINITIONS:

3.1 AAQG:

American Aerospace Quality Group - A collection of the prime aerospace Original Equipment Manufacturers (OEMs) under the sponsorship of the SAE. This group is chartered to develop common requirements for use by all OEMs for flow down to the supplier community.

3.2 AEROSPACE:

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

3.3 AEROSPACE PRODUCT:

"Aerospace Product" shall mean an aircraft, rotorcraft, guided weapon, spacecraft, other product designed to 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 AEROSPACE AUDITOR:

An "Aerospace Auditor" shall refer to an auditor that has met the requirements as set forth in 7.2 of this document.

3.5 REGISTRAR MANAGEMENT COMMITTEE (RMC):

The Registrar Management Committee (RMC) as used in this procedure is defined as three members of the AAQG and one Member of ANSI-RAB and two members of the Independent Association of Accredited Registrars (IAAR) on a limited basis. Further definition is in Section 9 of this document.

3.6 ANSI-RAB:

ANSI - American National Standards Institute, (RAB) Registrar Accreditation Board National Accreditation program has the primary responsibility for the accreditation of registrars in the United States to issue certifications/registrations to Quality Management Systems standards.

3.7 REGISTRAR(S):

A party that audits and registers the quality management system of suppliers 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. PROCEDURE:

4.1 This procedure shall be based on the latest versions of the documents found in Section 2.

4.2 Elements to which particular attention should be given during assessment of aerospace companies are listed in AS9000 or AS9100 as boldface items. These elements shall be associated with the relevant clauses of the AS9000 or AS9100 standard and are provided for guidance purposes. These elements are in addition to ISO 9001 elements and should be applied in the supplier's quality system.

5. REQUIREMENTS FOR AS9000 OR AS9100 QUALIFICATION:

5.1 Accreditation Bodies:

The responsibilities of the Accreditation Body shall be to review and recommend approval of the registrars to the requirements of this procedure. The Accreditation Body shall approve the use of "marks" and logos for use on certificates of approval. The Accreditation Body shall work with the AAQG to give assurance that registrars continue to perform in a manner consistent with the requirements contained herein. For the purposes of this document the Accreditation Body shall be considered to be ANSI-RAB for the U.S.A. unless changed by the AAQG. Other Accreditation Bodies that are signatories to the IAF (International Accreditation Forum) MLA (multi-lateral agreement) may also use this procedure with AAQG approvals.

5.2 Registrars:

Registrars seeking AS9000 or AS9100 qualification under this procedure must first be accredited in ANSI-RAB National Accreditation Program (NAP) for ISO 9001 and/or ISO 9002 for at least a year prior to submitting an application. Registrars that held/hold accreditation from an IAF multilateral agreement (MLA) signatory prior to ANSI-RAB accreditation are exempt from the one year requirement. As such, the registration body shall have been successfully assessed for conformance to ISO/IEC guide 62 and ISO 10011, Parts 1, 2, and 3.

ANSI-RAB requirements include, among other things, evidence that the registrar's management committee or group have person(s) with aerospace background and knowledge. A registrar may or may not already be approved by RAB for the scope category of aerospace represented by Scope Sector 21 (NACE DM 35.3) (formerly U.S. SIC Code 372 and 376) in accordance with ANSI-RAB procedures and requirements. The registrar shall have qualified auditors and/or technical experts engaged in registration activities. Requirements for registrars to obtain AS9000 or AS9100 qualification shall include as a minimum:

5.2 (Continued):

a. The registrar itself 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:

1. AS9000 and/or AS9100 (the standard)
2. AS9000 Appendix 1 (the checklist) or equivalent
3. AIR5359 (this document)
4. FAA Requirements (Title 14 CFR Part 21)

b. Registrars shall document their auditor training program and it shall be reviewed and approved by ANSI-RAB during the accreditation process. Documentation shall include the following:

1. An outline of the training course showing the subjects covered, their sequence and the training methods to be utilized for each subject.

2. Actual copies of materials used in training on the following subjects. AS9000/AS9100, AIR5359 paragraphs 5.2 a, g, h, i, paragraphs 5.3 to 5.6, Sections 6 and 7 and Appendix B.

