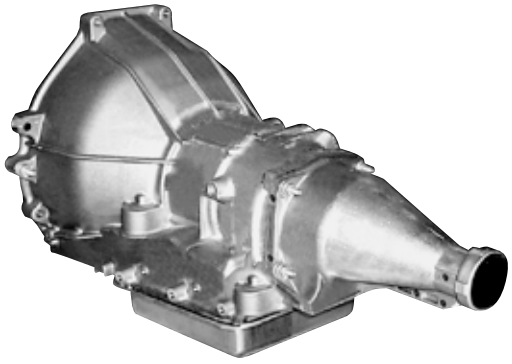
Transmission NVH Testing

Overview:
Traditionally, noise-related transmission defects are found by test cell operators, vehicle assembly plants or customers. Defects discovered outside of the transmission manufacturing plant require costly, time-consuming repairs. The proven 3520 Transmission NVH Test System replaces inconsistent subjective assessments with accurate scientific measurement.

Benefits:
- Reliable, consistent results
- Improved transmission quality
- Significantly reduced warranty cost
- Increased customer satisfaction



Challenge

A major transmission manufacturer was very concerned about the inconsistent quality of their shipped products. Assembly defects and variations in upstream gear heat treatment and machining operations were causing subtle deviations in transmission noise. 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 demanded a solution that would reliably increase product quality, enhance customer satisfaction and provide immediate feedback to improve upstream manufacturing processes.

Solution

Sciemetric resolved the problem by installing the proven 3520 Transmission NVH Test System. Sciemetric's state-of-the-art NVH signature analysis technology exposes defects that often go undetected in conventional testing. The 3520 quickly identifies many common problems in-cluding missing bearings, valve noise, timing problems, gear noise and loose or rubbing components.

The 3520 was seamlessly integrated into an existing End of Line Transmission Test Stand. Triggered by control signals, the 3520 measured and analyzed transmission noise providing an immediate pass/fail signal to the operator (see Figure 1). Sciemetric's proprietary NVH measurement assessment technique combined statistically derived signature boundaries and user-specified signature characteristic limits to eliminate quality deficiencies. In addition, the 3520 gave the manufacturer an invaluable advantage by providing an objective and repeatable verdict on transmission quality.

Sciemetric's QualityWorX® Product Quality Management System was also installed to archive all test data, including full signatures against each transmission's serial number. This provided Sciemetric's client with full manufacturing traceability and an unparalleled warranty management tool.

Achievement

By implementing these two complimentary Sciemetric systems, the manufacturer was able to objectively identify previously undetectable defects prior to shipping. In addition, the QualityWorx System enabled them to maintain a traceable record of this improved quality.

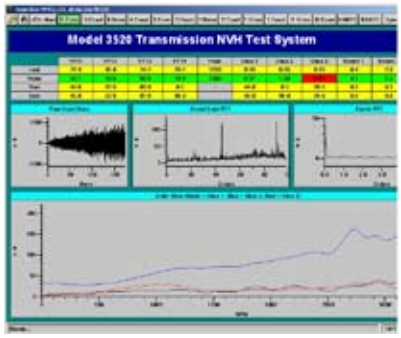


Figure 1
Sample screen showing typical NVH measurements

After final commissioning, Sciemetric's client reported an immediate reduction in warranty costs and an invaluable increase in customer satisfaction. The 3520 design makes it a practical, economic and low risk choice to improve the quality of any existing Transmission End of Line Test.

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