6.0L Power Stroke Diesel
Direct Injection Turbocharged Diesel Engine

F Series Super Duty Truck

E Series Econoline Van

New 2005 F&E Series Super Duty
Features, Descriptions, and 2004 Running Changes

6.0L Power Stroke Diesel
2004 Running Changes

• Fuel supply line includes all associated components.

• During the 2004 MY the rear crankshaft oil seal was redesigned for improved performance. This change applies to both the production seal and the service seal.

Fuel Supply Line Trap

• A trap was added to the fuel supply line to prevent fuel from draining out of the secondary fuel filter housing.

• This new fuel supply line is attached to the fuel filter housing using a banjo bolt and is sealed using two copper washers. These washers must be replaced any time the bolt is loosened.

• NOTE: This fuel line cannot be retrofitted to earlier versions of the 6.0L engine. The fuel filter housing has been modified to accept the banjo bolt and washers.

VGT Control Valve

• The updated control valve provides faster response along with improved stability.

• A 200 micron screen has been added to the oil inlet of the control valve.

• NOTE: The updated VGT control valve can be used on the 2003 and 2004 MY turbochargers.
Turbocharger Bearings

- The size of the floating bearings in the rotating group of the turbocharger has increased. The two bearings have each increased in length by 1mm.
- The bearing updates make the rotating group more robust and reduce shaft motion effects due to engine vibration inputs.

2005 Hardware Changes

<table>
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<tr>
<th>Component</th>
<th>F-Series</th>
<th>E-Series</th>
<th>Excursion</th>
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<tr>
<td>High-Pressure Pump</td>
<td>New V4</td>
<td>New V4</td>
<td>Swash Plate Carryover</td>
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<td>Front Cover</td>
<td>Inlet Port</td>
<td>Inlet Port</td>
<td>Carryover</td>
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<tr>
<td>EGR Valve</td>
<td>New Seal</td>
<td>New Seal</td>
<td>Carryover</td>
</tr>
<tr>
<td>EGR Throttle</td>
<td>Deleted</td>
<td>Deleted</td>
<td>Carryover</td>
</tr>
</tbody>
</table>

Horsepower and Torque

- Torque has been increased to 570 ft. lbs.
- Horsepower remains the same at 325 HP.
- Note: Econoline 6.0L diesel engine horsepower and torque will remain the same for 2005 model year (235 HP and 440 ft/lb of torque).
**High-Pressure Pump**

- The high-pressure pump has changed to a V 4 style piston pump.
- The flow specifications are comparable to the previous (swash plate style) pump.
- The V 4 pump will provide improved high-pressure oil system response at low engine speeds.
- The long term durability of the high-pressure pump has been improved due to less wear area inside of the pump.

**High-Pressure Pump Cover**

- A redesigned cast aluminum high-pressure pump cover will be used in 2005 MY due to the use of a new style high-pressure pump.
- The IPR valve is now mounted in the top of the high-pressure pump instead of the pump cover.
- If removal of the pump cover is necessary, the IPR valve must be removed first.
- **NOTE:** For the purpose of illustration the IPR valve heat shield has been removed. Be sure to reinstall the heat shield after any service is performed.

**High-Pressure Pump Cover Removal**

- The high-pressure pump is sealed to the pump cover with an o-ring around the body of the pump.
- The oil drain for the turbocharger remains in the high-pressure pump cover.
- **NOTE:** Be sure to cut the silastic T-joint that seals the high-pressure pump cover, rear cover, and cylinder block together prior to removing the high-pressure pump cover.
2005 6.0L DIT UPDATES

IPR Valve

• The 2005 MY IPR valve uses a 150 micron perforated plate edge filter. This is an improvement from the 200 micron filter on previous models.

• NOTE: For the purpose of illustration the IPR valve heat shield has been removed. Be sure to reinstall the heat shield after any service is performed.

• NOTE: The IPR valve is not interchangeable with 2003 and 2004 MY engines.

High-Pressure Pump/Discharge Tube

• The pump is driven by the camshaft gear as in previous model years.

• The high-pressure pump discharge tube has been modified to accommodate the new high-pressure pump.

High-Pressure Oil Branch Tube

• The high-pressure pump discharge tube and branch tube have been redesigned to incorporate the new style high-pressure pump.

