The Engineering Society
For Advancing Mobility
Land Sea Air and Space®

I N T E R N A T I O N A L

400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

AS7104

Issued 1996-01

Submitted for recognition as an American National Standard

NADCAP
REQUIREMENTS FOR ACCREDITATION OF FULL DISTRIBUTORS

1. SCOPE

1.1 This Aerospace Standard (AS) establishes the minimum requirements for the quality assurance program of a distributor of factory new material and excess inventory, assembled, altered, new, used, remanufactured, repaired, rebuilt or overhauled parts and materials. It is applicable to the distributor who procures parts and materials, assembles higher level components/assemblies from parts or kits, or performs or contracts for the alteration, assembly, modification, remanufacture, repair, rebuilding or overhaul of products and resells them to customers or other distributors (i.e., a VALUE ADDED DISTRIBUTOR).

NADCAP accreditation is granted in accordance with SAE AS7003 after demonstrating compliance with the requirements herein. These requirements may be supplemented by additional requirements specified by the NADCAP Distributors Task Group. Using the audit checklist (AC7104) will ensure that accredited Full Distributors meet all of the requirements in this standard and all applicable supplementary standards.

1.2 For the purposes of this standard, a Value Added Distributor of new surplus material (new unused parts produced by the OEM and purchased from an end user as surplus to their requirements) and excess inventory shall:

a. Not affect the specification conformance of the product as imparted by the manufacturer without prior written notification to and acceptance by the purchaser of such action or effect.
b. If engaged in the assembly of higher level assemblies or components from parts or kits, provide products which meet the Original Equipment Manufacturer's (OEM) specification requirements and the customer's requirements.
c. Maintain on file and, if required, provide the purchaser with unaltered copies of the documentation created and provided by the original manufacturer, repair station or modification center which establishes traceability of origin, identification, serial number (if applicable) and prior owner if the product has been previously acquired.
d. Only obtain civil aviation parts that are accompanied by documentation that establishes the parts were manufactured under FAR Part 21, or were previously determined to be airworthy by an appropriately rated certificate holder. Appropriate documentation may include official documents (i.e., Form 8130-3, or certificate of airworthiness for export issued for foreign manufactured parts under FAR Part 21 Subpart N) or commercial documentation (i.e., Material Certificate [ATA Specification 106], invoice or shipping ticket or equivalent) or a combination of both.
e. Provide certification to ensure that product quality and traceability has been maintained and not compromised.
f. Not procure or sell aircraft or aerospace parts that were subjected to extreme stress or heat (as in a major aircraft engine failure, catastrophic incident, fire, environmental excursion, etc.) or have exceeded the manufacturer's time, life, or usage limits.
g. Demonstrate traceability of the products to the Original Equipment Manufacturer (OEM), holder of a Production Certificate (PC), Parts Manufacturer's Approval (PMA), Technical Standards Order Authorization (TSOA), Supplemental Type Certificate (STC), Manufacturer's Maintenance Facility, air carrier or a Certificated Repair Station.
h. When required, indicate in writing to the purchaser, prior to delivery, if the products were manufactured for military or non-civil aviation use.
i. Maintain positive identification and/or segregation of inventories to ensure against commingling of: 1) classes of products (i.e., new, altered, used, etc.); 2) aerospace and non-aviation products, and (3) civilian and military products.

1.3 When required, the distributor shall perform or have performed the visual and/or dimensional verification of products to applicable product standards, specifications or drawings using appropriate measuring instruments and gauges and attest to the purchaser as to the confirmation of product conformity. When required, the distributor shall have the capability to perform, or to have performed, functional (mechanical, electrical, electronic, electromechanical, etc.) testing and provide certified test reports to the purchaser.

1.4 Distributors are subject to a quality program audit by the accrediting agency at any time during regular working hours. Normally, the auditor will notify the distributor and arrange the audit so as to cause minimal interference with the distributor's operations, but should circumstances dictate, the auditor may arrive unannounced.

1.5 Any verified evidence of product or document alteration outside the scope of this standard may result in loss of NADCAP accreditation. Such action will be pursued through the NADCAP due process procedures.

