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Superseded by PRI AC7114

National Aerospace and Defense Contractors
Accreditation Program (NADCAP)
Survey Checklists for the
NDT Suppliers Accreditation Program

RATIONALE

AS7100/1B is being cancelled and superseded by PRI AC7114.

CANCELLATION NOTICE

This document has been declared "CANCELLED" as of August 2008 and has been superseded by PRI AC7114. By this action, this document will remain listed in the Numerical Section of the Aerospace Standards Index noting that it is superseded by PRI AC7114. Cancelled specifications are available from SAE.

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1. SCOPE:
 - 1.1 This standard includes the forms to be used by a third party to survey a nondestructive test facility with respect to penetrant, magnetic particle, ultrasonic, and/or radiographic methods.
2. REFERENCES:
 - 2.1 Applicable Documents:
 - 2.1.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001
 - AS7001 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Description
 - AS7002 National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Rules for Implementation
 - AS7003A National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Operation
 - AMS 2641 Vehicle, Magnetic Particle Inspection, Petroleum Base
 - 2.1.2 ASNT Publications: Available from The American Society for Nondestructive Testing, 4153 Arlingate Plaza, Caller #28518, Columbus, OH 43228-0518.
 - Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing
 - 2.1.3 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.
 - ASTM D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation
 - ASTM E 155 Reference Radiographs for Inspection of Aluminum and Magnesium Castings

2.1.3 (Continued):

- ASTM E 186** Reference Radiographs for Heavy-Walled (2 - 4-1/2 in) (51 - 114 mm) Steel Castings
- ASTM E 192** Reference Radiographs of Investment Steel Castings for Aerospace Applications
- ASTM E 317** Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing Systems Without the Use of Electronic Measurement Instruments
- ASTM E 428** Practice for Fabrication and Control of Steel Reference Blocks Used in Ultrasonic Inspection
- ASTM E 446** Reference Radiographs of Steel Castings Up to 2 in (51 mm) in Thickness

2.1.4 Military Publications: Available from Naval Publications and Forms Center, Attn: NPODS, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

- MIL-STD-410** Nondestructive Personnel Qualification and Certification
- MIL-STD-453** Inspection, Radiographic
- MIL-STD-2154** Inspection, Ultrasonic, Wrought Metals, Process for
- MIL-STD-6866** Inspection, Liquid Penetrant
- MIL-STD-45662** Calibration Systems Requirements
- DOD-F-87935** Fluid, Magnetic Particle Inspection, Suspension Medium (Metric)
- MIL-I-25135** Inspection Materials, Penetrants

3. REQUIREMENTS:**3.1 Survey information has been divided into parts as follows:****Appendix A SURVEY OF NONDESTRUCTIVE TEST FACILITY**

This part contains general information that would be collected for a survey of any company for any of the four basic NDT methods.

Appendix B PENETRANT SURVEY**Appendix C MAGNETIC PARTICLE SURVEY****Appendix D ULTRASONIC SURVEY****Appendix E RADIOGRAPHY SURVEY**

These survey forms cover information not included in Appendix A required for completion of a survey for the particular method being accredited. These forms shall be used in conjunction with and become part of the SURVEY OF NDT FACILITY form (Appendix A).

3.1.1 These forms are appended to this standard.

3.1.2 In completing these forms, surveyors are to be advised that

- a. Each question requires an answer.**
- b. The intended response shall be circled.**
- c. When a blank line is provided, the required data shall be shown.**
- d. If the answer references an attachment, it shall become a part of the survey record and shall show the survey identification number on each page.**
- e. Not applicable (N/A) responses are intended for items that are not required based on the materials/requirement in use at the facility. All other N/A responses must be explained.**
- f. All discrepancies shall be documented by completing the Supplier Corrective Action Request form (AS7100/1, Page A-2) during the exit interview.**

PREPARED BY THE PRI NADCAP COUNCIL

**APPENDIX A
QUALITY SYSTEMS**

SURVEY NO. _____

COMPANY: _____ SURVEY DATE: _____

DIVISION: _____ PHONE: _____

ADDRESS: _____ FACILITY: _____

CITY/STATE/ZIP: _____

NATURE OF BUSINESS: _____

IN-HOUSE PRODUCTS ONLY: _____ ACCEPTS OUTSIDE WORK: _____

TOTAL EMPLOYEES: _____ QA PERSONNEL: _____ NDT: _____

Exclude NDT Certified

SQUARE FEET OF WORK AREA: _____ NO. OF SHIFTS WORKED: _____

CONTACTS**POSITION**

_____	_____
_____	_____
_____	_____
_____	_____

SCOPE OF SURVEY**METHOD****DATE****METHOD****DATE**

PENETRANT _____ RADIOGRAPHY _____

MAGNETIC PARTICLE _____ ULTRASONIC _____

OTHER: _____

COMMENTS: _____

Attach additional sheets if required.

