

AS 9110 B to AS 9110 C - QMS Upgrade Instructions

This instruction / checklist is intended for use in upgrading your Quality Management System for the transition from the AS 9110 B version to the AS 9110 C revision for Quality management systems used by aviation, space, and defense maintenance providers.

The above Quality Management Systems are compatible with each other and have common requirements.

In the SAE Aerospace standard, AS 9110 C, the requirements are described in:

- Clause 4 Context of the organization
- Clause 5 Leadership
- Clause 6 Planning
- Clause 7 Support
- Clause 8 Operation
- Clause 9 Performance evaluation
- Clause 10 Improvement

Previously in AS 9110 B, the requirements were described in:

- Clause 4 Quality management system
- Clause 5 Management responsibility
- Clause 6 Resource management
- Clause 7 Product realization
- Clause 8 Measurement, analysis, and improvement

You have the April-2012 Rev B version in place and now have the objective of upgrading the system to the Nov-2016 Rev C. The good news is that since you are familiar with formal management systems, this initiative will be relatively straightforward.

The documentation will need to be reviewed, upgraded, and implemented. The first step is to assign a person responsible for the QMS, such as a Management Representative to become familiar with the changes for the AS 9110 C standard. Visit the AS9110store.com for forms, procedures, training materials, resources, and information on quality management systems requirements.

The following table with detailed instructions focuses on the areas of the documentation required for the AS 9110 C quality management system. As you undertake the task of upgrading your quality management system, note that the intent of the main clauses is shown in **blue font**, and in the 2nd left hand column of the instructions, the text in **italics** indicates where requirements were included in previous AS 9110 B. Use a copy of the [AS 9110 C standard](#) along with this instruction to pinpoint for your organization the areas that need attention. You may want to make notes and add comments in the space available to the right and the left of the column for reference documentation. Use the upgrade checklist section on the right side of the table to assign the responsibility for the upgrade and to follow up on its completion.

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AS 9110 Rev C Clause	Changes to the existing AS 9110 Rev B Quality System	Reference document	Changes in existing documentation	Upgrade Checklist	
				Assigned to:	Date Completed
All	The SAE international Aerospace standard AS 9110 Rev C is restructured and contains 10 sections or clauses numbered 1 through 10. The standard is revised to incorporate the new clause structure and content of ISO 9001:2015. In addition, requirements, definitions, and notes for aviation maintenance organizations are included.	AS 9110 C	The requirement clauses of the new standard are the Clause 4 through Clause 10. Your company needs to become familiar with the new structure and the changes and subsequently upgrade the Quality Management System (QMS).		
All	While the specific requirement for a quality manual is not in AS 9110 C, the standard requires that Documented Information be maintained for the QMS.	Manual	Replace / rework your existing Quality Manual with a condensed version that will introduce the QMS. A quality manual is not included as a requirement in clause 7.5.1 of AS 9110 C.		
---	<i>In AS 9110 B, the requirement for a Quality Manual was in clause 4.2.2.</i>	Manual	In the condensed manual include sections for: <ul style="list-style-type: none"> • Scope of the Quality Management System (QMS) • Distribution Control List, • Revision Status, • Quality/Safety Policy and Objective, Strategic Direction, • Organization Chart, • Company Background - Products and Services, • Process Flow Diagram, • List of Documented Information, • Records Documentation Matrix. 		
---	The specific requirement for documented procedures is not in AS 9110 C; however documented information is required to plan, establish, implement, and maintain the QMS processes. <i>In AS 9110 B, the requirement for control of documents was included in 4.2.3, and the requirement for control of records was in clause 4.2.4.</i>	Documented information	The QMS documented information may be presented in any suitable format such as in a method, an instruction, a system, a process, a procedure, a quality plan, a manual, etc. You will need to add / replace / rework your QMS procedures to incorporate AS 9110 C requirements. An early consideration is the development of a process for the control of documented information. Replace / rework the documented procedures for Control of Documents and Control of Records with a procedure, (such as P-750) for Documented Information and include it in section 7.5.		