1.6 Conforming parts and materials are necessary to support compliance with applicable Federal Aviation Regulations (FAR) which may include FAR 121.215, 121.303, 121.312, and/or 135.143 or Joint Aviation Regulations (JAR) as applicable.

1.6.1 FAA Advisory Circular (AC) 20-62 provides relevant information on civil aeronautical replacement parts.

1.6.2 Civil unapproved parts are to be reported in accordance with AC 21-29.

1.7 In those instances where this standard is used for distributors servicing the commercial/civil aviation sector, the requirements referencing “certified” or “authorized inspection personnel” are mandatory.

1.8 This standard is compatible with the requirements of:

a. ISO 9003 (1987) “Quality Systems - Model For Quality Assurance in Final Inspection and Test” or the U.S. equivalent ANSI/ASQC Q93.
b. C.A.S.E. Standard 3-A, (2/1/89) “Surplus Parts Dealer, Quality Program Requirements”.
c. ATA Draft Specification 106 (4/1/93) “Sources and Approved Parts Qualification Guidelines”.
d. MIL-I-45208 “Inspection Systems”.

1.9 Compliance with this standard does not necessarily indicate that a distributor will be granted NADCAP accreditation.

1.10 PRI AC7104 (Rev. 2/1/94) is the audit criteria to be used with this standard.

2. APPLICABLE DOCUMENTS

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15086-0001.

AS7001 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Description
AS7002 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Rules for Implementation
AS7003 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Operation

2.2 ISO Publications:

Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

ISO 9003 (1987) Quality Systems - Model For Quality Assurance in Final Inspection and Test.

2.3 ATA Publications:

Available from the Air Transport Association, 1302 Pennsylvania Ave., NW, Washington, DC 20004.

ATA Specification “The World Airline & Suppliers Guide.”

ATA Specification 300

2.4 Definitions

CAA: The Civil Aviation Administration of importing and exporting countries; also known as the National Aviation Administration

FAA: Federal Aviation Administration

FAR: Federal Aviation Regulations

JAA: Joint Aviation Administration

JAR: Joint Aviation Regulations

AS IS: Part is used but not certified as airworthy

ASSEMBLY: The assembly of pieces, parts materials, products, etc. into a higher configuration level product

BER (BEYOND ECONOMICAL REPAIR): Part pending disposition evaluation for future repair or scrap

FACTORY NEW: New, unused products received from Production Approval Holders (PAH) or an Original Equipment Manufacturer (OEM) with direct ship authority from a PAH

INCIDENT RELATED PART: A part associated with an abnormal operational circumstance (i.e., outside the operating envelope of the engine, aircraft, and/or the aircraft/engine combination as originally certified, and where inspection, refurbishment and repair data are not addressed by an FAA, CAA or JAA approved publication)

2.4 Continued

MISCELLANEOUS SMALL PARTS (MSP): Non-serialized, expendable parts (fasteners, washers, “O” rings, etc.) not traceable to lot/batch when outside of the small parts manufacturer’s packaging

NEW SURPLUS: New unused parts produced by the OEM, purchased from an end user as surplus to their requirements (see Surplus - Excess Inventory)

ORIGINAL EQUIPMENT MANUFACTURER (OEM): A manufacturer that produces, in a final inspection sense, a part or assembly. Civil OEM parts are designed to be installed on an FAA approved product (engine, propeller, or aircraft). For an OEM to legally ship a part directly to an end user or distributor, it requires a Parts Manufacturer’s Authorization or Technical Standard Order Authorization from the FAA, or direct ship authority from the PAH on whose product the part is installed. Without the authority or approval, parts are not acceptable.

OVERHAULED CERTIFIED: Part overhauled by an airline or an authorized repair agency to a Time Since Overhaul of 00:00

PRODUCTION APPROVAL HOLDER (PAH): A company that has an FAA approved production system that authorizes it to make and ship approved parts and products. Production Approval Holders include Type Certificate (TC) holder, Production Certificate (PC) holders, Parts Manufacturer’s Authorization (PMA) holders, and Technical Standard Order Authorization (TSOA) holders.