REASON FOR VISIT

INITIAL SURVEY: _____ FOLLOW-UP SURVEY: _____ REACCREDITATION SURVEY: _____

SURVEYOR'S SIGNATURE: _____ DATE: _____

CORRECTIVE ACTION VERIFIED: _____ DATE: _____

Surveyor

SURVEY NO. _____

SUPPLIER CORRECTIVE ACTION REQUEST

It Has Been Determined That The Following Items Are Not In Compliance:
Complete N-11 Forms and attach exhibits as applicable.

NCR/Para. #NON-COMPLIANCE

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Attach extra sheets as required.

SURVEYOR'S SIGNATURE: _____ DATE: _____
NON-COMPLIANCES HAVE BEEN REVIEWED WITH THE UNDERSIGNED SUPPLIER'S REPRESENTATIVE: _____
TITLE: _____ DATE: _____

CORRECTIVE ACTION RESPONSE

<u>NCR #</u>	<u>WILL COMPLETE BY</u>	<u>NCR #</u>	<u>WILL COMPLETE BY</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

THESE CORRECTIVE ACTIONS WILL BE ACCOMPLISHED AT NO EXPENSE TO THE U.S.
GOVERNMENT, CUSTOMER, SURVEYING ORGANIZATION, OR MEMBER ORGANIZATIONS

SURVEYOR'S SIGNATURE: _____ DATE: _____
SUPPLIER REPRESENTATIVE: _____ DATE: _____
TITLE: _____

(This page shall be completed by the surveyor and the supplier's representative as part of the exit interview.)

The purpose of this appendix is to provide: 1) A standard format for the assessment of a facility quality assurance system as it relates to NDT. 2) Means to verify that systems are in place to control the processes and are being followed.

A.1 QUALITY SYSTEM:

A.1.1 Does the supplier have a quality assurance manual that details the system by which it intends to control the overall quality of its operations? YES NO

MANUAL TITLE _____

Number _____ Revision _____ Date _____

A.1.2 Has a documented quality system been established? YES NO

(a) Is the quality system reviewed periodically?
List Interval _____ YES NO

(b) Are records of such reviews maintained? YES NO

A.1.3 Are applicable specifications available?
(To include, but not limited to the following)

(a) Customer YES NO

(b) Industry specifications (ASTM, SAE, etc.) YES NO

(c) U.S. Government specifications YES NO

(d) Company specifications YES NO

(e) Other: _____ YES NO

A.1.4 Is there a procedure in place that assures the updating of specifications and removal of obsolete documents? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number: _____ Paragraph No. _____

A.1.4.1 Is there evidence of compliance to the procedure referenced in A.1.5? YES NO

A.1.5 Customer Requirements:

- (a) Is there a procedure to ensure that all customer requirements, are implemented? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

- (b) Who has the responsibility for identifying and implementing customer requirements?

(function and title)

- (c) Are customer requirements documented? Explain. YES NO

- (d) Are customer documents/requirements communicated to the inspectors? Explain. YES NO

- (e) Are customer documents/requirements kept up to date with respect to the revision specified by the customer? Explain. YES NO

- (f) Does this system appear to be adequate? YES NO

A.1.5.1 Unique Customer Requirements:

- (a) Is there a procedure to ensure that all unique requirements, are implemented? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

- (b) Who has the responsibility for identifying and implementing unique customer requirements?

(function and title)

- (c) Are unique customer requirements documented? Explain. YES NO

A.1.5.1 (Continued):

(d) Are unique customer documents/requirements communicated to the inspectors? Explain. YES NO

(e) Are unique customer documents/requirements kept up with respect to the revision specified by the customer? Explain. YES NO

(f) Does this system appear to be adequate? YES NO

A.1.6 Is there a procedure requiring periodic self-audit of the NDT system comprised of personnel, procedures, and equipment. YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

A.1.6.1 If certification of NDT personnel is based upon MIL-STD-410E, is the self audit performed by Level II minimum in the method being audited? YES NO

A.1.6.2 Does the periodic self-audit include review of inspection process and evaluation of material parts? YES NO

A.1.7 Is there a procedure requiring that all rejected parts be adequately identified and segregated until rework, reinspection and material /or disposition has been completed? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

Describe the system _____

A.1.7 (Continued):