• The two bolts holding the discharge tube and the branch tube together are removed when removing the high-pressure pump. The discharge tube should be removed with the high-pressure pump.

• NOTE: The 2005 MY high-pressure pump, pump cover, discharge tube, and branch tube, are not interchangeable with 2003 and 2004 MY engines. However, the standpipes did not change.

IPR Valve

• The 2005 MY IPR valve uses a 150 micron perforated plate edge filter. This is an improvement from the 200 micron filter on previous models.

• NOTE: For the purpose of illustration the IPR valve heat shield has been removed. Be sure to reinstall the heat shield after any service is performed.

• NOTE: The IPR valve is not interchangeable with 2003 and 2004 MY engines.
High-Pressure Oil Rail Ball Tubes

- The length of the ball tube has been increased by 2mm to aid in assembly. This is to reduce the potential risk of damaging the upper o-ring during the installation of the high-pressure oil rail.

- NOTE: The 2005 MY high-pressure oil rail is not interchangeable with 2004 MY engines.

- NOTE: The 2004 MY high-pressure oil rail can be indentified by the C1 suffix of the International part number. The 2005 MY high-pressure oil rail can be identified by the number “5” stamped into one of the endcaps of the rail.

Front Cover

- The coolant inlet ports on the front cover have been repositioned to accomodate the new power steering pump design.

- NOTE: The 2005 MY front cover is not interchangeable with 2003 and 2004 MY engines.

EGR Valve

- The EGR shaft seal has been improved to reduce exhaust gas leaks past the EGR valve vent holes.

- The shaft seal improvement requires an increased return spring tension.


- NOTE: The 2005 MY EGR valve can be identified by the part number 4043H located on the top of the valve.
2005 6.0L DIT UPDATES

Exhaust Up-Pipe Scoop

• An exhaust gas scoop in the exhaust up-pipe increases exhaust flow to the EGR cooler.

• This improves the performance of the EGR valve without the use of the throttle plate.

Intake Manifold Divider Plates

• Two divider plates have been incorporated into the intake manifold to provide equal distribution of cooled exhaust gases into both cylinder heads.

EGR Throttle Plate

• EGR throttle plate (EGRTP) has been deleted from the air inlet of the intake manifold for the 2005 MY.

• The 6.0L engine no longer needs the EGR throttle plate to assist the flow of exhaust gases through the EGR valve.
C - Continuous Operation
O - Self Test - Key On Engine Off (KOEO)
R - Self Test - Key On Engine Running (KOER)