3. A resume or C.V. of personnel that are leading or conducting the training. This person must have teaching/training experience, auditing and auditor training experience, ISO 9000 knowledge and 4 years minimum aerospace experience.

c. The registrar must utilize qualified auditors as defined by the AAQG auditor requirements per Section 7 of this document. The registrar audit team must meet the requirements of Section 6 of this document.

d. The registrar must have the specific procedures, tools and techniques in its systems for performing audits at aerospace suppliers per ANSI-RAB and AAQG requirements (e.g., AS9000 checklist, briefing notes, etc.).

e. The basis for ANSI-RAB approval of registrars to AS9000 or AS9100 shall include a witness audit of a registrar team per ANSI-RAB operating procedures.

f. The registrar agrees to periodic surveillance audits by RAB and by AAQG per 8.4.

g. The registrar must agree to the "Right of Access" by AAQG member companies, ANSI-RAB and other regulatory or Government bodies for the purpose of establishing that the correct criteria and methods were used in issuing supplier approvals to AS9000 or AS9100. This also includes information or records pertaining to RAB approval of the registrar.

h. No Certificates or approvals to AS9000 or AS9100 or ISO 9001/2 shall be issued by any registrar unless all major and minor nonconformances are closed with root cause analysis and corrective action known and effectiveness of implementation verified.

5.2 (Continued):

i. The registrar must leave copies of all information pertaining to the audit results (including checklists, findings, supporting documents, or other correspondence) with the supplier for the purpose of the supplier sharing this information with their customers.

j. No registrar shall be allowed to certify a supplier to AS9000 or AS9100 with whom the registrar has provided consulting services related to registration within the past two years. In addition, any individual who has, in the past two years, provided consulting services to a supplier, shall have no involvement with the AS9000 or AS9100 registration of that supplier. Where there might appear to be a conflict of interest, either through consulting or the offering of training to a potential client this shall be disclosed to the RAB and RMC prior to performing the registration process to determine if there is a conflict of interest.

5.3 Assessment and Surveillance:

There are 3 options available to a supplier to obtain AS9000 or AS9100 Registration/Approval. The selected option may/would be customer dictated.

Option 1 - An accredited AS9000 or AS9100 Certificate and ISO 9001/2 Certificate. This means that the supplier shall be registered to both AS9000 or AS9100 and ISO 9001/2 through an AS9000 or AS9100 qualified registrar with appropriate surveillance visits by the registrar for both requirements.

Option 2 - An ISO 9001/2 accredited Certificate with an AS9000 or AS9100 unaccredited approval. This means that the initial audit shall include all ISO and AS requirements and the continued surveillance shall be for the approved ISO system (may or may not get specific AS9000 or AS9100 elements). Supplier shall be registered to ISO 9001 or 2 only.

Option 3 - An AS9000 or AS9100 Conformance Audit - Supplier shall have an assessment to AS9000 or AS9100 requirements by an ANSI-RAB qualified registrar and there are no routine surveillance visits.

NOTE: In the case of Option 3, the surveillance and time duration of the approval shall be in accordance with customer contractual requirements.

5.4 Duration of Assessment:

An AS9000 or AS9100 qualified registrar is responsible for ensuring the continued integrity and validity of the certificates it issues and for drawing up and implementing a procedure to enable it to carry out this responsibility. This applies to Option 1 and 2 only of 5.3.

ANSI-RAB has established guidelines (NAP criteria R1) for minimum auditor-person days, both total assessment and on-site, appropriate to the size of the supplier being assessed. In the case of the aerospace suppliers these may be varied to take into account the complexity of the quality system and the number and variety of activities but the guidance in ANSI-RAB NAP R1 is to be used as minimums.

It is anticipated that the requirements of AS9000 or AS9100 shall add on-site assessment time for only the initial assessment of a supplier in accordance with Table 1, depending on size and commodity of the supplier involved:

TABLE 1

Certified entity	Initial Assessment	
Number of employees	Total min. (person-days)	On-site min. (person days)
5-100	+0.5	+0.5
101-1000	+1.0	+1.0
Over 1001	+ 1.0 to 2.0	+1.0 to 2.0

The duration of an assessment shall be as agreed between the organization being assessed and the registrar, using ANSI-RAB NAP R1 guidance as a minimum.