- | | | | |
|----------------|--|------------|-----------|
| (a) | Is the inspection and test status of product(s) identified by using markings, authorized stamps, tags, labels, routing cards, inspection records, test software, physical location or other suitable means to indicate the conformance or nonconformance of product(s) with regard to inspection and tests performed? | YES | NO |
|
 | | | |
| A.1.7.1 | Have the responsibilities for review and authority for the disposition of nonconforming parts been defined? | YES | NO |
|
 | | | |
| A.1.7.2 | What dispositions for the following nonconforming parts are covered by the procedure? | | |
|
 | | | |
| (a) | Reworked to meet specified requirements? | YES | NO |
| (b) | Accepted with or without repair by concession? | YES | NO |
| (c) | Regraded for alternative applications? | YES | NO |
| (d) | Rejected or scrapped? | YES | NO |
| (e) | Return to customer for disposition of nonconforming products? | YES | NO |
|
 | | | |
| A.1.7.3 | Are descriptions of nonconformities and repairs that have been accepted recorded to denote actual conditions provided to the customer? | YES | NO |
|
 | | | |
| A.1.7.4 | Are repaired and reworked parts reinspected in accordance with documented procedures as evidenced by documentation records. | YES | NO |
|
 | | | |
| A.1.8 | Is there a procedure specifying symbol, method of application, and control of inspection stamps? | YES | NO |

Procedure Title _____

Procedure Number _____ **Revision** _____ **Date** _____

Page Number _____ **Paragraph No.** _____



- A.1.8.1** Does the procedure contain:
- | | | |
|---|-----|----|
| (a) Letter symbol for the method applied? | YES | NO |
| (b) The facility identifier? | YES | NO |
| (c) The inspector's identification number? | YES | NO |
| (d) Requirements for a record to be maintained for the issuance, recall, and traceability of all inspection stamps? | YES | NO |
- A.1.8.2** Is a record maintained showing stamps issued, date of issue, and the individual to whom the stamp was assigned? YES NO
- A.1.8.3** Are records of signatures and initials maintained for verification of approval/rejection sign-off authorization? YES NO
- A.1.8.4** Are appropriate actions included in the stamp and signature control procedure to deal with lost stamps, reassigned stamps, and removal of names of previously authorized but reassigned people? YES NO
- A.1.8.5** Are there provisions for stamp bond time before reassignment? YES NO
- A.1.9** Is there a procedure for identifying acceptable/rejectable parts that are too small for stamping, via packaging or tagging? YES NO
- Procedure Title** _____
- Procedure Number** _____ **Revision** _____ **Date** _____
- Page Number** _____ **Paragraph No.** _____
- A.1.10** Is there a receiving inspection procedure that provides for acceptance, control, inspection, and return of purchased products and/or supplies per applicable purchase order? YES NO

Procedure Title _____

Procedure Number _____ **Revision** _____ **Date** _____

Page Number _____ **Paragraph No.** _____

A.1.11 Is there a procurement procedure to insure that prime contractor requirements are adequately imposed on the sub-tier supplier, e.g., calibration services, cleaning/etching procedures as related to NDT? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

A.1.12 Is there a procedure to ensure that inspection records are maintained per purchase order or contractual requirements? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

(a) Do procedures establish and maintain the identification, collection, indexing, filing, storage, maintenance and disposition of quality records? YES NO

(b) Are quality records maintained to demonstrate achievement of the required quality and the effective operation of the quality system? YES NO

(c) Are pertinent sub-contractor quality records an element of these data? YES NO

(d) Are quality records legible and identifiable to the product involved? YES NO

(e) Are quality records stored and maintained in such a way that they are readily retrievable in a suitable environment that minimizes deterioration, damage, or loss? YES NO

(f) Have retention times of quality records been established and recorded? YES NO

(g) Where agreed contractually, are quality records made available for evaluation by the customer, or representative for an agreed period? YES NO

A.2 PERSONNEL RECORDS - MIL-STD-410E:

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

If MIL-STD-410E applies, complete items A.2.1 through A.2.9.

If MIL-STD-410D applies, complete items A.3.10 through A.3.17.