**DIAGNOSTIC CODES**

<table>
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<tr>
<th>DTC</th>
<th>How Set</th>
<th>Condition Description</th>
<th>Fault Trigger/Comments</th>
<th>Probable Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>P044</td>
<td>C, O</td>
<td>Turbo/Super Charger Boost Control Solenoid Circuit Range/Performance</td>
<td>Internal to PCM. VGT Actuator Circuit check.</td>
<td>Diagnostic circuit associated with 1 Amp driver checks for open circuit, short to ground, and short to power.</td>
</tr>
<tr>
<td>P0089</td>
<td>C</td>
<td>MAP/Baro Compensation</td>
<td>30 kPa (4.4 PSI) [Compares TP and MAP A]</td>
<td>AF - MAP/Baro ECM - System Fault, biased sensor, Circuit Integrity.</td>
</tr>
<tr>
<td>P0097</td>
<td>C, O</td>
<td>Intake Air Temperature Sensor 2 Circuit Low Input</td>
<td>EGR disabled, less than 115 volts.</td>
<td>MA signal circuit, shorted to ground or defective sensor.</td>
</tr>
<tr>
<td>P0098</td>
<td>C, O</td>
<td>Intake Air Temperature Sensor 2 Circuit High Input</td>
<td>EGR disabled, greater than 4.8 volts.</td>
<td>MA signal circuit, open, short to power or defective sensor.</td>
</tr>
<tr>
<td>P0101</td>
<td>C</td>
<td>Mass or Volume Air Flow Circuit Range/Performance</td>
<td>Indicates an MAF range/performance problem was detected during normal driving conditions when MAP is enabled. 4.0 volts when RPM is less than 1500, 4.9 volts when RPM is greater than 1500 RPM.</td>
<td>Damaged MAF sensor-plugged or restricted sensor supply tube- MAP, PCM.</td>
</tr>
<tr>
<td>P0102</td>
<td>C, O</td>
<td>Mass or Volume Air Flow Circuit Low Input</td>
<td>Indicates MAP sensor circuit low input was detected during KOEO Self Test or during continuous diagnostic monitoring. MAF voltage less than 0.35 volts.</td>
<td>Open MAP sensor-circuit biased sensor, PCM-short to SIGN RTN or PWR GND on MAP sensor circuit-open in VREF circuit.</td>
</tr>
<tr>
<td>P0103</td>
<td>C, O</td>
<td>Mass or Volume Air Flow Circuit High Input</td>
<td>Indicates MAP sensor circuit high input detected during KOEO On-Demand Self Test or during continuous diagnostic monitoring. MAF voltage is greater than 4.95V.</td>
<td>Biased sensor, PCM-MAF circuit shorted to VREF.</td>
</tr>
<tr>
<td>P0107</td>
<td>C, O</td>
<td>Manifold Absolute Pressure/Baro Sensor Low Input</td>
<td>Checks TP for a signal lower than a specified barometric pressure expected for normal operations when TP is less than 0.04 volts. Default 101 kPa (14.6 PSI).</td>
<td>Circuit is open, shorted to ground.</td>
</tr>
<tr>
<td>P0108</td>
<td>C, O</td>
<td>Manifold Absolute Pressure/Baro Sensor High Input</td>
<td>Checks TP for a signal greater than a specified barometric pressure expected for normal operations when TP is greater than 4.9 volts. Default 101 kPa (14.6 PSI).</td>
<td>Circuit is shorted to power.</td>
</tr>
<tr>
<td>P0112</td>
<td>C, O</td>
<td>Intake Air Temperature Circuit Low Input</td>
<td>Checks sensor output for a value higher than a maximum probable temperature when IAT voltage is less than 0.15 volts. Default 77deg. F/25deg. C.</td>
<td>Shorted to ground.</td>
</tr>
<tr>
<td>P0113</td>
<td>C, O</td>
<td>Intake Air Temperature Circuit High Input</td>
<td>Checks sensor output for a value lower than a minimum probable temperature when IAT voltage is greater than 4.9 volts. Default 77deg. F/25deg. C.</td>
<td>Open in circuit, short to power.</td>
</tr>
<tr>
<td>P0117</td>
<td>C, O</td>
<td>Engine Coolant Temperature Circuit Low Input</td>
<td>Checks ECT for a temperature higher than a specified oil temperature expected for normal operation when ECT voltage is greater than 0.15 volts. Default 180deg. F/82deg. C - no fast idle.</td>
<td>Short to ground on the circuit.</td>
</tr>
<tr>
<td>P0118</td>
<td>C, O</td>
<td>Engine Coolant Temperature Circuit High Input</td>
<td>Checks ECT for a temperature lower than a specified oil temperature expected for normal operation when ECT voltage is greater than 4.76 volts. Default 212deg. F/100deg. C - no fast idle.</td>
<td>Open in circuit, short to power.</td>
</tr>
<tr>
<td>P0143</td>
<td>C</td>
<td>Fueling Error</td>
<td>Engine RPM has exceeded requested RPM.</td>
<td>Alternative fuel source, interference on CKP &amp; CMP, Faulty PCM.</td>
</tr>
<tr>
<td>P0195</td>
<td>C</td>
<td>Engine Oil Temperature Sensor Circuit Range/Performance</td>
