This edition completely replaces all previous editions.

Rev.	Date	Chapter	Written	Validated
P0	1 Jan. 2007	Initial issue	TAG	JPP
P1	20 Nov. 2013	New revision	TAG	JPP
P2	21 Feb 2019	New revision Procedure rewritten taking account some specific work on the aircraft	TAG	JPP
3	2 Feb. 2021	New Logo FAB added + table of test frequency	TMS	JPP
4	2 Jan. 2023	DABS	DABS	JPP

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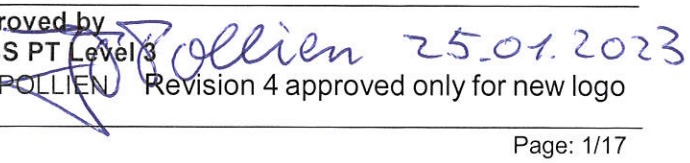

Revision 4 approved only for new logo

0 INTRODUCTION

0.1 Purpose

This procedure establishes the requirements for conducting liquid Penetrant examinations/ inspections using immersion, spraying, brush penetrant systems for in-service inspections of aircraft and engine parts on aircrafts or in laboratory within **DABS**.

The system is mainly used for inspection on:

- Aircraft wheels halves during overhaul
- Engine parts (rotating & non-rotating)
- Components.

0.2 Applicability

This procedure is applicable to **DABS** certified NDT staff in PT-method in accordance with EN 4179/ NAS 410 and DA-0114.

The process of liquid Penetrant examinations/ inspections permits to identify open surface discontinuities, as well as cracks, porosity of component under examination.

All liquid Penetrant examinations/ inspections are carried out in accordance with the appropriate approved procedures. Where no detailed approved procedures exist, specific technical instruction must be written and approved by a PT Level 3 individual, prior the inspection is performed. Refer §1.4.

0.3 References

All documents at the latest revision unless otherwise stated.

0.3.1 Standards/Specifications

NAS 410/ EN 4179	Certification and Qualification of Non-destructive Test Personnel
ASTM-E1417	Standard Practice for Liquid Penetrant Examination
Manufacturer/Authorities relevant document/	AMM/ CMM / NDT MANUAL / SRM /AD

0.3.2 Internal Documents

DA-0100	Maintenance Organisation Exposition
DA-0114	Procedure for Training, Qualification and Certification of NDT-Personnel
DA-0113_NDT	NDT Examination Report
DA-0114_PT_INST-xx	NDT Specific Technical instruction. *This document may also be named Technique Sheet.*

0.4 Abbreviations and definitions

0.4.1 Abbreviations

- **AMO** **Approved Maintenance Organisation**
- **CMTS** **Computerised Maintenance Tracking System** - software used by **DABS** to monitor operational and continuing airworthiness control of the aircraft. Could be CAMP.
- **PO** **Purchase Order** - Official request to perform specific maintenance tasks that may include instructions, a list of tasks or a combination of both
- **QTM** **Quantum -** Software used in maintenance to record, to issue and to track all maintenance works performed in **DABS**
- **WO** **Work Order.**
- **CMM** Component maintenance manual
- **SRM** Structure Repair Manual

0.4.2 Definitions

For the purpose of this procedure, the following definitions apply:

- **NDT instruction** A detailed written instruction for conducting a Non-Destructive examination. It may be broken into the following document:
  - A general procedure which has the basic instructions on performing an inspection, and
  - A specific Technique Sheet or a Technical instruction which has the detailed instructions for specific parts.
- **Technique** A category within a method.
- **Technique Sheet** A detailed, written technical instruction (may be in the form of a sheet, card or other documentation form) that supplements the instructions of a general procedure.

1 GENERAL

After thorough preparation of the inspection area, a liquid of high mobility and penetrating power (the Penetrant) is applied to the surface of the part. The Penetrant is allowed to remain (dwell) on the surface for a specified time so that it can, by capillary action, enter open-to-the-surface discontinuities.

Following the specified Penetrant dwell time, the excess Penetrant is removed from the surface. An approved remover (depending on the method) is used to ensure a clean surface, leaving only the Penetrant which has entered a potential discontinuity.