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4	<p>This first clause introduces two sub-clauses relating to the context of the organization, (1) understanding the organization and its context and (2) understanding the needs and expectations of interested parties. Together they require that you determine the issues and requirements that can impact on the planning of the Quality Management System (QMS). In addition, the scope of the QMS and the QMS processes along with their applicability and interactions need to be determined.</p>				
4	<p>Clause 4, Context of the Organization is a new requirement in AS 9110 C, and replaces clause 4 Quality management system in AS 9110 B.</p>	Documented information	<p>Your company must determine the issues and requirements that can impact on the planning of the QMS and that can affect the ability to achieve the intended results of the QMS.</p> <p>You may want to develop an organizational context worksheet to identify issues and requirements.</p>		
4.1	<p>Documented information for the QMS sets the stage for an understanding of the requirements and of the international standard.</p>	Procedure	<p>Document the information (in a document P-400, Organizational Context) to outline the process to understand and determine the internal and external issues that are relevant to the QMS.</p>		
4.2	<p>A stakeholder approach provides for an understanding of the requirements of interested parties.</p>		<p>Include (in a document P-400) the process to understand and determine the needs and expectations of interested parties.</p>		
4.3	<p>In AS 9110 C, clause 4.3 requires the determination of the scope of the QMS. <i>In AS 9110 B, the scope of the QMS was required to be included in a quality manual per clause 4.2.2 a.</i></p>		<p>Include (in a document P-400) the process to determine the scope of the QMS. Refer to 4.3 a) thru c) and consider the internal and external issues, the requirements of interested parties, and your products and services.</p>		
4.3	<p><i>In AS 9110 B, the application and exclusion of requirements were included in clause 1.2. Exclusions were permitted in clause 7 when they did not affect the ability or responsibility to meet customer and regulatory & statutory requirements.</i></p>		<p>Include justifications for requirements of the standard that do not apply to the scope of the QMS. Note that conformity to AS 9110 C can only be claimed if the requirements determined to be not applicable do not affect your ability or responsibility to meet product and service requirements and enhance customer satisfaction.</p>		
4.4	<p>In AS 9110 C, clause 4.4 covers the QMS and its processes. <i>In AS 9110 B, the requirement for the QMS and its processes was in 4.1.</i></p>		<p>Your company must establish, implement, maintain, and continually improve the QMS.</p>		
4.4.1	<p><i>In AS 9110 B, the requirement for the QMS and its processes was in 4.1.</i></p>		<p>Provide an outline (in a document P-400) of the process to determine the application and interaction of the processes needed for the QMS. Address risks and opportunities and plan to implement actions to address them. See clause 6.1.</p>		
4.4.2	<p>In AS 9110 C, documented information that supports the processes is required to</p>		<p>Document (in P-400) the process to establish and maintain documented information. Refer to 4.4.2 a)</p>		

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	be maintained and retained.		<p>thru c) and include the new requirements for:</p> <ul style="list-style-type: none"> • General description of relevant interested parties, • Scope of the quality management system, including boundaries and applicability, • Description of the processes needed for the quality management system and their application throughout the organization, • The sequence and interaction of these processes • Assignment of the responsibilities and authorities for these processes. 		
4.4.2	<i>In AS 9110 B, the requirements for the documentation were in clauses 4.2 and 4.2.1.</i>		See Documented information, clause 7.5. Outline (in a document P-750) the process for the control of documented information.		
5	<p>This clause requires that your top management demonstrates leadership and commitment with respect to the QMS. In addition, top management is required to demonstrate leadership and commitment with respect to customer focus. This section also asks top management to establish, implement and maintain both a quality policy and a safety policy that is appropriate to your company and to ensure that the responsibilities and authorities for relevant roles are assigned, communicated, and understood. In addition, top management needs to identify responsible persons as the Management Representative, the Accountable Manager, the Quality Manager, and other Appointed Managers as required for operational activities.</p>				
5	In AS 9110 C, clause 5, Leadership replaces clause 5, Management responsibility in AS 9110 B.	Documented information	Review and re-write your existing document for management responsibility and incorporate the requirements for leadership and commitment.		
5.1.1	In AS 9110 C, the general clause 5.1.1 outlines the requirements for leadership and commitment. <i>In AS 9110 B, the requirement for management commitment was in 5.1.</i>	Procedure	In a procedure such as P-500, include the actions to demonstrate the leadership and commitment to the QMS. Refer to the requirements in clause 5.1.1 a) thru l) and include the items ranging from a) accountability for an effective QMS, thru l) ensuring that corrective actions are promptly implemented.		
5.1.2	In AS 9110 C, clause 5.1.1 focuses on the customer. <i>In AS 9110 B, the requirement for customer focus was included in clause 5.2.</i>		Include the actions to demonstrate the leadership and commitment to customer focus. Refer to 5.1.2 a) thru d) requirements dealing with meeting customer and regulatory requirements, addressing risks and opportunities, customer satisfaction, product and service conformity and on-time delivery performance.		
5.2	In AS 9110 C, clause 5.2 outlines the requirements for the quality policy to be established and communicated. <i>In AS 9110 B, the requirement for quality</i>		Include the process for developing a quality policy that is appropriate to the purpose and context of your company and communicating this quality policy.		

