

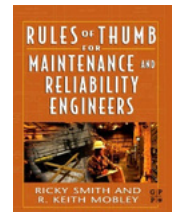
LOSSES FROM A FUNCTIONAL FAILURE

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Losses from a Functional Failure

By Ricky Smith CMRP / Keith Mobley



"In determining losses, the number one loss in most companies results from a functional failure of critical assets."

Companies are struggling to find the "silver bullet" for increasing reliability, equipment performance, and lowering cost however there are none. The solution to this problem is difficult there is a short term and long term solution to the problem which will result in increased reliability thus allowing the plant to obtain higher asset availability, utilization, quality, capacity and lower cost however the solution is not easy or simple.

Let's first look at a few barriers first which prevent a plant from obtaining a higher level of reliability of their assets

1. Most maintenance departments and production only understand that a failure means the equipment is broken. A true failure of an asset is when it is no one longer meets the function required of it at some known rate of standard.

Example: Conveyor is supposed to operate at 200 meters per minute so when the conveyor's speed is no longer meeting this requirement it has functionally failed thus causing an immediate loss of revenue for the company.

2. Maintenance does not get involved when quality or production rate issues arise in the plant. In most cases when an asset has functionally failed in a plant no one in maintenance seems to understand the equipment has failed.

3. Most maintenance departments do not know the performance targets of the plant equipment and do not understand why it is important that they understand them. This not a failure of the maintenance department but a breakdown of how a total is not aligned to meet the goals of it.

Overcoming all three of these barriers is essential to rapid performance in reliability. If an understanding and focus on functional failure is applied by all plant personnel rapid results will follow resulting in higher asset reliability. The focus must be on the alignment of the total plant on meeting performance targets of each asset. These performance targets and current performance rates need to be posted so everyone is aware if a gap occurs in asset performance. Production and maintenance know that when an asset has functionally failed (no longer meeting the performance target) and is probably resulting in lost revenue. We must understand this is a production and management problem and both organizations must accept responsibilities for actions to mitigate the performance losses.

One requirement a company must meet in order to have a rapid breakthrough in performance is they must define what a failure is truly:

Old definition of failure (typically used in reactive companies): The equipment is broke or stopped. A good example is the conveyor stopped because of mechanical problem.

New definition of failure (typically used in proactive companies): The equipment is no longer performing the function required of its user. Examples would be:

Partial Functional Failure Example: A conveyor is supposed to operate at 200 meters per minute however because of a problem it can only run 160 meters per minute.

Total Functional Failure Example: A conveyor has stopped based on a mechanical problem.

The function of the example conveyor is:

1. To transfer a product from point A to point B
2. To transport product at a speed of 200 meters per minute from point A to Point B

Take a good look at the graphic below as to what a true failure should be.

