
Global Powertrain

Manufacturing Engineering

Manufacturing Excellence



Predictive Maintenance (PD) Strategy

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Introduction



- **Predictive Maintenance (PD) (aka "PdM")**
 - Predictive Maintenance techniques are used to determine the condition of in-service equipment to determine when maintenance should be performed. This approach provides cost savings over routine preventive maintenance, because tasks are performed only when warranted.
 - The premise of PD is to allow convenient scheduling of corrective maintenance, and to prevent unexpected equipment failures.
- **MOS and Production Uptime Requirements mandate the use of effective PD Processes:**
 - Provide an "early warning" system for asset failures to maximize uptime
 - Provide accurate feedback to Repair & Maintenance trades for preemptive corrective actions
 - Predict pending failures so as to enable ordering of non-stocked spare parts



Problem Statement & Objectives



- **Problem Statement**

- Limited plant resources and budgets to perform this work
- Production schedule severely limit maintenance/repair downtime windows
- PD routes are inherently monotonous and labor intensive
- Cost/Benefit has been difficult to prove
- Historical Automated machine health monitoring systems have yielded marginal results

- **Objectives:**

- Implement a Lean PD plan that:
 - Makes efficient use of very limited resources
 - Targets assets based on historical performance and failure modes
 - Maximizes use of current monitoring systems (FIS)
 - Makes use of "smart sensors" and other basic analytical tools
 - Provides accurate and fast results



The Realities of Today's Environment



- We no longer have the resources to support large groups of specialized plant PD trades
- A team of three or four individuals supporting conventional route-based PD are incapable of monitoring hundreds or thousands of assets in a timely and thorough manner
- PdM "routes" are inherently inefficient. *98% of the data gathered is on healthy machines!*
- Machine downtime required to acquire PD data (e.g. mounting sensors, running wires, etc.) must be minimized or eliminated
- Production requirements demand fast, accurate analysis of machine health (we can't wait 2 weeks for a report)
- We must take full advantage of our current software capabilities (e.g. FIS, Maximo, etc.) to support the analysis of machine health

