Electronic Engine Diagnostics

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Smith Power Products

Computer controls offer

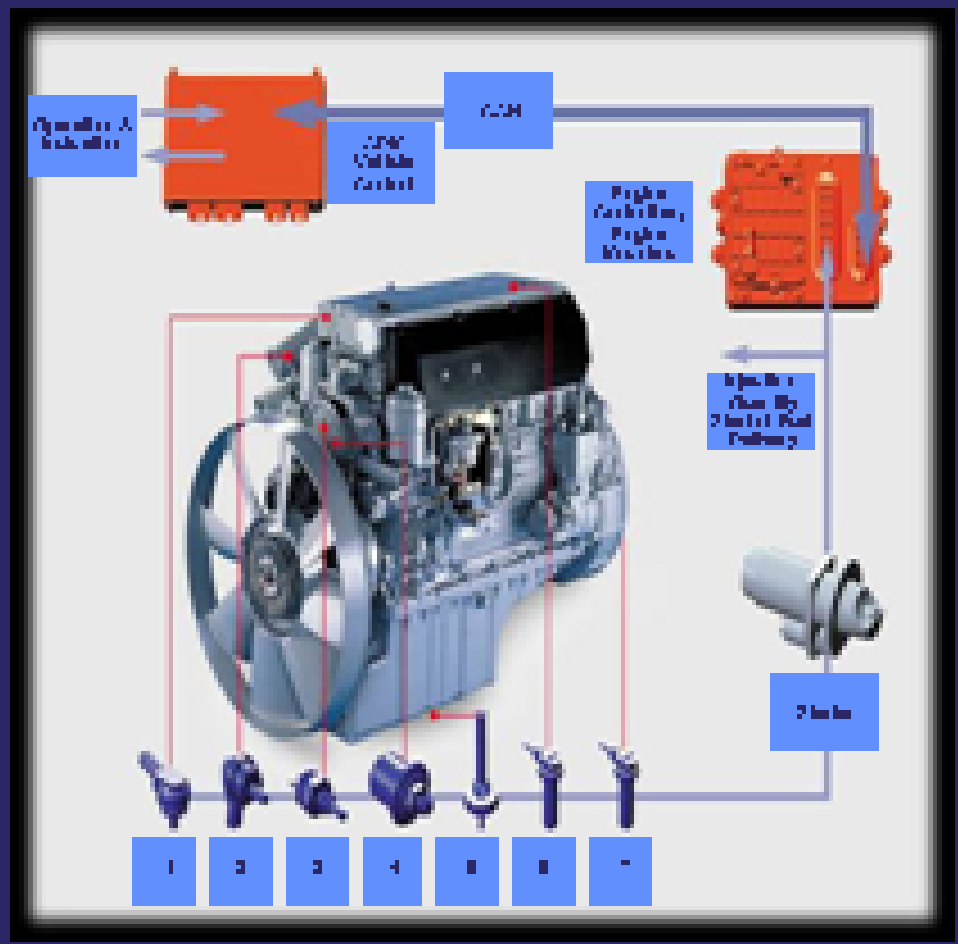
- Injection/Governing of engine
- Engine Protection
- Diagnostics
- Data collection

Governing / Injection

- Controls timing, metering and delivery of fuel.
- Injection pressure is developed mechanically. All other functions are controlled using electronics driven by computer logic.
- “No more mechanical hardware, governors, linkage, or timing adjustments”

Series 900
Electronic Control System

1. Load-Air Temperature Pressure
2. Coolant Temperature
3. Oil Temperature
4. Oil Pressure
5. Oil Level
6. Camshaft Speed / Position
7. Crankshaft Speed / Position



Engine Protection

- Sensors monitor analog and binary values (gauges and switches).
- Information is sent to the engine computer for processing. This occurs many times per second.
- Values out of operational ranges are reported as faults or fault codes to operator.

Non Critical Warning

- Check engine light
- Continue operation until repairs can be made.