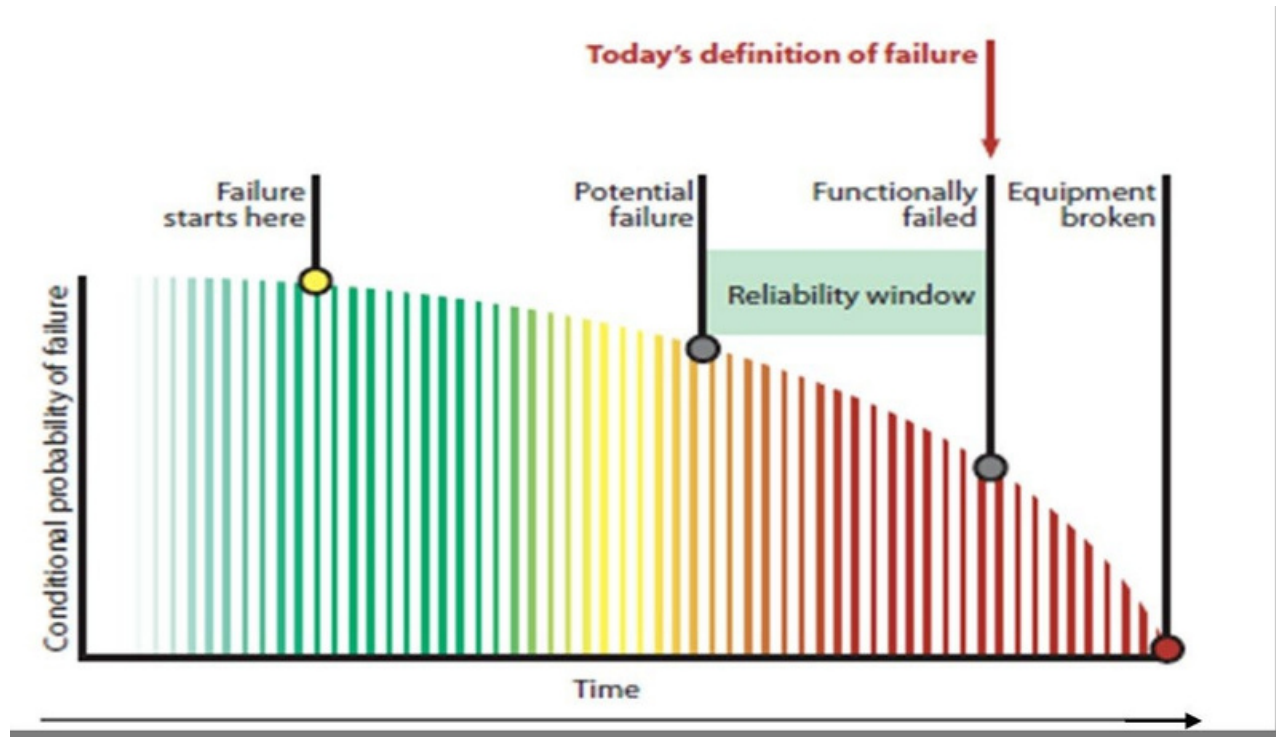


Figure 1.6.1 --P-F Curve

Example of a new way to view failure

After all I have stated previously would be my question to you is, “In your plant does any equipment operate below defined performance targets and when it does is maintenance engaged immediately?” You could have what is called “the hidden plant” and thus by focusing on the equipment performance targets reliability could be increased rapidly of your assets.

Have you ever heard the saying “it is what you don’t know is what kills you” and this statement is true in reliability. Follow my advice and see rapid breakthrough in plant performance and you must know this is just the beginning of a long journey. Do sit back and be satisfied as the reliability results you gained by following my advice. A plant must now apply RCM (Reliability Centered Maintenance) methodology to meet the goal of “optimal reliability at optimal cost”. I did not say use RCM. I stated RCM Methodology which could be RCM II, Streamlined RCM, FMEA or MTA. Be careful which methodology you use if you want rapid performance.

Just remember many people have made short term rapid performance however most have never sustained this performance.

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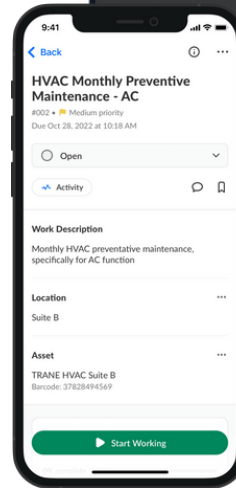
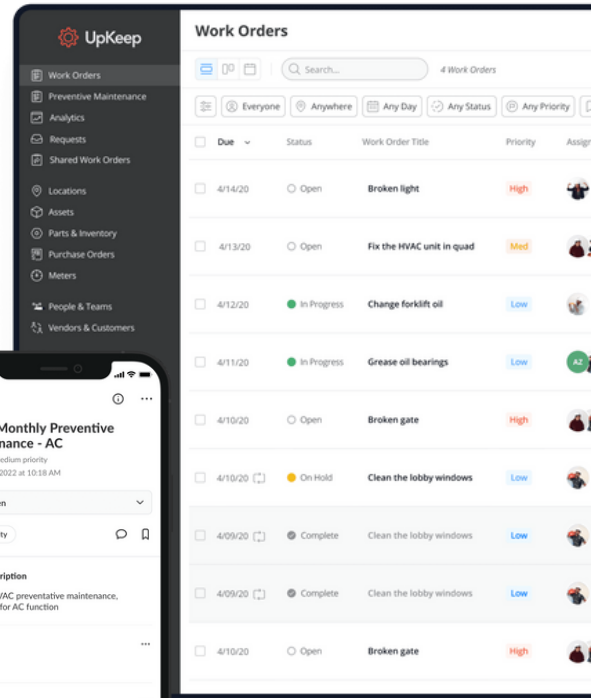
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The Maintenance Community Coalition was founded on the belief that working together will benefit everyone within our community

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