

## Challenge

A major automotive parts manufacturer was experiencing some difficulties with an assembly operation on a power steering pump manufacturing line, which consisted of the insertion of a tube into a power steering pump. During normal operation, the tube supplies hydraulic fluid to the power steering pump, ensuring the pump functions reliably. If the tube is not inserted properly or if the hole in the pump housing is too big the tube can become loose, leak and lose all the power steering pump hydraulic fluid, ultimately leading to complete pump failure. The manufacturer needed a method to verify that the tube insertion process was free of defects to avoid potential power steering failures in the field, leading to expensive warranty costs along and damage to the company's reputation.

## Solution

Sciometric was able to offer a quick and inexpensive solution to the manufacturer. A Sciometric system using signature analysis technology was easily configured to monitor the press load versus distance, eliminating variations due to the pump anomalies (one press is affected by the other due to hydraulic oil volume limitations). The system successfully detected the various defects associated with the improper insertion of the power steering pump tube.

## Results

By detecting defective tubes upstream, the manufacturer was able to produce a top quality component, ultimately avoiding costly long term warranty issues. The system's successful ability to detect the various defects associated with the pump insertion of the power steering pump tube led to the manufacturer's purchase of additional Sciometric systems for use across their assembly line.

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## VERIFICATION OF TUBE PRESS INTO POWER STEERING PUMP KEY FEATURES

- Reliably detects subtle defects such as too large insertion hole, loose tube and debris inside hole
- Uses signature analysis for most accurate verification
- Complete traceability: data, including signatures, are automatically stored in a central database and cross-referenced by serial number(s)



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of quality