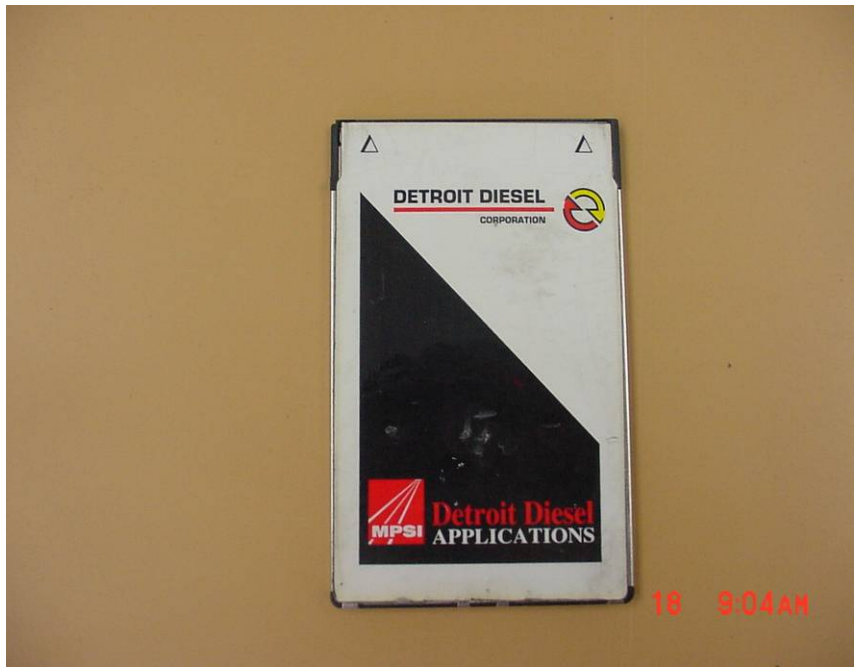
Critical Warning

- Stop engine light (red)
- Operation will stop if condition continues.

Hand held /Reader

- Convenient for underground mobile use.
- Durable (to a point!)
- Easy to navigate.
- Cards available for different manufactures
- Lower cost than laptop.

