

AS9100 Store
QUALITY FOR AEROSPACE

AS9100 Rev C

Internal Auditor Training



Trainer's Guide



Overview

These course materials are meant to train people to conduct internal quality audits within your organization, which are necessary to meet the internal audit requirements of the AS9100 REV C standard.

The course is divided into two sections:

1. The first section will familiarize the students with the requirements AS9100 quality management system.
 - Allow 4 hours for this section.
2. The second section is devoted to the auditing process. The students will go through all the steps required for an audit, with hands on involvement in performing each step by conducting a mock audit of a fictitious company.
 - Allow 8 hours for this section.

This guide contains everything the instructor needs to lead the class. **We recommend that you print this guide** as you'll need the PowerPoint speaker notes to lead the class.

Notes:

- It is assumed that the instructor has certified Lead Auditor credentials or equivalent experience. This is not meant as a self study course.
- It is recommended that the first audit the student is involved with be under the leadership of a lead auditor who has audit experience.



Course Materials

The supplies you will need are:

- PowerPoint: **Guide to Internal Audits** (included).
- PowerPoint: **Requirements of AS 9100 Rev C** (included).
 - A complete version with Speaker Notes is in this Trainer's Guide
- PowerPoint: **Steps of Internal Audit** (included).
 - A complete version with Speaker Notes is in this Trainer's Guide
- Student Manual (included).
 - Ø Print one copy for **each student**
 - Ø You may wish to have extra copies of the CPAR form
 - Ø It includes reduced versions of all the PowerPoints.
- Sticky Bubble Gum Company Documents and Records (included).
 - Ø Print one copy for **each team** of two or three students.

Qty	Sticky Bubble Gum Documents and Records	# of Pages
1	Quality Manual	10
1	Internal Audit Master Schedule	1
1	P-4.2-009 Control of Documents Procedure	2
1	Master Document List	1
1	P-5.0-002 Management Responsibility Procedure	3
1	SBG Organizational Chart	1
2	Management Review Minutes	2
1	P-7.2-005 Customer Related Processes Procedure	2
4	Quotes with Client PO's	8
1	P-7.4-004 Purchasing Procedure	2
1	F-7.4-005 Approved Vendor List Form	1
7	SBG PO's to SBG Vendors	7
3	F-7.4-003 Subcontractor Problem Log Form	3
1	Product Flow Chart	1
1	750-W-30 Bulk Gum Batching Work Instructions	2
1	750-W-140 Texturizing Work Instructions	2
1	P-8.3-003 Control of Nonconforming Product Procedure	1
1	P-8.5-001 Corrective Action Procedure	2
1	F-8.5-002 Corrective Action Log Form	1
11	F-8.5-001 Corrective Action Request (CAR) Form	11
2	F-852-001-A Corrective/Preventive Action Request (CPAR) Form	4

- The AS9100 REV C Standard (**NOT Included***)
 - Ø One copy for every 2-3 students.
 - Ø Standards are available electronically from <http://www.as9100store.com/BuyStandards.aspx>

* The AS9100 REV C Standard is a copyrighted document and we are unable to include it.

Agenda

I. The Standard

- Introduction to Auditing
- 0:15 Presentation: Guide to Internal Auditing AS9100
- 0:15 Review Document: AS9100 REV C
- 0:30 Exercise: Is it a Requirement?
- 2:00 Presentation: Requirements of AS 9100 Rev C
- 0:45 Exercise: Find the Requirement
- 0:15 Questions

II. The Audit

- 0:30 Scheduling the Audit
- 0:30 Planning the Audit
- 0:45 Opening Meeting
- 0:45 Audit 4.2 Documentation
- 0:45 Audit 5.0 Management Responsibility
- 0:45 Audit 7.2 Customer-Related processes
- 0:45 Audit 7.4 Purchasing
- 0:45 Audit 8.5 Corrective Action
- 0:30 Auditors Document Findings
- 0:30 Final Audit Report
- 0:30 Closing Meeting
- 0:30 Creating the Audit File

The Standard

Introduction to Auditing

This section will familiarize the students with the requirements AS9100 REV C quality management system (QMS).

