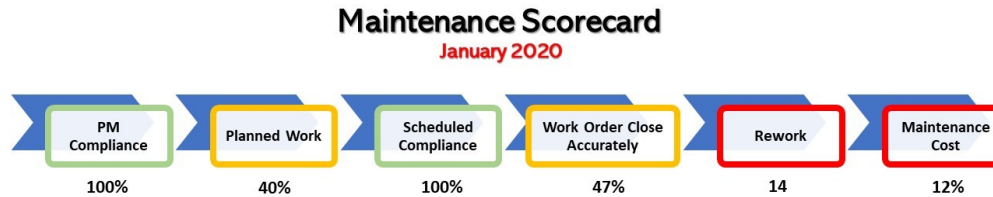


Tool-Box Talk - Accurate Work Order Close Out



The Value Proposition of application of “Accurate Work Order Close Out” provides any organization information and data used to optimize equipment reliability and

Top “5” Reasons why Accurate Work Order Close is Critical

- #1 – Without accurate data **optimization of equipment reliability is impossible**
- #2 – Critical Equipment history is missing and thus **decisions are made with incomplete data**
- #3 – Preventive Maintenance **cannot be effectively optimized**
- #4 – Bad decisions are made because we are making them **based on emotions not facts**
- #5 – Maintenance is a Data Driven Process which **requires accurate and valid data**

Plant Maintenance/Reliability Dashboard



“ You cannot manage what you do not measure”
- Peter Drucker

Work Order Close Out is important for the continuous improvement of any maintenance organization.

The objective of accurate data collection is to assist management in making the right decisions at the right time.

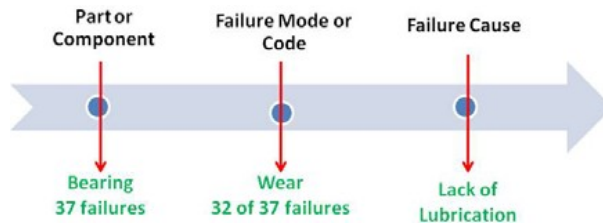
General Rules:

- 1) Work Orders should have at the minimum the correct code (breakdown (1), urgent (2), etc., the correct equipment number, at the right level, the maintenance person’s accurate total work hours charged to this work order, the start time and complete time on the job, comments from the maintenance person as to what work was performed or any recommendation to changes to maintenance strategy or plan, any parts used whether from the storeroom or not. The maintenance signature.

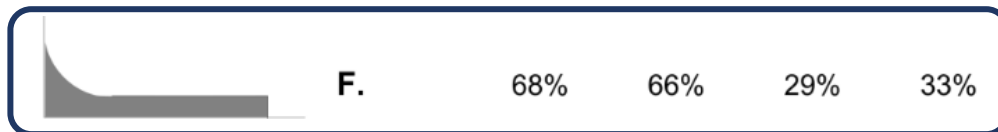
- Without the above information one cannot determine;
 - Actual maintenance cost for specific assets
 - Mean Time Between Failure
 - Mean Time To Repair
 - Mean Time Between Repairs
 - Rework
 - If a PM Procedure is effective
 - If a specific type repair is effective
 - If a maintenance strategy meets the intent of maintenance

2) Repair or Corrective Work orders must everything as stated above plus, component code, failure code, and cause code.

- Without the above information one cannot determine.
 - Dominant Failure Thread – which component has the most specific failure modes with a specific cause across multiple assets



- Dominant Failure Pattern – which failure pattern is the most dominant and what are the major causes of failures for this pattern. This allows one to develop strategies to eliminate unacceptable failures which impact the organization.



3) What should a work order have on it for Preventive Maintenance?

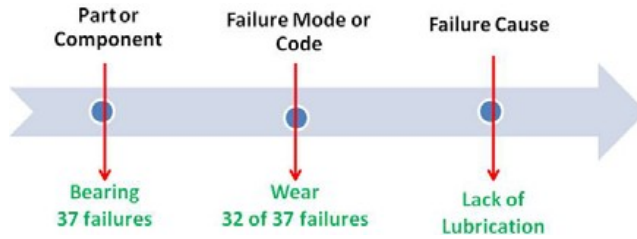
- The method to prevent or predict known failure modes (failure mode – how something fails)
- On a PM Procedure it should have specific steps and specifications on what is to be done to known best practices.

