

Submitted for recognition as an American National Standard

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**NATIONAL AEROSPACE AND DEFENSE CONTRACTORS
ACCREDITATION PROGRAM
REQUIREMENTS FOR NONDESTRUCTIVE TESTING**

1. SCOPE

This Aerospace Standard (AS) establishes the requirements for suppliers of nondestructive testing (NDT) to be accredited by the National Aerospace and Defense Contractors Accreditation Program (NADCAP) in accordance with the current revision of SAE AS7003. Using the audit checklist and the applicable supplementary checklists will ensure that accredited NDT suppliers meet the requirements of this standard and all applicable supplementary standards.

When customer requirements differ from those specified herein, the customer requirements shall take precedence.

The NADCAP Nondestructive Testing Task Group recognizes SAE AS7004, SAE AS7106, SAE AS7107 or other quality systems documents approved by the NADCAP NDT Task Group as equivalent to portions of this document as noted in the audit checklist.

2. REFERENCES

2.1 SAE Publications

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

AS7003 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Operation

2.2 U. S. Government Publications

Available from DODSSP Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-410 Nondestructive Personnel Qualification and Certification
MIL-STD-45662 Calibration Systems Requirements

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2.3 ISO Publications:

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

ISO 9001 "Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation and Servicing

3. NDT QUALITY SYSTEM:

3.1 Quality Manual

3.1.1 The supplier shall have a quality manual that details the system by which it intends to control the overall quality of its operations.

3.1.2 A documented quality system shall be established.

- a. The quality system shall be reviewed periodically.
- b. Records of such reviews shall be maintained.

3.2 Document Control

3.2.1 Applicable specifications shall be available. Applicable specifications include, but are not limited to customer, industry specifications (ASTM, SAE, etc.), U.S. Government specifications, and company specifications and other applicable specifications; i.e., ISO specifications, etc.

3.2.2 There shall be a procedure in place that assures the updating of specifications and removal of obsolete documents.

3.3 Customer Requirements:

3.3.1 There shall be a procedure to ensure that all customer requirements, including unique requirements, are implemented.

3.3.2 Responsibility for identifying and implementing customer requirements shall be identified by function and title.

3.3.3 Customer requirements shall be documented.

3.3.4 Customer documents/requirements shall be communicated to the inspectors.

3.4 Internal Audit

3.4.1 There shall be a procedure requiring periodic internal audit of the NDT system comprised of personnel, procedures, and equipment.

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- 3.4.2 There shall be a procedure for qualification of personnel performing NDT internal audits based on customer requirements.
- 3.4.3 When evaluation of material parts is a function of the internal audit, the individual performing the audit shall be qualified to a minimum of Level II.
- 3.5 Nonconforming Parts:
- 3.5.1 There shall be a procedure that requires that all rejected parts be adequately identified and segregated until rework, reinspection, and material/or disposition has been completed in accordance with applicable customer requirements.
- 3.5.2 The responsibilities for review and authority for the disposition of nonconforming parts shall be defined, when applicable.
- 3.5.3 Dispositions for the following nonconforming parts shall be covered by a procedure, as applicable.
- a. Reworked to meet specified requirements
 - b. Accepted with or without repair by concession
 - c. Regraded for alternative applications
 - d. Rejected or scrapped
 - e. Return to customer for disposition
 - f. Forward documentation of nonconforming condition to customer
- 3.5.4 Descriptions of non-conformities and repairs that have been accepted shall be recorded to denote the actual conditions and this report provided to the customer.
- 3.5.5 Repaired and reworked parts shall be reinspected in accordance with documented procedures as evidenced by documented records.
- 3.6 Stamp Control
- 3.6.1 There shall be a procedure specifying symbols, methods of application, and control of inspection stamps.
- 3.6.2 The procedure shall contain, as applicable:
- a. Letter symbol for the method applied
 - b. The facility identifier
 - c. The inspector's identification number
 - d. Requirements for a record to be maintained for the issuance, recall, and traceability of all inspection stamps

