# 1996 6.5L (L57, L65) C/K Truck, G-Van Engine Diagnostic Parameters

**96t65FYCKGyE.doc**

| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALFUNCTION DETECTION PARAMETERS | SECONDARY MONITORING PARAMETERS AND CONDITIONS | MONITORING TIME LENGTH AND FREQUENCY OF CHECK | MONITORING METHOD | FAULT CODE STORAGE AND MIL ILLUMINATION |
|---|---|---|---|---|---|---|---|
| Intake Air Temperature Circuit Low Input | P0112 | 0.24 volt to 4.86 volts<br>-40°C to 152°C<br>Detects a sensor circuit short to ground | Air temperature sensor voltage < 0.24 volt<br>- same as -<br>Air temperature > 160°C | Coolant temperature < 42.5°C | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Air temperature sensor | B |
| Intake Air Temperature Circuit High Input | P0113 | 0.24 volt to 4.86 volts<br>-40°C to 152°C<br>Detects a sensor circuit short to high voltage or a sensor circuit open | Air temperature sensor voltage > 4.86 volt<br>- same as -<br>Air temperature < -40°C | Engine has been running > 8 minutes | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Air temperature sensor | B |
| Engine Coolant Temperature Circuit Low Input | P0117 | 0.24 volt to 4.76 volts<br>-40°C to 152°C<br>Detects a sensor circuit short to ground | Coolant temperature sensor voltage < 0.24 volt<br>- same as -<br>Coolant temperature > 160°C | | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Coolant temperature sensor | B |
| Engine Coolant Temperature Circuit High Input | P0118 | 0.24 volt to 4.76 volts<br>-40°C to 152°C<br>Detects a sensor circuit short to high high voltage or a sensor circuit open | Coolant temperature sensor voltage > 4.76 volt<br>- same as -<br>Coolant temperature < -40°C | Engine run timer > 8 minutes | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Coolant temperature sensor | B |
| Fuel Temperature Sensor Circuit Low Input | P0182 | 0.24 volts - 4.96 volts<br>-28°C - 140°C<br>Detects a sensor circuit short to ground | Fuel temperature < 0.24 volts<br>- same as -<br>Fuel temperature > 140°C | None | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Fuel temperature sensor | B |
| Fuel Temperature Sensor Circuit High Input | P0183 | 0.24 volts - 4.96 volts<br>-28°C - 140°C<br>Detects a sensor short to high voltage or sensor circuit open | Fuel temperature > 4.96 volts<br>- same as -<br>Fuel temperature < -28°C | Engine running > 8 minutes | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Fuel temperature sensor | B |
| Fuel Injection Timing Circuit Malfunction | P0216 | I Desired timing - actual timing I =<<br>5 engine degrees<br>Detects a failure of timing control under steady state conditions | I Desired timing - actual timing I ><br>5 pump degrees | Codes P0251, P0335 and P0370 clear<br>Engine not stalled<br>No change in engine speed > 56 RPM for a minimum of 20.8 seconds | Diagnostic set conditions true for 2 seconds<br>Test performed continuously | Crank Sensor<br>Optical Sensors (HRS, Cam) | B |
| Lift Pump Voltage Low | P0231 | Lift pump voltage ><br>Ignition voltage - 4 volts<br>Detects a low voltage at the lift pump when the lift pump is commanded high | Lift pump voltage <<br>Ignition voltage - 4 volts | Lift pump is commanded high | Lift pump commanded high > .5 second<br>Diagnostic set conditions true for 2 seconds<br>Test performed continuously | A/D voltage input of lift pump voltage | B |
| Wastegate Control Range/ Performance Failure | P0236 | Detects a failure of wastegate control system under steady state boost conditions. | Final intake manifold pressure =<<br>(Desired kPA - 20 kPa) -<br>((100kPa - Baro) /2)<br>- OR -<br>Final intake manifold pressure ><br>(Desired kPa + 20 kPa) | Eng. speed > 2400 RPM;<br>Fuel rate > 20 cu.mm.<br>Final intake manifold pressure =<<br>(Desired kPa + 20kPa)<br>Condition 2 timer >= 10 seconds - OR -<br>1800 RPM < Eng. speed =< 2400 RPM;<br>Fuel rate > 20 cu.mm<br>Final intake manifold pressure =<<br>(110kPa) - ((100kPa - Baro)/2)<br>Condition 3 timer >= 12.8 seconds<br>Eng. speed > 2400 RPM<br>Condition 1 timer > 10 seconds | Test performed continuously | Boost Sensor | B |

* Backup fueling mode occurs if any of the following codes are set: P0251, P0335, P0370

