

■ Heater/Defroster Blower Motor: Production Final Audit Test

**Highlights:**

- DC motor checks
  - Instability (“balance”)
  - Terminal volts
  - “Com bar” defects
  - FFT based free speed
  - Current (torque)
- Functional checks
  - Air flow
  - Damper door adjuster
  - Vibration
- Statistically “learned”
  - FFT (frequency domain)
  - Time domain
- Connectivity
  - QC network server
  - Allen Bradley DH+
  - Modicon Modbus+
  - DeviceNet
  - Profibus
  - GE Genius

The perception of true quality in todays vehicle market relies not only on functional performance but also on subjective issues such as noise and vibration. Functionally, a heater blower motor must provide an adequate source of air flow in addition to performing as quietly as possible. Defects such as mechanical imbalance, binding bearings and loose sub-assemblies can and will contribute to the aggregate “quietness” of the blower assembly. Traditionally, final test relied upon a “tuned” operator who could perceive various deviations from the “normal” motor characteristics. Sciometric’s InspeXion® software now offers the unique ability to 3s “learn” an FFT of the best operator while at the same time performing all functional checks.

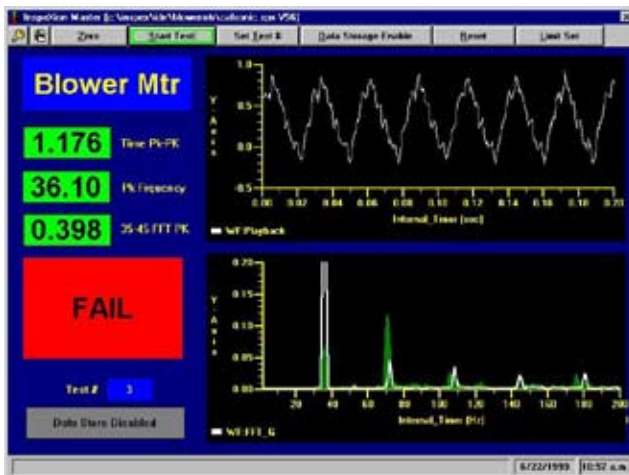


Other sources of audible noise may come from various mechanical imperfections (binding bearing or bushing, loose mounts) in the fan motor assembly. Additionally, variations of the DC motor commutator brush bars (out of round, incorrect height, etc.) could result in not only a poor electrical performance (radio interference) but also in indirect audible noise caused by abnormalities in the motor torque (low frequency “hunting” variations of the Ampere waveform).

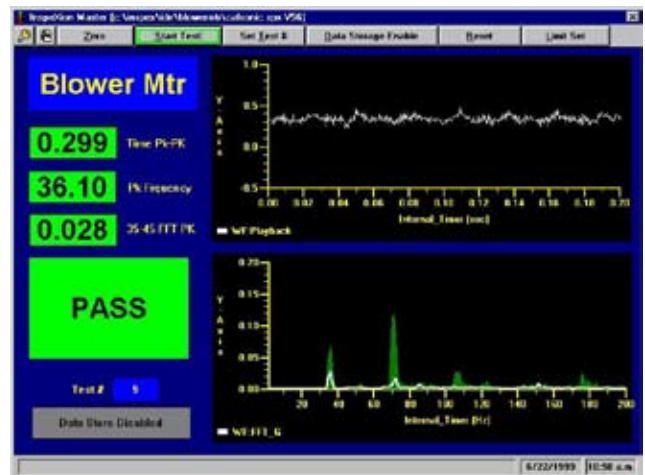


LOW FREQUENCY ACCELEROMETER

Continuous improvement in the test methodology is made possible by looking up stored waveforms (QC server) tied to returned parts and applying standard InspeXion® math defect detection tools to capture such defects.



InspeXion® Screen showing FAILED Noisy Blower Motor



InspeXion® Screen showing PASSED Blower Motor