A fine powder (developer) is next applied to the surface and the blotting action of the powder draws the Penetrant from the discontinuity. The Penetrant seeps from the discontinuity and spreads through the powder particles so that the indication of the discontinuity develops to a size which can be seen against the background of the powder.

Relevant indications are recorded, measured and evaluated before the surface is thoroughly cleaned and, depending upon the acceptance criteria, further actions may be taken.

All the materials intended for a specific Penetrant inspection, i.e. Penetrant, remover and developer shall belong to the same penetrant family or system, all shall be supplied by the same manufacturer.

The Penetrant systems used and the conditions for control and usage must be in accordance with AMS 2644 and be listed on QPL AMS 2644.

1.1 Requirements

This process requires certified personnel in accordance with EN 4179/ NAS 410 (DA-0114).

All examinations performed are carried out in accordance with in order of preference, the present PT internal procedure fully compliant with ASTM E-1417, the appropriate procedures from manufacturer methods or other approved documents, such SB or specific procedures.

As long as inspections are performed at DABS, an approved technical instruction by the company PT Level 3 exists and must be used.

1.2 Responsibilities

The individual performing the actual Penetrant examination task is fully responsible for his work task for which he is certified.

Personnel performing the processing steps described in this procedure shall be qualified and certified to at least level 1.

Personnel making accept/ reject decision shall be qualified and certified at least to level 2 (unless written delegation made by the **DABS** Responsible Level 3).

This document and its contents are to be approved by the **DABS** PT Level 3 .

1.3 Personnel Qualification

Personnel should have appropriate level qualification and certification in this method and hold an internal certificate with relevant privileges.

1.4 Specific technical instruction

If no detailed procedure exists, a specific technical instruction shall be written for each component or part of component to be tested.

1.5 Materials and Equipment

1.5.1 Materials and processes

	GVA	FAB
Type 1: Method A: Sensitivity Level 3: Brand Developer form d: Brand Cleaner: Brand	Fluorescent Water washable High MAGNAFLUX ZL67B Humid nonaqueous, solvent base MAGNAFLUX SKD-S2 SKC-S MAGNAFLUX	Fluorescent Water washable High MAGNAFLUX ZL67B Humid nonaqueous, solvent base MAGNAFLUX ZP-9F SKC-S MAGNAFLUX

Type 1: Method D: Sensitivity Level 4: Brand Developer form d: Brand Cleaner: Brand	Fluorescent Post Emulsifiable Ultra High MAGNAFLUX ZL37 Humid nonaqueous, solvent base MAGNAFLUX SKD-S2 SKC-S MAGNAFLUX	Fluorescent Post Emulsifiable Ultra High Ardrox 9814 Humid nonaqueous, solvent base Ardrox 9D1B 9PR5 Ardrox

Type 1: Method C: Sensitivity Level 3 or 4: Brand Developer form d: Brand Cleaner: Brand	Fluorescent Solvent removable All Magnaflux penetrants listed for method A+D. MAGNAFLUX ZL37 Magnaflux SKD-S2 SKC-S MAGNAFLUX	Fluorescent Solvent removable Magnaflux Level 3 / Ardrox Level 4 Magnaflux ZL27A Ardrox 9814 Magnaflux ZP-9F Ardrox 9D1B MAGNAFLUX SKC-S Ardrox 9PR5

Tamp Panels: WORKING: 1 Working Tam Panel for each Method A, C, D
MASTER: 1 Master Tam Panel for each Method A, C, D

Light meters :
(UV + visible)
a) Spectroline DSE-2000 or equivalent
b) Spectroline DSE-2000A or equivalent
c) Spectroline XRP-3000 or equivalent

1.5.2 Equipment

1.5.2.1 Materials / UV light

For evaluation, ambient light should not exceed 2fc (20 lux) in the inspection booth

For evaluation, black light must provide a minimum of 1500 µW/cm2 at 38.1cm (15 Inch).

The inspection zone must be clean all the time.

1.5.2.2 Oven drying

Type: Forced air oven

Pulsed air should avoid any parts contamination.

