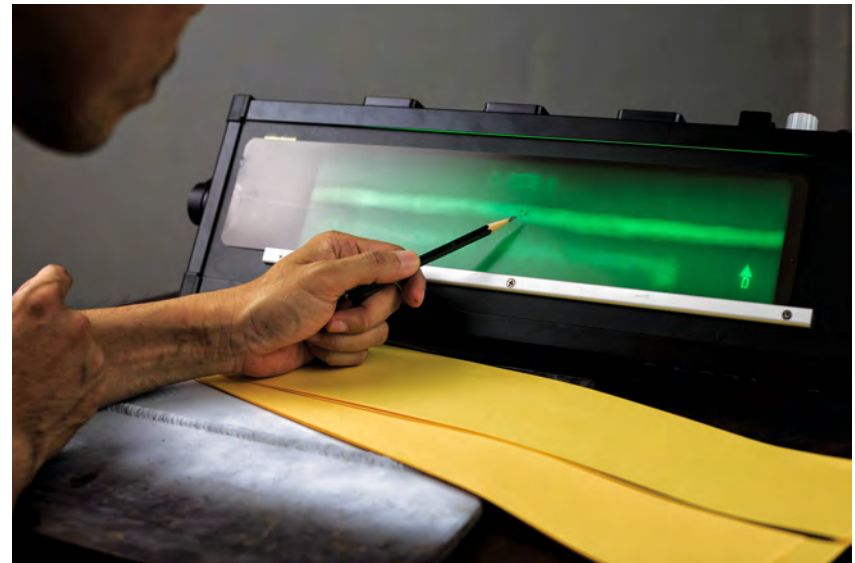




The Benefits of Digitizing the NDT Process

Bill Cattley
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Why Digitize now?

- Unprecedented Aerospace order backlog growth
- Automated and Digital inspection equipment
- Analog and Paper Inspection recording procedures
- “Big Data” Analytics, Prognostics and Defect Trends
- Direct and Immediate NDT Customer Feedback and results
- Extreme Shortage of qualified Inspectors (Level 1 and 2)

How will Digitizing Help?

- Seamless transition from Digital and Automated inspection equipment (**Digital Xray, etc**)
- Combining digital images and digital inspection results, different inspectors across the country or world can share inspection workload
- Decreases the time spent accumulating & organizing inspection paperwork
- Increases the working capacity of existing Level II & III's
- Unlocks Data Analytic tools on inspection process
- Improves inspector training and standards

Making a Business Case for Digitization

- Significant improvement in Inspector throughput
- Streamline tracking of parts and jobs through the inspection process
- Rapidly Enables tracking defects, re-shots, rework to identify and provide root cause analysis
- Improves Quality Improvement process

Management benefits

- Digitizing sets the foundation for a more structured process.
 - Allows for quicker and more accurate data for the Management Team to base business decisions on.
 - Easier access to data for job costing and scheduling
 - Improved data for providing feedback to customers on job status
 - Improved data for monitoring technician performance and training needs

Level 3 Inspector Benefits

- Digitizing provides easier access to long term historical records
- Allows for timely trend tracking of job, defects, inspector performance and training needs, job cost
- Allows for easy assessment of training needs, by department, by inspector, with real-time OJT hours.
- Would know when an inspector has reached their minimum allotted time to test for certification.

Barriers to Digitization in NDT

- Entrenched manual paper and folder inspection tracking process
- Shortage of NDT-centric custom software
- Internal inspector and management training on new system
- Technology Culture Change
- IT work load

