

SCIOMETRIC POWERTRAIN SOLUTIONS

Challenge

A major engine manufacturer was very concerned about the inconsistent quality of their shipped engines and the issues with unwanted noise and vibration, which often affect customer satisfaction. Traditional subjective testing failed to identify defects, which were eventually discovered at vehicle assembly plants or by customers. This led to expensive warranty repairs and productivity disruptions. The manufacturer required a solution with minimal tooling and fixturing modification that would reliably improve engine quality without affecting yield.

Solution

Sciometric resolved the problem by installing the proven Sciometric Engine Vibration Test. Sciometric's industry-leading noise and vibration signature analysis technology identifies defects that often go undetected in end-of-line hot or cold test or other types of conventional testing. The system accurately detects common problems such as missing bearings, valve noise, timing problems, gear noise and loose or rubbing components.

Sciometric's Engine Vibration Test was seamlessly integrated into an existing end-of-line engine test stand. Triggered by control signals, the Engine Vibration Test measured and analyzed engine noise at multiple stages of the testing process, providing an immediate pass/fail signal to the operator. By combining statistically derived signature boundaries and user-specified signature characteristic limits, Sciometric's Vibration measurement technique eliminated quality deficiencies and delivered an objective and repeatable verdict on engine quality.

With the addition of Sciometric's QualityWorX® software, all test data, including full signatures against each engine's serial number were recorded, allowing the manufacturer to trace test results from start to finish for each engine. This enabled full manufacturing traceability and provided an unparalleled warranty management tool.

ENGINE VIBRATION TESTING KEY FEATURES

- Part of the Sciometric In-process Testing (IPT) solution
- Uses signature analysis for most accurate verification
- Reduces manufacturer costs by finding NVH issues during production where repairs are less complex and less costly than when discovered by vehicle operations, dealers or end customers
- Improve the sound quality of engines



the science
of quality

Results

By implementing Sciometric technology, the engine manufacturer was able to objectively identify previously undetectable defects prior to shipping, while providing the ability to demonstrate proof of quality and traceability. After final commissioning, the engine manufacturer reported an immediate reduction in warranty costs and an invaluable increase in customer satisfaction.

Sciometric's Engine Vibration Test design makes it a practical, economic and a low risk choice to improve any existing hot or cold test installation.

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