Temperature is controlled with a calibrated instrument, capable to maintain oven temperature to which it is set with a tolerance of ± 15°F (8.3°C). Oven should never exceed 71°C (160°F).

Temperature indicator shall be accurate to ± 10°F (5.6°C).

1.6 Accept / Reject criteria

The actual measured discontinuity size used when evaluating relevant indications are in accordance with applicable acceptance criteria. Acceptance limits are specified in Manufacturer documents CMM, AMM, SRM, or in written technical instruction approved by the DABS PT Level 3. in this method. In most cases fatigue cracks are searched; as soon as a fatigue crack is detected and confirmed, the component shall be withdrawn from service and if allowed repaired or rejected.

1.7 Area to be inspected

With fluorescent penetrant inspection, a highly fluorescent liquid with good penetrating qualities is applied; by default, unless differently described by another official document such as CMM-AMM-SRM, 100% of internal and external areas shall be tested.

Some areas are excluded from inspection:
- honeycomb surfaces
- surfaces in closed volumes already inspected
- through openings smaller than 2.5 mm in any dimension
- blade and vane internal passages/ cavities.

An efficient PT can only be performed if the following conditions are met:
- Visual angle access max 45°
- Ability to evaluate indication if relevant / non-relevant
- Ability if relevant to size the indication
- Ability to remove all PT consumables when evaluation is performed.

1.8 Records

The results of all liquid penetrant examination, including control checks, shall be recorded.
The records shall provide for traceability and shall contain as a minimum the following information:

- Reference to the data used
- Part reference (Name, PN, SN)
- Location, classification and disposition of relevant indications
- Staff’s stamp, certification Level and signature
- Date of inspection.

2 PROCESS

Chapter 3 in this procedure contains the Quality assurance program with all detailed parameter values in regards to the **DABS** facilities to be in compliance with ASTM-E-1417.

2.1 Safety and precautions

The various materials contain chemicals, which if improperly used, could be hazardous to the health and safety of operators. Protective clothing, including eye shields, suitable cloves, and aprons, must be worn when filling tanks when there is a possibility of splashing or overspray.

Tanks must be covered when not in use and must be operated under conditions of adequate ventilation or fume extraction. Operating instructions from the manufacturer of the system employed shall be followed.

Necessary precautionary measures should be taken to ensure the health and safety of all personnel and prevent damage to equipment.

2.2 Work requirements

Liquid penetrant examinations are carried out by specialized staff i.a.w §0.2 at the following possible locations:

- In the shop on components which are fitted on the aircraft or which have been removed from the aircraft
- On the tarmac on components which are fitted on the aircraft.

2.3 Approved Data

All Liquid Penetrant examinations are performed in accordance with the appropriate document:

- This procedure, and
- Specific Technical Instructions, approved by the **DABS** PT level 3 and/ or
- Procedures supplied by aircraft, engine, component manufacturer or customer such as:
  - NDT- Manuals
  - Maintenance Manual
  - Maintenance task cards
  - Services Bulletins.

Remark:
In most instances, the manufacturer’s requirements refer to ASTM E-1417, meaning the present internal procedure and the specific techniques will be in compliance with the manufacturers data; most of the times, only the acceptance criteria will be found in these manufacturer’s documents.

2.4 Examination process

2.4.1 General

The penetrant process requires several steps between the cleaning before the application of the penetrant and the evaluation under UV-light. Some of these steps require parameters, which have to be determined in regards to the system used within **DABS** for a particular inspection. Such parameters are:

- Penetrant Dwell time
- Water pressure for pre-rinse and/ or washing processes
- Washing under UV-Light
- Time and temperature in Drying oven
- Dwell time and developing powder application
- Requirements for inspection area and UV/ ambient white light conditions.

Refer to form DA-0114_PT-INST-XXX for detailed parameters.

2.4.2 Surface preparation (Cleaning)

Any surface coating, such as painting, plating, corrosion shall be removed from the zone to be examined, before penetrant inspection.

Parts must be clean, dry and exempt of oil, grease, painting and other coating (except in cases permitted below). It must also be exempt of corrosion, chemical residues, or any other material which could prevent penetrant to enter inside discontinuities.

