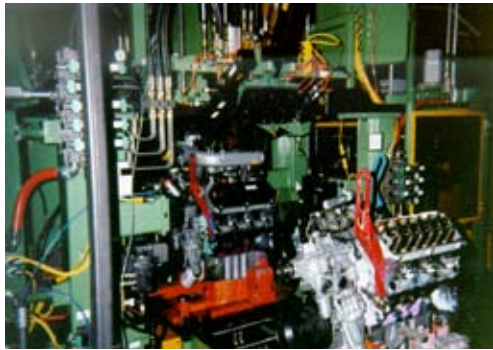


■ Rotary Torque Testing: Using Signature Analysis

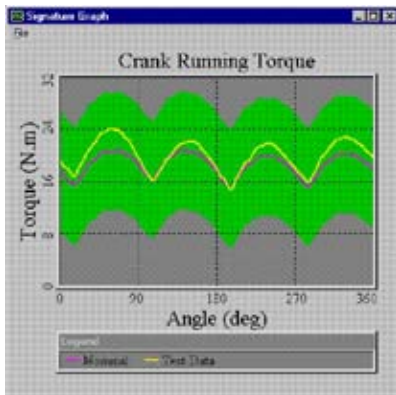
Highlights:

- All test data is saved to disk by engine serial number for 100% traceability
- Sciometric's Signature Analysis System monitors all predetermined torque profiles
- PLC communication via Allen-Bradley Data Highway Plus™ and Modicon Modbus Plus™
- Easy to use menuing and full graphic displays
- Signature, SPC, reports



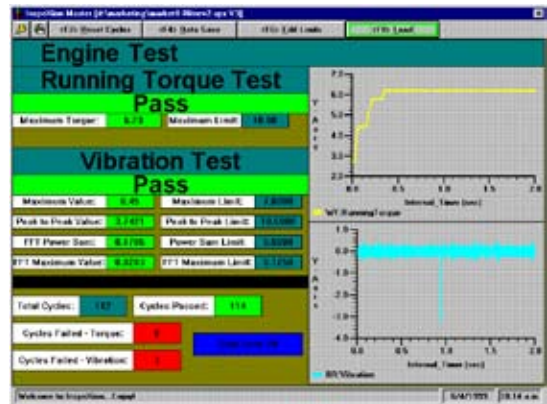
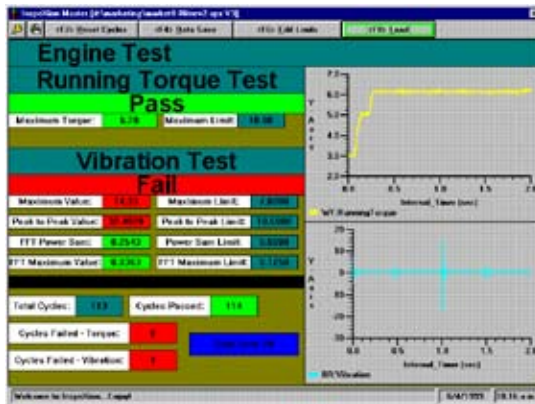
Many automotive manufacturers have selected Sciometric's Signature Analysis systems to monitor free-running torque.

Sciometric's Signature Analysis System monitors the torque profiles of the engine and compares them with pre-determined "good" waveforms. If any of these waveforms fall outside these limits, the engine will be failed.



Running Torque Curve of Crankshaft

Free-running torque is measured at most stations equipped with a rotary torque transducer. The shape and characteristics of free running torque waveforms will depend on the state of the engine assembly (e.g. crank with bearings only should be a relatively flat line, while torque with the engine under full compression will be sinusoidal and will exhibit much higher torque values). The Signature Analysis System captures one or two complete revolutions of torque data, sampling a value each mechanical degree. When the heads and timing chains are attached to the block, two revolutions are required to obtain one complete engine cycle.



InspecXion® Screens showing PASS/FAIL Signature Waveforms produced by Free Running Torque and Vibration (Acceleration) Test