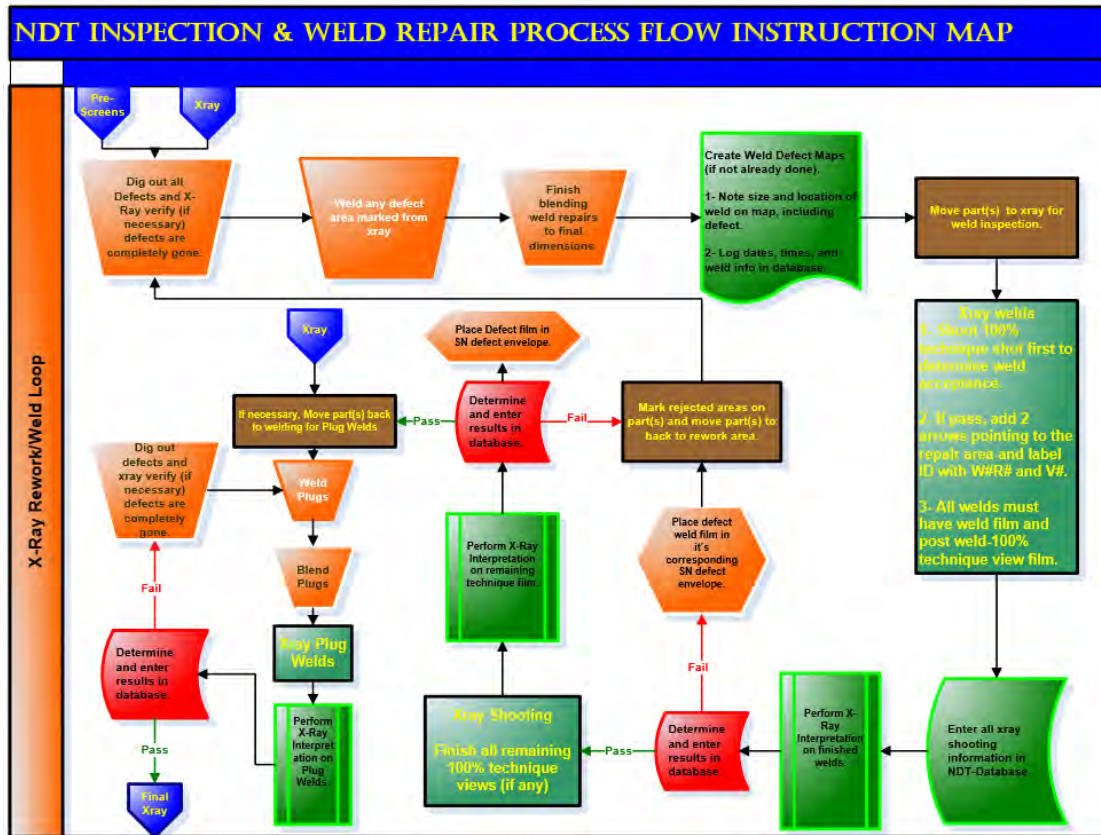
Digital Change Catalysts

- Industry “Red” Team opportunities
- Customers demanding digital interface and information
- Changing Inspector Training documentation requirements
- Shortage of certified inspectors, digital NDT reporting tools will increase the working capacity of inspectors

Industry Demo Results:

- “Red” team employed to clear backlog of critical part shortage
- Engine Frame casting with complicated Welding Repair NDT inspection Loop
- 27.7% increased inspection throughput (**Touch Time Hour Reduction**)
- Refined Technique order based on data analytics to increase inspection efficiency and reduce cost
- **Drastically reduced the time spent having inspector/customer meeting updates due to virtual real-time digital updates.**

Visual example of the Casting Weld Repair and NDT Inspection Cycle:

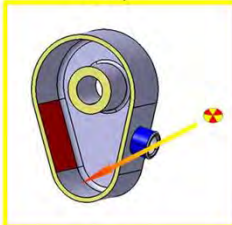


How Far Can Digital NDT Technology GO?

- 3-Dimensional XRAY Technique Development and Results

XRAY Inspector Defect Annotator

CAD Model DWG
Technique Exposure
Setup

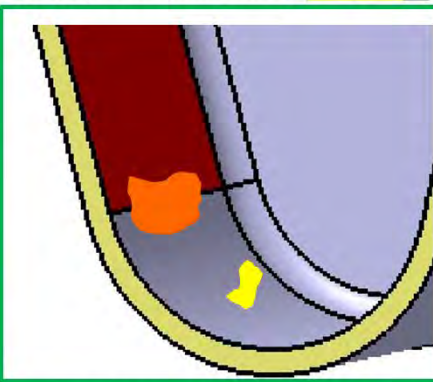


Inspector: X10 View Type: 100% Xray

Comments:

(Click to Annotate) (Save) (Cancel)


(Overlay XRAY IMAGE Select) **V1**



View Status
Reject

Defect Type
Cavity SHK

Severity
4

Defect Color


Current Color
Shape

Customer

Part No.

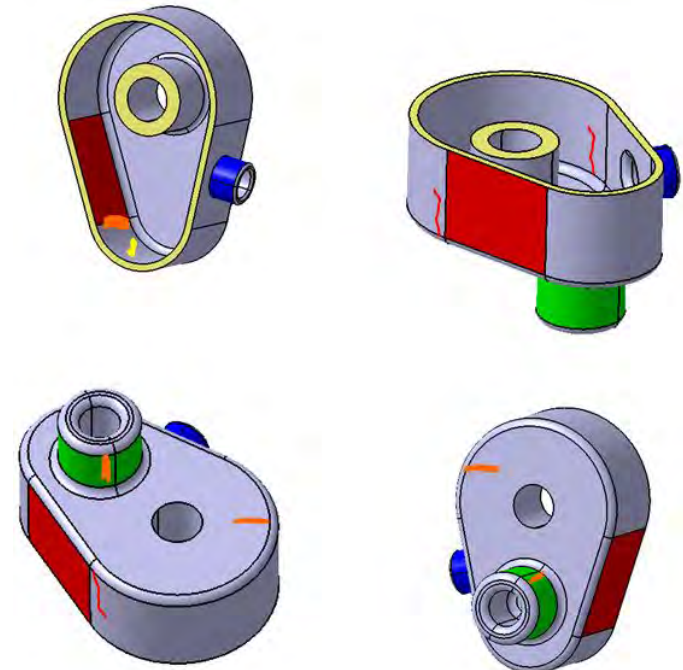
Serial No.
1

Date
10/27/2014

Job No.

P.O. No.

Specs
Standards
Defect Sample Images
Reports





We hope this has given you an idea of where the industry can go with some investments in digitally upgrading the NDT inspection recording process. It can help actively address many problem areas proactively.

Thank you for your time.