



National Training Society

MPI Recertification Written Instruction Guidelines

- a) foreword (scope, reference documents);
- b) personnel;
- c) apparatus to be used, including settings;
- d) product (description or drawing, including area of interest and purpose of the test);
- e) test conditions, including preparation for testing and equipment calibration;
- f) detailed instructions for application of the test;
- g) recording and classifying the results of test;
- h) reporting the results.

A) Foreword (Scope, Reference Documents);

- A written instruction will permit a Magnetic Particle inspector to follow your steps and duplicate your results
- Method of Inspection
- Locating surface and near surface indications
- Continuous Technique
- AC Yoke
- Wet visible color contrast (Black on White)
- 100% inspection of weld and HAZ
- Copy of company safety & quality procedures
- MSDS sheets
- Copy of company inspection procedure
- CGSB 48.9712
- Certificate of Compliance (consumables)

B) Personnel;

- Carry out NDT according to this written instruction under the direct supervision of a certified CGSB Level 2 or 3 magnetic particle technician.
- Perform the following tasks:
 - Setup the equipment.
 - Perform the test.
 - Record and classify the results of the test.
 - Report the results.

C) Apparatus to be used, Including Settings;

- AC yoke (make, model, serial #)
 - Volts / Hz / amps of yoke (label on yoke)
 - AC yoke able to lift 10lbs test weight
- Light meter and sensors (make, model, serial #)
 - Actual white light meter readings (intensity and distance)
- White light source (make, model, serial #)
- 10lbs lift weight (make, model, serial #)
- Consumables used cleaner, paint, particles (make, model, lot #)
 - Meets certificate of compliance
- Field indicator (make, model, serial #)
- Equipment used for test (lint free rags, magnifying glass, thermometer, drawing tools etc.)
- All equipment to be in good working order

D) Product (Description or Drawing, Including Area of Interest and Purpose of the Test);

- Area of interest, weld and HAZ (1" from toes of weld)
- Locate surface or near surface indications
- Part number
- Type of material (ferromagnetic) and part description
- Dimensions of test part (length, width, thickness)
- Welding preparation (bevel, groove, tee)
- Welding process used (SMAW, GMAW, FCAW, GTAW)
- Part history (been in service or not)
- Material condition (clean, bare, no scale)
- Drawing with dimensions and area of interest (reference to drawing)

E) Test Conditions, Including Preparation for Testing and Equipment Calibration;

- Examination carried out in clean, dry shop environment (20°C)
- Test part clean, dry, free of oil, grease, rust etc.
- Step by step description of how to ensure proper measurement of lighting (white light)
 - 100 fc or 1000 lux
- Step by step description of the yoke lift test
- What happens if light or yoke doesn't pass

F) Detailed Instructions for Application of the Test;

- Precleaning steps
- Visual Inspection of part and equipment
- Calibrate equipment as per section E
- Diagram showing shot sequence for magnetization
- Step by step description of how to properly examine the part
- Painting (B&W)
- Magnetizing with yoke
- Apply particles and examine for indications
- Measure, record and classify indications, report results
- Demagnetization steps and verification
- Post Cleaning of test part

G) Recording and Classifying the Results of Test;

- Record all indications showing the relative size, shape, length and location of the indication from reference edge
- Provide proper characterization of indications recorded

H) Reporting the Results.

- Record results of visual & MPI examination
- Create and complete drawing and with all measurements and location of indications
- Reference to applicable drawings