<td>Checks for an ECT temperature signal which is unable to reach the EOT cold minimum limit when a specified amount of time. Function of initial EOT. (in-range fault based off of a change in EOT and MFDES)</td>
<td>Faulty, biased sensor, circuit fault, PCM.</td>
</tr>
<tr>
<td>P0197</td>
<td>C, O</td>
<td>Engine Oil Temperature Sensor Circuit Low Input</td>
<td>Checks EOT for a temperature higher than a specified oil temperature expected for normal operation when EOT voltage is less than 0.15 volts. Default 212deg. F/100deg. C - no fast idle.</td>
<td>Shorted to ground on the circuit.</td>
</tr>
<tr>
<td>P0198</td>
<td>C, O</td>
<td>Engine Oil Temperature Sensor Circuit High Input</td>
<td>Checks EOT for a temperature lower than a specified oil temperature expected for normal operation when EOT voltage is greater than 4.76 volts. Default 212deg. F/100deg. C - no fast idle.</td>
<td>Open in circuit, short to power.</td>
</tr>
<tr>
<td>P0199</td>
<td>C</td>
<td>Engine Over-speed Condition</td>
<td>PCM recorded excessive engine speed greater than 4300 RPM for more than 5 seconds.</td>
<td>Improper downshift, interference on CKP &amp; CMP, Faulty PCM.</td>
</tr>
<tr>
<td>P0223</td>
<td>O</td>
<td>Fuel Pump Primary Circuit</td>
<td>Fuel Pump Relay driver failure.</td>
<td>Open control circuit, failed fuel pump relay or PCM.</td>
</tr>
<tr>
<td>P0231</td>
<td>O</td>
<td>Fuel Pump Secondary Circuit Low</td>
<td>No voltage present at the Fuel Pump monitor circuit when it has been commanded &quot;on&quot; for more than 1 second.</td>
<td>Indicates open, short circuit, relay, inertia switch or fuel pump.</td>
</tr>
<tr>
<td>P0232</td>
<td>O</td>
<td>Fuel Pump Secondary Circuit High</td>
<td>Voltage present at the Fuel Pump monitor circuit when it has NOT been commanded &quot;on&quot; for more than 1 second.</td>
<td>Indicates short to power, sticking relay.</td>
</tr>
<tr>
<td>P0236</td>
<td>C, O</td>
<td>Turbo/Super Charger Boost Sensor A Circuit Range/Performance</td>
<td>Default inferred MAP - low power, slow acceleration, greater than 120 kPa (279 PSI) at low idle.</td>
<td>MAP sensor plugged, defective sensor.</td>
</tr>
<tr>
<td>P0237</td>
<td>C, O</td>
<td>Turbo/Super Charger Boost Sensor A Circuit Low Input</td>
<td>Default inferred MAP - low power, slow acceleration, MAP voltage is less than 0.039 volts.</td>
<td>MAP circuit short to ground or open, defective sensor.</td>
</tr>
<tr>
<td>P0238</td>
<td>O</td>
<td>Turbo/Super Charger Boost Sensor A Circuit High</td>
<td>Default inferred MAP - low power, slow acceleration, MAP voltage is greater than 4.91</td>
<td>MAP circuit short to Vref or Vbat, defective sensor.</td>
</tr>
<tr>
<td>P0241</td>
<td>C, O</td>
<td>Cylinder #1 Injector Circuit Low</td>
<td>FICM detected an open the injector circuit.</td>
<td>Injector circuit open or defective coil.</td>
</tr>
<tr>
<td>P0242</td>
<td>C, O</td>
<td>Cylinder #1 Injector Circuit High</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
<tr>
<td>P0249</td>
<td>C, O</td>
<td>Cylinder #2 Injector Circuit Low</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
<tr>
<td>P0248</td>
<td>C, O</td>
<td>Cylinder #2 Injector Circuit High</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
<tr>
<td>P0245</td>
<td>C, O</td>
<td>Cylinder #3 Injector Circuit Low</td>
<td>FICM detected an open the injector circuit.</td>
<td>Injector circuit open or defective coil.</td>
</tr>
<tr>
<td>P0246</td>
<td>C, O</td>
<td>Cylinder #3 Injector Circuit High</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
<tr>
<td>P0247</td>
<td>C, O</td>
<td>Cylinder #4 Injector Circuit Low</td>
<td>FICM detected an open the injector circuit.</td>
<td>Injector circuit open or defective coil.</td>
</tr>
<tr>
<td>P0248</td>
<td>C, O</td>
<td>Cylinder #4 Injector Circuit High</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
<tr>
<td>P0249</td>
<td>C, O</td>
<td>Cylinder #5 Injector Circuit Low</td>
<td>FICM detected an open the injector circuit.</td>
<td>Injector circuit open or defective coil.</td>
</tr>
<tr>
<td>P0250</td>
<td>C, O</td>
<td>Cylinder #5 Injector Circuit High</td>
<td>FICM detected a short in the injector circuit to ground.</td>
<td>Injector circuit short to ground, defective coil.</td>
</tr>
</tbody>
</table>
**Cruise Control ON Signal**