REPAIRABLE: Part that has been used but is not currently certified as airworthy and can be economically repaired and/or overhauled

SERVICEABLE: Part certified as airworthy by an airline or authorized repair agency

STANDARD PART: A part or material manufactured in conformity with a specification that (1) is established by the U.S. or foreign standards organization or manufacturer, and (2) includes design, manufacturing, test and acceptance criteria and uniform identification requirements, and (3) is made freely available by the establishing standards organization or manufacturer without proprietary limitations.

SURPLUS/EXCESS INVENTORY: Products originally purchased for installation or assembly into a finished part or assembly and not originally intended for resale

3. QUALITY ASSURANCE PROGRAM

3.1 The distributor shall have a documented quality assurance program adequate to ensure delivery of conforming products that comply with customer specifications and requirements. Management shall define and document its policy for quality, including objectives for quality and its commitment to quality. Management, supervisory and all other personnel whose work activities affect the quality assurance program shall be thoroughly familiar with the program.

3.2 The distributor shall have a documented program for the identification and segregation of FAA approved parts from all other parts. The distributor shall not knowingly offer for sale parts other than approved parts for subsequent use on FAA certificated products without first informing the customer in writing and receiving documented acceptance by the customer. Parts other than approved parts are defined in FAA Advisory Circular 21.29 and/or the Joint Aviation Authority (JAA) equivalent document.

3.3 Where required, there shall be an individual at the facility that is knowledgeable in and responsible for the acceptability of records documenting parts approval status. There shall be provisions for issuing FAA Form 8130-3 (i.e., 8130 tags) either by using company employed or independent FAA Designee properly authorized by the FAA for these purposes.

3.4 Effective management for quality shall be clearly prescribed by the distributor. Personnel performing quality functions shall have sufficient, well-defined responsibility, authority and the organizational freedom to identify and evaluate quality problems and to initiate, recommend, or provide solutions.

3.5 The quality assurance program document shall include, as a minimum, a detailed description of:

a. The Quality Assurance Department, including an organization chart showing its relationship to executive management and to the remainder of the organization. The responsibility, authority, and the interrelationship of all personnel engaged in verification, inspection and/or tests shall be defined.
b. Personnel, by title, responsible for implementing quality assurance programs including verification, inspection, shelf life control, and protection against counterfeiting or other unlawful alteration of products or documents attesting to the conformity or traceability of products.
c. A record keeping system regarding quality history, certifications, test reports, and other quality related documentation for products held out for sale.
d. Employee training requirements and/or job skill requirements
e. Shelf life, limited life or environmentally sensitive product control systems
f. Control and disposition of nonconforming products, material and scrap
g. Receiving inspection, test, and/or verification procedures
h. Storage facilities and environmental controls, as necessary
i. Parts/materials identification and inspection status system
j. Stamp/signature/punch control, if applicable
k. Tool, test equipment and measuring instrument calibration control program
l. A distribution and revision control system for manuals, technical data and other work instructions
m. Verification procedures to ensure that products being shipped conform to the customer's purchase order requirements for conformity, documentation, and packaging
n. The organizational structure, membership, authority, and procedures of the Material Review Board

3.6 The quality assurance manual shall be kept current and shall be readily available to employees, customers, regulatory agencies, and to the accreditation auditor. The manual shall be reviewed no less than annually to ensure currency and applicability to on-going operations, customer or regulatory requirements, and the requirements of the current revision of this standard. These reviews shall be documented as part of the quality assurance records.

3.7 The distributor shall have a documented and operating self-audit and surveillance function that:

a. Periodically reviews programs to verify procedures are in place that ensure compliance with customer specifications, regulatory requirements, the requirements contained herein, and good industry practices
b. Verifies that operations are conducted in accordance with these programs and requirements
c. Documents the results of the reviews to executive management for awareness and appropriate action.

3.8 If applicable, the distributor's quality program shall describe the procedures and controls utilized for the purchase, inspection, certification and delivery of Incident Related Parts.

