



Comparison of Selected Aviation Quality Standards, Military Specifications and Federal Aviation Regulations with ISO 9000-2000, AS 9100 and EN 9100 International Standards

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Comparison of Selected Aviation Quality Standards, Military Specifications, and FAA Regulations with ISO 9000-2000, AS 9100 and EN 9100 (Revised)

This report provides an updated general comparison of selected military and commercial specifications and standards, as well as applicable requirements from the FAA, for establishing and assessing quality programs. The baseline for this comparison is ANSI/ASQC Q9002 (or the international quality standard ISO 9000-2000), SAE AS-9100 and the European standard EN 9100. These standards were selected as the best baseline for comparison within the aviation industry because of their global acceptance and the scope and framework of its quality system requirements.

The military specifications (both rescinded in 1996 but remaining in use for many existing maintenance contracts) are

- ◆ MIL-Q-9858A, *Quality Program Requirements and*
- ◆ MIL-I-45208A, *Inspection System Requirements.*

The commercial standards are

- ◆ ASA 100, *Airline Suppliers Association Quality System Standard.*

The FAA requirements documents include

- ◆ FAA Advisory Circular 00-56, *Voluntary Industry Distributor Accreditation Program,(ASA-100)*
- ◆ 14 CFR 145, FAR Part 145, *Repair Stations,*
- ◆ 14 CFR 43, FAR Part 43, *Maintenance, Preventive Maintenance, Rebuilding, and Alteration,* and
- ◆ 14 CFR 21, FAR Part 21, *Certification Procedures for Products and Parts.*

The intent of this introduction is twofold. First, the comparison highlights areas where the various standards, specifications, and regulations overlap in defining quality requirements. For example, all listed documents identify the general requirements for inspection and testing, item 4.10.1. Second, the comparison demonstrates where there are voids in requirements among these same standards, specifications, and regulations. For example, training, item 4.18, where all referenced documents address training except the two military specifications and FAR Part 21. Likewise, only ISO 9000-2000, MIL-Q-9858A, and MIL-I-45208A address corrective actions, item 4.14.2.

Table -1 contains plain language questions for the 20 major elements of ISO 9000-2000.

Table -2 is a cross-reference of the five ISO 9000 series documents, their titles, and American designations.

Table -3 provides a comparison of the additions made by AS-9000 in 1997.

Table - 4 provides a comparison of the additions or changes made by EN ISO 9000:2000 December 2000, AS-9100 issued November 1999 and EN-9100 issued January 2000.

(Note: AS9100 and EN9100 are identical in content).

The matrix outlining these comparisons is located in a second section within this report and provides visual acuity in the viewing of all standards studied.

Table -1. Key Questions Related to the 20 Elements of ISO 9002^a

4.1 Management Responsibility: Who is responsible for product or service quality and supplier quality system effectiveness?	4.2 Quality System: Does the supplier's quality system support that it will deliver what it says, and clarify how it does what it says?
4.3 Contract Review: Does the supplier's quality system ensure that the customer will receive what the marketing and sales sold to the customer?	4.4 Design Control: Does the design of the product ensure that it does what the supplier says and clarify how changes are controlled?
4.5 Document and Data Control: Are key documents controlled in the supplier's quality system throughout design, manufacturing, and service?	4.6 Purchasing: Does the supplier's quality system make sure that bought parts/services are those specified and that its suppliers are reliable?
4.7 Control of Customer-Supplied Product: How does the supplier protect, store, maintain, and fix, if necessary, materials provided by the customer?	4.8 Product Identification and Traceability: How does the supplier ensure that the customer's parts do not get mixed up with the supplier's parts and that the parts are as specified and correct for the customer's project?
4.9 Process Control: What procedures does the supplier have in place to build the customer's product properly?	4.10 Inspection and Testing: How does the supplier ensure that the customer gets what it ordered and that it works as the supplier promised?
4.11 Control of Inspection, Measuring, and Test Equipment: How does the supplier verify that test equipment is accurate?	4.12 Inspection and Test Status: How does the customer know that the product was tested?
4.13 Control of Nonconforming Product: Does the supplier have a procedure for fixing or disposing of products that do not work or fit as required?	4.14 Corrective and Preventive Action: If a problem occurs, how does the supplier ensure that it does not happen again?
4.15 Handling, Storage, Packaging, Preservation, and Delivery: How does the supplier ensure that the customer's product was built correctly and that it will be protected from damage during storage and delivery?	4.16 Control of Quality Records: How are the quality of the customer's product and its input materials documented?
4.17 Internal Quality Audits: How does the supplier check on the effectiveness and correctness of its quality system?	4.18 Training: How does the supplier know that its people who built and tested the customer's product are qualified?
4.19 Servicing: If the supplier told the customer that it provides service for the customer's product, how will the supplier do that, and how will it make sure that servicing personnel are qualified?	4.20 Statistical Techniques: If the supplier is using statistical techniques to ensure the quality of the customer's product, how will the supplier ensure that the techniques are used correctly and that the results are within limits?

^a John Rabbit and Peter Bergh, *The ISO 9000 Book, A Global Competitor's Guide to Compliance & Certification*, Quality Resources, 1993.

Table -2. Cross-Reference of ISO 9000 Standards and ANSI/ASQC Equivalents

ISO 9000 series	Title	ANSI/ASQC designation
ISO 9000:1994	<i>Quality Systems—Management and Quality Assurance Standards: Guidelines for Selection and Use</i>	ANSI/ISO/ASQC Q9002
ISO 9002	<i>Quality Systems—Model for Quality Assurance in Design/Development, Production, Installation and Servicing</i>	ANSI/ISO/ASQC Q9002
ISO 9002:1994	<i>Quality Systems—Model for Quality Assurance in Production and Installation</i>	ANSI/ISO/ASQC Q9002:1994
ISO 9003:1994	<i>Quality Systems—Model for Quality Assurance in Final Inspection and Test</i>	ANSI/ISO/ASQC Q9003:1994
ISO 9004:1994	<i>Quality Management and Quality System Elements—Guidelines</i>	ANSI/ISO/ASQC Q9004:1994
ISO 9000-2000	<i>Quality Management Systems - Fundamentals and Vocabulary and Requirements</i>	ANSI/ISO/ASQC Q9002

Table -3. Additions Made by AS-9000 (1997) to ISO 9002

To ISO 9001 requirement	AS9000 adds a requirement for
4.1.2 Organization	4.1.2.4 Documentation for quality assurance activities
4.2.2 Quality-System Procedures	4.2.2.c. Availability of quality system procedures
4.2.3 Quality Planning	4.2.3.b.(1) Design, manufacture, special tooling
4.2.3 Quality Planning	4.2.3.f.(1) Added verification points
4.2.3 Quality Planning	4.2.3.(l) Subcontractor identification and selection
4.2.3 Quality Planning	4.2.3.(j) Process controls and control plans
4.4.9 Design Changes	4.4.9.1 Customer/agency approval
4.5.3 Document and Data Changes	4.5.3.1 Change management
4.6.2 Evaluation of Subcontractors	4.6.2.d. Use customer-approved special process sources
4.6.4 Verification of Purchased Product	4.6.4.3 Right of entry
4.6.4 Verification of Purchased Product	4.6.4.4 Delegations
4.6.4 Verification of Purchased Product	4.6.5 Quality system flowdown
4.9 Process Control	4.9.d.(1) Key characteristics
4.9 Process Control	4.9.h Accountability of controlled conditions
4.9 Process Control	4.9.i Authorized controlled conditions
4.9 Process Control	4.9.j Prevention, detection, and removal of foreign objects
4.9 Process Control	4.9.l Customer approval for special processes
4.9 Process Control	4.9.2 Production tooling
4.10 General Inspection and Testing	4.10.1.1 Control of subcontracted activity
4.10.2 Receiving Inspection and Testing	4.10.2.4 Document certification test reports

Table -3. Additions Made by AS-9000 (1997) to ISO 9002

To ISO 9001 requirement	AS9000 adds a requirement for
4.10.5 Inspection and Test Records	4.10.5.1 First production article process
4.11.1 General Control of Inspection, Measuring, and Test Equipment	4.11.1.1 Tooling and personally owned acceptance equipment
4.11.2 Control Procedure	4.11.2.c.(1) Recall of inspection equipment
4.12 Inspection and Test Status	4.12.1 Controls for acceptance media
4.13.2 Review and Disposition of Nonconforming Product	4.13.2.1 Use of “use-as-is” and “repair” dispositions
4.13.2 Review and Disposition of Nonconforming Product	4.13.2.2 “Regrade” includes change in product's identification
4.13.2 Review and Disposition of Nonconforming Product	4.13.2.3 Marking and disposition of scrap
4.13.2 Review and Disposition of Nonconforming Product	4.13.2.4 Timely reporting of nonconformances
4.16 Control of Quality Records	4.16.1 Records available for review
4.19 Servicing	4.19.1 Service management system
4.20.2 Procedures for Statistical Techniques	4.20.3 Valid sampling inspection system

Table -4. Additions Made by EN-ISO-9000:, 2000 December 2000, AS 9100 November 199 and EN 9100 January 2000

ANSI/ASQC Q9002 Element and Key Questions (Note 1) Sub-element and Description	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000.
4.1: who is responsible for product or service quality and supplier quality system effectiveness...	5.1: Top management is responsible to develop, implement and continually improve the quality management system.
4.1.1: define and document policy, ensure it is understood, implemented and maintained...	4.2.1: The quality management system documentation shall include statements of quality policy and quality objectives.
4.1.2: define and document responsibility...	5.5.1: Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.
4.1.3: periodic review for suitability...	5.6.1: Top management shall review the quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.
4.2.1: prepare quality manual...	4.2.2: The organization shall establish and maintain a quality manual that includes scope, procedures and interaction between the quality management processes.
4.2.2: document and implement quality...	4.2.2: The quality manual includes procedures established for the quality management system.
4.2.3: implement quality planning...	4.2.1: The quality management system must include documents needed to ensure effective planning, operation and control of its processes.
4.3.1: document and coordinate contract...	7.2.2: The organization shall review requirements related to the product, including contracts or order requirements.
4.3.2: review contract to ensure...	7.2.2: The organizational review must ensure that product requirements are defined.
4.3.3: identify contract change process...	7.2.3: The organization shall determine and implement effective arrangements for communicating with customers in relation to enquires, contract or order handling, including amendments.
4.4.1: establish and maintain documented...	7.3.1: The organization shall plan and control the design and development of products.
4.4.2: prepare plans for design and	7.3.1: The organization shall determine the design and development stages.

4.4.2: prepare plans for design and	7.3.1: The organization shall determine the responsibilities and authorities for design and development.
4.4.3: define organizational and technical....	7.3.1: The organizational shall manage the interfaces between different groups involved in design and development.
4.4.4: identify and document design input...	7.3.2: Inputs relating to product requirements shall be determined and records maintained.
4.4.5: document design output...	7.3.3: The outputs of design and development shall be in a form that enables verification against design and development inputs.
4.4.6: conduct formal reviews...	7.3.4: Systematic reviews of design and development shall be performed according to planned arrangements.
4.4.7: verify design stage outputs...	7.3.5: Verification must ensure the design and development outputs have met the design and development inputs.
4.4.8: validate product against defined...	7.3.6: Design and development validation must ensure the resulting product is capable of meeting the requirements for the specified application.
4.4.9: document and review all design...	7.3.7: The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation.
4.5.1: establish and maintain procedures...	4.2.3: A documented procedure shall be established to ensure that changes and the current revision status of documents are identified and that relevant revisions are available at points of use.
4.5.2: maintain master list...	4.2.3: A documented procedure shall be established to ensure changes and the current revision status of documents are identified.
4.5.3: approve changes...	4.2.3: A documented procedure shall be established to ensure documents are approved prior to issue.
4.6.1: establish and maintain procedures...	7.4.1: The organization shall ensure that purchased products conform to specific purchase requirements.
4.6.2: evaluate and select subcontractors...	7.4.1: The organization shall evaluate and select suppliers based on their ability to supply products in accordance with the organization's requirements.
4.6.3: review and approve purchasing...	7.4.2: Purchasing information shall describe the product to be purchased, including requirements for approval of product, processes, and equipment.
4.6.4: verification of the purchased...	7.4.3: The organization shall establish and implement the inspection or other activities necessary to ensuring the purchased product meets specific requirements.