5.5 Nonconformance:

The assessment team shall record all nonconformance identified during an assessment. The team leader shall assign a nonconformance to the aerospace categories of "Major" or "Minor". These are defined as:

Major: The absence of, or total breakdown of a management element specified in the AS9000 or AS9100 standard or any nonconformances where the effect is judged to be detrimental to the integrity of the product or service.

Minor: A single system failure or lapse in conformance with a procedure relating to the AS9000 or AS9100 standard.

5.6 Audit Team Conclusions:

The Assessment Team leader shall present the audit report to the supplier using the RvA "Model B" content as a minimum, stating its conclusions on conformance and effectiveness of the quality system to the AS9000 or AS9100 requirements. No Certificates or approvals to AS9000 or AS9100 or any combination of AS9000 or AS9100 with ISO 9001/2 shall be issued unless all major or minor nonconformances are closed with root cause analysis and corrective action and appropriate follow-up performed by the registrar. The Team leader shall advise whether recorded nonconformance(s) jeopardize an existing certificate. In the event that registration is denied or suspended, an appropriate course of action shall be agreed between the supplier and the registration body. Where there is a failure to agree on a course of action, the appropriate appeals procedure of the registrar may be invoked.

The registrar shall submit to SAE the results of the assessments performed to AS9000 or AS9100 and SAE shall make this information available to members of AAQG. The information shall include as a minimum:

- Registrar name and contact person, phone, fax, e-mail
- Supplier name and address and locations involved in the assessment
- Name, phone, fax and/or e-mail of supplier contact
- Scope of the activities assessed
- Type of assessment performed (option 1, 2 or 3) (initial or surveillance)
- Audit dates and Auditors involved
- Number of Major/Minor Nonconformances
- Certificates Issued (number and date)

5.7 Surveillance and Re-assessments:

Certificates issued under Options 1 or 2 per 5.3, shall have surveillance audits and re-assessments conducted by the registrar in accordance with ISO/IEC Guide 62 guidelines and the requirements of ANSI-RAB R1 and R2 (current version).

5.8 Registration:

Certificates issued by an AS9000 or AS9100 qualified registrar shall refer to the AS9000 or AS9100 and the appropriate ISO 9001/2 standard and the particular version(s) of both.

6. AEROSPACE ASSESSMENT TEAMS:

6.1 The Assessment Team Leader, must be a qualified lead auditor per ISO 10011-1 and -2, as identified in the registrar's accredited system. The team shall include an "Aerospace Qualified Auditor" and be supported by other qualified auditor(s) as required. The assessment team must include an auditor qualified for the supplier's commodity(ies) and the team leader shall ensure that all members of the team are aware of the requirements of this specification as may affect the scope of their assessment activity. Additionally the Aerospace Qualified Auditor(s) shall provide guidance to the assessment team throughout the assessment on the interpretation of aerospace requirements and, when requested, the significance of any issues identified. The commodity requirement may be met by a technical expert in-lieu of an auditor (per RAB guidelines) which is additional to the team membership.

6.2 All auditor members of the team are required to meet the requirement of 7.1 of this document. Additionally, those members of the team who are identified to the supplier as Aerospace Auditors shall have been approved in accordance with 7.2 of this document.

6.3 Regulatory (FAA) or Customer representatives or AAQG OEMs may accompany the assessment team as observers of the assessment process at any time. When Customer or Government representatives are participating in the audit, the Team Leader shall have the option of including (or not) in the assessment report any findings brought forward by these representatives.

7. QUALIFICATIONS AND EXPERIENCE OF AUDITORS:

7.1 Approved Auditors:

Auditors of Quality Systems shall, as a minimum, continually meet the education, training, work experience and audit experience of ISO 10011-1 and -2 and continually have the following:

a. Auditing Experience: To have participated in at least four audits for a minimum of 20 days, that cover all the elements of the ISO 9001 standard or the AS9000 or AS9100 standard within the last three years and has the ability to cover all the elements as determined by the registrar's Audit Program Manager or equivalent.

b. Continuing Education: Per the registrar's requirements for maintenance of qualification, that includes the elements of 7.2.1 and 7.2.3, as necessary.

