

# Maintenance of Hydraulic Systems Workshop

## “One Day Workshop” Virtual via Zoom



This One Day Workshop was designed to provide knowledge in “Hydraulic System Maintenance Best Practices” using interactive exercises between attendees and instructor, Ricky Smith CMRP, CMRT.

Most companies spend a lot of money training their maintenance personnel to troubleshoot a hydraulic system. If we focused on preventing system failure, then we could spend less time and money on troubleshooting a hydraulic system.

We normally expect hydraulic system failure rather than deciding not to expect hydraulic failure as the norm. Let’s spend the time and money to eliminate hydraulic failure rather than preparing for failure.

Hydraulic Systems can run failure free if you learn the process to mitigate the failure modes of any system. In this class you will learn this process.

The process allows a maintenance department to control a hydraulic system rather than the system controlling the maintenance department. We exercise control by deciding when we will perform maintenance and how much money we will spend. The alternative is breakdown maintenance at a much higher cost. Corrective Maintenance requires all proactive work to be performed to specifications using repeatable procedure and as such it must be measured.

### Course Content:

- **Known Best Practices in Hydraulic System Maintenance**
  - Preventive Maintenance
  - Corrective Maintenance
  - Visual Inspections and their benefits
  - Hydraulic System Troubleshooting
  - Oil Sampling and “How it is used to optimize health of the system and components”
  - Component/Part Failure Modes and How to Mitigate them
  - Measurements / Data required to mitigate and eliminate hydraulic problems

- How to assess current state of your Hydraulic System and create a plan to optimize
- How to write a Corrective Maintenance Procedure
- Measuring performance and health of a Hydraulic System
- Steps to restore a Hydraulic System to a fully functional state
- ... and so much more

**Exercises:**

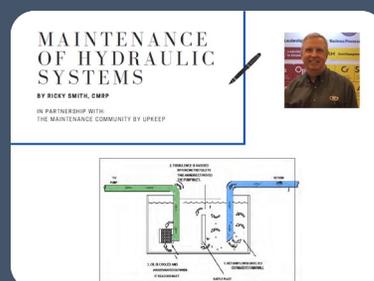
**1. Assessing current state of the Maintenance Function**



**2. Developing a Plan to Optimize your current system (high impact and sustainability)**



**3. How to Maintain Hydraulic Systems Effectively**



## 4. Writing an effective PM Procedure for a Hydraulic System

### Preventive Maintenance Procedure Example

**Equipment Model ID:**  
Line 301

**Equipment Hierarchy:**  
CRITICAL Assets Process Line

**Project Description:**  
Perform PM on Serial Process Line

**Job Description:**  
Perform PM on Hydraulic System

**Frequency / Month**

**Equipment Core Hours:** 2 Tons x 3.0 hrs | **Estimated Equipment Size:** 3.3

**Estimated Production Downtime:** 1.0

**Originator:** Dave Stone | **Originator Date:** 03/12/2012

**Owner:** Fred Matthews | **Version #:** 1.0

**Previous Version(s) Modification(s):** 06 | **Version #:** 1.0

**Warnings:** Failure to follow procedures could result in early equipment failure

**Personal Protective Equipment Required:** Goggles, Eye shield, hearing protection

**Part(s) Required:**

Part Number(s)	Part Description(s)	Quantity	Description
#13114	Hydraulic Filter	2	Each
#12191	Eye shield	1	Each

**Consumables Needed:**  
Degreaser, hot free hands, thread seal

**Special Tools Required:**  
1 Torque Wrench

**Multitasked Equipment:**  
None

**Required Departmental Coordination:**  
Reschedule Line Shutdown / Hydraulic Cylinder Extended / One Operator to Assist Maintenance  
Other Procedures Referenced:  
Job Preparation / Label Procedure #1000

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### Preventive Maintenance Procedure Example

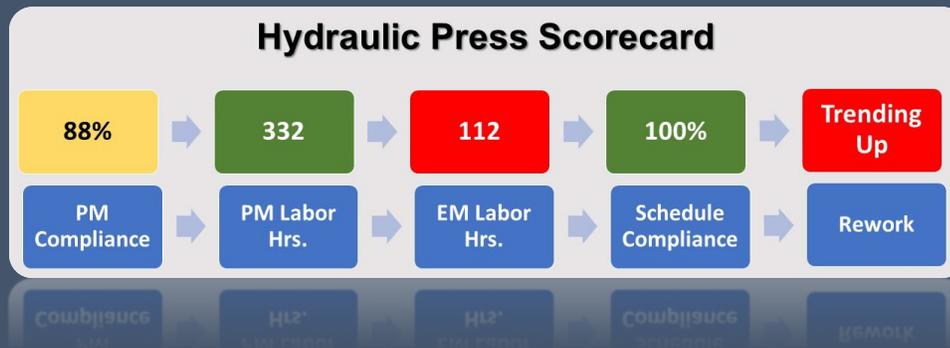
Step	Description	Count	Ref. Count	Check Steps	Count	Check Hours	Count	Check Units
1	Inspect Hydraulic System Routing • Does the Pressure Fluctuate more than Spec? Yes/No	Mech	2	5	5	1.0	5	500
2	Check for Leaks • Clean inside Reservoir with Clean Cloth	Mech	2	1.0	2.0	2.0	2	200
3	Replace Hydraulic Filter(s)	Mech	1	0.3	0.3	0.3	1	100
4	Inspect Filters for Filter Contamination • Replace Filter, Anode or Water Cooled Heat Exchanger	Mech	1	5	5	5.0	1	100
5	Inspect 5 Hydraulic Pumps for wear or leaks • Hose 1.1 • Hose 1.2 • Hose 1.3 • Hose 1.4	Mech	2	1	2	2.0	2	200
6	Inspect Hydraulic Cylinder for Leaks • Inspect Rod Seal for Leaks (Circle One) No Leaks Seeping Oil Oil Spraying	Mech	1	0.3	0.3	0.3	1	100
7	Inspect Rod Seal for Leaks in Thread seal on Threads • Yes/No • Inspect all work after production is up to make sure no new damage and production is up to rate	Mech	2	5	1.0	1.0	2	200

**Condition Like Friends:**  
A leaking hose

**Condition Like Lethal:**  
Clean reservoir and area, highback hose fittings

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## 5. How Measure Effectiveness of your Hydraulic Maintenance Plan



Send me an email if you are interested in joining this one-day workshop  
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