4.7: supplier establish and maintain...	7.5.4: The organization shall identify, verify, protect, and safeguard customer property provided for use or incorporation into the product.
4.8: identify the product from receipt...	7.5.5: The organization shall preserve the conformity of product during initial processing and delivery to the intended destination.
4.9: identify and plan the production...	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.
4.10.1: establish and maintain documented...	7.6: The organization shall determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements.
4.10.2: establish and implement inspection...	7.5.1: The organization shall plan and carry out production and service provisions, including the implementation of release, delivery and post-delivery activities.
4.10.3: inspect and test products as...	7.6: Where necessary to ensure valid results, measuring equipment shall be calibrated or verified at specific intervals.
4.10.4: carry out all final inspections and ...	8.2.4: The organization shall monitor and measure the characteristics of the product to verify product requirements have been met. Product release and service delivery shall not proceed until the planned arrangements (see 7.1) have been satisfactorily controlled.
4.10.5: establish and maintain records ...	8.2.4: Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate person(s) authorizing release of the product.
4.11.1: establish and maintain documented ...	7.6: Measuring equipment shall be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards.
4.11.2: select appropriate inspection...	7.6: Measuring equipment shall be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards. Records will be maintained.
4.12: identify the inspection and test...	8.2.4: Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate person(s) authorizing release of the product.
4.13.1: establish and maintain documented...	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.
4.13.2: disposition of	8.3: The organization shall deal with nonconforming

nonconforming...	product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking action to preclude its original intended use or application.
4.14.1: establish and maintain documented...	8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent recurrence.
4.14.2: document procedures for handling...	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action as needed.
4.14.3: documented procedures for use of ...	8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.
4.15.1: establish documented procedures for...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.2: provide methods of handling...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.3: use designated storage areas...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.4: control packing, packaging...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.5: apply appropriate methods of...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.6: arrange for appropriate protection ...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling,

	packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.16: establish and maintain documented ...	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.
4.17: establish and maintain documented ...	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.
4.18: establish and maintain documented procedures for identifying training needs ...	6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.
4.19: when specified, establish and maintain...	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.
4.20.1 and 4.20.2: identify need for statistical ...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.
4.20.2: establish and maintain documented...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.
ANSI/ASQC Q9002 Element and Key Questions (Note 1) Sub-element and Description	SAE AEROSPACE STANDARD, AS 9100 , Issued November 1999, NOTE: Includes all ASQ9001:1994 quality system

	requirements and specifies additional requirements for the quality system of the aerospace industry.
4.1: who is responsible for product or service quality and supplier quality system effectiveness...	
4.1.1: define and document policy, ensure it is understood, implemented and maintained...	
4.1.2: define and document responsibility...	4.1.2.3: The Management representative shall have authority and organizational freedom to resolve matters pertaining to quality. 4.1.2.4: Suppliers have a quality assurance activity performed by an individual process performer (e.g., operator, buyer, planner) shall have procedures that define the specific tasks and responsibilities that are authorized and the corresponding requirements and training necessary to perform those tasks.
4.1.3: periodic review for suitability...	
4.2.1: prepare quality manual...	4.2.1: Other Quality System requirements imposed by the applicable Regulatory Authorities shall be included or referenced in the Quality System documentation.
4.2.2: document and implement quality...	4.2.2c: ensure that quality system procedures are readily accessible to personnel who are responsible for performing work in conformance to requirements, and to customer and/or regulatory authorities representatives.
4.2.3: implement quality planning...	4.2.3b: the identification and acquisition of any controls, processes, equipments (including inspection and test equipment); fixtures, resources and skills that may be needed to achieve the required quality; the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key characteristics. 4.2.3f: the identification of suitable verification at appropriate stages in the realization of product; the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization. 4.2.3i: the identification and selection of subcontractors. 4.2.3j: the establishment of appropriate process controls and development of control plans where key characteristics have been identified. 4.2.3k: the identification of material, processes and services to support operation and maintenance of the product.
	4.2.4: Configuration Management: The supplier shall establish, document and maintain a configuration management process appropriate to the product. NOTE: Guidance on configuration management is

	given in ISO-10007.
	4.2.4: Configuration Management: The supplier shall establish, document and maintain a configuration management process appropriate to the product. NOTE: Guidance on configuration management is given in ISO-10007.
4.3.1: document and coordinate contract...	4.3.1: The supplier shall also establish and maintain documented procedures for tender review and for the coordination of these activities.
4.3.2: review contract to ensure...	4.3.2d: risk associated with new technology and/or short delivery time scale have been evaluated.
4.3.3: identify contract change process...	4.3.3: Contract review requirements shall also apply to contract amendment.
4.4.1: establish and maintain documented...	4.4.1: The responsibilities and authorities for the approval of the design data shall be defined. When the supplier subcontracts design or development activities, the supplier shall control the subcontractor activity consistent with the requirements of paragraph 4.4.

4.4.2: prepare plans for design and...	4.4.2.1: Design and Development Management Planning: The supplier shall plan the different phases used to carry out the design and development, in respect of the organization, task sequence, mandatory steps, significant stages and method of configuration control. The supplier shall give consideration to the following activities as appropriate: <ul style="list-style-type: none"> - structure the design effort into significant elements according to the complexity, - for each element analyze the tasks and the necessary resources for its design and development. (This analysis shall consider an identified responsible person, design content, planning constraints, and performance conditions). 4.4.2.2: Reliability, Maintainability, Safety: The different design and development tasks to be carried out shall be defined according to specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements.
4.4.3: define organizational and technical...	
4.4.4: identify and document design input...	4.4.4: The input data to the design shall be defined and documented in terms of functional requirements. In the case of a product requiring design and development planning the supplier shall establish the input data specific to each element and shall review to ensure consistency with requirements.
4.4.5: document design output...	4.4.5: All pertinent data required to allow the product

	<p>to be identified, manufactured, inspected, used and maintained shall be defined by the supplier e.g.:</p> <ul style="list-style-type: none"> - drawings, parts lists, specifications, - a listing of those drawings, parts lists, specifications necessary to define the configuration and the design features of the product, - information on material, processes, type of manufacturing and assembly of the product necessary to ensure the conformity of the product.
4.4.6: conduct formal reviews...	<p>4.4.6: Consideration shall be given to:</p> <ul style="list-style-type: none"> - the validity of design in relation to the objectives of the design stage, - actions which need to be taken in the event of any identified deviation, - decision necessary for progression to the next stage.
4.4.7: verify design stage outputs...	
4.4.8: validate product against defined...	<p>4.4.8.1: Documentation of Design Verification and Validation: At the completion of development, the supplier shall ensure that reports, calculations, test results, etc. demonstrate that the product definition meets the specification requirements for all identified operational conditions and the product will function correctly.</p> <p>4.4.8.2: Design Verification and Validation Testing: Where tests are necessary for verification and validation, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following:</p> <ul style="list-style-type: none"> - test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria, - test procedures describe the method of operation, the performance of the test, and the recording of the results, - the correct configuration standard of the product is submitted for the test, - the requirements of the test plan and the test procedures are observed, - the acceptance criteria are met.
4.4.9: document and review all design...	<p>4.4.9: Design change approval: The supplier's design control shall provide for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement.</p>
4.5.1: establish and maintain procedures...	
4.5.2: maintain master list...	<p>4.5.2: When customer furnished digital data is used for design, production and/or inspection, the supplier shall</p>

	establish system controls in accordance with customer requirements.
4.5.3: approve changes...	
4.6.1: establish and maintain procedures...	4.6.1: The supplier shall be responsible for the quality of all products purchased from subcontractors, including customer-designated sources.
4.6.2: evaluate and select subcontractors...	<p>4.6.2d: ensure where required that both the supplier and all subcontractors use customer-approved special process sources,</p> <p>4.6.2e: ensure that the organization having responsibility for approving subcontractor quality systems has the authority to disapprove the use of sources,</p> <p>4.6.2f: periodically review subcontractor performance. Records of these reviews shall be maintained and used as a basis for establishing the level of supplier controls to be implemented,</p> <p>4.6.2g: maintain procedures that define the necessary actions to take when dealing with subcontractors, which do not meet requirements.</p> <p>A list of approved subcontractors shall be maintained and shall specify the scope of approval.</p>
4.6.3: review and approve purchasing...	<p>4.6.3d: design, test, examination, inspection and customer acceptance requirements and any related instructions and requirements;</p> <p>4.6.3e: right of access by the purchaser, their customer and regulatory authorities to all facilities involved in the order and all applicable quality records;</p> <p>4.6.3f: requirements for test specimens (production method, number, storage conditions etc) for design approval, inspection, investigation or auditing;</p> <p>4.6.3g: requirements relative to the notification of anomalies, changes in definition and the approval of their processing;</p> <p>4.6.3h: requirements to flow down to subtier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.</p>
4.6.4: verification of the purchased...	<p>4.6.4: Verification of Purchased Product: The supplier shall implement procedures to verify purchased products. These may include:</p> <ul style="list-style-type: none"> - obtaining objective evidence of the quality of the product from subcontractors (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control); - inspection and audit at source; - review of the required documentation; - inspection of products at delivery' - delegation of verification to the subcontractor, or subcontractor certification. <p>When delegation is used the supplier shall define the requirements for delegation and maintain a list of</p>

	<p>delegations. 4.6.4.1: added. 4.6.4.2: added.</p>
4.7: supplier establish and maintain...	
4.8: identify the product from receipt...	<p>4.8: According to the level of traceability required by the contract, regulatory, or other established requirement, the supplier's system shall provide for:</p> <ul style="list-style-type: none"> - identification to be maintained throughout the product life; - all the products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch. - For an assembly, the identity of its components and those of the next higher assembly to be traced; - For a given product, a sequential record of its production (manufacture, assembly, inspection) to be retrieved. <p>The supplier shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.</p>
4.9: identify and plan the production...	<p>4.9.1b: use of suitable production, installation and servicing equipment, and a suitable working environment (e.g., temperature, humidity, lighting and cleanness, etc.)</p> <p>4.9.1d: monitoring and control of suitable process parameters and product characteristics; monitoring and control of key characteristics where required by purchase order/contract;</p> <p>4.9.1h: accountability for all product during manufacture (e.g., parts quantities, split orders, nonconformities);</p> <p>4.9.1i: evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized;</p> <p>4.9.1j: provision for the prevention, detection, and removal of foreign objects;</p> <p>4.9.1k: utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality.</p>
4.9: identify and plan the production...	<p>4.9.1b: use of suitable production, installation and servicing equipment, and a suitable working environment (e.g., temperature, humidity, lighting and cleanness, etc.)</p> <p>4.9.1d: monitoring and control of suitable process parameters and product characteristics; monitoring and control of key characteristics where required by</p>

	<p>purchase order/contract;</p> <p>4.9.1h: accountability for all product during manufacture (e.g., parts quantities, split orders, nonconformities);</p> <p>4.9.1i: evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized;</p> <p>4.9.1j: provision for the prevention, detection, and removal of foreign objects;</p> <p>4.9.1k: utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality.</p>
	<p>4.9.1.1: Production Documentation: Production operations shall be carried out in accordance with approved data. This data shall contain as necessary:</p> <ul style="list-style-type: none"> - drawings, parts lists, process flow charts including inspection operations, production documents (e.g., manufacturing plans, traveler, router, work order, process cards) and inspection documents; - a list of specific or non specific tools and numerical control (NC) machine programs; - documents associated with specific tools enabling the tools to be designed, produced, validated, controlled, used and maintained. <p>4.9.1.2: Control of Production Process Changes: Persons required to approve changes to production processes shall be identified and authorized. The supplier shall identify those changes which require customer acceptance in accordance with contractual requirements prior to making any change. Changes affecting processes, production equipment, tools and programs shall be documented. Procedures shall be available to control their implementation. The results of changes to production processes shall be assessed to confirm that the desired effect has been achieved without adverse effects to product quality.</p> <p>4.9.1.3: Control of Production Equipment, Tools and Numerical Control (NC) Machine Programs: Production equipment, tools and programs shall be validated prior to use, maintained and inspected periodically according to documented procedures. Validation prior to production use shall include verification of the first article produced to the design data/specification. Storage requirements, including periodic preservation/condition checks, shall be established for production equipment or tooling in storage.</p> <p>4.9.1.4: Control of Work Occasionally Performed Outside the Supplier's Facilities: When planning to carry-out work at a location other than its normal facilities, the supplier shall define the procedure to validate the location and to control the work.</p> <p>4.9.2: Special Processes: When production operations call for special processes, the following</p>

	<p>requirements shall apply:</p> <ul style="list-style-type: none"> - the special processes to be implemented shall be identified and qualified prior to use; - the supplier shall control applicable aspects of special processes, as defined by the process specifications, this includes special process changes; - the supplier shall define the significant operations and parameters in the process to be controlled during production.
4.10.1: establish and maintain documented...	<p>4.10.1: These procedures shall specify the resources and methods to be implemented, and methods of recording the results. These procedures shall include:</p> <ul style="list-style-type: none"> - identification of authorized personnel; - limits of authorization; - training and qualification requirements. <p>Inspection documentation shall be maintained and controlled by the supplier. This may be part of the manufacturing documentation, but shall include:</p> <ul style="list-style-type: none"> - criteria for acceptance and rejection; - where in the sequence inspection and testing operations are performed; - documents recording inspection results; - identification of production inspection instruments; - documents associated with specific inspection instruments enabling them to be designed, produced, validated, controlled, used and maintained. <p>When the supplier subcontracts inspection or test activities, the supplier shall control the subcontracted activity consistent with requirements of Section 4.6.</p>
4.10.2: establish and implement inspection...	<p>4.10.2.4: When certification test reports are utilized to accept material, the supplier shall assure that data in said reports are acceptable per applicable specifications. The supplier shall periodically validate test reports.</p>
4.10.3: inspect and test products as...	
4.10.4: carry out all final inspections and ...	
4.10.5: establish and maintain records ...	
	<p>4.10.6: First Article Inspection: The supplier's system shall provide a process, as appropriate, for the inspection, verification, and documentation of the first production article.</p> <p>First Article Inspection documentation shall be retained (see 4.16) and shall include a list of the characteristics</p>

