Module 34
Fuel System Monitor

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- The PGMFI System Overview—Part 1
- The PGMFI System Overview—Part 2
- PGMFI Flash Type DTCs
- Inputs / Outputs—Part 1
- Inputs / Outputs—Part 2
- Engine Control Module
- Air Flow / MAP Sensor—Base Inj Pulse Width
- Fuel Delivery System
- Closed Loop Strategies—Theory
- Closed Loop Strategies—Case Studies
- Thermistor Inputs
- Throttle Position Sensor
- EGR Valve Lift Sensor
- MAP / BARO Sensor
- Ignition Inputs
- Vehicle Speed Sensor
- Oxygen Sensor
- Lean Air Fuel Sensor
- Miscellaneous Input Signals
- Fuel Injectors—Multi-Port Injection
- Fuel Injectors—Dual Point Injection
- Ignition System—Outputs
- Idle Air Control Valve

OBD-II Training Modules

- On Board Diagnostics—General Overview
- Diagnostic Trouble Codes
- MIL / Freeze Frame
- Scan Tool
- Scan Tool—Advanced
- Monitor Tests—Overview
- Comprehensive Component Monitor
- Catalyst Monitor
- EGR Monitor
- Evaporative Monitor
- Fuel System Monitor
- Misfire Monitor
- Oxygen Sensor Monitor
- Oxygen Sensor Heater Monitor
- "P" Codes

Miscellaneous Training Material

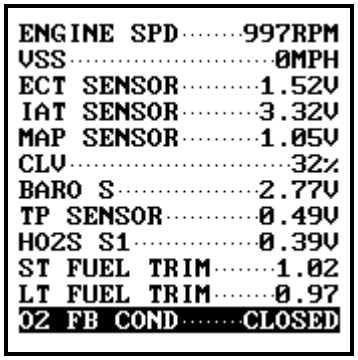
- Glossary of Terms

34 Fuel System Monitor

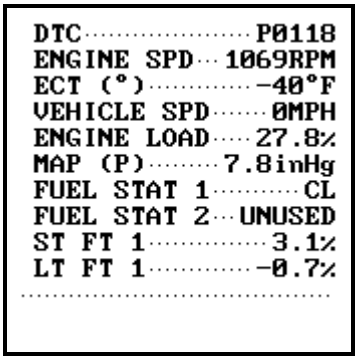
Run:	Continuously
Enable Criteria:	Car must be in the closed loop (CL) mode
DTC	A diagnostic trouble codes (DTC) generated from this monitor is stored on the second malfunction during a consecutive trip. If a second malfunction occurs under similar conditions within 80 trips it will also store a DTC. All DTCs set from this monitor are high priority within the freeze frame writing strategy. They will overwrite a freeze frame written by a standard priority DTC but not another high priority DTC.
MIL Info	**Illumination** The malfunction indicator light (MIL) is illuminated then a DTC is stored. **Extinguishing** The MIL is extinguished after three trips in which the engine conditions are similar, without a malfunction reoccurring.
General Info:	OBD-II regulations require that the fuel delivery system be tested continuously to verify that it complies with the Federal emissions standards. If a there is a change in the fuel delivery that would cause the tailpipe emissions to exceed 1.5 times the standard a DTC is to be set and a freeze frame recorded. Honda, like most manufacturers, monitors the overall condition of the fuel delivery system by using the long term fuel trim (LTFT) value. LTFT is a learned value, given as a percentage, that indicates how much wider, or narrower, the cars actual injector pulse width (PW) is compared to the factory default value. While in the CL mode, the oxygen (O2) sensor is controlling the PW and the deviation from the factory default is first recorded as short term fuel trim (STFT). The screen capture in Figure 1 is showing a STFT value of 1.02. This means that the pulse width is running 2% wider than the default base PW. Note that the Mastertech (using the Honda OEM software) gives the fuel trim values as a number which must be compared to the value of 1. A standard OBD-II compliant scan tool will show fuel trim values as actual percentages, such as in Figure 2. If the vehicle continues to run a STFT value (positive or negative) for any significant amount of time, the value starts moving over to LTFT. The LTFT value always trails the STFT when changes in

	the fuel trim are occurring. The LTFT will always attempt to return the STFT to 1 (0 on generic scan tools). The STFT parameter is erased each time the car is cut off. The LTFT value is stored in keep alive memory (KAM) and is used to trim the PW when the car is in the open loop (OL) mode. When the LTFT parameter exceeds +/- 20% a DTC will be recorded (pending for the first occurrence, stored for the second occurrence).

Screen Capture 34-1



Screen Capture 34-2



DTCs Generated by the Fuel System Monitor

OBD Code	MIL Flash	Trips	Description
P0171	45	2	System Too Lean
P0172	45	2	System Too Rich