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	<i>policy was included in clause 5.3.</i>				
5.2.1	<i>In AS 9110 B, the requirement for establishing the quality policy was in clause 5.3.</i>			Include the requirements that the quality policy is available as documented information and available to interested parties.	
5.2.2	<i>In AS 9110 B, the requirement for communicating the quality policy was included in clause 5.3 d.</i>			Include the requirements that the quality policy is communicated, understood, and applied in the company.	
5.2.3	In AS 9110 C, the clause 5.2.3 requires a documented safety policy. <i>In AS 9110 B, the requirements for safety policy were in clause 5.7 and safety objectives were in clause 5.4.3.</i>			Include the new requirements that the safety policy is established and communicated. Refer to 5.2.3 a) thru c) and include the items for the: <ul style="list-style-type: none"> • Framework for setting safety objectives, • Safety reporting, • Continual improvement. 	
5.3	In AS 9110 C, the clause 5.3 covers organizational roles, responsibilities, and authorities. <i>In AS 9110 B, the requirements for responsibility, authority, and communication were in 5.5 and 5.5.1.</i>	Organization chart		Include the system for ensuring that responsibilities and authorities for relevant roles are assigned and communicated. Refer to 5.3 a) thru e) and include items ranging from a) ensuring conformance to the AS standard, to e) ensuring integrity of the QMS when changes are made.	
5.3	<i>In AS 9110 B, the requirement for QMS planning was included in clause 5.4.2.</i>			Delete the requirements for QMS planning and include it in actions to address risk and opportunities in section 6.1.	
5.3	<i>In AS 9110 B, the requirements for the quality objectives were included in clauses 5.4 and 5.4.1.</i>			Delete the requirements for quality objectives and include them in quality objectives and planning to achieve them in section 6.2.	
5.3	In AS 9110 C, a management representative is required to be appointed per clause 5.3. <i>In AS 9110 B, the requirement for a management representative was included in clause 5.5.2.</i>			Top management is required to appoint a specific member of the team as the management representative who has the responsibility and authority to oversee the QMS and ensure that it conforms to the requirements of the AS standard. This person must have unrestricted access to top management and organizational freedom to deal with quality management issues.	
5.3.1	In AS 9110 C, the requirements for an accountable manger is in clause 5.3.1. <i>In AS 9110 B, the requirement for the accountable manager was in 5.5.1.1.</i>			Ensure that the Accountable Manager is the top executive with overall financial and corporate responsibility for the scope of approval. This manager ensures that all required continuing airworthiness activities, including maintenance activities, can be financed, and carried out to the applicable standards.	
5.3.2	In AS 9110 C, the new requirements for a quality manger is in clause 5.3.2.			Ensure that a person responsible for monitoring the quality management system is appointed and is	