4. PRODUCT VERIFICATION/INSPECTION

4.1 All product containers received by the distributor shall be subjected to incoming verification/inspection. As a minimum, the receiving process shall verify the product conformance through visual examination or verification of quantity, type, size, finish, marking of grade, property class, condition, part number or specification number, manufacturer’s identification, and general workmanship.

4.2 Documented and controlled accept/reject criteria, issued by the authorized office and maintained on a current basis, shall be used by appropriate personnel during the receiving process.

4.3 All documents relating to product conformity and traceability which accompany incoming shipments shall be verified for authenticity, completeness of data, and verified to the product and container labels in the shipment.

4.4 The receiving verification program shall confirm that products received are free from visible defects or damage, conform to purchase order requirements, are in a good state of preservation, and, when applicable, are from the lot, batch or serial numbers as indicated on accompanying certifications and test reports.

4.5 Verification operations shall be traceable to the individual through legible signature or initial, inked stamp, or metal punch. A control system shall be in place to identify the signatures, initials, stamps or punches to authorized personnel. The stamp/punch number shall be retired or impounded for no less that six months when the incumbent leaves the position or if the stamp/punch is reported as lost. Stamps/punches shall be protected at all times from unauthorized use.

4.6 The verification process shall not alter or adversely affect the conformity, useability, serviceability, or traceability of the products as received from the selling source. Positive safeguards shall be in place to prevent nonconforming products or products not yet verified from entering the distributor's system.

4.7 All inspection personnel shall be adequately trained or experienced to perform the assigned inspection and acceptance functions. Management shall periodically assess their competence and document the results of their assessment.

4.8 When required by the purchaser, the inspection program shall include periodic verification that standard parts meet the applicable technical specifications. The distributor shall maintain a record of inspections and tests performed to make this verification. Periodic verifications of physical and chemical properties and checks of manufacturers' test reports are appropriate. Distributors shall ensure that appropriate product specifications or drawings are current and used to support the inspection process.

4.9 Sampling inspection procedures shall be in accordance with generally accepted sampling plans (i.e., MIL-STD-105) or other valid statistical techniques. Personnel involved in sampling inspection shall be adequately trained in appropriate statistical methods.

4.10 A record shall be maintained of the quality history of each product (lot, batch, serialized part, etc.) purchased or received from each supplier, repair station, manufacturer, or other source. The quality history shall be used as one element in the evaluation of supplier performance.

4.11 Products which have been reworked, repaired, overhauled, rebuilt, modified, altered, or subjected to tear down shall be inspected and functionally tested, where applicable, to the accept/reject criteria established by the PAH or the OEM or the customer's engineering requirements. Maintenance release tags shall be examined for accuracy and completeness before acceptance of the product.

5. INSPECTION AND TEST STATUS

The inspection and/or test status of products and condition code shall be identifiable at all times by using markings, inspection stamps, tags, labels, or other unambiguous means which indicate the conformance or nonconformance of the product with regard to verifications, inspections, and/or tests performed.

6. OVERHAUL AND REPAIR REQUIREMENTS

6.1 When contractually required, all Airworthiness Directives (ADs) applicable on the date of sale shall have been accomplished. Certification of compliance shall specify the AD number and amendment number, date, narrative description of the method of compliance, and shall be signed by an authorized representative.

6.2 The distributor shall ensure that all overhaul, repair, modification, test and inspection actions have been conducted by a manufacturer's maintenance facility, an FAA certificated repair station (FAR 145), FAR 121 or 135 air carrier. For military parts, the certification of the OEM is acceptable.

6.3 When required, the distributor shall provide the purchaser with a written certification that the products were:

a. Not subjected to extreme stress or heat beyond their design capabilities
b. Manufactured by the OEM in accordance with the aircraft or aircraft engine manufacturer's specifications or the customer's engineering specification
c. Not military or non-civil aviation parts, and were not obtained from military or non-civil aviation sources

6.4 For parts that have been overhauled, repaired, rebuilt, remanufactured or serviced, the distributor shall provide the purchaser with a written and signed maintenance release statement from the certificated repair station or FAR 121 or 135 carrier or the release statement must conform to FAR 43, Appendix B and FAA AC 145.3, Appendix #1. The distributor shall furnish the purchaser with a summary that describes the condition found and lists the parts replaced and final inspection and/or test results.