	<p>required by the design data and any required tolerances, the actual results, and when testing is required, the results of the tests.</p> <p>The First Article Inspection shall be updated to include production process changes or configuration changes.</p>
4.11.1: establish and maintain documented ...	<p>NOTE ADDED: Inspection, measuring and test equipment includes all types and devices used by any supplier or subcontractor personnel to validate materials, products, processes or other inspection, measuring and test equipment. This includes test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also includes personally owned equipment used for product acceptance.</p> <p>Responsibilities shall be defined regarding the control of inspection, measuring and test equipment, including those used by operators as well as, where appropriate, test devices and tools supplied by the customer.</p>
4.11.2: select appropriate inspection...	<p>4.11.2b: added: The supplier shall maintain a list of this equipment, including where appropriate, test devices and tools supplied by the customer.</p> <p>4.11.2f: added: When the assessment indicates that the product may be nonconforming, disposition the nonconformance.</p> <p>4.11.2j: define the method for recall of measuring devices that require calibration (ISO 10012).</p>
4.12: identify the inspection and test...	4.12.1: Authorized Personnel: Records shall
4.13.1: establish and maintain documented...	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.
4.13.2: disposition of nonconforming...	8.3: The organization shall deal with nonconforming product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking action to preclude its original intended use or application.
4.14.1: establish and maintain documented...	8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent recurrence.
4.14.2: document procedures for handling...	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action needed, etc.
4.14.3: documented procedures for use of ...	8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions

	shall be appropriate to the effects of the potential problems.
4.15.1: establish documented procedures for...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.2: provide methods of handling...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.3: use designated storage areas...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.4: control packing, packaging...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.5: apply appropriate methods of...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.6: arrange for appropriate protection ...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.16: establish and maintain documented ...	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.
4.17: establish and maintain documented ...	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality

	management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.
4.18: establish and maintain documented procedures for identifying training needs ...	6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.
4.19: when specified, establish and maintain...	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.
4.20.1: identify need for statistical...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.
4.20.2: establish and maintain documented...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.

ANSI/ASQC Q9002 Element and Key Questions (Note 1) Sub-element and Description	AECMA , EN 9100 , Issued December 2000 NOTE: This European Standard is identical to the SAE-AS 9100.
4.1: who is responsible for product or service quality and supplier quality system effectiveness...	
4.1.1: define and document policy, ensure it is understood, implemented and maintained...	
4.1.2: define and document responsibility...	4.1.2.3: The Management representative shall have authority and organizational freedom to resolve matters pertaining to quality. 4.1.2.4: Suppliers have a quality assurance activity performed by an individual process performer (e.g.,

	operator, buyer, planner) shall have procedures that define the specific tasks and responsibilities that are authorized and the corresponding requirements and training necessary to perform those tasks.
4.1.3: periodic review for suitability...	
4.2.1: prepare quality manual...	4.2.1: Other Quality System requirements imposed by the applicable Regulatory Authorities shall be included or referenced in the Quality System documentation.
4.2.2: document and implement quality...	4.2.2c: ensure that quality system procedures are readily accessible to personnel who are responsible for performing work in conformance to requirements, and to customer and/or regulatory authorities representatives.
4.2.3: implement quality planning...	4.2.3b: the identification and acquisition of any controls, processes, equipments (including inspection and test equipment); fixtures, resources and skills that may be needed to achieve the required quality; the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key characteristics. 4.2.3f: the identification of suitable verification at appropriate stages in the realization of product; the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization. 4.2.3i: the identification and selection of subcontractors. 4.2.3j: the establishment of appropriate process controls and development of control plans where key characteristics have been identified. 4.2.3k: the identification of material, processes and services to support operation and maintenance of the product.
	4.2.4: Configuration Management: The supplier shall establish, document and maintain a configuration management process appropriate to the product. NOTE: Guidance on configuration management is given in ISO-10007.
	4.2.4: Configuration Management: The supplier shall establish, document and maintain a configuration management process appropriate to the product. NOTE: Guidance on configuration management is given in ISO-10007.
4.3.1: document and coordinate contract...	4.3.1: The supplier shall also establish and maintain documented procedures for tender review and for the coordination of these activities.
4.3.2: review contract to ensure...	4.3.2d: risk associated with new technology and/or short delivery time scale have been evaluated.
4.3.3: identify contract change	4.3.3: Contract review requirements shall also apply to

process...	contract amendment.
4.4.1: establish and maintain documented...	4.4.1: The responsibilities and authorities for the approval of the design data shall be defined. When the supplier subcontracts design or development activities, the supplier shall control the subcontractor activity consistent with the requirements of paragraph 4.4.
4.4.2: prepare plans for design and...	<p>4.4.2.1: Design and Development Management Planning: The supplier shall plan the different phases used to carry out the design and development, in respect of the organization, task sequence, mandatory steps, significant stages and method of configuration control.</p> <p>The supplier shall give consideration to the following activities as appropriate:</p> <ul style="list-style-type: none"> - structure the design effort into significant elements according to the complexity, - for each element analyze the tasks and the necessary resources for its design and development. (This analysis shall consider an identified responsible person, design content, planning constraints, and performance conditions). <p>4.4.2.2: Reliability, Maintainability, Safety: The different design and development tasks to be carried out shall be defined according to specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements.</p>
4.4.2: prepare plans for design and...	
4.4.3: define organizational and technical...	
4.4.4: identify and document design input...	4.4.4: The input data to the design shall be defined and documented in terms of functional requirements. In the case of a product requiring design and development planning the supplier shall establish the input data specific to each element and shall review to ensure consistency with requirements.
4.4.5: document design output...	<p>4.4.5: All pertinent data required to allow the product to be identified, manufactured, inspected, used and maintained shall be defined by the supplier e.g.:</p> <ul style="list-style-type: none"> - drawings, parts lists, specifications, - a listing of those drawings, parts lists, specifications necessary to define the configuration and the design features of the product, - information on material, processes, type of manufacturing and assembly of the product necessary to ensure the conformity of the product.
4.4.6: conduct formal reviews...	<p>4.4.6: Consideration shall be given to:</p> <ul style="list-style-type: none"> - the validity of design in relation to the objectives of

	<p>the design stage,</p> <ul style="list-style-type: none"> - actions which need to be taken in the event of any identified deviation, - decision necessary for progression to the next stage.
4.4.7: verify design stage outputs...	
4.4.8: validate product against defined...	<p>4.4.8.1: Documentation of Design Verification and Validation: At the completion of development, the supplier shall ensure that reports, calculations, test results, etc. demonstrate that the product definition meets the specification requirements for all identified operational conditions and the product will function correctly.</p> <p>4.4.8.2: Design Verification and Validation Testing: Where tests are necessary for verification and validation, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following:</p> <ul style="list-style-type: none"> - test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria, - test procedures describe the method of operation, the performance of the test, and the recording of the results, - the correct configuration standard of the product is submitted for the test, - the requirements of the test plan and the test procedures are observed, - the acceptance criteria are met.
4.4.9: document and review all design...	4.4.9: Design change approval: The supplier's design control shall provide for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement.
4.5.1: establish and maintain procedures...	
4.5.2: maintain master list...	4.5.2: When customer furnished digital data is used for design, production and/or inspection, the supplier shall establish system controls in accordance with customer requirements.
4.5.3: approve changes...	
4.6.1: establish and maintain procedures...	4.6.1: The supplier shall be responsible for the quality of all products purchased from subcontractors, including customer-designated sources.
4.6.2: evaluate and select subcontractors...	<p>4.6.2d: ensure where required that both the supplier and all subcontractors use customer-approved special process sources,</p> <p>4.6.2e: ensure that the organization having</p>

	<p>responsibility for approving subcontractor quality systems has the authority to disapprove the use of sources,</p> <p>4.6.2f: periodically review subcontractor performance. Records of these reviews shall be maintained and used as a basis for establishing the level of supplier controls to be implemented,</p> <p>4.6.2g: maintain procedures that define the necessary actions to take when dealing with subcontractors, which do not meet requirements.</p> <p>A list of approved subcontractors shall be maintained and shall specify the scope of approval.</p>
4.6.3: review and approve purchasing...	<p>4.6.3d: design, test, examination, inspection and customer acceptance requirements and any related instructions and requirements;</p> <p>4.6.3e: right of access by the purchaser, their customer and regulatory authorities to all facilities involved in the order and all applicable quality records;</p> <p>4.6.3f: requirements for test specimens (production method, number, storage conditions etc) for design approval, inspection, investigation or auditing;</p> <p>4.6.3g: requirements relative to the notification of anomalies, changes in definition and the approval of their processing;</p> <p>4.6.3h: requirements to flow down to subtier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.</p>
4.6.4: verification of the purchased ...	<p>4.6.4: Verification of Purchased Product: The supplier shall implement procedures to verify purchased products. These may include:</p> <ul style="list-style-type: none"> - obtaining objective evidence of the quality of the product from subcontractors (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control); - inspection and audit at source; - review of the required documentation; - inspection of products at delivery' - delegation of verification to the subcontractor, or subcontractor certification. <p>When delegation is used the supplier shall define the requirements for delegation and maintain a list of delegations.</p> <p>4.6.4.1: added.</p> <p>4.6.4.2: added.</p>
4.7: supplier establish and maintain...	
4.8: identify the product from receipt...	<p>4.8: According to the level of traceability required by the contract, regulatory, or other established requirement, the supplier's system shall provide for:</p> <ul style="list-style-type: none"> - identification to be maintained throughout the product life;

	<ul style="list-style-type: none"> - all the products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch. - For an assembly, the identity of its components and those of the next higher assembly to be traced; - For a given product, a sequential record of its production (manufacture, assembly, inspection) to be retrieved. <p>The supplier shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.</p>
4.9: identify and plan the production...	<p>4.9.1b: use of suitable production, installation and servicing equipment, and a suitable working environment (e.g., temperature, humidity, lighting, etc.)</p> <p>4.9.1d: monitoring and control of suitable process parameters and product characteristics; monitoring and control of key characteristics where required by purchase order/contract;</p> <p>4.9.1h: accountability for all product during manufacture (e.g., parts quantities, split orders, nonconformities);</p> <p>4.9.1i: evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized;</p> <p>4.9.1j: provision for the prevention, detection, and removal of foreign objects;</p> <p>4.9.1k: utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality.</p>
4.9: identify and plan the production...	<p>4.9.1.1: Production Documentation: Production operations shall be carried out in accordance with approved data. This data shall contain as necessary:</p> <ul style="list-style-type: none"> - drawings, parts lists, process flow charts including inspection operations, production documents (e.g., manufacturing plans, traveler, router, work order, process cards) and inspection documents; - a list of specific or non specific tools and numerical control (NC) machine programs; - documents associated with specific tools enabling the tools to be designed, produced, validated, controlled, used and maintained. <p>4.9.1.2: Control of Production Process Changes: Persons required to approve changes to production processes shall be identified and authorized. The supplier shall identify those changes which require customer acceptance in accordance with contractual requirements prior to making any change. Changes affecting processes, production equipment, tools and programs shall be documented. Procedures shall be available to control their implementation. The results of changes to production processes shall be</p>