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- 3.6.3 A record shall be maintained showing stamps issued, date of issue, date of recall and the individual to whom the stamp was assigned.
- 3.6.4 Appropriate actions to deal with lost stamps, reassigned stamps, and removal of names of previously authorized but reassigned personnel shall be included in the signature control procedure.
- 3.6.5 There shall be provisions for stamp bond time before reassignment.
- 3.6.6 There shall be records of personnel identification (i.e., signatures, initials, clock number, etc.) maintained for all personnel required or authorized to sign-off on any NDT inspection sequence, NDT inspection report, or NDT procedure.
- 3.7 Receiving Inspection
- 3.7.1 There shall be a receiving inspection procedure that provides for acceptance, control, inspection, and return of purchased products and/or supplies.
- 3.7.2 There shall be a procurement procedure to assure that prime contractor requirements are adequately imposed on the sub-tier supplier, e.g., calibration services, cleaning/etching procedures as related to NDT.
- 3.8 Records
- 3.8.1 There shall be a procedure that assures that inspection records are maintained in accordance with purchase order or contractual requirements. This procedure shall address the following:
- a. Identification, collection, indexing, filing, storage, maintenance and disposition of quality records
 - b. Maintenance of quality records that demonstrate the achievement of the required quality and the effective operation of the quality system
 - c. Pertinent sub-contractor quality records
 - d. Legibility and traceability to the product involved
 - e. Storage and maintenance in such a way that quality records are readily retrievable and in a suitable environment that minimizes deterioration, damage, or loss
 - f. Establishment and recording of retention times for quality records
 - g. Provisions for availability of quality records, where agreed contractually, for evaluation by the customer or their representative

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4. PERSONNEL RECORDS - MIL-STD-410E:

NOTE: Reference MIL-STD-410 for detailed requirements.

4.1 MIL-STD-410E Requirements:

If MIL-STD-410E is applicable, the following requirements shall apply.

4.1.1 There shall be a procedure detailing the training, qualification and certification requirements for NDT personnel and it shall be approved by a Level III.

4.1.2 Records of training qualification and certification of NDT personnel shall be complete and accurate, and these records shall be available for review. These records shall contain, at a minimum, the following:

- a. Name of the individual certified
- b. Level, method, and techniques for which individual is certified
- c. Results of all qualification examinations, including the separate test scores, that the individual has taken
- d. Date and expiration of current certification(s)
- e. History of all previous NDT/NDI certifications with current employer
- f. Training history which identifies source and dates of training, course hours and grades (if given after training), and instructor's name
- g. Experience history, both with current and previous employers, sufficient to justify satisfaction of experience requirements for certification
- h. Results of physical examinations
- i. Extent and documentation of formal education

4.1.3 Applicable examinations shall be administered:

- a. Within the last 3 years for Level I and II personnel
- b. Within the last 5 years for Level III personnel
- c. All tests shall be periodically revised or changed
- d. The grading system shall conform to the requirements of MIL-STD-410E
- e. There shall be an established minimum number of questions and the question content shall adequately cover the subject material for the level and method being reviewed
- f. The "specific" examination questions shall reflect the equipment and procedures used in the facility
- g. The Level II (and/or Level III, if the Level III processes product) practical tests shall provide evidence that two parts were evaluated.
- h. The Level III practical tests shall provide evidence that a procedure has been prepared and found to be acceptable.
- i. These tests or representative tests shall be on file and available for review

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4.1.4 Records of eye test results shall be current for inspection personnel and available for review. Eye tests shall meet the following:

- a. Near vision - Jaeger #1 @ not less than 12 inches, or equivalent with one eye, either natural or corrected
- b. Color vision normal for colors in applicable method
- c. Near vision eye tests given annually and color vision tests prior to certification or re-certification
- d. The Level III shall approve the person administering eye exams

4.1.5 Review of Supplier's Level III Personnel:

4.1.5.1 The supplier shall have a Level III assigned in all methods being performed.

4.1.5.2 If outside agencies are used to provide Level III services, the facility shall have documentation on file to verify adequacy of outside Level III services provided.

4.1.6 Review of Supplier's Level I and Level II Personnel:

4.1.6.1 Level I personnel who perform specific tests, specific calibrations, and specific interpretations and evaluations for acceptance or rejection, and document the results in accordance with specific procedures shall have written approval from Level III.