A.2.1 Is there a procedure detailing the training, qualification and certification requirements for NDT inspection and training personnel? **YES NO**

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

A.2.2 Are records of training qualification and certification of inspection personnel complete, and accurate, and are they available for review containing the following? **YES NO**

(a) Name of the individual certified? **YES NO**

(b) Level, method, and techniques for which individual is certified? **YES NO**

(c) Results of all qualification examinations, including the separate test scores, that the individual has taken? **YES NO**

(d) Date and expiration of current certification(s)? **YES NO**

(e) History of all previous NDT/NDI certifications with current employer? **YES NO**

(f) Training history which identifies source and dates of training, course hours and grades (if given after training), and instructor's name? **YES NO**

(g) Experience history, both with current and previous employers, sufficient to justify satisfaction of experience requirements for certification? **YES NO**

(h) Results of physical examinations? **YES NO**

(i) Extent and documentation of formal education? **YES NO**

A.2.2 (Continued):

- | | | | |
|-----|---|-----|----|
| (j) | Signature of qualifying examiner? | YES | NO |
| (k) | Signature of authorized representative of outside agency, if utilized? | YES | NO |
| (l) | Signature of authorized employer's representative attesting to certification if different from (j)? | YES | NO |

A.2.3 Have general, specific, and practical tests been given:

- | | | | |
|-----|---|-----|----|
| (a) | Within the last 3 years for Level I and II personnel. | YES | NO |
| (b) | Within the last 5 years for Level III personnel. | YES | NO |
| (c) | Does the grading system conform to the requirements of MIL-STD-410? Revision _____ | YES | NO |
| (d) | Do they have the minimum number of questions and does the question content adequately cover the subject material for the level and method being reviewed? | YES | NO |
| (e) | Are all tests periodically revised or changed?
Frequency? Level I & II _____ Level III _____ | YES | NO |
| (f) | Do the "specific" examination questions reflect the equipment and procedures used within this facility? | YES | NO |
| (g) | Are personnel performing specific assigned tasks qualified on the basis of appropriate education, training, and/or experience as required? | YES | NO |
| (h) | Do the Level III practical tests reflect the type work being performed by the Level III? | YES | NO |
| (i) | Are these tests or representative tests on file and available for review? | YES | NO |

A.2.4 Are records of eye test results current for inspection personnel and available for review?

- | | | | |
|-----|---|-----|----|
| (a) | Near vision - Jaeger #1 @ not less than 12 inches, or equivalent with one eye, either natural or corrected? | YES | NO |
|-----|---|-----|----|

A.2.4 (Continued):

- | | | |
|--|-----|----|
| (b) Color vision normal for colors in applicable method? | YES | NO |
| (c) Are eye tests given annually? | YES | NO |
| (d) Has the Level III approved the person administering eye exams? | YES | NO |

A.2.5 Review of Supplier's Level III Personnel:

- | | | |
|---|-----|----|
| A.2.5.1 Does the supplier have Level III employees in all methods being surveyed/audited? | YES | NO |
|---|-----|----|

A.2.5.1.1 Level III(s) Certification Record:

<u>Method</u>	<u>Name</u>	<u>Cert Date</u>	<u>MIL-STD-410E</u>
Liquid Penetrant	_____	_____	YES NO
Magnetic Particle	_____	_____	YES NO
Ultrasonic	_____	_____	YES NO
Radiography	_____	_____	YES NO

- | | | |
|--|-----|----|
| A.2.5.2 Are outside agencies used to provide Level III services? If yes, identify organizations and services provided. | YES | NO |
|--|-----|----|

Name _____

Address _____

Phone # _____

Services Provided _____

- | | | |
|---|-----|----|
| A.2.5.2.1 Does facility have documentation on file to verify adequacy of outside Level III services provided? | YES | NO |
|---|-----|----|

- | | | |
|--|-----|----|
| A.2.5.4 Are Level III personnel certified by primes? | YES | NO |
|--|-----|----|

If Yes, by whom? _____

- | | | |
|--|-----|----|
| A.2.6 Do Level I personnel 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? | YES | NO |
|--|-----|----|

- A.2.7** Is a training course outline for Level I and II in place, including those used by outside source, and does it address the following: YES NO
- (a) Adequate technical theory for the method? YES NO
- (b) Applicable techniques, specifications and procedures in use at the facility? YES NO
- (c) Inspection equipment, calibration requirements, materials and standards in use at the facility? YES NO
- (d) Training hours required for each subject? YES NO
- (e) Qualification requirements for the instructor? YES NO
- A.2.7.1** Does the training course outline conform to MIL-STD-410E? YES NO
- A.2.8** Does the certification procedure describe conditions under which certification will be revoked? YES NO
- A.2.9** Does the certification procedure describe requalification of personnel that fail the certification/recertification tests or have had their certifications revoked, and does it address the following: YES NO
- (a) Re-examination of personnel YES NO
- (b) Loss of certification YES NO
- A.3** PERSONNEL RECORDS - MIL-STD-410D:
- NOTE: Reference MIL-STD-410 for detailed requirements.
If MIL-STD-410E applies, complete items A.2.1 through A.2.9.
If MIL-STD-410D applies, complete items A.3.10 through A.3.17.
- A.3.1** Is there a procedure detailing the training, qualification and certification requirements for NDT inspection personnel? YES NO