7.2 Aerospace Auditor Requirements:

Auditors that are to be considered as Aerospace Qualified Auditors must meet the requirements of 7.1 and the following:

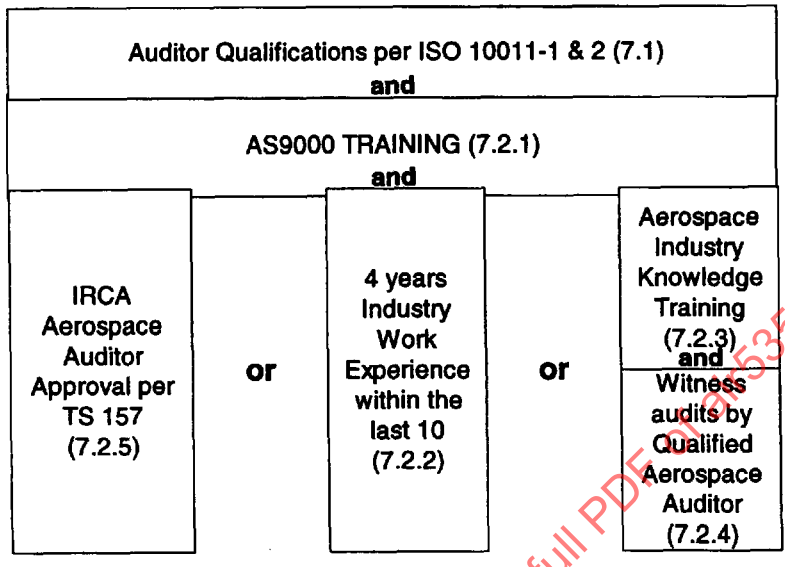

FIGURE 1 - Aerospace Auditor Qualification Chart

NOTE: References in parentheses ( ) in the above diagram refer to this document.

7.2.1 The Auditor must be trained in AS9000 or AS9100 requirements. This training can be performed by the registrar or may be obtained independently. For the registrar, the training program shall be reviewed and approved by ANSI-RAB as part of Scope Sector 21 accreditation. The registrar's AS9000 or AS9100 training program shall also be in accordance with RMC approved training guidelines and

7.2.2 Work Experience: Four years in the aerospace industry directly involved in Engineering, Design, Manufacturing, Quality or Process Control for a major airframe manufacturer, prime supplier, auxiliary equipment supplier and/or appropriate NASA, DOD or FAA organization (the four years shall have been within the prior ten calendar years). The work experience should have included direct involvement or knowledge of the elements as defined in 7.2.3, or

7.2.3 If less than four years aerospace industry experience (or more than eight years since last industry work experience) the completion of an initial in-depth Aerospace Industry Competency course developed by the registrar with RMC approval covering the following topics as a minimum:

- Aerospace Industry Quality Perspective
- FAA Roles/Responsibilities/Regulations Overview
- DCMC Roles/Responsibilities
- 1st Production Article Inspection
- Aerospace material traceability requirements
- Aerospace material accountability systems
- Aerospace subcontractor approval and control requirements
- Key/critical characteristic classification
- Quality requirements flow downs
- FOD program requirements
- Use of Customer supplied products
- Positive Recall System
- Stamp control
- Nonconforming material, system requirements and operation
- Sampling inspection requirements and limitations and,

7.2.4 The auditor must have participated in at least one aerospace industry audit and was witnessed by a previously qualified Aerospace Industry Qualified Auditor, who themselves have not become qualified via the 7.2.3 and 7.2.4 method of this document. The auditor candidate must receive a positive and documented recommendation for qualification on all witness audits, or

7.2.5 If an auditor holds a formal auditor certification under an existing, formally accredited aerospace auditor plan (e.g., IRCA approval to SBAC TS 157) the above requirements for an auditor shall be satisfied with the addition of the required AS9000 or AS9100 training.

8. AUTHENTICATION AND OVERSIGHT OF REGISTRARS AND AUDITORS:

8.1 The AS9000 or AS9100 qualification of registrars shall be by ANSI-RAB in accordance with this document. This shall require an annual RMC review to evaluate registrars and the effectiveness of the process for approval of registrars. The review shall be in accordance with ANSI-RAB procedures and RMC approval.

8.2 Each auditor's credentials shall be endorsed by the RMC.

8.3 The registrar's Audit Management Program shall be approved via ANSI-RAB oversight.

8.4 ANSI-RAB shall conduct annual Surveillance audits of registrars holding AS9000 or AS9100 accreditation, per ANSI-RAB guidelines. AAQG member companies shall perform oversight of registrars used by their suppliers and report results to the RMC.