

CQS Innovation, Inc.

Life Cycle Testing Improves Customer Satisfaction

Life cycle testing provides:

- Quicker product problem resolution
- Decreased scrap costs
- Reduced field service/warranty charges
- Enhanced customer satisfaction
- Faster new product introduction



Reliability test room simulates user conditions over the life of a product

PROBLEM — *Customer perception of poor product quality damages a manufacturer's reputation. How can a manufacturer test for problems that occur after extended use?*

BACKGROUND

Companies can control only the manufacturing stage of the product life cycle.

Each consumer product has a life span, or life cycle, which defines its durability under normal usage. The consumer usually equates this with the term “quality” and continuous use without failure. The manufacturer’s name on a product promises that specific quality message to the consumer. This expectation of quality leads the customer to buy repeatedly from a given manufacturer, hence the product must perform well over a satisfactory life span. Product defects or consumer-perceived poor quality can be disastrous to the manufacturer's reputation, particularly with today’s mass communications.

Manufacturers try to protect themselves from life cycle problems by including instructions for usage, safety, longevity and proper operation. However, consumers seldom read the instructions and often misuse a product intentionally or unintentionally.

The only control companies that have over the actual in-use product life cycle is in the manufacturing stage, which is the point where manufacturers re-address components for improved life cycle. Simulating consumer product usage exposes new and revised products to normal and abnormal conditions and allows the manufacturer to evaluate and reduce the effects of product wear and tear before the product reaches the consumer.

CHALLENGE

Accurately test a product “Life Cycle” to expectations that exceed product design.

Though normal testing would meet product quality expectations, it would not test the “actual life” of the product in use. Consumers expect products such as appliances, tools, electronic components, furniture, floor coverings, etc. to perform well, even when used in a manner not intended by the manufacturer. For example, when using a screwdriver as a pry bar or a chisel, a consumer may still expect quality to be present if the product is well made. Therefore, a manufacturer must produce a screwdriver to perform effectively as a pry bar or chisel to retain an image of quality.

Therefore, the manufacturers’ test must accelerate product use to determine how finishes, moving parts, fastening systems and base materials stand up. Continuous-run tests on products built for part-time use accelerate wear and amplify deterioration, thereby reducing life cycle testing time.

Control is important in evaluating product life cycle, especially when making a product improvement. The new version of a product must receive the exact same life test that the original product received, or the data will not be comparable and conclusions will be invalid. In addition, each time a product change is made, the manufacturer must evaluate how the new version compares to the old by creating product usage tests. Collecting and maintaining sound, comparable data is the key to product life cycle improvement and consumer satisfaction.



A robot traveling from one appliance to another, day and night, continuously executes repetitive actions on switches, simulating years of use by a consumer.

Capacity with control.

SOLUTION

Test systems to accelerate usage.

CQS Innovation, Inc. has provided a number of systems that automatically test a product's life cycle and evaluate the product in the factory, thereby accelerating the usage of the product to help the manufacturer determine longevity.

For example, some systems have the ability to quickly heat or cool a product that normally heats or cools slowly. Another involves robots traveling from one appliance to another, day and night, continuously performing repetitive actions on switches to simulate years of use. A third automatically cycles major appliances through repetitive cycles, back to back, to simulate years of wear and tear. Still another systematically tests medical diagnostic devices to create durability and repeatability, thus delivering outcomes for life-altering decisions. Similar life cycle testing systems have been developed by CQSI to accelerate sunlight fading, humidity damage and wind or dust impact.

One manufacturer reports that the entire cost of their test facility was recovered in its first major assignment. The system detected a paint discoloration problem which resulted in an immediate return on investment.

RESULTS

Consumer satisfaction is increased by eliminating costly production mistakes before going to market.

Benefits of life cycle testing systems developed by CQSI include:

- detect problems and defects quickly, thereby allowing ample time for correction
- enables product design and specification changes to be made before faulty products are in distribution and purchased by the public
- decreases scrap costs and field service and warranty charges are avoided
- provides accurate data for faster problem recognition and more immediate quality control response to off-quality issues
- provides a competitive advantage by reducing time to market for new products

Making your manufacturing world-class

From plant-wide systems to customized solutions for specific needs, CQS Innovation, Inc. has the experience in automation systems to meet your project's goals.

For more information on how our integration of computer systems, controllers, networks and software systems can improve your manufacturing site's product quality, production flexibility and quality-control tracking, call (800)860-1968, ext. 385.



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