	<p>assessed to confirm that the desired effect has been achieved without adverse effects to product quality.</p> <p>4.9.1.3: Control of Production Equipment, Tools and Numerical Control (NC) Machine Programs: Production equipment, tools and programs shall be validated prior to use, maintained and inspected periodically according to documented procedures. Validation prior to production use shall include verification of the first article produced to the design data/specification.</p> <p>Storage requirements, including periodic preservation/condition checks, shall be established for production equipment or tooling in storage.</p> <p>4.9.1.4: Control of Work Occasionally Performed Outside the Supplier's Facilities: When planning to carry-out work at a location other than its normal facilities, the supplier shall define the procedure to validate the location and to control the work.</p> <p>4.9.2: Special Processes: When production operations call for special processes, the following requirements shall apply:</p> <ul style="list-style-type: none"> - the special processes to be implemented shall be identified and qualified prior to use; - the supplier shall control applicable aspects of special processes, as defined by the process specifications, this includes special process changes; - the supplier shall define the significant operations and parameters in the process to be controlled during production.
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<p>4.10.1: establish and maintain documented...</p>	<p>4.10.1: These procedures shall specify the resources and methods to be implemented, and methods of recording the results. These procedures shall include:</p> <ul style="list-style-type: none"> - identification of authorized personnel; - limits of authorization; - training and qualification requirements. <p>Inspection documentation shall be maintained and controlled by the supplier. This may be part of the manufacturing documentation, but shall include:</p> <ul style="list-style-type: none"> - criteria for acceptance and rejection; - where in the sequence inspection and testing operations are performed; - documents recording inspection results; - identification of production inspection instruments; - documents associated with specific inspection instruments enabling them to be designed, produced, validated, controlled, used and maintained. <p>When the supplier subcontracts inspection or test activities, the supplier shall control the subcontracted activity consistent with requirements of Section 4.6.</p>
<p>4.10.2: establish and implement inspection...</p>	<p>4.10.2.4: When certification test reports are utilized to accept material, the supplier shall assure that data in said reports are acceptable per applicable</p>

	specifications. The supplier shall periodically validate test reports.
4.10.3: inspect and test products as...	
4.10.4: carry out all final inspections and ...	
4.10.5: establish and maintain records ...	
	<p>4.10.6: First Article Inspection: The supplier's system shall provide a process, as appropriate, for the inspection, verification, and documentation of the first production article.</p> <p>First Article Inspection documentation shall be retained (see 4.16) and shall include a list of the characteristics required by the design data and any required tolerances, the actual results, and when testing is required, the results of the tests.</p> <p>The First Article Inspection shall be updated to include production process changes or configuration changes.</p>
4.11.1: establish and maintain documented ...	<p>NOTE ADDED: Inspection, measuring and test equipment includes all types and devices used by any supplier or subcontractor personnel to validate materials, products, processes or other inspection, measuring and test equipment. This includes test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also includes personally owned equipment used for product acceptance.</p> <p>Responsibilities shall be defined regarding the control of inspection, measuring and test equipment, including those used by operators as well as, where appropriate, test devices and tools supplied by the customer.</p>
4.11.2: select appropriate inspection...	<p>4.11.2b: added: The supplier shall maintain a list of this equipment, including where appropriate, test devices and tolls supplied by the customer.</p> <p>4.11.2f: added: When the assessment indicates that the product may be nonconforming, disposition the nonconformance.</p> <p>4.11.2j: define the method for recall of measuring devices that require calibration (ISO 10012).</p>
4.12: identify the inspection and test...	4.12.1: Authorized Personnel: Records shall
4.13.1: establish and maintain documented...	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.
4.13.2: disposition of nonconforming...	8.3: The organization shall deal with nonconforming product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking

	action to preclude its original intended use or\ application.
4.14.1: establish and maintain documented...	8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent recurrence.
4.14.2: document procedures for handling...	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action needed, etc.
4.14.3: documented procedures for use of ...	8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.
4.15.1: establish documented procedures for...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.2: provide methods of handling...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.3: use designated storage areas...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.4: control packing, packaging...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.5: apply appropriate methods of...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.
4.15.6: arrange for appropriate protection ...	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to

	<p>the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.</p>
4.16: establish and maintain documented ...	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.
4.17: establish and maintain documented ...	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.
4.18: establish and maintain documented procedures for identifying training needs ...	6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.
4.19: when specified, establish and maintain...	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.
4.20.1: identify need for statistical...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.
4.20.2: establish and maintain documented...	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.

SECTION TWO

MATRIX TABLE COMPARING INTERNATIONAL STANDARDS AND REGULATORY REQUIREMENTS

Aviation Quality Standards Cross Reference Table

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
Management Responsibility	4.1: who is responsible for product or service quality and supplier quality system effectiveness?		5.1: Top management is responsible to develop, implement and continually improve the quality management system.						
Quality Policy	4.1.1: define and document policy; ensure it is understood, implemented and maintained.		4.2.1: The quality management system documentation shall include statements of quality policy and quality objectives.						1M1: overall policy document for production functions.

Aviation Quality Standards Cross Reference Table

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
Organization	4.1.2: define and document responsibility, authority and interrelation of personnel who manage, perform and verify work; identify and assign resources and management representative.	4.1.2.3: The Management representative shall have authority and organizational freedom to resolve matters pertaining to quality. 4.1.2.4: Suppliers have a quality assurance activity performed by an individual process performer (e.g., operator, buyer, planner) shall have procedures that define the specific tasks and responsibilities that are authorized and the corresponding requirements and training necessary to perform those tasks.	5.5.1: Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.	3.1: contractor shall prescribe effective management of quality; responsibilities and authorities to be well-defined; organizational freedom shall be provided personnel performing quality functions to allow them to identify and evaluate problems, and to initiate, recommend and provide solutions.	4.1.2.3: The Management representative shall have authority and organizational freedom to resolve matters pertaining to quality. 4.1.2.4: Suppliers have a quality assurance activity performed by an individual process performer (e.g., operator, buyer, planner) shall have procedures that define the specific tasks and responsibilities that are authorized and the corresponding requirements and training necessary to perform those tasks.		145.39: provide adequate personnel to perform, supervise and inspect work for which station is rated. 145.35: station shall provide suitable housing for equipment and material, work space, facilities for storing, segregating and protecting materials, and facilities for protecting parts and subassemblies. 145.37: station must provide suitable special facilities for weight class of aircraft, powerplant and accessories, propellers, radios and instruments which will be serviced.	21.123 (for APIS and PC): products shall be available for inspection, technical information shall be current, establish and maintain an approved inspection system, and document the approved system in a manual. 21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.439 (for DAS): eligibility for DAS authorization.	1Q1: description and authority of quality-related functionaries. 1Q4: quality-related subjects managed by the Quality Manual. 1P3: appropriate training and skills for manufacturing personnel. 1S3: appropriate training and skills for support personnel. 1C3: appropriate training and skills for notification personnel. 5Q1: special processing equipment. 4Q7: environmentally controlled conditions. 1Q2: quality representative identified, authorized, independent.

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								<p>21.445 (for DAS): the Administrator shall be apprised of any change in DAS' ability to meet its obligations.</p> <p>21.607 (for TSO): rules for TSO authorizations.</p>	
Management Review	4.1.3: periodic review for suitability and effectiveness.		5.6.1: Top management shall review the quality management system, at planned intervals,	3.1: regularly review status and adequacy of the quality program.					15M2: feedback from internal audits.

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			to ensure its continuing suitability, adequacy and effectiveness.						
Quality System	4.2: does the supplier's quality system support that he will deliver what he says he will, and clarify how he makes sure that he does what he says?								
General	4.2.1: prepare Quality Manual which establishes documents and maintains the quality system.	4.2.1: Other Quality System requirements imposed by the applicable Regulatory Authorities shall be included or referenced in the Quality System documentation.	4.2.2: The organization shall establish and maintain a quality manual that includes scope, procedures and interaction between the quality management processes.	1.3: requires an effective and economical quality program, planned and developed in consonance with the contractor's other administrative and technical programs. 3.1: effective management for quality shall be clearly prescribed by the contractor. Hid personnel shall have well-defined responsibility, authority and organizational freedom to identify and provide solutions for quality problems. Management shall regularly review status and adequacy of the quality program.	4.2.1: Other Quality System requirements imposed by the applicable Regulatory Authorities shall be included or referenced in the Quality System documentation.	1. Quality System and Quality Manual: distributor shall have an established quality system, described in detail in the quality manual, adequate to assure a quality product that complies with customer specification..	145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	21.123 (for APIS): products shall be available for inspection, technical information shall be current, establish and maintain an approved inspection system, and document the approved system in a manual. 21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.441 (for DAS): a procedure manual is required for each DAS.	1Q4: quality-related subjects managed by the Quality Manual.

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								21.607 (for TSO): rules for TSO authorizations	
Quality System Procedures	4.2.2: document and implement quality system procedures.	4.2.2c: ensure that quality system procedures are readily accessible to personnel who are responsible for performing work in conformance to requirements, and to customer and/or regulatory authorities representatives.	4.2.2: The quality manual includes procedures established for the quality management system.	3.3: document all work affecting the quality of the product in clear and complete instructions of a type appropriate to the circumstances. 3.4: maintain and use records essential to the economic and effective operation of the quality system.	4.2.2c: ensure that quality system procedures are readily accessible to personnel who are responsible for performing work in conformance to requirements, and to customer and/or regulatory authorities representatives.		145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.441 (for DAS): a procedure manual is required for each DAS. 21.607 (for TSO): rules for TSO authorizations	
Quality Planning	4.2.3: implement quality planning; define and document how quality requirements will be met.	4.2.3b: the identification and acquisition of any controls, processes, equipments (including inspection and test equipment); fixtures, resources and skills that may be needed to achieve the required quality; the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key	4.2.1: The quality management system must include documents needed to ensure effective planning, operation and control of its processes.	3.2: conduct review of contract requirements to identify and provide for special controls, processes, test equipment, fixtures, tooling and skills required to assure product quality and to assure compatibility of manufacturing, inspection, testing and documentation.	4.2.3b: the identification and acquisition of any controls, processes, equipments (including inspection and test equipment); fixtures, resources and skills that may be needed to achieve the required quality; the design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key	C2: Acknowledge changes to and receive approval for changes to the quality system.	145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual	21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in	4P2: work instructions for all manufacturing processes. 4P4: manufacturing processes controlled by work instructions.

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		<p>characteristics. 4.2.3f: the identification of suitable verification at appropriate stages in the realization of product; the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization. 4.2.3i: the identification and selection of subcontractors. 4.2.3j: the establishment of appropriate process controls and development of control plans where key characteristics have been identified. 4.2.3k: the identification of material processes and services to support operation and maintenance of the product.</p>			<p>characteristics. 4.2.3f: the identification of suitable verification at appropriate stages in the realization of product; the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization. 4.2.3i: the identification and selection of subcontractors. 4.2.3j: the establishment of appropriate process controls and development of control plans where key characteristics have been identified. 4.2.3k: the identification of material processes and services to support operation and maintenance of the product.</p>		which is current at all times.	<p>conformance with a Parts Manufacturer Approval.</p> <p>21.441 (for DAS): a procedure manual is required for each DAS.</p> <p>21.607 (for TSO): rules for TSO authorizations</p>	
Contract Review	4.3: does the supplier's quality system ensure that the customer will receive what his marketing and sales								

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	sold the customer?								
General	4.3.1: document and coordinate contract review activities.	4.3.1: The supplier shall also establish and maintain documented procedures for tender review and for the coordination of these activities.	7.2.2: The organization shall review requirements related to the product, including contracts or order requirements.	3.2: conduct review of contract requirements to identify and provide for special controls, processes, test equipment, fixtures, tooling and skills required to assure product quality and to assure compatibility of manufacturing, inspection, testing and documentation.	4.3.1: The supplier shall also establish and maintain documented procedures for tender review and for the coordination of these activities.				
Review	4.3.2: review contract to ensure alignment of customer expectations and supplier intent.	4.3.2d: Risk associated with new technology and/or short delivery time scale have been evaluated.	7.2.2: The organization review must ensure that product requirements are defined.		4.3.2d: Risk associated with new technology and/or short delivery time scale have been evaluated.				
Amendment to Contract	4.3.3: identify contract change process.	4.3.3: Contract review requirements shall also apply to contract amendment.	7.2.3: The organization shall determine and implement effective arrangements for communicating with customers in relation to inquires, contract or order handling, including amendments.		4.3.3: Contract review requirements shall also apply to contract amendment.				
Records	4.3.4: maintain record of contract reviews.								
Design Control	4.4: does the design of product ensure that it does what the supplier says, and clarify how are changes controlled?								
General	4.4.1: establish and	4.4.1: The	7.3.1: The	4.1: maintain adequacy,	4.4.1: The			21.441 (for DAS):	2E2: drawing

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	maintain documented procedures to control and verify the product's design.	responsibilities and authorities for the approval of the design data shall be defined. When the supplier subcontracts design or development activities, the supplier shall control the subcontractor activity consistent with the requirements of paragraph 4.4.	organization shall plan and control the design and development of products.	completeness and currency of design drawings and specifications for their engineering adequacy.	responsibilities and authorities for the approval of the design data shall be defined. When the supplier subcontracts design or development activities, the supplier shall control the subcontractor activity consistent with the requirements of paragraph 4.4.			a procedure manual is required for each DAS. 21.605 (for TSO): applications for TSO authorizations shall be submitted to Manager of the local Aircraft Certification Office.	control system.
Design and Development Planning	4.4.2: prepare plans for design and development activities; assign appropriate responsibility to qualified personnel.	4.4.2.1: Design and Development Management Planning: The supplier shall plan the different phases used to carry out the design and development, in respect of the organization, task sequence, mandatory steps, significant stages and method of configuration control. The supplier shall give consideration to the following activities as appropriate: structure the design effort into significant elements according to the complexity, for each element analyze the tasks and the necessary	7.3.1: The organization shall determine the design and development stages.		4.4.2.1: Design and Development Management Planning: The supplier shall plan the different phases used to carry out the design and development, in respect of the organization, task sequence, mandatory steps, significant stages and method of configuration control. The supplier shall give consideration to the following activities as appropriate: structure the design effort into significant elements according to the complexity, for each element analyze the tasks and the necessary			21.441 (for DAS): a procedure manual is required for each DAS.	

