

BREAKTHROUGH

Lean Implementation & Training Resource Publication
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RCM: MAKING THE UNRELIABLE RELIABLE

By Harold Chapman

SOLVING MAINTENANCE PROBLEMS

In previous publications on TPM, we focused on enlisting the operators of the equipment to be more involved in the process of maintaining it. We also discussed implementing systems to monitor and continuously improve the equipment's Overall Equipment Effectiveness (OEE). TPM allows us to address the low hanging fruit that keeps the equipment from producing as it is intended. Assuming you have instituted TPM, you are now ready to address the other, more difficult aspects of maintenance, which can be addressed with a Reliability Centered Maintenance (RCM) program.

To begin RCM, we must select a piece of equipment that has proven to be unreliable. This isn't a hard task in most companies. The second criterion for selecting the equipment is to ensure that it is a constraint process in the value stream. This will allow for quicker return on our initial efforts. Improving a non-constraint process isn't favorable unless the lack of reliability causes it to be the constraint.

Now that we have identified an unreliable piece of equipment as a constraint, we should form our team. Our team should consist of the maintenance technician, an operator and an engineer that is most familiar with equipment being studied. This will allow us to be more focused in our efforts to ensure all potential failure modes are selected. With the team assembled, we are now ready to begin our RCM analysis process.

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 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 wasn't sure flying was as safe as driving a car.

Simply completing the RCM process will not make you reliable as a whole. Once the RCM event is completed, management must move to the next constraint process, select the right team and repeat the RCM analysis process. RCM is a never-ending improvement process. Any sign of failure on a machine where RCM has been applied is a sign to update and reinforce our RCM procedures. We must continually track failures and build our own reliability data for the components and equipment within our factories.

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RCM: NEVER-ENDING PROCESS

Our ultimate goal for our equipment is to have zero unplanned downtime. We should remain dissatisfied with any unplanned downtime. Some great questions for leadership to ask once RCM has been applied to a piece of equipment are:

Q: What was the total downtime yesterday on this piece of equipment?

- Not having an answer to this question will let us know that downtime isn't being tracked closely.

Q: What is the target downtime?

- The initial target should not be zero, since we want to take steps toward zero.

Q: What barriers are preventing us from achieving that target?

- There will be barriers, so be prepared to remove them.

Q: What are our next steps?

- Our next small step to get from where we are closer to the target.

Q: When do we plan on taking that next step?

- Should be hours or days, not weeks or months.

Q: When do we expect to learn from the next step?

- Be sure they have thought the next step through fully.

Q: Can you show me?

- Takes us to the location of where the next step will occur.

To learn more about Reliability Centered Maintenance contact LMSPI to schedule a kaizen event. To learn more or to schedule an onsite introduction meeting to assess your equipment, visit online at www.LMSPI.com.

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hear. see. DO_Technical Problem Solving

Harold Chapman, author of this article has been utilizing advanced problem solving techniques along with his multi-disciplinary engineering background to improve equipment across multiple industries. To [see Harold's bio](#) and review his expertise, [click here](#), or visit our [Team](#) page and learn more.

Stay tuned!

Look for more special editions coming soon – the next publication looks at setting and achieving the desired Target Condition.