Caution *Special care is necessary for cleaning processes of engine parts and wheel halves. Refer to engine and wheel Manufacturers maintenance or overhaul manuals for special cleaning applications.*

Note: *For in-service inspections, inorganic protective coatings such as anodize or alodine need not to be removed if they do not interfere with the inspection process.*

2.4.3 Application of Penetrant

Once the surface has been thoroughly cleaned and dried and the condition checked under both UV and visible lights, the penetrant material may be applied by brushing, spraying or dipping.

Note: application devices should be compatible with the penetrant.

Penetrant has to be applied to all surfaces to be inspected. Proper racking, placement or movement of parts is necessary to avoid accumulation of penetrant in holes, recesses or pockets during the dwell period.

Make sure that all surfaces drain uniformly and completely.

Penetrant using cotton swabs or brushes containing only enough penetrant to thinly coat the surface is considered acceptable. Coverage should be verified with an appropriate UV light source. Position parts so that penetrant does not run into the faying surface.

Penetrant should be re-applied to areas not covered. Maximum immersion time shall be maximum half dwell time.

If application is brushing, repeat operation after half dwell time.

2.4.4 Penetrant Dwell

The penetrant is left on the surface for a sufficient time to allow as much penetrant as possible to be drawn from or to seep into a defect.

Penetrant dwell time is the total time that the penetrant is in contact with the part surface. Dwell times are usually required by the specification being followed. Refer to form DA-0114_PTXXX for specific penetrant dwell times.

2.4.5 Removal of penetrant

For Each method applied within **DABS**, refer to DA-0114_PT-INST-XXX, to determine specific values on each step which must be applied. (ex : time, temperature, pressure, etc..)

For inspection on aircraft, solvent cleaning has to be used. With clean, dry and lint-free cloth, or with absorbent paper, make a first passage to remove penetrant excess.

The remaining penetrant on surface is then removed with lint-free cloth soaked with solvent.

The surface of the part should never be rinsed with solvent, and lint-free cloth should never be saturated with solvent. The removal with lint-free cloth of penetrant on component must be done under appropriate UV lighting to ensure adequate removal of penetrant type I.

2.4.6 Application of Developer

A thin layer of developer is then applied to the sample to draw penetrant trapped in flaws back to the surface where it will be visible. Developers form d will be applied by spraying (wet nonaqueous developers).

The developer is allowed to stand on the part surface for a period of time sufficient to permit the extraction of the trapped penetrant out of any surface flaws. This development time is usually a minimum of 10 minutes. See the minimum and maximum specific time on instructions 0114_PT-INST-XXX for each method A, C or D .
Significantly longer times may be necessary for tight cracks. This condition shall appear on the specific 0114_PT-INST-XXX.

2.4.7 Examination

2.4.7.1 Dark Adaptation

Vision of certified personnel shall be dark adapted for a minimum of 1 min prior to examine components. Longer times for more complete adaptation should be used if necessary.
The certified personnel shall not wear photochromic or permanently darkened lenses while processing or reviewing parts under black light.

2.4.7.2 Process

The penetrant process can start when all control checks are performed and give satisfactory results and results are reported.

All areas of fluorescence must be interpreted.

Examined components with false indications should not be rejected.

Examined components with relevant indications shall be evaluated relative to the criteria acceptance of approved Data.

Examined components with excess background fluorescence must be cleaned and treated again.

Every indication found during exam must be evaluated in accordance with the criteria acceptance of approved Data.

2.4.8 Evaluation and recording

2.4.8.1 Interpretation, Measurement

This subject describes methods, which must be used to evaluate, verify and record defect indications found during inspection.

Interpret all indications.

The probable type and extent of defects is determined by describing the shape and area of indication.

A crack, seams, laps, lack of penetration and cold shuts show up as fluorescent lines.

Porosity or pitting corrosion is indicated by round fluorescent spots. Increasing spots size is indicative of a subsurface cavity. As larger/ deeper the defect, as greater the volume of entrapped penetrant by the relative size of the developed indication.