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		resources for its design and development. (This analysis shall consider an identified responsible person, design content, planning constraints, and performance conditions). 4.4.2.2: Reliability, Maintainability, Safety: The different design and development tasks to be carried out shall be defined according to specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements.			resources for its design and development. (This analysis shall consider an identified responsible person, design content, planning constraints, and performance conditions). 4.4.2.2: Reliability, Maintainability, Safety: The different design and development tasks to be carried out shall be defined according to specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements.				
Organizational and Technical Interfaces	4.4.3: define organizational and technical interfaces which provide design input; document and periodically review input information.		7.3.1: The organizational shall manage the interfaces between different groups involved in design and development.					21.441 (for DAS): a procedure manual is required for each DAS.	2P1: manufacturing participation in change review. 2Q1: quality participation in change review. 2S1: service/product support participation in change review.
Design Input	4.4.4: identify and document design input; periodically review selection	4.4.4: The input data to the design shall be defined and documented in terms	7.3.2: Inputs relating to product requirements shall be determined and		4.4.4: The input data to the design shall be defined and documented in terms			21.441 (for DAS): a procedure manual is required for each DAS.	

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	criteria for adequacy; resolve conflicts.	of functional requirements. In the case of a product requiring design and development planning the supplier shall establish the input data specific to each element and shall review to ensure consistency with requirements.	records maintained.		of functional requirements. In the case of a product requiring design and development planning the supplier shall establish the input data specific to each element and shall review to ensure consistency with requirements.			21.605 (for TSO): applications for TSO authorizations shall be submitted to Manager of the local Aircraft Certification Office.	
Design Output	4.4.5: document design output and review before release so that it can be verified against design input requirements.	4.4.5: All pertinent data required to allow the product to be identified, manufactured, inspected, used and maintained shall be defined by the supplier e.g.: drawings, parts lists, specifications, a listing of those drawings, parts lists, specifications necessary to define the configuration and the design features of the product, information on material, processes, type of manufacturing and assembly of the product necessary to ensure the conformity of the product.	7.3.3: The outputs of design and development shall be in a form that enables verification against design and development inputs.		4.4.5: All pertinent data required to allow the product to be identified, manufactured, inspected, used and maintained shall be defined by the supplier e.g.: drawings, parts lists, specifications, a listing of those drawings, parts lists, specifications necessary to define the configuration and the design features of the product, information on material, processes, type of manufacturing and assembly of the product necessary to ensure the conformity of the product.			21.441 (for DAS): a procedure manual is required for each. 21.605 (for TSO): applications for TSO authorizations shall be submitted to Manager of the local Aircraft Certification Office.	
Design Review	4.4.6: conduct formal reviews of	4.4.6: Consideration shall be given to:	7.3.4: Systematic reviews of design and		4.4.6: Consideration shall be given to:				

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	design results; maintain records of these reviews.	the validity of design in relation to the objectives of the design stage, actions which need to be taken in the event of any identified deviation, decision necessary for progression to the next stage.	development shall be performed according to planned arrangements.		the validity of design in relation to the objectives of the design stage, actions which need to be taken in the event of any identified deviation, decision necessary for progression to the next stage.				
Design Verification	4.4.7: verify design stage outputs with design input requirements.		7.3.5: Verification must ensure the design and development outputs have met the design and development inputs.					21.441 (for DAS): a procedure manual is required for each DAS. 21.607 (for TSO): rules for TSO authorizations.	
Design Validation	4.4.8: validate product against defined user requirements.	4.4.8.1: Documentation of Design Verification and Validation: At the completion of development supplier shall ensure that reports, calculations, test results, etc. demonstrate that the product definition meets the specification requirements for all identified operational conditions and the product will function correctly. 4.4.8.2: Design Verification and Validation Testing: Where tests are necessary for	7.3.6: Design and development validation must ensure the resulting product is capable of meeting the requirements for the specified application.		4.4.8.1: Documentation of Design Verification and Validation: At the completion of development supplier shall ensure that reports, calculations, test results, etc. demonstrate that the product definition meets the specification requirements for all identified operational conditions and the product will function correctly. 4.4.8.2: Design Verification and Validation Testing: Where tests are necessary for		145.57: station shall maintain all applicable service manuals, instructions, and service bulletins in current condition.	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA):	4E2: test program confirms manufacturing processes. 4Q1: parts inspected for conformance to requirements.

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
		verification and validation, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria, test procedures describe the method of operation, the performance of the test, and the recording of the results, the correct configuration standard of the product is submitted for the test, the requirements of the test plan and the test procedures are observed, the acceptance criteria are met.			verification and validation, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria, test procedures describe the method of operation, the performance of the test, and the recording of the results, the correct configuration standard of the product is submitted for the test, the requirements of the test plan and the test procedures are observed, the acceptance criteria are met.			all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.463 (for DAS): follow procedure manual prescribed by 21.441 and specified notification and compliance procedures. 21.607 (for TSO): rules for TSO authorizations.	
Design Changes	4.4.9: document and review all design changes before implementation.	4.4.9: Design change approval: The supplier's design control shall provide for customer and/or	7.3.7: The changes shall be reviewed, verified and validated, as appropriate, and	4.1: assure complete compliance with contract requirements for proposing, approving and implementing	4.4.9: Design change approval: The supplier's design control shall provide for customer and/or			21.125 (for APIS): in addition to production inspection system required by	2P1: manufacturing participation in change review. 2Q1: quality

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
		regulatory authority approval of changes, when required by contract or regulatory requirement.	approved before implementation.	engineering changes; monitor compliance with contractual engineering changes..	regulatory authority approval of changes, when required by contract or regulatory requirement.			21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.611 (for TSO): TSOs may make minor changes, but must apply for approval of major changes; others may be able to pursue changes under Part 43, other applicable airworthiness directives, or by becoming an approved TSO.	participation in change review. 2S1: service/product support participation in change review.
Document And Data Control	4.5: are key documents controlled in the supplier's quality system throughout design, manufacturing, and service?								
General	4.5.1: establish and maintain		4.2.3: A documented procedure shall be	3.4: maintain and use records essential to the		13. Technical Data Control:		21.441 (for DAS): a procedure	3AE3: reporting, tracking and

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
	procedures for control of documents and data relating to ISO 9000 requirements.		established to ensure that changes and the current revision status of documents are identified and that relevant revisions are available at points of use.	economic and effective operation of the quality system. 4.1: assure complete compliance with contract requirements for proposing, approving and implementing engineering changes; monitor compliance with contractual engineering changes.. {MIL-I: 3.2.4}: contractor's inspection system shall assure that the latest applicable drawings, specifications and instructions required by the contract, including authorized changes, are used for fabrication, inspection and testing. {MIL-I: 3.2.2}: maintain adequate records of all inspections and tests.		when required, maintain technical data to ensure data is current and accessible. E7: Currency, ready accessibility, and applicability of data shall be ensured. C3: Certify that appropriate documentation is available at the business site.		manual is required for each DAS.	resolving software problems. 1Q4: quality-related subjects managed by the Quality Manual. 1Q5: tags, forms and document control.
Document and Data Approval and Issue	4.5.2: Maintain master list of current revisions of documents; periodically review list; incorporate approval process.	4.5.2: When customer furnished digital data is used for design, production and/or inspection, the supplier shall establish system controls in accordance with customer requirements.	4.2.3: a documented procedure shall be established to ensure changes and the current revision status of documents are identified.		4.5.2: When customer furnished digital data is used for design, production and/or inspection, the supplier shall establish system controls in accordance with customer requirements.			21.441 (for DAS): a procedure manual is required for each DAS.	2Q1: quality participation in change review. 2P1: manufacturing participation in change review. 2S1: service/product support participation in change review.

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
									<p>2E9: maintain technical data file.</p> <p>4P1: manufacturing process changes approved by appropriate people.</p> <p>4P5: review, approve, control and document work instructions.</p>
Document and Data Changes	4.5.3: approve changes within the designated approval process.		4.2.3: A documented procedure shall be established to ensure documents are approved prior to issue.						<p>4P1: manufacturing process changes approved by appropriate people.</p> <p>4P5: review, approve, control and document work instructions.</p>
Purchasing	4.6: does the supplier's quality system make sure that bought parts/services are those specified, and that his suppliers are reliable?			5.1: contractor's responsibilities include selection of qualified suppliers, timely transmission of design and quality requirements, evaluation of adequacy of procured items, and providing early feedback and correction of nonconformances.					
General	4.6.1: establish and maintain documented procedures to ensure conformance of purchased products to specified requirements.	4.6.1: The supplier shall be responsible for the quality of all products purchased from subcontractors, including customer-designated sources.	7.4.1: The organization shall ensure that purchased products conform to specific purchase requirements.	5.1: assure that all supplies and services procured from suppliers conform to contract requirements, using, to the fullest extent, objective evidence of quality.	4.6.1: The supplier shall be responsible for the quality of all products purchased from subcontractors, including customer-designated sources.	5. Procurement: distributor shall maintain a procurement system which insures that purchased materials conform to specified documentation		21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures	<p>10E1: control supplier design.</p> <p>10Q1: evaluate suppliers periodically, monitor corrective actions.</p> <p>10Q2: approved</p>

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
						requirements.		21.143 (for PC and TSO): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation.	suppliers.
Evaluation of Subcontractors	4.6.2: evaluate and select subcontractors based on their ability to meet requirements; define type of control to be used over subcontractors; maintain quality records of acceptable subcontractors.	4.6.2d: ensure where required that both the supplier and all subcontractors use customer-approved special process sources, 4.6.2e: ensure that the organization having responsibility for approving subcontractor quality systems has the authority to disapprove the use of sources, 4.6.2f: periodically review subcontractor performance. Records of these reviews shall be maintained and used as a basis for establishing the level of supplier controls to be implemented, 4.6.2g: maintain procedures that define the necessary actions to take when dealing with	7.4.1: the organization shall evaluate and select suppliers based on their ability to supply products in accordance with the organization's requirements.	7.1: right to conduct inspections at sources for supplies and services not manufactured or performed at contractor's facility.	4.6.2d: ensure where required that both the supplier and all subcontractors use customer-approved special process sources, 4.6.2e: ensure that the organization having responsibility for approving subcontractor quality systems has the authority to disapprove the use of sources, 4.6.2f: periodically review subcontractor performance. Records of these reviews shall be maintained and used as a basis for establishing the level of supplier controls to be implemented, 4.6.2g: maintain procedures that define the necessary actions to take when dealing with				10Q1: evaluate suppliers periodically, monitor corrective actions. 10Q2: approved suppliers. 10Q3: approve priority part supplier's Quality Manual. 10Q5: flow down technical and quality requirements to domestic and foreign suppliers. 10E1: control supplier design.

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		subcontractors, which do not meet requirements. A list of approved subcontractors shall be maintained and shall specify the scope of approval.			subcontractors, which do not meet requirements. A list of approved subcontractors shall be maintained and shall specify the scope of approval.				
Purchasing Data	4.6.3: review and approve purchasing documents before their release; documents shall contain sufficient data.	4.6.3d: design, test, examination, inspection and customer acceptance requirements and any related instructions and requirements; 4.6.3e: right of access by the purchaser, their customer and regulatory authorities to all facilities involved in the order and all applicable quality records; 4.6.3f: requirements for test specimens (production method, number, storage conditions etc) for design approval, inspection, investigation or auditing; 4.6.3g: requirements relative to the notification of anomalies, changes in definition and the approval of their processing; 4.6.3h: requirements to flow down to	7.4.2: Purchasing information shall describe the product to be purchased, including requirements for approval of product, processes, and equipment.	5.2: contractor shall require subcontractors to implement a quality effort which achieves control of the quality of the services/supplies they provide.	4.6.3d: design, test, examination, inspection and customer acceptance requirements and any related instructions and requirements; 4.6.3e: right of access by the purchaser, their customer and regulatory authorities to all facilities involved in the order and all applicable quality records; 4.6.3f: requirements for test specimens (production method, number, storage conditions etc) for design approval, inspection, investigation or auditing; 4.6.3g: requirements relative to the notification of anomalies, changes in definition and the approval of their processing; 4.6.3h: requirements to flow down to			21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures.	10Q5: flow down technical and quality requirements to domestic and foreign suppliers. 10Q6: quality reviews purchase documents before issuance.

