

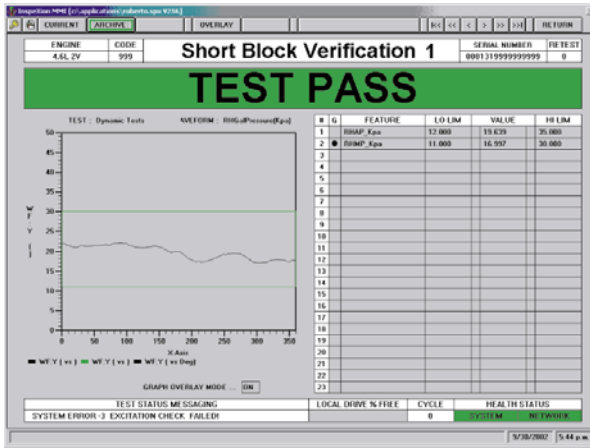
Short Block Verification

Overview:

An engine manufacturer was experiencing growing warranty costs as a result of missing short-block bearings. Their existing end-of-line testing was not effective at detecting defects in the short block. Sciometric's Short Block Verification System finds defects at the point of introduction leading to improved quality, decreased manufacturing costs and repair time savings.

Benefits:

- Improved quality of shipped engines.
- Improved efficiency in repairing defects.
- Identify potential machining issues before machines or parts are damaged.
- Catch defects that would not be identified using traditional end-of-line hot or cold testing.



Challenge

A major engine manufacturer was experiencing numerous warranty claims as a result of overheating engines. Upon analysis of the failed engines, the root cause was determined to be missing bearings in the short block. The missing bearings caused improper oil distribution which starved certain sections of the engine and caused the engine to overheat. The resulting negative customer satisfaction and costly warranty repairs were damaging the reputation and bottom line for this manufacturer. As a result they decided to examine options for improved quality testing.

Solution

This engine manufacturer required a test system that would identify any bearing related defect. By implementing Sciometric's Short Block Verification System early in the assembly process the manufacturer was able to identify bearing problems that were not being caught during end-of-line hot or cold testing. The system measures the torque as the crank is rotated. It also measures air back pressure as pressurized air is forced into the oil gallery while all the other oil holes have been plugged. The system compares the results of these tests to results of known good short blocks to assess quality. Sciometric's core testing technology uses algorithms designed specifically for engine short block verification. The system provides consistent and reliable detection of short block defects such as: missing conrod bearings, missing main bearings, incorrect fit, debris, reversed caps, blocked oil passage. The Short Block Verification System is ready to install out-of-the-box for fast implementation, immediate quality improvement and minimal disruption to production.

Achievement:

By introducing testing as early as possible in the production cycle, the manufacturer was able to find defects at the point they were introduced during assembly. This made it possible for them to detect defects that otherwise would not be caught until in the field and result in warranty costs and customer dissatisfaction. The test system also identified when machining issues were starting to cause defects. This enabled the manufacturer to conduct preventative maintenance on the machines and minimize line down-time.

As a result of implementing the Short Block Verification System, the manufacturer was able to improve the quality of the engines they shipped to customers. This resulted in improved customer satisfaction and decreased warranty costs.