6.5 For European registered aircraft, or at the customer's request, compliance with applicable JAA requirements may be required.

6.6 Parts overhauled for military use require a maintenance release with reference to the appropriate technical order.

7. CONTROL AND CALIBRATION OF MEASURING AND TEST EQUIPMENT

7.1 The distributor shall have a documented program for the control and calibration of all test equipment, measuring devices, or other instruments used in the verification and acceptance of products. The measurement standards used in the calibration program shall be traceable to the National Institute of Standards and Technology (NIST) or other similar national laboratory.

7.2 Test equipment, measuring devices, or other instruments shall be calibrated periodically to maintain accuracy to appropriate and applicable standards. Current documentation of calibration status shall be maintained. Each instrument shall be appropriately marked to indicate its calibration status, due date for next calibration and unique identification to the calibration records.

7.3 There shall be written procedures to prevent tools/equipment which are not calibrated or are past due calibration from being used. Each item in the calibration program must be traceable to the standard against which it was calibrated. Instruments found to deviate beyond established limits shall be identified and withdrawn from use and either repaired, recalibrated, or replaced. Based upon the significance of the deviation, the distributor shall inform the purchaser of products regarding the out of tolerance condition.

7.4 Employee owned tools, instruments, measuring devices, etc,. used in the inspection and acceptance of products shall be controlled in a similar manner.

8. TECHNICAL DATA CONTROL

8.1 Technical data applicable to manufacturers' products shall be maintained in a manner which ensures such data are current and accessible as required. Handwritten entries or corrections to technical data are not permitted.

8.2 Technical data shall be replaced when outdated, obsolete, or unreadable. The distributor's control system shall provide for the location and/or holder of technical data so as to provide for prompt and complete inventory, updating, and recall.

9. DOCUMENT MANAGEMENT/SOFTWARE MANAGEMENT

9.1 The distributor shall have a documented system governing the storage, distribution, and retrieval of documents confirming that the dimensional and functional characteristics and other customer required data are in conformance with applicable technical specifications. The system shall establish the retention period for records pertinent to product history and traceability including the method which shall be used for retaining or disposing of these records. The program shall not violate or conflict with customer requirements or federal statutes. Records shall be protected from damage, deterioration, alteration, unauthorized access, or loss.

9.2 Records confirming fastener integrity, including physical and chemical test reports, shall be maintained for no less than ten years after sale.

9.3 Records for materials with flammability requirements shall verify conformance to applicable flammability requirements and shall be retained for no less than ten years after sale.

9.4 When applicable, purchase records must demonstrate a chain of custody, tracing orders back to a Production Approval Holder (i.e., Parts Manufacturer's Authorization, Technical Standards Order, Production Certificate, Supplemental Type Certificate, etc.) or a manufacturer of standard parts. Documents must indicate serial number and/or manufacturing lot/batch number traceability, when applicable.

9.5 There shall be a system governing the receipt, storage, retrieval, security, reproduction, and distribution of traceability documents. These documents include certificates of conformance, product specification conforming test reports, and/or other relevant documents required by customers or regulatory agencies.

9.6 An anti-counterfeiting system shall exist to protect authenticity and controlled reproduction of certificates of conformance, product specification conforming test reports, and other relevant documents. These measures are to prevent unauthorized use, copying, alteration, counterfeiting, or distribution of these documents. As applicable, security shall be extended to products and their containers.

10. SHELF LIFE/LIMITED LIFE PROGRAM

10.1 The distributor shall maintain a documented program to ensure the identification and proper handling and storage of shelf life items and components or assemblies containing such items. The program shall specify a system that will ensure these items, when shipped, have sufficient life remaining to permit the customer a reasonable period of time to utilize the product in his operations.

