

# Improve Reliability by Identifying Root Cause of Machinery Issues

*“In a plant, 80% of the reactive maintenance and lost production costs are likely to be located in 20% of the plant’s systems – the so-called bad-actor systems.”*

**- Smith & Hinchcliffe,**

**RCM: Gateway to World Class Maintenance**

## What if...

- you could find root causes of tough or reoccurring machinery issues to eliminate them?
- your field tools had embedded intelligence to guide your testing and analysis?
- you had a single field tool with multiple test options, including vibration and motor diagnostics?

Incorrect machinery health diagnoses lead to missed opportunities and increased cost. In addition, with the wide variety of equipment that exists in facilities, the maintenance department can be slowed down by having to use multiple or very basic machinery analysis tools.

A single advanced analytical tool exists that can test and diagnose multiple types of equipment and can guide users through tough problems. Access to powerful diagnostics allows your team to focus resources on problem assets and empowers them to act quickly. Decisions are based on accurate information in a single database.

## BASIC TOOLS DO NOT SOLVE TOUGH PROBLEMS

Basic tools solve basic problems. But your facility has a variety of equipment types, including complex equipment with variable or slow speeds, complex gearboxes, reciprocating compressors, and more. These machines often have the toughest – and most expensive – problems. You need to be able to perform the tests and analysis necessary to determine the root cause, so you aren’t caught in a reactive maintenance cycle.

	2002 Survey	Best Cost
Reactive	55%	10%
Preventive	31%	25-35%
Predictive	12%	45-55%
Proactive	2%	5-15%

Average industry maintenance practices  
\*Source: Maintenance Technology

## DON'T HAVE RELIABILITY ANALYST EXPERTS ON STAFF

Your staff is required to have a broad base of knowledge to fulfill their maintenance role. When there is a complex mechanical problem, you often have to call in an offsite expert. Even if your maintenance tools have the functionality to run advanced tests, the tools are not well documented and are not intuitive. Often the time spent using them can be wasted. Even regular users of route-based technology might not have the knowledge to perform tests that are infrequently required. In the end, if the tests are flawed, the diagnosis will be flawed.

## USING MULTIPLE TOOLS COSTS TIME AND MONEY

Your team uses multiple tests to determine the condition of mechanical equipment. Vibration, motor diagnostics, lubrication, infrared, and ultrasonic testing can be integrated to form a complete diagnosis. Most often, in order to perform these tests, personnel need to carry multiple tools into the field. In addition, learning to use these tools and trying to integrate their diagnostics between multiple databases means less efficient work processes.

## ADVANCED ANALYTICAL TOOLS FOR DETERMINING MACHINERY HEALTH

### ADVANCED TOOLS GET TO THE ROOT CAUSE OF CHALLENGING ISSUES

Often the most complex issues generate the highest expense, yet provide the best return when solved. Find the root cause of problems and eliminate them by using a variety of fault diagnostic tools. When your maintenance activities target the root cause, you can escape the cycle of repetitive maintenance on your bad actor systems.



The CSI 2140 Machinery Health Analyzer delivers a single, scalable platform that can perform a variety of machinery health tests. Balancing, temperature trends, and motor diagnostic capabilities coexist with the vibration analysis tools. In addition, single, dual, and four-channel vibration analysis capabilities provide powerful insight into operating condition so you can solve those complex machinery problems.

### EMBEDDED INTELLIGENCE SIMPLIFIES USE

The CSI 2140 includes intelligent Analysis Expert tools that include pre-configured menus immediately available and easy to use. In fact, the technical setup is already complete. Infrequently performed tests can be easily repeated in the field. And specific windows guide users to dive deeper into any test data, exposing problems with machinery health. Test documentation is automatically generated by the software for further analysis or records. You don't need dedicated experts onsite to perform test like cross-channel analysis, transient analysis, structural analysis, balancing, and motor monitoring. Your personnel will feel confident in their ability to monitor and diagnose equipment issues.

### A SINGLE TOOL INCREASES EFFICIENCY

Because most of the machinery analysis tools you need are included in the CSI 2140, the learning curve is significantly reduced. Balancing, temperature trend, and motor diagnostics coexist with advanced vibration tools. Users learn one tool, carry one tool, and all machinery health data is available in one database.

*“Just having the capability to do all this diagnostic in place is huge. Having one instrument that does vibration, balancing, mutable diagnostic testing, it opens a new world for us.”*

Wisly Saintelmy,  
Reliability Engineer

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