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		subtier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.			subtier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.				
Verification of Purchased Product	4.6.4: verification of the purchased product shall be done as specified in the contract.	4.6.4: Verification of Purchased Product: The supplier shall implement procedures to verify purchased products. These may include: obtaining objective evidence of the quality of the product from subcontractors (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control); inspection and audit at source; review of the required documentation; inspection of products at delivery' delegation of verification to the subcontractor, or subcontractor certification. When delegation is used the supplier shall define the requirements for	7.4.3: The organization shall establish and implement the inspection or other activities necessary to ensuring the purchased product meets specific requirements.		4.6.4: Verification of Purchased Product: The supplier shall implement procedures to verify purchased products. These may include: obtaining objective evidence of the quality of the product from subcontractors (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, process control); inspection and audit at source; review of the required documentation; inspection of products at delivery' delegation of verification to the subcontractor, or subcontractor certification. When delegation is used the supplier shall define the requirements for			21.143 (for PC and TSO): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.615 (for TSO): the Administrator may inspect TSO's manufactured work, quality control system, manufacturing facilities, technical data files, and testing upon request.	10C1: supplier inspection delegations provided to FAA.

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		delegation and maintain a list of delegations. 4.6.4.1: added. 4.6.4.2: added.			delegation and maintain a list of delegations. 4.6.4.1: added. 4.6.4.2: added.				
Control Of Customer-Supplied Product	4.7: how does the supplier protect, store, maintain, and fix, if necessary, materials provided by the customer?								
	4.7: supplier establish and maintain documented procedures for the control of verification, storage and maintenance of customer-supplied product.		7.5.4: The organization shall identify, verify, protect, and safeguard customer property provided for use or incorporation into the product.	5.2: contractor shall require subcontractors to implement a quality effort which achieves control of the quality of the services/supplies they provide. 7.2: examine, inspect (initial and periodic), test, identify and protect, and verify quantity of Government-furnished material. If damaged or otherwise malfunctioning, determine and report probable cause for withholding material from use. For bailed Government property, establish procedures for adequate storage, maintenance and inspection. {MIL-I: 3.6}: examine, inspect (initial and periodic), test, identify and protect, and verify quantity of Government-furnished material.					10Q4: control buyer-furnished material.

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				{MIL-I: 3.6.1}: If damaged or otherwise malfunctioning, determine and report probable cause and necessity for withholding material from use.					
Product Identification and Trace ability	4.8: how does the supplier ensure that the customer's parts do not get mixed up with the supplier's parts, and that the parts are as specified, and correct for the customer's project?								
	4.8: identify the product from receipt and during all stages of production, delivery and installation; traceability may be a specified requirement..	4.8: According to the level of traceability required by the contract, regulatory, or other established requirement, the supplier's system shall provide for: identification to be maintained throughout the product life; all the products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch. For an assembly, the identity of its components and	7.5.5: The organization shall preserve the conformity of product during initial processing and delivery to the intended destination.		4.8: According to the level of traceability required by the contract, regulatory, or other established requirement, the supplier's system shall provide for: identification to be maintained throughout the product life; all the products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch. For an assembly, the identity of its components and	8.G. Part numbering: ensure that no part number ambiguity exists. 10. Certification and release of materials: provide customer with certification (Appendix A). E1: Receiving Inspection Procedures to trace procured materials and components to approved sources. E10: Shipped parts can be traced and recalled. E13: Redistribution of	{45.11}: identification requirements for the manufacture of aircraft and aircraft engines, propellers, propeller blades and hubs, and manned free balloons.	{45.11} (for APIS, PC and DAS): identification requirements for the manufacture of aircraft and aircraft engines, propellers, propeller blades and hubs, and manned free balloons {45.15} (for PMA): permanent and legible marking requirements for replacement or modified parts produced under a PMA. 21.607 (for TSO): rules for TSO authorizations.	4P9: identification markings for completed products/parts. 4P10: nationality and registration marks for aircraft.

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		those of the next higher assembly to be traced; For a given product, a sequential record of its production (manufacture, assembly, inspection) to be retrieved. The supplier shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.			those of the next higher assembly to be traced; For a given product, a sequential record of its production (manufacture, assembly, inspection) to be retrieved. The supplier shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.	lots shall be documented. C4: Exercise accountability when copies are made for redistribution shipments, and approval tags are duplicated. C5 and C6: Ability to notify purchasers within 24 hours of shipped parts which do not conform to quality requirements, and provide corrective actions.			
Process Control	4.9: what procedures does the supplier have in place to build the customer's product properly?								
	4.9: identify and plan the production and installation and servicing processes which directly affect quality; ensure that these processes are carried out under controlled conditions; the process qualification process shall be	4.9.1b: Due to length of data refer to section 1, page 19.	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.	3.3: document all work affecting the quality of the product in clear and complete instructions of a type appropriate to the circumstances. 6.2: assure that all machining, wiring, batching, shaping, all production operations, and all processing and fabricating of any type must be completed under	4.9.1b: Due to length of data refer to section 1, page 19.		145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.143 (for PC): submit for approval data	4P3: requirements and technical data reflected in work instructions. 4P4: manufacturing processes controlled by work instructions. 4Q1: parts inspected for conformance to requirements.

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	specified; records shall be maintained for qualified processes, equipment and personnel.			controlled conditions. {MIL-I: 3.2.1}: inspection and testing shall be prescribed by clear, complete and current instructions. {MIL-I: 3.4}: procedures shall be an integral part of the inspection system when such inspections are a part of the specification or contract.			inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times. [43.13]: rules for performing maintenance, alteration, or preventive maintenance. [43.16]: rules for performing inspections and maintenance under airworthiness limitations or Instructions for Continued Airworthiness. [43.17]: rules for performing maintenance, preventive maintenance, and alteration by authorized Canadian persons.	describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.607 (for TSO): rules for TSO authorizations.	
Inspection And Testing	4.10: how does the supplier ensure that the customer gets what he ordered, and that it works as the supplier promised?								
General	4.10.1: establish and maintain documented procedures for inspection and testing activities to verify that specified requirements for	4.10.1: These procedures shall specify the resources and methods to be implemented, and methods of recording the results. These procedures shall	7.6: The organization shall determine the monitoring and measurements to be undertaken and the monitoring and measuring devices	5.1: contractor is responsible to assure that all supplies and services provided by suppliers conform to requirements. {MIL-I: 3.1}: contractor shall provide and	4.10.1: These procedures shall specify the resources and methods to be implemented, and methods of recording the results. These procedures shall	2. Self-Audit/Evaluation & Accreditation Programs: the distributor shall have a self-audit/evaluation program in place	145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and	10Q10: FAA approval confirmed by receiving inspection of supplier-furnished parts/service. 4Q1: parts

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
	the product are being met; detail procedures in quality plan or documented procedures.	include: identification of authorized personnel; limits of authorization; training and qualification requirements Inspection documentation shall be maintained and controlled by the supplier. This may be part of the manufacturing documentation, but shall include: criteria for acceptance and rejection; where in the sequence inspection and testing operations are performed; documents recording inspection results; identification of production inspection instruments; documents associated with specific inspection instruments enabling them to be designed, produced, validated, controlled, used and maintained. When the supplier	needed to provide evidence of conformity of product to determined requirements.	maintain an inspection system which will assure that all supplies and services submitted for acceptance conform to contract requirements whether manufactured or processed by the contractor, or procured from subcontractors or vendors. This system shall be documented and shall be available for review prior to start of production, and throughout the life of the contract. {MIL-I: 3.2.1}: inspection and testing shall be prescribed by clear, complete and current instructions. {MIL-I: 3.10}: alternate inspection procedures and inspection equipment may be used when such procedures and equipment provide, as a minimum, the quality assurance required in the contractual documents. {MIL-I: 3.13}: contractor's inspection system and supplies generated by the system shall be subject to evaluation and verification inspection by the Government to	include: identification of authorized personnel; limits of authorization; training and qualification requirements. Inspection documentation shall be maintained and controlled by the supplier. This may be part of the manufacturing documentation, but shall include: criteria for acceptance and rejection; where in the sequence inspection and testing operations are performed; documents recording inspection results; identification of production inspection instruments; documents associated with specific inspection instruments enabling them to be designed, produced, validated, controlled, used and maintained. When the supplier subcontracts	to ensure that the adopted quality system has been implemented. E8: Control of issuance, usage, reissuance and accountability shall be ensured with inspection stamps.	with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times. 145.2: for airplanes under Part 125, inspections shall be performed as per operator's approved program. 145.23: the Administrator is allowed to inspect any certificated repair station to assess compliance. [43.15]: rules for performing inspections following maintenance, alteration, or preventive maintenance.	materials review procedures. 21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.607 (for TSO): rules for TSO authorizations.	inspected for conformance to requirements. 5E1: special process identified and defined by FAA data and requirements, detailed in process specifications.

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ANSI/ASQC Q9002 Issue	ANSI/ASQC Q9002 Element and Key Question (Note 1); Subelement and Description	SAE AEROSPACE STANDARD, AS9100, Issued 1999-11, NOTE: Includes all ASQ9001:1994 quality system requirements and specifies additional requirements for the quality system of the aerospace industry.	EN ISO 9000:2000, December 2000 These standards are identical to ISO 9000:2000	MIL-Q-9858A Paragraph March 1985 {MIL-I 45208A (July 1991) as noted}	AECMA, EN 9100, Issued December 2000 Note: This European Standard is identical to the SAE-AS 9100.	ASA 100 (October 1996) FAA Advisory Circular 00-56 (9/5/96, "E" denotes Element, "C" denotes Criteria)	Federal Aviation Regulations FAR Part 145 for Repair Stations and {FAR Part 45} (for marking and identification), and [FAR Part 43] (for maintenance, preventive maintenance, rebuilding, and alteration). Note 2 applies.	Federal Aviation Regulations FAR Part 21 Applicable to Aviation Manufacturers at recorded levels of approval, and {FAR Part 45} (for marking and identification). Note 2 applies	ACSEP Evaluation Question March 1994 Applicable to Aviation Manufacturers. Note 3 applies.
		subcontracts inspection or test activities, the supplier shall control the subcontracted activity consistent with requirements of Section 4.6.		determine its effectiveness in supporting the quality requirements established in the detail specification, drawings, and contract, and as prescribed in MIL-I-45208A.	inspection or test activities, the supplier shall control the subcontracted activity consistent with requirements of Section 4.6.				
Receiving and Inspection	4.10.2: establish and implement inspection or verification system for incoming product; for cases of urgent release, implement an immediate recall system in case nonconformity's are discovered.	4.10.2.4: When certification test reports are utilized to accept material, the supplier shall assure that data in said reports are acceptable per applicable specifications. The supplier shall periodically validate test reports.	7.5.1: The organization shall plan and carry out production and service provisions, including the implementation of release, delivery and post-delivery activities.	6.1: materials and products shall be inspected upon receipt to extent necessary to assure conformance to technical requirements. Raw materials for use in fabrication or processing shall conform to applicable physical, chemical, and other technical requirements. Tested and approved material must be identified until its identity is obliterated by the processing. {MIL-I: 3.12}: subcontracted or purchased supplies shall be inspected after receipt, as necessary, to assure conformance to contract requirements.	4.10.2.4: When certification test reports are utilized to accept material, the supplier shall assure that data in said reports are acceptable per applicable specifications. The supplier shall periodically validate test reports.	6. Receiving inspection: inspectors shall conduct a complete visual inspection of all incoming parts and materials.		21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation.	10Q10: FAA approval confirmed by receiving inspection of supplier-furnished parts/service. 10Q11: segregate material and parts waiting for certification.
In-Process Inspection and testing	4.10.3: inspect and test products as required by the quality plan or documented procedures; hold products for inspection unless positive-recall		7.6: Where necessary to ensure valid results, measuring equipment shall be calibrated or verified at specific intervals.	6.2: assure that all machining, wiring, batching, shaping, all production operations, and all processing and fabricating of any type must be completed under controlled conditions.			145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating,	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review	4Q10: suitable inspection markings during manufacturing. 4Q11: inspection of assemblies before closure.

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	procedures are in place.						accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	procedures. 21.143 (for PC and TSO): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval.	
Final Inspection and Testing	4.10.4: carry out all final inspections and tests in accordance with the quality plan or documented procedures; all documented procedures to be completed and results available and authorized before product is released.		8.2.4: The organization shall monitor and measure the characteristics of the product to verify product requirements have been met. Product release and service delivery shall not proceed until the planned arrangements (see 7.1) have been satisfactorily controlled.	6.3: all completed products shall undergo final inspection and test to provide a measure of the overall quality of the completed product, and shall be performed, to a sufficient degree, so that it simulates product end use and functioning.			145.59: prior to returning airframes and major articles to service, each article shall be inspected by a qualified inspector. 145.63: station shall report any serious defect or recurring unairworthy condition it discovers to the Administrator within 72 hours. [43.7]: approval for aircraft to return to service after maintenance, preventive	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.143 (for PC and TSO): submit for approval data describing inspection and test procedures used to prove conformity	4E1: manufacturing processes conform to FAA-approved data or purchase order requirements. 4Q12: inspections and tests completed prior to final acceptance.