2.4.8.2 Evaluation

The personnel performing the penetrant process must determine whether indications are caused by flaws or are false or non-relevant indications (for definition see a)-c) below).

Note: Do not flush indication with cleaner/ removers !

The following should apply:

a) False indications:

   Identify and eliminate false indications. They are caused by insufficient pre-cleaning, inadequate rinsing following penetrant application and faulty handling of materials and inspection subjects.

   False indications can be wiped off without reappearing and generally do not show brilliance of true indications

b) Non-relevant Indications:

   Identify and evaluate non-relevant indications. They are indications caused by part or structural geometric features such as press fitted splints, bushings, parting surfaces.

c) True Indications

   Indications which are not false and non-relevant and reappear after wiping off and reapplication of developer are legitimate defects.

2.4.9 Verification of Defect indication (Wipe off technique)

Defect verification must be conducted by the following method:

a) Lightly dampen a wipe or cotton swab with solvent

b) Wipe the indication, in one direction only, rotating the swab or wipe as it passes over the indication.

c) Immediately apply non-aqueous wet developer and allow for normal development time; observation shall be started as soon as the developer has been applied

d) If the indication re-appears, evaluate in accordance with chapter 2.2.

e) If the indication fails to re-appear, examine the area under white light. Magnification up to 10X may be used. If the discontinuity cannot be seen, the original indication may be interpreted as false or non-relevant.

- Visually inspect the suspect defect site using10X magnification and under visible light (1000 Lux)
- If parts or structure is ferromagnetic, evaluate suspect defect site using magnetic particle inspection as per DA-0114_MT (if applicable)
- For non ferrous materials, evaluate suspect defect site with high frequency eddy current as per DA-0114_ET (if applicable).

2.4.10 Cleaning

Components must be cleaned after exam to remove developer and any other penetrant residues. Dry parts thoroughly after all cleaning operations as applicable.

For parts with faying surfaces, inspect with black light and white light as applicable for removal of Penetrant residues. Re-clean as necessary.

2.4.11 Corrosion preservation

Apply temporary protective coatings, as necessary, after final cleaning and drying to prevent corrosion.

Preserve parts from corrosion until repainting process.

2.4.12 Cleaning of the Tam Panel

The TAM panel must be cleaned as described below:

1. Clean the TAM Panel with water to remove residue of developer, then clean with solvent (acetone), wait until the solvent is evaporated.
2. Apply form d developer, wait 30minutes.
3. Check the TAM Panel under the UV light, if no indication appears, the TAM Panel is ready for the next use. Conserve the TAM Panel in vertical position resting on large side in container box filled with solvent.

If after cleaning and application of developer fluorescence still appear under the UV light on the star bursts, panel shall be cleaned again.

2.5 Report

After each examination an NDT-Report (Form DA-0113_NDT) must be filled out and filed as electronic copy in the NDT server, one copy shall be supplied to the customer for A/C documentation.

The NDT- report shall indicate the extent of inspection, either by reference to the documents, or by incorporation of sketches, drawings or digital pictures into the NDT- Report.

There are two possibilities for examination results:

- The inspected Component has no defect and is in serviceable condition.
- The inspected Component has a clear defect or a suspect indication and needs further investigations with different methods or with manufacturer support.

In Case OF “NO DEFECTS”:
For all fluorescent Penetrant inspected items, a report document must be signed to state the defect free and serviceable condition for the part inspected.

In Case OF “DEFECTS”:
An inspection report DA-0113_NDT shall be completed. The defects can be documented with digital pictures or drawings into the report form.
All damaged parts must be marked with red colour and tagged with an unserviceable red tag.

3 QUALITY ASSURANCE

This section provides the checks necessary to make sure that the Penetrant system materials and equipment provide an acceptable level of performance.

3.1 System performance check

In order to check the performance of the whole penetrant line, a TAM panel shall be processed either before or concurrently with the first part. The following parameters shall be compared with the base line represented by a colour picture 1/1 scale:

- Number of star bursts
- Dimensions of same star bursts
- Brilliance of star bursts

If the results do not match with the picture, the panel shall be cleaned again and re-processed. If the test copes with the picture, the work can start. In case the second test is not correct, then the master panel shall be processed. If, even with the change of panel the results are not correct, work shall be stopped and the level 3 shall be contacted for evaluation of the situation.

