Wiper Motor Assembly: Production Audit Test

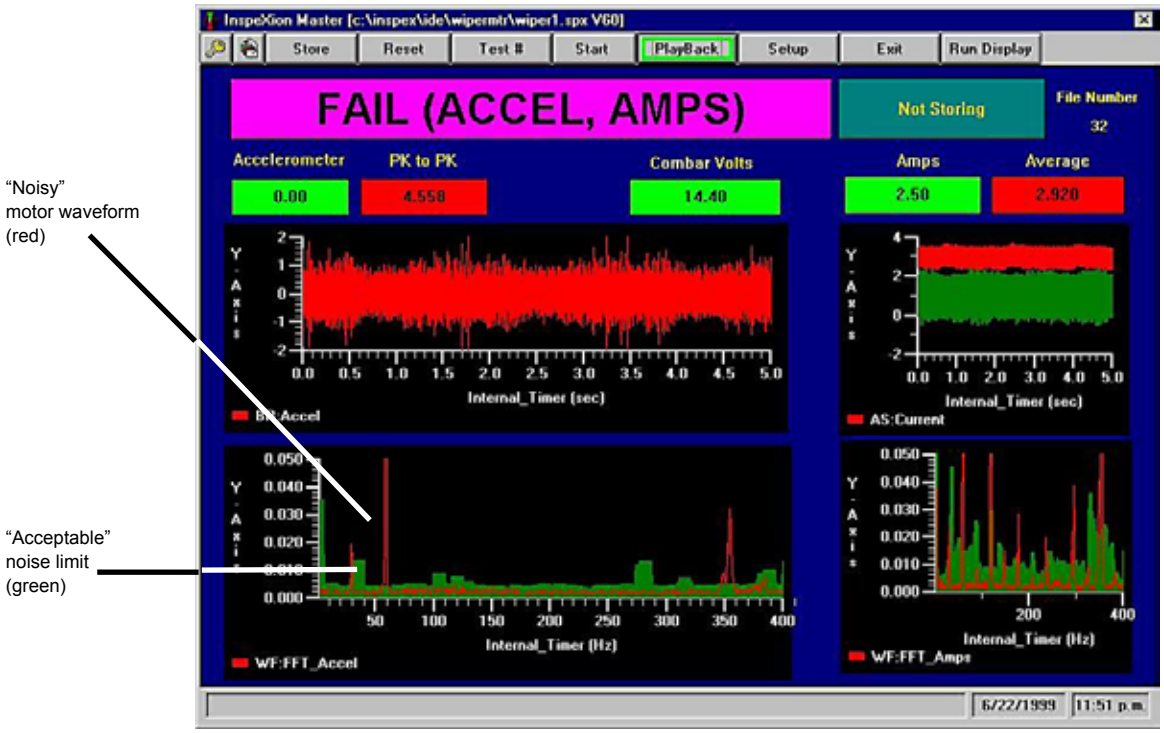
Highlights:

- DC brush motor check
  - Terminal volts “Com Bar” noise defects
  - Amps (internal torque)
  - Watts
- Mechanical checks
  - Binding bearings
  - Nicked gear (“Clicking”)
  - Out of round gear
  - Output shaft angular position
  - Output shaft torque
  - Gear free play
- Statistically “learned”
  - FFT (freq. domain)
  - Time domain
  - Waveform storage

An end of line wiper motor assembly test provides an ideal opportunity to apply InspeXion® advanced defect detection solution tools.

Each mathematical “tool” forms a unique “building block” which is collectively combined with others to form a fully integrated end of line test solution. Waveform capture, storage and subsequent Signature Analysis form the statistical basis for “Learning” the bounds of normality of good production assemblies. Once learned, it is then possible to accurately detect small deviations (root cause defects) from the established norm.

Internally, binding shafts, off center and out of round gears are detected by low frequency current (amps) variations. Nicked gear “spikes” are detected by a low frequency accelerometer placed on the outside of the gear-head assembly. Angular position of the pre-loaded output shaft is analyzed for free-play, symmetry and total travel. Original test data can be archived on the plant network server to further facilitate analysis if and when a customer warranty unit is returned.



InspeXion® Screen showing “Noisy and Accepatable” Waveforms

AN136

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