4.1.6.2 A training course outline for Level I and II shall be in place, including those used by outside agency, and this outline shall address the following:

- a. Adequate technical theory for the method
- b. Applicable techniques, specifications and procedures in use at the facility
- c. Inspection equipment, calibration requirements, materials and standards in use at the facility
- d. Training hours required for each method
- e. Qualification requirements for the instructor (May be located within the Qualification/certification Procedure)
- f. List of references used for training

4.1.6.3 The training course outline shall conform to MIL-STD-410E and be approved by the Level III responsible for qualification.

4.1.7 Loss of Certification:

4.1.7.1 The certification procedure shall describe the conditions under which certification will be revoked.

4.1.7.2 The certification procedure shall describe re-qualification of personnel that fail the certification/re-certification tests or have had their certifications revoked, and the procedure shall address re-examination of personnel.

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5. PERSONNEL RECORDS - MIL-STD-410D:

NOTE: Reference MIL-STD-410D for detailed requirements

5.1 MIL-STD-410D Requirements:

If MIL-STD-410D is applicable, the following requirements shall apply.

5.1.1 There shall be a procedure detailing the training, qualification and certification requirements for NDT inspection and training personnel and it shall be approved by a Level III.

5.1.2 Records of training qualification and certification of inspection personnel shall be complete and accurate, and these records shall be available for review. These records shall contain, at a minimum, the following:

- a. Name of the individual certified
- b. Level, method, and techniques for which individual is certified
- c. Results of all qualification examinations, including the separate test scores, that the individual has taken
- d. Expiration date of current certification(s)
- e. Limitations
- f. Training history
- g. Experience history
- h. Results of physical examinations
- i. Date of certification or recertification
- j. Signature of qualifying examiner
- k. Signature of authorized representative of outside agency, if utilized
- l. Signature of authorized employer's representative attesting to certification if different from j

5.1.3 General, specific, and practical tests shall be given:

- a. Within the last 3 years for Level I and II personnel and they shall be on file and available for review
- b. The grading system shall conform to the requirements of MIL-STD-410
- c. There shall be an established minimum number of questions and the question content shall adequately cover the subject material for the level and method being reviewed
- d. All tests shall be periodically revised or changed
- e. The "specific" examination questions shall reflect the equipment and procedures used in the facility

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- 5.1.4 Records of eye test results shall be current for inspection personnel and available for review. Eye tests shall meet the following:
- a. Near vision - Jaeger #2 @ 12 inches, or Ortho-Rater 8 with one eye, either natural or corrected
 - b. Color vision normal for colors in applicable method
 - c. Near vision eye tests given annually and color vision test given prior to certification or re-certification
- 5.1.5 Review of Supplier's Level III Personnel:
- 5.1.5.1 The supplier shall have a Level III assigned in all methods being performed.
- 5.1.5.2 If outside agencies are used to provide Level III services, the facility shall have documentation on file to verify adequacy of outside Level III services provided.
- 5.1.6 Review of Supplier's Level I and Level II Personnel:
- 5.1.6.1 Level I special personnel shall have written approval to perform specific tests, specific calibrations, and specific interpretations and evaluations for acceptance or rejection, and document the results in accordance with specific procedures from Level III.
- 5.1.6.2 A training course outline for Level I and II shall be in place, including those used by outside agency, and this outline shall address the following:
- a. Adequate technical theory for the method
 - b. Applicable techniques, specifications and procedures in use at the facility
 - c. Inspection equipment, calibration requirements, materials and standards in use at the facility
 - d. Training hours required for each method
 - e. List of reference material used for training
- 5.1.6.3 The training course outline shall conform to MIL-STD-410D and shall be approved by the Level III responsible for qualification.
- 5.1.7 Loss of Certification:
- 5.1.7.1 The certification procedure shall describe the conditions under which certification will be revoked.
- 5.1.7.2 The certification procedure shall describe re-qualification of personnel that fail the certification/recertification tests or have had their certifications revoked, and the procedure shall address re-examination of personnel