3.2 Lighting system control

3.2.1 White light (for parts examination under visible light)

White light intensity at the inspection surface must provide not less than 1000 Lux (100 foot candles) for inspections under white light.

3.2.2 Black light

The black light bulb and filter combination must produce ultraviolet intensity of not less than 1500 μW/cm² measured at the inspection surface, 15" / 38.1 cm.
Note:

A. The lens must be cleaned before each test to provide maximum output. Check for scratched, damaged or poor fitting filters. Ensure that there is no leakage of visible white light due to damage or defective masking.

B. The lamp must be allowed to warm up a minimum of 15 minutes before conducting the test or inspection.

C. Max output intensity 10000 μW/cm2 at 15 inches (38 cm)

D. Minimum distance "filter to part" when evaluating 150mm.

3.2.3 Ambient light

The ambient Light in the fluorescent inspection room should not be more than 20 Lux or 2foot candle. The inspection control shall be performed every week.

If penetrant inspections are performed outside of the penetrant room, special care must be taken, do reduce the ambient light during inspection down to 20 Lux or 2foot candle.

3.3 System temperature control

The component, Penetrant and ambient temperatures must be in a range from 10 ºC to 52 ºC and controlled daily, when system is in use.

Note 1: if the parts to be controlled are below 10 ° C (between 4° to 10°C double the dwell time).

*Note 2: Due to the location of the immersion tank within the **DABS** facility, the temperature of the penetrant liquid is normally equal to room temperature.*

3.4 Penetrant materials control

All Penetrant materials used in the immersion tank shall comply with AMS 2644 and be listed on QPL AMS 2644.
ZL67 & ZL37 are kept and stored in closed cans and are on-condition as long as it passes the system performance test, described in Chapter 3.1, when it is used for Penetrant inspection. Before the spray can is used, check the expiration date on the can container and remove it from production if found out of date.
A certificate of conformity (i.a.w. AMS 2644) must be attached to each shipment order of new Penetrant material.
If tank level needs to be completed; the batch number of the liquid used to re-establish the level needs to be reported on the ID of the tank.

3.4.1 Penetrant contamination

The in-use Penetrant materials must be re-viewed daily when system is in use to determine if any of the following conditions are evident:

- Precipitations
- Waxy deposits
- White coloration
- Surface scum
- Water contamination Remove 50 ml from the penetrant fluid and send it for analysis in monthly frequency.
- Or any other evidence of contamination or breakdown.

If any of the above conditions is detected, the material must be discarded or modified in accordance with manufacturer's instructions.

3.4.2 Penetrant brightness

The condition of the penetrant fluid must be controlled quarterly as per ASTM-E-1417 by a chemical analysis in accordance with ASTM-E-1135. Remove 50 ml from the penetrant fluid and send it for analysis in quarterly frequency.
The analysis results must be kept on file in the NDT shop.
If one of the penetrant fluids did not pass the chemical test, the immersion tank must be cleaned and replaced with new material.
This is applicable to the fluorescent fluids in the immersion tank only.

3.5 Wash water operating pressure and temperature control

The wash water system, which supplies the hand water gun on the wash station, is equipped with a water pump that supplies the water to the gun. The pressure regulator is set to 20 PSI < P < 25 PSI. The pressure gauge must be calibrated on 1 point minimum every 6 months within its range of use.

The temperature indicator mounted close to the tank provides a water wash temperature monitoring device which will be within the range of 10°C to 38°C (50 to 100 degrees °F).
The temperature indicator must be calibrated every 6 months within its range of use.

3.6 Drying oven temperature

The drying oven is automatically controlled by the temperature control unit on the electrical control panel. It has a range from 20°C to 80°C. It must be checked always when the system is in use for correct setting at 70°C maximum to avoid penetrant dry-out. The thermo element in the oven must be checked quarterly with external calibrated temperature measuring equipment.
Refer to the manufacturer maintenance manual for temperature control. Set point of the oven must be at 60°C.