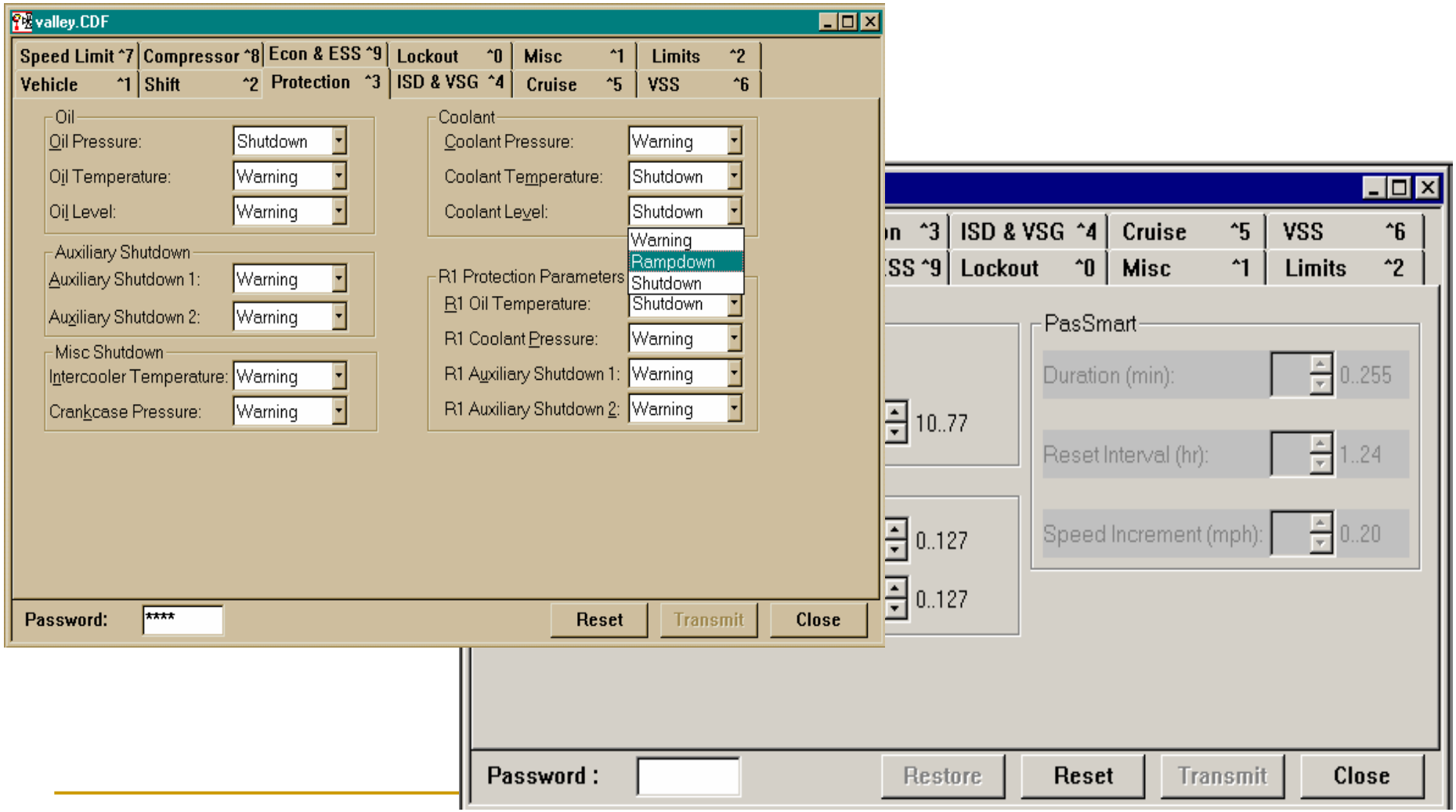
Program Card



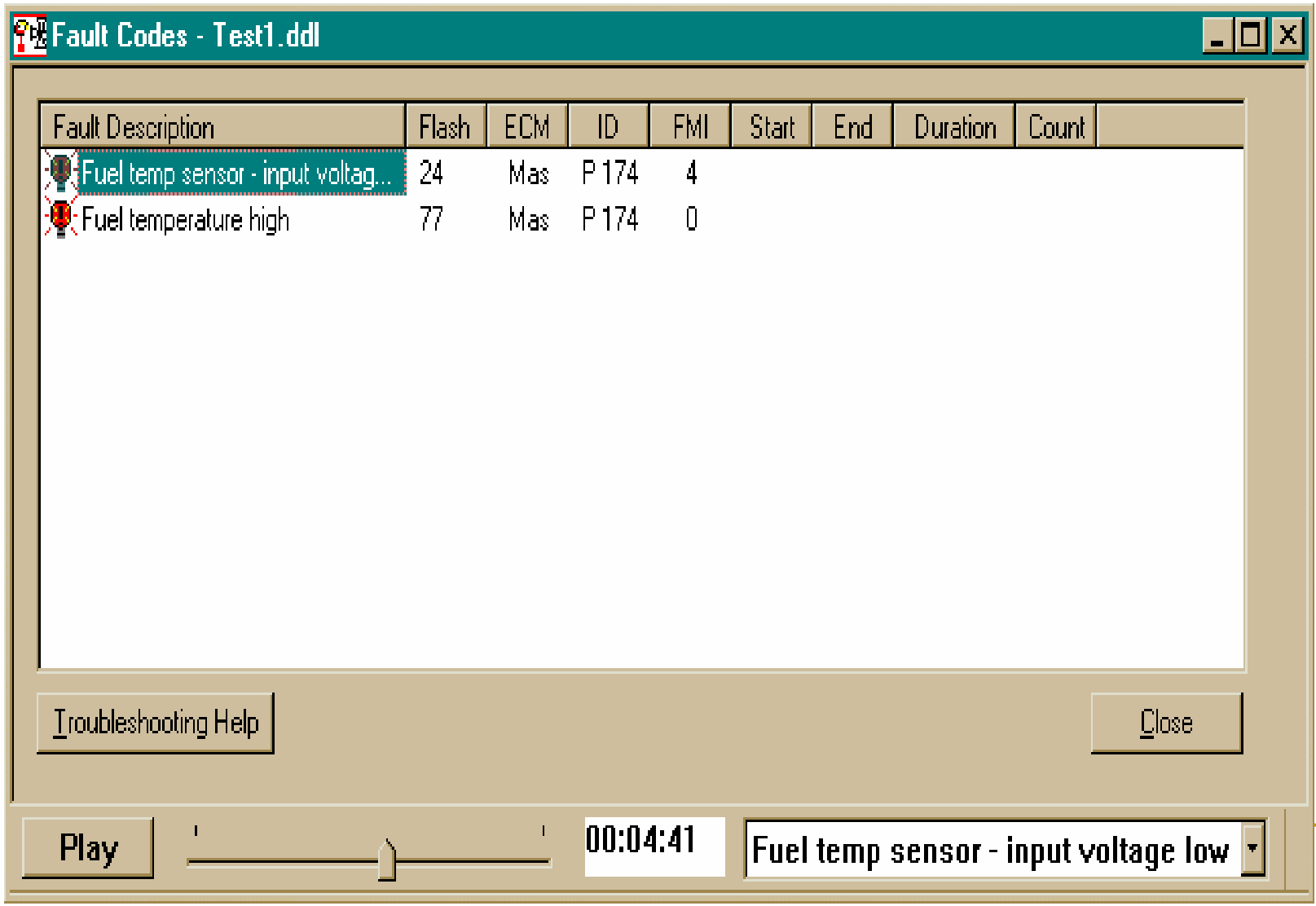
What is Diagnostic Link?