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|---|---|---|---|---|---|---|---|
| Intake Manifold Pressure Low Input | P0237 | 0.78 volt to 4.86 volts<br>40kPa to 202kPa<br><br>Detects boost sensor circuit open | Boost Pressure < 0.78 volts<br>- same as -<br>Boost Pressure < 40kPa | None | Diagnostic set conditions true for 2 seconds<br><br>Test performed continuously | Boost Sensor | B |
| Intake Manifold Pressure High Input | P0238 | 0.78 volt to 4.86 volts<br>40kPa to 202kPa<br>Detects boost sensor circuit short to high voltage | Boost Pressure > 4.86 volts<br>- same as -<br>Boost Pressure > 202kPa | Engine Speed < 3506 RPM | Diagnostic set conditions true for 2 seconds<br><br>Test performed continuously | Boost Sensor | B |
| Fuel Injection Pump cam Position Sensor (CAM) Malfunction | P0251 | Number of consecutive missing CAM pulses < 8<br>Number of CAM pulses per #1 cylinder event = 8. This must be true for 8 #1 cylinder events for RPM < 300 or 32 #1 cylinder events for RPM >= 300 | Number of consecutive missing CAM pulses >= 8<br>Number of CAM pulses per #1 cylinder event <> 8 for 8 #1 cylinder events<br>Number of CAM pulses per #1 cylinder event <> 8 for 32 #1 cylinder events | Ratio of CAM to HRS = 1:64 +/- 4<br>RPM < 300<br>RPM >= 300 | Test performed continuously | Optical Sensors (HRS, Cam) Crank Sensor | A |
| Engine Crankshaft Position Sensor (CPS) Malfunction | P0335 | Number of consecutive missing CPS pulses < 8<br>Number of CPS pulses per #1 cylinder event = 8. This must be true for 8 #1 cylinder events for RPM < 300 or 32 #1 cylinder events for RPM >= 300 | Number of consecutive missing CPS pulses >= 8<br>Number of CPS pulses per #1 cylinder event <> 8 for 8 #1 cylinder events<br>Number of CPS pulses per #1 cylinder event <> 8 for 32 #1 cylinder events | Ratio of CPS to HRS = 1:64 +/- 4<br>RPM < 300<br>RPM >= 300 | Test performed continuously | Optical Sensors (HRS, Cam) Crank Sensor | A |
| Fuel Injection Pump High Resolution Angular Sensor (HRS) Malfunction | P0370 | HRS pulses must be received by the PCM for every 8 CAM pulses | HRS free running pump counter = old count for > 8 consecutive CAM pulses | None | Test performed continuously | Optical Sensors (HRS, Cam) | A |
| Glow Plug Circuit Malfunction | P0380 | I glowplug voltage - ignition voltage I =< 2.0 volts<br><br>Detects a faulty glowplug relay circuit | Glowplugs commanded off & raw feedback > 4.0 v - OR - Glowplugs commanded on & raw feedback < 4.0 v - OR - Glowplugs commanded on and Iglowplug voltage - ignition voltageI > 2 v | A/D inputs settled | Diagnostic set conditions true for 2 seconds<br><br>Test performed continuously | A/D glowplug voltage input | B |
| EGR Control Failure | P0404 | I Desired EGR - Measured EGR I =< 20kPa<br>Detects a failure of EGR control system during EGR operation | I Desired EGR - Measured EGR I > 20kPa | Engine Speed > 506 RPM<br>P0405 and P0406 codes not active<br>50kPa < Desired EGR MAP < Barometric Pressure | EGR Error active > 25.5 seconds<br><br>Test performed continuously | EGR Control Pressure Sensor | B |
| EGR Control Pressure Low Input | P0405 | 0.24 volt to 3.96 volts<br>15 kPa to 85 kPa<br><br>Detects EGR control pressure feedback sensor short to ground | EGR control pressure signal < .24 v.<br>- same as -<br>EGR control pressure < 15 kPa<br>EGR control pressure signal < 2.43 v.<br>EGR control pressure < 56kPa | None<br>EGR Commanded to Vent | Diagnostic set conditions true for 2 seconds<br><br>Test performed continuously | EGR Control Pressure Sensor | B |
| EGR Control Pressure High Input | P0406 | 0.24 volt to 3.96 volts<br>15 kPa to 85 kPa<br>Detects EGR feedback sensor open circuit or a short to high voltage | EGR control pressure signal > 3.96 v.<br>- same as -<br>EGR control pressure > 85 kPa | Desired EGR control pressure < 60kPa<br>EGR vent is closed<br>Engine Speed > 0 | Diagnostic set conditions true for 2 seconds<br><br>Test performed continuously | EGR Control Pressure Sensor | B |

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