3.7 Developer material control

Humid non-aqueous developer is kept and stored in closed cans and is on-condition as long as it passes the system performance test, described in Chapter 3.1, when it is used for Penetrant inspection. Before the spray can is used, check the expiration date on the can container and dispose it, if found out of date.

A certificate of conformity (i.a.w. AMS 2644) must be attached to each shipment order of new developer material.

3.8 Inspection area

The inspection area must be checked daily for cleanliness and free from fluorescent contamination. When a part is inspected under the UV light, the curtain must be closed and the white light and UV ambient light (neon on ceiling) in the room turned off.

Important Note: No white paper or any other light parts such as shirts are allowed in the inspection area during evaluation under UV-Light. (watch the inspectors clothes)

3.9 Required tests and frequency

(As per ASTM E-1417 / 2016)

Details of requirements may be found on the corresponding standard and reference paragraphs

Tests	Frequency	Paragraph
Penetrant Contamination[A]	Daily	7.8.2.1
Penetrant Brightness	Quarterly	7.8.2.2
Water Content—Water-Based Penetrant (Method A)	Weekly	7.8.2.3
Water Content—Non-Water-Based Penetrant (Method A)	Monthly	7.8.2.4
Lipophilic Emulsifier Water Content[B]	Monthly	7.8.2.5
Hydrophilic Emulsifier Immersion, Spray, or Flowing Concentration[B]	Weekly	7.8.2.6
Dry Developer Condition[B]	Daily	7.8.2.7
Aqueous Developer Contamination—Soluble and Suspendable	Daily	7.8.2.8
Aqueous Developer Concentration—Soluble and Suspendable	Weekly	7.8.2.9
Penetrant System Performance[C]	Daily	7.8.3
Water-Washable Penetrant Removability	As required per 7.8.3	7.8.3.2
Emulsifier Removability	As required per 7.8.3	7.8.3.3
Comparative Penetrant Sensitivity	As required per 7.8.3	7.8.3.4
Black Light Intensity[B]	Daily	7.8.4.1
Black Light Integrity	Weekly	7.8.4.1
Special UV lighting	Daily	7.8.4.2
Battery Powered UV-A lights	Prior to and after use	6.7.4.1, 7.8.4.2(1)
Visible Light Intensity	Weekly	7.8.4.3
Light Meter Calibration[B]	Semi-annually	7.8.4.4
Examination Area Cleanliness[A]	Daily	7.8.4.5
Examination Area Ambient Light Intensity	Quarterly	7.8.4.5
Water Wash Pressure Check[A]	Start of each working shift	7.8.4.6
Water Pressure Gage Calibration[B]	Semi-annually	7.8.4.6
Water Wash Temperature Check[A]	Start of each working shift	7.8.4.6
Water Temperature Gage Calibration[B]	Semi-annually	7.8.4.6
Drying Oven Calibration[B]	Quarterly	7.8.4.7
Air Pressure Gauge Check	Start of each working shift	7.8.4.9
Air Pressure Gauge Calibration	Semi-annually	7.8.4.9

[A] Need not be recorded.
[B] The maximum time between verifications or checks may be extended when substantiated by technical data and approved by the Cognizant Engineering Organization.
[C] Not required for Method C examinations.

End of procedure

4 APPENDIX

4.1.1 Records form

" INTERNAL TEST VALUES REPORT " NDT PENETRANT

FLUORESCENT PENETRANT

DATE	Validity of stickers (Y/N)	area cleanliness penetrant contamination	Penetrant water content	Penetrant brightness	water wash pressure max 25psi	water wash temp. 10 to 38°C	excess water removal air press and cleanliness max 25psi	white light max.2 fc or 20 Lux	white light for evaluation min 1000lx	black light and integrity min 1500 µW/cm2 at 38.1 cm	TAM ID/ number of stars	% Emulsifier	signature
FREQUENCY	each use	each use	monthly	3 months	each use	each use	each use	each use	each use	each use	each use	each use	each use

Ferarra Guido i.a.w LAST REVISION OF ASTM E1417 R2 02 February 2021