- It is a maintenance and troubleshooting software program that performs all of the same functions as a hand-held reader;
  - View and Clear Active and Inactive Diagnostic Codes
  - View Fuel injector Response Times, Injector Calibrations and Cylinder Cut-Out Tests
  - View Total Engine Data and Engine Trip Data
- Diagnostic Link has many additional features that save time & money
- Current Version
  - Version 6.1: DDEC II/III/IV/V and MBE 900/4000
- Compatible with Windows 98/ME/NT/2000/XP

Calibration Template



Fault Code Display



On-Line Troubleshooting Guide

Troubleshooting Help

File Edit Bookmark Options Help

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FLASH CODE 23 - FUEL TEMP SENS

DESCRIPTION OF FLASH CODE 23

Flash Code 23 indicates that the engine Fuel Temperature
Temperature Sensors", input to the ECM has exceeded 9
supply voltage.

Note: This code will only be logged during warm engine

This diagnostic condition is typically:

1. Open sensor signal circuit
2. Open sensor circuit return
3. Sensor signal circuit is shorted to the sensor +

SAE J1587 EQUIVALENT CODE FOR FLASH

The SAE J1587 equivalent code for Flash Code 23 is p 17

TROUBLESHOOT FLASH CODE 23

Troubleshooting Help

File Edit Bookmark Options Help

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Sensor Check

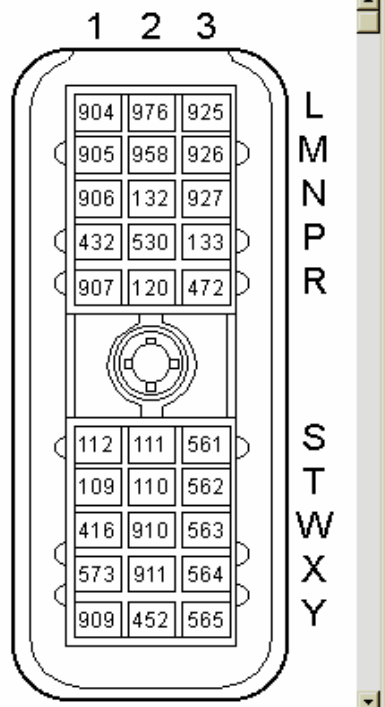
Perform the following steps to check the sensor:

1. Turn ignition OFF.
2. Disconnect the FTS connector.
3. Install a jumper wire between sockets A and B of the FTS harness connector. See Figure "Fuel Temperature Sensor".
4. Turn ignition ON.
5. Read active codes.
   a. If code 174/4 and any other codes except code 174/3 are logge to "Check for Short to +5 Volt Line".
   b. If any code except 174/4 is logged, refer to "Open Line Check".