1. Review the **Guide to Internal Auditing AS9100** Power Point Presentation with the group.
2. Review and discuss the organization of the AS9100 REV C document so the students can familiarize themselves with how the standard is structured.
3. Complete the exercise “Is it a Requirement?” below.



Exercise: Is it a Requirement?

Have the students open to “**Is it a Requirement**” in the student manual. Working in groups of 2 or 3, have them determine whether or not:

- The statement is true or false
- Write down the clause of the standard where they found it.

Notes:

- This is not a test, but an exercise to get them familiar with the standard, so the trainer can go around and help the teams, particularly the slower teams.
- This can be done individually ahead of time to reduce class time

After one or two teams finish, or after a maximum of about 45 minutes, you can go through the statements and discuss the answers.

- An answer key is on the next page.
- Remind the students that there are some things that are mentioned in more than one place in the standard, so there could be more than one correct answer in some cases.

Is it a Requirement? *(Answer Key)*

The standard requires that: If the requirement is true, circle True and list the clause. If it is false, circle False and list the clause used.	True	False
1. Verbal orders may not be accepted.	T <i>Clause:</i>	F <i>Clause:</i> 7.2.2
2. Management must review the quality system every quarter.	T <i>Clause:</i>	F <i>Clause:</i> 5.6.1
3. A procedure must be written for contract review (receiving and processing of customer orders).	T <i>Clause:</i>	F <i>Clause:</i> 7.2
4. The effectiveness of employee training must be assessed.	T <i>Clause:</i> 6.2.2.c	F <i>Clause:</i>
5. Statistics must be used to monitor processes. Note: the intent of the new standard is to clarify the standard to the extent that the use of statistical techniques is a stated requirement.	T <i>Clause:</i> 8.1	F <i>Clause:</i>
6. Customer complaints are handled by management.	T <i>Clause:</i>	F <i>Clause:</i> 8.5.2.a
7. The results of corrective actions taken must be documented.	T <i>Clause:</i> 8.5.2.e	F <i>Clause:</i>
8. Release of product for delivery must be authorized.	T <i>Clause:</i> 8.2.4	F <i>Clause:</i>
9. There must be a documented procedure for purchasing of product. Caution: 4.2.1.d still applies	T <i>Clause:</i>	F <i>Clause:</i> 7.4
10. A list of approved suppliers must be maintained.	T <i>Clause:</i>	F <i>Clause:</i> 7.4.1
11. All non-usable customer supplied product must be returned to the customer.	T <i>Clause:</i>	F <i>Clause:</i> 7.5.4
12. Work instructions may be changed if quality assurance approves the changes.	T <i>Clause:</i>	F <i>Clause:</i> 4.2.3

AS9100 REV C Requirements

Now that the students are familiar with the organization of the standard, this section will outline **the requirements** of each section – what it is really asking them to do.

Requirements of AS9100 REV C Power Point presentation

First, there is a brief 9-page introduction to serve as a review:

- § What is AS9100?
- § What are the steps for Registration?
- § Benefits of Registration
- § The Process Model

Second, the rest of this presentation outlines the requirements of AS9100.

- AS9100 Rev C: Clause by Clause Review
 - What does AS 9100 Require?
 - What are key points of clauses?
 - What should Auditors look for?
- What are the next steps?
- Appendix: Summary of Key AS9100 Requirements



If you use the speaker's notes this review could take about 2+ hours.

- Students can take notes in their manual.
- We've included the presentation in this Trainer's Guide so you can review the notes while presenting.

1. Review **Requirements of AS9100 REV C** Power Point presentation
2. Complete the exercise "Find the Requirement" below.
3. Answer questions about AS9100 REV C to ensure they understand the material.

Exercise: Find the Requirement.

1. Introduce the 2nd exercise "**Find the Requirement**" in their student manual.
2. Have them find the clause in the standard that applies.
3. Have them work in groups as in the previous exercise.
4. Discuss the answers together.

To conclude this first section of the course, open it up to questions and answers on the standard.



What is AS 9100?

