

CASE STUDY

Preventative Maintenance Program Cuts Downtime

Client

U.S. manufacturer of OEM and aftermarket automotive parts. This specific factory employs over 400 people and operates 24/7.

Challenge

Two years without a full-time maintenance manager had contributed to equipment breakdowns, significant downtime and lost productivity. The maintenance department was mostly operating in “fire-fighting” mode.

Solution

TBM assessed the plant’s maintenance practices and worked with employees to implement a robust preventative maintenance program. Our leadership solutions team provided an interim maintenance manager and supported the search for a permanent replacement.

Results

TBM helped the company reduce conveyor system incidences by 48%, downtime by 24%, close over 400 overdue work orders, start an oil sampling program, and implement other elements of an effective and sustainable total productive maintenance program.

Auto supplier unable to fill a critical maintenance leadership role, suffers consequences. New TPM program and interim leadership reduce equipment breakdowns & downtime

Equipment breakdowns in any factory can cause unanticipated work stoppages. In addition to lost productivity, such stoppages can contribute to missed shipment dates and unbudgeted overtime charges.

For this supplier of automotive parts, OEM customer orders had to go out on time or the company would suffer a significant financial penalty. The overtime and other work necessary to meet customers’ strict delivery deadlines were taking a major bite out of profits.

Equipment breakdowns were occurring daily, on a seemingly random basis. Other issues caused by poor maintenance practices included part misalignments and constant machine adjustments, as well as numerous electrical problems with relays, switches and PLCs (programmable logic controllers). Maintenance personnel’s work had become almost entirely reactionary.

“We didn’t have a permanent maintenance manager for several years, and our maintenance processes were not as robust as they should have been. We were in full-on fire-fighting mode,” recalls the plant manager.

Assessment and Action Plan

TBM consultants first conducted an in-depth assessment of the site's issues. To get maintenance processes back on track, they suggested a multi-pronged total productive maintenance program (TPM) that included:

- A thorough **skills assessment** and development plan for all maintenance personnel.
- Setting up a **tracking and monitoring** system for planned and unplanned maintenance work.
- **Analyzing downtime** data and performing maintenance tasks necessary for equipment at the highest risk of breakdown.
- Establishing a **new priority system** to ensure that safety- and quality-related issues were addressed immediately.
- Outsourcing of non-core tooling manufacturing and repair.
- Strategically hiring **outside contractors** to assess and repair critical equipment.
- **Incorporating Total Productive Maintenance (TPM)** practices to permanently change the maintenance department's focus from reactive to proactive.

As in most lean operations, when one machine in this factory went down, the whole production line stopped. To get it back up and running as quickly as possible, electricians, millwrights, toolmakers and fabrication personnel had to be available across all three shifts and on weekends.

Following TBM's initial assessment and report, site leaders acknowledged these skill gaps and immediately redeployed some maintenance workers to different shifts. Then, to fill the remaining roles, they hired some outside contractors.

Next, we helped plant managers create a scheduling system for maintenance and tooling work orders. The primary objective of the system is to make sure people are always working on the most important tasks. At the top of the priority list are fixing any safety or quality issues, and equipment failures causing work stoppages. These are followed by preventative maintenance and routine work.

This approach is supported by visual planning and status boards, which we helped set up in the maintenance department conference room. The plant management team now uses these boards to review maintenance status every morning.

The daily reviews make it easier for manufacturing, engineering, quality and other functional leaders to collaborate and collectively agree on priorities.

After implementing the scheduling system and review process in place, site leaders found that the most critical work orders were being completed before they even made it to the board for the daily morning management review.

Data Tells the Story

Much has been said about power of advanced analytics and "big data" to provide unique insights into business performance. The fact is for most manufacturers there are plenty of opportunities to drive meaningful performance gains using existing data and simple analytical tools.

In this case, when TBM consultants analyzed the plant's existing equipment downtime data, it was easy to see that the conveyor systems were the largest single contributor to downtime. After we reported our findings, company managers eventually decided to partner with a local service provider to assess all 120 of the plant's conveyor systems and create a repair and maintenance plan. The contractor immediately addressed the most critical issues and maintenance department mechanics worked the less critical items into their schedules.

In addition to the conveyor systems, the company dedicated significant resources to catch up on overdue preventive maintenance tasks (PMs) in every area of the plant. Beside the conveyors, other neglected pieces of equipment included presses, welders, ovens and packing machines. Management made these overdue PMs a high priority, and scheduled maintenance work on the weekends to complete them as quickly as possible.

In addition to repairing the conveyors and performing PMs, the maintenance department began an oil sampling program. They started by focusing on press and conveyor gearboxes, especially those that were difficult to access. Several of these gearboxes, which had not had the oil replaced in years, were found to have very high levels of iron and other contaminants.

Measuring and Sustaining Performance Gains

Part of the new TPM program included more accurate tracking of planned and planned maintenance on a weekly basis. After management made PMs a top priority, tracking these metrics confirmed how equipment uptime increased when preventive maintenance tasks were performed more regularly.

To sustain the new processes and practices, the company now uses an accountability chart to allow the maintenance manager to track the hours that each tradesperson is working. They could see how long each person was working on different tasks, like equipment breakdowns, corrective actions, PMs and other projects.

The company ultimately hired a full-time maintenance department manager who is still working closely with TBM. We are currently helping to setup a more effective maintenance program at another one of the company's plants.

The management lesson learned in this case is that when manufacturers delay or neglect maintenance they do so at their own peril. Maintenance practices cannot be ignored for very long before equipment begins to fail, causing unexpected downtime and undermining a factory's ability to profitably fulfill customer orders. Incorporation of preventative maintenance and a TPM program were essential for reducing equipment downtime and ensuring customer satisfaction by delivering quality parts on time.

TPM: Before and After (Critical Conveyors)

	Before	After	Change
Downtime frequency (incidents/month)	18	9.4	-48%
Average downtime (minutes/month)	783	594	-24%

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