


Eaton

Improving Shop Floor Operations

Build your brilliant industry – discrete manufacturing: how we are approaching the challenges

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#IndustrialInternet

powered by 

Eaton Overview – Aerospace Focus

Powering Businesses Worldwide



Products

Systems &
Services



Hydraulics

Aerospace

Vehicle

Aerospace

- Global business
 - Commercial and Defense
- Power Management
 - Fuel / Motion Control & Fluid Distribution
- Military and Commercial businesses
- Highly regulated / Governance

Problem Statement

- Text based work instructions - ERP
- Paper based - traceability
- Poor linkage to documents & tooling
- Training new operators difficult
- Inefficient change management
- Mass changes impossible
- Data scattered making analysis difficult; one time events
- High mix environment
- Compliance requirement



Solution

- Visual work instructions
- Electronic collection of process data
- Records retention and archiving
- Links to supporting documentation
- Mass change capability
- Integration to PLM & ERP / SFI
- Collecting “actual” process times
- Performance analytics
- Leverage standard work across sites

The screenshot shows the EATON operator interface. At the top, it displays 'User: Joe Operator - operator' and 'WO No: 05192547 WO ID: 53300613 OP: 50 StdOP: OPStatus: ready'. Below this is an 'Operation Result' table with columns for Planned Qty, Committed Qty, Committed Qty, Good Qty, Scrap Qty, Scrap Reason, Rework Qty, Rework OP, and Rework Reason. The 'Planned Qty' is 245, and 'Good Qty' is 0. A 'Destination' dropdown is set to 'All'. Below the operation result is a 'Step Result' table with columns for Step, Step, Type, DocumentName, Status, DMR, and URL. The steps listed are: 20 Insert and Seat Valve into Body (S, NOT READY), 30 Install Spring over Valve Stem and Guide o (S, NOT READY), 40 Cycle Orbitform Machine (S, NOT READY), and 50 Check Orbitform Diameter (S, NOT READY). To the right of the step result is a 'Test Result' table with columns for TestName, LRL, TGT, HILim, UOM, and Res. The test listed is 'Diameter' with LRL 12.34 and TGT 50.10. Below the tables are buttons for 'Complete Step' and 'Change Step Status'. On the right side, there is a 'Related Documents' table with columns for Type, Item/Route, OP, and DocumentName. The documents listed include Master AE80485E, Part 1627_Group2-1, and Doc 1627_Group2-1. At the bottom, there are 'Work Instructions' for 'E-size' and 'H-size' with images and text: 'Using callipers, verify Dimension "B" (diameter) as shown. Press the "DATA" button on the callipers to record the measurement.' Below the work instructions are buttons for 'Back' and 'Print Instruction'. At the bottom right, there are fields for 'eSignatures: User: PWR:' and buttons for 'Clock Off' and 'Clock Off and Complete'. Four blue callout boxes are overlaid on the screenshot: 'Production counts with scrap and rework - ties to DMR' points to the Operation Result table; 'List of Master and BOM dwgs & other Enovia links' points to the Related Documents table; 'Test results with targets and specs' points to the Test Result table; and 'Work Instructions for selected step within operation' points to the Work Instructions section.

Production counts with scrap and rework – ties to DMR

List of Master and BOM dwgs & other Enovia links

Test results with targets and specs

Work Instructions for selected step within operation

Lessons Learned

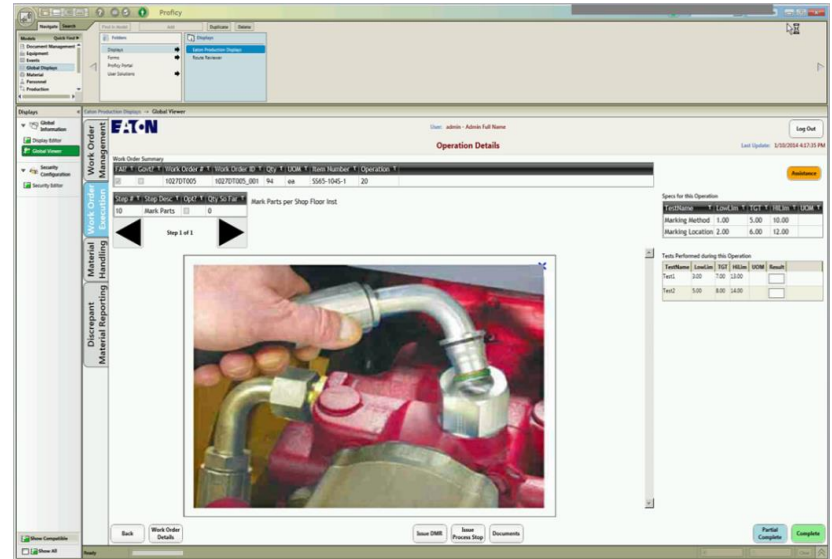
- Did not underestimate the effort to collate legacy data – including validation
- Continuously review performance metrics
- OCM is bigger issue on shop floor
- Keeping the solution provider involved is key for alien solutions
 - Need to keep supplier involved
- Define long term – deploy short term
- Need a sponsor

Your Best
Teacher
Is Your
Last

Mistake

Next Steps

- Continue deployments in existing facility
- Electrical Sector deploying large solution
- Modular deployments – FIND VALUE
 - Non Conforming Material
 - SPC
 - OEE (machine interface)
 - Finite Scheduling
- Look at shop floor analytics – need enough data
- Measure value and it sells itself





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