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

A.3.2	Are records of training, qualification, and certification of inspection personnel complete, accurate, and available for review containing the following?	YES	NO
	(a) Name of the individual certified?	YES	NO
	(b) Level of certification?	YES	NO
	(c) Results of all qualification examinations, including the separate test scores, that the individual has taken?	YES	NO
	(d) Expiration date of current certification(s)?	YES	NO
	(e) Limitations?	YES	NO
	(f) Training history?	YES	NO
	(g) Experience history?	YES	NO
	(h) Results of physical examinations?	YES	NO
	(i) Date of certification or recertification.	YES	NO
	(j) Signature of qualifying examiner?	YES	NO
	(k) Signature of authorized representative of outside agency, if utilized?	YES	NO
	(l) Signature of authorized employer's representative attesting to certification if different from (j)?	YES	NO
A.3.3	Have general, specific, and practical tests been given within the last 3 years for Level I and II personnel, and are these tests on file and available for review?	YES	NO
	(a) Level I and Level II	YES	NO
	(b) Does the grading system conform to the requirements of MIL-STD-410?	YES	NO
	(c) Do they have the minimum number of questions and does the question content adequately cover the subject material for the level and method being reviewed?	YES	NO
	(d) Are all tests periodically revised or changed? Frequency? Level I & II _____	YES	NO
	(e) Do the "specific" examination questions reflect the equipment and procedures used within this facility?	YES	NO

A.3.3 (Continued):

(f) Are personnel performing specific assigned tasks qualified on the basis of appropriate education, training, and/or experience as required? YES NO

A.3.4 Are records of eye test results current for inspection personnel and available for review? YES NO

(a) Near vision - Jaeger # 2 at 12 inches, or Ortho-Rater 8 with one eye, either natural or corrected. YES NO

(b) Color vision normal for colors in applicable method. YES NO

(c) Are eye tests given annually? YES NO

A.3.5 Review of Supplier's Level III Personnel:

A.3.5.1 Does the supplier have a Level III employee in all methods being surveyed/audited? YES NO

A.3.5.1.1 Level III(s) Certification Record:

<u>Method</u>	<u>Name</u>	<u>Cert Date</u>	<u>MIL-STD-410D</u>
Liquid Penetrant	_____	_____	YES NO
Magnetic Particle	_____	_____	YES NO
Ultrasonic	_____	_____	YES NO
Radiography	_____	_____	YES NO

A.3.5.2 Are outside agencies used to provide Level III services? YES NO
If yes, identify organizations and services provided.

Name _____

Address _____

Phone # _____

Services Provided _____

A.3.5.2.1 Does facility have documentation on file to verify adequacy of outside Level III services provided? YES NO

A.3.5.3 Are Level III personnel certified by primes? YES NO

If Yes, by whom? _____

- A.3.6** Do only Level I special personnel 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? YES NO
- A.3.6.1** Is a training course outline for Level I and II in place, including those used by outside source, and does it address the following: YES NO
- (a) Adequate technical theory for the method? YES NO
- (b) Applicable techniques, specifications and procedures in use at the facility? YES NO
- (c) Inspection equipment, calibration requirements, materials and standards in use at the facility? YES NO
- (d) Training hours required for each subject? YES NO
- A.3.6.2** Does the training course outline conform to MIL-STD-410D? YES NO
- A.3.7** Does the certification procedure describe conditions under which certification will be revoked? YES NO
- A.3.8** Does the certification procedure describe requalification of personnel that fail the certification/recertification tests or have had their certifications revoked, and does it address the following: YES NO
- (a) Re-examination of personnel YES NO

A.4 PERSONNEL:

Identify personnel that are currently conducting NDT inspections.
(Attach list if necessary.)

<u>Name/Stamp #</u>	<u>Certification Date</u>	<u>Eye Exam Date</u>	<u>Years of Experience</u>	<u>Level</u>	<u>NDT Method</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Attach additional sheets if necessary.

A.5 INSPECTION REPORTS/RECORDS/PROCEDURES:

A.5.1 Is there any evidence of unauthorized specification, drawing, or procedure changes? YES NO

A.5.2 Is an inspection record maintained of all parts submitted for NDI? YES NO

Describe how the above information is recorded:

Attach additional sheets if required.

