Agilent Fault Detective

How can you significantly cut the cost of repairs on your manufacturing line?

Try a tool known for fast, accurate fault-finding (risk free for 30 days)

If you manufacture complex electronic products, you know that repair costs can cut deeply into your bottom line. In many cases, you can trace the bulk of those costs to a single cause: Your repair technicians struggle to quickly and correctly identify faulty components in defective products. But you haven’t found a workable solution—and while you’re searching for one, the pressure is mounting to drive down costs.

_We had the same problem. That’s why we developed Fault Detective._

Fault Detective provides instant, accurate diagnosis of defects.

We realized the value of an intelligent software tool that could automatically pinpoint faulty components in defective products. Fault Detective is flexible enough to isolate problems both small and large – from a defective switch on an individual board to a faulty board or interconnect in an entire system.

The process is simple: Your manufacturing functional test system sends its results to Fault Detective, and in seconds Fault Detective identifies the faulty component.

But a fast diagnosis isn’t enough—you also need an accurate one. That’s why Fault Detective uses multiple methods of finding the fault, including Bayesian reasoning, a statistical technique that gives leading Internet search engines and automated help wizards their power. Fault Detective uses the same technique to determine the most probable source of defects.

With fast, accurate answers, you’ll be able to repair products more efficiently, increase the number of products you repair successfully, and better track product failures back to their root causes.

Case in point: Universal Tester

We put Fault Detective to the test on our contract manufacturer’s line by applying it to 36 different boards used in a family of Agilent instruments. The boards average 1,200 components, $1000 Bill of Materials and altogether represent an annual production volume of 48,000 units.

The results? We increased speed and accuracy, improved yield and saved $1.8 million in annual repair costs.

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<th>Baseline results</th>
<th>Fault Detective results</th>
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<td>Average repair time</td>
<td>3 hours</td>
<td>30 minutes</td>
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<tr>
<td>Successful first repair attempts</td>
<td>58 percent</td>
<td>98 percent</td>
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<tr>
<td>Contract manufacturer (CM) yield</td>
<td>40-50 percent</td>
<td>98.8 percent</td>
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<tr>
<td>Cost savings</td>
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<td>$1.8 M/year</td>
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Repair products more efficiently

Improving the efficiency of your repair processes saves money on your manufacturing line. Fast, accurate diagnosis not only increases technicians’ productivity, but it also helps you effectively tackle the key factors that drive up repair costs both internally and at your contract manufacturer.

Slash troubleshooting time

If your manufacturing line produces low-volume, high-complexity electronic products, repair technicians typically spend 70 to 90 percent of their time troubleshooting defects. Once they find the faulty component, the repair itself is usually straightforward. That means most of your labor cost goes toward finding faults, not toward fixing them.

Fault Detective immediately identifies faulty components in defective products and displays those that need to be replaced. Instant diagnosis eliminates guess-work and dramatically reduces the labor needed to complete a repair. See Case in Point for an example of the time Fault Detective can save.

Reduce human error

Repair technicians don’t always get a repair right the first time; sometimes they replace a working part. The same specialist may even arrive at a different answer for the same problem on different days. And no wonder: The intricacy of modern electronic products makes it unlikely that anyone could account for every quirk in their behavior. But at each unsuccessful repair attempt, the costs mount for scrap, labor and new components, ratcheting up the average price of a repair.

Fault Detective takes human error out of the repair process. The software uses sophisticated reasoning that supports accurate, consistent diagnosis. With Fault Detective, technicians are far more likely to repair products correctly the first time—and you are far less likely to waste money on labor, scrap and replacement parts.

Eliminate shotgunning

When troubleshooting takes too much time, it’s sometimes less expensive to replace several components than to isolate the source of a problem. But this “shotgun” approach means that repair technicians throw away perfectly good parts—and you pay the price for new components and the labor to install them.

Fault Detective’s quick diagnosis makes shotgunning unnecessary. In a few moments, technicians know exactly which part is defective. They can focus on replacing one component only. Pinpointing defective parts helps you save on scrap, as well as replacement parts and labor costs.

Manage skill levels

To diagnose a defective product, repair technicians typically need detailed knowledge of how it works. But that requires hiring technicians with advanced skill sets and then paying for them to learn about your products from the design team, other repair technicians and on-the-job trial and error.

Fault Detective captures the design details relevant to repairing your products, so technicians no longer need an in-depth understanding of the products’ inner workings. You can hire repair technicians with reduced skill sets and spend less to train them.
Boost the number of successful repairs

Repairing defective products more efficiently is one way to cut costs—but what about all the faulty products your technicians never repair? A tool that helps move them off the scrap pile and into your customers’ hands could make your bottom line look even better.

Make repairs worthwhile

You may find it more cost-effective to throw away some defective products rather than repair them. Frequently manufacturing facilities either limit the number of repair attempts or simply discard all faulty products. But when you toss out defective products, you’re just throwing away money.

Fault Detective can lower your average cost of repair to the point where it makes sense to fix most products instead of throwing them away. With the software’s expert fault-finding capabilities, your technicians typically achieve success on the first or second try. That often makes repairing products a better strategy than discarding them.

Zero in on the root causes of defects

Whenever your repair technician scraps a product or shotguns a repair, you lose clues that point to why the product is faulty. Is your design overly sensitive to manufacturing variance? Is your manufacturing process flawed? And why aren’t your inspection systems picking up defects farther upstream? Without sufficient data, you won’t be able to answer these questions.

Fault Detective provides insight into why your products are defective. You’ll get the data you need to find and resolve problems that chip away at your profits. With more robust designs and effective manufacturing processes, you’ll trim costs and improve yield right off the production line.

Fix the unfixable

Sometimes a product’s design makes locating faulty components like working in the dark. Other times defective products conceal faults so obscure, technicians may not be able to pin them down. Either way, scrapping the product becomes the only option.

Fault Detective homes in on pesky defects that even your best repair specialist cannot find. The number of impossible-to-repair products—and your scrap—declines, while yield increases.

Try Fault Detective at no cost or risk for 30 days

We’re so committed to saving you money on repairs, we’ll let you test Fault Detective on your manufacturing line at no charge. Visit us online to sign up for a free 30-day licensed trial. Or call your Agilent Sales Representative for more information.

Fault Detective models relationships between functional tests and hardware components. Test products using your functional test system, and then let Fault Detective analyze the results. You get an accurate fault diagnosis in less than 10 seconds.
Try Fault Detective risk free for 30 days

We want to make it easy for first-time customers to cut their repair costs with Fault Detective. For a limited time, we’ll provide qualified new customers with a 30-day Fault Detective software license—at no cost or risk to you.

You’ll get 30 days to experience the results firsthand. We’re confident that you’ll enjoy the same cost savings on your manufacturing line that Agilent and other users have on theirs.

To sign up for a Fault Detective trial, visit us online at www.agilent.com/find/fd. Or call your Agilent Sales Representative for more information.

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to www.agilent.com/find/removealldoubt

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