1.0 Purpose

1.1 This procedure describes the process for controlling quality system documents.

2.0 Responsibilities

- 2.1 *Management* is responsible to ensure that personnel have access to and are aware of relevant quality management system (QMS) documentation and changes.
- 2.2 *Management* is responsible for assigning authors for documents.
- 2.3 The author is responsible for writing the document, creating related forms, getting a document number and submitting the document to the department manager for review.
- 2.4 *Department managers* are responsible for approving documents for their area of responsibility and ensure that they are legible, identifiable and available where needed.
- 2.5 *The document control coordinator* is responsible for assigning document numbers, maintaining the master list, posting new and revised documents on the network, distributing hard copies of documents and revising documents.
- 2.6 All employees are responsible for reviewing the documents as they use them and submitting document change requests to update documents as necessary.
- 2.7 *The network administrator* is responsible for backing up the network daily.
- 2.8 *Engineers are responsible for maintaining programs that control equipment. (If you have programs, controllers with programs or other software controlling your processes, the programs must be controlled.)*

3.0 Definitions

- 3.1 **Procedure:** Document outlining specific work processes and how the requirements of the AS9110B standard are being met.
- 3.2 **Work Instructions:** Step by step directions on how a task should be done.
- 3.3 **Attachments:** Documents used to further clarify or show examples of information described in the procedures and work instructions.
- 3.4 **Forms:** Documents used to make a record of completing all or part of the process described in procedures and work instructions.
- 3.5 **Records:** Completed forms or information generated as a result of the process described in a document and retained as indicated in the Control of Quality Records Procedure.
- 3.6 **References:** external documents or sources used in preparing documentation and completing work.
- 3.7 **Related Documents:** Other documents that may need to be altered if the current

INSERT YOUR COMPANY LOGO/NAME HERE

P-423-A
Document Control

3.8 P-720 Customer Related Processes

4.0 References

4.1 None

5.0 Revisions

Revision	Date	Section	Paragraph	Summary of change	Authorized by
A				Initial issue	

Risks and Opportunities Guidelines

- The risks and opportunities are determined and addressed in order to ensure that the QMS can achieve its intended result(s), prevent, or reduce, undesired effects, and achieve continual improvement.
 - Options to address risks and opportunities can include: avoiding risk, taking risk in order to pursue an opportunity, eliminating the risk source, changing the likelihood or consequences, sharing the risk, or retaining risk by informed decision.
 - Actions to address the risks and opportunities are planned in order to integrate and implement them into the processes and to evaluate the effectiveness of these actions.
 - Actions taken to address risks and opportunities are proportionate to the potential impact on the conformity of products and services.
 - With inputs from the [Quality team / ISO steering committee](#), this risk and opportunity worksheet is prepared by the [Quality team leader / ISO management representative](#).
 - The [Quality team / ISO steering committee](#) is responsible to set priorities for projects where risks and opportunities need to be addressed and to assign risk or opportunity project responsibilities.
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The following instructions are used to assess the risks associated with the planning of the QMS processes and to assign priorities for the actions needed to address the risks and opportunities.

To determine the risks and opportunities that need to be addressed:

- In table below identify the activities/processes that are risk and opportunity candidates,
- Assign a value for each assessment category,
- R-values of 1 and 2 represent Risks/Threats, and O-values of 3 and 4 represent Opportunities.
- The project planning worksheet F-810-002 is used to plan high priority projects.

Customer Impact: How much does the customer care?

- 1 = Low customer priority
- 4 = Very important to the customer

Changeability Index: Can you fix it?

- 1 = Very Difficult / Expensive to fix
- 4 = Relatively easy / cheap to fix

Performance Status: How broken is it?

- 1 = Only a few problems in the past
- 4 = Always seems to be causing problems

Business Impact: How important is it to the business?

- 1 = Has little impact on the business
- 4 = Is very important to the business

Work Impact: What resources are available?