A.5.3 Do inspection reports contain or provide traceability to the following:

(a) NDT facility name?	YES	NO
(b) Date of inspection?	YES	NO
(c) Part number and serial number if applicable?	YES	NO
(d) Number of parts in lot, number inspected, number accepted?	YES	NO
(e) Applicable specification number and change letter acceptance criteria?	YES	NO
(f) Signature of authorized person?	YES	NO
(g) Identification of the inspector performing the inspection?	YES	NO
(h) Material description, if applicable?	YES	NO
(i) Nature of the discrepancy and rejection tag number, if applicable?	YES	NO

A.5.4 Is a work order or shop traveler in use that contains or provides traceability to the following:

- | | | |
|--|-----|----|
| (a) Product identification traceable to applicable purchase order number, part number, or product specification? | YES | NO |
| (b) Applicable specification and procedure? | YES | NO |
| (c) Inspection method? | YES | NO |
| (d) Inspection acceptance of operation performed? | YES | NO |
| (e) Quantity inspected, accepted/rejected? | YES | NO |
| (f) Correct sequence of fabrication and inspection operations? | YES | NO |

A.6 CORRECTIVE ACTION:

Have procedures been established, documented, and maintained for:

- | | | |
|--|-----|----|
| (a) Investigating the cause of nonconforming product and the corrective action needed to prevent recurrence? | YES | NO |
| (b) Analyzing processes, work operations, concessions, quality records, service reports and customer complaints to detect and eliminate potential causes of nonconforming product? | YES | NO |
| (c) Initiating preventative actions to deal with problems? | YES | NO |
| (d) Applying controls to ensure that corrective actions are taken and that they are effective? | YES | NO |
| (e) Implementing and recording changes in procedures resulting from corrective action? | YES | NO |

A.7 CALIBRATION:

- | | | |
|---|------------|-----------|
| A.7.1 Is there a procedure requiring calibration and control of equipment? | YES | NO |
|---|------------|-----------|

Procedure Title _____

Procedure Number _____ Revision _____ Date _____

Page Number _____ Paragraph No. _____

A.7.1.1

Does the calibration system/procedure address the following?

- | | | |
|---|------------|-----------|
| (a) Are procedures established for approval of calibration processes and equipment as appropriate? | YES | NO |
| (b) Have NDT inspection, measuring and test equipment and devices been identified, calibrated and adjusted prior to use and at prescribed intervals against certified equipment having a known valid relationship to National Institute of Standards and Technology (NIST) standards or other recognized standard? | YES | NO |
| (c) Have calibration procedures been established, documented and maintained to include details of equipment type, identification number, location, frequency of checks, check method, acceptance criteria and action to be taken when results are unsatisfactory? | YES | NO |
| (d) Do the procedures call for a periodic review of calibration history to determine the validity of the current calibration intervals? | YES | NO |
| (e) Is the NDT inspection, measuring and test equipment capable of the necessary accuracy and precision? | YES | NO |
| (f) Is NDT inspection, measuring and test equipment identified with a suitable indicator or approved identification record to show the calibration status and date for next calibration? | YES | NO |
| (g) When NDT inspection, measuring or test equipment is found to be out of calibration, is the validity of previous inspection and test results assessed or documented? | YES | NO |
| (h) Is the handling, preserving and storage of inspection, measuring and test equipment such that the accuracy and fitness for use is maintained? | YES | NO |

- A.7.2** **Is calibration performed in-house?** **YES** **NO**
- Is calibration performed by an outside service?** **YES** **NO**
- Who supplies the calibration service?**

Name _____

Address _____

Attach extra sheets as required.

- A.7.3** **Do calibration records include:**
- (a) Inventory of NDT equipment requiring calibration?** **YES** **NO**
- (b) Manufacturer's name, model, and serial number of each item in inventory?** **YES** **NO**
- (c) Calibration frequency?** **YES** **NO**
- (d) Reference to procedure and calibration standard used?** **YES** **NO**
- (e) Date last calibrated and date of next calibration?** **YES** **NO**
- (f) Name of individual performing the calibration?** **YES** **NO**

- A.7.3.1** **If inspection equipment has been found to be out of tolerance, what actions have been taken with equipment and product(s) inspected?**

Attach additional sheets if required.

A.8 **FACILITIES:**

- A.8.1** **Are facilities available for application of protective coatings?** **YES** **NO**
- A.8.2** **Have procedures been established, documented and maintained for handling, storage, packaging, and delivery of product?** **YES** **NO**

A.8.3 **Is there evidence of part damage due to handling?** **YES NO**

A.8.3.1 **Are methods and means of handling practices in place that prevent damage or deterioration?** **YES NO**

A.8.4 **Auditor's General Impression: (Attitude, behavior, are employees neat, busy, etc.)**

A.8.5 **Supplier's Comments:**

APPENDIX B PENETRANT SURVEY

SURVEY NO. _____

Instructions to the surveyor:

This form shall be used in conjunction with Appendix A - Quality Systems of SAE AS7100/1 AUDIT CRITERIA FOR NONDESTRUCTIVE TEST FACILITY.

