



4 Keys to a Successful RPM Program

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Imagine tracing the root cause of a recent major downtime event to a failed \$6,000 machine component, only to discover the part is obsolete and costs \$28,000 to replace.

Now imagine learning that the component can be repaired to OEM specifications and placed back into service for only \$3,500, saving you \$24,500. For one consumer packaged goods manufacturer, that scenario required no imagination at all—because it happened. This discovery underscores the importance of implementing a robust Repairable Parts Management (RPM) program.

RPM is one of the most undervalued aspects of industrial machine maintenance. For many manufacturers it can reduce total parts expenditures by up to 50%. In the end, an RPM program eliminates waste, improves component reliability, and optimizes factory performance. When applied properly, its impact on a company's Maintenance Repair and Operations (MRO) function can be significant.

Repairable Parts Management is a data-driven approach that continually improves part reliability and the reliability of production assets. Encompassing emergency repairs, bench level repair and rebuilds, warranty tracking and much more, the objective of an RPM program is to solve difficult and misunderstood part failures, extend machine life, reduce repetitive failures, and keep factories running.

An effective RPM program has two distinct differences: root cause analysis and rebuild/remanufacture methodologies. Root cause analysis seeks to uncover hidden or unique factors behind repetitive part failures. Once a critical part fails, the component is bagged, barcoded, and sent to an appropriate repair center where detailed failure analysis is performed. Reliability engineers look for telltale signs of overvoltage, materials fatigue, seal degradation, environmental factors, as well as human errors.

Rebuild/remanufacture methods, the second RPM advantage, reduce repetitive failures by implementing detailed repair and preventative maintenance procedures that address defined root causes. Where

appropriate, RPM technicians repair or remanufacture the assembly using premium components that exceed OEM specifications. This enables the part to perform better in the end user's specific environmental conditions.

Finally, after rebuilding, the part is shipped back to the customer with a detailed report outlining the root cause(s) and specific repair methods used to repair and rebuild the part back to OEM specifications. The report will include recommendations to eliminate installation failures, environmental related conditions (e.g., waterproof enclosures), and/or opportunities for training.

Root cause analysis and parts remanufacture, along with strategic parts management (i.e., collecting/analyzing data on repairs, parts status, warranties, etc.), comprehensive monthly reporting, price/performance analysis on repairs, and other activities, make RPM a valuable component to MRO cost reduction strategies. Successful implementation of an RPM effort, however, requires planning and commitment. Here are four keys to a strong RPM program:

Establish an organizational vision for how RPM creates value. MRO is an investment for any manufacturing company. The cost of MRO items that have a high impact on production (i.e., critical components) is increasing. Therefore it's beneficial for manufacturing organizations to understand fully how to reduce those costs through effective use of RPM techniques.

For example, an RPM program focused solely on the comparison of repair price to new, is much different than an RPM program focused on total cost of ownership and more reliable machine performance. Some organizations make repair-or-buy decisions based on whether the price

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of the repair exceeds 50% of the price of a new purchase. Other organizations consider factors like warranty, reliability, availability, and potential impact on production when making their decisions. Pareto analysis—also known as the 80/20 rule—is useful in the repair or buy new decision.

Finally, the facility's install base of equipment should be considered. In the face of changing technology, repair versus upgrade becomes a critical decision. As equipment enters the mid-to-late stage of its useful life, technical support becomes costly from both a parts and labor perspective. Each organization, then, must determine for itself which maintenance factors are most important and implement its RPM program accordingly.

Change the cultural paradigm that repaired components are not as reliable as new. While it's true that less-than-reputable repair businesses can negatively affect parts performance, most vendors work hard to earn their reputations for quality. High quality organizations make significant investments in their people and technology platforms to ensure repairs meet or exceed OEM specifications.

When choosing an RPM partner, be sure to complete thorough due diligence and vendor assessments. When comparing potential RPM partners, look for evidence of documented repair and quality control procedures. Vendors should be vetted for their commitment to overcoming repetitive parts failures with innovative solutions.

There should be alignment on overall objectives. As discussed above, the RPM provider should be willing and able to satisfy the priorities of each customer. No two companies view MRO value the same way—which means the RPM organization needs to be flexible. But with the right partner, RPM can transform a factory's maintenance culture. This is an opportunity that should be encouraged before, as well as after, the program is implemented.

Evaluate internal processes and systems to achieve the RPM vision. Organizational change, even at a limited level, requires forethought. Whether the vision is to reduce parts spending, extend TCO, or improve reliability, it's important to successfully implement the inevitable changes in processes and systems—and that means advance planning.

Maintenance teams, for example, will need to develop a core return process so that valuable cores are returned to the crib for repair. Purchasing departments will need to create a way to flag items as repairable, in order to automate decision-making.

Deciding on how to measure performance on repaired items (mean time before failure, warranty tracking, failure modes, etc.) leads to better judgements on whether to develop capabilities internally, or outsource to a trusted partner who has the necessary technology to measure performance. Again, every manufacturer is different—so a thorough self-examination of financial and operational priorities is vital.

Motivate all parties to contribute to the program's long-term value. Each stakeholder of the RPM program has a vested interest in a positive outcome. Whether those individuals and/or teams are inside or outside the organization, it pays to emphasize the incentives and benefits.

For Engineering, RPM drives more reliable processes and greater availability. For Purchasing, the program provides increased cost savings and lower MRO costs. Finance enjoys lower inventory cost, lower overhead, and more favorable operating costs across the board. And Maintenance should experience less reactive work and more proactive machine repair planning (while helping to meet shortages in staffing and technical skill sets).

Each department in the organization should be made aware of the significant and tangible advantages of RPM—and the part they play in assisting in the program's success. Doing so ensures a broad base of support and assists in solving whatever challenges may arise.

As the company considers its RPM program, it's important to note that the typical spend on MRO parts is low volume/high mix. Most purchasing departments are highly experienced in direct purchasing (i.e., for raw materials and other production inventory), but not as much on the broad range of items needed for the parts crib. The default solution, in many cases, is to rely on maintenance staffs for purchasing decisions.

This solution, ironically, can have a detrimental effect on the company's parts investments. To mitigate downtime risk, many maintenance and reliability staffs invest in unnecessary inventories as an insurance policy. The practice oftentimes results in inventory that is 50-60% inactive and provides no direct return—a situation that is ripe for overcorrection when budgets are tight and purchasing departments clamp down.



RPM helps solve this problem by identifying high-value items that are repairable. Instead of throwing failed components into the scrap bin, RPM helps to reduce costly and low-return inventory while better understanding failures—and the actions needed to prevent those failures.

The right RPM program and partner can help identify installation errors, fix design flaws, and reduce mistakes in troubleshooting. Instead of overspending or spending incorrectly on inventory, RPM can optimize investments in not only the parts crib and the machines it supports, but also the productivity of the entire manufacturing facility. It's a small investment that, over the long haul, yields big results.