SAE International



- Representatives from the Aerospace Industry formed IAQG and designed AS 9100 as a common Quality System for Aerospace (SAE Managed)
 - Expanded to Aviation, Space & Defense (AS&D) 2009
- It is based on the ISO 9001 QMS
 - Includes 100% of ISO 9001:2008 requirements
 - 80+ additional AS&D specific clauses added
 - The latest revision is Rev C, January, 2009.
- There are also two other standards:
 - AS9110 – for Maintenance and Repair Organizations
 - AS9120 – for Stocklist Distribution Organizations

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Each member country has representatives that make up a Technical Advisory Group (TAG). These groups draft the standard, then members comment and vote on the standard. The document then becomes a standard.

These standards are not regulations. They are a method of getting a standard set of criteria for quality management systems. An outside agency, the registrar, will then audit to see if you have all the required elements in place. If you do, you will get AS 9100 registration. This registration tells others all over the world that you have this quality system in place.

As we go through the training, and cover the requirements you will see that these requirements are basically just good business practice.



8.2 Monitoring and Measurement

- 8.2.1 Customer Satisfaction
 - Customer satisfaction must be monitored as one of the measurements of performance of the QMS
 - Info may include: product conformity, delivery performance, complaints, CAPA's, etc.
 - Use specific QMS information to monitor Customer Satisfaction, then develop plans that address deficiencies

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Measuring customer satisfaction is a critical aspect of the QMS.

To promote continuous improvement of customer satisfaction

Remember, customer satisfaction is an output of the process model that was reviewed early. (*refer to process model slide again, if necessary*)

→Evidence of management focus and organizational process to measure customer satisfaction and plan improvements

Customer satisfaction data is a key measurement indicating how the QMS is performing.

It is up to the organization to determine how to measure customer satisfaction. Some things to consider include:

Complaints

Returns

Surveys

Benchmarking

Communication from customers



Appendix -AS9100 Key Requirements

§Competency, Awareness & Training (6.2)

- ú Review training records vs. plan (status)
- ú Examples of methods used to determine competence
- ú Review training certificates for certified personnel

§Configuration management (7.1.3)

- ú How is your CM process documented?
- ú How is the configuration identified in production areas?
- ú How do you control & document configuration changes?

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Find the Requirement *(Answer Key)*

	Clause
17. Have a maintenance program for your equipment.	6.3
18. Have adequate amounts of trained personnel for performance of work.	6.1
19. Do not release product until all required inspection has been completed and approved.	8.2.4
20. Prepare documented procedures	4.2.1.c
21. Identify where statistics are required to verify product characteristics.	8.1
22. Design outputs must enable verification against design inputs.	7.3.3.a
23. Record the unique identification of product, where required.	7.5.3
24. Assign a member of management to ensure that the quality system is established and maintained.	5.5.2.a
25. Identify inspection and test status of product.	7.5.3
26. Review the quality system at planned intervals.	5.6.1
27. Identify the monitoring and measurement equipment needed to verify product.	7.1.c
28. Release of product must be approved by the relevant authority.	8.2.4
29. Ensure that purchased product conforms to specified requirements.	7.4.3
30. Before accepting an order from a customer, review the order to ensure that requirements are defined	7.2.2
31. Conformity of product must be maintained during storage.	7.5.5
32. Document the responsibility for dealing with nonconforming product.	8.3
33. Schedule audits based on how the quality system is performing.	8.2.2

The Audit

The second section is devoted to the auditing process. Normally the class size will vary from 4 to 12, and it is recommended that you divide the class into teams of 2-3. It works best to have an even number of teams for holding opening and closing meetings.

>>>Allow 8 hours for this section.

The students will go through all the steps required for an audit, with hands on involvement in performing each step by conducting an audit of a fictitious company (Sticky Bubble Gum Company or SBG) including:

- Scheduling the Audit
- Planning the Audit
- Opening Meeting
- Audit sections of the Sticky Bubble Gum Company's QMS:
 - 4.2 Documentation
 - 5.0 Management Responsibility
 - 7.2 Customer-Related processes
 - 7.4 Purchasing
 - 8.5 Corrective Action
- Auditors Document Findings
- Final Audit Report
- Closing Meeting
- Creating the Audit File

You will lead this section using the **Steps of AS9100 Internal Audit** Power Point presentation the entire time, using the materials in this package. The Speaker Notes in the PowerPoint (beginning on the next page) will guide you along as an outline.