Fault sets when the difference between EP and Maximum EP when the engine is not running is 150 kPa (21.8 PSI). Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, faulty PCM.

**Cruise Control OFF Signal**

Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, PCM failure.

**Fuel Level Sensor A Circuit High Input**

Injector circuit short to ground, defective coil.

**Fuel Level Sensor A Circuit Low Input**

Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, PCM failure.

**In-Cylinder Pressure Sensor A Circuit**

Faulty EP Sensor, PCM.

**Vehicle Overspeed Condition**

Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, PCM failure.

**Engine Oil Under Temperature Condition**

Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, PCM failure.

**Engine Oil Over Temperature Condition**

Faulty EP sensor, VGT control valve slow to respond, stuck VGT valve, PCM failure.
### Generator Lamp Control Circuit
- Open/short circuit, switch failure, PCM failure.

### Throttle Actuator Control System - Forced Idle
- Open/short circuit, switch failure, PCM failure.

### Powertrain Control Module Keep Alive Memory (KAM) Error
- No historical faults output during self test.
- Disconnected/Discharged Battery, Open PCM pin, faulty PCM.

### Powertrain Control Module Head Only Memory (ROM) Error
- PCM failure.
- Disconnected/Discharged Battery, Open PCM pin, faulty PCM.

### ECM / PCM Processor
- PCM failure.
- Disconnected/Discharged Battery, Open PCM pin, faulty PCM.

### Clutch Switch Input Circuit
- Operator error, circuit failure, faulty sensor, PCM.

### Tire/Axle Out of Acceptable Range
- Open/shorted circuit, faulty glow plug, failed GPCM.

### FICM memory fault will set if a RAM or ROM fault exists.
- Engine not warm enough, leaking thermostat, circuit failure.

### Open/shorted circuit, faulty glow plug, failed GPCM.

### FICM detects excessive voltage, greater than 16 volts.

### Charging system fault.

### Powertrain Control Module Read Only Memory
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Clutch Pedal Switch B Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Cylinder 4 Glow Plug Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Cylinder 3 Glow Plug Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Cylinder 6 Glow Plug Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Cylinder 5 Glow Plug Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Cylinder 2 Glow Plug Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Transmission Control System (MIL Request)
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Throttle/Pedal Position Sensor/Switch D Circuit High
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch D Circuit Low
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Generator 1 Control Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Generator 2 Control Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Clutch Pedal Switch A Circuit
- Open/shorted circuit, faulty glow plug, failed GPCM.

### Clutch Switch Input Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Brake Switch A Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Parking Brake Switch Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Water in Fuel Indicator Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch F Circuit High
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch F Circuit Low
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch D Circuit High
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch E Circuit High
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch E Circuit Low
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Throttle/Pedal Position Sensor/Switch F Circuit Low
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Generator 2 Control Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Generator 1 Control Circuit
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Transmission Control System (MIL Request)
- Open/grounded circuit, open/shorted GPCM, failed PCM.

