Equipment Performance Part 5

Reliability Centered Maintenance (RCM)

At DRIVE, we believe that Reliability Centered Maintenance (RCM) is a pillar within the Total Productive Maintenance model. We understand that there is a great debate on which, TPM or RCM, is a higher-level improvement methodology. We choose to stay out of this debate, leaving it to theorists, authors, and professors. Rather, we focus on applying BOTH to maximize business performance.

There are 13 steps in the RCM process that were developed by the airline industry to ensure their planes were safe for commercial use. Having a failure during a flight on a commercial aircraft is a devastating blow to the industry today. However, in the early years, it would have been even more devastating, since the public was unsure of whether flying was as safe as driving a car.

The overarching tool for RCM is the machine Failure Modes and Effects Analysis (mFMEA) that is utilized to identify and prioritize risk in any equipment related to the severity, frequency (occurrence), and detection/prevention of any failure mode. The highest risk items are typically redesigned, where possible, or approached with a far more stringent maintenance plan. Sometimes our CMMS data is complete enough to give us this information readily. Often, we have to form a cross-functional team and hash out the severity, occurrence, and detection of our failure modes over a period of time.

The two keys to successful RCM implementation are to a) actually improve the equipment that the data identifies and b) use it as a continuous process – always updating our information as we learn about our equipment.

Click here for a copy of our mFMEA severity, occurrence,and detection tables

One way to know if our RCM approach is working is to measure Mean Time Between Failures (MTBF). As MTBF increases, we see that our efforts are paying off. The RCM process can be extremely time-consuming. Therefore, it is recommended to identify highly critical equipment, such as a machine that has no back-up, and conduct the RCM approach only on that process initially. In last month's blog, we highlighted the 4M Analysis. This analysis is critical in ensuring we have truly identified the constraint process rather than a process that is constantly blocked or starved. Once the MTBF of the constraint process improves, then the organization can add additional processes to the RCM approach while continually improving in the initial areas.

Our ultimate goal for our equipment is to have zero unplanned downtime. We should remain dissatisfied with any downtime. Reliability Centered Maintenance is one of the items needed in a comprehensive effort to achieve this goal of zero unplanned downtime.

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Do you have sub-optimal equipment performance? Do you struggle with prioritizing equipment efforts or redesigning poorly performing equipment? Many of our consultants have decades of experience in equipment performance improvements including TPM and RCM implementation. For a no-obligation introduction meeting, please contact us at paul.eakle@driveinc.com or 865-323-3491.