

■ Turbo Pipe Press: Turbo Pipe Press Monitoring Using Signature Analysis

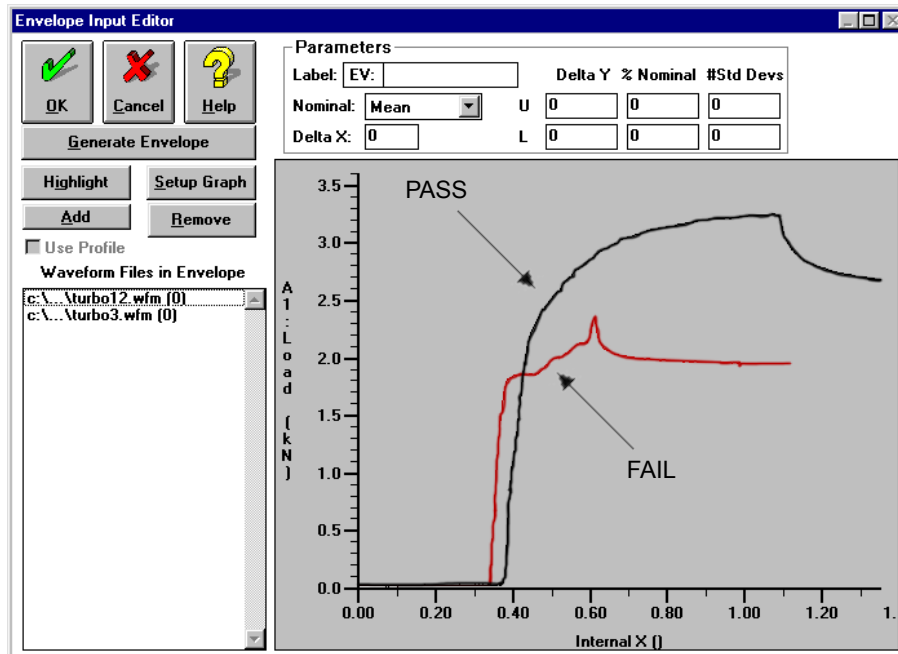
**Highlights:**

- Easily configured
- Signatures:
  - Force versus time
- Defects:
  - Torn/damaged seals
  - Debris in hole
  - Oversized/undersized hole

A major automotive manufacturer required an accurate force monitoring system to ensure the absence of defects in their turbo pipe pressing operation. Turbo pipes are pressed into engine blocks and perform the critical function of facilitating oil drain flow. Defects such as a torn seal, debris in the hole, or oversized/undersized holes can result in oil leakage ultimately causing extensive engine damage down the road.

Sciometric®'s SigMETER® proved to be the ideal solution for this problem. A load cell was attached to a hydraulic ram which was used to press the turbo pipe into the block. Press data was collected by the SigMETER® from the load cell and displayed using the RDU software package. The area and peak force were observed, and Signature Analysis was used to analyze the waveforms collected. By comparing these waveforms against known acceptable limits, defects such as a torn or damaged seals, debris in the hole, or oversized or undersized holes were easily detected.

The ease of configuration as well as the accuracy with which defects could be identified made the Sciometric® system an ideal choice for this application. By detecting defects upstream the manufacturer was able to prevent expensive tear-down costs further down the assembly line.



SigMETER® Screen showing PASS/FAIL Turbo Pipe Press Waveforms.