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							maintenance, rebuilding and alterations.	to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.441 (for DAS): a procedure manual is required for each DAS.	
Inspection and Test Records	4.10.5: establish and maintain records of product inspections and tests. No equivalent.	4.10.6: First Article Inspection: The supplier's system shall provide a process, as appropriate, for the inspection, verification, and documentation of the first production article. First Article Inspection documentation shall	8.2.4: Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate person(s) authorizing release of the product.	6.7: maintain a positive system for identifying the inspection status of products. {MIL-I: 3.2.2}: maintain adequate records of all inspections and tests. {MIL-I: 3.5}: maintain a positive system for identifying the inspection status of supplies. Markings or tags shall be different than Government's inspection identification.	4.10.6: First Article Inspection: The supplier's system shall provide a process, as appropriate, for the inspection, verification, and documentation of the first production article. First Article Inspection documentation shall		145.61: each station shall maintain adequate records for all work it performs. [43.2]: records for maintenance, rebuilding and alteration shall be maintained using methods, techniques and practices accepted by the Administrator. [43.5]: documentation required prior to approval for aircraft to return to service after maintenance, preventive maintenance, rebuilding and alterations. [43.9]: content, form	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval.	8E1: establish, maintain, use test procedures or instructions. 8E2: control changes to test procedures and instructions. 8Q3: document and maintain records for completed tests of aircraft, engines, or propellers. 10Q12: generate and maintain records of receiving inspection results.

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		be retained (see 4.16) and shall include a list of the characteristics required by the design data and any required tolerances, the actual results, and when testing is required, the results of the tests. The First Article Inspection shall be updated to include production process changes or configuration changes.			be retained (see 4.16) and shall include a list of the characteristics required by the design data and any required tolerances, the actual results, and when testing is required, the results of the tests. The First Article Inspection shall be updated to include production process changes or configuration changes.		and disposition of maintenance records and forms. [43.12]: fraudulent misuse and reproduction of maintenance records.	21.493 (for DAS): maintain current records on products, alterations, and sources of alteration difficulties, and make records available to Administrator upon request. 21.613 (for TSO): maintain specified records for each article manufactured.	
Control Of Inspection, Measuring, And Test Equipment	4.11: how does the supplier verify that test equipment is accurate?								
General	4.11.1: establish and maintain documented procedures to control, calibrate and maintain inspection, measuring and test equipment, hardware and software.	NOTE ADDED: Inspection, measuring and test equipment includes all types and devices used by any supplier or subcontractor personnel to validate materials, products, processes or other inspection, measuring and test equipment. This includes test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection	7.6: Measuring equipment shall be calibrated or verified a specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards. Records will be maintained.	4.2: provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to the technical requirements. Devices shall be calibrated against certified measurement standards. {MIL-I: 3.3}: provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to the technical requirements.	NOTE ADDED: Inspection, measuring and test equipment includes all types and devices used by any supplier or subcontractor personnel to validate materials, products, processes or other inspection, measuring and test equipment. This includes test hardware, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also includes	7. Measuring and Test Equipment: if required, test equipment shall be maintained under an effective calibration program.	145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all		7Q1: initially approve, and periodically inspect and calibrate tools and gages 7Q2: procedures for inspection and testing of equipment and tools used for acceptance of drawing characteristics. 7Q3: tool and gauge recall system. 3AE1: Software Configuration

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		data. It also includes personally owned equipment used for product acceptance. Responsibilities shall be defined regarding the control of inspection, measuring and test equipment, including those used by operators as well as, where appropriate, test devices and tools supplied by the customer.			personally owned equipment used for product acceptance. Responsibilities shall be defined regarding the control of inspection, measuring and test equipment, including those used by operators as well as, where appropriate, test devices and tools supplied by the customer.		times.		Management Plan.
Control Procedure	4.11.2: select appropriate inspection, measuring and test equipment; adjust selected equipment against certified equipment standards at prescribed intervals; define the calibration process; maintain calibration records validate previous inspections and tests; maintain adequate handling, preservation and storage of inspection, measuring and test equipment; safeguard facilities for inspection, measuring and test	4.11.2b: added: The supplier shall maintain a list of this equipment, including where appropriate, test devices and tools supplied by the customer. 4.11.2f: added: When the assessment indicates that the product may be nonconforming, disposition the nonconformance. 4.11.2j: define the method for recall of measuring devices that require calibration (ISO 10012).	7.6: Measuring equipment shall be calibrated or verified a specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards. Records will be maintained	4.2: provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to technical requirements. Devices are to be calibrated against certified measurement standards to assure continued accuracy. Calibration shall conform to requirements of MIL-STD-45662. 4.3: when production jigs, fixtures, tooling masters, templates, patterns and similar devices are used for inspection, they shall be proved for accuracy before release for use, and periodically proved accurate during use. 4.4: contractor's gages, measuring and testing devices and personnel to operate them shall be made available for use when required to determine conformance with contract requirements. 4.5: when the need for precision measurements exceed the known state of the art, the contractor shall notify the Contracting Officer. {MIL-I: 3.3}: if production tooling (e.g. jigs, fixtures, templates and patterns) is used as a media of inspection, such devices shall be proved for accuracy at established intervals. {MIL-I: 3.3}: Calibration of inspection equipment shall conform to requirements of MIL-STD-45662. {MIL-I: 3.3}: contractor's measuring and testing equipment, and personnel to operate them when needed, shall be made available for use when required	4.11.2b: added: The supplier shall maintain a list of this equipment, including where appropriate, test devices and tools supplied by the customer. 4.11.2f: added: When the assessment indicates that the product may be nonconforming, disposition the nonconformance. 4.11.2j: define the method for recall of measuring devices that require calibration (ISO 10012).	E3: Provide appropriate storage, usage and traceable calibration for measuring equipment.			7Q4: calibrations traceable to recognized international standard. 7Q5: adequate accuracy for standards used to calibrate tools, gauges and instruments. 7Q6: acceptable environment for calibration and use of tools and gauges. 7Q7: accuracy for determining conformity of characteristic being inspected. 7Q8: procedure for use of personal gauges for product acceptance. 7Q9: tool control procedures for special processing. 7Q10: tool control procedures for NDI equipment. 7Q11: tool control procedures for applying production tooling as acceptance media. 7Q12: document and maintain calibration records for equipment used for acceptance. 7Q13: adjust calibration intervals based on reliable data. 7Q14: identify gauges to show acceptability for use. 7Q15: protect, maintain, replace tools and gauges to ensure conformity to FAA-approved data or purchase order requirements. 7Q16: identify inaccurate or noncurrent standards, inspection tools, gauges,

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	equipment.			to determine conformance with contract requirements.					instruments, or jigs to preclude unauthorized use. 7Q17: determine uncertainty introduced by out-of-tolerance device or standard. 7Q18: action plan for evaluating product produced by out-of-tolerance gauge. 7Q19: acceptable methods for tool and gauge rework and reinspection. 7S1: service/product support participation in investigating out-of-tolerance conditions.
Inspection And Test Status	4.12: how does the customer know that his product was tested?								
	4.12: identify the inspection and test status of product to indicate conformance or nonconformance of product with regard to inspections and tests performed.	4.12.1: Authorized Personnel: Records shall include inspection and test results.	8.2.4: Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate person(s) authorizing release of the product.	6.7: maintain a positive system for identifying the inspection status of products. {MIL-I: 3.5}: maintain a positive system for identifying the inspection status of supplies. Markings or tags shall be different than Government's inspection identification.	4.12.1: Authorized Personnel: Records shall include inspection and test results.		{45.11}: identification requirements for the manufacture of aircraft and aircraft engines, propellers, propeller blades and hubs, and manned free balloons. [43.11]: maintain records of inspections of work performed under 135.411(a)(1), 135.419, and Parts 91 and 125. 145.61: each station shall maintain adequate records for all work it performs.	{45.11} (for APIS, PC and DAS): identification requirements for the manufacture of aircraft and aircraft engines, propellers, propeller blades and hubs, and manned free balloons {45.15} (for PMA): permanent and legible marking requirements for replacement or modified parts produced under a PMA. 21.607 (for TSO): rules for TSO authorizations.	4Q8: identify traceable components in assembly records. 4Q9: ability to trace completed parts to raw material as applicable. 4Q10: use suitable inspection marking throughout manufacturing cycle.
Control Of Nonconforming	4.13: does the supplier have a procedure for								

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Product	fixing or disposing of products that do not work or fit as required?								
General	4.13.1: establish and maintain documented procedures to ensure that nonconforming product is not used or installed.	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.	6.5: establish and maintain an effective and positive system for controlling nonconforming material. {MIL-I: 3.7}: establish and maintain an effective and positive system for controlling nonconforming material, including procedures for the identification, segregation, presentation, and disposition of reworked and repaired supplies.	8.3: The organization shall ensure that products which do not conform to product requirements are identified and controlled to prevent their unintended use or delivery.	8.H. Non-conforming Materials: a closed-loop system shall exist to implement corrective action following detection of substandard or otherwise nonconforming parts.	145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	21.125 (for APIS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.143 (for PC): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.607 (for TSO): rules for TSO authorizations.	11Q1: methods for identifying, controlling, disposing of nonconforming products/parts. 11S1: report nonconformances which affect products to users. 11C1: use type design process to gain approval of nonconformance dispositions from FAA.
Review and Disposition of	4.13.2: disposition of nonconforming	8.3: The organization shall	8.3: The organization shall	6.5: repair and rework of nonconforming material	8.3: The organization shall deal with	8.I. Scrapped Parts: a	145.45: station must operate and maintain an	21.125 (for APIS): in addition to	11Q2: guidelines for disposition of

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Nonconforming Product	products shall only be approved by authorized personnel (alternatives include rework, accept, regrade or reject).	deal with nonconforming product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking action to preclude its original intended use or application.	deal with nonconforming product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking action to preclude its original intended use or application.	shall conform to acceptable documented procedures. Costs and losses in connection with scrap and with rework necessary to reprocess nonconforming material to make them conform completely will be made available upon request. {MIL-I: 3.7}: repair and rework of nonconforming material shall conform to acceptable documented procedures. All nonconforming supplies shall be positively identified to prevent use, shipment, and intermingling with conforming supplies.	nonconforming product by taking action to eliminate the detected nonconformity, by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer, and by taking action to preclude its original intended use or application.	documented procedure shall be in place to mutilate scrapped parts. Records and documents shall be maintained on serialized scrapped parts. E4: Control of incoming discrepant material.	inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.143 (for PC and TSO): submit for approval data describing inspection and test procedures used to prove conformity to requirements and condition for safe operation. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval.	scrap. 11Q3: Material Review Board. 11Q4: document and maintain material review records. 11Q5: reinspection and retest of rework and repair.
Corrective And Preventive Action	4.14: if a problem occurs, how does the supplier ensure that it doesn't happen again?								
General	4.14.1: establish and maintain documented procedures for implementing corrective and	8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent	8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent		8.5.2: The organization shall take action to eliminate the cause of nonconformities in order to prevent				11Q6: action required to correct processes or procedures that result in nonconforming

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	preventive action; implement and record changes to procedures.	recurrence.	recurrence.		recurrence.				products/parts.
Corrective Action	4.14.2: document procedures for handling customer complaints, reports of nonconformity's, investigations relating to quality, and corrective action determination and after-action controls.	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action needed, etc.	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action needed, etc.	3.5: promptly detect and correct conditions detrimental to quality, including defective supplies, services, facilities, technical data, standards or other elements of contract performance which may create excessive losses or costs. {MIL-I:3.2.3}: take prompt action to correct assignable conditions which have or could result in presenting a supply or service which does not conform to quality assurance provisions, required tests or inspections, or other inspections or tests required to substantiate product conformance.	8.5.2: A documented procedure shall be established to define requirements for reviewing nonconformities (including customer complaints), determining the causes of nonconformities, determining and implementing action needed, etc.				11M1: trend analysis by upper management to detect adverse trends and determine required actions.
Preventive Action	4.14.3: document procedures for use of appropriate sources of information which affect quality, preventive action determination, initiation and application of controls, and confirmation of management review.	8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.	8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.		8.5.3: The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.				11M1: trend analysis by upper management to detect adverse trends and determine required actions.

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Handling, Storage, Packaging, Preservation, And Delivery	4.15: how does the supplier ensure that the customer's product was built correctly, that it will be protected from damage during storage and delivery?								
General	4.15.1: establish documented procedures for handling, storage, packaging, preservation, and delivery of product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	6.4: provide for adequate work and inspection instructions for handling, storage, packaging, and shipping to protect the quality of products and prevent damage, loss, deterioration, degradation, or substitution of products.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.		145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.		12P1: manufacturing participation in review of material handling specifications. 12E1: changes made to protect products from recurring damage.
Handling	4.15.2: provide methods of handling product that prevent damage or deterioration.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection.	6.4: require and monitor the use of procedures to prevent handling damage to articles.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection.	8.A. Material Handling: material shall be handled and protected from damage and deterioration in an appropriate manner.	145.35: station shall provide suitable housing for equipment and material, work space, facilities for storing, segregating and protecting materials, and facilities for protecting parts and subassemblies.	21.125 (for APIS and TSO): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA):	9Q7: handling procedures to protect parts from damage, contamination, corrosion, ingestion of foreign material. 12Q1: use appropriate methods to protect parts from damage or contamination.