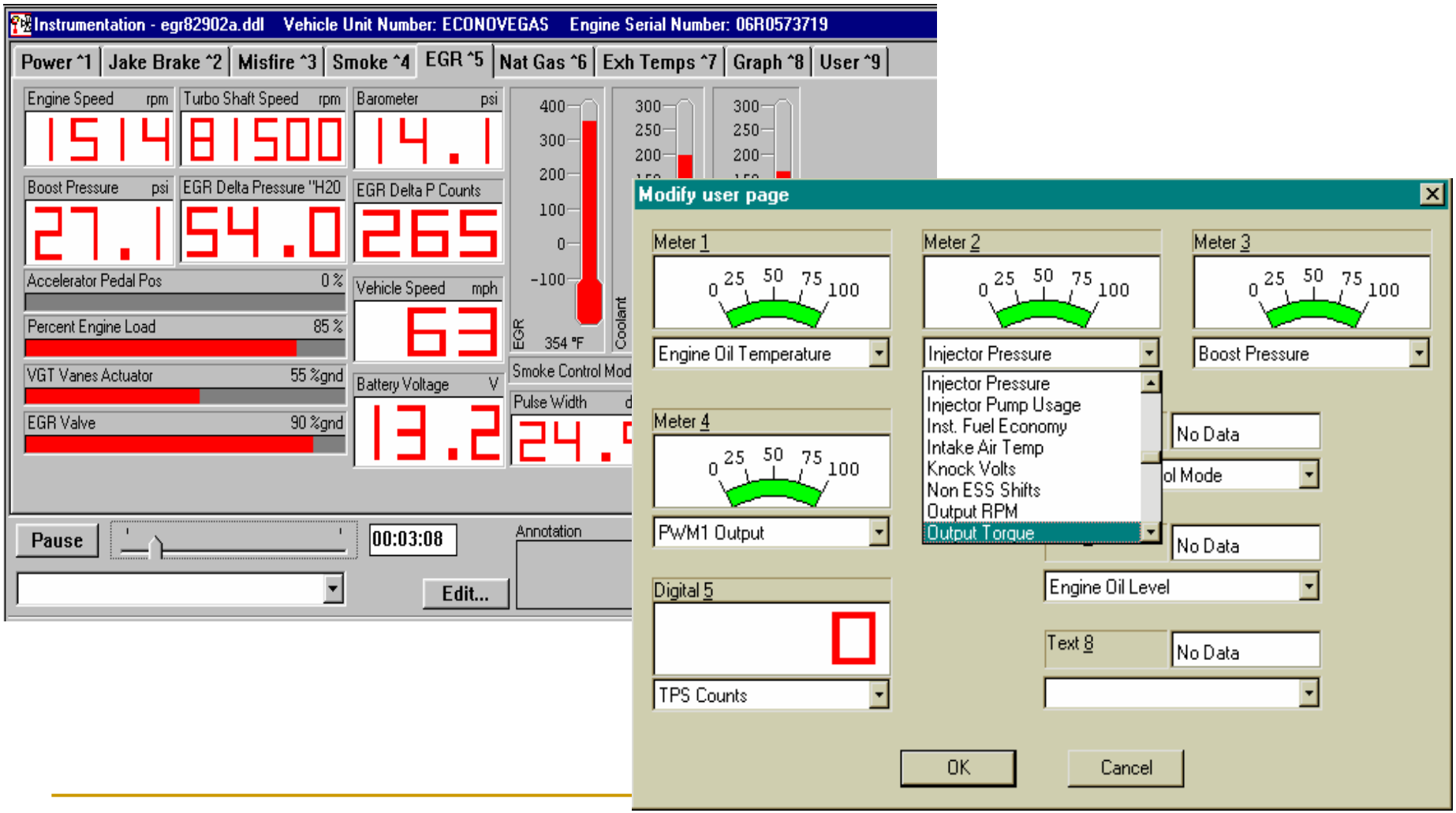
Figure

Help Topics Back Options

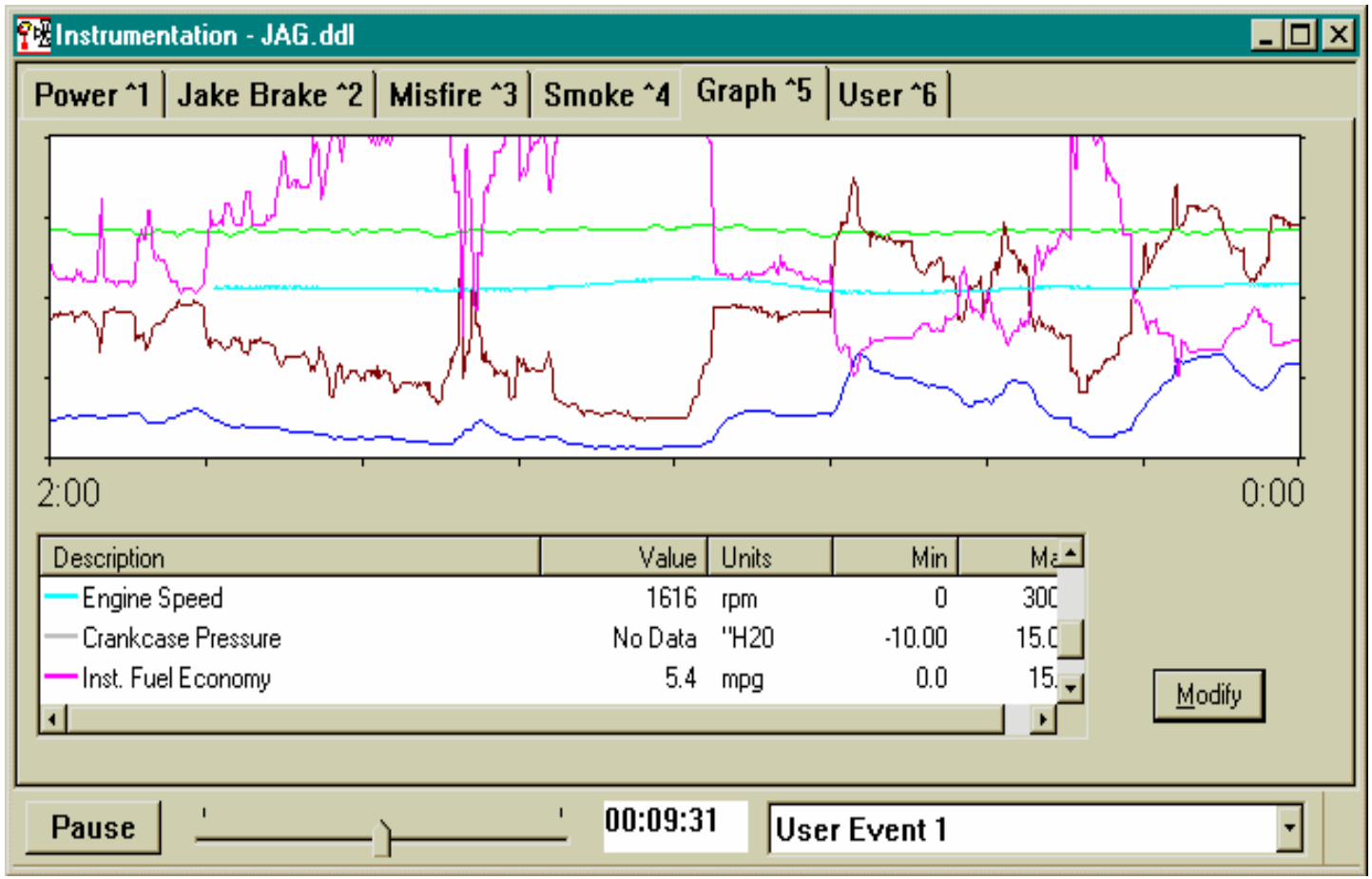
ECM Engine Harness Connector



Customize the way you look at data



Snapshot is saved for future playback, it can be sent as an email attachment



Questions