Parenthetical information is the reference paragraph from MIL-STD-6866.

B.1 MATERIALS AND EQUIPMENT:

B.1.1 List all penetrant materials/combinations used at this facility.

Level	Type/Method/Form	Manufacturer	Pen.	Emul.	Dev.	Listed on Latest OPL25135?
_____	_____	_____	_____	_____	_____	YES NO
_____	_____	_____	_____	_____	_____	YES NO
_____	_____	_____	_____	_____	_____	YES NO
_____	_____	_____	_____	_____	_____	YES NO
_____	_____	_____	_____	_____	_____	YES NO

Attach additional listing, if necessary.

B.1.2 Does the facility have traceability to manufacturer's certifications for each batch of penetrant, emulsifier, and developer in use? YES NO

B.1.3 List the tank sizes (length x width x depth, units in feet).

Level/Method	Penetrant	Emulsifier	Developer	Inspection Booth
_____	__X__X__	__X__X__	__X__X__	__X__X__
_____	__X__X__	__X__X__	__X__X__	__X__X__
_____	__X__X__	__X__X__	__X__X__	__X__X__
_____	__X__X__	__X__X__	__X__X__	__X__X__
_____	__X__X__	__X__X__	__X__X__	__X__X__
_____	__X__X__	__X__X__	__X__X__	__X__X__

B.1.4 Is spray penetrant application available? YES NO

B.1.5 Is automated equipment in use at this facility? YES NO

B.1.6 Is electrostatic spray utilized? YES NO

- B.1.7** List the generic types of parts that are penetrant inspected at this facility.

<u>Manual Processing Equipment</u>	<u>Automated Processing Equipment</u>

B.2 PROCEDURES:

B.2.1 NDT Facility Written Procedures:

B.2.1.1 Is there a statement in the procedure or quality manual stating that, as a minimum, MIL-STD-6866 is being met? YES NO

B.2.1.2 Is there a general procedure for processing and inspecting parts using the Liquid Penetrant Technique? YES NO

Procedure Title _____

Number _____ Revision _____ Date _____

B.2.1.3 Do the written inspection procedures, general or specific, contain the following information as applicable:

- | | | |
|--|-----|----|
| (a) The procedure I.D. number, applicable program, if program specific, and the date the procedure was approved? | YES | NO |
| (b) Date of approval? | YES | NO |
| (c) Approval by Level III? | YES | NO |
| (d) Listing of deviations and approval by customer? | YES | NO |
| (e) Requirement that all personnel are qualified and certified to appropriate level? | YES | NO |
| (f) The part number and material, to be examined? | YES | NO |
| (g) Equipment to be used including any unique requirements for automated vs. manual equipment? | YES | NO |
| (h) Requirements for precleaning and/or etching process including materials, processing times, metal removal, and drying parameters? | YES | NO |

B.2.1.3 (Continued):

- | | | |
|---|-----|----|
| (i) Brand name and specific type of penetrant, sensitivity level, emulsifier, developer, and classifications in accordance with MIL-I-25135? | YES | NO |
| (j) Complete processing parameters for the penetrant inspection materials including dwell times, application methods, drying times, concentrations of emulsifiers, temperatures, and controls to prevent excessive drying or overheating, as appropriate? | YES | NO |
| (k) Methods of removing excess penetrant and drying the surface prior to applying the developer, spray water nozzle type, water pressure and water temperature, hydroair nozzles, and air pressure? | YES | NO |
| (l) Method of developer applications? | YES | NO |
| (m) Evaluation procedure including blacklight intensity, inspection booth ambient white light intensity, dark adaptation time, prohibition of photochromic lenses, acceptance criteria, and controls for mechanical evaluation and solvent cleaning evaluation? | YES | NO |
| (n) Identification of the components or areas within a component to be inspected? | YES | NO |
| (o) Applicable acceptance class and zone per engineering drawing specification? | YES | NO |
| (p) Any special equipment required including type and intensity of light, if different from standard processing? | YES | NO |
| (q) Part masking when required? | YES | NO |
| (r) Complete post-cleaning procedures? | YES | NO |
| (s) Method and location of marking parts? | YES | NO |
| (t) Method for control of software or programming used for automated processing equipment as applicable? | YES | NO |
| (u) A statement to the effect that quality assurance provisions will be met? | YES | NO |

