Why Your PM Program Is Creating the Failures It's Supposed to Prevent

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Your preventive maintenance compliance is at 96%. You've got the charts to prove it. And your equipment keeps failing anyway.

That's because compliance measures whether PMs get done. It says nothing about whether they should be done, or whether they're being done correctly. In many plants, the PM program itself is introducing the very defects it was designed to prevent.

I've walked hundreds of facilities across 30 countries. The pattern is the same almost everywhere: well-intentioned PM tasks that actually shorten equipment life. Most plants don't even realize it's happening.

The Intrusive PM Problem

Every time a technician opens an inspection cover, removes a guard, disconnects a coupling, or pulls apart a seal, there's an opportunity to introduce a defect. That's the nature of intrusive maintenance. You're disturbing a running system to "check on it."

Think about that for a second. The equipment was running fine before the PM. After the PM, you've got a leak, a misalignment, or a contamination event. The failure report will say "bearing failure" or "seal leak." It won't say "caused by Tuesday's PM."

> If 70% of equipment failures are self-induced, how many of those trace back to a preventive maintenance task that shouldn't have existed in the first place?

Industry surveys have consistently shown that roughly 70% of equipment failures are self-induced. I'd argue a meaningful percentage of those originate during PM execution. We just don't track it that way.

Three PM Practices That Kill Equipment

1. Over-Greasing Bearings

This is the most common one I see. A PM task says "grease motor bearings" with no specification on volume, no mention of grease type compatibility, and no procedure for verifying that the relief port is clear. The technician pumps grease until it feels right.

Too much grease generates heat. Heat breaks down the lubricant. The bearing runs hotter, the grease degrades faster, and within weeks you've got a bearing failure that gets logged as a "random" event. It wasn't random. It was Tuesday at 10 a.m. when someone followed a bad PM task.

2. Time-Based Replacements That Reset the Failure Curve

Many PM programs still include calendar-based component replacements: change the coupling insert every 12 months, replace the mechanical seal every 18 months, swap out the belt every 6 months. These tasks were written decades ago and nobody has questioned them since.

Here's the problem. If a component is running within specification, replacing it on a calendar resets you to the infant mortality portion of the failure curve. You've just traded a known, monitored condition for the uncertainty of a new installation (with all the defect-introduction risk that comes with it).

3. Unnecessary Inspections That Introduce Contamination

Opening a gearbox to "visually inspect" the oil is a contamination event. Every time you break that seal, you're introducing airborne particles, moisture, and the possibility of foreign debris. If you've got an oil analysis program, you already know what's in that gearbox without opening it.

The same goes for electrical inspections that require removing panel covers in dusty environments, or hydraulic system checks that involve disconnecting fittings "just to look."

How to Audit Your PM Program for Self-Induced Failures

You don't need a six-month initiative for this. Start with your worst actors (the equipment with the lowest MTBF) and review the PM tasks assigned to those assets. Ask three questions for every task:

Audit question	If yes	If no
Is this task based on a known failure mode?	Keep Validate the procedure and frequency.	Eliminate Remove it or replace with condition monitoring.
Does this task require equipment disassembly?	Evaluate Can you achieve the same result with a non-intrusive method?	Proceed Verify the procedure is detailed and repeatable.
Has this task ever been reviewed or updated?	Confirm Verify it still applies to current equipment configuration.	Red flag Review immediately with operations.

> PM compliance at 96% means nothing if 40% of those tasks are either unnecessary or actively harmful.

Replace Intrusive PMs with Condition-Based Alternatives

The goal is to move away from intrusive, time-based tasks and toward condition-based monitoring wherever possible. That means:

- Using vibration analysis to monitor bearing condition instead of calendar-based replacements.
- Using oil analysis to assess lubricant and machine condition instead of visual inspections that require disassembly.
- Using infrared thermography to identify electrical hot spots without opening panels.
- Using ultrasonic detection to find leaks, bearing defects, and electrical discharge without physical intervention.

None of this is new technology. It's been available for decades. But many plants still default to "open it up and look" because that's what the original PM said to do in 1997.

The Cultural Shift: From "Did We Do It?" to "Should We Do It?"

PM compliance is easy to measure. PM effectiveness is harder. But effectiveness is the metric that actually matters.

Start correlating your PM completion data with your MTBF trends. If PM compliance is high but MTBF is flat or declining, your program is part of the problem. That correlation alone will tell you more about your maintenance health than any audit.

I've seen plants cut their PM task lists by 30% to 40% after a proper review and watch their equipment reliability improve. That's not a typo. Fewer PMs, better results. Because the tasks that remained were the right ones, executed the right way.

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Your PM program should be your first line of defense against failure. If it's actually your first line of attack against your own equipment, it's time to stop measuring compliance and start measuring effectiveness.

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Ricky Smith, CMRP, CMRT is the Vice President of World Class Maintenance and a leading Maintenance Reliability Consultant with over 35 years of experience. He holds certifications such as Certified Maintenance and Reliability Professional (CMRP) and Certified Maintenance and Reliability Technician (CMRT). Ricky has worked with global companies like Coca-Cola, Honda, and Georgia Pacific, delivering expert maintenance solutions across 30 countries. His career began in the U.S. Army, advancing to leadership roles, including a position at the Pentagon as Facility Investigator for the Secretary of Defense. Ricky is also the co-author of *Rules of Thumb for Maintenance and Reliability Engineers* and *Lean Maintenance: Reduce Costs, Improve Quality, and Increase Market Share.*

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