10.2 For time controlled or limited life parts, the distributor shall provide adequate documentation necessary to verify Time Since Overhaul or Time Since New and indicate the time remaining to overhaul or discard.

11. PROCUREMENT

11.1 The distributor shall maintain a documented procurement system such that only conforming parts and materials are purchased from approved sources and proprietary and licensing rights are observed. The responsibility for the preparation, review, approval, and issue of procurement documents shall be defined.

11.1.1 The system shall ensure that special requirements are adequately communicated to the distributor's sources.

11.1.2 Amendments to purchase orders shall be documented in similar fashion.

11.2 Distributors shall maintain a list of their approved suppliers and a quality history of each source. The procurement system shall document the method for approval of sources for procurements and the removal of sources.

11.3 Parts, materials, and/or services shall be purchased directly from approved manufacturers, distributors approved by the manufacturer to sell the product, a certificated repair station, or a FAR 121/129/135 carrier. For European registered aircraft or at the customer's request, compliance with applicable JAA regulations may be required. Deviations from this policy must be disclosed to and approved in writing by the customer prior to part/material shipment.

11.4 Purchases of new-unused surplus material or surplus/excess inventories must be accompanied by a written certification from the seller indicating the part numbers, condition code, quantity sold, lot, batch or serial numbers involved, applicable product specification, manufacturer and conformity verification method, or quality assurance specification utilized. Lots/batches shall not be commingled.

11.5 Technical requirements, including all applicable standards or specifications, shall be clearly stated on all purchase orders. The standard or specification stated on the purchase order shall specify attributes such as chemical, mechanical or electrical properties, performance requirements, dimensions, plating or coating, and the packaging, preservation handling and storage required.

11.6 Appropriate requirements of this standard shall flow down to suppliers, subcontractors, or others who provide parts, materials, or services to the distributor.

11.7 The system shall include procedures for purchase order review and coordination of these activities with the Quality Assurance organization.

12. MATERIAL/INVENTORY CONTROL

12.1 Parts and material shall be handled in an appropriate manner and shall be protected from damage, commingling, and deterioration. Special packaging shall be maintained as necessary. The storage area for aircraft parts is to be periodically checked for overall effectiveness of storage, environmental controls, and identification methods.

12.2 Aircraft/aerospace products and products that may be reasonably assumed to be sold for aircraft use shall be segregated from non-aircraft parts.

12.3 Lot/batch segregation shall be maintained for fasteners and other products as appropriate and/or required. The distributor must maintain records indicating the quantities acquired and the quantities sold from each lot/batch to each buyer. Where lots have been subdivided, evidence shall exist to ensure continued traceability.

12.4 Batch segregation shall be maintained for materials requiring flammability testing and for other items for which segregation is appropriate or required.

12.5 Whenever practical, materials shall be sorted and delivered in the manufacturer's original packaging. The packaging shall identify the manufacturer and/or distributor, part number, lot, batch or serial number(s) when applicable, and the quantity. When required, the country of origin shall be included. The label shall be in compliance with all applicable laws and contract requirements.

12.6 Packaging shall conform to ATA Specification 300 or equivalent requirements or customer specifications.

12.7 Flammable, hazardous, toxic, or volatile materials shall be clearly identified and stored in a manner and location conforming to the manufacturer's recommendations or as specified by local, state, or federal statutes.

12.8 Products subject to damage from electrostatic discharge (ESD) shall be packaged, handled, and protected with necessary precautions and in accordance with requirements for handling these devices. Personnel involved in handling these products shall be properly trained in the appropriate methods and precautions.

12.9 Adhesive tape shall not be used to cover electrical connections or fluid fittings or openings. Appropriate plugs or caps shall be in place at all times.

12.10 The distributor shall ensure no part number ambiguity exists. The distributor shall not add, alter, or remove a manufacturer's part number or identifying mark or replace a data plate. In the event a part is manufactured by more than one source the distributor shall maintain a listing which cross indexes the manufacturers' identity and unique part number. If lot integrity is required by the customer or by statute, the distributor shall ensure such integrity.