- B.2.1.3 (Continued):**
- | | | | |
|-----|---|-----|----|
| (v) | Statement to the effect that the procedure complies with the applicable specification requirements? | YES | NO |
| (w) | Provisions for process control tests and checks to be performed? | YES | NO |
| (x) | Approved deviations are listed and validated? | YES | NO |
- B.2.1.4** Are procedures for special material handling and processing of parts defined? YES NO
- Procedure Title _____
- Number _____ Revision _____ Date _____
- Page(s) _____ Paragraph No. _____
- | | | | |
|----------------|--|-----|----|
| B.2.1.5 | Are technique cards prepared by the Level II or III and approved by the Level III in the applicable inspection method? | YES | NO |
| (a) | Do documented work instructions define the manner of inspection, type of inspection equipment, suitable work environment, and compliance with referenced standards, codes and quality plans? | YES | NO |
| (b) | Are the inspection processes that directly affect quality identified and are measures taken to ensure that these processes are carried out in controlled conditions? | YES | NO |
- B.3 LABORATORY PROCESS CONTROLS:**
- B.3.1 Penetrant Brightness Test (5.8.4.1.1):**
- | | | | |
|-----|---|-----|----|
| (a) | Is the fluorescent brightness of in-use penetrant being tested and documented? | YES | NO |
| (b) | Is this test being performed quarterly? | YES | NO |
| (c) | Is the test procedure in accordance with MIL-I-25135, 4.5.7? | YES | NO |
| (d) | Is the minimum acceptance limit 90%? | YES | NO |
| (e) | Are records of this test on file and do they provide acceptable values for results? | YES | NO |
| (f) | Can the facility demonstrate this check? | YES | NO |

B.3.2 Water Content of Water-Washable Penetrants (5.8.4.1.2):

- | | | | |
|-----|--|-----|----|
| (a) | Is the water content or water tolerance of in-use Method A penetrants being tested and documented? | YES | NO |
| (b) | Is this test being performed monthly? | YES | NO |
| (c) | What test procedure is used?
ASTM D95 _____ Other _____ | | |
| (d) | What is the maximum acceptable limit used?
5 % _____ Other _____ | | |
| (e) | Are records of this test on file and do they indicate acceptable results? | YES | NO |
| (f) | Can the facility demonstrate this check? | YES | NO |

B.3.3 Water Content of Lipophilic Emulsifiers (5.8.4.2.2):

- | | | | |
|-----|--|-----|----|
| (a) | Is the water content of in-use Method B emulsifier being checked and documented? | YES | NO |
| (b) | Is this check being performed monthly? | YES | NO |
| (c) | Is the test procedure in accordance with ASTM D 95? | YES | NO |
| (d) | Is the maximum acceptable limit 5%? | YES | NO |
| (e) | Are records of this check on file and do they indicate acceptable results? | YES | NO |
| (f) | Can the facility properly demonstrate this check? | YES | NO |

B.3.4 Concentration of Hydrophilic Emulsifiers (5.8.4.2.3):

- | | | | |
|-----|---|-----|----|
| (a) | Is the concentration of in-use (Method D) hydrophilic emulsifiers being checked and documented? | YES | NO |
| (b) | Is this check being performed weekly? | Yes | NO |
| (c) | Is a refractometer used to perform this test? | YES | NO |
| (d) | What is the maximum variation allowed?
± 3% _____ Other _____ | | |

B.3.4 (Continued):

(e) Are concentrations kept below:

(1) 35% for application by immersion? YES NO

(2) 5% for application by spray application? YES NO

(f) Are records of this check on file and do they indicate acceptable results? YES NO

(g) Can the facility properly demonstrate this check? YES NO

B.3.5 Dry Developer Characteristics (5.8.4.3.1):

(a) Is the in-use dry developer being checked and test documented? YES NO

(b) Is this check being performed daily? YES NO

(c) Does this check ensure that the developer is not caked and that recycled dry developer has not picked up excessive fluorescent material? YES NO

(d) Are records of this check on file and do they indicate acceptable results? YES NO

(e) Can the facility properly demonstrate this check? YES NO

(f) Is there a procedure requirement to periodically add/replace developer? YES NO

B.3.6 Characteristics and Concentration of Aqueous Developer (Soluble & Suspended) (5.8.4.3.2):

(a) Is the concentration of in-use Form b and c developer being checked and documented? YES NO

(b) Is this test being performed weekly? YES NO

(c) Is a hydrometer being used for this test? YES NO

(d) What are the acceptance limits? _____

(e) Does the aqueous developer uniformly wet the test panel and not contain fluorescent material? YES NO

(f) Are records of this check on file and do they indicate acceptable results? YES NO

(g) Can the facility properly demonstrate this check? YES NO