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		Preservation shall also apply to the constituent parts of a product.	Preservation shall also apply to the constituent parts of a product.		Preservation shall also apply to the constituent parts of a product.			all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval.	
Storage	4.15.3: use designated storage areas or stock rooms to prevent damage or deterioration of product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product		7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	8.B. Batch/Lot Control: batch segregation shall be maintained for parts so identified by the manufacturer. 8.F. Storage of Parts: quality system shall assure that serviceable parts/components are adequately protected against the environment and damage. 9. Shelf life control: identify and control shelf life-limited parts and materials. E6: Appropriate shelf-life controls shall be used. E12: Parts requiring special environments shall be identified and	145.35: station shall provide suitable housing for equipment and material, work space, facilities for storing, segregating and protecting materials, and facilities for protecting parts and subassemblies.	21.125 (for APIS and TSO): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval.	12Q2: use special environmental controls when warranted. 12Q3: store only conforming, properly identified parts/products. 12Q4: segregate and protect products/parts in storage areas. 12Q5: identify and control parts/products subject to age, deterioration or corrosion. 12Q7: control removal and issuance of products from storage areas.

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						stored accordingly.			
Packaging	4.15.4: control packing, packaging and marking processes which ensure conformance to specified requirements.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.		7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	8.D. Packaging: Product shall be delivered with identification, and where possible, in manufacturer's original packaging. 8.E. Electro-static Sensitive Devices: for these materials, package, handle and protect them with necessary precautions. E9: Shipped parts are to be protected from damage and/or deterioration.	145.35: station shall provide suitable housing for equipment and material, work space, facilities for storing, segregating and protecting materials, and facilities for protecting parts and subassemblies.		12Q1: use appropriate methods to protect parts from damage or contamination. 12Q6: complete design changes in stored products before their release for installation or shipment.
Preservation	4.15.5: apply appropriate methods of preservation and segregation of product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.		7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.		145.35: station shall provide suitable housing for equipment and material, work space, facilities for storing, segregating and protecting materials, and facilities for protecting parts and subassemblies.	21.125 (for APIS and TSO): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA): all parts used to modify or replace parts on type certificated products shall be produced in conformance with	12Q1: use appropriate methods to protect parts from damage or contamination.

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								a Parts Manufacturer Approval.	
Delivery	4.15.6: arrange for appropriate protection of the product after final inspection and test.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.		7.5.5: The organization shall preserve the conformity of product during internal processing and delivery to the intended destination, including identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	11. Shipping: ship components and parts in ATA-300 compliant containers or equivalent as appropriate for the unit being shipped.			12Q6: complete design changes in stored products before their release for installation or shipment. 12Q8: use only conforming and properly identified products/parts under production approval or direct ship authority for packaging and shipping.
Control Of Quality Records	4.16: how are the quality of the customer's product and its input materials documented?								
	4.16: establish and maintain documented procedures for identification, collection, indexing, access, filing, storage, maintenance, and disposition of quality records.	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented	3.4: maintain and use records essential to the economic and effective operation of the quality system. {MIL-I: 3.2.2}: maintain adequate records of all inspections and tests. {MIL-I: 3.2.4}: contractor's inspection system shall assure that the latest applicable drawings, specifications	4.2.4: Records shall be established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. Records shall remain legible, readily identifiable and retrievable. A documented	8.C.: Recall control: distributor must maintain records for parts identified by batch number and quantities sold to facilitate manufacturer's recall notices. 12. Records: maintain documentation of traceability for at	145.61: each certificated domestic repair station shall maintain adequate records for all work it performs. 145.79: each certificated foreign repair station shall maintain adequate records and reports for all maintenance and alterations it performs. Prompt notifications shall be provided for any serious defect and	21.125 (for APIS and DAS): in addition to production inspection system required by 21.123, establish a Materials Review Board and materials review procedures. 21.303 (for PMA): all parts used to modify or replace	1Q6: procedures for record retention schedule of technical data files and process, test, quality/inspection system data.

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		procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.	procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.	and instructions required by the contract, including authorized changes, are used for fabrication, inspection and testing.	procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.	least 7 years from time of sale. All life limited parts shall have records confirming life limited status.	recurring unairworthy condition.	parts on type certificated products shall be produced in conformance with a Parts Manufacturer Approval. 21.613 (for TSO): maintain specified records for each article manufactured.	
Internal Quality Audits	4.17: how does the supplier check on the effectiveness and correctness of his quality system?								
	4.17: establish and maintain documented procedures for planning and implementing internal quality audits to verify if quality activities and related results comply with planned arrangements, and to determine the effectiveness of the quality systems.	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.	{MIL-I: 3.1}: perform inspections and tests to substantiate product conformance to contract requirements.	8.2.2: The organization shall conduct internal audits at planned intervals to determine whether the quality management system conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and is effectively implemented and maintained.	E5: Conduct a self-evaluation program of the quality system standard, documentation, and corrective actions.			15M1: internal auditing program to verify compliance with established policies, approved data, purchase order requirements. 15M2: feedback of internal audit results to upper management.
Training	4.18: how does the supplier know that his people who built and tested the customer's product								

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	are qualified?								
	4.18: establish and maintain documented procedures for identifying training needs and provide for the training of all personnel performing quality activities; maintain appropriate records.	6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.	6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.		6.2.2: The organization shall determine the necessary competence for personnel performing work affecting product quality, provide training or take actions to satisfy these needs, evaluate the effectiveness of the actions taken, etc.	4. Training and authorized personnel: distributor shall have personnel who are properly trained to perform inspection, handling and record keeping procedures to support the organization's adopted quality system. E2: Training of personnel to ensure quality system is properly conducted. E11: All quality personnel shall be trained and authorized to make quality determinations.	145.43: each certificated repair station shall maintain adequate records for supervisory and inspection personnel. 145.75: each supervisor and inspector at a foreign certificated repair station must understand Part 145, FAA airworthiness directives, and the manufacturers' maintenance and service instructions. [43.3]: authorizations to perform maintenance, preventive maintenance, rebuilding and alterations.		1P3: appropriate training and skills for manufacturing personnel. 1Q3: appropriate training and skills for quality personnel. 1S3: appropriate training and skills for service/product support personnel. 1C3: appropriate training and skills for notification personnel. 4P6: familiarize employees with specifications affecting their jobs. 5Q2: qualify and approve processes, equipment and operators with specifications and manufacturer's procedures. 6Q2: train pertinent personnel in statistical sampling techniques. 6Q4: train pertinent personnel in PRE-control techniques. 6Q6: train pertinent personnel in SPC techniques. 8E4: qualify flight test pilots if product is aircraft. 9Q1: qualify,

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									certify, recertify and decertify operators by specification or facility procedures.
Servicing	4.19: if the supplier told the customer that he provides service for the customer's product, how will the supplier do that, and how will he make sure that servicing personnel are qualified?								
	4.19: when specified, establish and maintain documented procedures for performing, verifying, and reporting that servicing meets the specified requirements.	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.	7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.		7.5.1: The organization shall plan and carry out production and service provisions under controlled conditions.		145.45: station must operate and maintain an inspection system which provides personnel familiar with all inspection methods, techniques and equipments consistent with its rating, accommodates inspection of incoming material, assesses state of preservation and defects, thoroughly inspects for hidden damage, and assembles all inspection procedures in a manual which is current at all times.	21.477 (for DAS): upon notification by Administrator, DAS shall investigate and report any finding that a subpart does not satisfy airworthiness requirement or provides an unsafe feature or characteristic.	1S1: describe the functions of service/product support-related organizations, and define their levels of authority. 17Q1: establish program for inspection, maintenance, preventive maintenance, and return to service. 17Q2: facility operate within privileges of repair station certificate. 17Q3: perform work conforming to part 43 requirements and approved data.

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									<p>17Q4: place certified mechanics and repairmen in charge of maintenance and preventive maintenance.</p> <p>17Q5: enter work accomplished in appropriate maintenance record.</p> <p>17Q6: complete all requirements before approving return to service.</p> <p>17Q7: control product/parts received from satellite Manufacturer's Maintenance Facility (MMF).</p>
Statistical Techniques	4.20: if the supplier is using statistical techniques to ensure the quality of the customer's product, how will the supplier ensure that the techniques are used correctly and that the results are within limits?			6.6: statistical planning, analysis, tests and quality control procedures may be used whenever such procedures are suitable to maintain the required control of quality. Any sampling plan used shall provide valid confidence and quality levels.					
Identification of Need	4.20.1: identify need for statistical techniques required for establishing. Controlling, and	8.1: The organization shall plan and implement the monitoring, measurement,	8.1: The organization shall plan and implement the monitoring,		8.1: The organization shall plan and implement the monitoring, measurement,			21.303 (for PMA): all parts used to modify or replace parts on type certificated	6Q5: establish a satisfactory SPC method for acceptance of specific product

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	verifying process capability and product characteristics.	analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.	measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.		analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include determination of applicable methods, including statistical techniques, and the extent of their use.			products shall be produced in conformance with a Parts Manufacturer Approval.	characteristics.
Procedures	4.20.2: establish and maintain documented procedures to implement and control the use of statistical techniques identified in 4.20.1.	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system.	{MIL-I: 3.9}: sampling inspection procedures used to determine quality conformance of supplies shall be as stated in the contract or shall be subject to Government approval.	8.1: The organization shall plan and implement the monitoring, measurement, analysis and improvement processes need to demonstrate conformity of the product, ensure conformity with the quality management system, and to continually improve the effectiveness of the quality management system. This shall include				6E1: engineering participation in review, implementation and maintenance of SQC techniques. 6P1: manufacturing participation in review, implementation and maintenance of SQC techniques. 6Q1: establish a statistical sampling plan for acceptance of product characteristics at receiving inspection and during manufacture. 6Q2: train pertinent personnel in statistical sampling techniques. 6Q3: establish a satisfactory PRE-control method for accepting specific product characteristics. 6Q4: train pertinent personnel in PRE-control techniques 6Q5: establish a satisfactory SPC method for acceptance of specific product characteristics. 6Q6: train pertinent personnel in SPC techniques. 6Q7: use appropriate SPC

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		determination of applicable methods, including statistical techniques, and the extent of their use.	This shall include determination of applicable methods, including statistical techniques, and the extent of their use.		determination of applicable methods, including statistical techniques, and the extent of their use.				control limits and subgroup selection. 6Q8: define criteria for determining when SPC process is considered out of control. 6Q9: regularly review SPC charts to determine changes/shifts in the process. 6Q10: assess use of corrective action when SPC control chart shows process is out of control. 6Q11: conduct additional inspections to insure product is acceptable while corrective action is being taken.
Other Issues External To ISO 9001:									
Relation to Other Contract Requirements; Relation to MIL-I-45208A				1.4: MIL-Q-9858A shall be in addition to and not detract from other contract requirements. 1.5: MIL-Q-9858A contains requirements which exceed the requirements of MIL-I-45208A, Inspection System Requirements.					
Superceding, Supplementation and Ordering				2: reference specifications which form a part of MIL-Q-9858A.					
Rights and Data				4.1: deliver correct drawings and change information in full compliance with contract requirements concerning rights and data, both proprietary and other					
Cost Related to Quality				3.6: maintain and use quality cost data as a management element of the quality program to identify costs of					

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				prevention and correction of nonconforming supplies.					
Review of Instructions				4.1: review supplemental specifications, process instructions, production engineering and industrial engineering instructions, and work instructions for adequacy, currency and completeness.					
Government Inspection at Subcontractor or Vendor Facilities				7.1 and {MIL-I: 3.11}: Government reserves the right to inspect at sources of supplies or services not manufactured or performed at contractor's facility to determine conformance of those supplies or services with contract requirements.					
Notes				8: MIL-Q-9858A is intended for complex supplies, components, equipments and systems for which the requirements of MIL-I-45208A are inadequate.					
Qualified products				{MIL-I: 3.8}: although a product may be on a Qualified Products List, the contractor is responsible for furnishing supplies that meet all contract requirements, or for performing specified inspections and tests for such material.					
Facilities						3. Facilities: appropriate			

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						facilities shall be maintained to ensure that storage does not damage inventory.			
Standard Checklist						XX			

Notes: 1) From The ISO 9000 Book, A Global Competitor's Guide to Compliance & Certification by John Rabbit and Peter Bergh, Quality Resources, 1993.

2) Note: Federal Aviation Regulation Part 145 has been revised with effective dates of April 6, 2003 and April 6, 2005 respectively. This document is based on the current Part 145 in effect at the time of the writing.

3) Source: Aviation Industry Quality Systems by Michael J. Dreikorn, ASQC Quality Press, 1995.