### Keep Alive Power Voltage Too Low
- FICM detects logic power low, less than 7 volts.

### FICM Supply Voltage Circuit Low
- FICM detects excessive voltage, greater than 16 volts.

### FICM Supply Voltage Circuit High
- Charging system fault.

### Engine Oil Temperature Sensor Out Of Self Test Range
- Engine not warm enough to run KOEO CCT - aborts test.

### Vehicle Speed Sensor Out Of Self Test Range
- Engine not warm enough, leaking thermostat, circuit failure.

### Pedal Sensors will use SAE D,E,F  codes

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<th>Code</th>
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<th>O</th>
<th>R</th>
<th>Description</th>
<th>Possible Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2199</td>
<td>C*</td>
<td>O</td>
<td>R</td>
<td>Intake Air Temperature 1/2 Correlation</td>
<td>Correlation between IAT1 and IAT2 are not at expected values.</td>
</tr>
<tr>
<td>P2262</td>
<td>C*</td>
<td>O</td>
<td>R</td>
<td>Turbo/Super Charger Boost Pressure not Detected - Mechanical</td>
<td>No boost pressure increase was detected.</td>
</tr>
<tr>
<td>P2263</td>
<td>C*</td>
<td>O</td>
<td>R</td>
<td>Turbo/Super Charger System Performance</td>
<td>MAP hose, MAP sensor, CAC system leaks, intake leaks, EP sensor, exhaust restriction.</td>
</tr>
<tr>
<td>P2289</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Water in Fuel Condition</td>
<td>Indicates water in fuel.</td>
</tr>
<tr>
<td>P2284</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Sensor Circuit Range/Performance</td>
<td>Default inferred ICP: ICP desired does not equal ICP signal, difference of 362psi/2.5mpa.</td>
</tr>
<tr>
<td>P2285</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Sensor Circuit Low</td>
<td>Default open loop control - underrun at idle, ICP is less than 0.04 volts.</td>
</tr>
<tr>
<td>P2286</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Sensor Circuit High</td>
<td>Default open loop control - underrun at idle, ICP is greater than 4.91 volts.</td>
</tr>
<tr>
<td>P2288</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Too High</td>
<td>Default inferred ICP is used, ICP is greater than 3675psi/25mpa.</td>
</tr>
<tr>
<td>P2289</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Too High - Engine Off</td>
<td>Default inferred ICP, KOEO ICP is greater than 3661psi/25mpa.</td>
</tr>
<tr>
<td>P2290</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Too Low</td>
<td>Default inferred ICP is used, ICP is below desired pressure.</td>
</tr>
<tr>
<td>P2291</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Too Low - Engine Cranking</td>
<td>No start ICP is less than 725psi/5mpa.</td>
</tr>
<tr>
<td>P2457</td>
<td>C*</td>
<td>O</td>
<td>R</td>
<td>Exhaust Gas Recirculation Cooler System Performance</td>
<td></td>
</tr>
<tr>
<td>P2552</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>FICMM Circuit - Throttle/Fuel Inhibit Circuit</td>
<td>No signal from the FICM Monitor circuit</td>
</tr>
<tr>
<td>P2614</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Camshaft Position Output Circuit / Open</td>
<td>CMPO signal intermittent</td>
</tr>
<tr>
<td>P2617</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Crankshaft Position Output Circuit / Open</td>
<td>CKPO signal intermittent</td>
</tr>
<tr>
<td>P2623</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Injector Control Pressure Regulator Circuit</td>
<td>IPR circuit failure</td>
</tr>
<tr>
<td>U0101</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Lost Communication with TCM</td>
<td>Check CAN2H/CAN2L circuits, PCM, or FICM issue.</td>
</tr>
<tr>
<td>U0105</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Lost Communication with FICM</td>
<td></td>
</tr>
<tr>
<td>U0155</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Lost Communication with Instrument Cluster</td>
<td></td>
</tr>
<tr>
<td>U0306</td>
<td>C</td>
<td>O</td>
<td>R</td>
<td>Software Incompatibility with FICM</td>
<td></td>
</tr>
</tbody>
</table>
F-SERIES (SINGLE ALT.)

Engine Mounted Components

(Orientation = Looking into terminals on connector)

- **PURPLE** = V in (48 VOLTS)
- **L. BLUE** = V ref (5 VOLTS)
- **GREEN** = SIGNAL CIRCUIT
- **Blu.** = Data Communication Line
- **BLK.** = GROUND CIRCUIT
- **RED** = 12 VOLTS (V Batt)

**Gold Plated Pins:**
The following pins in the PCM are tin plated:
- J1-C1: 01,11,12,23,24,34,35,46
- J1-C2: 01,11,12,23,24,34,35,46
- J1-C3: 01,07,08,15,16,22,23,30
All of the other pins are gold plated.
The following pins in the PCM are tin plated:
J1-C1: 01,11,12,23,24,34,35,46
J1-C2: 01,11,12,23,24,34,35,46
J1-C3: 01,07,08,15,16,22,23,30
All of the other pins are gold plated.

Golden Plated Pins:
Purple = V (48 Volts)
Lt. Blue = V ref (5 Volts)
Green = Signal Circuit
Dk. Blue = Data Communication Link
(Red = 12 Volts (V Batt)
(Gold = 12 Volts (V Batt)