Example: Lubricate Bearing –

Step 1: Clean the grease fitting

Step 2: Clean the end of the grease gun Step 3: Insert 4 grams of lithium grease (two shots)

- Comments on the procedure as to the effectiveness of it or recommended changes required failure modes with a specific cause across multiple assets



4) What should a work have on it for Preventive Maintenance or Predictive Maintenance?

- The method to prevent or predict known failure modes (failure mode – how something fails)
- On a PM Procedure it should have specific steps and specifications on what is to be done to known best practices.
ex: Lubricate Bearing –
Step 1: Clean the grease fitting
Step 2: Clean the end of the grease gun
Step 3: Insert 4 grams of lithium grease (two shots)
- Comments on the procedure as to the effectiveness of it or recommended changes required.

PM Procedure Example

Equipment Block ID: Line 101			
Equipment Hierarchy: E560XX Septet Process Line			
Project Description: Perform PM on Septet Process Line			
Job Description: Perform PM on Hydraulic System			
Frequency: Monthly			
Estimated Craft Hours: 2 techs x 3.0 hrs	Estimated Elapsed Time: 3.0		
Estimated Production Downtime: 3.0			
Originator: Dave Stone	Origination Date: 03/12/2012		
Owner: Plant Maintenance	Version #: 1.0		
Previous Version(s) Modifications:	Version #: 1.0		
Approval: DS	Version #: 1.0		
Warnings: Failure to follow procedure could lead to safety or property damage			
Cautions: Failure to follow procedure could result in early equipment failure			
Personal Protective Equipment Required: Gloves, face shield, hearing protection			
Part # (Stores ID)	Part Description	Quantity	Quantity Description
#B3214	Hydraulic Filter	2	Each
#B2543	Zinc Anodes	1	Each
Consumables Needed: Degreaser, lint free towels, thread seal			
Special Tools Required: 1 Torque Wrench			
Mobile/Special Equipment: None			
Required Departmental Coordination: Production Line shutdown / Hydraulic Cylinder Extended / One Operator to Assist Maintenance			
Other Procedures Reference: Job Preparation / Lockout Procedure #XXX			

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Step#	Description	Craft	# of Crafts	Clock Hours	Craft Hours	Craft Initials
1	Inspect Hydraulic System Running • Does the Pressure fluctuate more than 5psi? Yes / No • Number of Hydraulic Leaks	Mech	2	.5	1.0	
2	Lockout/Tagout Hydraulic System	Mech	2	.25	.5	
	Caution: Failure to Clean inside reservoir will result in premature valve failure					
2	Clean inside Reservoir with Lint Free Rags	Mech	2	1.0	2.0	
3	Replace Hydraulic Filters (2)	Mech	1	0.3	0.3	
4	Torque Fasteners on Filter Fasteners to (
4	Replace Zinc Anodes on Water Cooled Heat Exchanger	Mech	1	.5	.5	
5	Inspect 5 Hydraulic Hoses for wear or leaks • Hose 1.1 Yes / No • Hose 1.2 Yes / No • Hose 1.3 Yes / No • Hose 1.4 Yes / No	Mech	2	1	2	
6	Inspect Hydraulic Cylinder for Leaks • Inspect Rod Seal for Leaks (Circle One) - No Leaks - Weeping Oil - Oil Stream • Inspect Rod Yoke for break in thread seal on threads - Breaks? Yes / No	Mech	1	0.3	0.3	
7	Inspect all work after production is up to rate "Do not leave equipment until production is up to rate"	Mech	2	.5	1.0	
TOTAL Hours				4.35	7.0	
Condition (As Found):						
Condition (As Left):						

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Comment(s) / Findings:	
Craft's Feedback on Procedure:	
Craft's Signature(s):	
Date:	

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