Note: The trainer plays the part of "Somersby, the SBG Quality Manager and others SBG personnel as required.

Each team should have:

1. A copy of the AS9100 REV C Standard.
2. A copy of the Sticky Bubble Gum (SBG) Documents & Records.
3. The Student Manual which allows them to:
 - Follow the presentation and take notes
 - View sample forms (which are presented in the PowerPoint)
 - Use blank forms (CPAR, etc.) to conduct their audit.

Steps of an AS9100 Internal Audit

(Audit of ASD Manufacturing Company)



Schedule the audit

Memo

To: Expert Audit Assistance

From: J. Sample

Date: March 5, 2011

Subject: Request for Internal Audit

As we discussed on the phone, our company will be having a registration audit in June 2011. We have developed and are implementing our quality management system and are ready for our first of a group of planned internal audits and would like your group of expert auditors to perform the audits for us before our registration audit.

During the first audit we would like the auditors to audit a general process where the audit path goes from the quality policy to product realization to customer related processes to purchasing to corrective action and finally to management review. Other processes related to the remaining clauses of the AS9100C standard will be audited during subsequent internal audits.

I would like you to come in on March 15th to review our audit files and prepare your audit plan. We will schedule the audit for the morning of April 14th.

Best regards

Joe
QA Manager / QMS Management representative

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Review the MEMO from Joe Sample (ASD Manufacturing) Quality Manager to "Expert Audit Assistance".

The class is "Expert Audit Assistance".

It is now April 14th and the class is going to perform an internal audit of ASD Manufacturing.

Prepare your checklists: 5.3 Quality policy

- Read the procedure, P-530 and Quality Manual section 5.3 for Quality Policy.
- Review the checklist for P-530
- Write any additional question you would like to ask to verify that ASD is following their procedure

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Have the students turn their manual to the **Audit checklist for P-530 Quality Policy.**
The students are now ready to audit ASD's Quality Policy.
They should make all their notes on the checklist.

To audit, use:

- The ASD Quality Manual
- P-530 the Procedure for Quality Policy
- Master Document List.

They should check the rest of the procedures in the manual, to see if they match the master list.
Have the students write down their questions on the checklist.

Note that in the Appendix to this ppt are listed some typical non-conformances that could be observed during an internal audit.

Examples are provided for the (5) main clauses 4.0 thru 8.0

You may want to show the slides in the Appendix to demonstrate to the students.

Again, the appendix is intended to outline some typical examples of non-conformances that may be observed during an internal audit.

Of course, the examples provided for the main clauses 4.0 through 8.0 are not all-inclusive and other observations may potentially be made.

Nonconformances: 4.0 Quality Management System

- In par 4.1 of the Quality Manual, the requirement to address applicable customer, statutory and regulatory requirements is missing.
- In par 4.2.2, the exclusions applicable to ASD are not described.
- For par 4.2.3, the master list (shown at page 19) that controls records does not show approval dates for the procedures.
- For par 4.2.4, the requirement to control records created and retained by suppliers is not addressed.

Conclusion

After the students have completed their presentations, you can:

1. Show them the final slides in the ***Steps of AS9100 Internal Audit*** Power Point presentation outlining the nonconformances for each section.
 - Remember, there is often more than one way to look at a situation, especially in a fictitious setting like SBG. Therefore, encourage open discussion on why they consider items a nonconformance.
 - You may want to add their suggestions to the course material for next time.
2. If you feel that the student has satisfactorily understood the material, you may issue them a certificate (this is a separate MS Word file in your package). Use your judgment to issue this based upon:
 - Participation
 - Ideas
 - Leadership
 - Approach
 - Etc.
3. Schedule an audit of your facility to reinforce the material.