- 1 = People who have capability to work on this activity are scarce
- 4 = People who have capability to work on this activity can be available

<p>5 Leadership</p> <p>5.1 Leadership and commitment</p> <p>5.1.1 General</p> <p>5.1.2 Customer focus</p> <p>5.2 Policy</p> <p>5.2.1 Establishing the quality policy</p> <p>5.2.2 Communicating the quality policy</p> <p>5.2.3 Establishing and communicating the safety policy</p> <p>5.3 Organizational roles, responsibilities, and authorities</p> <p>5.3.1 Accountable manager</p> <p>5.3.2 Quality manager</p> <p>5.3.3 Other appointed managers</p>	<p>Leadership</p> <p>Leadership</p> <p>Leadership and commitment</p> <p>Business process map</p> <p>Customer focus</p> <p>Quality policy</p> <p>Quality policy – attachment</p> <p>Communication</p> <p>Safety policy</p> <p>Safety policy - attachment</p> <p>Roles, responsibility, and authority</p> <p>Management representative</p> <p>Accountable manager</p> <p>Quality manager</p> <p>Other managers</p> <p>Organization chart</p>	<p>QMS-Section D</p> <p>P-500</p> <p>P-500, par 5.1</p> <p>FD-510-001</p> <p>P-500, par 5.2</p> <p>P-500, par 5.3</p> <p>A-520-001</p> <p>P-500, par 5.3.5</p> <p>P-500 par 5.4</p> <p>A-520-002</p> <p>P-500 par 5.5</p> <p>P-500 par 5.5.2</p> <p>P-500 par 5.5.3</p> <p>P-500 par 5.5.4</p> <p>P-500 par 5.5.5</p> <p>A-530-001</p>	<p>-----</p> <p>President</p> <p>AS Committee</p> <p>AS Committee</p> <p>AS Committee</p> <p>AS Committee</p> <p>H R manager</p>	
<p>6 Planning</p> <p>6.1 Actions to address risks and opportunities</p> <p>6.1.1 When planning for the QMS...</p> <p>6.1.2 The organization shall plan ...</p>	<p>Planning for the QMS</p> <p>Planning for the QMS</p> <p>Planning the QMS</p> <p>Risk management- QMS Planning</p>	<p>QMS-Section-D</p> <p>P-600</p> <p>P-600, par 5.1</p> <p>P-600, par. 5.3</p>	<p>-----</p> <p>Management rep</p>	

GUIDELINES – Evaluation and Selection of External Providers	Date Approved	Data Form A-840-001
<p>Providers are evaluated and selected by one of the following methods:</p> <p>Review methods listed below at par 1.1 to 1.6 and select one or more that are appropriate for your company.</p> <p style="color: blue;">If you have goods or services that vary in its impact on quality you may want to set up categories, the higher the impact the more comprehensive the method. You may need to combine more than one method, for example an audit and samples for inspection and test.</p> <p>1.1 The provider is, at a minimum, registered to ISO 9001:2015.</p> <ul style="list-style-type: none"> • Purchasing department staff reviews and maintains a copy of their certificate and quality manual on file. ▪ Purchasing / Quality management staff performs quality system development with the objective of provider conformance to ISO 9001:2015 and leading to AS 9100 D. <p>1.2 The provider provides graded or classed material, and provides certificate of analysis with the material or item.</p> <p>1.3 Samples of the materials or items are provided for inspection and test, with satisfactory results.</p> <ul style="list-style-type: none"> • The person requesting the purchase documents the sample size required and the inspection and test to be performed on the purchasing documents. • Completed inspection and test records show the criteria for acceptance and the actual results. If they are acceptable, the requisitioner sends them to purchasing to be kept in the provider's file. <p>1.4 An audit of the provider confirms that required elements of a quality system are in place and results documented in the provider assessment report F-840-001.</p> <ul style="list-style-type: none"> • The Quality manager assigns an individual or team to perform the audit. • The Quality manager reviews the completed audit checklist, and determines if the supplier meets requirements. • If the provider meets requirements, the purchasing manager indicates acceptance on the provider assessment report and keeps the audit checklist in the provider's file. • The approved provider is added to the List of acceptable sources, form F-840-002. <p>1.5 The provider is specified by the customer contract. The use of customer designated providers does not relieve Your Company of the responsibility to ensure quality.</p> <p>1.6 The Purchasing department places a trial order.</p> <ul style="list-style-type: none"> • Purchasing department orders the material or item, and the requisitioner uses the material, and measures the results. • If the results are not acceptable, the product that it was used for is controlled according to the control of nonconforming product procedure, P-870. • If the results are acceptable, they are documented and kept in the provider's file. 		